MQSeries® Everyplace for Multiplatforms

Programming Reference

Version 1.2

SC34-5846-02

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Take Note!

Before using this information and the product it supports, be sure to read the general information under "Appendix. Notices" on page 439

Licence warning

MQSeries Everyplace for Multiplatforms Version 1.2 is a toolkit that enables users to write MQSeries Everyplace applications and to create an environment in which to run them.

Before deploying this product, or applications that use it, in a production environment, please make sure that you have the necessary licences.

MQSeries Everyplace for Multiplatforms Version 1.2 is a toolkit that enables developers to write MQSeries Everyplace applications and to create an environment in which to run them.

Before deploying this product and applications that use it in a production environment, please make sure that you have the necessary licences.

To use MQSeries Everyplace on specified server platforms (other than for purposes of code development and test), capacity-unit Use Authorizations (which are recorded on Proof of Entitlement documents and valid to support use of MQSeries Everyplace according to published capacity unit and pricing group tables) must be obtained in order to be licensed to use the program on each machine and machine upgrade.

Device platform use authorizations (which are recorded on Proof of Entitlement documents and valid to support use of MQSeries Everyplace) are required to use the product (other than for purposes of code development and test) on specified client platforms. These licenses do not entitle the user to use the MQSeries Everyplace Bridge, or to run on the server platforms specified in the MQSeries Everyplace pricing group lists published by IBM and also available on the Web via the URL mentioned below:

Please refer to http://www.ibm.com/software/mqseries for details of these restrictions.

+ **Third Edition (May 2001)**

+ This edition applies to MQSeries Everyplace for Multiplatforms Version 1.2 and to all subsequent releases and modifications until otherwise indicated in new editions.

This document is continually being updated with new and improved information. For the latest edition, please see the MQSeries family library Web page at `http://www.ibm.com/software/ts/mqseries/library/`.

Contents

About this book

This book is a programming reference for the MQSeries Everyplace for Multiplatforms product (generally referred to in this book as MQSeries Everyplace). It contains details of the parameters and calling sequences of the various methods within the MQSeries Everyplace class libraries. This book is intended to be used in conjunction with the MQSeries Everyplace for Multiplatforms Programming Guide and existing books or manuals on the programming languages that are used to write MQSeries Everyplace programs.

This document is continually being updated with new and improved information. For the latest edition, please see the MQSeries family library Web page at `http://www.ibm.com/software/ts/mqseries/library/`.

Who should read this book

This book is intended for programmers wanting to write MQSeries Everyplace programs for use in a pervasive computing environment.

Prerequisite knowledge

It is assumed that the reader has a working knowledge of the basic programming techniques for the language in which the MQSeries Everyplace programs are to be written

An initial understanding of the concepts of secure messaging is an advantage. If you do not have this understanding, you may find it useful to read the following MQSeries books:

- *MQSeries An Introduction to Messaging and Queuing*
- *MQSeries for Windows NT® V5R1 Quick Beginnings*

These books are available in softcopy form from Book section of the online MQSeries library. This can be reached from the MQSeries Web site, URL address `http://www.ibm.com/software/ts/MQSeries/library/`

Summary of Changes

This section describes changes to this edition of *MQSeries Everyplace for Multiplatforms Programming Reference*. Changes since the previous edition of the book are marked by vertical lines to the left of the changes.

Changes for this edition (SC34-5846-02)

In addition to corrections and clarifications, the following information has been added:

- MQeAbstractMessageStore
- MQeReducedDiskFieldsAdapter

Changes for previous edition (SC34-5846-01)

In addition to corrections and clarifications, the following information has been added:

- Various adapter classes
- filterMessage method added to QueueRule class
- List of Exceptions

Part 1. MQSeries Everyplace Java API

Chapter 1. MQSeries Everyplace classes and interfaces

The following chapters contain detailed information about the classes and interfaces supplied with MQSeries Everyplace. The classes are arranged in alphabetical order within the package in which they are delivered.

MQSeries Everyplace contains the following packages:

com.ibm.mqe

Table 1. Classes in package com.ibm.mqe

Class name	Purpose
MQe	Used to derive other MQSeries Everyplace classes
MQeAbstractMessageStore	Defines the message storage interface
MQeAdapter	This is the definition for the methods that all MQSeries Everyplace adapters must provide. Any new adapters must inherit from MQeAdapter
MQeAdminMsg	Provides a base for administration messages
MQeAttribute	Contains the mechanisms to perform authentication, encryption and compression
MQeChannelListener	Used to create a listener for incoming MQSeries Everyplace logical channels
MQeChannelManager	Creates a manager for the MQSeries Everyplace logical channels
MQeEnumeration	Holds a collection of MQSeries Everyplace message objects
MQeException	Creates an MQeException object
MQeFields	Holds data items and provides mechanisms to dump and restore the data
MQeKey	Creates an MQeKey object that can be attached to and used by an attribute object
MQeMessageEvent	Creates an MQeMessageEvent object that is passed to an application when an MQeMessage event occurs
MQeMsgObject	Holds the data, or contains the necessary logic to obtain the data, to send from one MQSeries Everyplace system to another
MQeQueue	Creates an MQSeries Everyplace queue object
MQeQueueManager	Creates an MQSeries Everyplace queue manager object
MQeQueueManagerConfigure	Used to create and delete queue managers and the default queues.
MQeQueueManagerRules	Contains methods that are invoked when the queue manager performs certain operations
MQeQueueRule	Contains methods that are invoked when certain events occur on queues.

Table 1. Classes in package com.ibm.mqe (continued)

Class name	Purpose
MQeRule	The superclass from which all MQSeries Everyplace rule classes derive their basic function

Table 2. Interfaces in package com.ibm.mqe

Interface name	Purpose
MQeEventLogInterface	All MQSeries Everyplace log handlers must implement this interface
MQeMessageListenerInterface	This interface must be implemented by all objects that wish to receive MQeMessage events
MQeRunListInterface	An interface that allows a list of MQSeries Everyplace applications to be passed to a queue manager when it is activated
MQeSecurityInterface	An optional interface that allows a Java® security manager to authorize or reject a call
MQeTraceInterface	All MQSeries Everyplace trace handlers must implement this interface

com.ibm.mqe.administration

Table 3. Classes in package com.ibm.mqe.administration

Class name	Purpose
MQeAdminQueueAdminMsg	Used to manage queues of type MQeAdminQueue
MQeConnectionAdminMsg	Class used to manage connections of type MQeConnectionDefinition
MQeHomeServerQueueAdminMsg	Used to manage queues of type MQeHomeServerQueue
MQeQueueAdminMsg	Used to manage MQSeries Everyplace local queues of type MQeQueue
MQeQueueManagerAdminMsg	Used to manage queue managers of type MQeQueueManager
MQeRemoteQueueAdminMsg	Used to manage remote queues of type MQeRemoteQueue
MQeStoreAndForwardQueueAdminMsg	Used to manage queues of type MQeStoreAndForwardQueue

com.ibm.mqe.attributes

Table 4. Classes in package com.ibm.mqe.attributes

Class name	Purpose
****MQe3DESCryptor**	Provides mechanisms for 3DES encryption
MQeDESCryptor	Provides mechanisms for DES encryption
MQeGenDH	Creates an MQeDHk.java file from which solution unique MQeDHk class objects can be created

Table 4. Classes in package com.ibm.mqe.attributes (continued)

Class name	Purpose
MQeLocalSecure	Provides a simple local security service
MQeLZWCompressor	Provides mechanisms for LZW compression
****MQeMARSCryptor**	Provides mechanisms for MARS encryption
MQeMAttribute	Provide simple message-level protection
****MQeMTrustAttribute**	Provides more advanced message-level protection
****MQeRC4Cryptor**	Provides mechanisms for RC4 encryption
****MQeRC6Cryptor**	Provides mechanisms for RC6 encryption
MQeRleCompressor	Provides mechanisms for Run Length encoded compression
****MQeWTLSCertAuthenticator**	Provides mechanisms for mini-certificate authentication
MQeXORCryptor	Provides mechanisms for XOR encryption

com.ibm.mqe.registry

Table 5. Classes in package com.ibm.mqe.registry

Class name	Purpose
MQePrivateRegistry	Creates a private registry object that provides controlled access to a set of private and public objects
MQePrivateRegistryConfigure	Used to configure a private registry
MQePublicRegistry	Creates a public registry object that provides controlled access to a set of public objects

com.ibm.mqe.server

Table 6. Interfaces in package com.ibm.mqe.server

Interface name	Purpose
****MQeMiniCertIssuanceInterface**	Used to define the way in which instances of MQeMiniCertificateServerGUI manage new mini-certificate issuance

com.ibm.mqe.mqemqmessage

Table 7. Interfaces in package com.ibm.mqe.mqemqmessage

Interface name	Purpose
MQeMQMsgObject	Used to represent an MQSeries style message object within MQSeries Everyplace

com.ibm.mqe.mqbridge

Table 8. Classes in package com.ibm.mqe.mqbridge

Class name	Purpose
MQeCharacteristicLabels	Groups together all the *labels* used in any MQeFields object used in the MQSeries-bridge code
MQeClientConnectionAdminMsg	Used to encapsulate an administration command that acts on the MQeClientConnection object.
MQeListenerAdminMsg	Used to encapsulate an administration command that acts on the MQeListener object.
MQeMQBridgeAdminMsg	Used to encapsulate an administration command that acts on the MQSeries-bridge object.
MQeMQBridgeQueue	This queue is used as the interface to the MQSeries-bridge
MQeMQBridgeQueueAdminMsg	Used to administer an MQSeries-bridge queue
MQeMQBridges	Loads and maintains all MQSeries-bridge objects associated with a given MQSeries Everyplace server
MQeMQBridgesAdminMsg	Used to encapsulate an administration command that acts on the MQeMQBridges object.
MQeMQQMgrProxyAdminMsg	Used to encapsulate an administration command that acts on the MQeQMgrProxy object.
MQeRunState	Holds the *run state* of an administered object

Table 9. Interfaces in package com.ibm.mqe.mqbridge

Interface name	Purpose
MQeTransformerInterface	All classes that can transform an MQMessage to an MQeMsgObject (and vice versa) must conform to this interface

com.ibm.mqe.adapters

Table 10. Classes in package com.ibm.mqe.adapters

Class name	Purpose
MQeDiskFieldsAdapter	Provides support for reading and writing MQeFields information to a local disk.
MQeMemoryFieldsAdapter	Provides a non-persistent store for MQeFields information
MQeReducedDiskFieldsAdapter	Provides support for high speed writing of MQeFields information to a local disk.
MQeTcpipAdapter	Provides support for reading and writing data over TCP/IP streams.

Table 10. Classes in package com.ibm.mqe.adapters (continued)

Class name	Purpose
MQeTcpipHttpAdapter	Extends the MQeTcpipAdapter to provide basic support for the HTTP 1.0 protocol.
MQeTcpipLengthAdapter	Extends the MQeTcpipAdapter to provide a simple, byte efficient protocol.
MQeTcpipHistoryAdapter	Extends the MQeTcpipLengthAdapter to provide a more efficient protocol that caches recently used data.
MQeUdpipAdapter	Provides support for assured data transfer over UDP/IP datagrams.
MQeWESAuthenticationAdapter	Provides support for tunnelling HTTP requests through Websphere Everyplace authentication proxies and transparent proxies.

MQSeries Everyplace classes

Chapter 2. Classes in com.ibm.mqe

This section contains detailed information about the following MQSeries Everyplace classes and interfaces

Table 11. Classes in package com.ibm.mqe

Class name	Purpose
MQe	Used to derive other MQSeries Everyplace classes
MQeAbstractMessageStore	Defines the message storage interface
MQeAdapter	This is the definition for the methods that all MQSeries Everyplace adapters must provide. Any new adapters must inherit from MQeAdapter
MQeAdminMsg	Provides a base for administration messages
MQeAttribute	Contains the mechanisms to perform authentication, encryption and compression
MQeChannelListener	Used to create a listener for incoming MQSeries Everyplace logical channels
MQeChannelManager	Creates a manager for the MQSeries Everyplace logical channels
MQeEnumeration	Holds a collection of MQSeries Everyplace message objects
MQeException	Creates an MQeException object
MQeFields	Holds data items and provides mechanisms to dump and restore the data
MQeKey	Creates an MQeKey object that can be attached to and used by an attribute object
MQeMessageEvent	Creates an MQeMessageEvent object that is passed to an application when an MQeMessage event occurs
MQeMsgObject	Holds the data, or contains the necessary logic to obtain the data, to send from one MQSeries Everyplace system to another
MQeQueue	Creates an MQSeries Everyplace queue object
MQeQueueManager	Creates an MQSeries Everyplace queue manager object
MQeQueueManagerConfigure	Used to create and delete queue managers and the default queues.
MQeQueueManagerRule	Contains methods that are invoked when the queue manager performs certain operations
MQeQueueRule	Contains methods that are invoked when certain events occur on queues.
MQeRule	The superclass from which all MQSeries Everyplace rule classes derive their basic function

Classes in com.ibm.mqe

Table 12. Interfaces in package com.ibm.mqe

Interface name	Purpose
MQeEventLogInterface	All MQSeries Everyplace log handlers must implement this interface
MQeMessageListenerInterface	This interface must be implemented by all objects that wish to receive MQeMessage events
MQeRunListInterface	An interface that allows a list of MQSeries Everyplace applications to be passed to a queue manager when it is activated
MQeSecurityInterface	An optional interface that allows a Java security manager to authorize or reject a call
MQeTraceInterface	All MQSeries Everyplace trace handlers must implement this interface

MQe

This class is used to derive other MQSeries Everyplace classes. It contains various useful constant definitions and utility methods to assist with the programming of MQSeries Everyplace . Under normal circumstances applications classes should inherit from this class, for example 'class xxxxx extends MQe'.

Package **com.ibm.mqe**

This class is a descendant of Object and implements Serializable

Constants

This class provides the following constants:

MQeMsgObject field names

```
public  final static String   Msg_CorrelID
public  final static String   Msg_MsgID
public  final static String   Msg_OriginQMgr
public  final static String   Msg_Priority
public  final static String   Msg_Time
public  final static String   Msg_ReplyToQ
public  final static String   Msg_ReplyToQMgr
public  final static String   Msg_Style
public  final static String   Msg_LockID
public  final static String   Msg_Resend
public  final static String   Msg_ExpireTime
public  final static String   Msg_WrapMsg
```

Message style modifiers

```
public  final static int      Msg_Style_Datagram
public  final static int      Msg_Style_Request
public  final static int      Msg_Style_Reply
```

Standard queue names

```
public  final static String   Admin_Queue_Name
public  final static String   Admin_Reply_Queue_Name
public  final static String   DeadLetter_Queue_Name
public  final static String   System_Default_Queue_Name
```

Options for use with MQeAdapter objects

```
public  final static String   MQe_Adapter_APPEND
public  final static String   MQe_Adapter_BINARY
public  final static String   MQe_Adapter_CONTENT
public  final static String   MQe_Adapter_FINAL
public  final static String   MQe_Adapter_FLUSH
public  final static String   MQe_Adapter_HEADER
public  final static String   MQe_Adapter_HEADERRSP
public  final static String   MQe_Adapter_LENGTH
public  final static String   MQe_Adapter_LISTEN
public  final static String   MQe_Adapter_PERSIST
public  final static String   MQe_Adapter_READ
public  final static String   MQe_Adapter_RESET
public  final static String   MQe_Adapter_SYNC
public  final static String   MQe_Adapter_UNICODE
public  final static String   MQe_Adapter_UPDATE
public  final static String   MQe_Adapter_WRITE
```

Control Options for use with MQeAdapter objects

```
public  final static String   MQe_Adapter_ACCEPT
public  final static String   MQe_Adapter_FILENAME
public  final static String   MQe_Adapter_FILTER
public  final static String   MQe_Adapter_GETPERSIST
```

```
public  final static String   MQe_Adapter_LIST
public  final static String   MQe_Adapter_PULSE
public  final static String   MQe_Adapter_QOSINPUTS
public  final static String   MQe_Adapter_SECTION
public  final static String   MQe_Adapter_SETSOCKET
```

Status Options for use with MQeAdapter objects

```
public  final static String   MQe_Adapter_BYTECOUNTS
public  final static String   MQe_Adapter_LOCALHOST
public  final static String   MQe_Adapter_LINKPARM
public  final static String   MQe_Adapter_NETWORK
```

Quality of service field names

```
public  final static String   QoS_BytesRead
public  final static String   QoS_BytesWritten
public  final static String   QoS_Cost
public  final static String   QoS_DialRetry
public  final static String   QoS_DialRetryWait
public  final static String   QoS_Duration
public  final static String   QoS_ErrorRate
public  final static String   QoS_Errors
public  final static String   QoS_Jitter
public  final static String   QoS_Latency
public  final static String   QoS_Pulse
public  final static String   QoS_Rate
public  final static String   QoS_Retry
public  final static String   QoS_Size
public  final static String   QoS_TimeOut
```

Log interface log types

```
public  final static byte     MQe_Log_SUCCESS
public  final static byte     MQe_Log_ERROR
public  final static byte     MQe_Log_WARNING
public  final static byte     MQe_Log_INFORMATION
```

Exception index numbers

```
public  final static int      Except_UnCoded
public  final static int      Except_Debug
public  final static int      Except_NotSupported
public  final static int      Except_Syntax
public  final static int      Except_Type
public  final static int      Except_Command
public  final static int      Except_NotFound
public  final static int      Except_Data
public  final static int      Except_BadRequest
public  final static int      Except_Stopped
public  final static int      Except_Closed
public  final static int      Except_Duplicate
public  final static int      Except_NotAllowed
public  final static int      Except_Rule
public  final static int      Except_TimeOut

public  final static int      Except_InvalidHandle
public  final static int      Except_AllocationFail

public  final static int      Except_Chnl_Attributes
public  final static int      Except_Chnl_Destination
public  final static int      Except_Chnl_Limit
public  final static int      Except_Chnl_ID
public  final static int      Except_Chnl_Overrun

public  final static int      Except_Trnsport_QMgr
public  final static int      Except_Trnsport_Request

public  final static int      Except_QMgr_NotActive
public  final static int      Except_QMgr_InvalidQMgrName
public  final static int      Except_QMgr_Activated
```

```
  public  final static int      Except_QMgr_AlreadyExists
  public  final static int      Except_QMgr_InvalidQName
  public  final static int      Except_QMgr_QExists
  public  final static int      Except_QMgr_UnknownQMgr
  public  final static int      Except_QMgr_QNotEmpty
  public  final static int      Except_QMgr_QDoesNotExist
  public  final static int      Except_QMgr_QInUse
  public  final static int      Except_QMgr_WrongQType
  public  final static int      Except_QMgr_InvalidChannel
  public  final static int      Except_QMgr_SecureMsgDecodeFailed
  public  final static int      Except_QMgr_NotConfigured
  public  final static int      Except_QMgr_Busy

  public  final static int      Except_Q_NoMsgAvailable
  public  final static int      Except_Q_NoMatchingMsg
  public  final static int      Except_Q_InvalidPriority
  public  final static int      Except_Q_Full
  public  final static int      Except_Q_MsgTooLarge
  public  final static int      Except_Q_NotActive
  public  final static int      Except_Q_Active
  public  final static int      Except_Q_InvalidName
  public  final static int      Except_Q_TargetRegistryRequired

public  final static int      Except_Uncontactable_DontTransmit

  public  final static int      Except_RasDialFailed
  public  final static int      Except_RasGetProjectionInfoFailed
  public  final static int      Except_RasHangUpFailed

  public  final static int      Except_Connect_AdapterNotActive
  public  final static int      Except_Connect_InvalidDefinition

  public  final static int      Except_Con_AlreadyExists
  public  final static int      Except_Con_AliasAlreadyExists
  public  final static int      Except_Con_AdapterRequired
  public  final static int      Except_Con_InvalidName
  public  final static int      Except_Client_Con_Not_Available

  public  final static int      Except_Reg_NullName
  public  final static int      Except_Reg_AlreadyExists
  public  final static int      Except_Reg_DoesNotExist
  public  final static int      Except_Reg_OpenFailed
  public  final static int      Except_Reg_InvalidSession
  public  final static int      Except_Reg_NotDefined
  public  final static int      Except_Reg_AddFailed
  public  final static int      Except_Reg_DeleteFailed
  public  final static int      Except_Reg_ReadFailed
  public  final static int      Except_Reg_UpdateFailed
  public  final static int      Except_Reg_ListFailed
  public  final static int      Except_Reg_SearchFailed
  public  final static int      Except_Reg_RenameFailed
  public  final static int      Except_Reg_ResetPINFailed
  public  final static int      Except_Reg_CRTKeyDecFailed
  public  final static int      Except_Reg_CRTKeySignFailed
  public  final static int      Except_Reg_DeleteRegistryFailed
  public  final static int      Except_Reg_AlreadyOpen
  public  final static int      Except_Reg_NotSecure

  public  final static int      Except_PrivateReg_BadPIN
  public  final static int      Except_PrivateReg_ActivateFailed
  public  final static int      Except_PrivateReg_NotOpen

  public  final static int      Except_MiniCertReg_BadPIN
  public  final static int      Except_MiniCertReg_ActivateFailed
  public  final static int      Except_MiniCertReg_NotOpen

  public  final static int      Except_PublicReg_ActivateFailed
  public  final static int      Except_PublicReg_InvalidRequest

  public  final static int      Except_Admin_NotAdminMsg
  public  final static int      Except_Admin_ActionNotSupported
  public  final static int      Except_Admin_InvalidField
```

```
public  final static int      Except_Authenticate
public  final static int      Except_S_Cipher
public  final static int      Except_S_InvalidSignature
public  final static int      Except_S_CertificateExpired
public  final static int      Except_S_InvalidAttribute
public  final static int      Except_S_MiniCertNotAvailable
public  final static int      Except_S_RegistryNotAvailable
public  final static int      Except_S_BadIntegrity
public  final static int      Except_S_NoPresetKeyAvailable
public  final static int      Except_S_MissingSection
```

Log record types

```
public  final static byte     MQe_Log_Success
public  final static byte     MQe_Log_Error
public  final static byte     MQe_Log_Warning
public  final static byte     MQe_Log_Information
public  final static byte     MQe_Log_Audit_Success
public  final static byte     MQe_Log_Audit_Failure
```

Events

```
public  final static int      Event_Activate
public  final static int      Event_Close
public  final static int      Event_Logon
public  final static int      Event_Logoff
public  final static int      Event_QueueManager
public  final static int      Event_Queue
public  final static int      Event_Attribute
public  final static int      Event_Authenticate
public  final static int      Event_MiniCert_Validate
public  final static int      Event_UserBase
```

Publically accessible variables

debugCall:

When set to `true` causes a stack trace and the contents of the MQeFields object to be written to System.err.println.

```
public static boolean debugCall  = false;
```

debugExcept:

When set to `true` a stack trace is printed on System.err.println when certain Exceptions occur within the MQSeries Everyplace system (these exceptions should be handled by a `try ... catch ...` and would not normally be seen).

```
public static boolean debugExcept  = false;
```

debugMQeExcept:

When set to `true`, causes a stack trace to be printed on System.err.println whenever an MQeException is raised.

```
public static boolean debugMQeExcept  = false;
```

loader:

This is an object reference to a class loader that enables class files to be dynamically loaded from either the local system or from a remote system.

```
public static MQeLoader loader
```

MQeObjectCount:

This is an integer that contains the current number of instantiated objects that are descendents of the MQe class.

```
public static int MQeObjectCount
```

Method summary

Static methods

Method	Purpose
abbreviate	Returns either the full name or an abbreviated name for the supplied class name.
alias	Adds an alias name for a class name.
asciiToByte	Converts an ASCII string into a byte array
byteToAscii	Converts a byte array into an ASCII string
byteToHex	Converts a byte array to ASCII hex
byteToInt	Converts 4 bytes into an int value
byteToLong	Converts 8 bytes into a long value
byteToShort	Converts 2 bytes into a short value
byteToUnicode	Converts a byte array to a Unicode String
debug	Prints the current call stack to `System.err.println`. This is used for debugging purposes.
getEventLogHandler	Returns a reference to the currently active log handler or *null*.
getTraceHandler	Returns a reference to the currently active trace handler or *null*.
hexToByte	Converts ASCII hex to a byte array
intToByte	Converts an int value into 4 bytes
log	Loads data with the log handler.
mapFileDescriptor	Maps a String to a file descriptor.
setEventLogHandler	Sets the class that will handle log requests.
SetTraceHandler	Sets the class that will process trace messages.
sliceByteArray	Copies a slice out of a byte array
unicodeToByte	Converts a Unicode String to a byte array
unicodeToUTF	Converts a Unicode String to a UTF encoded byte array.
uniqueValue	Generates a unique long value for the current environment.
utfToUnicode	Converts UTF encoded byte array to a Unicode String

Non-Static methods

Method	Purpose
trace	Writes a trace message to either System.out.println or System.err.println
type	Returns a string representation of the class name

MQe abbreviate

Syntax

```
public static String abbreviate(String className, int index )
```

Description

This method resolves an abbreviated class name, or abbreviates a class name.

An abbreviated class name is of the form ″n:″ where n is an number representing an MQSeries Everyplace class name.

For example, ″6″ would resolve to ″com.ibm.mqe.MQeTransporter″.

Parameters

className A String containing the class name or an abbreviated class name.

index An integer. Current supported values are:

0 turn an abbreviated name into a fully qualified class name

1 turn a fully qualified name into an abbreviation

Return values

A String that is either a fully qualified class name or an abbreviated name

Exceptions

java.lang.ArrayOutOfBounds You supplied an invalid index

Example

```
class MyApplication
  {
  ...
  ...
  String abbrev = MQe.abbreviate( "com.ibm.mqe.MQeTransporter", 1 );
  ...
  }
```

MQe alias

Syntax

```
public static void alias( String from, String to )
```

Description

This method assigns or removes an alias name for a class. The *from* parameter is the alias and the *to* parameter is the full class name. To remove an alias set the *to* parameter to `null`.

Parameters

from A String containing the alias name

to A String containing the full class name for this alias, or `null` to remove the alias

Return values

none

Exceptions

none

Example

```
class MyApplication
   {
   ...
   ...
   MQe.alias( "Network", "com.ibm.MQe.Adapters.MQeTcpipHttpAdapater" );
   ...
   }
```

MQe asciiToByte

Syntax

```
public static byte[] asciiToByte( String data )
```

Description

This method converts a String into a byte array preserving only the low byte of each character.

Parameters

data A String containing the ASCII data

Return values

A byte array containing the ASCII data

Exceptions

none

Example

```
class MyApplication
  {
  ...
  ...
  byte data[] = MQe.asciiToByte( "This is some test data" );
  ...
  }
```

MQe byteToAscii

Syntax

```
public static String byteToAscii( byte data[] )
```

Description

This method converts a byte array into an ASCII string by copying the byte into the low byte of each character in the String.

Parameters

data A byte array containing the data to be converted

Return values

A String containing the converted data

Exceptions

none

Example

```
class MyApplication
  {
  ...
  ...
    String data = MQe.byteToAscii( new byte[] { 64, 65, 66, 67, 68 } );
  ...
  }
```

MQe byteToHex

Syntax

```
public static String byteToHex( byte data )

public static String byteToHex( byte data[], int offset, int count )
```

Description
This method converts a byte array to a String containing the character Hex representation of the data.

Parameters

data	A byte array containing the data to be converted
offset	The starting element index of within the **data** array
count	The number of elements to be converted

Return values
The HEX String.

Exceptions
none

Example

```
...
String hexData = byteToHex( ByteArray );
...
```

MQe byteToInt

Syntax

```
public static int byteToInt( byte data[], int offset )
```

Description
This method converts a byte array to an integer value

Parameters

data	A byte array containing the data to be converted
offset	The starting element index of within the *data* array

Return values
The HEX String.

Exceptions
none

Example

```
...
int value = byteToInt( ByteArray );
...
```

MQe byteToLong

Syntax

```
public static int byteToLong( byte data[], int offset )
```

Description
This method converts a byte array to an integer value

Parameters

data	A byte array containing the data to be converted
offset	The starting element index of within the *data* array

Return values
The long integer value

Exceptions
none

Example

```
...
 long value = byteToLong( byteArray, 0 );
...
```

MQe byteToShort

Syntax

```
public static int byteToShort( byte data[], int offset )
```

Description
This method converts a byte array to a short integer value

Parameters

data A byte array containing the data to be converted

offset The starting element index of within the *data* array

Return values
The short integer value

Exceptions
none

Example

```
...
 short value = byteToShort( byteArray, 0 );
...
```

MQe byteToUnicode

Syntax

```
public static String byteToUnicode( byte data[] )
```

Description
This method converts a byte array to a Unicode string

Parameters

data A byte array containing the data to be converted

Return values
The Unicode string

Exceptions
none

Example

```
...
 String data = byteToUnicode( ByteArray );
...
```

MQe debug

Syntax

```
public static void debug( String data )
```

Description
Causes a stack trace to be written to System.err.println followed by the String data. Processing continues normally.

Parameters

data A String containing data to identify this stack print

Return values
none

Exceptions
none

Example

```
class MySampleClass extends MQe
  {   MySampleClass ( )
     {
     ...
     MQe.debug( "" );
     ...
     }
  ...
  }
```

MQe getEventLogHandler

Syntax

```
Public static MQeEventLogInterface getEventLogHandler( )
```

Description
Returns the current event log handler object

Parameters
none

Return values
The log handler object or `null`

Exceptions
none

Example

```
class MySampleClass extends MQe
   {
   MySampleClass ( )
     {
     ...
     MQeEventLogInterface Logger= MQe.getEventLogHandler( );
     ...
      }
   ...
   }
```

MQe getTraceHandler

Syntax

```
Public static MQeTraceInterface getTraceHandler( )
```

Description
Returns the current trace handler object

Parameters
none

Return values
The trace handler object or `null`

Exceptions
none

Example

```
class MySampleClass extends MQe
   {
   MySampleClass ( )
     {
     ...
     MQeTraceInterface Logger= MQe.getTraceHandler( );
     ...
      }
  ...
   }
```

MQe hexToAscii

Syntax

```
public static String hexToAscii( String data ) throws Exception
```

Description
This method converts a String containing the character Hex representation of the data to a byte array.

Parameters

data A String containing the data to be converted

Return values
A String array containing the converted data.

Exceptions
none

Example

```
...
 String data = hexToAscii( "30313233343536373839" );
...
```

MQe hexToByte

Syntax

```
public static byte[] hexToByte( String data ) throws Exception
```

Description
This method converts a String containing the character Hex representation of the data to a byte array..

Parameters

data A String containing the data to be converted

Return values
A Byte array containing the converted data.

Exceptions
none

Example

```
...
 byte data[] = hexToByte( "30313233343536373839" );
...
```

MQe intToByte

Syntax

```
public static byte[] intToByte( int data )
```

Description

Convert an integer value to 4 bytes of a byte array

Parameters

data An integer containing the data to be converted

Return values

A byte array containing the converted data

Exceptions

none

Example

```
 ...
 byte data[] = intToByte( "30313233343536373839" );
...
```

MQe log

Syntax

```
public static void log( byte logType, int logNumber, Object logData)
```

Description

Sends a message to the event log routine

Parameters

logType a byte containing the type of the log message. For example:

- MQe.MQe_Log_Success
- MQe.MQe_Log_Error
- MQe.MQe_Log_Warning
- MQe.MQe_Log_Information
- MQe.MQe_Log_Audit_Success
- MQe.MQe_Log_Audit_Failure

logNumber an integer identifying the message

logData a String containing the message data to be logged

Return values

none

Exceptions

none

Example

```
...
  try
    {
    setLogHandler( new MyLogHandler( ... );
    log( MQe.MQE_LogSuccess, 123, "TEST opened" );
    ...
    }
  catch ( Exception e )
```

```
  {
  log( MQe.MQE_LogError, 123, "TEST failed" );
  }
...
```

MQe mapFileDescriptor

Syntax

```
public static void mapFileDescriptor(  String filedDesc,
                                       Object newDesc[] )
```

Description

Assigns an alias or nickname to a file descriptor, parameters and options. This method is normally used internally.

Parameters

fileDesc A String containing a file descriptor

newDesc An object array containing the new filedescriptor and any parameter and option data

Return values

none

Exceptions

none

Example

```
...
MQe.MapFileDescriptor( "QMgrName", new String[] {
  "TcpipHttp:127.0.0.1:8080",
  "?Channel",
                        "" } );
...
...
```

MQe setEventLogHandler

Syntax

```
public static MQeEventLogInterface setEventLogHandler(
                                MQeLogInterface logObj )
```

Description

Returns the current event log handler object and sets the new handler so that MQSeries Everyplace will use it. The log handler object gets control on all Log requests

Parameters

logObj A log handler object that conforms to the MQeEventLogInterface

Return values

The previous log handler object or `null`

Exceptions

none

Example

```
class MySampleClass extends MQe
   {
   MySampleClass ( )
     {
     super( );
```

```
    setEventLogHandler( new Examples.Log.LogToDiskFile( "ThisFile.log" ) );
    ...
    }
  ...
  }
```

MQe setTraceHandler

Syntax

```
public static MQeTraceInterface setTraceHandler( MQeTraceInterface traceObj )
```

Description

Returns the current trace handler object and sets the new handler so that MQSeries Everyplace will use it. The trace handle object gets control on all **trace()** method calls.

Parameters

traceObj	A trace handler object that conforms to the MQeTraceInterface

Return values

The previous trace handler object or `null`

Exceptions

none

Example

```
class MySampleClass extends MQe
   {
   MySampleClass ( )
     {
     super( );
     setTraceHandler( new MQeTraceWindow( "Window Title", null ) );
     ...
      }
   ...
   }
```

MQe sliceByteArray

Syntax

```
public static byte[] sliceByteArray( byte data[],
int offset,
int length )
```

Description

This method returns an array of bytes that consists of the data starting at *data[Offset]* and has *length* number of elements. This is a copy of a portion of the *data* array.

Parameters

data	Source byte array
offset	Starting element within *data* to be copied
length	Number of bytes to be copied

Return values

A byte array containing a copy of the elements from data.

Exceptions

none

Example

```
class MySampleClass extends MQe
  {
  MySampleClass ( )
    {
    ...
    byte data[] = { (byte) 1, (byte) 2, (byte) 3, (byte) 4, (byte) 5, };

    byte temp[] = sliceByteArray( data, 1, 3 );
    ...
    }
  ...
  }
```

MQe trace

Syntax

```
public void trace( String msg )
public void trace(int msgNumber, long insert)
public void trace( int msgNumber, Object insert )
```

Description

Sends a message to the trace routine

Parameters

msg A String containing a prefix character and the message. The prefix byte consists of:

″ ″	user message
″**I**″	Information message
″**W**″	Warning message
″**E**″	Error message
″**S**″	Security message
″**D**″	Debug message
″_″	user message
″**i**″	Information message
″**w**″	Warning message
″**e**″	Error message
″**s**″	Security message
″**d**″	Debug message

msgNumber An integer containing the number of the message to be displayed. The message must have previously been added using the MQeTrace.addMessage method. The message number must be in the range 0 <= msgNumber <= 32767.

insert Either an integer value or an Object of type String or String[] that is inserted into the point in message template where there is an insert identifier (see the **trace()** example for details).

Return values

none

Exceptions

IOException I/O error occurred

Example

```
...
    {
    ...
    trace( "I:Information message" );
    trace( 5, "Error message text" );
    ...
    }
  ...
```

MQe type

Syntax

```
public String type( )
```

Description .

Returns the String name of the object.

Note: This may or may not return an abbreviated class name, see the **abbreviate()** method.

Parameters

none

Return values

A String containing the name of the object

Exceptions

none

Example

```
...
MQe.MQeMsgObject object = new MQeMsgObject( );
String objectName = object.type();
...
```

MQe unicodeToByte

Syntax

```
public static byte[] unicodeToByte( String data )
```

Description

This method converts a Unicode String to a byte array

Parameters

data A byte array containing the data to be converted

Return values

A Byte array containing the converted data.

Exceptions

none

Example

```
...
byte data[] = unicodeToByte( "This is a Data string" );
...
```

MQe unicodeToUTF

Syntax

```
public static byte[] unicodeToUTF( String data )
```

Description

This method converts a Unicode String to a byte array

Parameters

data A byte array containing the data to be converted

Return values

A byte array containing the converted data.

Exceptions

none

Example

```
...
byte data[] = unicodeToUTF( "This is a Data string" );
...
```

MQe uniqueValue

Syntax

```
public long uniqueValue( )
```

Description .

Returns a long value that will be unique within the current JVM.

Parameters

none

Return values

A long integer value that is unique for the current environment.

Exceptions

none

Example

```
...
long number = MQe.uniqueValue( );
...
```

MQe utfToUnicode

Syntax

```
public static String utfToUnicode( byte data[])
```

Description

This method converts a byte array containing UTF encoded Unicode to a Unicode String.

Parameters

data A byte array containing the data to be converted

Return values

The Unicode String

Exceptions

none

Example

```
...
 String data = MQe.utfToUnicode( byteArray );
...
```

MQeAbstractMessageStore

This class defines the message storage interface. The class is designed to support the message storage and retrieval activities of an MQSeries Everyplace queue including:

- Storing messages
- Retrieving messages against a filter
- Expiring messages silently
- Deleting messages
- Managing confirms of put and get
- Managing message locking
- Allowing message browsing
- Wrapping messages efficiently/securely if they have compression/security attributes

It is the responsibilities of subclasses to implement efficient storage and retrieval algorithms.

The default implementation uses the following message fields in its index

- `MQe.Msg_OriginQMgr`
- `MQe.Msg_Time`
- `MQe.Msg_MsgID`
- `MQe.Msg_CorrelID`
- `MQe.Msg_Priority`
- `MQe.Msg_ExpireTime`
- `MQe.Msg_LockID`
- `MSG_DESTINATION_QUEUEMANAGER`
- `MSG_DESTINATION_QUEUE`

Subclass implementors are free to select the fields that they use in their indices (if they use indices).

Methods in this class are declared as either abstract or final. Abstract methods require implementation by the subclasses. The implementor of a message store has the freedom to provide the implementation they desire, but some behavior of the message store is assumed by the owning queue. The best definition of the expected behavior is provided by the example subclass MQeMessageStore.

Package **com.ibm.mqe**

This class extends MQe.

Constructors

MQeAbstractMessageStore

Syntax

```
public MQeAbstractMessageStore()
```

Description

Parameters

none

Return values
none

Exceptions
none

Example

Methods

Abstract methods

Method	Purpose
browseMessages	Browses a message with lock.
close	Deactivates a message store.
confirm	Confirms a message.
confirmGetmessage	Confirms the successful receipt of a message.
confirmPutMessage	Confirms a put operation.
deleteMessage	Deletes a message from a queue.
getDefaultPriority	Gets queue's default priority value.
getExpiryInterval	Gets queue's expiry interval.
getMessage	Gets a message from a queue.
getNumberOfMessages	Gets the number of messages currently on the queue.
getPendingMessage	Gets a message that is pending for a queue manager.
open	Opens the message store.
putMessage	Puts a message on a queue.
resetLockedMsgs	Resets any locked messages.
transmitAll	Send all pending messages.
transmitConfirmMessage	Transmits a message with confirm.
transmitMessage	Transmits a message.
undo	Resets a message to its previous state after a failed operation.
unlockMessage	Unlocks a previously locked message.
updateRetryCount	Updates the retry count of a locked message.
wrapMessage	Wraps and encodes a message.

Final methods

Method	Purpose
getStringArgument	Gets queue's store location.
rule	Gets the queue rule object.
trace	Provides a simplified trace.
unWrapMsg	Unwraps and decodes an encoded message.
WrapMessage	Wraps and encodes a message.

MQeAbstractMessageStore browseMessages

Syntax

```
protected abstract Enumeration _browseMessages(MQeFields filter,
                                               MQeAttribute attribute,
                                               long confirmID,
                                               long lockID,
                                               boolean justUID) throws Exception
```

Description

This method returns messages that are currently not locked. If the *confirmID* is non-zero, the messages found are locked.

Parameters

filter	An MQeFields object message filter. This must contain the unique ID of the message for the operation to be successful.
attribute	An MQeAdminQueueAdminMsg object used to decode the byte array that contains the data to be restored.
confirmID	A value used as a confirmation ID.
lockID	A value used as a lock ID.
justUID	A boolean, used to determine whether the whole message is to be returned, or just the *UID* (unique ID) of the message.

Return values

An Enumeration object containing the messages (or *UID*s) that match the filter.

Exceptions

Example

MQeAbstractMessageStore close

Syntax

```
protected abstract void close(long confirmID) throws Exception
```

Description

Deactivates and ends the life cycle of a message store.

Parameters

none

Return values

none

Exceptions

Example

MQeAbstractMessageStore confirm

Syntax

```
protected abstract void confirm(long confirmID) throws Exception
```

Description

Check all messages with the given *confirmID* and confirm them. This method confirms gets and puts, and also unlocks messages that are locked for browse.

Parameters

confirmID A value representing the confirmID

Return values
none

Exceptions
none

Example

MQeAbstractMessageStore confirmGetMessage

Syntax

```
protected abstract long confirmGetMessage(MQeFields filter) throws Exception
```

Description
Confirms the successful receipt of a message that was retrieved from the message store by a previous **getMessage()** operation. The message remains locked in the message store until the confirm flow is received. Expired messages are not returned.

Parameters

filter An MQeFields object message filter. This must contain the unique ID of the message for the operation to be successful.

Return values
The message time as a long value. This can be used in trace.

Exceptions

MQeException
`Except_NotFound`

This exception is thrown if you attempt to confirm a message that has already been confirmed. If an application has reissued a confirm get message request, this exception can be treated as a successful return code.

Example

MQeAbstractMessageStore confirmPutMessage

Syntax

```
protected abstract MQeMsgObject confirmPutMessage(MQeFields filter,
                                                  boolean returnMessage) throws Exception
```

Description
Confirms a put operation.

Parameters

filter An MQeFields object containing a message filter. The filter must contain the unique ID of the message for the operation to be successful.

returnMessage
A boolean. If `true` then the caller wishes to have the unlocked message returned. If `false` then the message need not be returned. This can be used to enhance performance in message stores where retrieving messages is more expensive than simply unlocking them.

Return values
An MQeMsgObject containing the returned message

Exceptions

MQeException

`Except_NotFound`

This exception is thrown when an attempt is made to confirm a message that has already been confirmed. If an application has reissued a confirm put message request, this exception can be treated as a successful return code.

Example

MQeAbstractMessageStore deleteMessage

Syntax

```
protected abstract long deleteMessage(MQeFields filter) throws Exception
```

Description

This method deletes a message from a message store. Only one message can be deleted per operation and the unique id of the message must always be supplied. Messages that have been locked by a previous operation can be deleted by including a valid *lockID* in the message filter. If the message is not available, an exception is thrown.

Parameters

filter An MQeFields object message filter. This must contain the *UID* of the message for the operation to be successful.

Return values

The message time as a long value. This can be used by trace.

Exceptions

MQeException

`Except_NotFound`

`Except_NotAllowed`

Example

MQe AbstractMessageStore getDefaultPriority

Syntax

```
public final byte getDefaultPriority()
```

Description

Gets the default priority value for the queue that owns the message store.

Parameters

none

Return values

The queue priority.

Exceptions

none

Example

MQeAbstractMessageStore getExpiryInterval

Syntax

```
public final long getExpiryInterval()
```

Description

Gets the expiry interval of the queue that owns the message store.

Parameters

none

Return values

The expiry interval of the queue that owns the message store.

Exceptions

none

Example

MQeAbstractMessageStore getMessage

Syntax

```
protected abstract MQeMsgObject getMessage(MQeFields filter,
                                           MQeAttribute attribute,
                                           long confirmID ) throws Exception;
```

Description

This method returns an available message from the specified message store and the message is removed from the message store. If no message filter is specified, the first available message on the message store is returned. If a message filter is specified, the first available message that matches the filter is returned. Messages that have been locked by a previous browse operation can be retrieved by including the *lockID* that was used to lock the message, in the message filter. Expired messages are not returned. If no message is available, an exception is thrown.

The use of assured message delivery is dependent on the value of the *confirmId* parameter. Passing a nonzero value returns the message as normal, but the message is locked and is not removed from the message store until a subsequent confirm is received. A confirm can be issued using the **confirmGetMessage()** method. Passing a value of zero returns the message and removes it from the target message store, however, the message delivery is not assured. The *confirmId* parameter is also used in the event of an error when executing this command. A failure could occur before the message is returned to the application and yet leave the message in a locked state in the target message store. Passing the same *confirmID* used for the get operation to the **undo()** method restores the message to its previous state. It is recommended that you use a unique value for each get operation. A unique value can be generated using the **MQe.uniqueValue()** method.

Parameters

filter `null`, or an MQeFields object containing a message filter.

attribute An MQeAdminQueueAdminMsg object used to provide message-level security. The attribute supplied must match any attribute attached to the message returned by this method. If the attributes do not match, the message may be lost.

confirmId A long value denoting whether guaranteed message delivery should be used. A non-zero value removes the message from the message store.

Return values

An MQeMsgObject containing the message obtained from the specified queue.

Exceptions

MQeException

Except_Q_NoMatchingMsg

Except_NotFound

Example

MQeAbstractMessageStore getNumberOfMessages

Syntax

```
protected abstract int getNumberOfMessages()  throws Exception
```

Description

Get the number of messages currently in the message store.

Parameters

none

Return values

A value containing the number of messages.

Exceptions

Example

MQeAbstractMessageStore getPendingMessage

Syntax

```
protected abstract MQeMsgObject getPendingMessage(String queueManagerName,
                                                  MQeFields filter,
                                                  long confirmID) throws Exception
```

Description

Get a message that is pending for a queue manager. This method is only called by queues that can store messages for more than one queue manager (Store-and-forward queues for example).

Parameters

queueManagerName
A String containing the name of the queue manager

filter An MQeFields object containing a message filter

confirmID A long value used as a confirmation ID

Return values

An MQeMessageObject containing a pending message that matches the filter

Exceptions

Example

MQeAbstractMessageStore open

Syntax

```
protected abstract void open(String queueManagerName,
                             String queueName,
                             MQeAttribute attribute) throws Exception
```

Description

Open the message store. This method is called once at the beginning of each life cycle of the message store.

Parameters

queueManagerName
A String containing the name of the queue manager that owns the parent queue

queueName A string containing the name of the parent queue

attribute An MQeAdminQueueAdminMsg object containing the encryption and decryption attributes to be used with disk storage

Return values

none

Exceptions

Example

MQeAbstractMessageStore putMessage

Syntax

```
protected abstract MQeMsgObject putMessage(MQeMsgObject msgObj,
                                           long confirmID) throws Exception;
```

Description

This method places the specified message in a message store.

The assured delivery of the message is dependent on the value of the *confirmID* parameter. Passing a nonzero value causes the message to be accepted as normal, but the message is locked on the target message store until a subsequent confirm is received. Passing a value of zero causes the message to be transmitted without the need for a subsequent confirm, but the delivery of the message is not assured. The *confirmID* is also used in the event of an error during the execution of this command. Passing the *confirmID* that was used for the put operation to the **undo()** method removes the unconfirmed message from the message store. It is recommended that a unique value be used for each put operation. A unique value can be generated using the **MQe.uniqueValue()** method. A message can be protected using message-level security (see MQSeries Everyplace for Multiplatforms Programming Guide for information on MQSeries Everyplace security). The security is defined by providing an MQeAttribute object, or one of its descendants. The attribute can be attached to the message before any put message request, or the attribute parameter can be used to specify the message-level security to be used. If the attribute parameter is not null, the value overrides any attribute attached to the message before the put message request. If the attribute parameter is `null`, it has no effect on the sending of the message.

Parameters

msgObject An MQeMsgObject containing the message

confirmID A long value that denotes whether assured message delivery should be used. A non-zero value locks the message in the target message store and it is not made visible until a subsequent confirm flow. A value of zero stores the message without the need for a subsequent confirm.

Return values
none

Exceptions

MQeException
Except_Duplicate

Example

MQeAbstractmessageStore resetLockedMsgs

Syntax

```
protected abstract void resetLockedMsgs() throws Exception
```

Description
Resets any locked messages. In rare circumstances it is possible for an administration message to remain on the message store in a locked state. For instance if the queue manager or JVM dies while a message is being processed. This method resets the messages so that they can be processed again.

Parameters
none

Return values
none

Exceptions
none

Example

MQeAbstractMessageStore transmitAll

Syntax

```
protected abstract void transmitAll() throws Exception
```

Description
Sends any or all pending messages resulting from any of the following:

1. Scans for any messages marked as unconfirmed and reconfirms them
2. Scans for any messages marked as sent - and resends them
3. Scans for any pending messages and sends them

This class provides two other methods to aid this transmission:

- **transmitMessage()**
- **transmitConfirmMessage()**

Parameters
none

Return values
none

Exceptions

Example

MQeAbstractmessageStore transmitConfirmMessage

Syntax

```
protected void transmitConfirmMessage( MQeMsgObject msg ) throws Exception
```

Description
Transmits a message with confirm

Parameters

msg An MQeMsgObject containing the message to be transmitted

Return values
none

Exceptions

Example

MQeAbstractmessageStore transmitMessage

Syntax

```
protected void transmitMessage( MQeMsgObject msg ) throws Exception
```

Description
Transmits a message without confirm

Parameters

msg An MQeMsgObject containing the message to be transmitted

Return values

Exceptions

Example

MQeAbstractmessageStore undo

Syntax

```
protected abstract void undo(long confirmID) throws Exception
```

Description
This method is intended to be used in the event of an error during a **put()**, **get()**, or **browseAndLock()** command. It is possible that the error could leave messages in an unconfirmed or locked state on the target message store. This method resets the message to the state (either locked or unlocked) that it was in before the failed operation, or in the case of an unconfirmed **put()** operation, the message is deleted. To reset the message, you must supply the *confirmID* that was used in the failed operation. It is recommended that the *confirmID* is unique for each message. A unique value can be generated using the **MQe.uniqueValue()** method.

Parameters

confirmID A long value that is the same as the *confirmID* that was used on the failed operation

Return values
none

Exceptions

MQeException
Except_NotAllowed

Example

MQeAbstractMessageStore updateRetryCount

Syntax

```
protected abstract void updateRetryCount(MQeFields filter,
                                         MQeAttribute attribute,
                                         int retryCount) throws Exception
```

Description .

This method is used internally by administration code, to update the retry count of a locked message. This could occur if the message is viewed or browsed (with lock) between the time the message arrives and the time the administration queue thread gets control. The administration queue thread cannot access the message and therefore cannot process the administration request. This represents a failure, and the execution of one permitted retry. The retry count must be incremented to reflect this. Because the message is locked and unavailable, the retry must be performed by the message store.

Parameters

filter An MQeFields object containing a message filter. The filter must contain the *UID* of the message

attribute `null` or an MQeAdminQueueAdminMsg object containing the message-level attribute to force into the object

retryCount A value representing the new retry count to place in the message

Return values

none

Exceptions

MQeException

`Except_Q_NoMatchingMsg`

Example

MQeAbstractMessageStore wrapMsg

Syntax

```
protected MQeMsgObject wrapMsg(MQeMsgObject msg) throws Exception
```

Description

Wraps and encodes a message. If a message has an encoding attribute then it needs to be encoded and wrapped in another message for operations such as transmission and searching. Subclasses may wish to override this method to add indexing information to the wrapping message.

Parameters

msg An MQeMsgObject containing the message that is to be wrapped

Return values

An MQeMsgObject containing the wrapped message, or the wrapper

Exceptions

Example

MQeAbstractMessageStore unlockMessage

Syntax

```
protected abstract MQeMsgObject unlockMessage(MQeFields filter,
                                              boolean returnMessage) throws Exception
```

Description

This method unlocks a message that has been previously locked. This makes the message visible once again to all applications. Only one message can be unlocked at a time and both the *UID* and *lockID* of the message must be supplied. If the message is not available, an exception is thrown. This method is typically used in conjunction with the **browseMessagesAndLock()** method.

Parameters

filter An MQeFields object containing a message filter. This filter must contain both the *uniqueID* and *lockID* of the message for the operation to be successful.

returnMessage
A boolean. If `true` then the caller wishes to have the unlocked message returned. If `false` then the message need not be returned. This can be used to enhance performance in message stores where retrieving messages is more expensive than simply unlocking them.

Return values

An MQeMsgObject containing the unlocked message

Exceptions

MQeException
`Except_Q_NoMatchingMsg`

`Except_NotAllowed`

Example

MQeAbstractMessageStore getStringArgument

Syntax

```
protected final String getStringArgument()
```

Description

Gets the parameter that is passed to the owning queue for use by the message store.

Parameters

none

Return values

A string containing the location of the queue's store

Exceptions

none

Example

MQeAbstractMessageStore rule

Syntax

```
public final MQeQueueRule rule()
```

Description

Gets the rule object of the queue that owns the message store.

Parameters
none

Return values
An MQeQueueRule object containing the rule used to determine some of the behavior of the parent queue.

Exceptions
none

Example

MQeAbstractMessageStore trace

Syntax

```
protected final void trace(int key, String str1)
protected final void trace(int key, String str1, String str2)
```

Description
Simplified trace

Parameters

key

str1

str2

Return values
none

Exceptions
none

Example

MQeAbstractMessageStore unWrapMsg

Syntax

```
protected final MQeMsgObject unWrapMsg(MQeMsgObject wrapper,
                                       MQeAttribute attribute) throws Exception
```

Description
Unwrap and decode an encoded message. Messages leaving this message store should be unwrapped.

Parameters

wrapper

attribute

Return values
An MQeMsgObject containing the unwrapped message

Exceptions

Example

MQeAbstractMessageStore WrapMsg

Syntax

```
protected static MQeMsgObject WrapMsg(MQeMsgObject msg) throws Exception
```

Description
Wraps and encodes a message. If a message has an encoding attribute then

it needs to be encoded and wrapped in another message for operations such as transmission and searching. Subclasses may wish to override this method to add indexing information to the wrapping message.

Parameters

msg An MQeMsgObject containing the message that is to be wrapped

Return values

An MQeMsgObject containing the wrapped message, or the wrapper

Exceptions

Example

MQeAdapter

This is the definition for the methods that all MQSeries Everyplace adapters must provide. Any new adapters must inherit from MQeAdapter

Package **com.ibm.mqe**

Methods

Method	Purpose
activate	Activates the loaded adapter
close	Used to finish with the adapter
control	Performs some adapter specific control function.
checkOption	Used within the file adapters to check for options.
equals	Performs an equality check with the adapter instance.
erase	Erases a file via the adapter.
open	Opens an adapter.
qualityOfService	Returns the qualityOfService object (an MQeFields object).
read	Reads data from the adapter.
readEOF	Reads a complete file, or until an EOF Exception occurs from the adapter.
readln	Reads data up to a new line character from an adapter.
readObject	Reads data from the adapter and return an object.
status	Requests adapter status information.
write	Writes data via an adapter.
writeln	Writes data followed by a new line character to an adapter.
WriteObject	Writes data from an object to an adapter.

MQeAdapter activate

Syntax

```
public void activate( String fileId,
                      Object parameter,
                      Object option,
                      int  value1,
                      int  value2 ) throws Exception
```

Description

This constructor is used to activate an adapter.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

fileId Identifier of the file

parameter Any parameters for the adapter, or `null`

options Any options for the adapter, or `null`

value1 An integer value, or `-1` to indicate not set

value2 An integer value, or `-1` to indicate not set

Return values
none

Exceptions

IOException Device not operational or I/O error occurred

MQeAdapter checkOption

Syntax

1. `protected boolean checkOption( String what ) throws Exception`
2. `protected boolean checkOption( Object options,`
   `String what ) throws Exception`

Description
This protected method is used when writing new MQSeries Everyplace adapters. The method checks for a matching option and if found returns `true`. There are two forms of the method:

1. Checks the options that were specified on the **activate()** method
2. Checks the options that are supplied in the *`options`* parameter

Note: This entry point is meant to be used by descendants of MQeAdapter not by application programs.

Parameters

option Options for this operation

what A String containing the option to be checked

Return values
A boolean return code:

true The option was found

false The option was not found

Exceptions

IOException Error closing the file

MQeAdapter close

Syntax

```
public void close( Object options ) throws Exception
```

Description
To unbind from a file.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

Return values
none

Exceptions

IOException Device not operational or I/O error occurred

MQeAdapter control

Syntax

```
public Object control(Object options,
                      Object ctrlObj ) throws Exception
```

Description

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

ctrlObj An object used by the adapter for the control function (specific to each adapter type)

Return values

An object dependent on the adapter type or `null`

Exceptions

IOException Device not operational or I/O error occurred

MQeAdapter equals

Syntax

```
public boolean equals( Object item )
```

Description

This method is used to perform an equality check with this adapter.

If *item* is a string, the MQeAdapter base class compares the *fileID* with the supplied *item*. Otherwise the base object equals method is called.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

item An Object to be compared against

Return values

A Boolean, either true or false

Exceptions

IOException Device not operational or I/O error occurred

MQeAdapter erase

Syntax

```
public void erase( Object options ) throws Exception
```

Description

This method is used to delete an existing file.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

Return values
none

Exceptions

IOException Device not operational or I/O error occurred

MQeAdapter open

Syntax

```
public void open( Object options ) throws Exception
```

Description

This method is used to bind to a file through the adapter.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

Return values
none

Exceptions

IOException Device not operational or I/O error occurred

MQeAdapter qualityOfService

Syntax

```
public void qualityOfService( Object options ) throws Exception
```

Description

This method is used to get the quality of service object associated with this instance of the adapter.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

Return values
A Quality of service object

Exceptions
none

MQeAdapter read

Syntax

```
public byte[] read( Object options,
                                int value0 ) throws Exception
```

Description

This method is used to read a record from the specified file.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

value0 The record number to be written or -1

Return values

A quality of service byte array containing the data bytes read from the file object

Exceptions

IOException Device not operational or I/O error occurred

EOFException Past end of file for this file

MQeAdapter readEOF

Syntax

```
public byte[] readEOF( Object options ) throws Exception
```

Description

This method is used to read the file until EOF condition is reached.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

Return values

A byte array containing the file data bytes.

Exceptions

IOException Device not operational or I/O error occurred

MQeAdapter readln

Syntax

```
public String readln( Object options ) throws Exception
```

Description

This method is used to read a record from the specified file.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

Return values
A String containing the data bytes read from the file.

Exceptions

IOException Device not operational or I/O error occurred

EOFException Past end of file for this file

MQeAdapter readObject

Syntax

```
public Object readObject( Object options ) throws Exception
```

Description

This method is used to read an Object from the specified file.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

Return values
An Object containing the data read from the file.

Exceptions

IOException Device not operational or I/O error occurred

EOFException Past end of file for this file

MQeAdapter status

Syntax

```
public Object status( Object options ) throws Exception
```

Description

This method is used to return adapter status information as a String.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`. All adapters must support as a minimum the following options:

MQe_File_NETWORK
Returns null or the network type (TCPIP for example)

MQe_File_BYTECOUNTS
Returns the number of bytes read and/or written via the adapter

Return values
A String containing the data bytes read from the file.

Exceptions

IOException Device not operational or I/O error occurred

EOFException Past end of file for this file

MQeAdapter write

Syntax

```
public void write( Object options,
                   int value0,
                   byte data[] ) throws Exception
```

Description

This method is used to write data to the specified file.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

value0 The record number to be written or -1

data Byte array containing the data to be written

Return values
none

Exceptions

IOException Device not operational or I/O error occurred

EOFException Past end of file for this file

MQeAdapter writeln

Syntax

```
public void Writeln( Object options,
                     String data ) throws Exception
```

Description

This method is used to write data to the specified file.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options Any options for the adapter, or `null`

data String containing the data to be written.

Return values
none

Exceptions

IOException Device not operational or I/O error occurred

EOFException Past end of file for this file

MQeAdapter writeObject

Syntax

```
public void writeObject( Object options,
                         Object data ) throws Exception
```

Description

This method is used to write an Object to the specified file.

The MQeAdapter base class throws a ″not supported″ exception. New adapters should override this method if appropriate.

Note: This entry point is meant to be used by the MQSeries Everyplace object library not by application programs.

Parameters

options	Any options for the adapter, or `null`
data	An object containing the data to be written.

Return values

none

Exceptions

IOException	Device not operational or I/O error occurred
EOFException	Past end of file for this file

MQeAdminMsg

This class is used to create a basic MQeAdminMsg. The class extends MQeMsgObject and provides a base for administration messages. Descendants of this class are created to administer different types of resource.

Package **com.ibm.mqe**

This class is a descendant of MQeMsgObject

- Constants and variables
- Constructor
- Methods

Constants and variables

MQeAdminMsg provides the following constants and variables in addition to those provided and inherited by MQeMsgObject:

Additional fields in the message

Action:
The administration action to perform (int)

```
public final static  String  Admin_Action;
```

Errors: Errors resulting from action (MQeFields)

```
public final static  String  Admin_Errors;
```

MaxAttempts:
Maximum number of times request should be tried (int)

```
public final static  String  Admin_MaxAttempts;
```

Parms:
Input or output parameters for the action (MQeFields). Contains the characteristics of a managed resource that the action requires or has returned as a result of the action.

```
public final static  String  Admin_Parms;
```

RC: Result of action code (byte)

```
public final static  String  Admin_RC;
```

Reason:
Reason for failure (unicode)

```
public final static  String  Admin_Reason;
```

TargetQMgr:
The name of the target queue manager where the action is to be performed(ascii)

```
  public final static  String  Admin_TargetQMgr
```

Basic types of administration actions

Create:
Create the resource

```
public final static  int Action_Create;
```

Delete:
Delete the resource

```
public final static  int Action_Delete;
```

Inquire:
Return requested characteristics of resource

```
public final static  int Action_Inquire;
```

InquireAll:
Return all characteristics of resource

```
public final static  int Action_InquireAll;
```

Update:
Update characteristics of resource

```
public final static  int Action_Update;
```

Field name of the resource to be managed (ascii)

Name:
Managed resource name. This is a characteristic of the managed resource, hence the field must reside within the *Admin_Parms* field.

```
public final static  String Admin_Name;
```

Java class of the managed resource (ascii)

Class: Managed resource class. This is a characteristic of the managed resource, hence the field must reside within the *Admin_Parms* field.

```
public final static  String Admin_Class;
```

Return codes

Fail: Action failed - see *Reason*

```
public final static  int RC_Fail;
```

Mixed:
Action was partially successful - see *Reason*

```
public final static  int RC_Mixed;
```

Success:
Action was successful

```
public final static  int RC_Success;
```

Constructor

MQeAdminMsg

Syntax

```
public MQeAdminMsg() throws Exception
```

Description
The constructor creates and initializes a default MQeAdminMsg

Parameters
none

Return Values
none

Exceptions

java.lang.Exception	Various

Example

```
class MyApplication
{
  MQeAdminMsg aMsg = new MQeAdminMsg();
}
```

Methods

Method	Purpose
characteristics	Returns an MQeFields object containing the characteristics of the resource
create	Sets up an administration message to run the **Admin_Create** action
delete	Sets up an administration message to run the **Admin_Delete** action
duplicate	Creates a new message of the type specified by the *replyType* parameter
getAction	Returns the administration action that is to be or has been performed
getErrorFields	Returns a reference to the error fields object
getFieldInError	Given a field name return any error that occurred when processing the field.
getInputFields	Returns a reference to the input fields object
getName	Gets the name of the managed resource
getOutputFields	Returns a reference to the output fields object
getRC	Returns the return code resulting from the action
getReason	Returns the reason for failure if an error occurred
getTargetQMgr	Returns the queue manager where the request is to be processed
inquire	Sets up the administration message to perform the **Action_Inquire** action
inquireAll	Sets up the administration message to perform the **Action_InquireAll** action
setAction	Sets the administration action to perform
setName	Sets the name of the resource that the action is to be performed on
setTargetQMgr	Sets the queue manager where the request is to be processed
update	Sets the administration message up to perform the **Action_Update** action

MQeAdminMsg characteristics

Syntax

```
public MQeFields characteristics() throws Exception
```

Description

Returns an MQeFields object containing the characteristics of the resource. The complete set of field names and types for the resource can be determined from the resulting MQeFields object. (It does not contain the value of each characteristic)

Parameters

none

Return values

Valid characteristics of the resource

Exceptions

java.lang.Exception Various

Example

```
class MyApplication
{

  MQeFields  chars  = msg.characteristics();
  Enumeration fields    = chars.fields()
  while ( fields.hasMoreElements() )
  {
    System.out.println( "Contains field: "+
              (String)fields.nextElement() );
  }
}
```

MQeAdminMsg create

Syntax

```
public void create( MQeFields parms ) throws Exception
```

Description

Sets up an administration message to run the **Admin_Create** action. Attempts to create a new managed resource with characteristics as specified in the *parms* parameter.

Parameters

parms	An MQeFields object containing name value pairs for any characteristics that require a setting different to the managed resources default setting. The name of the resource can be included in *parms* but can also be set with the **setName** method.

Return values

none

Exceptions

java.lang.Exception	Various

Example

```
class MyApplication
{
  ...
  // Create ExampleQ
  MQeFields parms = new MQeFields();
  msg.setName( "ExampleQM", "ExampleQ" );
  parms.putUnicode(  MQeQueueAdminMsg.Queue_Description,
  "a new description ..." );

  // Set the action required and its parameters
  // into the message
  msg.create( parms );
}
```

MQeAdminMsg delete

Syntax

```
public void delete( MQeFields parms ) throws Exception
```

Description

Sets up an administration message to run the **Admin_Delete** action. Attempts to delete a managed resource.

Parameters

parms An MQeFields object which must contain the name of the managed resource to delete if it has not been set with the setName method.

Return values
none

Exceptions

java.lang.Exception Various

Example

```
class MyApplication
{
  ...
  // Delete ExampleQ
  MQeFields parms = new MQeFields();
  msg.setName( "ExampleQM", "ExampleQ" );
  msg.delete( parms );
}
```

MQeAdminMsg duplicate

Syntax

```
public MQeFields duplicate( String replyType ) throws Exception
```

Description

Create a new message of the type specified by the *replyType* parameter. If `null`, a message that is the same type as this message is returned. All fields are duplicated with the exception of fields that constitute the *UID*.

Note: The **MQeFields.copy** method is employed so only a shallow copy of the message is made.

Parameters

replyType The type of message to be returned or `null` if the same as this message

Return values
Duplicate message

Exceptions
ClassNotFoundException

Example

```
class MyApplication
{
  // Create a message as the same type as this one
  MQeQueueAdminMsg reply =
        (MQeQueueAdminMsg).requestMsg.duplicate( null );
}
```

MQeAdminMsg getAction

Syntax

```
public int getAction( )
```

Description
Returns the administration action that is to be, or has been performed

Parameters
none

Return values

Field *Admin_Action* from the MQeAdminMsg or Action_Unknown if not set

Exceptions

none

Example

```
class MyApplication
 {
   ...
   int action = requestMsg.getAction();
    switch ( action )
    {
      case Create :
        performCreate();
        break;
      case Delete :
        performDelete();
        ...
    }
  }
```

MQeAdminMsg getErrorFields

Syntax

```
public MQeFields getErrorFields()
```

Description

Returns a reference to the error fields object.

Error fields contain any errors related to subproblems that occurred when processing the action. For instance, if a request was made to update 2 characteristics and 1 request succeeds and the other fails, *ErrorFields* contains the details of the one that failed. The name of the field in error matches that in the *Admin_Parms* field.

Use the **getRC** method to check the overall result of the action.

Parameters

none

Return values

An empty MQeFields object or the *Admin_Errors* field from the MQeAdminMsg

Exceptions

none

Example

```
class MyApplication
{
  if ( replyMsg.getRC() != 0 )
  {
    MQeFields  errs = replyMsg.getErrorFields();
    Enumeration fields = errs.fields()
    while ( fields.hasMoreElements() )
    {
      String errF = (String)fields.nextElement()
      System.out.println( "Field: "+
                  errF+
                  "failed with error "+
                  fields.getAscii( Msg_RC ) );
    }
  }
}
```

MQeAdminMsg getFieldInError

Syntax

```
public String[] getFieldInError( String fieldName )
```

Description

This method is used to obtain information on individual errors after a **getRC** return of `RC_Fail` or `RC_Mixed`.Given a field name return any error that occurred when processing the field. If the field that was processed was an array then a corresponding string array is returned that contains the same number of elements. If the field that was processed was not an array then the returned array will only contain one element. If the field was not in error then `null` is returned.

Parameters

fieldname Name of field to test for error

Return values

A string array containing any error that occurred when processing the named field

Exceptions

none

Example

```
class MyApplication
{
  if ( replyMsg.getRC() != 0 )
  {
    String  fieldName = MQeQueueAdminMsg.Queue_Priority
    String[] errs = replyMsg.getFieldInError( fieldName );
    if ( errs != null )
         System.out.println( "Error setting priority"+ errs[0]
  }
}
```

MQeAdminMsg getInputFields

Syntax

```
public MQeFields getInputFields()
```

Description

Returns a reference to the input fields object. The input fields object contains the input parameters required by an action.

Parameters

none

Return values

Reference to an MQeFields object that contains input parameters required for an action

Exceptions

none

Example

```
class MyApplication
{
  MQeFields parms = requestMsg.getInputFields()
}
```

MQeAdminMsg getMaxAttempts

Syntax

```
public int getMaxAttempts( )
```

Description

Get the maximum number of times the request should be retried in the event that the request is held up due to the resource being unavailable at the time the request is processed.

Parameters

none

Return values

Field *Admin_MaxAttempts* from the MQeAdminMsg is returned or a default of 1 if not set

Exceptions

none

Example

```
class MyApplication
{
  ...
  int tries = requestMsg.getMaxAttempts();
  ...
}
```

MQeAdminMsg getName

Syntax

```
public String getName( )
```

Description

Get the name of the managed resource or `null` if not set

Parameters

none

Return values

Field *Admin_Name* from the MQeAdminMsg or `null` if not set

Exceptions

none

Example

```
class MyApplication
{
  ...
  String name = requestMsg.getName();
  ...
}
```

MQeAdminMsg getOutputFields

Syntax

```
public MQeFields getOutputFields()
```

Description

Returns a reference to the output fields object. OutputFields contains both the input parameters of a request together with the results of the request.

Parameters

none

Return values
Results of an action

Exceptions
none

Example

```
class MyApplication
{
  MQeFields parms = replyMsg.getOutputFields()
  if (parms.contains( MQeQueueAdminMsg.desc ) )
  {
    System.out.println("Queue description: "+
       parms.getUnicode(MqeQueueAdminMsg.Desc) );
  }
}
```

MQeAdminMsg getRC

Syntax

```
public int getRC( ) throws Exception
```

Description
Returns the code resulting from the action

Parameters
none

Return value
Return code.

Possible values are:

```
  public final static  int RC_Success;
  public final static  int RC_Fail;
  public final static  int RC_Mixed;
```

Exceptions

java.lang.Exception	Various

Example

```
class MyApplication
{
  ...
  int rc = ReplyMsg.getRC();

  if (rc != ReplyMsg.RC_success)
    String error = replyMsg.getReason();

  ....
}
```

MQeAdminMsg getReason

Syntax

```
public String getReason( )
```

Description
Returns the reason for failure if an error occurred

Parameters
none

Return values

String, typically the exception that caused the failure. If the exception is of type MQeException the string includes the MQeException code at the start of the string as ″Code=nnn;″

Exceptions

none

Example

```
class MyApplication
{
  ...
  int rc = replyMsg.getRC();

  if (rc != replyMsg.RC_success)
    String error = replyMsg.getReason();

  ...
}
```

MQeAdminMsg getTargetQMgr

Syntax

```
public String getTargetQMgr( ) throws MQeException
```

Description

Returns the queue manager where the request is to be processed.

Parameters

none

Return values

Queue manager where the request is to be processed.

Exceptions

MQeException	`Except_Type, "wrong field type"`
	`Except_NotFound, Item + " not found".`

Example

```
class MyApplication
{
  try
  {
    String targetQMgr = requestMsg.getTargetQMgr();
  }
  catch ( MQeException e)
  {
    System.out.prinln("Target queue manager not set")
  }
}
```

MQeAdminMsg inquire

Syntax

```
public void inquire( MQeFields parms ) throws Exception
```

Description

Sets up the administration message to perform the **Action_Inquire** action

Parameters

parms	The names of the characteristics of the managed resource

that are to be inquired on. The managed resource name can also be included in the parameters if it is not set with the **setName()** method.

Return values

none

Exceptions

NullPointerException

Example

```
class MyApplication
{
  ...
  // Request the value of description and max queue depth
  MQeFields parms = new MQeFields();
  parms.putUnicode(  MQeQueueAdminMsg.Queue_Description,  null );
  parms.putInt(  MQeQueueAdminMsg.Queue_MaxQDepth, 0 );

  // set the name of the queue to inquire on
  msg.setName( "ExampleQM", "ExampleQ" );

  // Set the action required and its parameters
  // into the message
  msg.inquire( parms );
}
```

MQeAdminMsg inquireAll

Syntax

```
public void inquireAll( MQeFields parms ) throws Exception
```

Description

Sets up the administration message to perform the **Action_InquireAll** action. The InquireAll action returns all characteristics of the managed resource.

Parameters

parms This parameter contains the name of the resource to be inquired on or `null` if the name has been set via the **setName()** method.

Return values

none

Exceptions

NullPointerException

Example

```
class MyApplication
{
  ...
  // set the name of the queue to inquire on
  msg.setName( "ExampleQM", "ExampleQ" );

  // Set the action required and its parameters
  // into the message
  msg.inquireAll( new MQeFields() );

}
```

MQeAdminMsg setAction

Syntax

```
public void setAction(int action )
```

Description

Sets the administration action to be performed. Sets the *Admin_Action* field in the MQeAdminMsg

Parameters

action Possible values are:

```
public final static  int Action_Create;
public final static  int Action_Delete;
public final static  int Action_Inquire;
public final static  int Action_InquireAll;
public final static  int Action_Update;

// additional actions can implemented in subclass
```

Return values

none

Exceptions

java.lang.Exception Various

Example

```
class MyApplication
{
  ...
  MQeAdminMsg requestMsg = new MQeAdminMsg()
  requestMsg.setAction(MQeAdminMsg.Action_Inquire);
  ...
}
```

MQeAdminMsg setName

Syntax

```
public void setName( String resourceName ) throws Exception
```

Description

Sets the name of the resource that the action is to be performed on.

Parameters

resourceName

Name of the resource

Return values

none

Exceptions

java.lang.Exception Various

Example

```
class MyApplication
{
  ...
  // Delete a queue
  MQeFields parms = new MQeFields();

  // Set the action required and its parameters
  // into the message
  MQeQueueManagerAdminMsg msg = new MQeQueueManagerAdminMsg();
```

```
  msg.inquireAll( parms );
  msg.setName( "ExampleQM" );
  ...
}
```

MQeAdminMsg setTargetQMgr

Syntax

```
public String setTargetQMgr( String targetQMgr ) throws Exception
```

Description

Sets the queue manager where the request is to be processed.

Parameters

targetQMgr Name of the queue manager that will process the request

Return values

none

Exceptions

none

Example

```
class MyApplication
{
  MQeQueueAdminMsg requestMsg = new MQeQueueAdminMsg();
  requestMsg.setTargetQMgr("ExampleQM");
  requestMsg.setName("ExampleQM", "ExampleQ" );
  requestMsg.create( new MQeFields() );
}
```

MQeAdminMsg update

Syntax

```
public void update( MQeFields parms ) throws Exception
```

Description

Sets up the administration message to perform the **Action_Update** action, which attempts to update a managed resources characteristics based on those in *parms*.

Parameters

parms The characteristics that are to be updated. If the name of the resource to be managed has not been set then it can be included in parameters.

Return values

none

Exceptions

NullPointerException.

Example

```
class MyApplication
{
  ...
  // Setname of resource to be managed
  msg.setName( "ExampleQM", "ExampleQ" );

  // Change the value of description
  MQeFields parms = new MQeFields();
  parms.putUnicode( MQeQueueAdminMsg.Queue_Desc, "Change description ... );

  // Set the action required and its parameters
```

```
        // into the message
        msg.update( parms );

    }
```

MQeAttribute

This class is used to create an attribute object. This object contains the mechanisms to perform authentication, encryption and compression. MQeAttribute objects can be associated with channels, queues, messages, and MQeFields objects.

Package **com.ibm.mqe**

This class is a descendant of MQe

Constructors

MQeAttribute

Syntax

```
public MQeAttribute( MQeAuthenticator authenticator,
                     MQeCryptor cryptor,
                     MQeCompressor compressor
                   ) throws Exception
```

Description

Constructs an MQeAttribute object.

Parameters

authenticator	An object reference to an MQeAuthenticator object
cryptor	An object reference to an MQeCryptor object
compressor	An object reference to an MQeCompressor object

Return values

none

Exceptions

MQeException	Various activation errors
IOException	Various IO errors depending on protocol type

Example

```
class MySampleClass
 {
 ...
 MQeAttribute attribute = new MQeAttribute( null,
                          new MQeXorCryport( ),
                          new MQeRleCompressor( ) );
 ...
 MQeChannel channel = new MQeChannel( aAttribute,
                      "HTTP://test.server.ibm.com:8080" );
 ...
 }
```

Methods

Method	Purpose
authenticatedID	Returns a String that is the authenticated identifier
activate	Activates an MQeAttribute object
change	Used to change the characteristics of this MQeAttribute object
close	Release any resources used by this object
decodeData	Decrypt and/or decompress the supplied data

Method	Purpose
encodeData	Compress and/or encrypt the supplied data
equals	Compares the settings for one MQeAttribute object with this one
getAuthenticator	Gets the object reference to the authenticator
getCompressor	Gets the object reference to the compressor
getCryptor	Gets the object reference to the cryptor.
setKey	Associates a key with the attribute

MQeAttribute activate

Syntax

```
public void activate( MQeRule rule,
                      MQeAuthenticator authenticator,
                      MQeCryptor cryptor,
                      MQeCompressor compressor) throws Exception
```

Description

Activates an MQeAttribute object.

Parameters

rule	An object reference to an MQeRule object to be used by this attribute.
authenticator	An object reference to an MQeAuthenticator object
cryptor	An object reference to an MQeCryptor object
compressor	An object reference to an MQeCompressor object

Return values

none

Exceptions

MQeException	Various activation errors
IOException	Various IO errors depending on protocol type

Example

```
class MySampleClass
  {
  ...
  MQeAttribute attribute = new MQeAttribute( null,
                                             new MQeXorCryport( ),
                                             new MQeRleCompressor( ) );
  ...
  MQeChannel channel = new MQeChannel( attribute,
                                       "HTTP://test.server.ibm.com:8080" );
  ...
  }
```

MQeAttribute authenticatedID

Syntax

```
public String authenticatedID( )
```

Description

This method returns a String that is the authenticated identifier, or `null` if

it is not authenticated. This is typically used on the server side of a channel if there is data or a process that is allowed to be run only by certain users.

Parameters
none

Return values
A String that is the authenticated identifier or *null*

Exceptions
none

MQeAttribute change

Syntax

```
public synchronized void change( MQeChannel channel,
                                 MQeRule rule,
                                 MQeAttribute attribute) throws Exception
```

Description
This method is called to change the characteristics of an MQeAttribute object. That is, to change the rule, authenticator, cryptor or compressor used by the MQeAttribute object. If the *channel parameter* is not null, the remote end of the channel has to agree to the change of characteristics otherwise an exception is thrown.

Parameters

channel An object reference to a channel used for any communications

rule An MQeRules object used to verify that the change is allowed.

Note: The previous MQeRules object has to allow the new MQeRules object.

attribute A reference to an MQeAttribute object

Return values
none

Exceptions

MQeException `Except_Rule`, ″Disallowed by rule″

Depends on the authenticator, cryptor and/or the compressor used by the attribute

MQeAttribute close

Syntax

```
public void close( ) throws Exception
```

Description
Closes and releases resources used by the authenticator.

Parameters
none

Return values
none

Exceptions

MQeException Invalid or NotAllowed

MQeAttribute decodeData

Syntax

```
public byte[] decodeData( MQeChannel channel,
                                    byte data[],
                                    int offset,
                                    int count ) throws Exception
```

Description

This method is called to decode (decrypt and/or decompress) the bytes referenced by *data*, *offset* and for length *count*.

Note: This method is intended for internal use and is not normally called by applications.

Parameters

channel An object reference to the channel used to receive the encoded data or null

data An object reference to a byte array containing the data to be decoded

offset An integer index specifying the start byte in the data array

count An integer count of the number of bytes to decode

Return values

none

Exceptions

Depends on the authenticator, cryptor and/or the compressor used by the attribute

MQeAttribute encodeData

Syntax

```
public byte[] encodeData( MQeChannel channel,
                          byte       data[],
                          int        offset,
                          int        count ) throws Exception
```

Description

Is called to encode (encrypt and/or compress) the bytes referenced by *data*, *offset* and for length *count*.

Note: This method is intended for internal use and is not normally called by applications.

Parameters

channel An object reference to the channel used to transmit the encoded data or null

data An object reference to a byte array containing the data to be encoded

offset An integer index specifying the start byte in the data array

count An integer count of the number of bytes to encode

Return values

none

Exceptions

Depends on the authenticator, cryptor and/or the compressor used by the attribute

MQeAttribute equals

Syntax

```
public boolean equals( Object thisItem )
```

Description

This method is called to compare *thisItem* with this MQeAttribute object for equality.

Parameters

thisItem An object reference, normally to an MQeAttribute object

Return values

A boolean value:

true implies they compare equal

false implies they are not equal

Exceptions

Depends on the authenticator, cryptor and/or the compressor used by the attribute

MQeAttribute getAuthenticator

Syntax

```
public MQeAuthenticator getAuthenticator( )
```

Description

Is called to return the object reference to the authenticator used by this attribute, or `null` if there is no authenticator.

Parameters

none

Return values

An MQeAuthenticator object reference or `null`.

Exceptions

none

MQeAttribute getCompressor

Syntax

```
public MQeCompressor getCompressor( )
```

Description

Is called to return the object reference to the compressor used by this attribute, or `null` if there is no compressor.

Parameters

none

Return values

An MQeCompressor object reference or `null`.

Exceptions

none

MQeAttribute getCryptor

Syntax

```
public MQeCryptor getCryptor( )
```

Description

Is called to return the object reference to the cryptor used by this attribute, or `null` if there is no cryptor.

Parameters

none

Return values

An MQeCryptor object reference or `null`

Exceptions

none

MQeAttribute setKey

Syntax

```
public void setKey(MQeKey key)
```

Description

This method associates a key with the attribute. This is required if the attribute has a cryptor.

Parameters

key	The key object to be used with the attribute's cryptor

Return values

none

Exceptions

MQeException	`NotAllowed`, thrown if the key has already been set.

MQeChannelListener

This class is used to create a listener for incoming MQSeries Everyplace logical channels.

Package **com.ibm.mqe**

This class is a descendant of MQe

Constructors

MQeChannelListener

Syntax

1. `public MQeChannelListener( )`

2. `public MQeChannelListener ( Object listener,`
   `String fileType,`
   `Object processor )`

Description

Constructs an MQeChannelListener object. This is the class that handles incoming MQeChannel requests if not running under the control of a server (e.g. WebSphere). There are two forms of the constructor:

1. With no parameters. The class is instantiated but not activated. In order to activate the class the **activate()** method must be called.
2. With parameters that define:
   - The Listening adapter , for example `Network::80`

     Note: for the TCPIP adapters the `adapter::port_no` means listen
   - The file type to be used when an incoming request is accepted, for example `Network:`
   - A class instance that processes the channel requests. Normally this is an instance of MQeChannelManager

   .

Parameters

listener	An object defining either an MQeAdapter object or a file descriptor string used to listen for incoming requests
fileType	A String defining the file descriptor to be used in creating a new instance of an MQeAdapter object used to read and write data for the new channel
processor	An instance of an object to be used to manage the channels, normally an instance of MQeChannelManager

Return values

none

Exceptions

none.

Example

```
class MySampleClass
  {
  ...
  MQeChannelListener cl = new MQeChannelManager( QNetwork::8080Q,
```

```
                                                    QNetwork:Q,
                                                     new MQeChannelManager( ) );
  ...
  }
```

Methods

Method	Purpose
activate	Activates the channel listener if it was not activated by the class constructor.
setTimer	Called to set up a time-out interval for any channels accepted by this channel listener.
stop	Called to stop the channel listener accepting any new inbound requests.

MQeChannelListener activate

Syntax

```
public void activate( Object listener,
                      String fileType,
                      Object processor )
```

Description

Activates an MQeChannelListener object. This is normally used only if the class was instantiated using a constructor with no parameters. The parameters define:

- The Listening adapter, for example `Network::80`

  Note: For the TCPIP adapters the `adapter::port_no` means listen
- The file type to be used when an incoming request is accepted, for example `Network:`
- A class instance that processes the channel requests. Normally this is an instance of MQeChannelManager

Parameters

listener An object defining either an MQeAdapter object or a file descriptor string used to listen for incoming requests

fileType A String defining the file descriptor to be used in creating a new instance of an MQeAdapter object used to read and write data for the new channel

processor A instance of an object to be used to manage the channels, normally an instance of MQeChannelManager

Return values

none

Exceptions

none

Example

```
class MySampleClass
  {
  ...
  MQeChannelListener cl = new MQeChannelManager( );
  cl.activate( QNetwork::8080Q, QNetwork:Q, new MQeChannelManager( ) );
  ...
  }
```

MQeChannelListener setTimer

Syntax

```
public void setTimer( int interval ) throws Exception
```

Description

This method is used to set a channel time-out interval for any channels accepted by this channel listener.

Parameters

interval	An integer value in seconds of the desired time out interval

Return values

none

Exceptions

MQeException	Invalid channel or not allowed
IOException	Error performing I/O operations

Example

```
class MySampleClass extends MQe
  {
  MQeChannelListener cl = new MQeChannelManager( "Network::8080",
                                                 "Network:",
                                                  new MQeChannelManager( ) );
    ...
  cl.setTimer( 300 );
    ...
  ...
  }
```

MQeChannelListener stop

Syntax

```
public void stop( )
```

Description

Used to stop the channel listener accepting any new channel requests

Parameters

none

Return values

none

Exceptions

none.

Example

```
class MySampleClass
  {
  MQeChannelListener cl = new MQeChannelManager( "Network::8080",
                                                 "Network:",
                                                  new MQeChannelManager( ) );
    ...
  cl.stop( );
  ...
  }
```

MQeChannelManager

This class is used to create a manager for the MQSeries Everyplace logical channels.

Package

com.ibm.mqe

This class is a descendant of MQe.

Constructor

MQeChannelManager

Syntax

```
public MQeChannelManager( )
```

Description

Constructs an MQeChannelManager object.

Parameters

none

Return values

none

Exceptions

none

Examples

```
class MySampleClass
  {
  ...
  MQeChannelManager cm = new MQeChannelManager( );
  ...
  }
```

Methods

Method	Purpose
getGlobalHashtable	Called to get a reference to the hashtable that is used to hold any shared objects.
mapDestination	Called to set up a reroute for one destination to another.
numberOfChannels	Called to get the number of currently active logical channels.
process	Called to process data (bytes) received, destined for an MQSeries Everyplace logical channel.
timeOut	Called to force any logical channels to be timed out if they have been idle for more than a specified interval.
totalNumberOfChannels	Called to get the total number of channels that have been used since the channel manager was activated.

MQeChannelManager getGlobalHashtable

Syntax

```
public Hashtable getGlobalHashTable( )
```

Description

Returns the global hashtable belonging to this instance of the channel manager. This table can be used to hold information that persists across channels

Parameters

none

Return Values

none

Exceptions

none

Example

```
class MySampleClass
  {
  try
    {
    MQeChannelManager cm = new MQeChannelManager( );
    Hashtable table = cm.getGlobalHashtable( );
    ...
    }
  catch ( Exception e )
    {
    }
  ...
  }
```

MQeChannelManager mapDestination

Syntax

```
public void mapDestination(String destination,
                           String newDestination
```

Description

This method is used to set up a route from *destination* to *newDestination*.

Parameters

destination A string defining the destination to be remapped

newDestination
A string defining the new destination

Return values

none

Exceptions

none

Example

```
class MySampleClass
  {
  try
    {
    MQeChannelManager cm = new MQeChannelManager( );
    cm.mapDestination( "One", "Two" );
    ...
    }
  catch ( Exception e )
    {
    }
  ...
  }
```

MQeChannelManager numberOfChannels

Syntax

```
public int numberOfChannels( int newLimit )
```

Description

This method returns the number of currently active channels.

Parameters

newLimit	The new maximum number of concurrent channels allowed by this channel manager, a value of `0` implies no limit

Return Values

An integer value that is the number of current channels.

Exceptions

none

Example

```
...
 MQeChannelManager cm = new MQeChannelManager( );
 int count = cm.numberOfChannels( 0 );
...
...
```

MQeChannelManager process

Syntax

1. `public void process( MqeAdapter adapter ) throws Exception`

2. `public void process( MqeAdapter adapter,`
   `byte data[] ) throws Exception`

Description

There are two forms of the **process()** method :

1. An MQeAdapter object as the only parameter. This is used to read the data to be passed on to the logical channel.
2. An MQeAdapter (or `null`) and an array of bytes. The array contains the data to be processed by the logical channel.

Parameters

adapter	An MQeAdapter object to be used for any I/O operations
data	A byte array containing the data to be processed

Return values

none

Exceptions

MQeException	Invalid channel or not allowed
data	A byte array containing the data to be processed

Example

```
class MySampleClass extends MQe
  {
  try
    {
    MQeChannelManager cm = new MQeChannelManager( );
    ...
    cm.process( null, data );
```

```
  ...
  }
catch ( Exception e )
  {
  }
...
}
```

MQeChannelManager timeOut

Syntax

1. `public void timeOut(  long age )`

2. `public void timeOut(  MQeChannel channel,long age )`

Description

This method is used to check all channels or one specific channel to see if they have been idle for more than *age* milliseconds. Any channels that have exceeded this time are closed

Parameters

age	An interval in milliseconds. If the channel has been idle for more than this interval it is considered to have timed out, and is closed
channel	A specific MQSeries Everyplace logical channel to check to see if it has timed out

Return Values

none

Exceptions

none

Example

```
...
cm.timeOut( 30 * 60 * 1000 );
...
```

MQeChannelManager totalNumberOfChannels

Syntax

```
public long totalNumberOfChannels( )
```

Description .

This method returns the total number of channels that have been used since the channel manager was activated.

Parameters

none

Return Values

A long integer value that is the total number of channels.

Exceptions

none

Example

```
  MQeChannelManager cm = new MQeChannelManager( );

  long count = cm.totalNumberOfChannels( );
...
...
```

MQeEnumeration

This class is used to hold a collection of MQSeries Everyplace message objects. It allows the messages to be enumerated in an identical manner to the standard Java Enumeration class.

Package **com.ibm.mqe**

Implements **java.util.Enumeration**.

Methods

Method	Purpose
getLockId	Returns the *lockID* associated with this group of messages, if one exists.
getNextMessage	Returns the next message in the enumeration.
getQueueManagerName	Returns the name of the queue manager that owns the queue from which the messages contained in the enumeration were browsed.
getQueueName	Returns the name of the queue from which the messages contained in the enumeration were browsed.

MQeEnumeration getLockId

Syntax

```
public long getLockId()
```

Description

If a there is a *lockID* associated with the group of messages contained in this enumeration, it is returned by this method. The *lockID* is only set if this enumeration is the result of a **browseMessagesAndLock** operation. Otherwise this method returns a dummy value of ″-1″.

Parameters

none

Return Values

A long value containing the *lockID* of the group of messages contained within this enumeration.

Exceptions

none

Example

```
class MyMQeApplication
{
  ...
  /* Lock all msgs on this queue */
  MQeEnumeration msgEnum = QMgr.browseMessagesAndLock( null, "MyQueue",
                                                       null, null, 0, false );
  long lockId = msgEnum.getLockId(); /* get the Lock Id */
 ...
}
```

MQeEnumeration getNextMessage

Syntax

```
public MQeMsgObject getNextMessage( MQeAttribute attribute,
                                    long confirmId ) throws Exception
```

Description

This method returns the next message in the enumeration. However, the behaviour of this method is dependent upon the *justID* parameter of the browse request that created this enumeration. The *justID* parameter determines whether the enumeration contains just the unique ID fields of the messages matched by the browse, or all of the fields contained in each message.

If the browse request's *justUID* parameter is set to `false`, this method returns the next message in the enumeration (in this case it works identically to the **nextElement()** method).

If the browse request's *justUID* parameter is set to `true`, this method returns the message by issuing a get message command against the target queue. This causes the message to be removed from the target queue.

Use the **nextElement()** method (inherited from java.util.Enumeration) to return a message without removing it from the target queue.

Parameters

attribute An MQeAttribute object used to provide message-level security. The attribute must match the attribute attached to the message returned by this method. Failure to do this may result in message loss.

confirmId A long value denoting whether or not to use assured message delivery. A nonzero value does not remove the message from the target queue, this occurs on a subsequent confirm flow. A value of zero removes the message from the target queue immediately.

Return Values

An MQeMsgObject containing the next element in the enumeration

Exceptions

`Except_NotSupported`

Example

```
class MyMQeApplication
{
  ...
  MQeEnumeration msgEnum = null;
  msgEnum = qmgr.browseMessages( "RemoteQMgr", "RemoteQueue", null, null,
                                 false );
  while( msgEnum.hasMoreElements() )
  {
    /* get message */
    MQeMsgObject msg = msgEnum.getNextMessage( null, MQe.uniqueValue() );
    /* confirm get */
    qmgr.confirmGetMessage( msgEnum.getQueueManagerName(),
                            msgEnum.getQueueName(),
                            msg.getMsgUIDFields() );
  }
  ...
}
```

MQeEnumeration getQueueManagerName

Syntax

```
public String getQueueManagerName()
```

Description

This method returns the name of the queue manager that owns the queue from which the messages contained in the enumeration were browsed.

Parameters

none

Return Values

A String containing the name of the queue manager that owns the queue from which these messages were browsed.

Exceptions

none

Example

```
cclass MyMQeApplication
{
  ...
  MQeEnumeration msgEnum = null;
  msgEnum = qmgr.browseMessages( "RemoteQMgr", "RemoteQueue", null, null,
                                 false );
  while( msgEnum.hasMoreElements() )
  {
    /* get message */
    MQeMsgObject msg = msgEnum.getNextMessage( null, MQe.uniqueValue() );
    /* confirm get */
    qmgr.confirmGetMessage( msgEnum.getQueueManagerName(),
                            msgEnum.getQueueName(), msg.getMsgUIDFields() );  }
  ...
}
```

Related functions

getQueueName()

MQeEnumeration getQueueName

Syntax

public String getQueueName()

Description

This method returns the name of the queue from which the messages contained in the enumeration were browsed

Parameters

none

Return Values

A String containing the name of the queue from which these messages were browsed.

Exceptions

none

Example

```
class MyMQeApplication
{
  ...
  MQeEnumeration msgEnum = null;
  msgEnum = qmgr.browseMessages( "RemoteQMgr", "RemoteQueue", null, null,
                                 false );
  while( msgEnum.hasMoreElements() )
  {
    /* get message */
    MQeMsgObject msg = msgEnum.getNextMessage( null, MQe.uniqueValue() );
    /* confirm get */
```

```
            qmgr.confirmGetMessage( msgEnum.getQueueManagerName(),
                                    msgEnum.getQueueName(), msg.getMsgUIDFields() );  }
          ...
        }
```

Related functions

getQueueManagerName

MQeException

This class is used to create an MQeException object.

Package **com.ibm.mqe**

This class is a descendant of MQe

Constructors

MQeException

Syntax

1. `public MQeException( )`
2. `public MQeException( int codeValue  )`
3. `public MQeException( String errorMsg )`
4. `public MQeException( int codeValue, String errorMsg )`

Description

Constructs an MQeException object. There are five forms of constructor:

1. Creates an object that has a *codeValue* of `0` and does not have an error message
2. Creates an object that has the specified *codeValue* and does not have an error message
3. Creates an object that has a *codeValue* of `0` and has an error message
4.
   a. Creates an object that has the specified *codeValue* and has an error message
   b. Creates an object that has the specified *codeValue*, has an error message and has imbedded (hidden) data

The value of the *codeValue* parameter should be one of the constants defined in the MQe class, for example, `MQe.Except_NotFound`.

Parameters

codeValue An integer value, normally one of the `MQe.Except_...` constants

errorMsg A String associated with the exception, and possibly displayed when the exception occurs

Return values

none

Exceptions

none

Example

```
class MySampleClass
   {
   ...
   if ( data == null )
     throw new MQeException( MQe.Except_Data, "Data missing" );
   ...
   ...
   }
```

Methods

Method	Purpose
code	Returns the integer value of the exception

MQeException code

Syntax

```
public int code( )
```

Description

This method extracts the code value of the MQeException, (the value that was set when the exception was created).

Parameters

none

Return values

An integer

Exceptions

none

Example

```
class MySampleClass
  {
  ...
  try
    {
    ...
    }
  catch ( Exception e )
    {
    if ( e instanceof MQeException )
      switch (((MQeException) e).code( ) )
        {
        case MQe.Except_Data:
          System.err.println( "Data format error" );
          break;
        case MQe. Except_NotFound:
          System.err.println( "Data not specified" );
          break;
        }
    else
      System.err.println( "Error:" + e.toString( ) );
  ...
  }
```

MQeFields

This class is used to create a basic MQeFields object. This object is used to hold various data items and provide mechanisms to dump and restore these field items to or from a byte array.

Field items are assigned a character name at the time they are added to the MQeFields object. This name must:

- Be at least 1 character long
- Conform to the ASCII character set, that is characters with values between 20 and 128
- Must not include any of the characters {}[]#():;,'"=

Note: These rules are not enforced but the results are unpredictable if they are not followed.

Package **com.ibm.mqe**

This class is a descendant of MQe

Constructors

Constructor	Purpose
MQeFields	Creates and initializes the MQeFields object

MQeFields

Syntax

1. `public MQeFields( )`
2. `public MQeFields( byte data[] )`

Description

The constructor creates and initializes the MQeFields object. There are two forms of the constructor:

1. With no parameters. This constructs an empty MQeFields object.
2. With a byte array. This restores an MQeFields object from the supplied byte array.

   Note: The objects must be of the same type

Parameters

data A byte array containing a dumped MQeFields object

Return values

none

Exceptions

MQeException Except_data, ″data:xxxx″

Except_Type, ″Type: aaaa - bbbb″

Example

```
class MyApplication
   {
   ...
```

```
MQeFields fields = new MQeFields( );
...
...
}
```

Methods

Method	Purpose
contains	Verifies that the field exists within the object
copy	Copies a field or set of fields from one MQeFields object to another
dataType	Determines the data type of a field in the object
delete	Removes a field from the object
dump	Dumps the contents of the message object to a byte array
dumpedType	Returns the object type of the dumped MQeFields object
dumpToString	Produces a human readable representation of the contents of the MQeFields object
equals	Performs an equality test with another MQeFields object
fields	Returns an enumeration of all the fields in the object
getArrayLength	Extracts the length value of a dynamic array of field's
getArrayOfByte	Extracts a fixed size array of bytes
getArrayOfDouble	Extracts a fixed size array of double size floating point numbers
getArrayOfFloat	Extracts a fixed size array of float size floating point numbers
getArrayOfInt	Extracts a fixed size array of int size integers
getArrayOfLong	Extracts a fixed size array of long size integers
getArrayOfShort	Extracts a fixed size array of short size integers
getAscii	Extracts an Ascii string
getAsciiArray	Extracts an Ascii array of strings
getAttribute	Extracts the current attribute object reference
getBoolean	Extracts a boolean value or `null`
getByte	Extracts a byte value
getByteArray	Extracts a dynamic size array of byte values
getDouble	Extracts a double floating point value
getDoubleArray	Extracts a dynamic size array of double floating point values
getFields	Extracts an imbedded MQeFields object
getFieldsArray	Extracts a dynamic size array of MQeFields objects
getFloat	Extracts a float value
getFloat	Extracts a float value
getInt	Extracts an integer
getIntArray	Extracts a dynamic size integer array
getLong	Extracts a long integer
getLongArray	Extracts a dynamic size long integer array
getShort	Extracts a short integer
getShortArray	Extracts a short integer array
getUnicode	Extracts a Unicode string

MQeFields

Method	Purpose
getUnicodeArray	Extracts a dynamic size array of Unicode strings
hide	Prevents a field from being used within the equals check
putArrayLength	Sets the length value of a dynamic array of field's
putArrayOfByte	Sets a fixed size array of bytes
putArrayOfDouble	Sets a fixed size array of double size floating point numbers
putArrayOfFloat	Sets a fixed size array of float size floating point numbers
putArrayOfInt	Sets a fixed size array of int size integers
putArrayOfLong	Sets a fixed size array of long size integers
putArrayOfShort	Sets a fixed size array of short size integers
putAscii	Sets a string containing Ascii characters
putAsciiArray	Sets a dynamic size array of strings containing Ascii characters
putBoolean	Sets a boolean value
putByte	Sets in the message data from a byte
putByteArray	Sets a dynamic size array of byte values
putDouble	Sets a double floating point value
putDoubleArray	Sets a dynamic size double floating-point array
putFields	Sets an imbedded MQeFields object
putfFieldsArray	Sets an array of MQeFields objects
putFloat	Sets a float value
putFloatArray	Sets a dynamic size float array
putInt	Sets an integer
putIntArray	Sets a dynamic size integer array
putLong	Sets a long integer
putLongArray	Sets a dynamic size long integer array
putShort	Sets a short integer
putShortArray	Sets a dynamic size short integer array
putUnicode	Sets a string containing Unicode characters
putUnicodeArray	Sets a dynamic size array of strings containing Unicode characters
rename	Renames an item held within the MQeFields object
restore	Restores the contents of an MQeFields object from a byte array produced by the **dump()** method
restoreFromFile	Restores the contents of an MQeFields object from a file in either binary or formatted Ascii
restoreFromString	Restores the contents of an MQeFields object from an Ascii string (typically produced by a **dumpToString()** method call)
setAttribute	Assigns an attribute object to an MQeFields object
updateValue	Updates (increments or decrements) an integer type value within an MQeFields object

MQeFields contains

Syntax

```
public boolean contains( String item )
```

Description

This method verifies that a field exists within the MQeFields object

Parameters

item The name of the item to be checked

Return values

true The field was found

false The field was not found

Exceptions

none

Example

```
class MyApplication
   {
   ...
   MQeFields msg = new MQeFields( );
   msg.putAscii("Data", "This is some data" );
   ...
   if ( msg.contains( "Data" ) )
     ...
   ...
   }
```

MQeFields copy

Syntax

1. `public void copy( MQeFields from,`
   `boolean replace )`
2. `public void copy( MQeFields from,`
   `boolean replace,`
   `String item )`

Description

This method copies a reference to a field (or all field's) from one MQeFields object to another. There are two forms:

1. Copies all fields
2. Copies an individual field

The boolean value *replace*, if set to `false`, throws an exception if the field already exists within the target MQeFields object, if set to `true`, it replaces the value that already exists.

Parameters

from The MQeFields object to be used as the source of the data

replace A boolean controlling whether a field is to be replaced or not

item The name of a single field to be copied

Return values

none

Exceptions

MQeException `Except_Duplicate`, "Duplicate: aaaa"

Example

```
class MyApplication
  {
  ...
  MQeFields fields1 = new MQeFields( );
  fields1.putAscii("data", "This issome data" );
  ...
  MQeFields fields2 = new MQeFields( );
  fields2.copy(fields1, true, "data" )
  ...
  ...
  }
```

MQeFields dataType

Syntax

```
public char dataType( String item )
```

Description

This method returns the data type of a field within the MQeFields object.

Parameters

item The name of the item to be checked

Return values

A character value representing the data type of the field. The predefined data types in MQeFields are:

```
public    final static char    TypeUnTyped
public    final static char    TypeAscii
public    final static char    TypeUnicode
public    final static char    TypeBoolean
public    final static char    TypeByte
public    final static char    TypeShort
public    final static char    TypeInt
public    final static char    TypeLong
public    final static char    TypeFloat
public    final static char    TypeDouble
public    final static char    TypeArrayElements
public    final static char    TypeFields
```

Exceptions

MQeException Various

Example

```
class MyApplication
  {
  ...
  MQeFieldsmsg = new MQeFields( );
  msg.putAscii("Data", "This is some data" );
  ...
  if ( msg.dataType( "Data" ) ==TypeAscii) {
  ...
  }
```

MQeFields delete

Syntax

```
public void delete( String item )
```

Description

This method deletes an existing field from the MQeFields object.

Parameters

item The name of the item to be removed

Return values

Exceptions
none

Example

```
class MyApplication
  {
  ...
  MQeFields msg = new MQeFields( );
  msg.putAscii("Data", "This is some data" );
  ...
  msg.delete( "Data" );
  ...
  }
```

MQeFields dump

Syntax

1. `public byte[] dump( ) throws Exception`

2. `public byte[] dump( boolean allowXor ) throws Exception`

Description

This method dumps the contents of this MQeFields object to a byte array, so that is can be restored using the **restore()** method. There are two forms of this method:

1. With no parameter
2. With *allowXor*. If this is set to `false`, the MQeFields object is dumped to a byte array. With *allowXor* set to `true` , each field is XOR'd with a previous version (held internally) in an attempt to increase the number of bytes that have a value of `0x00` to try to improve the compression ratio.

If intelligent fields objects are to be created, that is fields that have program logic in them, then this logic should be activated in the **dump()** and **restore()** methods . For example, just before the MQeFields object is dumped, a data base query could be issued to get the latest data, or just after a restore, the data could be automatically stored in a data base.

Parameters

allowXor A boolean expression. `true` implies XOR the fields, `false` implies do not XOR the fields

Return values
none

Exceptions

MQeException Various

Example

```
class MyApplication
  {
  ...
  MQeFields msg = new MQeFields( );
  msg.putAscii( "Data", "This is some data" );
  ...
  byte dumpData[] = msg.dump( );
  ...
  }
```

MQeFields

MQeFields dump data format: Data sent between MQSeries Everyplace environments is encoded using the following layout:

```
{Length  Identifier  Fence  {Data}}  {Length  Identifier  Fence  {Data}} { ...}
```

Where:

Length

A variable number of bytes between 1 and 4. The length is encoded in the following manner:

The first byte has the first two bits reserved and they are used as the length of the length field:

00 = 1 byte used for length (6 bits = 0-63)

01 = 2 bytes used for length (14 bits = 0-16,383)

10 = 3 bytes used for length (22 bits = 0-4,194,303)

11 = 4 bytes used for length (30 bits = 0-1,073,741,823)

Identifier

A variable length string of bytes (each byte value must be less than `0x80`) typically this would be an Ascii string. The end of the identifier is determined when a byte with `0xC0` bits set, is encountered. The identifier is subject to the following restrictions:

- Must be at least 1 character long
- Conform the Ascii character set, (value between20 and 128)
- Must not include any of the characters `{}[]#():;,'="`

Fence A special byte delimiting the boundary between the identifier and the optional data item. This byte is used to contain the data type of the data item as shown in the following example:

```
/* Field mask values */
public    final static char    TypeFenceMask      = 0x00C0;
public    final static char    TypeHidden         = 0x0020;
public    final static char    TypeModifier       = 0x0010;
/* Field data types */
public    final static char    TypeUnTyped        = 0x0000 | TypeFenceMask;
public    final static char    TypeAscii          = 0x0001 | TypeFenceMask;
public    final static char    TypeUnicode        = 0x0002 | TypeFenceMask;
public    final static char    TypeBoolean        = 0x0003 | TypeFenceMask;
public    final static char    TypeByte           = 0x0004 | TypeFenceMask;
public    final static char    TypeShort          = 0x0005 | TypeFenceMask;
public    final static char    TypeInt            = 0x0006 | TypeFenceMask;
public    final static char    TypeLong           = 0x0007 | TypeFenceMask;
public    final static char    TypeFloat          = 0x0008 | TypeFenceMask;
public    final static char    TypeDouble         = 0x0009 | TypeFenceMask;
public    final static char    TypeArrayElements  = 0x000A | TypeFenceMask;
public    final static char    TypeFields         = 0x000B | TypeFenceMask;
```

The order of the items within the data stream is not significant.

```
08 5349 C7 1122334455 |02 44 D3 |03 5349 D6 |4603 534443 C4
6E01534FE32054E16....
```

Savings in number of bytes transmitted: Using this data structure savings in the byte stream are achieved by:

- Reserving two bits in the first length byte allowing variable length lengths. Variable length Length code (1 to 4 bytes) i.e. only the required length bytes are sent.

- Leading 0x00s and 0xFFs of integer values are not placed in the output stream. If a value is 0 or -1 no data bytes are sent.
- All the data items are typed and can be type checked at the receiving end.
- Null items are still transmitted (with data type), hence the presence of the item can be checked at the receiving end.
- Using the Fence byte for 3 distinct functions
  1. Delimiting the Identifier
  2. Defining the data type
  3. Defining that the data is:
  - null (no data bytes)
  - positive or negative (possibly no data bytes sent, 0 or -1)
  - boolean true or false (no data bytes sent)

Note: Further savings can be achieved by compressing the data. The compressors can usually be helped by performing an XOR with a previous byte stream producing repeated bytes of 0x00, but because of the variable nature of these fields and the order of the fields may change a simple XOR will not produce the desired effect. However an ″intelligent″ XOR that worked on a field by field basis produces repeated 0x00 bytes thus assisting the compressor

MQeFields dumpToString

Syntax

```
public String dumpToString( String template )
```

Description

This method dumps the MQeFields object in human readable form and returns the data as a String.

Parameters

template A String template used when formatting the output. The template should have 3 insert sequences '#n'. That is:

- ″#0″ for the data type,
- ″#1″ for the Field name
- ″#2″ for the field value.

Example:

```
"Sample template -Name=#1, Type=#0, Value=#2"
```

Return values

A String containing a representation of the MQeFields object

Exceptions

Various conversion Exceptions

Examples

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.putBoolean( "tb", true );
  ...
  fields.putLong( "ml", -1 );
  System.out.println( fields.dumpToString( "Test1.obj  (#0)\t#1\t=#2\r\n" ) );
  ...
  }
```

Example output from the dumpToString call:

```
Test1.obj  (long)     la   =[2] { 0000000000000001, FFFFFFFFFFFFFFFE }
Test1.obj  (boolean)  tb   =true Test1.obj  (byte) ba =[5] { 01, FE, FD, 04, 05 }
Test1.obj  (long)     pl   =101
Test1.obj  (ascii)     A  =Ascii string
Test1.obj  (ascii)   nA  =null
Test1.obj  (unicode)   U  =Unicode string
Test1.obj  (byte)     mb  =[1] { FE }
Test1.obj  (int)       i   =1
Test1.obj  (byte)    pb  =[1] { 02 }
Test1.obj  (boolean)  fb  =false
Test1.obj  (short)   ms  =-1
Test1.obj  (short)   sa  =[5] { 0001, FFFE, FFFD, 0004, 0005}
Test1.obj  (short)   ps  =0
Test1.obj  (int)     ia  =[3] { 00000001, FFFFFFFE, FFFFFFFD }
Test1.obj  (long)    ml  =-1
```

MQeFields dumpedType

Syntax

```
public static String dumpedType( byte data[] ) throws Exception
```

Description

This method returns a String containing the class name of the object that was dumped.

Parameters

data A byte array containing a dump of an MQeFields object

Return values

A String containing the class name of the object that was dumped

Exceptions

MQeException Except_Data,, "Data:aaa"

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.putAscii( "Data", "This is some data" );
  byte dumpdata[] = fields.dump(fields.dump( );
 ...
 String ObjType = fields.dumpedType(objType = MQeFields.dumpedType( dumpdata );
 ...
 }
```

MQeFields equals

Syntax

```
public boolean equals( MQeFields match ) throws Exception
```

Description

The default method requires an MQeFields (or descendent) as a parameter, each field in the parameter object is checked for equality with a matching field in the MQeFields.

Override this method to provide a different type of equality check.

Parameters

match An MQeFields object containing the items to be used for the comparison.

Return values

`true` if the there is a match otherwise `false`

Exceptions

MQeException	`Except_Type`,"wrong field type"
MQeException	`Except_NotFound`, item + " not found"

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.putAscii( "Data1", "This is some data" );
  fields.putAscii( "Data2", "This is more data" );
  ...
  MQeFields test = new MQeFields( );
  test.putAscii( "Data1", "This is some data" );
  ...
  if ( fields.equals( test ) )
    ...
  else
    ...
  }
```

MQeFields fields

Syntax

```
public Enumeration fields( )
```

Description

This method returns an enumeration object that contains all the field names within the object.

Parameters

none

Return values

An enumeration object containing the field names

Exceptions

MQeException	`Except_Type`, "wrong field type"
MQeException	`Except_NotFound`, item + " not found"

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.putAscii( "data", "This is some data" );
  ...
  Enumeration names = fields.fields( );
  ...
  }
```

MQeFields getArrayLength

Syntax

```
public int getArrayLength( String item ) throws Exception
```

Description

This extracts the dynamic array length of the specified item. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

An array of strings containing the Ascii data from the message

Exceptions

MQeException	Except_Type, ″wrong field type″
	Except_NotFound, item + ″ not found″

Example

```
class MyApplication
   {
   ...
   MQeFields fields = new MQeFields( dumpData );
   ...
   int numElements = fields.getArrayLength( "Data" );
   ...
   }
```

MQeFields getArrayOfByte

Syntax

```
public byte[] getArrayOfByte( String item ) throws Exception
```

Description

This extracts an array of bytes data from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A byte array containing the data from the message

Exceptions

MQeException	Except_Type, ″wrong field type″
	Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  byte data[] = fields.getArrayOfByte( "Data" );
  ...
  }
```

MQeFields getArrayOfDouble

Syntax

```
public double[] getArrayOfDouble( String item ) throws Exception
```

Description

This extracts an array of double floating point numbers from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values
An array of double values

Exceptions

MQeException Except_Type, ″wrong field type″

Except_NotFound, item + ″ not found″

Example

```
class MyApplication
 {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  double data[] = fields.getArrayOfDouble( "Data" );
  ...
 }
```

MQeFields getArrayOfFloat

Syntax

```
public float[] getArrayOfFloat( String item ) throws Exception
```

Description
This extracts an array of floating point numbers from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values
An array of float values

Exceptions

MQeException Except_Type, ″wrong field type″

Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...

  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  float data[] = fields.getArrayOfFloat( "Data" );
  ...
  }
```

MQeFields getArrayOfInt

Syntax

```
public int[] getArrayOfInt( String item ) throws Exception
```

Description
This extracts an array of int length integer numbers from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved.

Return values
An array of int values

Exceptions

MQeException	`Except_Type`, ″wrong field type″
	`Except_NotFound`, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  int data[] = fields.getArrayOfInt( "Data" );
  ...
  }
```

MQeFields getArrayOfLong

Syntax

```
public long[] getArrayOfLong( String item ) throws Exception
```

Description
This extracts an array of long length integer numbers from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values
An array of long values

Exceptions

MQeException	`Except_Type`, ″wrong field type″
	`Except_NotFound`, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  long data[] = fields.getArrayOfLong( "Data" );
  ...
  }
```

MQeFields getArrayOfShort

Syntax

```
public short[] getArrayOfShort( String item ) throws Exception
```

Description
This extracts an array of short length integer numbers from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values
An array of short values

Exceptions

MQeException Except_Type, ″wrong field type″

Except_NotFound, item + ″ not found″

Example

```
class MyApplication
 {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  short data[] = fields.getArrayOfShort( "Data" );
  ...
 }
```

MQeFields getAscii

Syntax

```
public String getAscii( String item ) throws Exception
```

Description
This extracts the Ascii data from the MQeFields object and returns it as a string. An exception is thrown if there is no data or it is of the wrong data type.

Note: The *item* parameter is a java Unicode string, which must only contain character codes that appear in the invariant part of the Ascii code pages (characters with values between 20 and 128, not including {}[]#():;'"=). If you attempt to pass variant character codes, these codes are subject to translations between machines when different codepages are used to manipulate the data, possibly resulting in unpredictable results. If you wish to pass variant character codes in an MQSeries Everyplace message, we recommend you use the **putArrayOfByte()** method and handle your own codepage translations between machines , or **putUnicode()** method where no codepage translations is required.

Parameters

item The name of the item to be retrieved

Return values
A string containing the Ascii data from the message

Exceptions

MQeException Except_Type, ″wrong field type″

Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields();
  fields.restore( dumpData );
```

```
...
String data = fields.getAscii( "Data" );
...
}
```

MQeFields getAsciiArray

Syntax

```
public String[] getAsciiArray( String item ) throws Exception
```

Description

This extracts the Ascii data (see note in"MQeFields getAscii" on page 97) from the MQeFields object and returns it as an array of strings. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

An array of strings containing the Ascii data from the message

Exceptions

MQeException `Except_Type`, "wrong field type"

`Except_NotFound`, item + " not found"

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  String data[] = fields.getAsciiArray( "Data" );
  ...
  }
```

MQeFields getAttribute

Syntax

```
public MQeAttribute getAttribute( )
```

Description

This method returns an MQeAdminQueueAdminMsg object reference associated with this MQeFields object, or `null` if there is no attribute.

Parameters

none

Return values

An MQeAdminQueueAdminMsg object reference

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeAttribute thisAttribute = fields.getAttribute( );
  ...
  }
```

MQeFields getBoolean

Syntax

```
public boolean getBooean( String item ) throws Exception
```

Description

This extracts a boolean value from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A boolean set to either `true` or `false`

Exceptions

MQeException	`Except_Type`, ″wrong field type″
	`Except_NotFound`, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  boolean data = fields.getBoolean( "Data" );
  ...
  }
```

MQeFields getByte

Syntax

```
public byte getByte( String item ) throws Exception
```

Description

This extracts a byte of data from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A byte containing the data from the field

Exceptions

MQeException	`Except_Type`, ″wrong field type″
	`Except_NotFound`, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  byte data = fields.getByte( "Data" );
  ...
  }
```

MQeFields getByteArray

Syntax

```
public byte[] getByteArray( String item ) throws Exception
```

Description

This extracts the byte data from the MQeFields object and returns it as a byte array. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A byte array containing the data from the field

Exceptions

MQeException	Except_Type, ″wrong field type″
	Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  byte data[] = fields.getByteArray( "Data" );
  ...
  }
```

MQeFields getDouble

Syntax

```
public double getDouble( String item ) throws Exception
```

Description

This extracts a double length floating point value from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A double containing the value from the field

Exceptions

MQeException	Except_Type, ″wrong field type″
	Except_NotFound, item + ″ not found″

Example

```
class MyApplication
   {
   ...
   MQeFields fields = new MQeFields( );
   fields.restore( dumpData );
   ...
   double data = fields.getDouble( "Data" );
   ...
   }
```

MQeFields getDoubleArray

Syntax

```
public byte[] getDoubleArray( String item ) throws Exception
```

Description

This extracts a dynamic array of double length floating point values from the MQeFields object and returns it as an array of doubles. The length of the array is determined by the *ArrayLength* value for this item. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A byte array containing the data from the field

Exceptions

MQeException	Except_Type, ″wrong field type″
	Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  double data[] = fields.getDoubleArray( "Data" );
  ...

  }
```

MQeFields getFields

Syntax

```
public MQeFields getFields( String item ) throws Exception
```

Description

This extracts a field item from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A double containing the value from the field

Exceptions

MQeException	Except_Type, ″wrong field type″
	Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
```

```
...
MQeFields data = fields.getFields( "Data" );
...
}
```

MQeFields getFieldsArray

Syntax

```
public MQeFields[] getFieldsArray( String item ) throws Exception
```

Description

This extracts a dynamic array of field objects from the MQeFields object and returns it as an array. The length of the array is determined by the *ArrayLength* value for this item. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

An array containing the MQeFields object

Exceptions

MQeException Except_Type, ″wrong field type″

Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  MQeFields data[] = fields.getFieldsArray( "Data" );
  ...
  }
```

MQeFields getFloat

Syntax

```
public float getFloat( String item ) throws Exception
```

Description

This extracts a float value item from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A float containing the value from the field

Exceptions

MQeException Except_Type, ″wrong field type″

Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
```

```
fields.restore( dumpData );
...
float data = fields.getFloat( "Data" );
...
}
```

MQeFields getFloatArray

Syntax

```
public float[] getFloatArray( String item ) throws Exception
```

Description

This extracts a dynamic array of float values from the MQeFields object and returns it as an array. The length of the array is determined by the *ArrayLength* value for this item. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

An array containing the float values

Exceptions

MQeException Except_Type, "wrong field type"

Except_NotFound, item + " not found"

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  float data[] = fields.getFloatArray( "Data" );
  ...
  }
```

MQeFields getInt

Syntax

```
public int getInt( String item ) throws Exception
```

Description

This extracts an int length integer value item from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

An int containing the value from the field

Exceptions

MQeException Except_Type, "wrong field type"

Except_NotFound, item + " not found"

Example

```
class MyApplication
  {
  ...
```

```
MQeFields fields = new MQeFields( );
fields.restore( dumpData );
...
int data = fields.getInt( "Data" );
...
}
```

MQeFields getIntArray

Syntax

```
public int[] getIntArray( String item ) throws Exception
```

Description

This extracts a dynamic array of int length integer values from the MQeFields object and returns it as an array. The length of the array is determined by the *ArrayLength* value for this item. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

An array containing the int values

Exceptions

MQeException	Except_Type, ″wrong field type″
	Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpdDta );
  ...
  int data[] = fields.getIntArray( "Data" );
  ...
  }
```

MQeFields getLong

Syntax

```
public long getLong( String item ) throws Exception
```

Description

This extracts an long length integer value item from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A long containing the value from the field

Exceptions

MQeException	Except_Type, ″wrong field type″
	Except_NotFound, item + ″ not found″

Example

```
class MyApplication
   {
   ...
   MQeFields fields = new MQeFields( );
   fields.restore( dumpData );
   ...
   long data = fields.getLong( "Data" );
   ...
   }
```

MQeFields getLongArray

Syntax

```
public long[] getLongArray( String item ) throws Exception
```

Description

This extracts a dynamic array of long length integer values from the MQeFields object and returns it as an array. The length of the array is determined by the *ArrayLength* value for this item. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

An array containing the long values

Exceptions

MQeException Except_Type, "wrong field type"

Except_NotFound, item + " not found"

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  long data[] = fields.getLongArray( "Data" );
  ...
  }
```

MQeFields getShort

Syntax

```
public short getShort( String item ) throws Exception
```

Description

This extracts a short length integer value item from the MQeFields object. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A short integer containing the value from the field

Exceptions

MQeException Except_Type, "wrong field type"

Except_NotFound, item + " not found"

Example

```
class MyApplication
   {
   ...
   MQeFields fields = new MQeFields( );
   fields.restore( dumpData );
   ...
   short data = fields.getShort( "Data" );
   ...
   }
```

MQeFields getShortArray

Syntax

```
public short[] getShortArray( String item ) throws Exception
```

Description

This extracts a dynamic array of short length integer values from the MQeFields object and returns it as an array. The length of the array is determined by the *ArrayLength* value for this item. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

An array containing the short values

Exceptions

MQeException Except_Type, ″wrong field type″

Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  short data[] = fields.getShortArray( "Data" );
  ...
  }
```

MQeFields getUnicode

Syntax

```
public String getUnicode( String item ) throws Exception
```

Description

This extracts the Unicode data from the message object and returns it as a string. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

A string containing the Unicode data from the message

Exceptions

MQeException Except_Type, ″wrong field type″

Except_NotFound, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  String data = fields.getUnicode( "Data" );
  ...
  }
```

MQeFields getUnicodeArray

Syntax

```
public String[] getUnicodeArray( String item ) throws Exception
```

Description

This extracts the Unicode data from the message object and returns it as an array of strings. An exception is thrown if there is no data or it is of the wrong data type.

Parameters

item The name of the item to be retrieved

Return values

An array of strings containing the Unicode data from the message

Exceptions

MQeException `Except_Type`, ″wrong field type″

`Except_NotFound`, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  String data[] = fields.getUnicodeArray( "Data" );
  ...
  }
```

MQeFields hide

Syntax

```
public void hide( String item, boolean state ) throws Exception
```

Description

This sets an item within the MQeFields object to be included (`true`) or not included (`false`), when an equals test is performed against the MQeFields object

Parameters

item The name of the item to be hidden/included.

state hide (`true`) or include (`false`)

Return values

none

Exceptions

MQeException `Except_NotFound`, item + ″ not found″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( dumpData );
  ...
  fields.hide( "Data" );
  if ( OldFields.equals( fields ) )
    ...
  ...
  }
```

MQeFields putArrayLength

Syntax

```
public void putArrayLength( String item, int length ) throws Exception
```

Description

This sets the dynamic array length of the specified item.

Parameters

item	The name of the item to be set
length	The length of the array in number of elements

Return values

none

Exceptions

none

Example

```
class MyApplication
 {
  ...
  MQeFields fields = new MQeFields( dumpData );
  ...
  fields.putArrayLength( "Data", 5 );
  ...
  }
```

MQeFields putArrayOfByte

Syntax

```
public void putArrayOfByte( String item,  byte data ) throws Exception
```

Description

This method sets the data in the message object for the supplied byte array.

Parameters

item	The name of the item to be set
data	A byte array containing the data to be set into the message object

Return values

none

Exceptions

MQeException	Various

Example

```
class MyApplication
 {
  ...
  MQeFields fields = new MQeFields( );
  ...
  fields.putArrayOfByte( "Data", new byte[] { 1, 2, 3, 4 } );
 ...
 }
```

MQeFields putArrayOfDouble

Syntax

```
public void putArrayOfDouble( String item, double data[] )
                                                    throws Exception
```

Description

This sets an array of double floating point numbers into the MQeFields object.

Parameters

item	The name of the item to be set
data	The array of double values to be copied into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
 double data[] = fields.putArrayOfDouble( "Data" );
  ...
  }
```

MQeFields putArrayOfFloat

Syntax

```
public void putArrayOfFloat( String item, float data[] )
                                                  throws Exception
```

Description

This sets an array of floating point numbers into the MQeFields object.

Parameters

item	The name of the item to be set
data	The array of float values to be copied into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  float data[] = fields.putArrayOfFloat( "Data" );
  ...
  }
```

MQeFields putArrayOfInt

Syntax

```
public void putArrayOfInt( String item, int data[] ) throws Exception
```

Description

This sets an array of int length integer numbers into the MQeFields object.

Parameters

item	The name of the item to be set
data	The array of int values to be copied into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields();
  fields.restore( dumpData );
  ...
  fields.putArrayOfInt( "Data",new int[] { 1, 2, 3, 4 } );
  ...
  }
```

MQeFields putArrayOfLong

Syntax

```
public void putArrayOfLong( String item, long data[] ) throws Exception
```

Description

This sets an array of long length integer numbers into the MQeFields object.

Parameters

item	The name of the item to be set
data	The array of long values to be copied into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields();
  fields.restore( dumpData );
  ...
  fields.putArrayOfLong( "Data",new long[] { 1, 2, 3, 4 } );
  ...
  }
```

MQeFields putArrayOfShort

Syntax

```
public void putArrayOfShort( String item, short data[] )
                                        throws Exception
```

Description

This sets an array of short length integer numbers into the MQeFields object.

Parameters

item	The name of the item to be retrieved
data	The array of long values to be copied into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.restore( dumpData );
  ...
  fields.putArrayOfShort( "Data", new short[] { 1, 2, 3, 4 } );
  ...
  }
```

MQeFields putAscii

Syntax

```
public void putAscii( String item, String data )  throws Exception
```

Description

This method sets Ascii data (see note in"MQeFields getAscii" on page 97) into the MQeFields object and sets the data type.

Parameters

item	The name of the item to be set
data	A string containing the data to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  fields.putAscii( "Data", "This is some data" );
  ...
  }
```

MQeFields putAsciiArray

Syntax

```
public void putAsciiArray( String item, String data[] ) throws Exception
```

Description

This method sets Ascii data (see note in"MQeFields getAscii" on page 97) from an array of strings into the MQeFields object and sets the data type.

Parameters

item	The name of the item to be set
data	A string array containing the data to be set into the MQeFields object

Return values

none

Exceptions

MQeException	Various

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  String data[] = { "This is some data", "This is more data" };
  fields.putAsciiArray( "Data", data[] );
  ...
  }
```

MQeFields putBoolean

Syntax

```
public void putBoolean( String item, boolean data ) throws Exception
```

Description

This sets a boolean value into the MQeFields object.

Parameters

item	The name of the item to be set
data	The boolean value to be set

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
```

```
MQeFields fields = new MQeFields( );
fields.restore( dumpData );
...
fields.putBoolean( "Data", false );
...
}
```

MQeFields putByte

Syntax

```
public void putByte( String item, byte data ) throws Exception
```

Description

This method sets the data in the MQeFields object for the supplied byte.

Parameters

item The name of the item to be set

data A byte containing the data to be set into the message object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  fields.putByte( "Data", 123 );
  ...
  }
```

MQeFields putByteArray

Syntax

```
public void putByteArray( String item, byte data[][] ) throws Exception
```

Description

This method sets the data in the MQeFields object for the supplied array of byte arrays.

Parameters

item The name of the item to be set

data An array of byte arrays containing the data to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  byte data[][] = new byte[2][];
  data[1][] = { 1, 2, 3, 4 };
```

```
data[2][] = { 5, 6, 7, 8 };
fields.putByteArray( "Data", data );
...
}
```

MQeFields putDouble

Syntax

```
public void putDouble( String item, double data ) throws Exception
```

Description

This method sets the data in the MQeFields object for the supplied double value.

Parameters

item The name of the item to be set

data A double value to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  fields.putDouble( "Data", 123.456 );
  ...
  }
```

MQeFields putDoubleArray

Syntax

```
public void putDoubleArray( String item, byte data[][] )
                                          throws Exception
```

Description

This method sets an array of double length floating point values into the MQeFields.

Parameters

item The name of the item to be set

data An array of double values to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  double data[] = new byte[2];
  data[1] = 1.234;
```

```
data[2] = 5.678;
fields.putDoubleArray( "Data", data );
...
}
```

MQeFields putFields

Syntax

```
public void putFields( String item, MQeFields data ) throws Exception
```

Description

This method sets the data field as an item within this MQeFields object.

Parameters

item The name of the item to be set

data An field to be set into this MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  MQeFields subFields = new MQeFields( );
  ...
  fields.putFields( "Data", subFields );
  ...
  }
```

MQeFields putFieldsArray

Syntax

```
public void putFieldsArray( String item, MQeFields data[] )
                                              throws Exception
```

Description

This method sets an array of fields into this MQeFields object.

Parameters

item The name of the item to be set

data An array of fields to be set into this MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  MQeFields subFields = new MQeFields[2];
  MQeFields subFields[0] = new MQeFields( );
  MQeFields subFields[1] = new MQeFields( );
```

```
...
fields.putFieldsArray( "Data", subFields );
...
}
```

MQeFields putFloat

Syntax

```
public void putFloat( String item, float data ) throws Exception
```

Description

This method sets the for the supplied float value in the MQeFields object .

Parameters

item	The name of the item to be set
data	A float value to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  fields.putFloat( "Data", 123.456 );
  ...
  }
```

MQeFields putFloatArray

Syntax

```
public void putFloatArray( String item, float data[] ) throws Exception
```

Description

This method sets an array of floating point values into the MQeFields object.

Parameters

item	The name of the item to be set
data	An array of floating point values to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  float data[] = new byte[2];
```

```
data[1] = 1.234;   data[2] = 5.678;
fields.putFloatArray( "Data", data );
...
}
```

MQeFields putInt

Syntax

```
public void putInt( String item, int data ) throws Exception
```

Description

This method sets the an integer into the MQeFields object.

Parameters

item The name of the item to be set

data An integer value to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  fields.putInt( "Data", 123456 );
  ...
  }
```

MQeFields putIntArray

Syntax

```
public void putIntArray( String item, int data[] ) throws Exception
```

Description

This method sets an array of integer values into the MQeFields object.

Parameters

item The name of the item to be set

data An array of integer values to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  int data[] = new byte[2];
  data[1] = 1234;   data[2] = 5678;
  fields.putIntArray( "Data", data );
  ...
  }
```

MQeFields putLong

Syntax

```
public void putLong( String item, long data ) throws Exception
```

Description

This method sets the a long value into the MQeFields object.

Parameters

item The name of the item to be set

data A long value to be set into the MQeFields object

Return values

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  fields.putLong( "Data", 123456 );
  ...
  }
```

MQeFields putLongArray

Syntax

```
public void putLongArray( String item, long data[] ) throws Exception
```

Description

This method sets an array of long values into the MQeFields object.

Parameters

item The name of the item to be set

data An array of long values to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  long data[] = new byte[2];
  data[1] = 1234;   data[2] = 5678;
  fields.putLongArray( "Data", data );
  ...
  }
```

MQeFields putShort

Syntax

```
public void putShort( String item, short data ) throws Exception
```

Description

This method sets the a short value into the MQeFields object.

Parameters

item	The name of the item to be set
data	A short value to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  fields.putShort( "Data", 123 );
  ...
  }
```

MQeFields putShortArray

Syntax

```
public void putShortArray( String item, short data[] ) throws Exception
```

Description

This method sets an array of short values into the MQeFields object.

Parameters

item	The name of the item to be set
data	An array of short values to be set into the MQeFields object

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  short data[] = new byte[2];
  data[1] = 1234;
  data[2] = 5678;
  fields.putShortArray( "Data", data );
  ...
  }
```

MQeFields putUnicode

Syntax

```
public void putUnicode( String item, String data )   throws Exception
```

Description

This method sets Unicode data into the message object and sets the data type.

Parameters

item	The name of the item to be set
data	A string containing the data to be set into the message object

Return values
none

Exceptions
none

Example

```
class MyApplication
  {
  ...
  MQeFields msg = new MQeFields( );
  ...
  msg.putUnicode( "Data", "Merry xmas to all our readers" );
  ...
  }
```

MQeFields putUnicodeArray

Syntax

```
public void putUnicodeArray( String item, String data[] )
                                              throws Exception
```

Description
This method sets Unicode data into the message object for the string array and sets the data type.

Parameters

item	The name of the item to be set
data	An array of strings containing the data to be set into the message object

Return values
none

Exceptions
none

Example

```
class MyApplication
  {
  ...
  MQeFields msg = new MQeFields( );
  ...
  String data[] = new String[2];
  data[1] = "Merry xmas to all our readers";
  data[2] = "and a happy new year";
                       msg.putUnicode( "Data", data );
  ...
  }
```

MQeFields rename

Syntax

```
public void rename( String itemName, String newName ) throws Exception
```

Description
This method renames an existing item within the MQeFields object to the

specified new name. If an item with the *newName* already exists in the MQeFields object, it is replaced by the renamed item..

Parameters

itemName A String containing the name of the item to be renamed.

newName A String containing the new name of the item

Return values
none

Exceptions

MQeException Except_NotFound, Item + ″ not found″

Example

```
class MyApplication
  {
  ...
dumpDatafields.rename( "ThisItem", "ThatItem" );
  ...
  }
```

MQeFields restore

Syntax

```
public void restore( byte data[] ) throws Exception
```

Description
This method restores a message object from a byte array that was created using the dump method.

Parameters

data A byte array containing a dumped MQeFields object

Return values
none

Exceptions

MQeException

`Except_Type`, ″wrong field type″

`Except_NotFound`, item + ″ not found″

`Except_data`, ″data:xxxx″

`Except_Type`, ″Type: aaaa - bbbb″

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  fields.restore( dumpData );
  ...
  }
```

MQeFields restoreFromFile

Syntax

1.
```
public MQeFields restoreFromFile( String fileName,
                                  MQeAttribute attribute ) throws Exception
```

2. `public MQeFields restoreFromFile( String fileName,`
   `String endRecord,`
   `String sectionMatch,`
   `String template ) throws Exception`

Description

These methods create a new MQeFields object from the contents of a disk file. There are two forms:

1. A binary file containing a byte array from a dumped MQeFields object
2. An Ascii file containing sections, delimited by records that are delimited by *endRecord* strings, and nested fields within fields from a *sectionMatch* and *endRecord* delimited string

Parameters

fileName A String containing the name of the file to be read

attribute An MQeAdminQueueAdminMsg object used to decode (decrypt and/or decompress) the binary data

endRecord A String containing the characters that delimit an end of record. E.g. `\r\n`

sectionMatch A String containing a pattern template for:

- The section name, for example `[#0]`
- The characters that delimit an end of record, for example `\r\n`

The *sectionMatch* template should have only one insert sequence `#0`

template A String template used to parse the input.

The template should have up to 3 insert sequences '`#n`:

`#0` for the data type

`#1` for the field name

`#2` for the field value

as shown in the following example:

```
Name=#1, Type=#0, Value=#2
```

Return values

An MQeFields object containing the restored values

Exceptions

Various conversion exceptions

Example

```
class MyApplication
  {
  ...
  MQeFields fields = MQeFields.restoreFromFile(File.separator + "directory" +
                                               File.separator + "thisfile.xyz",
                                               "\r\n",
                                               "[#0]",
                                               "#1=#2" );
  ...
  }
```

The preceding example processes an Ascii file with the following structure

```
[Section1]
item1=1235678
item2=abcdef
[Section2]
item1=qwertyiop
```

It constructs an MQeFields object containing two imbedded fields objects with item names of *Section1* and *Section2,* each of these imbedded fields contains the relevant items from that section.

MQeFields restoreFromString

Syntax

1. `public void restoreFromString( String template,`
   `String data ) throws Exception`
2. `public void restoreFromString( String endRecord,`
   `String template,`
   `String data ) throws Exception`
3. `public static MQeFields restoreFromString( String endRecord,`
   `String sectionMatch,`
   `String template,`
   `String data ) throws Exception`

Description

These methods restore:

1. An individual item from string
2. A group of items from an *EndRecord* delimited string
3. A nested MQeFields within MQeFields object from a *SectionMatch* and *EndRecord* delimited string

Parameters

template

A String template used to parse the input.

The template should have up to 3 insert sequences #n:

#0 for the data type

#1 for the Field name

#2 for the field value

as shown in the following example:

```
Name=#1, Type=#0, Value=#2
```

Return values

An MQeFields object containing the restored values

Exceptions

Various conversion exceptions

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  fields.putBoolean( "tb", true );
  ...
  fields.putLong( "ml", -1 );
  String data = fields.dumpToString( "Name=#1, Type=#0 Value=#2\r\n" ) );
  ...
```

```
MQeFields newFields = new MQeFields( );
newFields.restoreFromString( "Name=#1, Type=#0 Value=#2\r\n", data );
 ...
}
```

MQeFields setAttribute

Syntax

```
public void setAttribute( MQeAttribute attribute ) throws Exception
```

Description

This method assigns an attribute to be used to encode or decode the contents of the MQeFields object when ever it is dumped or restored.

Parameters

attribute An MQeAdminQueueAdminMsg object reference

Return values

none

Exceptions

none

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  MQeAttribute attr = new MQeAttribute( null, new MQeXorCryptor( ), null );
  fields.setAttribute( attr );
  ...
  }
```

MQeFields updateValue

Syntax

```
public long updateValue( String item, long update ) throws Exception
```

Description

This method increments or decrements an integer value held within this MQeFields object.

Parameters

item The name of the item to be set

update A value to be added to the current value of the specified item

Return values

The updated value

Exceptions

MQeException Various

Example

```
class MyApplication
  {
  ...
  MQeFields fields = new MQeFields( );
  ...
  fields.putInt( "Data", 123 );
```

```
...
long l = fields.updateValue("Data", -3 );
...
}
```

MQeKey

This class is used to create an MQeKey object. MQeKey objects can be attached to and used by an attribute object. Attributes are associated with channel and MQeFields objects.

Package **com.ibm.mqe**

This class is a descendant of MQe

Constructor

MQeKey

Syntax

```
public MQeKey( )
```

Description

Constructs an MQeKey object

Parameters

none

Return values

none

Exceptions

none

Related functions

- MQeAttribute
- MQeMAttribute

Methods

Method	Purpose
setLocalKey	Sets local encrypt and decrypt keys to a value derived from the cipher key seed provided

MQeKey setLocalKey

Syntax

```
Public void setLocalKey ( String localCipherKey ) throws MQeException
```

Description

Protects data and writes it to the given target filename

Parameters

localCipherKey	Seed from which the key encrypt and decrypt keys are derived

Return Values

none

Exceptions

MQeException	`Except_NotAllowed`, ″invalid localCipherKey″

Example

```
class MySampleClass extends MQe
  {
  try
    {
    /* protecting MQeFields data                          */
    MQeDESCryptor des  = new MQeDESCryptor( );
    MQeAttribute desA  = new MQeAttribute( null, des, null);
    MQeKey localkey    = new MQeKey();
    localkey.setLocalKey( "It_is_a_secret");
    desA.setKey( localkey );
    MQeFields localf   = new MQeFields( );
    localf.setAttribute( desA );
    Trace ( "i: test data = " + "0123456789abcdef...." );
    localf.putArrayOfByte(
          "TestData", asciiToByte("0123456789abcdef....") );
    byte[] temp        = localf.dump( );
    Trace ( "i: test data protected using MQeKey = " +
                                       byteToHex( temp ) );
    /* unprotecting MQeFields data                        */
    MQeDESCryptor des2 = new MQeDESCryptor( );
    MQeAttribute desA2 = new MQeAttribute( null, des2, null);
    MQeKey localkey2   = new MQeKey();
    localkey2.setLocalKey( "It_is_a_secret");
    desA2.setKey( localkey );
    MQeFields localf2   = new MQeFields( );
    localf2.setAttribute( desA2 );
    localf2.restore ( temp );
    Trace ( "i: unprotected test data = " +
          byteToAscii(localf2.getArrayOfByte( "TestData") );
    }
  catch ( Exception e )
    {
    }
```

Related functions

- MQeLocalSecure

MQeMessageEvent

This object is passed to an application when an MQSeries Everyplace message-event occurs.

Package **com.ibm.mqe**

extends java.util.EventObject

Methods

Method	Purpose
getMsgFields	Returns an MQeFields object containing selected fields from the message that caused the event to be generated.
getQueueManagerName	Returns a String containing the name of the queue manager that owns the queue that generated this event
getQueueName	Returns a String containing the name of the queue that generated this event

MQeMessageEvent getMsgFields

Syntax

```
public MQeFields getMsgFields()
```

Description

This method returns an MQeFields object containing selected fields from the message that caused the event to be generated. The *UID* of the message (consisting of a timestamp plus the origin queue manager name) is always returned together with the message ID, correlation ID, and message priority values if they are present in the message.

Parameters

none.

Return values

An MQeFields object containing selected fields from the message that caused the event to be generated.

Exceptions

none.

Example

```
class MyMQeApplication
{
  ...
  /* called when a msg event occurs */
  public void messageArrived( MQeMessageEvent e )
  {
    String eventQueueName = e.getQueueName(); /* get origin Q name */
    if ( eventQueueName.equals( "SYSTEM.DEFAULT.LOCAL.QUEUE" ) )
    {
      ...
      /* get msg info  */
      MQeFields filter = e.getMsgFields();
      System.out.println( "Message received from QueueMgr: " +
       e.getQueueManagerName() );
      qmgr.getMessage( null, "SYSTEM.DEFAULT.LOCAL.QUEUE", filter, null, 0 );
      ...
    }
```

```
    ...
  }
  ...
}
```

MQeMessageEvent getQueueManagerName

Syntax

```
public String getQueueManagerName()
```

Description

This method returns a String containing the name of the queue manager that owns the queue that generated this event.

Parameters

none

Return values

A String containing the name of the queue manager that owns the queue that generated this event.

Exceptions

none

Example

```
class MyMQeApplication
{
  ...
  /* called when a msg event occurs */
  public void messageArrived( MQeMessageEvent e )
  {
    String eventQMgr = e.getQueueManagerName(); /* get origin QMgr  */
    String eventQueueName = e.getQueueName(); /* get origin Q name */

    if ( eventQMgr.equals( localQMgr.getName() ) )
    { /* local QMgr */
      ...
    }
    ...
  }
  ...
}
```

Related functions

getQueueName

MQeMessageEvent getQueueName

Syntax

```
public String getQueueName()
```

Description

This method returns a String containing the name of the queue that generated this event.

Parameters

none

Return values

A String containing the name of the queue that generated this event.

Exceptions

none

Example

```
class MyMQeApplication
{
  ...
  /* called when a msg event occurs */
  public void messageArrived( MQeMessageEvent e )
  {
    String eventQueueName = e.getQueueName(); /* get origin Q name */
    if ( eventQueueName.equals( "SYSTEM.DEFAULT.LOCAL.QUEUE" ) )
    {
      ...
    }
    ...
    if ( eventQueueName.equals( "MyQueue" ) )
    {
      ...
    }
  }
  ...
}
```

Related functions

getQueueManagerName

MQeMsgObject

This section describes the Java class used to create a basic MQeMsgObject. This object is used to hold data, or to contain the necessary logic to obtain the data to send from one MQSeries Everyplace system to another. Normally a descendant of this class would be used to hold additional characteristics, data or code.

Package **com.ibm.MQe**

This class is a descendant of MQeFields

Constants and variables

The following field name constants from the MQSeries Everyplace base class are used by MQeMsgObject.

The following two constants combine to make up the unique message identifier. They are set by the MQSeries Everyplace system and the application should not attempt to modify these values. *Msg_OriginQMgr* is an Ascii item and *Msg_Time* is a long integer value.

```
public  final static String   Msg_OriginQMgr
public  final static String   Msg_Time
```

The following field name constants are provided for use by message destined for or received from MQSeries systems and are not required for messages wholly within an MQSeries Everyplace environment.

They should be treated as byte arrays, and if they are to sent to MQSeries then they should be 24 bytes in length.

```
public  final static String   Msg_CorrelID
public  final static String   Msg_MsgID
```

The following field name constant is provided for use by message destined for or received from MQSeries systems and is not required for messages wholly within an MQSeries Everyplace environment. It is used to set the message style.

```
public  final static String   Msg_Style
```

This constant is an int integer and may have the following values:

```
public  final static int      Msg_Style_Datagram
public  final static int      Msg_Style_Request
public  final static int      Msg_Style_Reply
```

The following field name constants are provided for use by a message destined for, or received from, an MQSeries system and are not required for messages wholly within an MQSeries Everyplace environment. They can be used to have equal meaning by an application retrieving messages from a queue in an MQSeries Everyplace environment.

Both these field items are ASCII.

```
public  final static String   Msg_ReplyToQ
public  final static String   Msg_ReplyToQMgr
```

The following field name constant must be a byte value between the 0 and 9 and it sets the message priority. If it is not set when added to a queue then the queues default priority value takes effect.

```
public  final static String   Msg_Priority
```

The following field name constant can be used to expire a message. MQSeries Everyplace can discard the message if it has expired.

This constant can have one of two meanings.

1. If it is a long integer, the expire time is considered as the absolute time and date after which the message can be discarded.
2. If the item is an int integer, the expire time is relative to the creation time of the message object.

```
public  final static String   Msg_ExpireTime
```

The following field name is a Boolean value that the application can set or can be set by the system to indicate that the message is or has been resent.

This resend flag is set and reset by the MQSeries Everyplace system in order to control guaranteed message delivery on it's internal flows.

```
public  final static String   Msg_Resend
```

The following field name constant is a long integer value, normally the value returned by a **browseMessages()** request when browsing with lock. It is not required for messages wholly within an MQSeries Everyplace environment.

```
public  final static String   Msg_LockID
```

Constructors

MQeMsgObject

Syntax

1. `public MQeMsgObject( )`
2. `public MQeMsgObject ( byte data[] )`
3. `public MQeMsgObject ( MQeMsgObject msg )`

Description

The constructor creates and initializes the MQeMsgObject object. There are three forms of the constructor:

1. With no parameters. This constructs an empty message object.
2. With a byte array. This restores a fields object from the supplied byte array .

   Note: The objects must be of the same type
3. With an MQeMsgObject. This wrappers the supplied message into a new message object. This is normally used to wrapper messages that have attributes attached that force the data to be held encoded.

Parameters

data A byte array containing a dumped fields object.

Return values

none

Exceptions

MQeException

`Except_Type`, ″wrong field type″

`Except_NotFound`, item + ″ not found″

`Except_data`, ″data:xxxx″

`Except_Type`, ″Type: aaaa - bbbb″

Example

```
class MyApplication
  {
  ...
  MQeMsgObject msg = new MsgObject( );
  ...
  ...
  }
```

Method summary

Method	Purpose
getMsgUIDFields	Extracts the unique identifier for the message
getOriginQMgr	Extracts the name of the origination queue manager (if present)
getTimeStamp	Extracts the time the message object was created
putOriginQMgr	Sets the messages originating queue manager name **Note:** Once set this cannot be changed.
resetMsgUIDFields	Resets the message objects Unique id
unwrapMessageObject	Unwraps a wrappered message object

MQeMsgObject getMsgUIDFields

Syntax

```
public MQeFields getMsgUIDFields ( )
```

Description

This method returns an MQeFields object containing the following field items:

msg_Time	The time the message was created
msg_OriginQMgr	The name of the originating queue manager

The returned fields object can be used as a match parameter in an equality test or in a browse or get message call.

Parameters

none

Return values

An MQeFields object containing the fields used to make the unique message identifier.

Exceptions

MQeException	`Except_NotAllowed`,'Queue Manager not set'

Example

```
class MyApplication
{
...
...
MQeFields uid = Msg.getMsgIDFields( );
...
}
```

MQeMsgObject getOriginQMgr

Syntax

```
public String getOriginQMgr( )
```

Description

Returns a String containing the name of the originating queue manager or `null` if not set.

Parameters

none

Return values

A String or `null`

Exceptions

none

Example

```
class MyApplication
{
...
...
String uid = Msg.getOriginQMgr();
...
}
```

MQeMsgObject getTimeStamp

Syntax

```
public long getTimeStamp( )
```

Description

Returns a long integer value containing the time in milliseconds when the object was created.

Parameters

none

Return values

A long value in milliseconds

Exceptions

none

Example

```
class MyApplication
{
...
...
long uid = Msg.getTimeStamp ( );
...
}
```

MQeMsgObject putOriginQMgr

Syntax

```
public void putOriginQMgr( )
```

Description

Sets the name of the originating queue manager. Once this name has been set, it cannot be reset.

Note: Normally this method would only be called internally by the queue manager when a **putMessage()** call is issued.

Parameters
none

Return values
none

Exceptions
none

MQeMsgObject resetMsgUIDFields

Syntax

```
public void resetMsgUIDFields ( )
```

Description
This method resets the message objects *UID* such that a new *Msg_Time* value is generated and the *Msg_OriginQMgr* is set to `null`. This in effect creates a new message object but retains any field items that were set.

Parameters
none

Return values
none

Exceptions
none

Example

```
{
...
...
msg.resetMsgUIDFields ( );
...
}
```

MQeMsgObject unwrapMessageObject

Syntax

```
public MQeMsgObject unwrapMessageObject( MQeAttribute attribute )
```

Description
This method unwraps an imbedded MQeMsgObject, decode using the supplied attribute (if appropriate), and returns the new message object.

Parameters

attribute An MQeAttribute object reference or `null`, used to decode the imbedded message object

Return values
none

Exceptions
none

Example

```
class MyApplication
  {
  ...
  ...
  msg.resetMsgUIDFields( );
  ...
  }
```

MQeQueue

MQeQueue is the base queue class, all other types of queue are descendants of this object.

Queues are objects that hold messages, the messages are held in a message store owned by the queue. Typically, this message store would be a persistent storage device, such as a hard disk. However, other types of store can be used, such as a database. MQSeries Everyplace relies on the fact that the queues have persistent store to be able to offer it's assured message delivery, and so the use of any non-persistent storage, would invalidate the assured message delivery of MQSeries Everyplace.

The queue uses a *queue store adapter* to handle its communications with the storage device. Adapters are interfaces between MQSeries Everyplace and hardware devices, such as disks or networks, or to software, such as databases. Adapters are designed to be pluggable components, allowing the queue store to be easily changed.

The messages held on the queue can be protected by an authenticator and cryptor. The messages can also be compressed by using a compressor. Together, the authenticator, cryptor, and compressor are known as the attributes of the queue, and they are defined by specifying an appropriate MQeAttribute object to be associated with the queue.

The behaviour of the queue is governed by a set of rules. These rules take the form of a Java class and can be extended by an MQSeries Everyplace solution. The base set of queue rules is defined in the class, MQeQueueRule. During the operation of the queue, the rules are called when certain events occur, for example, when a message is put, a message expires, or a duplicate message arrives. The rules then determine how the queue handles these events.

A queue expiry interval can be defined. If a message has remained on the queue for a length of time greater than the queue's expiry interval, then the message is marked as expired. The queue's rules then determine what happens to the message, but typically the message would be either deleted, or placed on a 'dead letter queue'. The queue's expiry interval is different to a message's expiry interval.

The maximum number of messages and the maximum allowable size of an individual message can also be defined.

All queues are owned by a queue manager. The queues owned by a queue manager are known as that queue manager's *local queues*. A queue manager can also access queues belonging to another queue manager. These queues are known as *remote queues*. When a queue manager accesses a remote queue, it stores the information it has learnt about the characteristics of that queue. The information is stored in a remote queue definition. The remote queue definition is represented by the class, MQeRemoteQueue.

Package

com.ibm.mqe

Methods

Method	Purpose
getCreationDate	This method returns a long value representing the date and time at which the queue was created.
getDefaultPriority	This method returns an integer value that is the queue's default priority.
getDescription	This method returns a String object containing the description string for the queue.
getExpiryInterval	This method returns a long value that is the message expiry interval (in milliseconds) for the queue.
getMaxMessageSize	This method returns an integer value that is the maximum size of message (in bytes) which the queue can hold.
·getMaxQueueSize	This method returns an integer value that is the maximum number of messages that can be held on this queue.
getNumberOfMessages	This method returns an integer value that is the current number of messages held on this queue.
getQueueAttribute	This method returns a MQeAttribute object, which defines the authenticator, cryptor, and compressor used by this queue.
getQueueName	This method returns a String object containing the name of the queue.
getQueueStore	This method returns a String object containing the pathname of the queue's persistent store.

MQeQueue getCreationDate

Syntax

```
public long getCreationDate()
```

Description

This method returns the date and time that this queue was created.

Parameters

none

Return values

A long value representing the time that this queue was created

Exceptions

none

Example

```
class ExampleQueueManagerRules extends MQeQueueManagerRule
{
  ...
  public void addQueue( MQeQueue queue ) throws MQeException
  {
    /* only allow the addition of queues created after 1st June 2000 */
    Calendar calendar = Calendar.getInstance();
    calendar.set( 2000, 05, 01 );
    Date date = calendar.getTime();
    /* get current time */
    Date qDate = new Date( queue.getCreationDate() );
    /* compare the two dates */
    if ( date.after( qDate ) )
```

```
            throw new MQeException( Except_Rule, "addQueue disallowed" );
        }
        ...
    }
```

MQeQueue getDefaultPriority

Syntax

```
public int getDefaultPriority()
```

Description

This method returns the queue's default priority value. This is the priority value which will be used for any message placed on the queue that has not previously been assigned a priority value.

Parameters

none

Return Values

An integer value which is the default priority for this queue.

Exceptions

MQeException none

Example

```
class ExampleQueueManagerRules extends MQeQueueManagerRule
{
  ...
  public boolean transmit( MQeQueue queue )
  {
    /* allow transmission if queue's priority is greater than 5 */
    if ( queue.getDefaultPriority() > 5 )
      return (true);
    else
      return (false);
  }
  ...
}
```

MQeQueue getDescription

Syntax

```
public String getDescription()
```

Description

This method returns the description string for this queue.

Parameters

none

Return values

A String object containing the description string for this queue.

Exceptions

none

Example

```
import examples.eventlog.*;

class ExampleQueueManagerRules extends MQeQueueManagerRule
{
  public final static int Event_QueueManager_AddQueue = 201;
  LogToDiskFile logFile = null;
  ...
  public void addQueue( MQeQueue queue )
```

```
  {
    /* log the addition of a new queue */
    log( MQe_Log_Information, Event_QueueManager_AddQueue,
         "Queue " + queue.getQueueManagerName() + "+" + queue.getQueueName() +
         ": " + queue.getDescription() );
  }

  public void queueManagerActivate() throws Exception
  {
    /* create a new log file */
    logFile = new LogToDiskFile( "\\log.txt");
  }

  public void queueManagerClose()
  {
    /* close log file */
    logFile.close();
  }
  ...
}
```

MQeQueue getExpiryInterval

Syntax

```
public long getExpiryInterval()
```

Description

This method returns the message expiry interval for this queue. Any message that has been on the queue for a length of time greater than the expiry interval will be marked as expired. The queue's rules then determine what happens to the message.

Parameters

none

Return Values

A long value that is the message expiry interval (in milliseconds) for this queue. A value of zero means that the queue has no message expiry interval set.

Exceptions

none

Example

```
class ExampleQueueManagerRules extends MQeQueueManagerRule
{
  ...
  public boolean transmit( MQeQueue queue )
  {
    /* transmit if queue has a low message expiry time (less than 1 day) */
    /* (zero means no expiry) */
    if ( queue.getExpiryInterval() < (60 * 60 * 24 * 1000) &&
         queue.getExpiryInterval() > 0 )
      return (true);
    else
      return (false);
  }
  ...
}
```

MQeQueue getMaxMessageSize

Syntax

```
public int getMaxMessageSize()
```

Description

This method returns the maximum size of a message (in bytes) that can be held on this queue.

Parameters

none

Return Values

An integer value that is the maximum size of a message (in bytes) that can be held on this queue.

Exceptions

none

Example

```
{
  ...
  public void addQueue( MQeQueue queue ) throws MQeException
  {
    /* only allow addition of queue if it supports messages of at least 2MB */
    if ( queue.getMaxMessageSize() < 2048000 )
      throw new MQeException( Except_Rule, "Message size too small" );
  }
  ...
}
```

MQeQueue getMaxQueueSize

Syntax

```
public int getMaxQueueSize()
```

Description .

This method returns the maximum number of messages that can be held on this queue.

Parameters

none

Return Values

An integer value that is the maximum number of messages that can be held on this queue.

Exceptions

none

Example

```
class ExampleQueueManagerRules extends MQeQueueManagerRule
{
  ...
  public void addQueue( MQeQueue queue ) throws MQeException
  {
    /* only allow addition of queue if it supports more than 100 messages */
    if ( queue.getMaxQueueSize() < 100 )
      throw new MQeException( Except_Rule, "Max Queue depth too small" );
  }
  ...
}
```

MQeQueue getNumberOfMessages

Syntax

```
public int getNumberOfMessages()
```

Description

This method returns the current number of messages held on this queue.

Parameters

none

Return Values

An integer value that is the current number of messages held on this queue.

Exceptions

none

Example

```
class ExampleQueueManagerRules extends MQeQueueManagerRule
{
  ...
  public boolean transmit( MQeQueue queue )
  {
    /* only allow queue to transmit if it contains more than 10 messages */
    if ( queue.getNumberOfMessages() >= 10 )
      return (true);
    else
      return (false);
  }
  ...
}
```

MQeQueue getQueueAttribute

Syntax

```
public MQeAttribute getQueueAttribute()
```

Description

This method returns this queue's attribute object. The attribute object defines the authenticator, cryptor and compressor used by this queue. These attributes are used upon any messages stored on the queue.

Parameters

none

Return Values

A MQeAdminQueueAdminMsg object that defines the authenticator, cryptor, and compressor used by the queue.

Exceptions

none

Example

```
class ExampleQueueManagerRules extends MQeQueueManagerRule
{
  ...
  public void addQueue( MQeQueue queue ) throws Exception
  {
    /* only allow addition of queues with a defined DES Cryptor */
    MQeAttribute qAttribute = queue.getQueueAttribute();
    if ( qAttribute == null )
      throw new MQeException( Except_Rule, "No queue attribute defined" );

    MQeCryptor cryptor = qAttribute.getCryptor();
    if ( cryptor == null )
      throw new MQeException( Except_Rule, "No cryptor defined" );

    if ( !(cryptor.securityLevel().equals( "DES" )) )
      throw new MQeException( Except_Rule, "DES Cryptor not defined" );
  }
  ...
}
```

MQeQueue getQueueManagerName

Syntax

```
public String getQueueManagerName()
```

Description

This method returns the name of the queue manager to which this queue belongs.

Parameters

none

Return Values

A String object containing the name of the queue manager to which this queue belongs.

Exceptions

none

Examples

```
import examples.eventlog.*;

class ExampleQueueManagerRules extends MQeQueueManagerRule
{
  public final static int Event_QueueManager_AddQueue = 201;
  LogToDiskFile logFile = null;
  ...
  public void addQueue( MQeQueue queue )
  {
    /* log the addition of a new queue */
    log( MQe_Log_Information, Event_QueueManager_AddQueue,
         "Queue " + queue.getQueueManagerName() + "+" + queue.getQueueName() +
         ": " + queue.getDescription() );
  }

  public void queueManagerActivate() throws Exception
  {
    /* create a new log file */
    logFile = new LogToDiskFile( "\\log.txt");
  }

  public void queueManagerClose()
  {
    /* close log file */
    logFile.close();
  }
  ...
}
```

Related Functions

getQueueName

MQeQueue getQueueName

Syntax

```
public String getQueueName()
```

Description

This method returns the name of this queue.

Parameters

none

Return values

A String object that is the name of this queue.

Exceptions

none

Examples

```
import examples.eventlog.*;

class ExampleQueueManagerRules extends MQeQueueManagerRule
{
  public final static int Event_QueueManager_AddQueue = 201;
  LogToDiskFile logFile = null;
  ...
  public void addQueue( MQeQueue queue )
  {
    /* log the addition of a new queue */
    log( MQe_Log_Information, Event_QueueManager_AddQueue,
         "Queue " + queue.getQueueManagerName() + "+" + queue.getQueueName() +
         ": " + queue.getDescription() );
  }

  public void queueManagerActivate() throws Exception
  {
    /* create a new log file */
    logFile = new LogToDiskFile( "\\log.txt");
  }

  public void queueManagerClose()
  {
    /* close log file */
    logFile.close();
  }
  ...
}
```

Related functions

getQueueManagerName

MQeQueue getQueueStore

Syntax

```
public String getQueueStore()
```

Description

This method returns the pathname to the queue's persistent store.

Parameters

none

Return values

A String object that is the pathname to the queue's persistent store.

Exceptions

none

Example

```
import examples.eventlog.*;

class ExampleQueueManagerRules extends MQeQueueManagerRule
{
  public final static int Event_QueueManager_AddQueue = 201;
  LogToDiskFile logFile = null;
  ...
  public void addQueue( MQeQueue queue )
  {
    /* log the addition of a new queue */
    log( MQe_Log_Information, Event_QueueManager_AddQueue,
         "Queue " + queue.getQueueManagerName() + "+" + queue.getQueueName() +
```

```
            ": " + queue.getDescription() + ": Persistent store: " +
            queue.getQueueStore() );
    }

    public void queueManagerActivate() throws Exception
    {
      /* create a new log file */
      logFile = new LogToDiskFile( "\\log.txt");
    }

    public void queueManagerClose()
    {
      /* close log file */
      logFile.close();
    }
    ...
}
```

MQeQueueManager

This class is used to construct an MQSeries Everyplace queue manager object.

The MQSeries Everyplace queue manager is the focal point of the MQSeries Everyplace system. It provides:

- A central point of access to the MQSeries Everyplace and MQSeries network for MQSeries Everyplace applications
- Once-only assured delivery of messages
- Full recovery from failure conditions
- Extendable rules-based behavior

Package

com.ibm.mqe

Constructors

MQeQueueManager

Syntax

```
public MQeQueueManager( )
```

Description

Constructs an MQeQueueManager object. The **activate()** method must be called to initialize and start the queue manager.

Note: Before starting a queue manager, all required MQSeries Everyplace aliases must have been added. Refer to the *MQSeries Everyplace for Multiplatforms Programming Guide* for details of how to do this.

Parameters

None

Return values

none

Exceptions

MQeException	Except_QMgr_Activated
	Except_QMgr_AlreadyExists
	Except_QMgr_InvalidQMgrName
	Except_QMgr_NotConfigured

Examples

```
import com.ibm.mqe.*;
public class StartQueueManager {
public static void main(String[] args) {
try {
if (null == args || args.length < 1 || null == args[0]) {
System.out.println("No ini file name supplied");
} else {
System.out.println("Reading ini file: " + args[0]);
MQeFields iniSections =  MQeFields.restoreFromFile(args[0],
                                                   "\r\n", "[#0]",
                                                   "(#0)#1=#2");
MQeQueueManager queueManager = new MQeQueueManager();
System.out.println("Activating queueManager");
queueManager.activate(iniSections);
System.out.println("Closing queueManager");
```

```
queueManager.close();
System.out.println("Closed queueManager");
}
} catch (Exception e) {
System.out.println("Yet another exception thrown: " + e.getMessage());
e.printStackTrace();
}
}
}
```

Methods

Method	Purpose
activate	Activates a queue manager that has already been instantiated.
addMessageListener	Registers an object as a listener for MQSeries Everyplace message events.
browseMessages	Returns an MQeEnumeration containing the messages on the specified queue that match the specified filter.
browseMessagesAndLock	Works identically to **browseMessages()** but with the addition that all messages returned are left locked on the queue.
checkActive	Returns a boolean value denoting whether or not the queue manager is active.
close	Closes down the queue manager.
confirmGetMessage	Confirms a previous **getMessage()** operation.
confirmPutMessage	Confirms a previous **putMessage()** operation.
deleteMessage	Removes a message from the specified queue.
getMessage	Returns a message from the specified queue.
getName	Returns the unique queue manager name.
getReference	Returns an object reference to the specified queue manager.
putMessage	Places a message onto the specified queue.
removeMessageListener	Cancels an objects subscription to MQSeries Everyplace message events.
triggerTransmission	Allows an application to initiate the transmission of any pending messages.
undo	This method is intended to be used in the event of an error whilst executing a **putMessage()**, **getMessage()**, or **browseMessagesAndLock()** command.
unlockMessage	Unlocks a message that has previously been locked by a **browseMessagesAndLock()** operation.
waitForMessage	Performs an identical function to **getMessage()**, with the exception that if no message is available, the queue manager waits for a specified period for a message to become available.

MQeQueueManager activate

Syntax

1. `public void activate( MQeFields startupParameters ) throws Exception`

2. `public void activate( String name ) throws Exception`

Description

Note: Before starting a queue manager, all required MQSeries Everyplace aliases must have already been added. Refer to the *MQSeries Everyplace for Multiplatforms Programming Guide* for details of how to do this.

There are two versions of the method:

1. This is the recommended version of the method. It takes as input an MQeFields object containing startup parameters for the queue manager. The queue manager then initializes all its subcomponents correctly, and reads any information stored in its registry.
2. This version is provided solely to allow the standard queue manager activation procedure to be overridden by a class extending from MQeQueueManager. This method performs no activation procedure other than to set the queue manager name.

Note: Any class extending MQeQueueManager must call the **activate()** method to ensure that the queue manager name is set correctly.

Parameters

startupParameters

An MQeFields object containing the startup parameters for the queue manager.

The startup parameters must contain two sections, **MQeQueueManager.QueueManager**, which sets up the queue manager and **MQeQueueManager.Registry**, which sets up the registry.

MQeQueueManager.QueueManager

This section contains the following:

MQeQueueManager.Name

An Ascii string containing the queue manager's unique name. This name must:

- Be at least 1 character long
- Conform to the Ascii character set, i.e. characters with values between 20 and 128
- Must not include any of the characters `{}[]#():;,'"=`
- The first and last character of the queue manager name should not be a period (.)

However, to maintain compatibility with MQSeries, it is recommended that queue manager names are limited to a maximum length of 48 characters. The characters can be any of the following:

- Uppercase A-Z
- Lowercase a-z
- Numerics 0-9
- Period (.)
- Underscore (_)
- Percent sign (%)

MQeQueueManager.Registry
This registry must exist, and must contain the following:

MQeRegistry.LocalRegType

An Ascii string containing the type of registry to use. Currently the only recognized types are **MQeRegistry.FileRegistry** and **MQeRegistry.PrivateRegistry**.

Note: Once a registry has been created, it is recommended that the registry type is not changed. Changing the registry type may cause secure queues to function incorrectly

MQeRegistry.DirName

An Ascii string containing a pathname to the queue manager's registry.

If a Private Registry is used, the following value is required:

MQeRegistry.PIN

An Ascii value containing the PIN for the Private Registry.

If a Private Registry is used and it has been registered with the mini-certificate server (see the Security section of the MQSeries Everyplace for Multiplatforms Programming Guide), the following value is required:

MQeRegistry.KeyRingPassword

An Ascii value containing the password or pass phrase used to protect the registry's private key.

Note: For security reasons the *PIN* and *KeyRingPassword* are deleted from the startup parameters as soon as the queue manager has been activated.

Two further sections, **MQeQueueManager.AppRunList**, and **MQeQueueManager.CloseAppRunList** are optional. These sections specify a list of MQSeries Everyplace applications that are invoked once the queue manager is active, and when it receives a close request. (See "MQeRunListInterface" on page 215)

name An Ascii string containing the name of the queue manager

Return values
none

Exceptions

MQeException	Except_QMgr_Activated
	Except_QMgr_AlreadyExists
	Except_QMgr_InvalidQMgrName
	Except_QMgr_NotConfigured
	Except_NotFound

Example

```
class MyMQeApplication
{
  ...
  /* Create QueueManager startup parameters */
  MQeFields QMgrParams = new MQeFields();
  QMgrParams.PutAscii( MQeQueueManager.Name, "TestQMgr" );
  QMgrParams.PutAscii( MQeQueueManager.QueueStore, "MsgLog:c:\\TestQMgr" );

  /* Create Registry startup parameters */
  MQeFields RegParams = new MQeFields();
  RegParams.PutAscii( MQeQueueManager.RegType, MQeQueueManager.FileRegistry );
  RegParams.PutAscii( MQeQueueManager.Path, "MsgLog:c:\\TestQMgr\\Registry" );

  /* Combine the two sets of parameters into a single Fields object */
  MQeFields Params = new MQeFields();
  Params.PutFields( MQeQueueManager.QueueManager, QMgrParams );
  Params.PutFields( MQeQueueManager.Registry, RegParams );

  /* Instantiate 'null' Queue Manager */
  MQeQueueManager QMgr = new MQeQueueManager( );
  QMgr.Activate( Params ); /* Activate QMgr using parameters */
  ...
}
```

Related functions

- **close()**

MQeQueueManager addMessageListener

Syntax

```
public void addMessageListener(  MQeMessageListenerInterface listener,
                                 String queueName,
                                 MQeFields filter ) throws Exception;
```

Description

This method registers an object as a listener to any MQeMessage events generated by the queue specified in the *queueName* parameter. It is only possible to add listeners to local queues.

Note: The listening object must implement the MQeMessageListenerInterface. Events are processed by the event handler methods specified in this interface.

A message filter consisting of message fields (for example message ID or priority) may be specified so that the listening object only receives events concerning messages that include the same fields as those specified. If no fields are specified, events are triggered for all messages on the queue.

Parameters

listener	A reference to the subscribing object

queueName A String containing the name of the queue from which the listener wishes to receive events

params `null`, or an MQeFields object containing message fields. A value of `null` means that the listener wishes to receive events for all messages on the queue. Specifying an MQeFields object containing message fields means that the listener is only interested in events concerning messages whose fields match those contained in the filter.

Return Values

none

Exceptions

MQeException `Except_QMgr_NotActive`

`Except_QMgr_QdoesNotExist`

Example

```
class MyMQeApplication implements MQeMessageListenerInterface
{
  ...
  MQeFields filter = new MQeFields();   /* search parameters */
  filter.putByte( MQe.Msg_Priority,(byte)3);   /* only interested in  */
                                               /* msgs of priority 3 */
  ...
  /* add listener */
  MyQM.addMessageListener( this, "MyQueue", filter );
  ...
  /* Message arrived event handler */
  public void messageArrived( MQeMessageEvent msgEvent )
  {
    ...
    /* is it the Queue we are interested in?? */
    if ( msgEvent.getQueueName().equals("MyQueue") )
    {
      ...
    }
    ...
  }
}
```

Related Functions

- **removeMessageListener()**

MQeQueueManager browseMessages

Syntax

```
public MQeEnumeration browseMessages( String qmgrName,
                                      String queueName,
                                      MQeFields filter,
                                      MQeAttribute attribute,
                                      boolean justUID ) throws Exception;
```

Description

This method returns an enumeration of the messages available on a specified queue. The messages are not deleted from the queue. The queue can belong to a local or remote queue manager.

A filter can be specified, consisting of message fields (for example message ID or priority). This causes only messages that have matching fields to be returned

Returning an enumeration of messages in their entirety can be expensive in terms of system resources, so if the *justUID* parameter is set to `true`, just the unique ids of the messages that match the filter are returned.

The messages returned in the enumeration are still visible to other MQSeries Everyplace applications. Therefore, when performing subsequent operations on the messages contained in the enumeration, the application should be aware that it is possible for another application to have processed these messages in the time since the enumeration was returned. To lock the messages contained in the enumeration, therefore preventing other applications from processing them, use the **browseMessagesAndLock** method.

Parameters

qmgrname
A string containing the name of the queue manager that holds the queue to be browsed. If a value of `null` is used it is assumed that the local queue manager is to be used.

queueName
A string containing the name of the queue to browse

filter
`null`, or an MQeFields object containing the parameters with which to perform the browse.

attribute
An MQeAttribute object used to provide message-level security.

justUID
A boolean value denoting whether to return the all the fields in the messages, or just the *UID* values.

Return values
An MQeEnumeration containing zero or more MQeMsgObject message objects.

Exceptions

MQeException	`Except_QMgr_NotActive`
	`Except_QMgr_InvalidQMgrName`
	`Except_QMgr_QDoesNotExist`

Various other exceptions

Example

```
class MyMQeApplication
{
  ...
  MQeEnumeration msgs  = null;
  byte[] msgId = MQe.asciiToByte(240999);
  byte[] correlId = MQe.asciiToByte("240999/2");

  try
  {
    /* setup parameters object for matching  */
    MQeFields filter = new MQeFields(); /* match against msgs */
    filter.putArrayOfByte( MQe.Msg_MsgID, msgId ); /* with this Msg Id */
    filter.putArrayOfByte( MQe.Msg_CorrelID,   /* & this Correl Id */
                           correlId );

    /* look at available messages  */
```

```
    msgs = qmgr.browseMessages( null, "MyQueue", filter, null, false );
    ...
    /* get this one and remove from queue  */
    MQeMsgObject msgObj = qmgr.getMessage( null, "MyQueue",
                                           (MQeFields)msgs.nextElement(),
                                           null, 0 );
  }
  catch ( MQeException e )
  {
    ...
  }
  ...
}
```

Related Functions

- **browseMessagesAndLock()**

MQeQueueManager browseMessagesAndLock

Syntax

```
public MQeEnumeration browseMessagesAndLock(  String qmgrName,
                                              String queueName,
                                              MQeFields filter,
                                              MQeAttribute attribute,
                                              long confirmId,
                                              boolean justUID ) throws Exception;
```

Description

This method returns an enumeration of the messages available on a specified queue. The messages are not deleted from the queue. The queue may belong a local or remote queue manager.

A filter can be specified, which consists of message fields (message ID and priority for example), so that only messages that have matching fields are returned.

Any messages that are returned by this operation are also locked on the queue. This means that these messages still exist on the queue, but they will not be visible to any subsequent operations, until they are unlocked.

A *lockID* is returned as part of the browse enumeration. The *lockID* allows operations to be performed on locked messages so long as it is specified as part of the message filter that is passed into that operation.

Each *lockID* is unique, so every browse and lock operation generates a different ID. The *lockID* applies to all the messages that are returned by the browse operation.

The operations that can be performed on a locked message are:

- **getMessage()**
- **deleteMessage()**
- **unlockMessage()**

Note: waitForMessage should not be used with locked messages as the outcome is unpredictable.

Returning an enumeration of messages in their entirety can be expensive in terms of system resources, so if the *justUID* parameter is set to true just the unique ids of the messages that match the filter are returned.

Specifying an MQeAttribute object allows browsing of messages that have message-level security defined with a matching attribute. Browsing queues containing messages with differing levels of message-level security may cause undefined results.

The *confirmID* is used in the event of an error whilst executing this command. The error could occur before the lock id is returned to the application and yet leave the messages in a locked state on the target queue. Passing the same *confirmID* used on this method to the **undo()** method restores the messages to their previous state. It is recommended that a unique value be used for each browse and lock operation. A unique value can be generated using the **MQe.uniqueValue()** method.

Parameters

qmgrName	A string containing the name of the queue manager that holds the queue to be browsed. If a value of `null` is used it is assumed that the local queue manager is to be used.
queueName	A string containing the name of the queue to browse.
filter	`null`, or an MQeFields object containing the message fields with which to perform the browse.
attribute	An MQeAttribute object used to provide message-level security.
confirmId	A long value that is used in the event of a queue manager failure. The application should store the value used, and use it to reset the messages should a failure occur.
justUID	A boolean value denoting whether to return the entire message, or just its *UID*.

Return Values

An MQeEnumeration containing zero or more MQeMsgObject message objects. The enumeration also contains the lock id, which can be accessed using the **getLockID()** method.

Exceptions

MQeException	`Except_QMgr_NotActive`
	`Except_QMgr_InvalidQMgrName`
	`Except_QMgr_QDoesNotExist`

Various other exceptions

Example

```
class MyMQeApplication extends MQe
{
  ...
  MQeEnumeration msgs  = null;
  byte[] msgId = asciiToByte("240999");
  byte[] correlId = asciiToByte("240999/2");

  try
  {
    /* setup parameters object for matching  */
    MQeFields filter = new MQeFields(); /* match against msgs */
    filter.putArrayOfByte( MQe.Msg_MsgId, msgId ); /* with this Msg Id */
    filter.putArrayOfByte( MQe.Msg_CorrelId,   /* & this Correl Id */
                           correlId );
```

```
    /* look at available messages  */
    msgs = qmgr.browseMessagesAndLock( null, "MyQueue", filter, null, 0,
                                       false );
    long lockId = msgs.getLockId(); /* get Lock Id */

    filter.putLong( MQe.Msg_LockID, lockId ); /* Add lock Id */

    /* get the first locked message from queue  */
    MQeMsgObject msgObj = qmgr.getMessage( null, "MyQueue", filter, null, 0 );
  }
  catch ( MQeException e )
  {
    ...
  }
  ...
}
```

Related Functions

- **getMessage()**
- **waitForMessage()**
- **browseMessagesAndLock()**
- **unlockMessage()**
- **deleteMessage()**
- **undo()**

MQeQueueManager checkActive

Syntax

```
public boolean checkActive()
```

Description

This method allows an application to determine whether or not the queue manager is active.

Parameters

none

Return Values

A boolean value denoting whether or not the queue manager is active

Exceptions

none

Example

```
class MyMQeApplication
{
  ...
  qmgr = new MQeQueueManager( startupParams );
  if ( qmgr.checkActive() ) /* verify that QMgr is active         */
  {
    ...
  }
  else
    throw new Exception( "Queue Manager not active" );
}
```

MQeQueueManager close

Syntax

```
public void close() throws MQeException
```

Description .

This method closes down the queue manager. It should be called by MQSeries Everyplace applications when they have finished using the queue manager.

Parameters

none

Return Values

none

Exceptions

MQeException	Except_QMgr_NotActive

Example

```
class MyMQeApplication
{
  ...
  try
  {
    qmgr.putMessage( null, "MyQueue", msgObj, null, 0 );
  }
  catch ( MQeException e )
  {
    ...
  }
  ...
  qmgr.close(); /* close QMgr */
}
```

Related Functions

- **activate()**

MQeQueueManager confirmGetMessage

Syntax

```
public void confirmGetMessage( String qmgrName,
                               String queueName,
                               MQeFields filter ) throws Exception
```

Description

This method confirms the successful receipt of a message that was retrieved from a queue by a previous **getMessage()** operation. The message remains locked on the target queue until the confirm flow is received.

Parameters

queueName	A string containing the name of the queue on which the message is held.
qmgrName	A string containing the name of the queue manager that holds the queue. If a value of `null` is used it is assumed that the local queue manager is to be used.
filter	An MQeFields object containing a message filter. The filter must contain the message's *UID* for the operation to be successful.

Return Values

none

Exceptions

MQeException	Except_NotFound

Note: This exception is thrown when attempting to confirm a message that has already been confirmed. If an application has reissued a confirm get message request then this exception can be treated as a successful return code.

Various other exceptions

Example

```
class MyMQeApplication
{
  ...
  /* generate a unique confirmId for this operation */
  long confirmId = MQe.uniqueValue();
  /* get next available msg - msg still locked on target queue */
  MQeMsgObject msg = qmgr.getMessage( "RemoteQMgr", "RemoteQueue", null,
   null, confirmId );
  /* confirm the successful Get */
  qmgr.confirmGetMessage( "RemoteQMgr", "RemoteQueue",
      msg.getMsgUIDFields() );
  ...
}
```

Related Functions

- **getMessage()**

MQeQueueManager confirmPutMessage

Syntax

```
public void confirmPutMessage( String qmgrName,
                               String queueName,
                               MQeFields filter ) throws Exception
```

Description

This method performs the confirmation of a previously successful **putMessage()** operation.

Parameters

queueName A string containing the name of the queue on which the message is held.

qmgrName A string containing the name of the queue manager that holds the queue. If a value of `null` is used it is assumed that the local queue manager is to be used.

filter An MQeFields object containing a message filter. The filter must contain the message's unique id for the operation to be successful.

Return Values

none

Exceptions

MQeException `Except_NotFound`

Note: This exception is thrown when attempting to confirm a message that has already been confirmed. If an application has reissued a confirm put message request then this exception can be treated as a

successful return code.
Various other exceptions

Example

```
class MyMQeApplication
{
  ...
  /* generate a unique confirmId for this operation */
  long confirmId = MQe.uniqueValue();
  qmgr.putMessage( "RemoteQMgr", "RemoteQueue", msg, null,
                   confirmId );
  /* confirm the put  */
  qmgr.confirmPutMessage( "RemoteQMgr", "RemoteQueue",
                          msg.getMsgUIDFields() );
  ...
}
```

Related Functions

- **putMessage()**

MQeQueueManager deleteMessage

Syntax

```
public void deleteMessage( String qmgrName,
                           String queueName,
                           MQeFields filter ) throws MQeException
```

Description

This method deletes a message from a queue. It does not return the message to the application that called it.

Only one message can be deleted per operation and the *UID* (timestamp and origin queue manager name) of the message must always be supplied.

The queue may belong to a local or remote MQSeries Everyplace queue manager.

Messages that have been locked by a previous operation (browse for example) can be deleted by included a valid *lockID* in the message filter.

If the message is not available, an exception is thrown.

Parameters

queueName A String containing the name of the queue on which the message is held.

qmgrName A String containing the name of the queue manager that holds the queue. If a value of `null` is used it is assumed that the queue manager is local.

filter An MQeFields object containing a message filter. The filter must contain the *UID* of the message for the operation to be successful.

Return Values

none

Exceptions

MQeException `Except_QMgr_InvalidQName`

`Except_QMgr_NotActive`

`Except_QMgr_QDoesNotExist`

Except_QMgr_WrongType

Except_NotFound

Except_NotAllowed

Various other exceptions

Examples

```
class MyMQeApplication
{
  ...
  MQeEnumeration msgEnum;
  ...
  MQeFields filter = new MQeFields();
  filter.putArrayOfByte( MQe.Msg_MsgID, new byte[]{ 1,2,3,4 } );
  /* return all messages with a Message Id of 1234 */
  msgEnum = qmgr.browseMessages( null, "MyQueue", filter, null, false );
  /* delete all message with a Message Id of 1234 */
  while( msgEnum.hasMoreElements() )
    qmgr.deleteMessage( null, "MyQueue",
                        (MQeMsgObject)msgEnum.nextElement() );
  ...
}
```

Related Functions

- **waitForMessage()**
- **browseMessages()**
- **browseMessagesAndLock()**
- **putMessage()**
- **getMessage()**

MQeQueueManager getMessage

Syntax

```
public MQeMsgObject getMessage(  String qmgrName,
                                 String queueName,
                                 MQeFields filter,
                                 MQeAttribute attribute,
                                 long confirmId ) throws MQeException;
```

Description

This method returns an available message from the specified queue and the message is removed from the queue. The queue can belong to a local or a remote MQSeries Everyplace queue manager.

If no message filter is specified, the first available message on the queue is returned. If a message filter is specified, the first available message that matches the filter is returned.

Messages that have been locked by a previous browse operation can be retrieved by including, in the message filter, the *lockID* that was used to lock the message.

If no message is available, an exception is thrown.

The use of assured message delivery is dependent upon the value of the *confirmID* parameter. Passing a nonzero value returns the message as normal, but the message is locked and is not removed from the target queue until a subsequent confirm is received. A confirm can be issued using the **confirmGetMessage()** method. Passing a value of zero returns the message and removes it from the target queue, however, the message delivery is not assured.

The *confirmID* parameter is also used in the event of an error when executing this command. A failure could occur before the message is returned to the application and yet leave the message in a locked state on the target queue. Passing the same *confirmID* used for the get operation to the undo method restores the message to its previous state. It is recommended that a unique value be used for each get operation. A unique value can be generated using the **MQe.uniqueValue()** method.

Parameters

queueName A string containing the name of the queue from which to obtain a message.

qmgrName A string containing the name of the queue manager that holds the queue. If a value of `null` is used it is assumed that the queue manager is local.

filter `null`, or an MQeFields object containing a message filter.

attribute An MQeAttribute object used to provide message-level security. The attribute supplied must match any attribute attached to the message returned by this method. Failure to do this may result in message loss.

confirmId A long value denoting whether or not to use guaranteed message delivery. A nonzero value does not remove the message from the target queue, this occurs on a subsequent confirm flow. A value of zero will remove the message from the target queue.

Return values

An MQeMsgObject containing the message obtained from the specified queue

Exceptions

MQeException

`Except_QMgr_NotActive`

`Except_QMgr_InvalidQName`

`Except_QMgr_QDoesNotExist`

`Except_QMgr_WrongQType`

`Except_Q_NoMatchingMsg`

`Except_NotFound`

Various other exceptions

Examples

Example 1–Simple get, no message filter

```
class MyMQeApplication
{
  ...
  try
  {
    /* get 1st available message on the queue */
    MQeMsgObject myMsgObject = qmgr.getMessage( null, "MyQueue", null, null,
                                                0 );
  }
  catch ( MQeException e )
  {
```

```
    ...
  }
  ...
}
```

Example 2–Browse and get

```
class MyMQeApplication
{
  ...
  /* Lock all msgs on this queue /*
  MQeEnumeration msgEnum = qmgr.browseMessagesAndLock( null, "MyQueue",
                                                       null, null, 0, false );
  long lockId = msgEnum.getLockId(); /* get the Lock Id */
  MQeFields filter = new MQeFields(); /* create a msg filter */
  filter.putLong( MQe.Msg_LockID, lockId ); /* add lock Id */
  /* get the 1st locked message on the queue */
  MQeMsgObject msgObj = qmgr.getMessage( null, "MyQueue", filter, null, 0 );
  ...
}
```

Example 3–get with assured message delivery

```
class MyMQeApplication
{
  ...
  /* generate a unique confirmId for this operation */
  long confirmId = MQe.uniqueValue();
  /* get next available msg - msg remains locked on the target queue */
  MQeMsgObject msg = qmgr.getMessage( "RemoteQMgr", "RemoteQueue", null,
                                      null, confirmId );
  /* confirm the successful Get */
  qmgr.confirmGetMessage( "RemoteQMgr", "RemoteQueue",
                          msg.getMsgUIDFields() );
  ...
}
```

Related functions

- **waitForMessage()**
- **browseMessages()**
- **browseMessagesAndLock()**
- **putMessage()**
- **deleteMessage()**
- **confirmGetMessage()**
- **undo()**

MQeQueueManager getName

Syntax

```
public String getName();
```

Description

This method returns the name of this queue manager.

Note: It is strongly recommended that all queue manager names are unique within an MQSeries Everyplace network.

Parameters

none

Return values

A string containing the name of the queue manager.

Exceptions

none

Example

```
class MyMQeApplication
{
  ...
  String qmgrName = qmgr.getName();
  ...
}
```

MQeQueueManager getReference

Syntax

```
public static MQeQueueManager getReference( String qmgrName) throws MQeException
```

Description

This method is used to obtain an object reference to an instantiated queue manager.

Parameters

qmgrName A String containing the name of an queue manager.

Return values

An MQeQueueManager object.

Exceptions

MQeException Except_QMgr_InvalidQMgrName

Example

```
class MyMQeApplication
{
  ...
  MQeQueueManager qmgr = null;
  ...
  /* Obtain a reference to "MyQMgr" Queue Manager /*
  qmgr = MQeQueueManager.getReference( "MyQMgr" );
  /* Put a message  /*
  qmgr.putMessage( null, "DestQ", Msg, null, 0 );
  ...
}
```

MQeQueueManager putMessage

Syntax

```
public void putMessage( String qmgrName,
                        String queueName,
                        MQeMsgObject msg,
                        MQeAttribute attribute,
                        long confirmId ) throws Exception;
```

Description

This method places the specified message onto the specified queue. This queue may belong to a local or a remote queue manager.

Puts to remote queues can occur immediately, or at some later time depending upon how the remote queue is defined on the local queue manager.

If a remote queue is defined as synchronous, the transmission of the message over the network occurs immediately.

If a remote queue is defined as asynchronous, the message is stored within the local queue manager. The message remains there until the queue

manager rules decide that it is time to transmit any pending messages or the queue manager is triggered through the **triggerTransmission()** method.

If the local queue manager does not hold a definition of the remote queue then it attempts to contact the queue synchronously.

The assured delivery of the message is dependent on the value of the *confirmID* parameter. Passing a nonzero value transmits the message as normal, but the message is locked on the target queue until a subsequent confirm is received. Passing a value of zero transmits the message without the need for a subsequent confirm, however the delivery of the message is not assured.

The *confirmID* is also used in the event of an error during the execution of this command. Passing the same confirm id used for the put operation to the undo method removes the unconfirmed message from the target queue. It is recommended that a unique value be used for each put operation. A unique value can be generated using the **MQe.uniqueValue()** method.

A message can be protected using message-level security (see *MQSeries Everyplace for Multiplatforms Programming Guide* for information on MQSeries Everyplace security). The security is defined by providing an MQeAdminQueueAdminMsg object, or one of its descendants. The attribute can be attached to the message prior to any put message request, or the attribute parameter can be used to specify the message-level security to be used.

If the attribute parameter is not `null`, the value overrides any attribute attached to the message prior to the put message request. If the attribute parameter is `null`, it has no effect on the sending of the message.

Parameters

queueName A string containing the name of the queue on which the message should be placed.

qmgrName A string containing the name of the remote queue manager to which the specified queue belongs. If a value of `null` is used it is assumed that the queue manager is local.

msg An MQeMsgObject containing the message.

attribute An MQeAdminQueueAdminMsg object or a descendant, or `null`.

If `null`, then this parameter has no effect on the sending of the message.

The attribute specified here over-rides any attribute that has been previously associated with the message, and MQeFields data in the message using previous calls to the **MQeFields.setAttribute()** or **MQeMsgObject.setAttribute()** methods.

You may pass an MQeMAttribute or MQeMTrustAttribute to perform message-level security operations.

confirmId A long value denoting whether or not to use assured message delivery. A nonzero value locks the message on the target queue, it is not made visible until a subsequent confirm flow. A value of zero transmits the message without the need for a subsequent confirm.

Return values

none.

Exceptions

MQeException	Except_QMgr_InvalidQName
	Except_QMgr_NotActive
	Except_QMgr_QDoesNotExist
	Except_Duplicate

Various other exceptions

Example

Example 1–simple put

```
class MyMQeApplication
{
  ...
  try
  {
    qmgr.putMessage( null, "MyQueue", msgObj, /* simple put */
                     null, 0 );
  }
  catch ( MQeException e )
  {
    ...
  }
  ...
}
```

Example 2–put with assured message delivery

```
class MyMQeApplication
{
  ...
  /* generate a unique confirmId for this operation */
  long confirmId = MQe.uniqueValue();
  qmgr.putMessage( "RemoteQMgr", "RemoteQueue", msg, null, confirmId );
  /* confirm the put  */
  qmgr.confirmPutMessage( "RemoteQMgr", "RemoteQueue",
                          msg.getMsgUIDFields() );
  ...
}
```

Related functions

- **getMessage()**
- **waitForMessage()**
- **confirmPutMessage()**
- **undo()**

MQeQueueManager removeMessageListener

Syntax

```
public void removeMessageListener( MQeMessageListenerInterface listener,
                                   String queueName,
                                   MQeFields filter  ) throws MQeException
```

Description

This method removes an objects subscription to MQSeries Everyplace message events generated by the queue specified in *queueName*. It is only possible to have listeners on local queues.

Note: The listening object must implement the MQeMessageListenerInterface.

If an optional message filter is specified, the object's subscription is only removed for events concerning messages that include the same fields as those specified in the filter. If the filter is `null`, the object's subscription for events concerning all messages is removed.

Parameters

listener A reference to the subscribing object.

queueName A String containing the name of the queue from which the listener wishes to receive events.

filter `null` or a MQeFields object containing a message filter.

Return values
none

Exceptions

MQeException `Except_QMgr_NotActive`

`Except_QMgr_InvalidQName`

`Except_QMgr_QDoesNotExist`

Example

```
class MyMQeApplication implements MQeMessageListenerInterface
{
  ...
  /* remove the 'all messages' listener for this queue */
  qmgr.removeMessageListener( this, "MY.QUEUE", null );
  ...
}
```

Related Functions
addMessageListener

MQeQueueManager triggerTransmission

Syntax

```
public void triggerTransmission() throws Exception
```

Description
This method causes an attempt to transmit any pending messages.

Pending messages are messages awaiting transmission to remote queue managers.Typically, the transmission of pending messages would be handled by the queue manager rules, but this method allows transmission of pending messages at a time convenient to the application.

In addition, this method triggers any home-server queues that are defined. These queues attempt to collect messages from their home-servers.

This method overrides the operation of the **MQeQueueManagerRule.triggerTransmission()** rule, however, it does call the **MQeQueueManagerRule.transmi()** rule.

Parameters
none

Return values
none

Exceptions

MQeException	`Except_BadRequest`
	`Except_QMgr_NotActive`
	`Except_QMgr_QDoesNotExist`

Various other exceptions

Examples

```
class MyMQeApplication
{
  ...
  try
  {
    if ( timeToTransmit() ) /* application decides it's time to  */
      qmgr.triggerTransmission(); /* transmit */
  }
  catch ( MQeException e )
  {
    if ( e.Code() != Except_QMgr_Busy )
      throw e;
  }
  ...
}
```

MQeQueueManager undo

Syntax

```
public void undo( String qmgrName,
                  String queueName,
                  long confirmId ) throws Exception
```

Description

This method is intended to be used in the event of an error during a **put()**, **get()**, or **browseAndLock()** command. It is possible that the error could leave messages in an unconfirmed or locked state on the target queue. This method resets the message to the state (either locked or unlocked) that it was in prior to the failed operation, or in the case of an unconfirmed put operation, the message is deleted.

To reset the message, it is necessary to supply the *confirmID* that was used in the failed operation. It is recommended that the *confirmID* is unique for each message. A unique value can be generated using the **MQe.uniqueValue()** method.

Parameters

qmgrName	A string containing the name of the queue manager that holds the queue. If a value of `null` is used, it is assumed that the local queue manager is the queue manager to be used.
queueName	A string containing the name of the queue that holds the locked message
confirmId	A long value that is the same as the *confirmID* used on the failed operation.

Return values

none.

Exceptions

MQeException	`Except_QMgr_NotActive`

Except_QMgr_InvalidQName

Except_QMgr_QDoesNotExist

Except_Q_NoMatchingMsg

Except_NotAllowed

Various other exceptions

Examples

```
class MyMQeApplication
{
  ...
  /* generate a unique confirmId for this operation */
  long confirmId = MQe.uniqueValue();
  try
  {
    qmgr.putMessage( "RemoteQMgr", "RemoteQueue", msg, null, confirmId );
    qmgr.confirmPutMessage( "RemoteQMgr", "RemoteQueue",
                            msg.getMsgUIDFields() );
  }
  catch ( Exception e )
  {
    /* Give the remote Queue Manager time to recover from error */
    Thread.sleep( 30000 );
    /* Remote Queue Manager failure - undo the put message */
    qmgr.undo("RemoteQMgr", "RemoteQueue", confirmId );
  }
  ...
}
```

Related functions

- **browseMessagesAndLock()**
- **getMessage()**
- **putMessage()**

MQeQueueManager unlockMessage

Syntax

```
public void unlockMessage( String qmgrName,
                           String queueName,
                           MQeFields filter ) throws Exception
```

Description

This method unlocks a message that has been previously locked. This makes it visible once again to all applications. Only one message can be unlocked at a time and both the *UID* (timestamp and origin queue manager name), and the *lockID* of the message must be supplied.

The queue may belong to a local or remote queue manager.

If the message is not available, an exception is thrown.

This method would typically be used in conjunction with the **browseMessagesAndLock()** method.

Parameters

qmgrName A string containing the name of the queue manager that holds the queue. If a value of 'null is used, it is assumed that the local queue manager is to be used.

queueName A string containing the name of the queue that holds the locked message.

filter An MQeFields object containing a message filter. This must contain both the message unique id and lock id for the operation to be successful.

Return values

none

Exceptions

MQeException

Except_QMgr_NotActive

Except_QMgr_InvalidQName

Except_QMgr_QDoesNotExist

Except_Q_NoMatchingMsg

Except_NotAllowed

Various other exceptions

Example

```
class MyMQeApplication
{
  ...
  MQeEnumeration msgEnum;
  ...
  /* lock all msgs on queue */
  msgEnum = qmgr.browseMessagesAndLock( null, "MyQueue", null, null, 0,
                                        false );
  long lockID = msgEnum.getLockId(); /* get lockID */
  while( msgEnum.hasMoreElements() )
  {
    MQeFields msgFields = (MQeFields)msgEnum.nextElement();
    String msgID = byteToAscii( msgFields.getArrayOfByte( MQe.Msg_MsgID ) );
    /* Unlock all messages with an ID of 1234 */
    if ( msgID.equals("1234") )
    {
      msgFields.putLong( MQe.Msg_LockID, lockID );
      qmgr.unlockMessage( null, "MyQueue", msgFields );
    }
  }
  ...
}
```

Related Functions

- **browseMessageAndLock**

MQeQueueManager waitForMessage

Syntax

```
public MQeMsgObject waitForMessage( String qmgrName,
                                    String queueName,
                                    MQeFields filter,
                                    MQeAttribute attribute,
                                    long confirmId,
                                    int milliseconds ) throws MQeException;
```

Description

This method works in an identical manner to **getMessage**. However, if no message is available, the method waits for the period of time specified by *milliseconds*. If no message is available at the end of this period, an Exception is thrown.

Parameters

qmgrName A string containing the name of the queue manager that holds the queue. If a value of `null` is used, it is assumed that the local queue manager is to be used.

queueName A string containing the name of the MQSeries Everyplace queue from which to obtain a message.

filter `null`, or an MQeFields object containing a message filter.

attribute An MQeAttribute object used to provide message-level security.

confirmId A long value denoting whether or not to use assured message delivery. A nonzero value does not remove the message from the target queue, this occurs on a subsequent confirm flow. A value of zero removes the message from the target queue.

milliseconds The period of time (specified in milliseconds) for which to wait for a message to become available.

Return values

An MQeMsgObject containing the message obtained from the specified queue.

Exceptions

MQeException

`Except_QMgr_NotActive`

`Except_QMgr_InvalidQName`

`Except_QMgr_QDoesNotExist`

`Except_Q_NoMatchingMsg`

`Except_Q_NoMsgAvailable`

Various other exceptions

Examples

```
class MyMQeApplication extends MQe
{
  ...
  String MsgId = "260399";
  String CorrelId = "260399/2";
  ...
  /* set up a parameters object to match with */
  /* only interested in msgs*/
  MQeFields filter = new MQeFields();
  /* with this message Id*/
  filter.putArrayOfByte( MQe.Msg_MsgID, asciiToByte( MsgId ) );
  /* & this correlation Id */
  filter.putArrayOfByte ( MQe.Msg_CorrelID, asciiToByte( CorrelId ) );
  ...
  /* wait 10 seconds for a msg to arrive */
  MQeMsgObject msgObj = qmgr.waitForMessage( null, "MyQueue", filter,
          null, 0, 10000 );
  ...
}
```

Related functions

- **getMessage()**

MQeQueueManagerConfigure

This class is used to configure a queue manager. It is used to create and delete queue managers and their default queues.

Package **com.ibm.mqe**

Constructors

MQeQueueManagerConfigure

Syntax

1. `public MQeQueueManagerConfigure( )`
2. `public MQeQueueManagerConfigure( MQeFields startupParameters ) throws Exception`
3. `public MQeQueueManagerConfigure( MQeFields startupParameters, String qStore ) throws Exception`

Description

The constructors instantiate the queue manager configuration object. There are three forms of the constructor:

1. This form is designed for dynamic loading and must be followed by a call to **activate()**
2. This form can be used to only for the deletion of a queue manager.
3. This form can be used for the creation or deletion of a queue manager

Parameters

startupParameters
An MQeFields object containing the initialization parameters for the queue manager. These are described in MQeQueueManager startupParameters.

qStore
A string, indicating the MQSeries Everyplace adapter to be used to access the queue store, followed by a colon character, followed by the location where the standard default queues are stored. This must be specified if a queue manager is being created. If a queue manager is being deleted this parameter can be `null`.

Return Values

none

Exceptions

Exception - thrown if there is a problem initializing the queue manager configure object

Example

```
MQeQueueManagerConfigure qmConfig1;
qmConfig1 = new MQeQueueManagerConfigure();

try
{
 MQeQueueManagerConfigure qmConfig2;
 MQeFields parms = new MQeFields();
 // initialize the parameters
  ...
 qmConfig2 = new MQeQueueManagerConfigure( parms );
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure

```
try
{
 MQeQueueManagerConfigure qmConfig3;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig3 = new MQeQueueManagerConfigure( parms,"MsgLog:" + "qmName" + File.separator +
                                           "Queues" + File.separator );
}
catch (Exception e)
{ ... }
```

Methods

Method	Purpose
activate	Activates the configuration object
close	Closes the configuration object
defineDefaultAdminQueue	Defines a standard default *administration queue* in the registry
defineDefaultAdminReplyQueue	Defines a standard default *administration reply queue* in the registry
defineDefaultDeadLetterQueue	Defines a standard default *dead letter queue* in the registry
defineDefaultSystemQueue	Defines a standard default local queue in the registry.
defineQueueManager	Defines a standard queue manager in the registry.
deleteAdminQueueDefinition	Deletes the *administration queue* from the registry.
deleteAdminReplyQueueDefinition	Deletes the *administration reply queue* from the registry.
deleteDeadLetterQueueDefinition	Deletes the *dead letter queue* from the registry.
deleteQueueManagerDefinition	Deletes the queue manager from the registry.
deleteStandardQMDefinitions	Deletes the queue manager and the standard queues from the registry.
deleteSystemQueueDefinition	Deletes the standard default local queue from the registry.
queueManagerExists	Checks whether the queue manager exists in the registry.
setChannelTimeout	Sets the Channel time-out value for the queue manager.
setChnlAttributeRuleName	Sets the name of the Channel Attribute Rule for the queue manager.
setDescription	Sets the description of the queue manager.

MQeQueueManagerConfigure activate

Syntax

```
public void activate( MQeFields startupParameters, String qStore ) throws Exception
```

Description

This method initializes the object ready to configure a queue manager.

Parameters

startupParameters
An MQeFields object containing the initialization parameters for the queue manager. These are described in MQeQueueManager startupParameters.

qStore
A string, indicating the MQSeries Everyplace adapter to be used to access the queue store, followed by a colon character, followed by the location where the standard default queues are stored. This must be specified if a queue manager is being created. If a queue manager is being deleted, this parameter can be `null`.

Return Values
none

Exceptions
Exception - is thrown if there is a problem initializing the object.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( );
 qmConfig.activate( parms, "MsgLog:" + "qmName" + File.separator +
                    "Queues" + File.separator );
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure close

Syntax

```
public void close()
```

Description
This method closes the configuration object. An attempt to use the object after it has been closed will result in an exception. The configuration object must be closed before the queue manager itself can be activated.

Parameters
none

Return Values
none

Exceptions
none

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, "qmName" + File.separator +
                                          "Queues" + File.separator );
 ...
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure defineDefaultAdminQueue

Syntax

```
public void void defineDefaultAdminQueue(String desc) throws Exception
```

Description

This method defines a standard *administration queue* in the registry for the queue manager. The description parameter is optional. The queue itself is created the first time it is accessed from the running queue manager. An exception is thrown if the queue already exists.

Parameters

desc An optional string containing a description of the administration queue

Return Values

none

Exceptions

MQeException Is thrown if the MQeQueueManagerConfigure object has not been activated or if the queue already exists in the queue manager's registry.

Exception Is thrown for other errors.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, "qmName" + File.separator +
                                                 "Queues" + File.separator );
 qmConfig.defineDefaultAdminQueue();
 ...
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure defineDefaultAdminReplyQueue

Syntax

```
public void defineDefaultAdminReplyQueue (String desc ) throws Exception
```

Description

This method defines a standard *administration reply queue* in the registry for the queue manager. The description parameter is optional. The queue itself is created the first time it is accessed from the running queue manager. An exception is thrown if the queue already exists.

Parameters

desc An optional string containing a description of the administration reply queue

Return Values

none

Exceptions

MQeException Is thrown if the

	MQeQueueManagerConfigure object has not been activated, or if the queue already exists in the queue manager's registry
Exception	Is thrown for other errors.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, "qmName" + File.separator +
                                                 "Queues" + File.separator );
 qmConfig.defineDefaultAdminReplyQueue();
 ...
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure defineDefaultDeadLetterQueue

Syntax

```
public void defineDefaultDeadLetterQueue (String desc ) throws Exception
```

Description

This method defines a standard *dead letter queue* in the registry for the queue manager. The description parameter is optional. The queue itself will be created the first time it is accessed from the running queue manager. An exception is thrown if the queue already exists.

Parameters

desc	An optional string containing a description of the dead letter queue

Return Values

none

Exceptions

MQeException	Is thrown if the MQeQueueManagerConfigure object has not been activated, or if the queue already exists in the queue manager's registry
Exception	Is thrown for other errors.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, "qmName" + File.separator +
                                                 "Queues" + File.separator );
 qmConfig.defineDefaultDeadLetterQueue();
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure defineDefaultSystemQueue

Syntax

```
public void defineDefaultSystemQueue(String desc ) throws Exception
```

Description

This method defines a standard local queue, called SYSTEM.DEFAULT.LOCAL.QUEUE, in the registry for the queue manager.The description parameter is optional. The queue itself will be created the first time it is accessed from the running queue manager. An exception is thrown if the queue already exists.

Parameters

desc An optional string containing a description of the default system queue

Return Values

none

Exceptions

MQeException Is thrown if the MQeQueueManagerConfigure object has not been activated, or if the queue already exists in the queue manager's registry

Exception Is thrown for other errors.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, "qmName" + File.separator +
                                                 "Queues" + File.separator );
 qmConfig.defineDefaultSystemQueue();
 ...
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure defineQueueManager

Syntax

```
public void defineQueueManager( ) throws Exception
```

Description

This method creates a definition for the queue manager in the registry. This is required before the queue manager itself can be activated. An exception is thrown if the queue manager definition already exists.

Parameters

none

Return Values

none

Exceptions

MQeException Is thrown if the MQeQueueManagerConfigure object has

not been activated, or if the queue manager definition already exists in the registry.

Exception — Is thrown for other errors.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, "qmName" + File.separator +
                                                 "Queues" + File.separator );
 qmConfig.setDescription( "queue manager for " + qmName );
 qmConfig.defineQueueManager();
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure deleteAdminQueueDefinition

Syntax

```
public void deleteAdminQueueDefinition( ) throws Exception
```

Description

This method deletes the definition of the standard *administration queue* from the registry for the queue manager. No error is generated if the definition does not exist. The queue itself is not removed.

The queue cannot be accessed if it is not defined in the registry. The definition can be recreated with **defineDefaultAdminQueue()**.

Parameters

none

Return Values

none

Exceptions

MQeException — Is thrown if the MQeQueueManagerConfigure object has not been activated, or if there is an error deleting the registry entry.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, null );
 qmConfig.deleteAdminQueueDefinition();
 ...
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure deleteAdminReplyQueueDefinition

Syntax

```
public void deleteAdminReplyQueueDefinition ( ) throws Exception
```

MQeQueueManagerConfigure

Description

This method deletes the definition of the standard *administration reply queue* from the registry for the queue manager. No error is generated if the definition does not exist. The queue itself is not removed.

The queue cannot be accessed if it is not defined in the registry. The definition can be recreated with **defineDefaultAdminReplyQueue()**.

Parameters

none

Return Values

none

Exceptions

MQeException	Is thrown if the **MQeQueueManagerConfigure** object has not been activated, or if there is an error deleting the registry entry.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, null );
 qmConfig.deleteAdminReplyQueueDefinition();
 ...
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure deleteDeadLetterQueueDefinition

Syntax

```
public void deleteDeadLetterQueueDefinition ( ) throws Exception
```

Description

This deletes the definition of the standard *dead letter queue* from the registry for the queue manager. No error is generated if the definition does not exist. The queue itself is not removed.

The queue cannot be accessed if it is not defined in the registry. The definition can be recreated with **defineDefaultDeadLetterQueue()**.

Parameters

none

Return Values

none

Exceptions

MQeException	Is thrown if the MQeQueueManagerConfigure object has not been activated, or if there is an error deleting the registry entry.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, null );
 qmConfig.deleteDeadLetterQueueDefinition();
 ...
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure deleteQueueManagerDefinition

Syntax

```
public void deleteQueueManagerDefinition ( ) throws Exception
```

Description

This method deletes the definition of the queue manager from its registry. No error is generated if the definition does not exist.

The queue cannot be accessed if it is not defined in the registry. The definition can be recreated with **defineQueueManager()**.

Parameters

none

Return Values

none

Exceptions

MQeException	is thrown if the MQeQueueManagerConfigure object has not been activated, or if there is an error deleting the registry entry.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, null );
 ...
 qmConfig.deleteQueueManagerDefinition();
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure deleteStandardQMDefinitions

Syntax

```
public void deleteStandardQMDefinitions ( ) throws Exception
```

Description

This deletes the definitions of the standard default queues and the queue manager itself from the registry. No error is generated if the definitions do not exist.

This method is provided for convenience, it is equivalent to:

```
deleteDeadLetterQueueDefinition();
deleteSystemQueueDefinition();
deleteAdminQueueDefinition();
deleteAdminReplyQueueDefinition();
deleteQueueManagerDefinition();

.
```

Parameters

none

Return Values

none

Exceptions

MQeException	Is thrown if the MQeQueueManagerConfigure object has not been activated, or if there is an error deleting the registry entries.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, null );
 qmConfig.deleteStandardQMDefinitions();
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure deleteSystemQueueDefinition

Syntax

```
public void deleteSystemQueueDefinition ( ) throws Exception
```

Description

This deletes the definition of the default local queue, SYSTEM.DEFAULT.LOCAL.QUEUE, from the registry for the queue manager. No error is generated if the definition does not exist. The queue itself is not removed.

The queue cannot be accessed if it is not defined in the registry. The definition can be recreated with **defineDefaultSystemQueue()**

Parameters

none

Return Values

none

Exceptions

MQeException	Is thrown if the MQeQueueManagerConfigure object has not been activated, or if there is an error deleting the registry entry.

Example

```
try
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, null );
 qmConfig.deleteSystemQueueDefinition();
 ...
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure queueManagerExists

Syntax

```
public boolean queueManagerExists( ) throws Exception
```

Description

This method checks whether the queue manager definition exists in the registry.

Parameters

none

Return Values

true	If the queue manager definition exists in the registry.
false	If the queue manager definition does not exist in the registry.

Exceptions

MQeException	Is thrown if the MQeQueueManagerConfigure object has not been activated, or if there is an error reading the registry.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, null );
 if ( queueManagerExists() )
 {
  ...
 }
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure setChannelTimeout

Syntax

```
public void setChannelTimeout( long ChnlTimeout )
```

Description

This sets the channel time-out value for the queue manager.

This method must be called before **defineQueueManager()**, otherwise it is ignored.

Parameters

ChnlTimeout The Channel time-out value in milliseconds.

Return Values
none

Exceptions
none

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, "qmName" + File.separator +
                                          "Queues" + File.separator );
 qmConfig.setChannelTimeout( 3600 * 1000 );
 qmConfig.defineQueueManager();
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure setChnlAttributeRuleName

Syntax

```
public void setChnlAttributeRuleName( String ChnlAttrRuleName ) throws MQeException
```

Description
This method sets the name of the channel attribute rule class for the queue manager.

This method must be called before **defineQueueManager()**, otherwise it is ignored.

Parameters

ChnlAttrRuleName
The name of the channel attribute rule class.

Return Values
none

Exceptions

MQeException Is thrown if the name is invalid.

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, "qmName" + File.separator +
                                          "Queues" + File.separator );
 qmConfig. setChnlAttributeRuleName( "Examples.Rules.AttributeRule" );
 qmConfig.defineQueueManager();
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerConfigure setDescription

Syntax

```
public void setDescription (String description )
```

Description

This method sets the description for the queue manager

This method must be called before **defineQueueManager()**, otherwise it is ignored.

Parameters

description The new description

Return Values

none

Exceptions

none

Example

```
try
{
 MQeQueueManagerConfigure qmConfig;
 MQeFields parms = new MQeFields();
 // initialize the parameters
 ...
 qmConfig = new MQeQueueManagerConfigure( parms, "qmName" + File.separator +
                                                 "Queues" + File.separator );
 qmConfig.setDescription( "queue manager for " + qmName );
 qmConfig.defineQueueManager();
 qmConfig.close();
}
catch (Exception e)
{ ... }
```

MQeQueueManagerRule

This class contains methods that are invoked when the queue manager performs certain operations. The rules can affect the outcome of these operations. This class contains the default queue manager rules. Typically, these default rules would be overridden to provide appropriate behavior for a given MQSeries Everyplace solution.

Package

com.ibm.mqe

Methods

Method	Purpose
activateQueues	This rule decides whether to activate certain queues at queue manager startup time. The queues that can be activated are remote asynchronous queue definitions, home-server queues, and store-and-forward queues.
addQueue	This rule is called when a new queue is added to the queue manager.
deleteMessage	This rule is called when a delete message operation occurs.
getMessage	This rule is called when a get message operation occurs.
getRetryCount	This rule returns the number of retry attempts for a failed network operation.
peerConnection	This rule is called when the queue manager's peer channel listener receives an incoming connection request.
putMessage	This rule is called when a put message operation occurs.
queueManagerActivate	This rule is called when the queue manager is activated.
queueManagerClose	This rule is called when the queue manager is closed.
removeQueue	This rule is called when a queue is to be removed from the queue manager.
transmit	This rule is called for each remote asynchronous queue definition when a transmission of pending messages is taking place. The rule allows transmission to be disabled on a per-queue basis.
triggerTransmission	This rule returns a boolean value which denotes whether or not to allow, at this time, the transmission of pending messages stored within remote asynchronous queue definitions
undo	This rule is called when an undo operation occurs.

MQeQueueManagerRule activateQueues

Syntax

```
public boolean activateQueues()
```

Description

This rule determines whether to activate certain queues at queue manager startup time. The queues that can be activated are remote asynchronous queue definitions, home-server queues, and store-and-forward queues.

Activating these queues means that an attempt is made to transmit any messages that they hold. Queues are normally not activated until an operation is performed on them. It can be useful to activate these queues

immediately on queue manager startup because they may have transmission timer threads, or other functions associated with them.

Parameters

none

Return values

A boolean value denoting whether to activate certain queues at queue manager startup time. The queue manager acts on the value returned

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  /* cheap rate transmission period start and end times         */
  protected int cheapRatePeriodStart = 18;    /* 18:00 hrs */
  protected int cheapRatePeriodEnd = 9;    /* 09:00 hrs */

  public boolean activateQueues()
  {
    super.activateQueues();
    if ( timeToTransmit() ) /* if OK to transmit */
      return true; /* then activate queues */
    else /* otherwise*/
      return false; /* don't activate queues */
  }

  /* This method determines if the current time is inside the defined  */
  /* cheap rate period of transmission                                 */
  protected boolean timeToTransmit()
  {
    /* get current time */
    long currentTimeLong = System.currentTimeMillis();

    Date date = new Date( currentTimeLong );
    Calendar calendar = Calendar.getInstance();
    calendar.setTime( date );

    /* get hour */
    int hour = calendar.get( Calendar.HOUR_OF_DAY );

    if ( hour >= cheapRatePeriodStart || hour < cheapRatePeriodEnd )
      return true; /* cheap rate */
    else
      return false; /* not cheap rate */
  }
  ...
}
```

MQeQueueManagerRule addQueue

Syntax

```
public void addQueue( MQeQueue queue ) throws Exception
```

Description

This rule is called when a queue is added to the queue manager. The rule is called before the addition of the queue, and so the rule is able to reject the operation by throwing an exception.

This rule also decides whether to activate the queue immediately or to activate the queue when it is first used. The default behaviour of the rule

is to activate all home-server queues immediately. All other types of queue are activated when they are first used.

Parameters

queue An MQeQueue object that is being added to the queue manager.

Return values

A boolean value denoting whether the queue should be activated immediately, or when it is first used.

true Activate the queue immediately

false Activate the queue when first used

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  /* Don't allow asynchronous queues to be added to this Queue Manager */
  public boolean addQueue( MQeQueue queue ) throws Exception
  {
    boolean result = super.addQueue( queue );
    int accessMode = queue.getAccessMode();
    if ( accessMode == MQeQueue.Queue_ASynchronous )
      throw new MQeException( Except_Rule, "No Asynch Queues" );
    return ( result );
  }
  ...
}
```

Related functions

removeQueue()

MQeQueueManagerRule deleteMessage

Syntax

```
public void deleteMessage( String destQMgrName,
                           String destQName,
                           MQeFields filter ) throws Exception
```

Description

This rule is called when a delete message operation takes place. The rule is called before the operation takes place, and so the rule can stop the operation by throwing an exception.

Parameters

destQMgrName
A String containing the name of the queue manager that owns the queue on which this operation takes place. A value of `null` denotes that the local queue manager is to be used

destQName A String containing the name of the queue on which this operation takes place

filter This is the filter to be used for the delete message operation. It is an MQeFields object containing message fields (for example, priority and message ID)

Return values

none

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  /* This rule blocks message deletes on 'TopSecretQueue' */
  public void deleteMessage( String destQMgr, String destQ, MQeFields filter )
  {
    super.deleteMessage( destQMgr, destQ, filter );
    if( destQMgr == null || destQMgr.equals( Owner.GetName() )
    {
      if ( destQ.equals( "TopSecretQueue" )
        throw new MQeException( Except_Rule, "Can't delete on this Queue" );
    }
  }
  ...
}
```

MQeQueueManagerRule getMessage

Syntax

```
public void getMessage( String destQMgrName,
                        String destQName,
                        MQeFields filter,
                        MQeAttribute attribute,
                        long confirmId ) throws Exception
```

Description

This rule is called when a get message operation takes place. The rule is called before the operation takes place, and so the rule can stop the operation by throwing an exception.

Parameters

destQMgrName
: A String containing the name of the queue manager that owns the queue on which this operation takes place. A value of `null` denotes that the local queue manager is to be used

destQName
: A String containing the name of the queue on which this operation takes place

filter
: This is the filter to be used for the get message operation. It is an MQeFields object containing message fields (for example, priority and message ID)

attribute
: An MQe Attribute object used to provide message-level security

confirmId
: A long value denoting whether or not to use guaranteed message delivery. A nonzero value leaves the message locked on the target queue, it is not removed until a subsequent confirm flow. A value of zero removes the message from the target queue without the need for a subsequent confirm.

  This value is also used in the event of a get message failure. The application should store the value, and use it

to reset the messages that matched the get to their previous state (via the **undo()** command).

Return values

none

Exceptions

none

Example

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  /* This rule only allows GETs from 'OutboundQueue', if a password is  */
  /* supplied as part of the filter                                     */
  public void getMessage( String destQMgr, String destQ, MQeFields filter,
                          MQeAttribute attr, long confirmId )
  {
    super.getMessage( destQMgr, destQ, filter, attr, confirmId );
    if ( destQMgr.equals( Owner.GetName() && destQ.equals( "OutboundQueue" ) )
    {
      if ( !(filter.Contains( "Password" ) )
        throw new MQeException( Except_Rule, "Password not supplied" );
      else
      {
        String pwd = filter.getAscii( "Password" );
        if ( !(pwd.equals( "1234" )) )
          throw new MQeException( Except_Rule, "Incorrect password" );
      }
    }
  }
  ...
}
```

Related functions

putMessage()

MQeQueueManagerRule getRetryCount

Syntax

```
public int getRetryCount()
```

Description

This rule returns the number of times to retry a network operation. The queue manager calls this rule when creating a new channel object. The value returned by this rule is passed to the channel, and it is used in the event of a network operation failure.

Parameters

none

Return values

An integer value that contains the number of times to retry a network operation. The queue manager acts on the value returned.

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  public int getRetryCount()
  {
```

```
    return (2); /* retry a network operation twice */
  }
  ...
}
```

MQeQueueManagerRule peerConnection

Syntax

```
public void peerConnection( String qmgrName )
```

Description

This method is called when a queue manager's peer listener detects an incoming connection request from another MQSeries Everyplace queue manager. The connection must be made over an MQePeerChannel, or its descendant.

By throwing an exception, the rule can block the connection attempt.

Parameters

qmgrName A String containing the name of the MQSeries Everyplace queue manager that is requesting a connection

Return values

none

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  public void peerConnection( String qmgrName )
  {
    /* block any connection attempt from 'RogueQMgr' */
    if ( qmgrName.equals( "RogueQMgr" ) )
      throw new MQeException( Except_Rule, "Connection not allowed" );
  }
  ...
}
```

MQeQueueManagerRule putMessage

Syntax

```
public void putMessage( String destQMgrName,
                        String destQName,
                        MQeMsgObject msg,
                        MQeAttribute attribute,
                        long confirmId ) throws Exception
```

Description

This rule is called when a put message operation takes place. The rule is called before the operation takes place, so the rule can stop the operation by throwing an exception.

Parameters

destQMgrName
A String containing the name of the queue manager that owns the queue on which this operation takes place. A value of `null` denotes that the local queue manager is to be used

destQName A String containing the name of the queue on which this operation takes place

msg The message object that is being placed on the target queue

attribute `null`, or an MQeAttribute object defining the authenticator, cryptor, and compressor to be associated with this message.

confirmId A long value denoting whether or not to use assures message delivery. A nonzero value locks the message on the target queue, it is not made visible until a subsequent confirm flow. A value of zero transmits the message without the need for a subsequent confirm.

Also, this value can be used in the event of a put message failure. By passing this value to the undo command, the application can remove any messages that were left in an incomplete state by the failed put operation.

Return values

none

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  /* Only allow msgs containing an ID field to be placed on the Queue */
  public void putMessage( String destQMgr, String destQ, MQeMsgObject msg,
                          MQeAttribute attribute, long confirmId )
  {
    if ( !(msg.Contains( MQe.Msg_MsgId )) )
      throw new MQeException( Except_Rule, "Msg must contain an ID" );
  }
  ...
}
```

Related functions

getMessage()

MQeQueueManagerRule queueManagerActivate

Syntax

```
MQeQueueManagerRule queueManagerActivate
```

Description

This rule is called when the queue manager is activated.

Parameters

none

Return values

none

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  /* default interval between triggers is 60 minutes                    */
  protected int       triggerInterval = 360000;
  /* background thread reference   */
  protected Thread    th              = null;
```

```
  /* Called when the Queue manager is activated                          */
  public void queueManagerActivate( ) throws Exception
  {
    super.queueManagerActivate();
    /* background thread which triggers transmission                    */
    th = new Thread( this, "TriggerThread" );
    th.start();                    /* start timer thread */
  }

  /* Called when a Queue manager Close is called                         */
  public void queueManagerClose( ) throws Exception
  {
    super.QueueManagerClose();
    th.stop();                     /* stop background thread on QMgr close*/
  }

  /* Background thread run method                                        */
  /* Triggers transmission every interval until thread is stopped        */
  public void run()
  {
    try
    {
      while ( true )
      {                            /* sleep for specified interval       */
        Thread.sleep( triggerInterval );
        /* check if ok to transmit                                       */
        if ( triggerTransmission( 0, null ) )
          /* trigger transmission on QMgr (which is rule owner)          */
          ((MQeQueueManager)Owner).triggerTransmission();
      }
    } catch ( Exception e )
    {
      e.printStackTrace( System.err );
    }
  }
  ...
}
```

Related functions

queueManagerClose()

MQeQueueManagerRule queueManagerClose

Syntax

```
public void queueManagerClose() throws Exception
```

Description

This rule is called when the queue manager is closing.

Parameters

none

Return values

none

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  /* default interval between triggers is 60 minutes                     */
  protected int       triggerInterval = 360000;
  /* background thread reference   */
  protected Thread    th              = null;
  /* Called when the Queue manager is activated                          */
```

```
  public void queueManagerActivate( ) throws Exception
  {
    super.queueManagerActivate();
    /* background thread which triggers transmission                    */
    th = new Thread( this, "TriggerThread" );
    th.start();                     /* start timer thread */
  }

  /* Called when a Queue manager Close is called                        */
  public void queueManagerClose( ) throws Exception
  {
    super.queueManagerClose();
    th.stop();                      /* stop background thread on QMgr close*/
  }

  /* Background thread run method                                       */
  /* Triggers transmission every interval until thread is stopped       */
  public void run()
  {
    try
    {
      while ( true )
      {                             /* sleep for specified interval     */
        Thread.sleep( triggerInterval );
        /* check if ok to transmit                                      */
        if ( triggerTransmission( 0, null ) )
          /* trigger transmission on QMgr (which is rule owner)         */
          ((MQeQueueManager)Owner).triggerTransmission();
      }
    } catch ( Exception e )
    {
      e.printStackTrace( System.err );
    }
  }
  ...
}
```

Related functions

queueManagerActivate()

MQeQueueManagerRule removeQueue

Syntax

```
public void removeQueue( MQeQueue queue) throws Exception
```

Description

This rule is called when a queue is to be removed from the queue manager. The rule is called before the removal of the queue, so the rule is able to reject the operation by throwing an exception.

Parameters

queue	An MQeQueue object that is to be removed from the queue manager

Return values

none

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  /* This rule prevents the removal of the Payroll Queue */
  public void removeQueue( MQeQueue queue ) throws Exception
```

```
  {
    if ( queue.getQueueName().equals( "PayrollQueue" ) )
      throw new MQeException( Except_Rule, "Can't delete this queue" );
  }
  ...
}
```

Related functions

addQueue()

MQeQueueManagerRule transmit

Syntax

```
public boolean transmit( MQeQueue queue )
```

Description

When a queue manager attempts to send all its pending messages, this rule is called for each queue that contains messages awaiting transmission. This rule decides whether to allow the transmission of those messages for the supplied queue.

Parameters

queue	A MQeQueue object that holds messages awaiting transmission.

Return values

A boolean value denoting whether to allow the transmission of the messages held on this queue. The queue manager acts on the value returned.

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  /* cheap rate transmission period start and end times                    */
  protected int cheapRatePeriodStart = 18;          /* 18:00 hrs         */
  protected int cheapRatePeriodEnd = 9;            /* 09:00 hrs         */

  /* This rule allows queue transmission if current time is during the     */
  /* cheap rate transmission period                                        */
  /* If the current time is not during the cheap rate transmission period  */
  /* then transmission is only allowed if the queue is high priority       */
  public boolean transmit( MQeQueue queue )
  {
    if ( timeToTransmit() )
      return true;                              /* cheap rate          */
    else
      if ( queue.GetPriority() > 4 )
        return true;                                /* high priority Q     */
  }

  /* This method determines if the current time is inside the defined    */
  /* cheap rate period of transmission                                     */
  protected boolean timeToTransmit()
  {
    /* get current time */
    long currentTimeLong = System.currentTimeMillis();

    Date date = new Date( currentTimeLong );
    Calendar calendar = Calendar.getInstance();
    calendar.setTime( date );
```

```
    /* get hour */
    int hour = calendar.get( Calendar.HOUR_OF_DAY );

    if ( hour >= cheapRatePeriodStart || hour < cheapRatePeriodEnd )
      return true; /* cheap rate */
    else
      return false; /* not cheap rate */
  }
  ...
}
```

Related functions

triggerTransmission()

MQeQueueManagerRule triggerTransmission

Syntax

```
public boolean triggerTransmission( int noofMsgs, MQeFields msgFields )
```

Description

This method authorizes the transmission of pending messages stored on remote asynchronous queue definitions within the queue manager.

This rule is invoked by the queue manager in two situations ·

- When the queue manager is instructed to transmit all of its pending messages (using the **MQeQueueManager.triggerTransmission()** method
- When a message is sent to a remote queue that is defined as asynchronous. The queue manager invokes this rule to see whether to transmit all pending messages

Parameters

noofMsgs The number of messages awaiting transmission on remote asynchronous queues

msgFields This parameter is `null` if this rule has been invoked because the queue manager has been instructed to transmit all of its pending messages (using the **MQeQueueManager.triggerTransmission()** method.

If this rule has been invoked because of the arrival of a message on a remote asynchronous queue definition then this parameter is an MQeFields object containing certain fields from the newly-arrived message.

The fields present in the parameter are: ·

- Message UID (Origin queue manager + Timestamp)
- Message ID (if present in the original message)
- Correlation ID (if present in the original message)
- Priority (if present in the original message)

.

Return values

A boolean value denoting whether the rule allows transmission of pending messages at this time. The queue manager acts upon the value returned.

Exceptions

none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  /* default interval between triggers is 60 minutes                      */
  protected int       triggerInterval = 360000;
  /* background thread reference   */
  protected Thread    th              = null;
  /* Called when the Queue manager is activated                           */
  public void queueManagerActivate( ) throws Exception
  {
    super.queueManagerActivate();
    /* background thread which triggers transmission                     */
    th = new Thread( this, "TriggerThread" );
    th.start();                     /* start timer thread */
  }

  /* Called when a Queue manager Close is called                          */
  public void queueManagerClose( ) throws Exception
  {
    super.queueManagerClose();
    th.stop();                      /* stop background thread on QMgr close*/
  }

  /* Background thread run method                                         */
  /* Triggers transmission every interval until thread is stopped         */
  public void run()
  {
    try
    {
      while ( true )
      {                             /* sleep for specified interval       */
        Thread.sleep( triggerInterval );
        /* check if ok to transmit                                        */
        if ( triggerTransmission( 0, null ) )
          /* trigger transmission on QMgr (which is rule owner)           /
          ((MQeQueueManager)Owner).triggerTransmission();
      }
    } catch ( Exception e )
    {
      e.printStackTrace( System.err );
    }
  }

  /* Decides if transmission of messages is allowed */
  public boolean triggerTransmission( int noOfMsgs, MQeFields msgFields )
  {
    return true; /* always allow transmission */
  }
  ...
}
```

Related functions

transmit()

MQeQueueManagerRule undo

Syntax

```
public void undo(String destQMgrName,
                 String destQName,
                 long confirmId ) throws Exception
```

Description

This rule is called when an undo message operation takes place. The rule is called before the operation takes place, so the rule can stop the operation by throwing an exception.

Parameters

destQMgrName
A String containing the name of the queue manager that owns the queue on which this operation takes place. A value of `null` denotes that the local queue manager is to be used

destQName A String containing the name of the queue on which this operation takes place

confirmId A long value that was the confirm Id used by the operation which is being undone. All messages matching this confirm Id are restored to their previous state

Return values
none

Exceptions
none

Examples

```
class exampleRules extends MQeQueueManagerRule
{
  ...
  public void undo( String destQMgr, String destQ, long confirmId )
  {
    /* log the undo event */
    log( MQe_Log_Warning, Event_QueueManager_Undo,
         destQMgr + "+" + destQ );
  }
  ...
}
```

MQeQueueRule

Queue rules control the behaviour of MQSeries Everyplace queues. The queue rules are activated by the queue when it is itself activated. During the operation of the queue, the rules are called when certain events occur, for example, when a message is put, a message expires, or a duplicate message arrives. The rules then determine how the queue handles these events.

The base set of queue rules are defined in this class, which should be extended if a solution wishes to alter queue behaviour.

Queues hold messages in a queue store, typically this would be a persistent type of storage, such as a disk drive, but it does not need to necessary be so. The queue maintains an index entry for each message held in its queue store. The index entry consists of state information for the message, such as whether it is locked or unlocked. Also, certain message fields are stored in the index entry, these are known as index fields. The default index fields are, message unique ID, message ID, correlation ID, and message priority. These fields are stored because they are present in most messages, and storing the fields in memory yields faster message searching.

The **indexEntry()** rule is called whenever an index entry is created. This occurs whenever a new message is put onto the queue or at queue activation time when the queue reads any messages left in its queue store from a previous session. The rule allows a solution to alter the index entry when it is created, one use for this would be to add an extra field or fields into the index, thus improving message search times.

Queues maintain a use count, this is incremented when the queue is activated, and likewise decremented when the queue is closed. Also, the use count is incremented when a remote queue manager connects to a queue. The use count is decremented when the channel and transporter used to create this connection are destroyed. The **useCountChanged()** rule is called every time the use count is changed.

The messages held on the queue can be protected by an authenticator and cryptor. The messages can also be compressed by using a compressor. Together, the authenticator, cryptor, and compressor are known as the attributes of the queue, and they are defined by specifying an appropriate MQeAttribute object to be associated with the queue. The **attributeChange()** rule is called whenever an attempt is made to replace the queue's attribute.

Note: Changing a queue's attribute when it already holds messages stored using another attribute, may cause message loss, since the message may not be recoverable using the new attribute.

If a message has remained on the queue for a length of time greater than the queue's expiry interval, or if a message exceeds its own expiry interval then the messageExpired() rule is called. This rule then determines what happens to the message, but typically the message would be either deleted, or placed on a 'dead letter queue'.

Package

com.ibm.mqe

Methods

Method	Purpose
addListener	This rule is called when a message listener is attached to the queue.
attributeChange	This rule is called when an attempt is made to change the queue's attribute. The attribute defines the authenticator, cryptor and compressor used on the queue. Messages are stored using the attributes defined.
browseMessage	The rule decides whether to allow the message to be included in the set of messages returns to the application that issued the browse request.
deleteMessage	This rule is called when a delete message operation takes place.
duplicateMessage	This rule is called if a duplicate message is put onto the queue.
filterMessage	This rule is called when a message filter is being applied during a **getMessage**, **browseMessage** or **deleteMessage** method call.
getMessage	This rule is called when a message is found that satisfies a get message request. The rule can decide whether the message should be allowed to satisfy the get message request.
getPendingMessage	This rule is called when a get pending message request is received.
indexEntry	This rule is called whenever an index entry is created
messageExpired	This rule is called when a message has exceeded either the queue's expiry interval, or it's own expiry interval. The rule then decides whether to expire the message, and what to do with the message if it has expired.
putMessage	This rule is called when a put message request is made.
queueActivate	This rule is called when the queue is activated.
queueClosed	This rule is called when the queue is closed.
removeListener	This rule is called when a message listener is removed from a queue.
resetMessageLock	This rule is called when a request is made to reset the lock state on a message. The message is reset to an unlocked state. This function can only be performed by MQSeries administration. By throwing an exception the rule can prevent the reset from occurring.
undo	This rule is called when an undo operation occurs and it determines whether the message is to be included in the set of messages processed by the undo operation.
useCountChanged	This rule is called every time the use count is changed

MQeQueueRule addListener

Syntax

```
public void addListener( MQeMessageListenerInterface listener,
                         MQeFields filter) throws Exception
```

Description

This rule is called when a message listener is attached to a queue. By throwing an exception the rule is able to reject the add listener request.

Parameters

listener A reference to the object that is subscribing to MQSeries Everyplace message events. The object must implement MQeMessageListenerInterface.

filter `null` or an MQeFields object containing message fields. A value of `null` means that the listener wishes to receive events for all messages on the queue.

Specifying an MQeFields object containing message fields means that the listener is only interested in events concerning messages whose fields match those contained in the filter.

Return values

none

Exceptions

none

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule logs the addition of a message listener */
  public void addListener( MQeMessageListenerInterface listener,
                           MQeFields filter ) throws Exception
  {
    log( MQe_Log_Information, Event_Queue_AddMsgListener,
         "Added listener on queue " +
         ((MQeQueue)owner).getQueueManagerName() + "+" +
         ((MQeQueue)owner).getQueueName() );
  }

  public void queueActivate()
  { /* create a new log file */
    try
    {
      logFile = new LogToDiskFile( "\log.txt" );
    }
    catch( Exception e )
    {
      e.printStackTrace( System.err );
    }
  }

  public void queueClose()
  { /* close log file */
    logFile.close();
  }
  ...
}
```

Related functions

- **removeListener()**

MQeQueueRule attributeChange

Syntax

```
public void attributeChange( MQeAttribute attribute ) throws Exception
```

Description

This method is called when an attempt is made to change the queue's attribute. The attribute defines the authenticator, cryptor and compressor used on the queue. All messages are stored using the queue's attribute.

By throwing an exception the rule is able to reject the attribute change request.

Parameters

attribute `null`, or an MQeAdminQueueAdminMsg object that defines the authenticator, cryptor and compressor that will be used on the queue, if the change is allowed. `null` means that no attribute will be used on the queue.

Return values

none

Exceptions

Example

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule only allows the queue's attribute to be changed if it was */
  /* not previously set */
  /* The queue object is the owner of the rule */
  public void attributeChange( MQeAttribute attribute ) throws Exception
  {
    if ( ((MQeQueue) owner).getQueueAttribute() != null )
      throw new MQeException( Except_Rule, "Attribute already set" );
  }
  ...
}
```

MQeQueueRule browseMessage

Syntax

```
public boolean browseMessage( MQeMsgObject msg,
                              long confirmId ) throws Exception
```

Description

A browse messages operation matches zero or more messages held on a queue. This method is called for every message matched. The rule decides whether to allow the message to be included in the set of messages returned to the application that issued the browse request.

If this rule throws an exception then the browse operation will be terminated.

Parameters

msg An MQeMsgObject containing the message being browsed.

confirmId A long value that is the *confirmID* used on this browse operation. The *confirmID* is used to restore messages in the event of a failure

Return values

A boolean value that denotes whether to allow this message to be included in the set of messages returned to the application that issued the browse request. .

True Allow the message to be included

False Do not allow the message to be included

Exceptions

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule only allows messages of type 'OrderResponse' to be browsed */
  public boolean browseMessage( MQeMsgObject msg,
                                long confirmID ) throws Exception
  {
    /* get message type field */
    String msgType = msg.getAscii( "MsgType" );
    /* what message type is it? */
    if ( msgType.equals( "OrderResponse" ) )
      return (true); /* allow browse */
    else
      return (false); /* don't allow browse */
  }
  ...
}
```

MQeQueueRule deleteMessage

Syntax

```
public void deleteMessage( MQeFields filter ) throws Exception
```

Description

This rule is called when a delete message operation takes place. By throwing an exception the rule can reject the delete message request.

Parameters

filter An MQeFields object containing a message filter. The filter must contain the message UID for the delete operation to be successful.

Return values

none

Exceptions

Example

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule requires that the filter contain a password  */
  public void deleteMessage( MQeFields filter ) throws Exception
  {
    if ( filter != null && filter.contains( "Password" ) )
    {
      String pswd = filter.getAscii( "Password" );
      if ( pswd.equals( "12345678" ) )
      { /* remove password from filter */
        filter.delete( "Password" );
        return;
      }
      else
        throw new MQeException( Except_Rule, "Incorrect password" );
    }
    throw new MQeException( Except_Rule, "No Password" );
  }
  ...
}
```

MQeQueueRule duplicateMessage

Syntax

```
public void duplicateMessage( MQeMsgObject msg,
                              long confirmId ) throws Exception
```

Description

This rule is called if a duplicate message is put onto the queue.

Parameters

msg	An MQeMsgObject containing the duplicate message.
confirmId	A long value that is the *confirmID* used on this put operation. The *confirmID* is used to restore messages in the event of a failure

Return values

none

Exceptions

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule logs the duplicate message exception */
  public void duplicateMessage( MQeMsgObject msg,
                                long confirmID ) throws Exception
  {
    /* get message UID */
    MQeFields msgUID = msg.getMsgUIDFields();
    /* log the duplicate message exception */
    log( MQe_Log_Warning, Event_Queue_Duplicate,
         msgUID.getAscii( MQe.Msg_OriginQMgr ) + " " + " +
         msgUID.getLong( MQe.Msg_Time ) );
  }

  public void queueActivate()
  { /* create a new log file */
    try
    {
      logFile = new LogToDiskFile( "\log.txt" );
    }
    catch( Exception e )
    {
      e.printStackTrace( System.err );
    }
  }

  public void queueClose()
  { /* close log file */
    logFile.close();
  }

  ...
}
```

MQeQueueRule filterMessage

Syntax

```
public boolean filterMessage( int what, MQeFields filter )
```

Description

This rule is called when a message filter is being applied during a **getMessage()**, **browseMessage()** or **deleteMessage()** call. The queue rule

checks to make sure certain fields exist in the filter, and that they contain certain values. The rule then uses this information to allow or reject the operation.

Parameters

what An integer, indicating which operation is being performed:

- `0` = browse
- `1`= get
- `2` = delete

filter An MQeFields object. `null` or the search filter used to restrict the operation to a subset messages on the queue.

Return values

true Allow the requested operation to go ahead

false Reject the requested operation

Exceptions

None

Examples

```
public class ExampleQueueRule extends MQeQueueRule {
...
public boolean filterMessage( int what , MQeFields filter ) {
boolean result = true ; // Allow all operations by default, regardless of filter.
return result ;
}
...
}
```

Related Functions

- **getMessage()**
- **browseMessage()**
- **deleteMessage()**

MQeQueueRule getMessage

Syntax

```
public boolean getMessage( MQeMsgObject msg,
                           long confirmId ) throws Exception
```

Description

This rule is called when a message is found which satisfies a get message request. The rule can decide whether that message should be allowed to satisfy the get message request.

If the rule does not allow the message to satisfy the get message request then the queue will search for another message that satisfies the request.

By throwing an exception the rule can terminate the get message request.

Parameters

msg An MQeMsgObject containing a message that satisfies the get message request..

confirmId A long value that is the *confirmID* used on this get request. The *confirmID* is used to restore messages in the event of a failure

Return values

none

Exceptions

none

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule disallows a get request on a message if the message states */
  /* that it can only be browsed */
  public boolean getMessage( MQeMsgObject msg,
                             long confirmId ) throws Exception
  { /* does the message contain a field which states what operations are */
    /* allowed upon it */
    if ( msg.contains( "AllowableOperations" ) )
    {
      String allowedOperations = msg.getAscii( "AllowableOperations" );
      /* if the message states that it can only be browsed disallow the get */
      if ( allowedOperations.equals( "BrowseOnly" ) )
        return (false);
    }
    return (true);
  }
  ...
}
```

Related functions

- putMessage

MQeQueueRule getPendingMessage

Syntax

```
public void getPendingMessage( String queueManagerName,
                               MQeFields filter,
                               long confirmId ) throws Exception
```

Description

An MQSeries Everyplace queue manager is able to collect messages destined for itself from its home-server through a home-server queue. The home-server stores messages destined for its clients in one or more store-and-forward queues. The home-server queue contacts its home-server's store-and-forward queues using the **MQeStoreAndForwardQueue.getPendingMessage()** method. Any pending messages for that MQSeries Everyplace queue manager are then returned.

This rule is called when a get pending message request is received.

Parameters

queueManagerName
: A String containing the name of the MQSeries Everyplace queue manager that initiated the get pending message request.

filter
: `null` or an MQeFields object containing a message filter, used to match any pending messages. `null` means return the first available message addressed to the queue manager specified in *queueManagerName*.

confirmId
: A long value that is the *confirmID* for this operation. The *confirmID* is used to restore messages in the event of a failure.

Return values

none

Exceptions

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule requires that the filter contain a password  */
  /* (For this rule to work correctly in would be necessary to override */
  /* MQeHomeServerQueue so that the message filter sent to the Store & */
  /* Forward Queue was non-null) */
  public void getPendingMessage( String queueManagerName, MQeFields filter,
                                 long confirmId ) throws Exception
  {
    if ( filter != null && filter.contains( "Password" ) )
    {
      String pswd = filter.getAscii( "Password" );
      if ( pswd.equals( "123456878" ) )
      { /* remove password from filter */
        filter.delete( "Password" );
        return;
      }
    }
    throw new MQeException( Except_Rule, "No Password" );
  }
  ...
}
```

MQeQueueRule indexEntry

Syntax

```
public void indexEntry( MQeFields entry,
                        MQeMsgObject msg ) throws Exception
```

Description

This rule is called when the queue creates an index entry. This occurs when a new message is put onto the queue, and when the queue is activated, if it still holds messages from a previous session.

The index entry contains state information about the message, along with certain index fields that are held to enable faster message searching. These fields are:

- MQe Unique ID (MQe.Msg_OriginQMgr + MQe.Msg_Time)
- MQ Series Message ID (MQe.Msg_ID)
- MQ Series Correlation ID (MQe.Msg_CorrelID)
- Message Priority(MQe.Msg_Priority)

Parameters

entry	A String containing the name of the MQSeries Everyplace queue manager that initiated the get pending message request.
filter	An MQeFields object containing a blank index entry. The rule can add fields to this object, if it wishes.
msg	An MQeMsgObject containing the message for which an index entry is being created.

Return values

none

Exceptions

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* if the message contains a customer number field - then add this field */
  /* to the message's index entry.  */
  /* This will enable faster message searching */
  public void indexEntry( MQeFields entry,
                          MQeMsgObject msg ) throws Exception
  {
    if ( msg.contains( "Cust_No" ) )
      entry.copy( msg, true, "Cust_No" );
  }
  ...
}
```

MQeQueueRule messageExpired

Syntax

```
public boolean messageExpired( MQeFields entry,
                               MQeMsgObject msg ) throws Exception
```

Description

This rule is called when a message has exceeded either the queue's expiry interval, or it's own expiry interval. The check to see whether the message exceeded the expiry intervals is made every time the message is accessed.

The rule then decides whether to expire the message, and what subsequently happens to the message, if it has expired.

Parameters

entry An MQeFields object containing the index entry for the message that has expired.

msg An MQeMsgObject containing the message that has expired.

Return values

A boolean value which denotes whether to expire the message.

true The message has expired and can be deleted

false The message has not expired

Exceptions

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule puts a copy of any expired messages to a Dead Letter Queue */
  public boolean messageExpired( MQeFields entry,
                                 MQeMsgObject msg ) throws Exception
  {
    /* Get the reference to the Queue Manager */
    MQeQueueManager qmgr = MQeQueueManager.getReference(
                                    ((MQeQueue)owner).getQueueManagerName() );
    /* need to set re-send flag so that put of message to new queue isn't */
    /* rejected /
    msg.putBoolean( MQe.Msg_Resend, true );
    /* if the message contains an expiry interval field - remove it */
    if ( msg.contains( MQe.Msg_ExpireTime )
      msg.delete( MQe.Msg_ExpireTime );
    /* put message onto dead letter queue */
```

```
    qmgr.putMessage( null, "DEAD.LETTER.QUEUE", msg, null, 0 );
    /* return true & the message will be deleted from the queue */
    return (true);
  }
  ...
}
```

MQeQueueRule putMessage

Syntax

```
public void putMessage( MQeMsgObject msg,
                        long confirmID ) throws Exception
```

Description

This rule is called when a put message request is made. By throwing an exception the rule can prevent the message being put onto the queue.

Parameters

msg	An MQeMsgObject containing the message to be put onto the queue.
confirmID	A long value containing the *confirmID* for this operation. The *confirmID* is used to restore locked messages in the event of a failure.

Return values

none

Exceptions

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule blocks a message Put if the message priority is less than 5 */
  public void putMessage( MQeMsgObject msg, long confirmID ) throws Exception
  {
    if ( (msg.contains( MQe.Msg_Priority )) &&
         (msg.getByte( MQe.Msg_Priority ) < 5) )
      throw new MQeException( Except_Rule, "Priority too low" );
  }
  ...
}
```

Related functions

- **getMessage**

MQeQueueRule queueActivate

Syntax

```
public void queueActivate()
```

Description

This rule is called when the queue is activated.

Parameters

none

Return values

none

Exceptions

none

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule logs the activation of the queue */
  public void queueActivate()
  {
    try
    {
      logFile = new LogToDiskFile( \\log.txt );
      log( MQe_Log_Information, Event_Queue_Activate, "Queue " +
           ((MQeQueue)owner).getQueueManagerName() + " + " +
           ((MQeQueue)owner).getQueueName() + " active" );
    }
    catch( Exception e )
    {
      e.printStackTrace( System.err );
    }
  }

  public void queueClose()
  { /* close log file */
    logFile.close();
  }
  ...
}
```

Related functions

- **queueClose()**

MQeQueueRule queueClose

Syntax

```
public void queueClose()
```

Description

This rule is called when the queue is closed.

Parameters

none

Return values

none

Exceptions

none

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule logs the closure of the queue */
  public void queueClose()
  {
    try
    {
      log( MQe_Log_Information, Event_Queue_Closed, "Queue " +
           ((MQeQueue)owner).getQueueManagerName() + " + " +
           ((MQeQueue)owner).getQueueName() + " closed" );
      /* close log file */
      logFile.close();
    }
    catch ( Exception e )
    {
      e.printStackTrace( System.err );
    }
  }
```

```
public void queueActivate()
 {
   try
   {
     logFile = new LogToDiskFile( \\log.txt );
     log( MQe_Log_Information, Event_Queue_Activate, "Queue " +
          ((MQeQueue)owner).getQueueManagerName() + " + " +
          ((MQeQueue)owner).getQueueName() + " active" );
   }
   catch( Exception e )
   {
     e.printStackTrace( System.err );
   }
 }  ...
}
```

Related functions

- **queueActivate()**

MQeQueueRule removeListener

Syntax

```
public void removeListener( MQeMessageListenerInterface listener,
                            MQeFields filter ) throws Exception
```

Description

This rule is called when a message listener is removed from a queue. By throwing an exception the rule can prevent the listener from being removed.

Parameters

listener	The object that is subscribing to MQSeries Everyplace message events. The object must implement MQeMessageListenerInterface.
filter	`null` or an MQeFields object containing a message filter. The filter must match the filter used in the add listener command that created this listener.

Return values

none

Exceptions

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule logs the removal of the message listener */
  public void removeListener( MQeMessageListenerInterface listener,
                              MQeFields filter ) throws Exception
  {
    log( MQe_Log_Information, Event_Queue_RemoveMsgListener,
         "Removed listener on queue " +
         ((MQeQueue)owner).getQueueManagerName() + " + " +
         ((MQeQueue)owner).getQueueName() );
  }

  public void queueActivate()
  { /* create a new log file */
    try
    {
      logFile = new LogToDiskFile( \\log.txt );
    }
```

```
    catch( Exception e )
    {
      e.printStackTrace( System.err );
    }
  }

  public void queueClose()
  { /* close log file */
    logFile.close();
  }

  ...
}
```

Related functions

- **addListener**

MQeQueueRule resetMessageLock

Syntax

```
public void resetMessageLock( MQeFields filter ) throws Exception
```

Description

This rule is called when a request is made to reset the lock state on a message. The message is reset to an unlocked state. This function can only be performed by MQSeries Everyplace administration. By throwing an exception the rule can prevent the reset from occurring.

Parameters

filter An MQeFields object containing a message filter. This filter is used to match the message having its lock state reset

Return values

none

Exceptions

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule logs the message lock reset */
  public void resetMessageLock( MQeFields filter ) throws Exception
  { /* get message UID */
    if ( filter.contains( MQe.Msg_Time ) &&
         filter.contains( MQe.Msg_OriginQMgr ) )
    {
      String originQMgr = filter.getAscii( MQe.Msg_OriginQMgr );
      long timeStamp    = filter.getLong( MQe.Msg_Time );

      log( MQe_Log_Information, Event_Queue_ResetMessageLock,
           "Message " + originQMgr + ":" + timeStamp + " on queue " +
           ((MQeQueue)owner).getQueueManagerName() + " + " +
           ((MQeQueue)owner).getQueueName() + " has been reset" );
    }
  }

  public void queueActivate()
  { /* create a new log file */
    try
    {
      logFile = new LogToDiskFile( \\log.txt );
    }
    catch( Exception e )
    {
```

```
      e.printStackTrace( System.err );
    }
  }

  public void queueClose()
  { /* close log file */
    logFile.close();
  }

  ...
}
```

MQeQueueRule undo

Syntax

```
public boolean undo( MQeFields filter ) throws Exception
```

Description

An undo message operation matches zero or more messages held on a queue. This rule is called for each message matched, and the rule determines whether the message is to be included in the set of messages processed by the undo operation.

By throwing an exception the rule can terminate the undo operation.

Parameters

filter An MQeFields object containing a message filter. Only messages matching the filter are included in the undo operation.

confirmId A long value that was the *confirmID* used by the operation which is being undone. All messages matching this confirm Id are restored to their previous state

Return values

A boolean value denoting whether this message will be included in the set of messages processed by the undo operation.

true Include this message in those processed by the undo operation

false Do not include this message in those processed by the undo operation

Exceptions

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* This rule logs the message reset */
  public boolean undo( MQeFields filter ) throws Exception
  { /* get message UID */
    if ( filter.contains( MQe.Msg_Time ) &&
         filter.contains( MQe.Msg_OriginQMgr ) )
    {
      String originQMgr = filter.getAscii( MQe.Msg_OriginQMgr );
      long timeStamp    = filter.getLong( MQe.Msg_Time );

      log( MQe_Log_Information, Event_Queue_ResetMessageLock,
           "Message " + originQMgr + ":" + timeStamp + " on queue " +
           ((MQeQueue)owner).getQueueManagerName() + " " + " +
           ((MQeQueue)owner).getQueueName() + " has been reset" );
    }
    return (true);
  }
```

```
  public void queueActivate()
  { /* create a new log file */
    try
    {
      logFile = new LogToDiskFile( \\log.txt );
    }
    catch( Exception e )
    {
      e.printStackTrace( System.err );
    }
  }

  public void queueClose()
  { /* close log file */
    logFile.close();
  }

  ...
}
```

MQeQueueRule useCountChanged

Syntax

```
public void useCountChanged( int useCount ) throws Exception
```

Description

This rule is called when a queue's use count changes. The use count is a measure of the number of users attached to the queue. The use count changes when the queue is activated or closed, and when remote queue managers connect to, or disconnect from, the queue using an MQeTransporter.

Parameters

useCount The queue's current use count.

Return values

none

Exceptions

Examples

```
class exampleQueueRules extends MQeQueueRule
{
  ...
  /* do not allow the use count to exceed ten */
  public void useCountChanged( int useCount ) throws Exception
  {
    if ( useCount == 10 )
      throw new MQeException( Except_Rule, "Too many users" );
  }
  ...
}
```

MQeRule

This is a superclass from which all MQSeries Everyplace rule classes derive their basic function.

Package
com.ibm.mqe

Constructors

MQeRule

Syntax

```
public MQeRule( )
```

Description
Constructs an MQeRule object.

Parameters
none

Return values
none

Exceptions
none

Examples

Methods

Method	Purpose
activate	This method is called after the constructor or close method, before the rule is used.
close	This method signals that the rule should be de-activated.
newRule	This method is called when the owning object wishes to change the current rule for a different rule, to see if the current rule allows another rule to replace it.

MQeRule activate

Syntax

```
public void activate( Object thisOwner )
```

Description
This method is called after the constructor but before the rule is used. Subclasses may override this method.

Parameters

thisOwner The object that owns this rule. Depending on the type of rule, it could be a reference to a queue manager, a queue, or some other MQSeries Everyplace object.

Return values
none

Exceptions
none

Examples

MQeRule close

Syntax

```
public void close( )
```

Description

This method signals that the rule should be deactivated. Subclasses may override this method

Parameters

none

Return values

none

Exceptions

Example

MQeRule newRule

Syntax

```
public MQeRule newRule( Object owner, MQeRule thisRule ) throws Exception
```

Description

The current rule is being used to dictate the behavior of the owning object. This method is called when the owning object wishes to change the current rule for a different rule, to see if the current rule allows another rule to replace it.

By default, the MQeRule class allows any non-null MQeRule object reference to replace it.

If you want to prevent a rule being replaced with a different rule, override this rule in a subclass, and throw an exception, for example`MQeException, code=Except_Rule`.

Parameters

owner The object that owns this rule. The currrent rule class determines the behavior of this method.

thisRule A reference to a descendent of MQeRule that may or may not replace the current rule.

Return values

The rule that will become the active rule for the owner object.

Exceptions

MQeException `Except_Rule`

If this rule does not allow the active rule for the owning object to be changed.

Example

```
public MQeRule newRule( Object owner, MQeRule thisRule ) throws Exception   {
// throw new MQeException( MQE.Except_Rule, "Disallowed by rule" );
    if ( thisRule != null )                  /* is there a rule ?           */
           thisRule.activate( owner );        /* activate with new owner     */
      return( thisRule );                     /* use new rule                */
}
```

MQeEventLogInterface

All MQSeries Everyplace log handlers must implement this interface.

Package **com.ibm.mqe**

Methods

Method	Purpose
activate	Activates the event log handler
close	Terminates the event log function and performs any cleanup as appropriate
logOutput	Outputs data to the event log

MQeEventLogInterface activate

Syntax

```
public void activate( String logName ) throws Exception
```

Description

Is called to activate the event log handler

Parameters

logName A String used to identify this event log

Return values

none

MQeEventLogInterface close

Syntax

```
public void close( )
```

Description

Called to close the event log handler and to perform any cleanup as necessary

Parameters

none

Return values

none

MQeEventLogInterface logOutput

Syntax

```
public void logOutput( String data )
```

Description

Called by MQSeries Everyplace to output a message to the event log handler

Parameters

data The data to be logged

Return values

none

MQeMessageListenerInterface

This interface must be implemented by all objects that wish to receive MQeMessage events.

Package **com.ibm.mqe**

Methods

Method	Purpose
messageArrived	Event handler for MQeMessageEvent.MessageArrived events. This event is generated when a message arrives on a queue.

MQeMessageListener messageArrived

Syntax

```
public void messageArrived( MQeMessageEvent msgEvent )
```

Description

This method is called on all listening objects when an MQeMessageEvent.MessageArrived event is generated.

Parameters

msgEvent An MQeMessageEvent object containing details of the newly arrived message

Return values

none

Exceptions

none.

Example

```
class MyMQeApplication extends MQSeries Everyplace
                       implements MQeMessageListenerInterface
{
  ...
  public void messageArrived( MQeMessageEvent e )
   {
     ...
     if ( e.getQueueName().equals("MY.QUEUE") )
       MQeFields msgFields = e.getMsgFields(); /* get msg info */
     ...
   }
  ...
}
```

MQeRunListInterface

Two lists of MQSeries Everyplace applications can be passed to an MQSeries Everyplace queue manager as part of the parameter set passed to it when it is activated. The applications contained in the first list are invoked once the queue manager is active. The applications contained in the second list are invoked when the queue manager receives a close request.

All applications should implement MQeRunListInterface, but it is not mandatory.

Package **com.ibm.mqe**

Methods

Method	Purpose
activate	Called by the queue manager to activate the application.

MQeRunListInterface activate

Syntax

```
public Object activate(  Object    owner,
                         Hashtable loadTable,
                         MQeFields setupData ) throws Exception;
```

Description

Two lists of MQSeries Everyplace applications can be passed to a MQSeries Everyplace queue manager as part of the parameters passed when the queue manager is activated. The first list contains applications that are invoked once the queue manager is active. The second list contains applications that are invoked when the queue manager receives a close request (when the **MQeQueueManager.close()** method is called).

If the applications contained in the queue manager parameters implement MQeRunListInterface, then the queue manager calls this method to activate the application, and pass any set-up information for the application that is contained in the queue manager parameters.

Applications are not forced to implement MQeRunListInterface, but if they do not, the application is just invoked and no setup information is passed to it

An application that is invoked when a queue manager is activated should return from this method as quickly as possible to allow the queue manager to continue. The application should initialize itself on a different thread from the one on which iti called. The application is responsible for the management of this thread.

An application that is invoked on queue manager close can block the queue manager from shutting down by not returning from this method.

Parameters

owner This is the object that owns the application. Usually this is the MQSeries Everyplace queue manager that invoked the application.

loadTable A java.util.Hashtable object that can be used to share data between the applications invoked by the queue manager. All of the applications invoked by the queue manager have a reference to this table.

setupData An MQeFields object containing application setup data. This data must have been included in the parameters passed to the queue manager when the queue manager was activated. See the sample INI file below for an example of this.

Return values

An object reference - this is not currently used.

Exceptions

none

Example

Example of an application being launched when the queue manager is activated

```
public class ExampleApp extends MQe implements MQeRunListInterface,
                                                Runnable,
                                                MQeMessageListenerInterface
{
  Thread th = null;
  MQeQueueManager qmgr = null;
  ...
  /* Called by the Queue Manager to activate the application  */
  public Object activate( Object owner, Hashtable loadTable,
                          MQeFields setupData )
  {
    qmgr = (MQeQueueManager)owner; /* QMgr is owner of the application */
    processSetupData( setupData ); /* Process the setup information */
    th = new Thread( this ); /* Create a new thread to listen */
    th.start(); /* for incoming messages */
    return (null); /* return control to the QMgr */
  }

  public void run()
  {
    try
    {  /* Create a message listener for incoming messages */
       qmgr.addMessageListener( this, "MyQueue", null );
       /* Loop indefintely keeping application alive */
       while( true );
    }
    catch ( Exception e )
    {
      e.printStackTrace( System.err );
    }
  }
  ...
}
```

Example of an application being launched when the queue manager receives a close request

```
public class ExampleCloseApp extends MQe implements MQeRunListInterface
{
  MQeQueueManager qmgr = null;
  ...
  /* Called by the Queue Manager to activate the application  */
  public Object activate( Object owner, Hashtable loadTable,
                          MQeFields setupData )
  {
    qmgr = (MQeQueueManager)owner; /* QMgr is owner of the application */
    performAction(); /* Perform some action */
    /* don't return control to the QMgr until application has finished */
    return (null);
  }
}
```

Sample Queue Manager INI file

```
* Sample Queue Manager INI file

* Queue Manager setup info
[QueueManager]
* Name for this Queue Manager
(ascii)Name=ServerQMgr8082

* Registry setup info
[Registry]
* QueueManager Registry type
(ascii)LocalRegType=com.ibm.mqe.registry.MQePrivateSession
* Location of the registry
(ascii)DirName=d:\development\Rename\Classes\ServerQMgr8082\Registry
* Registry access PIN
(ascii)PIN=12345678

* List of applications to launched at Queue Manager activation-time
[ActivateAppList]
(ascii)App1=examples.queuemanager.TestMQeApp
(ascii)App2=examples.administration.AdminApp

* Setup info for App1 - the data in this section is passed to the application
[App1]
(ascii)DefaultMsgPriority = 7
(long)Timeout = 30000

* Setup info for App2 - the data in this section is passed to the application
[App1]
(ascii)DefaultQueueName=AdminReplyQueue
```

MQeSecurityInterface

This is an optional interface that may be implemented by a Java security manager . The interface methods allow the security manager to authorize or reject the call. MQSeries Everyplace trace handlers must implement this interface.

Package **com.ibm.MQe**

Method summary

Method	Support
alias	Called whenever a class alias it added or removed
channelCommand	Called whenever a channel command is about to be processed by a channel
newAdapter	Called whenever an adapter definition is about to be defined
mapFileDescriptor	Called whenever a mapping of a file descriptor is about to be set

MQeSecurityInterface alias

Syntax

```
public void alias( String from, String to ) throws Exception
```

Description

Called whenever an alias is about to be set or removed

Parameters

from A String defining the class alias

to A String defining the class name for the alias, or `null` if the alias is to be removed

Return values

none

Exceptions

SecurityException Request was rejected

Example

MQeSecurityInterface channelCommand

Syntax

```
public void channelCommand( String command ) throws Exception
```

Description

Called whenever a channel command is about to be processed

Parameters

command A string containing the channel command

Return values

none

Exceptions

SecurityException Request was rejected

Example

MQeSecurityInterface newAdapter

Syntax

```
public void newAdapter( String destination ) throws Exception
```

Description

Called whenever a new adapter definition is about to be set

Parameters

destination A string containing the destination for this adapter. A typical destination would be of the form:

```
Tcpip:127.0.0.1:8080
```

Return values

none

Exceptions

SecurityException request was rejected

Example

MQeSecurityInterface mapFileDescriptor

Syntax

```
public void mMapFileDescriptor( String fileDesc, Object newDesc )
                                                        throws Exception
```

Description

Called whenever a file descriptor map is to be set

Parameters

fileDesc A string containing the file descriptor that is to be mapped

newDesc A string containing the file descriptor that is the mapped descriptor

Return values

none

Exceptions

SecurityException Request was rejected

Example

MQeTraceInterface

All MQSeries Everyplace trace handlers must implement this interface.

Package **com.ibm.mqe**

Methods

Method	Purpose
activate	Called to activate the trace handler
addMessage	Adds a new trace message template
addMessageBundle	Adds a bundle of trace message templates
close	Called to close the trace handler and perform any cleanup as appropriate
getMessage	Return the message template for a given message number
traceMessage	Called to write a trace message to the output stream

MQeTraceInterface activate

Syntax

```
public void activate ( String title, String resource )
```

Description

Called to activate the trace handler

Parameters

title A String to be used as a title for this trace handler or `null`

resource A String used to identify the resource bundle to use for this trace handler

Return values

none

MQeTraceInterface traceMessage

Syntax

```
public String traceMessage( String prefix,
                            int msgNumber,
                            Object insert )
```

Description

Called by MQSeries Everyplace to output a trace message through the trace handler

Parameters

prefix The calling object name and instance number

msgNumber An integer containing the trace message number to be used to find the message template

insert Any inserts to be applied to the message template

Return values

A String containing the expanded trace message text

MQeTraceInterface addMessage

Syntax

1.
```
public void   addMessage  ( int msgNumber, String msgText ) throws Exception
```
2.
```
public void   addMessage  ( String msgText ) throws Exception
```

Description

Called to add a new trace message template to the trace handler. The template should be of the form:

```
static final Object[][] contents = {
   /*-------------------------------------------------------------------------*/
   /* System messages                                                         */
   /*    ' '        message                                                   */
   /*    'i'        Information                                               */
   /*    'w'        Warning                                                   */
   /*    'e'        Error                                                     */
   /*    'd'        Debug                                                     */
   /*                                                                         */
   /* Application messages                                                    */
   /*    ' '        message                                                   */
   /*    'I'        Information                                               */
   /*    'W'        Warning                                                   */
   /*    'E'        Error                                                     */
   /*    'D'        Debug                                                     */
   /*                                                                         */
   /* Modifier                                                                */
   /*    ':'        no modification applied                                   */
   /*    ';'        RESERVED for create/destroy object                        */
   /*    '+'        Log this message via the Log interface                    */
   /*    ''        ignore - Do not display this message                       */
   /*                                                                         */
   /* Mwssage number                                                          */
   /*    "[nnnnn]:" syntax for message number of this message                 */
   /*                                                                         */
   /* Example:                                                                */
   /*            "e+[01000]:Error #0 occurred"                                 */
   /*            "I:[01010]:All is wonderful"                                */
   /*-------------------------------------------------------------------------*/
```

Parameters

msgNumber An integer containing the trace message number to be used to identify the message template

msgText A String containing the trace message template

Return values

none

MQeTraceInterface addMessageBundle

Syntax

```
public void addMessageBundle( String msgBundle ) throws Exception
```

Description

Is called to add a bundle of templates to the trace handler. The templates in the bundle should be of the form:

```
static final Object[][] contents = {
   /*-------------------------------------------------------------------------*/
   /* System messages                                                         */
   /*    ' '        message                                                   */
   /*    'i'        Information                                               */
   /*    'w'        Warning                                                   */
   /*    'e'        Error                                                     */
   /*    'd'        Debug                                                     */
   /*                                                                         */
   /* Application messages                                                    */
   /*    ' '        message                                                   */
```

```
            /*    'I'        Information                                        */
            /*    'W'        Warning                                            */
            /*    'E'        Error                                              */
            /*    'D'        Debug                                              */
            /*                                                                  */
            /* Modifier                                                         */
            /*    ':'        no modification applied                            */
            /*    ';'        RESERVED for create/destroy object                 */
            /*    '+'        Log this message via the Log interface             */
            /*    ''        ignore - Do not display this message                */
            /*                                                                  */
            /* Mwssage number                                                   */
            /*    "[nnnnn]:" syntax for message number of this message          */
            /*                                                                  */
            /* Example:                                                         */
            /*            "e+[01000]:Error #0 occurred"                          */
            /*            "I:[01010]:All is wonderful"                         */
            /*------------------------------------------------------------------*/
```

Parameters

msgBundle
A String identifying the bundle of trace messages templates to be added

Return values
none

Standard trace messages

```
static final Object[][] contents = {
  /*------------------------------------------------------------------------*/
  /* System messages                                                        */
  /*    ' '        message                                                  */
  /*    'i'        Information                                              */
  /*    'w'        Warning                                                  */
  /*    'e'        Error                                                    */
  /*    's'        Security                                                 */
  /*    'd'        Debug                                                    */
  /*                                                                        */
  /* Application messages                                                   */
  /*    ' '        message                                                  */
  /*    'I'        Information                                              */
  /*    'W'        Warning                                                  */
  /*    'E'        Error                                                    */
  /*    'S'        Security                                                 */
  /*    'D'        Debug                                                    */
  /*                                                                        */
  /* Modifier                                                               */
  /*    ':'        no modification applied                                  */
  /*    ';'        RESERVED for create/destroy object                       */
  /*    '+'        Log this message via the Log interface                   */
  /*    ''        ignore - Do not display this message                     */
  /*                                                                        */
  /* Mwssage number                                                         */
  /*    "[nnnnn]:" syntax for message number of this message                */
  /*                                                                        */
  /* Example:                                                               */
  /*            "e+[01000]:Error #0 occurred"                                */
  /*            "I:[01010]:All is wonderful"                               */
  /*------------------------------------------------------------------------*/

  /* common messages                                                       */
         {    "1",     "d;[00001]:Created"    },
         {    "2",     "d;[00002]:Destroyed"  },
         {    "3",     "d:[00003]:Close"      },
         {    "4",     "w:[00004]:Warning:#"  },
         {    "5",     "e:[00005]:Error:#"    },
```

```
       {    "6",     "i:[00006]:Command:#"  },
       {    "7",     "i:[00007]:Waiting"    },
       {    "8",     "i:[00008]:# input byte count=#"  },
       {    "9",     "i:[00009]:# output byte count=#" },
/* com.ibm.MQe.MQeLoader                                              */
       {   "10",     "d:[00010]:loadClass #"           },
       {   "11",     "d:[00011]:Loaded (bytes) #"      },
       {   "12",     "d:[00012]:Resolved Class #"      },
       {   "13",     "d:[00013]:DropClass #0"          },
/* com.ibm.MQe.MQeChannel & ChannelManager                            */
       {   "20",     "d:[00020]:ActivateMaster"             },
       {   "21",     "d:[00021]:ActivateSlave"              },
       {   "22",     "d:[00022]:ActivateSlave Channel ID=#0" },
       {   "23",     "d:[00023]:Close Channel ID=#0"        },
       {   "24",     "d:[00024]:SlaveResponse"              },
       {   "25",     "d:[00025]:SlaveResponse Channel ID=#0" },
       {   "26",     "i:[00026]:Timeout channel ID=#0"      },
       {   "27",     "i:[00027]:Forwarding to #0"           },
       {   "28",     "i:[00028]:ID=#0, Command=#1"          },
/* com.ibm.MQe.MQeChannelListener                                     */
       {   "30",     "i:[00030]:Starting Listener #0"       },
       {   "31",     "i:[00031]:Stopping Listener"          },
       {   "32",     "d:[00032]:Starting Slave"             },
       {   "33",     "d:[00033]:Stopping Slave"             },
       {   "34",     "d:[00034]:Timer interval"             },
/* com.ibm.MQe.MQeAttribute                                           */
       {   "40",     "d:[00040]:Authenticator #0"           },
       {   "41",     "d:[00041]:Compressor #0"              },
       {   "42",     "d:[00042]:Cryptor #0"                 },
       {   "43",     "d:[00043]:Attribute(Rule).equals=#0"  },
       {   "44",     "d:[00044]:Attribute Change #0"        },
       {   "45",     "d:[00045]:TargetRegistry=#0"          },
       {   "46",     "s:[00046]:Secure Chnl State=pending, KeyObject=#0"  },
/* com.ibm.MQe.MQeTransporter                                         */
       {   "50",     "d:[00050]:#0 PID=#1"                  },
       {   "51",     "d:[00051]:#0 made persistent PID=#1"  },
       {   "52",     "d:[00052]:#0 Message Request for Queue '#1'"  },
       {   "53",     "d:[00053]:GetPendingMessage for Queue Manager '#0'" },
/* ****** Adapters ******                                             */
/* com.ibm.MQe.Adapters.MQeIniFileAdapter & MQeDisk....Adapter        */
       {  "110",     "d:[00110]:Object #0 - saved"              },
       {  "111",     "d:[00111]:Object #0 - loaded"             },
       {  "112",     "d:[00112]:Object #0 - Selected"           },
       {  "113",     "d:[00113]:Object #0 - matched"            },
       {  "114",     "d:[00114]:Object #0 - deleted"            },
/* com.ibm.MQe.Adapters.MQeTcpipAdapter                               */
       {  "200",     "d:[00200]:File descriptor '#0'"  },
       {  "201",     "d:[00201]:Socket pending"        },
       {  "202",     "d:[00202]:Control '#0'"          },
/* com.ibm.MQe.Adapters.MQeTcpipHttpAdapter                           */
       {  "203",     "d:[00203]:Read Header"           },
       {  "204",     "d:[00204]:Header: #0"            },
       {  "205",     "d:[00205]:Header length=#0"      },
       {  "206",     "d:[00206]:Write Header"          },
       {  "207",     "d:[00207]:Read Content-length=#0" },
       {  "208",     "d:[00208]:Readln #0"             },


...
...


            };
```

The full list of messages can be found in the examples.trace.MQeTraceResource.java source file in the trace subdirectory of the examples directory.

MQeTraceInterface close

Syntax

Description

Parameters

Return values

MQeTraceInterface getMessage

Syntax

```
public String getMessage( int msgNumber )
```

Description

Called to get the String that corresponds to the trace message number supplied in the *msgNumber* parameter

Parameters

msgNumber The number of the trace message String to be returned

Return values

A String containing the trace message template

Chapter 3. Classes in com.ibm.mqe.administration

This section contains detailed information about the following MQSeries Everyplace classes and interfaces:

Table 13. Classes in package com.ibm.mqe.Administration

Class or interface name	Purpose
MQeAdminQueueAdminMsg	Used to manage queues of type MQeAdminQueue
MQeConnectionAdminMsg	Class used to manage connections of type MQeConnectionDefinition
MQeHomeServerQueueAdminMsg	Used to manage queues of type MQeHomeServerQueue
MQeQueueAdminMsg	Used to manage MQSeries Everyplace local queues of type MQeQueue
MQeQueueManagerAdminMsg	Used to manage queue managers of type MQeQueueManager
MQeRemoteQueueAdminMsg	Used to manage remote queues of type MQeRemoteQueue
MQeStoreAndForwardQueueAdminMsg	Used to manage queues of type MQeStoreAndForwardQueue

MQeAdminQueueAdminMsg

This class is used to manage queues of type MQeAdminQueue. The class extends MQeQueueAdminMsg and provides an implementation for managing administration queues.

This queue is used to provide transparent local and remote administration of MQSeries Everyplace managed resources.

Package **com.ibm.mqe.administration**

This class is a descendant of MQeQueueAdminMsg

Constants and variables

MQeAdminQueueAdminMsg provides the following constants and variables in addition to those provided and inherited by MQeQueueAdminMsg:

Queue characteristics

QtimerInterval;

Process outstanding administration messages after interval (milliseconds) (long)

```
public final static String Queue_QtimerInterval;
```

MQeConnectionAdminMsg

This class is used to manage connections of type MQeConnectionDefinition.

The class extends MQeAdminMsg and provides the implementation for managing connections. The following actions are applicable on connections:

- **Action_Create**
- **Action_Delete**
- **Action_Inquire**
- **Action_InquireAll**
- **Action_Update**

Connections define how one queue manager establishes a connection to another queue manager. The main characteristics associated with a connection are:

The type of channel to use
The following types of channel are provided:

MQeChannel
Channel for client to server, or server to server

MQePeerChannel
Channel for client to client

A file descriptor that contains the communications adapter and its parameters
The following adapters are provided:

MQeTcpipLengthAdapter
Simple TCPIP adapter

MQeTcpipHistoryAdapter
TCPIP adapter that provides persistent connections and data compression

MQeTcpipHttpAdapter
HTTP adapter

A file descriptor for an http connection to server ″192.168.0.1″ on port ″8082″ would be specified as:

```
com.ibm.mqe.Adpaters.MQeTcpipHttpAdapter:192.168.0.1:8082
```

or if an alias of ″Network″ had been set up for the HTTP adapter then the following file descriptor could be used:

```
Network:192.168.0.1:8081
```

Package **com.ibm.mqe.administration**

This class is a descendant of MQeAdminMsg

Constants and variables

MQeConnectionAdminMsg provides the following constants and variables in addition to those provided by MQeAdminMsg:

Additional actions

AddAlias
Add connection aliases

```
public final static  int    Action_AddAlias
```

RemoveAlias
Remove connection aliases

```
public final static  int    Action_RemoveAlias
```

Connection characteristics

Adapters (fields array)
Set of adapters used to connect to a target queue manager.

Note: In the current release only one adapter is allowed.

```
public final static  String  Con_Adapters
```

The following fields define those allowed in each element of the *Adapters* array:

AdapterFileDesc (ascii)

```
public final static String Con_Adapter
```

The adapter file descriptor, for example `Network:192.168.0.3:8085`

AdapterAsciiParm (ascii)

```
public final static String Con_AdapterAsciiParm
```

Parameters for the adapter

AdapterEncodedParm (byte array)

```
public final static String Con_AdapterEncodedParm
```

Encoded parameters

AdapterOptions (ascii)

```
public final static String Con_AdapterOptions
```

Options for the adapter, for example `"<HISTORY>"`

Each of the above fields will vary depending on the adapter being used; please see "Chapter 9. Classes in com.ibm.mqe.adapters" on page 383 for more information on which fields each of the standard MQSeries Everyplace adapters uses. These fields are passed to each adapter object through its **activate()** method.

Aliases
Set of aliases for this connection (ascii array)

```
public final static String    Con_Aliases
```

Channel

Channel class (Ascii) - the type of channel that this connection should use. For example:

```
com.ibm.mqe.MQeChannel
com.ibm.mqe.MQePeerChannel
```

the value can also be `null` meaning that this is a local connection.

```
public final static  String   Con_Channel
```

Description
Description of the connection (unicode)

```
public final static  String   Con_Description
```

Methods

Method	Purpose
create	Sets up the administration message to perform the Action_Create action
update	Sets up the administration message to perform the Action_Update action.

MQeConnectionAdminMsg create

Syntax

```
public void create( String adapter, String parameters,
                    String options, String channel
                    String description ) throws Exception
```

Description

Sets up the administration message to perform the **Action_Create** action. This version of **create()** adds a simple connection definition for a connection that has one adapter.

Parameters

adapter	File descriptor for the adapter
parameters	Adapter parameters
options	Adapter options
channel	Type of channel to use
description	Description of connection

Return values

none

Exceptions

java.lang.Exception	Various

Example

```
class MyApplication
{
  ...
  MQeConnectionAdminMsg con = new MQeConnectionAdminMsg()
  con.setName("ServerQM123");
  con.create("Network:127.0.0.1:8081",
                      null,
                      null.
                      "DefaultChannel",
                      "Con to MQeServer" );
  MQeConnectionAdminMsg con2 = new MQeConnectionAdminMsg()
  con2.setName("ServletQM123");
  con2.create("Network:127.0.0.1:8081",
                      "/servlet/MQe",
                      null,
                      "DefaultChannel",
                      "Con to MQeServlet" );
  ...
}
```

MQeConnectionAdminMsg update

Syntax

```
public void update( String adapter, String parameters,
                    String options, String channel
                    String description ) throws Exception
```

Description

Sets up the administration message to perform the **Action_Update** action. This version of **update()** replaces an existing connection definition with a simple connection definition for a connection that has one adapter.

Parameters

adapter	File descriptor for the adapter
parameters	Adapter parameters
options	Adapter options
channel	Type of channel to use
description	Description of the connection

Return values

none

Exceptions

java.lang.Exception	Various

Example

```
class MyApplication
{
  ...
  MQeConnectionAdminMsg con = new MQeConnectionAdminMsg()
  con.setName("ServerQM123");
  con.update("Network:127.0.0.1:8082",
                     null,
                     null,
                     "DefaultChannel",
                     "Con to MQeServer" );
...
}
```

MQeHomeServerQueueAdminMsg

This class is used to manage queues of type MQeHomeServerQueue. The class extends MQeRemoteQueueAdminMsg and provides an implementation for managing home-server queues

This queue is used in a client to retrieve (using a background thread) pending messages from it's home-queue on it's home-server.

Package **com.ibm.mqe.administration**

This class is a descendant of MQeRemoteQueueAdminMsg

Constants and variables

MQeHomeServerQueueAdminMsg provides the following constants and variables in addition to those provided and inherited from MQeRemoteQueueAdminMsg:

Queue characteristics

QtimerInterval;

Process pending messages after interval (milliseconds) (long)

```
public final static String Queue_QtimerInterval;
```

MQeQueueAdminMsg

This class is used to manage MQSeries Everyplace local queues of type MQeQueue. The class extends MQeAdminMsg and provides an implementation for managing local queues. The following actions are applicable on local queues:

- Action_Create
- Action_Delete
- Action_Inquire
- Action_InquireAll
- Action_Update
- Action_AddAlias
- Action_RemoveAlias

Local queues, as the name suggest are local to the owning queue manager. A file descriptor must be set that details where and how the queue is stored. It is formed from two parts, an adapter and parameters to the adapter. The following adapters are provided:

MQeDiskFieldsAdapter
File based adapter for MQeFields objects

MQeMemoryFieldsAdapter
Memory based adapter for MQeFields objects

For example, if alias MsgLog is set to MQeDiskFieldsAdapter then to store messages at d:\ServerQM123\Queues, the file descriptor would be:

```
MsgLog:d:\ServerQM123\Queues
```

Queues allow several characteristics to be set that are not used by the base local queue. These characteristics are made available to a user replaceable queue rules class that can make use of them. For instance *Queue_MaxQSize* can be set but is not checked by MQeQueue. It is the responsibility of the queues rules class to perform maximum queue size validation.

This class acts as the base class for managing other types of queues. For instance MQeRemoteQueueAdminMsg derives from this class and handles management of remote queues.

Package **com.ibm.mqe.Administration**

This class is a descendant of MQeAdminMsg

Constants and variables

MQeQueueAdminMsg provides the following constants and variables in addition to those provided by MQeAdminMsg:

Additional actions

AddAlias
Add queue aliases

```
public final static  int    Action_AddAlias;
```

RemoveAlias
Remove queue aliases

```
public final static  int    Action_RemoveAlias;
```

Queue characteristics

Active Indicates that the queue is active (boolean, Read Only)

```
public final static  String   Queue_Active
```

CreationDate

Date queue was created (long read only). Time in milliseconds since midnight Jan 1, 1970 GMT

```
public final static  String   Queue_CreationDate
```

CurrentSize

Current queue depth (int, read only)

```
public final static  String   Queue_CurrentSize
```

Description

Description of the queue (unicode)

```
public final static  String   Queue_Description
```

Expiry Messages on queue expire n milliseconds after being stored on the queue (long)

```
public final static  String   Queue_Expiry
```

FileDesc

File descriptor - the location where queue is stored (Ascii)

Once set the file descriptor cannot be changed.

The file descriptor is formed from two parts

- An adapter
- The adapter's parameters

For example, if alias MsgLog is set to MQeDiskFieldsAdapter then to store messages at d:\ServerQM123\Queues, the filedescriptor would be: `MsgLog:d:\ServerQM123\Queues`

```
public final static  String   Queue_FileDesc
```

MaxMsgSize

Maximum length of messages allowed on the queue (int)

```
public final static  String   Queue_MaxMsgSize
```

MaxQSize

Maximum number of messages allowed on the queue (int)

NoLimit

```
public final static  String   Queue_MaxQSize
public final static  int    Queue_NoLimit
```

Mode Type of queue - Is the queue synchronous or asynchronous.

```
public final static  String   Queue_Mode
```

Asynchronous

Queue is asynchronous

```
public final static  byte    Queue_Asynchronous
```

Synchronous

Queue is synchronous

```
public final static  byte    Queue_Synchronous
```

Priority

Default priority for messages if not already specified in the message (byte) (min = 0, max = 9)

```
public final static  String   Queue_Priority
```

QAliasNameList
Set of alias names for this queue (Ascii array)

```
public final static String    Queue_QAliasNameList
```

QMgrName
Name of the queue manager that owns the queue (Ascii). Once set the queue manager name cannot be changed.

```
public final static  String   Queue_QMgrName
```

Queue security Characteristics
These fields can only be changed when the queue has 0 messages and is not active.

AttrRule
Name of queue attribute rules class (Ascii)

```
public final static  String   Queue_AttrRule
```

Authenticator
Name of authenticator class (Ascii)

```
public final static  String   Queue_Authenticator
```

Compressor
Name of compressor class (Ascii)

```
public final static  String    Queue_Compressor
```

Cryptor
Name of cryptor class (Ascii)

```
public final static  String    Queue_Cryptor
```

TargetRegistry
Target registry type (byte)

```
public final static  String   Queue_TargetRegistry
```

One of the following:

RegistryNone

```
public final static  byte    Queue_RegistryNone
```

RegistryQMgr

```
public final static  byte    Queue_RegistryQMgr
```

RegistryQueue

```
public final static  byte    Queue_RegistryQueue
```

Rule Name of queue rules class (Ascii)

```
public final static  String   Queue_Rule
```

Constructors

MQeQueueAdminMsg

Syntax

1. `public MQeQueueAdminMsg() throws Exception`
2. `public MQeQueueAdminMsg( String qMgrName, String queueName )`

Description
There are 2 constructors.

1. This version creates and initializes a default MQeAdminMsg
2. This version takes the name of the queue that is to be managed

Parameters

qMgrName Queue manager name

queueName Queue name

Return Values

A new MQeQueueAdminMsg

Exceptions

java.lang.Exception Various

Example

```
class MyApplication
{
  MQeQueueAdminMsg aMsg = new MQeQueueAdminMsg( "ExampleQM", "ExampleQ" );
}
```

Methods

Constructor	Purpose
addAlias	Sets up an administration message to perform the Admin_AddAlias action.
removeAlias	Sets up an administration message to perform the Admin_RemoveAlias action.
setName	Sets the name of the queue that the action is to be peformed against.

MQeQueueAdminMsg addAlias

Syntax

```
public void addAlias( String aliasName ) throws Exception
```

Description

Sets up an administration message to perform the **Admin_AddAlias** action. A queue can have no aliases, one alis, or several aliases. This method can be called more than once to allow multiple aliases to be added in one administration message.

Parameters

aliasName Alias name of queue

Return values

none

Exceptions

java.lang.Exception Various

Example

```
class MyApplication
{
  ...
  // Add aliases to a queue
  MQeQueueAdminMsg msg = new MQeQueueAdminMsg();
  msg.setName( "ExampleQM", "ExampleQ" );

  // Set the action required and its parameters
  // into the message
```

```
  msg.addAlias( "PayrollQ" );
  msg.addAlias( "Branch1PayrollQ" );
  ...
}
```

MQeQueueAdminMsg removeAlias

Syntax

```
public void removeAlias( String aliasName ) throws Exception
```

Description

Sets up an administration message to perform the Admin_RemoveAlias action. This action removes the named alias from the queue. This method may be called more than once to allow multiple aliases to be removed using one administration message.

Parameters

aliasName Alias name of queue

Return values

none

Exceptions

java.lang.Exception Various

Example

```
class MyApplication
{
  ...
  // Add aliases to a queue
  MQeQueueAdminMsg msg = new MQeQueueAdminMsg();
  msg.setName( "ExampleQM", "ExampleQ" );

  // Set the action required and its parameters
  // into the message
  msg.removeAlias( "PayrollQ" );
  msg.removeAlias( "Branch1PayrollQ" );
  ...
}
```

MQeQueueAdminMsg setName

Syntax

```
public void setName( String qMgrName, String queueName ) throws Exception
```

Description

Sets the name of the queue that the action is to be peformed on.

Parameters

qMgrName Name of the queue manager that owns the queue

queueName Name of the queue

Return values

none

Exceptions

java.lang.Exception Various

Example

```
class MyApplication
{
  ...
  // Delete a queue
```

```
  MqeFields parms = new MQeFields();

  // Set the action required and its parameters
  // into the message
  msg.delete( parms );
  msg.setName( "ExampleQM", "ExampleQ" );
  ....
}
```

MQeQueueManagerAdminMsg

This section describes the Java class used to create a basic MQeQueueManagerAdminMsg.

The class extendsMQeAdminMsg and provides the implementation for managing MQSeries Everyplace queue managers. The following actions are applicable on queue managers:

- Action_Inquire
- Action_InquireAll
- Action_Update

Note: **Create** and **Delete** actions are not supported on queue managers as a queue manager has to be in place and have an administration queue initialized on it before administration can take place, and only one queue manager per Java virtual machine is supported.

Package **com.ibm.mqe.administration**

This class is a descendant of MQeAdminMsg

Constants and variables

MQeQueueManagerAdminMsg provides the following constants and variables in addition to those provided and inherited by MQeAdminMsg

Queue manager characteristics

ChnlAttrRules

Channel attribute rules.

```
public final static  String   QMgr_ChnlAttrRules
```

ChnlTimeout

Maximum amount of time in milliseconds that a channel remains open (long).

```
public final static  String    QMgr_ChnlTimeout
```

Connections

Connections known by queue manager (Ascii array - read only)

```
public final static  String   QMgr_Connections
```

Description

Description of queue manager (unicode)

```
public final static  String   QMgr_Description
```

Queues

Queues known by queue manager (fields array - read only)

```
public final static  String     QMgr_Queues
```

QueueName

Queue name (Ascii)

```
public final static  String     QMgr_QueueName
```

QueueQMgrName

Queue manager name (Ascii)

```
public final static  String     QMgr_QueueQMgrName
```

QueueType

Queue type (Ascii)

```
public final static  String     QMgr_QueueType
```

Rules User replaceable rules which control the capability of the queue manager (Ascii).

```
public final static  String   QMgr_Rules
```

MQeRemoteQueueAdminMsg

This class is used to manage remote queues of type MQeRemoteQueue. The class extends MQeQueueAdminMsg and provides an implementation for managing remote queues.

There are two types of remote queue:

Synchronous
When a request is made to a remote queue that is set for synchronous access, a channel is opened to the node where the queue is local. Hence all actions on a synchronous queue are shipped to the location where the queue is local at the time the request is made. Hence networking capability must be available between the remote queue and local queue at the time the request is made.

Asynchronous
When a request is made to a remote queue that is set for asynchronous access, the message is temporarily stored in the remote queue. Based on user replaceable rules, the message is moved from the remote queue to the location where the queue is local at some point in the future. Hence remote asynchronous queues require a file descriptor that describes where the messages are stored before they are moved.

.

Package **com.ibm.mqe.administration**

This class is a descendant of MQeQueueAdminMsg

Constants and variables

MQeRemoteQueueAdminMsg provides the following constants and variables in addition to those provided and inherited by MQeQueueAdminMsg:

Queue characteristics

Transporter
Name of the transporter class to use (Ascii)

DefaultTransporter

```
public final static  String   Queue_Transporter
public final static  String   Queue_DefaultTransporter
```

TransporterXOR
Allow transporter to use xor compression (boolean).

This provides intelligent compression of messages when they are moved across a network by XORing each field in a message with a field of the same name (if it exists) in the previous message that the transporter moved.

```
public final static  String   Queue_TransporterXOR
```

MQeStoreAndForwardQueueAdminMsg

This class is used to manage queues of type MQeStoreAndForwardQueue. The class extends MQeRemoteQueueAdminMsg and provides an implementation for managing store and forward queues.

This type of queue is used in intermediate nodes to hold messages that are just passing through i.e. that are not destined for any queues on this system.

Package **com.ibm.mqe.administration**

This class is a descendant of MQeRemoteQueueAdminMsg

Constants and variables

MQeStoreAndForwardQueueAdminMsg provides the following constants and variables in addition to those provided and inherited by MQeRemoteQueueAdminMsg:

Additional actions

AddQueueManager

Add queue manager

```
public final static  int    Action_AddQueueManager;
```

RemoveQueueManager

Remove queue manager

```
public final static  int    Action_RemoveQueueManager;
```

Remote queue characteristics

QMgrNameList

List of queue manager targets handled by this store and forward queue messages for the target queue managers are temporarily stored in this queue until they are collected by the target queue manager or until communication can be established.

```
public final static  String     Queue_QMgrNameList
```

Methods

Method	Purpose
addQueueManager	Sets up an administration message to perform the **Admin_AddQueueManager** action
removeQueueManager	Sets up an administration message to perform the **Admin_RemoveQueueManager** action

MQeStoreAndForwardQueueAdminMsg addQueueManager

Syntax

```
public void addQueueManager( String targetQMgrName ) throws Exception
```

Description

Sets up an administration message to perform the **Admin_AddQueueManager** action. A queue may have one or more target queue managers. This method may be called more than once to allow multiple targets be added in one administration message.

Parameters

targetQMgrName
Target queue manager name

Return values
none

Exceptions

java.lang.Exception	Various

Example

```
class MyApplication
{
  ...
  // Add target queue managers to a S&F queue
  MQeStoreAndForwardQueueAdminMsg msg =
                              new MQeStoreAndForwardQueueAdminMsg();
  msg.setName( "ExampleQM", "ExampleQ" );

  // Set the action required and its parameters
  // into the message
  msg.addQueueManager( "Client129345" );
  msg.addQueueManager( "Client129387" );
  ...
}
```

MQeStoreAndForwardQueueAdminMsg removeQueueManager

Syntax

```
public void removeQueueManager( String targetQMgrName ) throws Exception
```

Description
Sets up an administration message to perform the **Admin_RemoveQueueManager** action. This method may be called more than once to allow multiple targets be removed in one administration message.

Parameters

targetQMgrName	Target queue manager name

Return values
none

Exceptions

java.lang.Exception	Various

Example

```
class MyApplication
{
  ...
  // Remove target queue managers from S&F queue
  MQeStoreAndForwardQueueAdminMsg msg =
                              new MQeStoreAndForwardQueueAdminMsg();
  msg.setName( "ExampleQM", "ExampleQ" );

  // Set the action required and its parameters
  // into the message
  msg.removeQueueManager( "Client129345" );
  msg.removeQueueManager( "Client129387" );
  ...
}
```

Chapter 4. Classes in com.ibm.mqe.attributes

This section contains detailed information about the following MQSeries Everyplace classes:

Table 14. Classes in package com.ibm.mqe.attributes

Class name	Purpose
MQe3DESCryptor	Provides mechanisms for 3DES encryption
MQeDESCryptor	Provides mechanisms for DES encryption
MQeGenDH	Creates an MQeDHk.java file from which solution unique MQeDHk class objects can be created
MQeListCertificates	Constructs an MQeListCertificates object
MQeLocalSecure	Provides a simple local security service
MQeLZWCompressor	Provides mechanisms for LZW compression
MQeMARSCryptor	Provides mechanisms for MARS encryption
MQeMAttribute	Provide simple message-level protection
MQeMTrustAttribute	Provides more advanced message-level protection
MQeRC4Cryptor	Provides mechanisms for RC4 encryption
MQeRC6Cryptor	Provides mechanisms for RC6 encryption
MQeRleCompressor	Provides mechanisms for Run Length encoded compression
MQeWTLSCertAuthenticator	Provides mechanisms for mini-certificate authentication
MQeXORCryptor	Provides mechanisms for XOR encryption

MQe3DESCryptor

This class is used to create a triple DES cryptor object that, when used by an attribute object, provides the attribute object with the mechanisms to perform triple DES encryption. Attribute objects are associated with channel and MQeFields objects.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeCryptor

Constructor

MQe3DESCryptor

Syntax

```
public MQe3DESCryptor( )
```

Description

Constructs an MQe3DESCryptor object

Parameters

none

Return values

none

Exceptions

MQeException	`Except_S_Cipher`, ″cip3DES, wrong cipher or key″

Example

```
try
    {
    MQe3DESCryptor tripledes   = new MQe3DESCryptor();
    MQeAttribute tripledesA    = new MQeAttribute(null, tripledes, null);
    ...
    }
  catch ( Exception e )
    {
    ...
    }
```

Related functions

- MQeCryptor
- MQeAttribute
- MQeLocalSecure
- MQeMAttribute
- MQeMTrustAttribute

MQeDESCryptor

This class is used to create a DES Cryptor object that, when used by an attribute object, provides the attribute object with the mechanisms to perform DES encryption. Attribute objects are associated with channel and MQeFields objects.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeCryptor

Constructor

MQeDESCryptor

Syntax

```
public MQeDESCryptor( )
```

Description

Constructs an MQeDESCryptor object

Parameters

none

Return values

none

Exceptions

MQeException	`Except_S_Cipher`, "cipDES, wrong cipher or key"

Example

```
try
  {
  MQeDESCryptor des   = new MQeDESCryptor();
  MQeAttribute desA   = new MQeAttribute(null, des, null);
  ...
  }
catch ( Exception e )
  {
  ...
  }
```

Related functions

- MQeCryptor
- MQeAttribute
- MQeLocalSecure
- MQeMAttribute
- MQeMTrustAttribute

MQeGenDH

This class is used to create an MQeDHk.java file from which solution unique MQeDHk class objects can be created.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQe

Method summary

Method	Purpose
main	Invokes a utility to generate a new MQDHk.java file
genParams	Generates a new DH pair and uses the new pair to create a new MQeDHk.java file

Part of the data passed in the establishment of a secure channel is Diffie Hellman partial key data. This data is used to generate a shared secret key, derivatives of which are subsequently used, to protect the confidentiality of the channel data, by the channel cryptor's encrypt and decrypt methods . The example shows how to use the utility to create a 512 bit Diffie Hellman key pair. To make this available to MQSeries Everyplace, the resulting MQeDHk.java file must be compiled and installed as part of the com.ibm.mqe.attributes package.

MQeGenDH main

Syntax

```
java com.ibm.mqe.attributes.MQeGenDH <parameter1><parameter2>
```

Description

Invokes a utility to generate a new DH key pair and create a new MQeDHk.java file.

Parameters

<parameter 1>	Optional, DH parameter length, defaults to 512
<parameter 2>	Optional, trace class name, e.g. examples.awt.AwtMQeTrace, defaults to use System Console

Return values

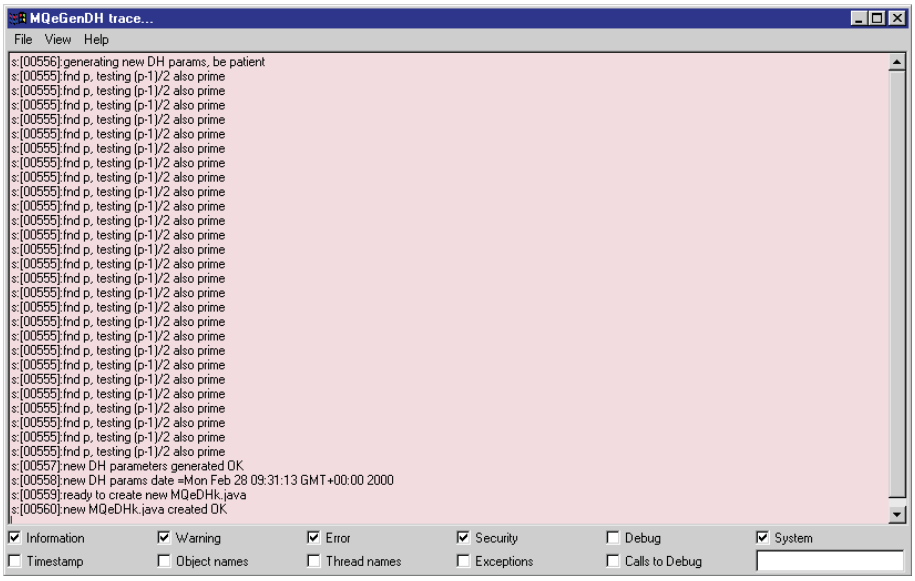
none - a new MQeDHk.java file is created in the current directory

Exceptions

none

Example

```
java    com.ibm.mqe.attributes.MQeGenDH    512    examples.awt.AwtMQeTrace
```



MQeGenDH genParams

Syntax

```
public void genParams(int length)
```

Description

Invokes the utility to generate a new DH key pair and create a new MQeDHk.java file.

Parameters

length Parameter bit length

Return Values

none - new MQeDHk.java file created in the current directory

Exceptions

none

MQeListCertificates

This class is used to list public certificates in a registry.

Package **com.ibm.mqe.attributes**

This class is a descendant of Object.

- Constructor
- Methods

Constructor

MQeListCertificates

Syntax

1. `public MQeListcertificates()`
2. `public MQeListCertificates(string name,`
   `MQeFields regParams ) throws MQeException`

Description

Constructs an MQeListCertificates object. There are two forms of constructor:

1. Creates an object that requires the attributes to be set with the activate method call
2. Creates a object and automatically calls the activate method

Parameters

name The name associated with this registry

regParams An MQeFields object containing the initialization parameters for the registry:

MQeRegistry.LocalRegType (ascii)
This determines the type of the registry being opened. If the registry is private, this parameter should be set to `com.ibm.mqe.registry.MQePrivateSession`. If the registry is public, it should be set to `com.ibm.mqe.registry.MQeFileSession`.

MQeRegistry.DirName (ascii)
The name of the directory holding the registry files

MQeRegistry.PIN (ascii)
The PIN for the private registry.

MQeRegistry.Separator (ascii)

The character to be used as a separator between the components of an entry name, for example <QueueManager><Separator><Queue>.

This is specified as a string but it should contain a single character, if it contains more than one only the first character is used.

The same separator character should be used every time a registry is opened, it should not be changed once a registry is in use and contains entries.

If this value is not specified it defaults to +.

This parameter can be `null` for a public registry whose name is `MQeNode_PublicRegistry`, otherwise this parameter must be non-null.

Return values

none

Exceptions

MQeException

`Except_NotFound`, if the registry parameters are `null` when a value should be supplied

`MQe.Except_Data`, if the registry parameters are incorrect

other if there is an error opening the registry

Example

```
MQeListCertificates list1;
list1 = new MQeListCertificates();
try
{
MQeListCertificates list2;
MQeFields parms = new MQeFields();
Parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
...
list2 = new MQeListCertificates("Reg2", parms);
}
catch (Exception e)
{...}
```

Methods

Method	Purpose
activate	Initializes the class and opens the registry
close	Closes the registry and tidies up
getIssuer	Returns the issuer field from a certificate
getNotAfter	Returns the valid-not-after field from a certificate
getNotBefore	Returns the valid-not-before field from a certificate
getSubject	Returns the Subject field from a certificate
getWTLSCertificate	Returns the certificate from a registry entry
isNewCertificate	Checks whether the certificate is in the new format
readAllEntries	Reads all the certificate entries in the registry
readEntry	Reads a specific certificate entry in the registry

MQeListCertificates activate

Syntax

```
public void activate( String name,
                      MQeFields regParams ) throws MQeException
```

Description

This initializes the class and opens the registry

Parameters

name The name associated with this registry

regParams An MQeFields object containing the initialization parameters for the registry:

MQeRegistry.LocalRegType (ascii)
This determines the type of the registry being opened. If the registry is private, this parameter should be set to `com.ibm.mqe.registry.MQePrivateSession`. If the registry is public, it should be set to `com.ibm.mqe.registry.MQeFileSession`.

MQeRegistry.DirName (ascii)
The name of the directory holding the registry files

MQeRegistry.PIN (ascii)
The PIN for the private registry.

MQeRegistry.Separator (ascii)

The character to be used as a separator between the components of an entry name, for example <QueueManager><Separator><Queue>.

This is specified as a string but it should contain a single character, if it contains more than one only the first character is used.

The same separator character should be used every time a registry is opened, it should not be changed once a registry is in use and contains entries.

If this value is not specified it defaults to +.

This parameter can be `null` for a public registry whose name is `MQeNode_PublicRegistry`, otherwise this parameter must be non-null.

Return Values
none

Exceptions

MQeException

`Except_NotFound`, if the registry parameters are `null` when a value should be supplied

`MQe.Except_Data`, if the registry parameters are incorrect

other if there is an error opening the registry

Examples

```
try
    {
    MQeListCertificates list1;
    MQeFields parms = new MQeFields();
    Parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
   ...
    list1 = new MQeListCertificates();
    list1.activate("Reg1", parms);
    }
catch (Exception e)
    {
   ...
    }
```

MQeListCertificates readAllEntries

Syntax

```
public MQeFields readAllEntries() throws MQeException
```

Description

This reads all the registry entries for certificates and returns them in an MQeFields object.

Parameters

none

Return Values

An MQeFields object containing one field for each certificate in the registry. The name of a field is the name of the certificate and the value of the field is itself an MQeFields object containing the certificate. For example, if the registry contains two certificates, the MQeFields object contains two fields, each of which is an MQeFields object containing a certificate.

Exceptions

MQeFields	`Except_Closed`, if the class has not been activated
	Other if there is an error reading the registry Example

Example

```
try
    {
    MQeListCertificates list1;
    MQeFields parms = new MQeFields();
    Parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
   ...
    list1 = new MQeListCertificates("Reg1", parms);
    MQeFields certificates = readAllEntries();
    }
catch (Exception e)
    {
    ...
    }
```

MQeListCertificates readEntry

Syntax

```
public MQeFields readEntry(String certName) throws MQeException
```

Description

This reads a specific certificate entry in the registry and returns it in a MQeFields object.

Parameters

certName	The name of the certificate to be read

Return Values

An MQeFields object containing the registry entry for the certificate. This can be passed to the **getWTLSCertificate()** method.

If the certificate does not exist in the registry, `null` is returned.

Exceptions

MQeFields	`Except_Closed`, if the class has not been activated

| | Other if there is an error reading the registry

Example

```
try
   {
   MQeListCertificates list1;
   MQeFields parms = new MQeFields();
   Parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
  ...
   list1 = new MQeListCertificates("Reg1", parms);
   MQeFields certificate = readEntry("Reg1");
   }
catch (Exception e)
   {
   ...
   }
```

MQeListCertificates getWTLSCertificate

Syntax

```
public Object getWTLSCertificate(MQeFields entry)
```

Description

This returns a certificate from a registry entry.

Parameters

entry An MQeFields object containing the registry entry. This could be one of the embedded fields objects returned by **readAllEntries()**, or it could be a fields object returned by **readEntry()**.

Return Values

An object representing the certificate in the registry entry. This can be passed to **isNewCertificate()**, **getSubject()**, **getIssuer()**, **getNotBefore()**, and **getNotAfter()**.

If the registry entry does not contain a certificate, `null` is returned.

Exceptions

none

Example

```
try
   {
   list1 = new MQeListCertificates("Reg1", parms);
   MQeFields certificates = readAllEntries();
   Enumeration enum = certificates.fields();
       while (enum.hasMoreElements())
        {
          // get the name of the certificate
          String entity = (String)enum.nextElement();
          // get the certificate's registry entry
          MQeFields certEntry = certificates.getFields( entity );
  // get the certificate object
  Object cert = getWTLSCertificate(certEntry);
        }
   }
catch (Exception e)
   {
   ...
   }
```

MQeListCertificates isNewCertificate

Syntax

```
public boolean isNewCertificate(Object certificate)
```

Description

This checks the format of the certificate. Older format certificates were supported by MQSeries Everyplace Versions 1.0 and 1.1. New format certificates were introduced in MQSeries Everyplace Version 1.2.

Parameters

certificate An object representing a cetificate, as returned by **getWTLSCertificate()**.

Return Values

This method returns `true` if the object is a new-style (MQSeries Everyplace Version 1.2) certificate. It returns `false` if the object is anything else (even if it does not represent a certificate).

Exceptions

none

Example

```
try
   {
   list1 = new MQeListCertificates("Reg1", parms);
   MQeFields certificates = readAllEntries();
   Enumeration enum = certificates.fields();
       while (enum.hasMoreElements())
        {
          // get the name of the certificate
          String entity = (String)enum.nextElement();
          // get the certificate's registry entry
          MQeFields certEntry = certificates.getFields( entity );
          // get the certificate object
          Object cert = getWTLSCertificate(certEntry);
          if (isNewCertificate(cert))
              System.out.println("new style certificate");
          else
              System.out.println("old style certificate");
        }
    }
catch (Exception e)
    {
    ...
    }
```

MQeListCertificates getSubject

Syntax

```
public String getSubject(Object certificate)
```

Description

This returns the *subject* string from the certificate

Parameters

certificate An object representing a cetificate, as returned by **getWTLSCertificate()**.

Return Values

This method retuns a string containing the *subject* field from the certificate. If the parameter is not a valid certificate object, `null` is returned.

Exceptions

none

Example

```
try
    {
    list1 = new MQeListCertificates("Reg1", parms);
    MQeFields certificates = readAllEntries();
    Enumeration enum = certificates.fields();
       while (enum.hasMoreElements())
          {
          // get the name of the certificate
          String entity = (String)enum.nextElement();
          // get the certificate's registry entry
          MQeFields certEntry = certificates.getFields( entity );
          // get the certificate object
          Object cert = getWTLSCertificate(certEntry);
          String subject = getSubject(cert);
          System.out.println("certificate " + entity + " subject is " + subject);
          }
    }
catch (Exception e)
    {
    ...
    }
```

MQeListCertificates getIssuer

Syntax

```
public String getIssuer(Object certificate)
```

Description

This returns the *issuer* string from the certificate

Parameters

certificate An object representing a cetificate, as returned by **getWTLSCertificate()**.

Return Values

This method retuns a string containing the *issuer* field from the certificate. If the parameter is not a valid certificate object, `null` is returned.

Exceptions

none

Example

```
try
    {
    list1 = new MQeListCertificates("Reg1", parms);
    MQeFields certificates = readAllEntries();
    Enumeration enum = certificates.fields();
       while (enum.hasMoreElements())
          {
          // get the name of the certificate
          String entity = (String)enum.nextElement();
          // get the certificate's registry entry
          MQeFields certEntry = certificates.getFields( entity );
          // get the certificate object
          Object cert = getWTLSCertificate(certEntry);
          String issuer = getSubject(cert);
          System.out.println("certificate " + entity + " issuer is " + issuer);
          }
     }
```

```
catch (Exception e)
     {
     ...
     }
```

MQeListCertificates getNotBefore

Syntax

```
public long  getNotBefore(Object certificate)
```

Description

This returns the *not before* date from the certificate. That is the date before which the certificate is invalid.

Parameters

certificate An object representing a cetificate, as returned by **getWTLSCertificate()**.

Return Values

The date before which the certificate is invalid. The date is returned as a long containing the number of seconds since the midnight starting 1st January 1970 (the standard UNIX format for dates and times).

If there are any errors retrieving the date, -1 is returned.

Exceptions

none

Example

```
try
    {
    list1 = new MQeListCertificates("MQeNode_PublicRegistry", null);
    MQeFields certEntry = readEntry("myCert");
    // get the certificate object
    Object cert = getWTLSCertificate(certEntry);
    long notBefore = getNotBefore(cert);
    System.out.println("certificate invalid before " + new Date(notBefore * 1000));
    }
catch (Exception e)
    {
    ...
    }
```

MQeListCertificates getNotAfter

Syntax

```
public long  getNotAfter(Object certificate)
```

Description

This returns the *not after* date from the certificate. That is the date after which the certificate is invalid.

Parameters

certificate An object representing a cetificate, as returned by **getWTLSCertificate()**.

Return Values

The date after which the certificate is invalid. The date is returned as a long containing the number of seconds since the midnight starting 1st January 1970 (the standard UNIX format for dates and times).

If there are any errors retrieving the date, -1 is returned.

Exceptions

none

Example

```
try
    {
    list1 = new MQeListCertificates("MQeNode_PublicRegistry", null);
    MQeFields certEntry = readEntry("myCert");
    // get the certificate object
    Object cert = getWTLSCertificate(certEntry);
    long notAfter = getNotBefore(cert);
    System.out.println("certificate invalid after " + new Date(notAfter * 1000));
    }
catch (Exception e)
    {
    ...
    }
```

MQeListCertificates close

Syntax

```
public void close()
```

Description

This closes the registry and frees up resources.

Parameters

none

Return Values

none

Exceptions

none

Example

```
try
    {
    list1 = new MQeListCertificates("MQeNode_PublicRegistry", null);
    MQeFields certEntry = readEntry("myCert");
    // get the certificate object
    Object cert = getWTLSCertificate(certEntry);
    long notBefore = getNotBefore(cert);
    System.out.println("certificate invalid before " + new Date(notBefore * 1000));
    list1.close();
    }
catch (Exception e)
    {
    ...
    }
```

MQeLocalSecure

This class is used to create a LocalSecure object that provides a simple local security service enabling a using application to apply a given attribute's (cryptor and compressor) components to protect local data

Package **com.ibm.mqe.attributes**

This class is a descendant of MQe

- Constructor
- Methods

Constructor

MQeLocalSecure

Syntax

```
public MQeLocalSecure( )
```

Description

Constructs an MQeLocalSecure object

Parameters

none

Return values

none

Exceptions

none

Example

```
MQeLocalSecure ls = new MQeLocalSecure( );
```

Related functions

- MQeAttribute

Methods

Method	Purpose
open	Enables the using application to identify the target File
read	Reads, unprotects and returns data from the target file
write	Protects and writes the given data to the target file

MQeLocalSecure open

Syntax

```
public void open( String  directory,
                  Object  fileName )
```

Description

Sets the target filename.

Parameters

directory A string identifying the target fFile directory

fileName A string identifying the target file name

Return Values
none

Exceptions
none

Related functions

- **write()**
- **read()**

MQeLocalSecure read

Syntax

```
Public byte[] read( MQeAttribute attr,
                    String localCipherKey ) throws Exception
```

Description
Reads and unprotects data from the given target filename

Parameters

attr MQeAttribute to be applied to unprotect data

localCipherKey
Password or passphrase String to be used to unprotect data

Return Values
none

Exceptions

MQeException	Except_S_InvalidAttribute, ″no cryptor″
	Except_S_InvalidAttribute, ″illegal cryptor″
	Except_S_InvalidAttribute, ″illegal authenticator or compressor″
	MQe.Except_Data, ″wrong cipher″
Exception	java.io

Example

```
try
    {
    MQeDESCryptor des  = new MQeDESCryptor( );
    MQeAttribute desA  = new MQeAttribute( null, des, null);
    MQeLocalSecure ls  = new MQeLocalSecure( );
    ls.open( ".\\", "TestSecureData.txt" );
    String outData     = byteToAscii( ls.read( A,
                                       "It_is_a_secret" ) );
    Trace ( "i: unprotected data = " + outData);
    ...
    }
  catch ( Exception e )
    {
    ...
    }
```

MQeLocalSecure write

Syntax

```
Public void write ( byte[] data,
                    MQeAttribute attr,
                    String localCipherKey) throws Exception
```

Description

Protects data and writes it to the given target filename.

Parameters

data	Data to protect
attr	MQeAttribute to be applied to protect data
localCipherKey	Password or passphrase String to be used to protect data

Return Values

none

Exceptions

MQeException	`Except_S_InvalidAttribute`, ″no cryptor″
	`Except_S_InvalidAttribute`, ″illegal cryptor″
	`Except_S_InvalidAttribute`, ″illegal authenticator or compressor″
Exception	java.io

Example

```
try
    {
    MQeDESCryptor des  = new MQeDESCryptor( );
    MQeAttribute desA  = new MQeAttribute( null, des, null);
    MQeLocalSecure ls  = new MQeLocalSecure( );
    ls.open( ".\\", "TestSecureData.txt" );
    ls.write( asciiToByte( "0123456789abcdef..." ),
                                  desA, "It_is_a_secret" );
    ...
    }
  catch ( Exception e )
    {
    ...
    }
```

MQeLZWCompressor

This class is used to create an LZWCompressor object that, when used by an attribute object, provides the attribute object with the mechanisms to perform LZW compression. Attribute objects are associated with channel and MQeFields objects.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeCompressor

Constructor

MQeLZWCompressor

Syntax

```
public MQeLZWCompressor( )
```

Description

Constructs an MQeLZWCompressor object

Parameters

none

Return values

none

Exceptions

none

Example

```
try
    {
    MQeLZWCompressor lzw  = new MQeLZWCompressor();
    MQeAttribute lzwA     = new MQeAttribute(null, null, lzw);
    ...
    }
  catch ( Exception e )
    {
    ...
    }
```

Related functions

- MQeCompressor
- MQeAttribute
- MQeLocalSecure
- MQeMAttribute
- MQeMTrustAttribute

MQeMARSCryptor

This class is used to create a MARSCryptor object that, when used by an attribute object, provides the attribute object with the mechanisms to perform MARS encryption. Attribute objects are associated with channel and MQeFields objects.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeCryptor

Constructor

MQeMARSCryptor

Syntax

```
public MQeMARSCryptor( )
```

Description

Constructs an MQeMARS cryptor object

Parameters

none

Return values

none

Exceptions

none

Example

```
try
    {
    MQeMARSCryptor mars   = new MQeMARSCryptor();
    MQeAttribute marsA    = new MQeAttribute(null, mars, null);
    ...
    }
  catch ( Exception e )
    {
    ...
    }
```

Related functions

- MQeCryptor
- MQeAttribute
- MQeLocalSecure
- MQeMAttribute
- MQeMTrustAttribute

MQeMAttribute

This class is used to create an attribute object enabling simple message-level protection when attached to a message.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeAttribute

Constructors

MQeMAttribute

Syntax

```
public MQeMAttribute( MQeAuthenticator authenticator,
MQeCryptor    cryptor,
MQeCompressor    compressor) throws Exception
```

Description

Constructs an MQeMAttribute object

Parameters

authenticator `null` or an object reference to an MQeAuthenticator object

cryptor An object reference to a symmetric MQeCryptor object (MQeDESCryptor, MQe3DESCryptor, MQeRC4Cryptor, MQeRC6Cryptor or MQeMARSCryptor)

compressor `null` or an object reference to a MQeCompressor object (MQeRleCompressor or MQeLZWCompressor)

Return values

none

Exceptions

MQeException

`Except_ Not Supported, "invalid authenticator"`

`Except_ Not Supported, "invalid cryptor"`

`Except_ Not Supported, "invalid compressor"`

Example

```
class MySampleClass extends MQe
  {
  /* application on initiating QueueManager:                          */
  /* -prepare to use MQeMAttribute with Rle Compressor                */
  /*  and DES Cryptor with key = It_is_a_secret                       */

  MQeKey localkey           = new MQeKey();
  localkey.setLocalKey( "It_is_a_secret");
  MQeDESCryptor des         = new MQeDESCryptor();
  MqeRleCompressor rle      = new MQeRleCompressor();
  MQeMAttribute protMAttr   = new MQeMAttribute( null, des, rle );
  protMAttr.setKey( localkey );
  /* construct Message and protect with the MQeMAttribute             */
  MQeMessageObj MsgObj      = new MQeMessageObject();
  MsgObj.setAttribute( protMAttr );         /* add test message data  */
  MsgObj.putAscii("MsgData", "0123456789abcdef....");
  trace ("i: input message data = " + MsgObj.getAscii("MsgData") );
  /* assume MQeQueueManager instance initQM started, PutMessage        */
  initQM.putMessage( targetQMgrName, targetQName, MsgObj ,null, 0);
...
```

```
...//
...//.
...//.
  /* application on recipient QueueManager:                              */
  /* -prepare to use MQeMAttribute with key = It_is_a_secret             */
  MQeKey localkey           = new MQeKey();
  localkey.setLocalKey( "It_is_a_secret");
  MQeDESCryptor des         = new MQeDESCryptor();
  MqeRleCompressor rle      = new MQeRleCompressor();
  MQeMAttribute protMAttr   = new MQeMAttribute( null, des, rle );
  protMAttr.setKey( localkey );
  /* assume MQeQueueManager instance recipQM started, GetMessage      */
  MQeMsgObject MsgObj       = recipQM.getMessage(thisQMgrName,
                                  thisQName, null, protMAttr, 0);
  trace ("i: output message data = " + MsgObj.getAscii( "MsgData" ) );


  }
```

Related functions

MQeAttribute

Methods

Method	Purpose
decodeData	Decrypt and/or decompress the supplied data
encodeData	Compress and/or encrypt the supplied data
setKey	Associates a key with the attribute

MQeMAttribute decodeData

Syntax

```
public byte[] decodeData( MQeChannel channel,
                                    byte data[],
                                    int offset,
                                    int count ) throws Exception
```

Description

Is called to decode (decrypt and/or decompress) the bytes referenced by *data*, *offset* and for length *count*.

Note: This method is intended for internal use and is not normally called by applications.

Parameters

channel	`null`, not used
data	An object reference to a byte array containing the data to be decoded
offset	An integer index specifying the start byte in the *data* array
count	An integer count of the number of bytes to decode

Return Values

Decoded data

Exceptions

MQeException	`Except_Data`, "data tampering detected"
	`Except_S_NoPresetKeyAvailable`

MQeMAttribute encodeData

Syntax

```
public byte[] encodeData( MQeChannel channel,
                                        byte data[],
                                        int offset,
                                        int count ) throws Exception
```

Description

Encodes (encrypts and/or compresses) the bytes referenced by *data*, *offset* and for length *count*.

Note: This method is intended for internal use and is not normally called by applications.

Parameters

channel	`null`, not used
data	An object reference to a byte array containing the data to be encoded
offset	An integer index specifying the start byte in the *data* array
count	An integer count of the number of bytes to encode

Return Values

none

Exceptions

MQeException	`Except_ Not Supported`, "invalid cryptor"
	`Except_ Not Supported`, "invalid compressor"
	`Except_S_NoPresetKeyAvailable`

MQeMAttribute setKey

Syntax

```
public void setKey(MQeKey key)
```

Description

This method associates a key with the attribute. This is required if the attribute has a cryptor.

Parameters

key	The key object to be used with the attribute's cryptor

Return values

none

Exceptions

MQeException	`NotAllowed`, thrown if the key has already been set.

MQeMTrustAttribute

This class is used to create an attribute object enabling message-level protection of message objects in such a way that :

- Validation of the originator's (ISO9796) digital signature enables the recipient to establish the message's origin (nonrepudation)
- Message confidentiality is protected using the attribute's cryptor
- Message integrity is validated
- Message data can only be restored by the intended recipient

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeAdminQueueAdminMsg

Constructors

MQeMTrustAttribute

Creates an object and automatically calls the activate method

Syntax

```
public MQeMTrustAttribute( MQeAuthenticator authenticator,
                           MQeCryptor cryptor,
                           MQeCompressor compressor) throws Exception
```

Description

Constructs an MQeMTrustAttribute object

Parameters

authenticator `null`, not used

cryptor An object reference to a symmetric MQeCryptor object (MQeDESCryptor, MQe3DESCryptor, MQeRC4Cryptor, MQeRC6Cryptor or MQeMARSCryptor)

compressor `null`, not used

Return values

none

Exceptions

MQeException `Except_ Not Supported`, "invalid cryptor"

Example

```
class MySampleClass extends MQe
  {
  /* application on initiating QueueManager:                        */
  /* use MQeMTrustAttribute to protect a message between            */
  /* pre-reg'd initiator 'Bruce1' and recipient 'Bruce8'            */
  /* assume initiator's QueueManager initQM started                 */
  /* setup MTrustAttribute                                          */
  MQeMARSCryptor mars          = new MQeMARSCryptor( );
  MQeMTrustAttribute msgA = new MQeMTrustAttribute( null, mars, null );

  /* setup instantiate & activate sender (Bruce1) PrivReg           */
  String EntityName            = "Bruce1";
  String EntityPIN             = "12345678";
  Object KeyRingPassword       = "It_is_a_secret";
  MQePrivateRegistry sendreg   = new MQePrivateRegistry( );
  sendreg.activate( EntityName, ".//MQeNode_PrivateRegistry",
                    EntityPIN,KeyRingPassword, null, null );
```

```
/* set target entity's registry name into sender's reg           */
sendreg.setTargetRegistryName("Bruce8");
/* set MTrustAttribute s PrivateRegistry = sendreg               */
msgA.setPrivateRegistry( sendreg );
/* instantiate and activate Public Registry which has            */
/* (or gets) MiniCert of intended recipient (Bruce8)             */
MQePublicRegistry pr         = new MQePublicRegistry( );
pr.activate( "MQeNode_PublicRegistry", ".//" );
/* set MTrustAttribute's PublicRegistry & HomeServer             */
msgA.setPublicRegistry(pr);
msgA.setHomeServer( MyHomeServer + ":8082" );

/* create message object and add some test data                  */
MQeMsgObject msgObj      = new MQeMsgObject( );
msgObj.putArrayOfByte( "TestData",
                   asciiToByte("0123456789abcdef....") );
/* protect with MQeMTrustAttribute and PutMessage                */
msgObj.setAttribute( msgA );
initQM.putMessage( targetQMgrName, targetQName, msgObj, null, 0);

...
/* application on recipient QueueManager:                        */
/* use MQeMTrustAttribute to recover the message from.           */
/* pre-registered initiator 'Bruce1' and recipient 'Bruce8'      */
/* assume recipient's QueueManager recipQM started               */
...
/* setup  MQeMTrustAttribute                                     */
MQeMARSCryptor mars          = new MQeMARSCryptor( );
MQeMTrustAttribute msgA
               = new MQeMTrustAttribute(null, mars, null);

/* setup recipient's Private Registry                            */
String EntityName            = "Bruce8";
String EntityPIN             = "12345678";
Object KeyRingPassword       = "It_is_a_secret";

/* instantiate and activate recipient's Private Registry         */
MQePrivateRegistry recipreg  = new MQePrivateRegistry( );
recipreg.activate( EntityName, ".//MQeNode_PrivateRegistry",
                EntityPIN, KeyRingPassword, null, null );
/* set MTrustAttribute PrivateRegistry = recipreg                */
msgA.setPrivateRegistry( recipreg );
/* instantiate and activate Public Registry which has            */
/* (or gets) MiniCert of originator (Bruce1)                     */
MQePublicRegistry pr         = new MQePublicRegistry( );
pr.activate( "MQeNode_PublicRegistry", ".//" );
/* set MTrustAttribute's PublicRegistry & HomeServer             */
msgA.setPublicRegistry( pr);
msgA.setHomeServer( MyHomeServer + ":8082" );
/* use MQeMTrustAttribute with GetMessage to recover msg         */
MQeMsgObject MsgObj = SvrQM.getMessage( TargetQMgrName,
    TargetQName,null, msgA, 0 );
trace("i: Data restored from MTrustAttr protected Msg ="
      + byteToAscii(MsgObj.getArrayOfByte("TestData") ) );
}
```

Related functions

- MQePrivateRegistry
- MQePublicRegistry

Methods

Method	Purpose
decodeData	Decodes the supplied data

Method	Purpose
encodeData	Encodes the supplied data.
setHomeServer	Sets address of home-server/alternative MQSeries Everyplace node
setPrivateRegistry	Sets active private registry
setPublicRegistry	Sets active public registry
setTarget	Adds the name of the intended recipient to the attribute

MQeMTrustAttribute decodeData

Syntax

```
public byte[] decodeData( MQeChannel channel,
                                    byte data[],
                                    int offset,
                                    int count ) throws Exception
```

Description

Is called to decode (decrypt and/or decompress) the bytes referenced by *data*, *offset* and for length *count*.

Note: This method is intended for internal use and is not normally called by applications.

Parameters

channel `null`, not used

data An object reference to a byte array containing the data to be decoded

offset An integer index specifying the start byte in the *data* array

count An integer count of the number of bytes to decode

Return Values

Decoded data

Exceptions

MQeException

`Except_S_RegistryNotAvailable` ″intended recipient's PrivateRegistry not available″

`Except_S_MiniCertNotAvailable` ″cannot recover data, sender's MiniCert not available″

`Except_S_RegistryNotAvailable` ″cannot recover data target(recipient) PrivateRegistry not available″

`Except_S_BadIntegrity`, ″validating data from < Sender> data tampering detected″

`Except_S_InvalidSignature`, ″validating data from < Sender > bad signature″

MQeMTrustAttribute encodeData

Syntax

```
public byte[] encodeData( MQeChannel channel,
                                        byte data[],
                                        int offset,
                                        int count ) throws Exception
```

Description

Encodes (encrypts and/or compresses) the bytes referenced by *data*, **offset** and for length *count*.

Note: This method is intended for internal use and is not normally called by applications.

Parameters

channel	`null`, not used
data	An object reference to a byte array containing the data to be encoded
offset	An integer index specifying the start byte in the *data* array
count	An integer count of the number of bytes to encode

Return Values

none

Exceptions

MQeException	`Except_S_MiniCertNotAvailable`, ″cannot protect data, target mini-certificate not available″

MQeMTrustAttribute setHomeServer

Syntax

```
public void setHomeServer( String homeServerAddrPort)
                           throws Exception
```

Description

Called to set an MQeMTrustAttributes home-server address. When used to protect a message, **encodeData** attempts to get the intended recipient's mini-certificate from its active public registry. If not found but the home-server address is set, it requests the mini-certificate from the home-server, and saves it for subsequent use in the active public registry. When used to recover a message, **decodeData** attempts to gets the initiator's mini-certificate from its active public registry. If not found but the home-server address is set, it requests the mini-certificate from the home-server and saves it for subsequent use in its active public registry.

Parameters

homeServerAddrPort	The address of another MQeNode (for example `HomeServer`) with a public registry containing a larger set of authenticatable entities' mini-certificates. The format used is `tcpname:port`, or `tcpaddress:port`

Return Values

none

Exceptions

MQeException	`Except_NotAllowed`, ″illegal SetPublicRegistry″

MQeMTrustAttribute setPrivateRegistry

Syntax

```
public void setPrivateRegistry( MQePrivateRegistry privreg)
                                throws Exception
```

Description

Called to set an MQeMTrustAttribute's active private registry. When used to protect a message this is the private registry of the sender and when recovering a message this is the private registry of the recipient.

Parameters

privreg The activated MQePrivateRegistry of the sender or recipient authenticatable entity

Return Values

none

Exceptions

MQeException `Except_NotAllowed`, "illegal SetPrivateRegistry"

MQeMTrustAttribute setPublicRegistry

Syntax

```
public void setPublicRegistry( MQePublicRegistry pubreg)
                                          throws Exception
```

Description

Called to set an MQeMTrustAttribute's active public registry. When used to protect a message this is a public registry that has (or gets) the mini-certificate of the intended recipient, and when recovering a message this is a public registry that has (or gets) the mini-certificate of the sender.

Parameters

pubreg An activated MQePublicRegistry containing the mini-certificate of the intended recipient, when used to protect, or the mini-certificate of the sender, when used to recover.

Return Values

none

Exceptions

MQeException `Except_NotAllowed`, "illegal SetPublicRegistry"

MQeMTrustAttribute setTarget

Syntax

```
public boolean setTarget(string target)
```

Description

This method adds the name of the intended recipient to the attribute. This is used to retrieve the recipient's public key, in order to encrypt the message. It is also added to the message and used at the destination to retrieve the recipient's private registry, to enable decryption of the message.

This should be used in preference to the method **setTargetRegistryName()** in the class MQePrivateRegistry. If both **setTarget()** and **setTargetRegistryName()** are called, the name specified in **setTarget()** is used.

Parameters

target	A String containing the name of the intended recipient

Return values

none

Exceptions

MQeException	`NotAllowed`, thrown if the name has already been set.

MQeRC4Cryptor

This class is used to create an RC4Ccryptor object that, when used by an attribute object, provides the attribute object with the mechanisms to perform RC4 encryption. Attribute objects are associated with channel and MQeFields objects.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeCryptor

Constructor

MQeRC4Cryptor

Syntax

```
public MQeRC4Cryptor( )
```

Description

Constructs an MQeRC4Cryptor object

Parameters

None

Return values

none

Exceptions

MQeException	`Except_S_Cipher`, "cipRC4, wrong cipher or key"

Example

```
try
    {
    MqeRC4Cryptor rc4    = new MQeRC4Cryptor();
    MQeAttribute rc4A    = new MQeAttribute(null, rc4, null);
    ...
    }
  catch ( Exception e )
    {
    ...
    }
```

Related functions

- MQeCryptor
- MQeAttribute
- MQeLocalSecure
- MQeMAttribute
- MQeMTrustAttribute

MQeRC6Cryptor

This class is used to create a RC6Cryptor object that, when used by an attribute object, provides the attribute object with the mechanisms to perform RC6 encryption. Attribute objects are associated with channel and MQeFields objects.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeCryptor

Constructor

MQeRC6Cryptor

Syntax

```
public MQeRC6Cryptor( )
```

Description

Constructs an MQeRC6Cryptor object

Parameters

none

Return values

none

Exceptions

MQeException	`Except_S_Cipher`, ″cipRC6, wrong cipher or key″

Example

```
try
    {
    MQeRC6Cryptor rc6  = new MQeRC6Cryptor();
    MQeAttribute  rc6A = new MQeAttribute(null, rc6, null);
    ...    }
  catch ( Exception e )
    {
    ...
    }
```

Related functions

- MQeCryptor
- MQeAttribute
- MQeLocalSecure
- MQeMAttribute
- MQeMTrustAttribute

MQeRleCompressor

This class is used to create an RleCompressor object that, when used by an attribute object, provides the attribute object with the mechanisms to perform Rle compression. Attribute objects are associated with channel and MQeFields objects.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeCompressor

Constructor

MQeRleCompressor

Syntax

```
public MQeRleCompressor( )
```

Description

Constructs an MQeRleCompressor object

Parameters

none

Return values

none

Exceptions

none

Example

```
try
    {
    MQeRleCompressor rle  = new MQeRleCompressor();
    MQeAttribute rleA     = new MQeAttribute(null, null, rle);
    ...
    }
  catch ( Exception e )
    {
    ...
    }
```

Related functions

- MQeCompressor
- MQeAttribute
- MQeLocalSecure
- MQeMAttribute
- MQeMTrustAttribute

MQeWTLSCertAuthenticator

This class is used to create a WTLSCertAuthenticator object that, when used by an attribute object, provides the attribute object with the mechanisms to perform mini-certificate based mutual authentication. This applies to MQeAttribute objects associated with channel objects.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeAuthenticator

Constructor

MQeWTLSCertAuthenticator

Syntax

```
public MQeWTLSCertAuthenticator( )
```

Description

Constructs an MQeWTLSCertAuthenticator object

Parameters

none

Return values

none

Exceptions

none

Example

```
try
    {
    MQeWTLSCertAuthenticator wtls = new MQeWTLSCertAuthenticator( );
    MQeDESCryptor des             = new MQeDESCryptor( );
    MQeAttribute wtlsA            = new MQeAttribute(wtls, des, null);
    ...
    }
  catch ( Exception e )
    {
    ...
    }
```

Related functions

- MQeAuthenticator
- MQeAttribute

MQeXORCryptor

This class is used to create an XORCryptor object that, when used by an attribute object, provides the attribute object with the mechanisms to perform XOR encoding. Attribute objects are associated with channel and MQeFields objects.

Package **com.ibm.mqe.attributes**

This class is a descendant of MQeCryptor

Constructor

MQeXORCryptor

Syntax

```
public MQeXORCryptor()
```

Description

Constructs an MQeXORCryptor object

Parameters

none

Return values

none

Exceptions

none

Example

```
try
    {
     MQeXorCryptor xor  = new MQeXorCryptor( );
     xor.setEncryptKey ( asciiToByte("It_is_a_secret") );
     NTAuthenticator nt = new NTAuthenticator( );
     String inData      = "0123456789abcdef...";
     trace("i: TestXOR, indata = " + inData);
     MQeFields tempf    = new MQeFields();
     tempf.putAscii( "testdata", inData);
     MQeAttribute attr1 = new MQeAttribute( );
     attr1.activate( null, nt, xor, null );
     tempf.setAttribute ( attr1 ) ;
     byte[] temp = tempf.dump();

     //

     MQeFields tempf2   = new MQeFields();
     MQeXorCryptor xor2 = new MQeXorCryptor( );
     xor2.setDecryptKey ( asciiToByte("It_is_a_secret") );
     NTAuthenticator nt2 = new NTAuthenticator( );
     MQeAttribute attr2 = new MQeAttribute( );
     attr2.activate( null, nt2, xor2, null );
     tempf2.setAttribute ( attr2 );
     tempf2.restore( temp );
     trace("i: TestXORSecure, outdata = " + tempf2.getAscii("testdata"));
    }
  catch ( Exception e )
    {
    //
    }
```

Related functions

- MQeCryptor
- MQeAttribute

Methods

Method	Purpose
setDecryptKey	Explicitly sets the cryptor's decrypt key
setEncryptKey	Explicitly sets the cryptor's encrypt key

MQeXORCryptor setDecryptKey

Syntax

```
Public void setDecryptKey ( Object newKey) throws Exception
```

Description

Explicitly sets the cryptor's decrypt key

Parameters

newKey byte[] seed from which the cryptor's decrypt key is derived.

Return values

none

Exceptions

none

MQeXORCryptor setEncryptKey

Syntax

```
Public void setEncryptKey ( Object newKey) throws Exception
```

Description

Explicitly sets the cryptor's encrypt key

Parameters

newKey byte[] seed from which the cryptor's encrypt key is derived.

Return values

none

Exceptions

none

Chapter 5. Classes in com.ibm.mqe.registry

This section contains detailed information about the following MQSeries Everyplace classes:

Table 15. Classes in package com.ibm.mqe.registry

Class name	Purpose
MQePrivateRegistry	Creates a private registry object that provides controlled access to a set of private and public objects
MQePrivateRegistryConfigure	Used to configure a private registry
MQePublicRegistry	Creates a public registry object that provides controlled access to a set of private and public objects

MQePrivateRegistry

This class is used to create an MQePrivateRegistry object. MQePrivateRegistry class is a descendent of MQeRegistry and provides controlled access to a set of private and public objects (for example certificates). MQePrivateRegistry objects also support digital signing and decryption services which can use the registry's private objects (for example an authenticatable entity's private key) internally, so they do not leave the private registry.

Package **com.ibm.mqe.registry**

This class is a descendant of MQeRegistry

- Constructor
- Methods

Constructor

MQePrivateRegistry

Syntax

```
public MQePrivateRegistry( )
```

Description

Constructs an MQePrivateRegistry object

Parameters

none

Return values

none

Exceptions

none

Related functions

- MQePublicRegistry

Method summary

Method	Purpose
activate	Opens and activates the MQePrivateRegistry instance.
deleteCertificate	Deletes the certificate owner's mini-certificate
getCertificate	Returns the certificate owner's mini-certificate
getRegistryName	Gets the private registry's authenticatable entity name.
resetPIN	Resets the PIN that controls private access.
setTargetRegistryName	Sets the name of the intended recipient (authenticatable entity) private registry

MQePrivateRegistry activate

Syntax

```
Public void activate (String entityName,
                      String dirName,
                      String pin,
```

```
Object keyRingPassword,
Object certReqPIN,
Object caIPAddrPort ) throws Exception
```

Description

If a private registry with this *entityName* exists, **activate()** attempts to open the private registry using the given *pin*. If it does not exist, **activate()** creates and opens a new private registry and makes it accessible with the given *pin*.

If a non-null mini-certificate server address (*caIPAddrPort*) is provided, **activate()** searches the private registry to discover if the owner is already registered (already has its own mini-certificate). If it is not registered (no mini-certificate), **activate()** executes autoregistration. This autoregisters the *entityName*, performing the following tasks:

- Generates a new RSA key pair for the owning *entityName*
- Saves the private key (CRTKey) in the private registry after protecting using a derivative of the given *keyRingPassword*
- Packages the public key in a *newCertificateRequest* to the mini-certificate server address given, identifying the request with the *entityName* and the given (pre-allocated) mini-certificate request pin (*certReqPIN*)
- Saves the issued mini-certificate in the private registry then sends a **getCertificate** request to get the mini-certificate server's (own) mini-certificate, and saves it in the private registry

Parameters

entityName PrivateRegistry owner EntityName

dirName Path to PrivateRegistry

pin Number, password or passphrase to be used to open the private registry

keyRingPassword
String password or passphrase used to protect the entity's private key

certReqPIN String with one-time-use *Certificate Request Number* preallocated for the entity by the mini-certificate server administrator to enable it to autoregister

caIPAddrPort String with the TCP address and port of the solution's mini-certificate server, for example `aname.hursley.ibm.com:8082`

Return Values
none

Exceptions

MQeException

`Except_PrivateReg_BadPIN`, "Activating_EntityName_PrivateRegistry"

`Except_PrivateReg_ActivateFailed`

`Except_PrivateReg_ActivateFailed`, "Registration exception "

Example

```
class MySampleClass extends MQe
  {
  try
    {
    /* setup Private Registry activate parameters                    */
    String entityName          = "Bruce";
    String dirName             = ".//" + EntityName;
    String entityPIN           = "12345678";
    Object keyRingPassword     = "It_is_a_secret";
    Object certReqPIN          = "12345678";
    Object caIPAddrPort        = "aname.hursley.ibm.com:8082";
    /* instantiate and activate a Private Registry...     */
    MQePrivateRegistry preg    = new MQePrivateRegistry( );
    /* instantiate and activate the Private Registry                 */
    preg.Activate( entityName,     /* name of entity owning privreg  */
                   dirName,        /* params to open file regsess'n  */
                   entityPIN,      /* Private Registry access PIN    */
                   keyRingPassword,/* pwd/phrase protecting CRTKey   */
                   certReqPIN,     /* prereg MiniCertSvr certreqPIN  */
                   caIPAddrPort);  /* trusted MiniCertSvr addr:port  */
    }
  catch ( Exception e )
    {
    }
```

Related functions

MqeLocalSecure

MQePrivateRegistry deleteCertificate

Syntax

```
Public MQeFields deleteCertificate( String certificateOwner )
                                                  throws MQeException
```

Description

Deletes the certificate owner's mini-certificate.

Parameters

certificateOwner

Private registry owner's name

Return Values

none

Exceptions

MQeException	`Except_Reg_DoesNotExist`, "Entry does not exist"
	`Except_Reg_DeleteFailed`, "Error deleting entry"

Related functions

getCertificate()

MQePrivateRegistry getCertificate

Syntax

```
Public MQeFields getCertificate( String certificateOwner )
                                                  throws MQeException
```

Description

Returns the certificate owner's mini-certificate.

Parameters

certificateOwner
Private registry owner's name

Return Values
mini-certificate

Exceptions

MQeException
`Except_Reg_ReadFailed`, "Error reading entry"

Related functions

deleteCertificate()

MQePrivateRegistry getRegistryName

Syntax

```
Public String getRegistryName( )
```

Description
Returns the owning entity name

Parameters
none

Return Values
Owning entity name

Exceptions
none

MQePrivateRegistry resetPIN

Syntax

```
Public void resetPIN(String currentPIN,
                     String newPIN ) throws Exception
```

Description
Enables a valid private registry owner to change the access PIN

Parameters

currentPIN Current valid PIN (password or passphrase) for private registry

newPIN New PIN (password or passphrase)

Return Values
none

Exceptions

MQeException `Except _PrivateReg_BadPIN` , "PIN not reset, bad current PIN provided"

MQePrivateRegistry setTargetRegistryName

Syntax

```
Public void setTargetRegistryName( String registryName)
```

Description
Adds the name of the intended recipient's private registry.

Note: This method is deprecated and **setTarget()** in the class MQeMTrustAttribute should be used instead.

MQePrivateRegistry

Parameters

registryName Recipient's private registry name

Return Values

none

Exceptions

none

Examples

See "MQeMTrustAttribute" on page 265

Related functions

- MQeMTrustAttribute

MQePrivateRegistryConfigure

This class is used to configure a Private Registry. The class is used to get new credentials (private and public certificates) for the registry.

Package **com.ibm.mqe.registry**

This class is a descendant of MQeRegistry

Constructor summary

MQePrivateRegistryConfigure

Syntax

1. `public MQePrivateRegistryConfigure( )`
2. `public MQePrivateRegistryConfigure( String name,`
   `MQeFields parms,`
   `String PIN ) throws Exception`

Description

The constructor instantiates the registry configuration object, there are two versions.

1. This is an empty constructor that is designed for dynamic loading and must be followed by a call to **activate()**
2. This version saves the name and opens the registry; it is equivalent to the empty constructor followed by **activate()**

Parameters

name The name associated with this registry

regParams An MQeFields object containing the initialization parameters for the registry:

MQeRegistry.LocalRegType (ascii)
This determines the type of the registry being opened. Because this should be a private registry, this parameter should be set to `com.ibm.mqe.registry.MQePrivateSession`, or an equivalent alias.

MQeRegistry.DirName (ascii)
The name of the directory holding the registry files

MQeRegistry.PIN (ascii)
The PIN for the private registry. This is used if the **regPIN** parameter on **activate()** is *null*.

MQeRegistry.KeyRingPassword (ascii)
The password or passphrase used to protect the registry's private key.

MQeRegistry.Separator (ascii)

The character to be used as a separator between the components of an entry name, for example <QueueManager><Separator><Queue>.

This is specified as a string but it should contain a single character, if it contains more than one only the first character is used.

The same separator character should be used every time a registry is opened, it should not be changed once a registry is in use and contains entries.

If this value is not specified it defaults to "+".

regPIN The PIN required to open the registry. If this is *null*, the PIN is taken from the **regParams** parameter.

Return values
none

Exceptions

Exception	Thrown if there is a problem opening the registry

Example

```
MQePrivateRegistryConfigure regConfig1;
regConfig1 = new MQePrivateRegistryConfigure();

try
{
 MQePrivateRegistryConfigure regConfig2;
 MQeFields parms = new MQeFields();
 parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
 ...
 regConfig2 = new MQePrivateRegistryConfigure("Reg2", parms, null);
}
catch (Exception e)
{ ... }
```

Methods

Method	Purpose
activate	Initializes the class and opens the registry
close	Closes the registry and tidies up
credentialsExist	Checks whether credentials already exist for the registry
getCredentials	Obtains new credentials for the registry
isPrivateRegistry	Checks whether the registry is a private registry
renewCertificates	Renews the public certificate for the registry

MQePrivateRegistryConfigure activate

Syntax

```
public void activate( String name,
                      MQeFields regParams,
                      String regPIN ) throws Exception
```

Description
This saves the registry name and opens the registry. If the **regPIN** parameter is not *null* it is used to open the registry, otherwise the registry's PIN is obtained from the **regParams** parameter.

Parameters

name The name associated with this registry

regParams An MQeFields object containing the initialization parameters for the registry.

MQeRegistry.LocalRegType (ascii)
This determines the type of the registry being opened. Because this should be a private registry, this parameter should be set to `com.ibm.mqe.registry.MQePrivateSession`, or an equivalent alias.

MQeRegistry.DirName (ascii)
The name of the directory holding the registry files

MQeRegistry.PIN (ascii)
The PIN for the private registry. This will be used if the **regPIN** parameter is *null*.

MQeRegistry.KeyRingPassword (ascii)
The password or passphrase used to protect the registry's private key.

MQeRegistry.Separator (ascii)

The character to be used as a separator between the components of an entry name, for example <QueueManager><Separator><Queue>.

This is specified as a string but it should contain a single character, if it contains more than one only the first character is used.

The same separator character should be used every time a registry is opened, it should not be changed once a registry is in use and contains entries.

If this value is not specified it defaults to "+".

regPIN The PIN required to open the registry. If this is *null*, the PIN is taken from the **regParams** parameter.

Return Values
none

Exceptions

MQeException	Is thrown if there is a problem opening the registry.
Exception	Is thrown if there are any other problems

Example

```
try
{
 MQePrivateRegistryConfigure regConfig;
 MQeFields parms = new MQeFields();
 parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
 ...
 regConfig = new MQePrivateRegistryConfigure();
 regConfig.activate("Reg", parms, null);
}
catch (Exception e)
{ ... }
```

Related functions
MQeLocalSecure

MQePrivateRegistryConfigure close

Syntax

```
public void close()
```

Description

This closes the configuration object and the associated registry. An attempt to use the object after it has been closedl results in an exception.

Parameters

none

Return Values

none

Exceptions

none

Example

```
try
{
 MQePrivateRegistryConfigure regConfig;
 MQeFields parms = new MQeFields();
 parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
 ...
 regConfig = new MQePrivateRegistryConfigure("Reg", parms, null);
 if ( regConfig.credentialsExist() )
 {
  ...
 }
 regConfig.close();
}
catch (Exception e)
{ ... }
```

MQePrivateRegistryConfigure credentialsExist

Syntax

```
public boolean credentialsExist ( ) throws MQeException
```

Description

This method checks whether the registry already contains credentials.

Parameters

none

Return Values

true	If the registry already contains credentials
false	If the registry does not contain credentials

Exceptions

MQeException	Is thrown if the class has not been activated

Example

```
try
{
 MQePrivateRegistryConfigure regConfig;
 MQeFields parms = new MQeFields();
 parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
 ...
 regConfig = new MQePrivateRegistryConfigure("Reg", parms, null);
 if ( regConfig.credentialsExist() )
 {
```

```
  ...
 }
}
catch (Exception e)
{ ... }
```

MQePrivateRegistryConfigure getCredentials

Syntax

```
public void getCredentials( MQeFields regParams,
                            String regPIN,
                            String minCertServer,
                            String miniCertPIN,
                            String renamePrefix ) throws Exception
```

Description

This creates new credentials for the registry.

If the registry already contains credentials, they are renamed using the **renamePrefix**. If the rename fails, for example because the new name already exists in the registry, an exception is thrown and new credentials are not obtained. If an error occurs after the credentials have been renamed, they are changed back to their original names before **getCredentials()** returns.

This method calls the mini-certificate server and can take some time to complete.

Parameters

regParams An MQeFields object containing the initialization parameters for the registry.

MQeRegistry.LocalRegType (ascii)
This determines the type of the registry being opened. Because this should be a private registry, this parameter should be set to `com.ibm.mqe.registry.MQePrivateSession`, or an equivalent alias.

MQeRegistry.DirName (ascii)
The name of the directory holding the registry files

MQeRegistry.PIN (ascii)
The PIN for the private registry. This is used if the **regPIN** parameter on **activate()** is *null*.

MQeRegistry.KeyRingPassword (ascii)
The password or passphrase used to protect the registry's private key.

MQeRegistry.Separator (ascii)

The character to be used as a separator between the components of an entry name, for example <QueueManager><Separator><Queue>.

This is specified as a string but it should contain a single character, if it contains more than one only the first character is used.

The same separator character should be used every time a registry is opened, it should not be changed once a registry is in use and contains entries.

If this value is not specified it defaults to ″+″.

regPIN The PIN required to open the registry. If this is *null*, the PIN is taken from the **regParams** parameter.

minCertServer
The TCP address and port number of a mini-certificate server

miniCertPIN The *Certificate Request Number* pre-allocated by the mini-certificate administrator to allow the registry to obtain its credentials

renamePrefix A prefix used to rename the existing credentials, if there are any

Return Values
none

Exceptions

MQeException	Is thrown if the class has not been activated, if it is not a Private Registry, if the rename fails, or if there is an error obtaining the credentials (e.g. contacting the issuing mini-certificate server).
Exception	Is thrown for other errors

Example

```
try
{
 MQePrivateRegistryConfigure regConfig;
 MQeFields parms = new MQeFields();
 parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
 ...
 regConfig = new MQePrivateRegistryConfigure("Reg", parms, null);
 if ( regConfig.isPrivateRegistry() )
 {
   String renamePref = Long.toString(new Date().getTime()) + "_";
   regConfig.getCredentials( parms,
                             "MYpin 123",
                             "certServer.hursley.ibm.com:8082",
                             "12345678",
                             renamePref );
 }
}
catch (Exception e)
{ ... }
```

MQePrivateRegistryConfigure isPrivateRegistry

Syntax

```
public boolean isPrivateRegistry( ) throws MQeException
```

Description
This method checks whether the registry that has been opened is a private registry.

Parameters
none

Return Values

true If it is a private registry

false If it is not a private registry

Exceptions

MQeException Is thrown if the class has not been activated

Example

```
try
{
 MQePrivateRegistryConfigure regConfig;
 MQeFields parms = new MQeFields();
 parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
 ...
 regConfig = new MQePrivateRegistryConfigure("Reg", parms, null);
 if ( regConfig.isPrivateRegistry() )
 {
  ...
 }
}
catch (Exception e)
{ ... }
```

MQePrivateRegistryConfigure renewCertificates

Syntax

```
public void renewCertificates(String regPIN,
                              String minCertServer,
                              String miniCertPIN,
                              String renamePrefix ) throws Exception
```

Description

This method renews the public certificate for the registry. This is necessary if, for example, the existing certificate has expired.

The existing public certificate is renamed using the *renamePrefix*. If the rename fails, for example because the new name already exists in the registry, an exception is thrown and the certificate is not renewed. If an error occurs after the certificate has been renamed, it is changed back to its original name before **renewCertificates()** returns.

This method calls the mini-certificate server and can take some time to complete

Parameters

RegPIN The PIN required to open the registry

MinCertServer
The TCP address and port number of a mini-certificate server

MiniCertPIN The certificate request number that is preallocated by the mini-certificate administrator to allow the registry to renew its certificate.

RenamePrefix A prefix used to rename the existing certificate.

Return Values
none

Exceptions

MQeException Is thrown if the class has not been activated, if it is not a Private Registry, if the rename fails, or if there is an error

renewing the certificate (for example contacting the Issuing Server).

Exception Is thrown for other errors

Example

```
{
MQePrivateRegistryConfigure regConfig;
MQeFields parms = new MQeFields();
Parms.putAscii(MQeRegistry.DirName, "Registry_Dir");
...
regConfig = new MQePrivateRegistryConfigure("Reg", parms, null);
if (regConfig.isPrivateRegistry())
{
String renamePref = Long.toString(new Date().getTime())+"_";
regConfig.renewCertificates("MYpin 123",
"certServer.hursley.ibm.com:8082",
"12345678",
renamePref );
}
}
catch (Exception e)
{...}
```

MQePublicRegistry

This class is used to create a MQePubliceRegistry object.

Package **com.ibm.mqe.registry**

This class is a descendant of MQeRegistry

Constructor

MQePublicRegistry

Syntax

```
public MQePublicRegistry( )
```

Description

Constructs an MQePublicRegistry object

Parameters

none

Return values

none

Exceptions

none

Related functions

- MQePrivateRegistry

Method summary

Method	Purpose
activate	Opens and activates the MQePublicRegistry instance.
deleteCertificate	Deletes the certificate owner's mini-certificate
getCertificate	Returns the certificate owner's mini-certificate
putCertificate	Adds the certificate owner's mini-certificate to the public registry
requestCertificate	Requests a mini-certificate from the public registry of another MQSeries Everyplace node
shareCertificate	Replicates the certificate owner's mini-certificate to a public registry on another MQSeries Everyplace node

MQePublicRegistry activate

Syntax

```
Public void activate (String name,
                      String dirName) throws Exception
```

Description

If a public registry with this entity name exists, **activate** opens the existing public registry, if not it creates a new public registry with name **name**.

Parameters

name	Public registry name, normally MQeNode_PublicRegistry
dirName	Path to public registry

Return Values
none

Exceptions

MQeException	Except_Public_ActivateFailed, ″exception reason″

Example

```
class MySampleClass extends MQe
{
try
  {
  /* setup Public Registry activate parameters          */
  String name                = "MQeNode_PublicRegistry";
  String dirName             = ".//"
  /* instantiate and activate Public Registry           */
  MQePublicRegistry pubreg   = new MQePublicRegistry( );
  pubreg.activate( name, dirName );
  }
catch ( Exception e )
  {
  ...
  }
```

Related functions
MQePrivateRegistry

MQePublicRegistry deleteCertificate

Syntax

```
Public void deleteCertificate( String certificateOwner )
                                                  throws MQeException
```

Description
Deletes the certificate owner's mini-certificate.

Parameters

certificateOwner
Mini-certificate owner's name

Return Values
none

Exceptions

MQeException	Except_Reg_DoesNotExist, ″Entry does not exist″
	Except_Reg_DeleteFailed, ″Error deleting entry″

Related functions

- `getCertificate`
- `putCertificate`

MQePublicRegistry getCertificate

Syntax

```
Public MQeFields getCertificate( String certificateOwner )
                                                  throws MQeException
```

Description
Returns the certificate owner's mini-certificate.

Parameters

certificateOwner
Authenticatable entity's (mini-certificate owner's) name

Return Values
Mini-certificate

Exceptions

MQeException	Except_Reg_ReadFailed, "Error reading entry"

Related functions

- `deleteCertificate`
- `putCertificate`

MQePublicRegistry putCertificate

Syntax

```
Public void putCertificate( String certificateOwner,
                            MQeFields certificate ) throws MQeException
```

Description
Adds the certificate owner's mini-certificate to the public registry

Parameters

certificateOwner
Authenticatable entity's (mini-certificate owner's) name

certificate Owner's mini-certificate

Return Values
none

Exceptions

MQeException	Except_Reg_AlreadyExists, "Entry already exists"
	Except_Reg_AddFailed, "Error adding entry"

Related functions

- `getCertificate`
- `deleteCertificate`

MQePublicRegistry requestCertificate

Syntax

```
Public MQeFields requestCertificate( String certificateOwner,
                                     String mqeNodeAddrPort)
                                               throws MQeException
```

Description
Requests a mini-certificate from the public registry of another MQSeries Everyplace node and, if returned, saves it in this public registry.

Parameters

certificateOwner
Mini-certificate owner's name

mqeNodeAddrPort
TCP address and port of *home-server* or alternative MQSeries Everyplace node

Return Values
Mini-certificate

Exceptions

MQeException

```
Except_Reg_DoesNotExist, "Entry does not exist"
Except_Reg_ReadFailed, "Error reading entry"
Except_Reg_AddFailed, "Error adding entry"
```

Example

```
class MySampleClass extends MQe
  {
  try
    {
    /* setup RequestCertificate parameters                          */
    String homeServerAddrPort  = "homeServer.hursley.ibm.com:8082");
    entityName                 = "Bruce";
    /* instantiate and activate Public Registry                     */
    MQePublicRegistry pubreg   = new MQePublicRegistry( );
    pubreg.activate("MQeNode_PublicRegistry", ".\\" );
    /* request Bruce's MiniCert from Public Reg on another MQeNode  */
    MQeFields minicertf        = pubreg.getCertificate( entityName,
                                                        homeServerAddrPort);
    pubreg.close();
    }
  catch ( Exception e )
    {
    ...
    }
```

Related functions
shareCertificate

MQePublicRegistry shareCertificate

Syntax

```
Public void shareCertificate( String certificateOwner,
                              MQeFields certificate,
                              String mqeNodeAddrPort) throws MQeException
```

Description
Replicates the certificate owner's mini-certificate to a public registry on another MQSeries Everyplace node.

Parameters

certificateOwner
Mini-certificate owner's name

certificate Mini-certificate

mqeNodeAddrPort
TCP address and port of *home-server* or alternative MQSeries Everyplace node

Return Values
none

Exceptions

MQeException Except_Reg_DoesNotExist, ″Entry does not exist″

Except_Reg_ReadFailed, ″Error reading entry″

Except_Reg_AddFailed, ″Error adding entry″

Example

```
{
try
  {
  /* instantiate & activate a Private Reg for Auth Entity Bruce   */
  entityName                = "Bruce;
  caIPAddrPort              = "aname.hursley.ibm.com:8082";
  MQePrivateRegistry preg   = new MQePrivateRegistry( );
  preg.activate( entityName, ".\\MQeNode_PrivateRegistry",
            "12345678", "It_is_a_secret", "12345678", caIPAddrPort);
  /* instantiate and activate Public Reg & save Bruce's MiniCert  */
  MQePublicRegistry pubreg   = new MQePublicRegistry( );
  pubreg.activate("MQeNode_PublicRegistry",
                                      ".\\MQeNode_PublicRegistry" );
  pubreg.putCertificate( entityName,
                                  preg.getCertificate( entityName ) );
  /* share Bruce's MiniCert with Public Reg on another MQeNode    */
  String homeServerAddrPort  = "homeServer.hursley.ibm.com:8082");
  pubreg.shareCertificate( entityName,
            preg.getCertificate( entityName ), homeServerAddrPort);
  preg.close();
  pubreg.close();
  }
catch ( Exception e )
  {
  }
```

Related functions

requestCertificate

MQePublicRegistry

Chapter 6. Classes in com.ibm.mqe.server

This section contains detailed information about the following MQSeries Everyplace classes:

Table 16. Classes in package com.ibm.mqe.server

Class name	Purpose
MQeMiniCertIssuanceInterface	Used to define the way in which instances of MQeMiniCertificateServerGUI manage the issuing of new mini-certificates

MQeMiniCertIssuanceInterface

Implementations of this interface are used to define the way in which instances of MQeMiniCertificateServerGUI manage new mini-certificate issuance. The default implementation, MQeMiniCertIssuanceManager uses an MQeMiniCertificateRegistry as the repository for definitions of a valid set of authenticatable entities that can request mini-certificate. It is recognized that MQSeries Everyplace solutions may want to use different repositories for this data, for example other registry or database services.

Package **com.ibm.mqe.server**

Constants

This class provides the following constants:

```
public  final static int      IssMgr_OK
public  final static int      IssMgr_Error
```

Methods

Method	Purpose
addAuthenticatableEntity	Add the name and one-time-use certificate-request PIN for a valid MQSeries Everyplace solution authenticatable entity
addEntityRegisteredAddress	Add the registered address for a valid MQSeries Everyplace solution authenticatable entity
authoriseMiniCertRequest	Authorize a new mini-certificate request.
deleteAuthenticatableEntity	Delete the name and one-time-use certificate-request PIN of a valid MQSeries Everyplace solution authenticatable entity
deleteEntityRegisteredAddress	Delete the registered address of a valid MQSeries Everyplace solution authenticatable entity
readAuthenticatableEntity	Read the name and one-time-use certificate-request PIN of a valid MQSeries Everyplace solution authenticatable entity
readEntityRegisteredAddress	Read the registered address of a valid MQSeries Everyplace solution authenticatable entity
setRegistry	Set the reference to the MQeRegistry repository instance
updateAuthenticatableEntity	Update the name and one-time-use certificate-request PIN of a valid MQSeries Everyplace solution authenticatable entity
updateEntityRegisteredAddress	Update the registered address of a valid MQSeries Everyplace solution authenticatable entity.

MQeMiniCertIssuanceInterface addAuthenticatableEntity

Syntax

```
public int addAuthenticatableEntity (String entityName,String certReqPIN )
```

Description

Add the name and one-time-use certificate-request PIN for a valid MQSeries Everyplace solution authenticatable entity

Parameters

entityName A String used to identify the authenticatable entity's name

certReqPIN A String used to identify the authenticatable entity's one-time-use certificate-request PIN

Return Values

- `IssMgr_OK` to indicate success
- `IssMgr_Error` to indicate failure

Exceptions

none

MQeMiniCertIssuanceInterface addEntityRegisteredAddress

Syntax

```
public int addEntityRegisteredAddress (String entityName,
                                       MQeFields entityRegAddr )
```

Description

Add the registered address for a new authenticatable entity

Parameters

entityName A String used to identify the authenticatable entity's name

entityRegAddr
An MQeFields object containing the authenticatable entity's registered address

Return Values

- `IssMgr_OK` to indicate success
- IssMgr_Error to indicate failure

Exceptions

none

MQeMiniCertIssuanceInterface authoriseMiniCertRequest

Syntax

```
public int authoriseMiniCertRequest (String entityName,String certReqPIN )
```

Description

Authorize a new mini-certificate request

Parameters

entityName A String used to identify the authenticatable entity's name

certReqPIN A String used to identify the authenticatable entity's one-time-use certificate-request PIN

Return Values

- `IssMgr_OK` to indicate success
- `IssMgr_Error` to indicate failure

Exceptions

none

MQeMiniCertIssuanceInterface deleteAuthenticatableEntity

Syntax

```
public int deleteAuthenticatableEntity (String entityName)
```

Description

Delete the name and one-time-use certificate-request PIN of a valid MQSeries Everyplace solution authenticatable entity.

Parameters

entityName A String used to identify the authenticatable entity's name

Return Values

- `IssMgr_OK` to indicate success
- `IssMgr_Error` to indicate failure

Exceptions

none

MQeMiniCertIssuanceInterface deleteEntityRegisteredAddress

Syntax

```
public int deleteEntityRegisteredAddress (String entityName)
```

Description

Delete the registered address of a valid MQSeries Everyplace solution authenticatable entity.

Parameters

entityName A String used to identify the authenticatable entity's name

Return Values

- `IssMgr_OK` to indicate success
- `IssMgr_Error` to indicate failure

Exceptions

none

MQeMiniCertIssuanceInterface readAuthenticatableEntity

Syntax

```
public int authoriseMiniCertRequest (String entityName,String certReqPIN )
```

Description

Read the name and one-time-use certificate-request PIN of a valid MQSeries Everyplace solution authenticatable entity

Parameters

entityName A String used to identify the authenticatable entity's name

byte< > A String used to identify the authenticatable entity's one-time-use certificate-request PIN

Return Values

A byte array containing authenticatable entity's identity, or `null`

Exceptions

none

MQeMiniCertIssuanceInterface readEntity RegisteredAddress

Syntax

```
public MQeFields readEntityRegisteredAddress (String entityName)
```

Description

Read the registered address of a valid MQSeries Everyplace solution authenticatable entity.

Parameters

entityName A String used to identify the authenticatable entity's name

Return Values

An MQeFields object containing the authenticatable entity's registered address or `null`

Exceptions

none

MQeMiniCertIssuanceInterface SetRegistry

Syntax

```
public void setRegistry (MQeRegistry registry)
```

Description

Set the reference to an MQeRegistry repository instance

Parameters

registry MQeRegistry instance

Return Values

none

Exceptions

none

MQeMiniCertIssuanceInterface updateAuthenticatableEntity

Syntax

```
public int updateAuthenticatableEntity (String entityName,
                                        String certReqPIN )
```

Description

Update the name and one-time-use certificate-request PIN of a valid MQSeries Everyplace solution authenticatable entity

Parameters

entityName A String used to identify the authenticatable entity's name

certReqPIN A String used to identify the authenticatable entity's one-time-use certificate-request PIN

Return Values

- `IssMgr_OK` to indicate success
- `IssMgr_Error` to indicate failure

Exceptions

none

MQeMiniCertIssuanceInterface updateEntityRegisteredAddress

Syntax

```
public int updateEntityRegisteredAddress (String entityName,
                                          MQeFields entityRegAddr )
```

Description

Update the registered address of a registered address for a new authenticatable entity authenticatable entity.

Parameters

entityName A String used to identify the authenticatable entity's name

entityRegAddr

An MQeFields object containing the authenticatable entity's registered address

Return Values

- `IssMgr_OK` to indicate success
- `IssMgr_Error` to indicate failure

Exceptions

none

Chapter 7. Classes in com.ibm.mqe.mqemqmessage

This section contains detailed information about the following MQSeries Everyplace classes:

Table 17. Classes in package com.ibm.mqe.mqemqmessage

Class name	Purpose
MQeMQMsgObject	Used to represent an MQSeries style message object within MQSeries Everyplace

MQeMQMsgObject class

This section describes the Java class used to represent an MQSeries style message object within MQSeries Everyplace. It can be used to create and read MQSeriess style message objects.

The class has **getxxx()** and **setxxx()** methods for all the MQSeries message header fields. For efficiency however, only fields that have been set to a non-default value are actually contained in the message object .

Package **com.ibm.mqe.mqemqmessage**

This class is a descendant of MQeMsgObject

Constructor

MQeMQMsgObject

Syntax

```
public MQeMQMsgObject( ) throws Exception
```

Description

This creates a new MQeMQMsgObject

Parameters

none

Return values

none

Exceptions

java.lang.Exception	Propagated from the super-class constructor, MQeMsgObject

Example

```
  ...
  MQeMQMsgObject MQMsg = new MQeMQMsgObject();
  ...
}
catch (Exception e)
{
  ...
}
```

Methods

Method	Purpose
dumpAllToString	Dumps all the field values from the message to a string
dumpToString	Dumps the field values in the message object to a string
equals	Compares to byte arrays for equality
getAccountingToken	Gets the value of the accounting token from the message header
getApplicationIdData	Gets the application ID data from the message header
getApplicationOriginData	Gets the application origin data from the emssage header

Method	Purpose
getBackoutCount	Gets the backout count from the message header
getCharacterSet	Gets the coded character-set identifier from the message header
getCorrelationId	Gets the Correlation Id from the message header
getdata	Gets the message data
getEncoding	Gets the encoding value from the message header
getExpiry	Gets the expiry value from the message header
getFeedback	Gets the feedback value from the message header
getFormat	Gets the format value from the message header
getGroupId	Gets the value of the group ID from the message header
getMessageFlags	Gets the value of the message flags from the message header
getMessageId	Gets the message ID from the message header
getMessageSequenceNumber	Gets the message sequence number from the message header
getMessageType	Gets the message type from the message header
getOffset	Gets the value of the offset from the message header
getOriginalLength	Gets the original length from the message header
getPersistence	Gets the persistence value from the message header
getPriority	Gets the priority from the message header
getPutApplicationName	Gets the put application name from the message header
getPutApplicationType	Gets the put application type from the message header
getPutDateTime	Gets the put date and time from the message header
getReplyToQueueManagerName	Gets the reply-to queue manager name from the message header
getReplyToQueueName	Gets the reply-to queue name from the message header
getReport	Gets the report value from the message header
getUserId	Gets the user ID from the message header
setAccountingToken	Sets the value of the accounting token in the message header
setApplicationIdData	Sets the application ID data in the message header
setApplicationOriginData	Sets the application origin data in the message header
setBackoutCount	Sets the backout count in the message header
setCharacterSet	Sets the coded character-set identifier in the message header
setCorrelationId	Sets the correlation ID in the message header
setdata	Sets the message data
setEncoding	Sets the encoding value in the message header
setExpiry	Sets the expiry value in the message header
setFeedback	Sets the feedback value in the message header
setFormat	Sets the format value in the message header

Method	Purpose
setGroupId	Sets the value of the group ID in the message header
setMessageFlags	Sets the value of the message flags in the message header
setMessageId	Sets the message ID in the message header
setMessageSequenceNumber	Sets the message sequence number in the message header
setMessageType	Sets the message type in the message header
setOffset	Sets the value of the offset in the message header
setOriginalLength	Sets the original length in the message header
setPersistence	Sets the persistence value in the message header
setPriority	Sets the priority in the message header
setPutApplicationName	Sets the put application name in the message header
setPutApplicationType	Sets the put application type in the message header
setPutDateTime	Sets the put date and time in the message header ·
setReplyToQueueManagerName	Sets the reply-to queue manager name in the message header
setReplyToQueueName	Sets the reply-to queue Name innthe message header
setReport	Sets the report value in the message header
setUserId	Sets the user ID in the message header

MQeMQMsgObject dumpAllToString

Syntax

```
public String dumpAllToString()
```

Description

This method dumps all the header fields from the MQSeries style message with their corresponding field values to a string, together with the value of the data field. It is useful when debugging.

This method dumps all the header fields to a string. The **dumpToString()** method dumps only the fields that have been set to non-default values.

Parameters

none

Return values

A String containing the field names and values and the data value.

Exceptions

none

Example

```
if (msgObj instanceof MQeMQMsgObject)
{
  System.out.println(((MQeMQMsgObject)msgObj).dumpAllToString());
}
```

MQeMQMsgObject dumpToString

Syntax

```
public String dumpToString()
```

Description

This method dumps header fields from the MQSeries style message with their corresponding field values to a string, together with the value of the data field. It is useful when debugging.

This method dumps only the fields that have been set to non-default values. The **dumpAllToString()** method dumps all the header fields to a string

Parameters

none

Return values

A String containing the field names and values and the data value.

Exceptions

none

Example

```
if (msgObj instanceof MQeMQMsgObject)
{
  System.out.println(((MQeMQMsgObject)msgObj).dumpToString());
}
```

MQeMQMsgObject equals

Syntax

```
public boolean equals(byte [] b1, byte [] b2)
```

Description

This compares two byte arrays for equality. They are considered equal if they are the same length and each byte in one array is equal to the corresponding byte in the other array.

Parameters

b1	The first byte array for comparison
b2	The second byte array for comparison

Return values

`true` if the byte arrays are equal in length and content, otherwise `false`

Exceptions

none

Example

```
byte [] correlId = ...
if ( mqMsgObj.equals(mqMsgObj.getCorrelationId(), correlId) )
{
  ...
}
```

MQeMQMsgObject getAccountingToken

Syntax

```
public byte [] getAccountingToken() throws Exception
```

Description

This method returns the value of the *AccountingToken* header field.

Parameters

none

Return values

A byte array containing the value of the accounting token.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Examples

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    byte [] accountToken = mqMsgObj.getAccountingToken();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getApplicationIdData

Syntax

```
MQeMQMsgObject getApplicationIdData
```

Description

This method returns the value of the *ApplIdentityData* header field.

Parameters

none

Return values

A string containing the value of the application ID data.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    String appIdData = mqMsgObj.getApplicationIdData();
    α
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getApplicationOriginData

Syntax

```
public String getApplicationOriginData() throws Exception
```

Description

This method returns the value of the *ApplOriginData* header field.

Parameters

none

Return values

A string containing the value of the application origin data

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    String appOriginData = mqMsgObj.getApplicationOriginData();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getBackoutCount

Syntax

```
public int getBackoutCount() throws Exception
```

Description

This method returns the value of the *BackoutCount* header field.

Parameters

none

Return values

An int containing the value of the backout count.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int backoutCount = mqMsgObj.getBackoutCount();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getCharacterSet

Syntax

```
public int getCharacterSet() throws Exception
```

Description

This method returns the value of the *CodedCharSetId* header field

Parameters

none

Return values

An int containing the value of the coded character set identifier

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int charSet = mqMsgObj.getCharacterSet();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getData

Syntax

```
public byte [] getData() throws Exception
```

Description

This method returns the message data. The application must know how to interpret the data.

Parameters

none

Return values

A byte array containing the message data

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    byte [] msgData = mqMsgObj.getData();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getCorrelationId

Syntax

```
public byte [] getCorrelationId() throws Exception
```

Description

This method returns the value of the *CorrelId* header field.

Parameters

none

Return values

A byte array containing the value of the correlation ID.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    byte [[ correlId = mqMsgObj.getCorrelationId();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getEncoding

Syntax

```
MQeMQMsgObject getEncoding
```

Description

This method returns the value of the *Encoding* header field

Parameters

none

Return values

An int containing the encoding value

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int encode = mqMsgObj.getEncoding();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getExpiry

Syntax

```
public int getExpiry() throws Exception
```

Description

This method returns the value of the *Expiry* header field. The value is in tenths of a second, as is used in MQSeries messages (it is not in milliseconds, which is used for the MQSeries Everyplace expiry time).

Parameters

none

Return values

An int containing the expiry value.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int expiry = mqMsgObj.getExpiry();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getFeedback

Syntax

```
MQeMQMsgObject getFeedback
```

Description

This method returns the value of the *Feedback* header field.

Parameters

none

Return values

An int containing the feedback value.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int feedback = mqMsgObj.getFeedback();
    ...
  }
}
```

```
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getFormat

Syntax

```
public String getFormat() throws Exception
```

Description

This method returns the value of the *Format* header field.

Parameters

none

Return values

A String containing the format value

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    String format = mqMsgObj.getFormat();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getGroupId

Syntax

```
public byte [] getGroupId() throws Exception
```

Description

This method returns the value of the*GroupId* header field

Parameters

none

Return values

A byte array containing the value of the group ID.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    byte [] groupId = mqMsgObj.getGroupId();
    ...
  }
```

```
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getMessageFlags

Syntax

```
public int getMessageFlags() throws Exception
```

Description

This method returns the value of the *MsgFlags* header field

Parameters

none

Return values

This method returns the value of the message flags header field

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int msgFlags = mqMsgObj.getMessageFlags();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getMessageId

Syntax

```
public byte [] getMessageId() throws Exception
```

Description

This method returns the value of the *MsgID* header field.

Parameters

none

Return values

A byte array containing the value of the message ID.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    byte [] msgId = mqMsgObj.getMessageId();
    ...
```

```
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getMessageSequenceNumber

Syntax

```
public int getMessageSequenceNumber() throws Exception
```

Description

This method returns the value of the *MsgSeqNumber* header field.

Parameters

none

Return values

An int containing the value of the message sequence number.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int msgSeqNo = mqMsgObj.getMessageSequenceNumber();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getMessageType

Syntax

```
public int getMessageType() throws Exception
```

Description

This method returns the value of the *MsgType* header field.

Parameters

none

Return values

An int containing the value of the message type

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int msgType = mqMsgObj.getMessageType();
```

```
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getOffset

Syntax

```
public int getOffset() throws Exception
```

Description

This method returns the value of the *Offset* header field.

Parameters

none

Return values

An int containing the offset value

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int offset = mqMsgObj.getOffset();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getOriginalLength

Syntax

```
public int getOriginalLength() throws Exception
```

Description

This method returns the value of the *OriginalLength* header field

Parameters

none

Return values

An int containing the value of the original length

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
```

```
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int originalLength = mqMsgObj.getOriginalLength();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getPersistence

Syntax

```
public int getPersistence() throws Exception
```

Description

This method returns the value of the *Persistence* header field

Parameters

none

Return values

An int containing the persistence value.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int persistence = mqMsgObj.getPersistence();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getPriority

Syntax

```
public int getPriority() throws Exception
```

Description

This method returns the value of the *Priority* header field.

Parameters

none

Return values

An int containing the priority value

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
```

```
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int priority = mqMsgObj.getPriority();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getPutApplicationName

Syntax

```
public String getPutApplicationName() throws Exception
```

Description

This method returns the value of the *PutApplName* header field

Parameters

none

Return values

A String containing the value of the put application name

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    String putApplName = mqMsgObj.getPutApplicationName();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getPutApplicationType

Syntax

```
public int getPutApplicationType() throws Exception
```

Description

This method returns the value of the *PutApplType* header field.

Parameters

none

Return values

An int containing the value of the put application type

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int putApplType = mqMsgObj.getPutApplicationType();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getPutDateTime

Syntax

```
public GregorianCalendar getPutDateTime() throws Exception
```

Description

This method returns the value of the *PutDate* and *PutTime* header fields. The value is returned as a Gregorian Calendar object, for consistency with the MQSeries Classes for Java.

Parameters

none

Return values

A Grogorian Calendar object containing the put date and time value

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    GregorianCalendar putDateTime = mqMsgObj.getPutDateTime();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getReplyToQueueManagerName

Syntax

```
MQeMQMsgObject getReplyToQueueManagerName
```

Description

This method returns the value of the *ReplyToQMgr* header field.

Parameters

none

Return values

A String containing the value of the reply-to queue manager name.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    String replyToQueueMgrName = mqMsgObj.getReplyToQueueManagerName();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getReplyToQueueName

Syntax

```
public String getReplyToQueueName() throws Exception
```

Description

This method returns the value of the *ReplyToQ* header field.

Parameters

none

Return values

A String containing the value of the reply-to queue name.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    String replyToQueueName = mqMsgObj.getReplyToQueueName();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getReport

Syntax

```
public int getReport() throws Exception
```

Description

This method returns the value of the *Report* header field.

Parameters

none

Return values

An int containing the report value.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    int report = mqMsgObj.getReport();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject getUserId

Syntax

```
public String getUserId() throws Exception
```

Description

This method returns the value of the *UserIdentifier* header field.

Parameters

none

Return values

A String containing the value of the user ID.

Exceptions

java.lang.Exception	If there is an error reading the value from the message object

Example

```
try
{
  if (msgObj instanceof MQeMQMsgObject)
  {
    MQeMQMsgObject mqMsgObj = (MQeMQMsgObject)msgObj;
    String userId = mqMsgObj.getUserId();
    ...
  }
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setAccountingToken

Syntax

```
public void setAccountingToken(byte [] accountingToken) throws Exception
```

Description

This method sets the value of the *AccountingToken* header field in the MQSeries style message.

Parameters

accountingToken
A byte array containing the value to be set in the accounting token field

Return values
none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  byte [] accountingToken = ...;
  mqeMsgObj.setAccountingToken(accountingToken);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setApplicationIdData

Syntax

```
public void setApplicationIdData(String applicationIdData) throws Exception
```

Description
This method sets the value of the *ApplIdData* header field in the MQSeries style message.

Parameters

applicationIdData
A String containing the value to be set in the application ID data field.

Return values
none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  String applIdData = ...;
  mqeMsgObj.setApplicationIdData(applIdData);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setApplicationOriginData

Syntax

```
public void setApplicationOriginData(String applicationOriginData) throws Exception
```

Description

This method sets the value of the *ApplOriginData* header field in the MQSeries style message

Parameters

applicationOriginData
a String containing the value to be set in the application origin data field.

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  String applOriginData = ...;
  mqeMsgObj.setApplicationOriginData(applOriginData);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setBackoutCount

Syntax

```
public void setBackoutCount(int backoutCount) throws Exception
```

Description

This method sets the value of the *BackoutCount* header field in the MQSeries style message.

Parameters

backoutCount	An int containing the value to be set in the backout count field

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int backoutCount = ...;
  mqeMsgObj.setBackoutCount(backoutCount);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setCharacterSet

Syntax

```
public void setCharacterSet(int characterSet) throws Exception
```

Description

This method sets the value of the *CodedCharSetId* header field in the MQSeries style message

Parameters

characterSet an int containing the value to be set in the coded character set identifier field

Return values

none

Exceptions

java.lang.Exception If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int characterSet = ...;
  mqeMsgObj.setCharacterSet(characterSet);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setCorrelationId

Syntax

```
public void setCorrelationId(byte [] correlationId) throws Exception
```

Description

This method sets the value of the *CorrelId* header field in the MQSeries style message. It also sets the Correlation ID for use within the MQSeries Everyplace system itself

Parameters

correlationId A byte array containing the value to be set in the correlation ID field.

Return values

none

Exceptions

java.lang.Exception If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  byte [] correlationId = ...;
  mqeMsgObj.setCorrelationId(correlationId);
  ...
}
```

```
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setData

Syntax

```
public void setData(byte [] data) throws Exception
```

Description

This method sets the message data in the MQSeries style message.

Parameters

data	A byte array containing the message data

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  byte [] data = ...;
  mqeMsgObj.setData(data);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setEncoding

Syntax

```
public void setEncoding(int encoding) throws Exception
```

Description

This method sets the value of the *Encoding* header field in the MQSeries style message

Parameters

encoding	An int containing the value to be set in the encoding field

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int encoding = ...;
  mqeMsgObj.setEncoding(encoding);
  ...
}
```

```
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setExpiry

Syntax

```
public void setExpiry(int expiry) throws Exception
```

Description

This method sets the value of the *Expiry* header field in the MQSeries style message. It also sets the expiry time of the message for use within the MQSeries Everyplace system itself.

Parameters

expiry	An int containing the value to be set in the expiry field. The value should be in tenths of a second, as is used in MQSeries messages (not in milliseconds, which is used for MQSeries Everyplace expiry time)..

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int expiry = ...;
  mqeMsgObj.setExpiry(expiry);
  ...}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setFeedback

Syntax

```
public void setFeedback(int feedback) throws Exception
```

Description

This method sets the value of the *Feedback* header field in the MQSeries style message.

Parameters

feedback	An int containing the value to be set in the feedback field.

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int feedback = ...;
  mqeMsgObj.setFeedback(feedback);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setFormat

Syntax

```
public void setFormat(String format) throws Exception
```

Description

This method sets the value of the *Format* header field in the MQSeries style message

Parameters

format	A String containing the value to be set in the format field.

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  String format = ...;
  mqeMsgObj.setFormat(format);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setGroupId

Syntax

```
public void setGroupId(byte [] groupId) throws Exception
```

Description

This method sets the value of the *GroupId* header field in the MQSeries style message.

Parameters

groupId	a byte array containing the value to be set in the group ID field.

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  byte [] groupId = ...;
  mqeMsgObj.setGroupId(groupId);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setMessageFlags

Syntax

```
public void setMessageFlags(int messageFlags) throws Exception
```

Description

This method sets the value of the *MsgFlags* header field in the MQSeries style message

Parameters

format A String containing the value to be set in the message flags field.

Return values

none

Exceptions

java.lang.Exception If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int messageFlags = ...;
  mqeMsgObj.setMessageFlags(messageFlags);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setMessageId

Syntax

```
public void setMessageId(byte [] messageId) throws Exception
```

Description

This method sets the value of the *MsgId* header field in the MQSeries style message

Parameters

messageId A byte array containing the value to be set in the message ID field.

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  byte [] messageId = ...;
  mqeMsgObj.setMessageId(messageId);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setMessageSequenceNumber

Syntax

```
public void setMessageSequenceNumber(int seqNo) throws Exception
```

Description

This method sets the value of the *MsgSeqNumber* header field in the MQSeries style message

Parameters

seqNo	An int containing the value to be set in the message sequence number field.

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int seqNo = ...;
  mqeMsgObj.setMessageSequenceNumber(seqNo);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setMessageType

Syntax

```
public void setMessageType(int messageType) throws Exception
```

Description

This method sets the value of the *MsgType* header field in the MQSeries style message. It also sets the message style for use within the MQSeries Everyplace system itself.

Parameters

messageType	An int containing the value to be set in the message type field.

Return values
none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int messageType = ...;
  mqeMsgObj.setMessageType(messageType);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setOffset

Syntax

```
public void setOffset(int offset) throws Exception
```

Description
This method sets the value of the *Offset* header field in the MQSeries style message

Parameters

offset	An int containing the value to be set in theoOffset field

Return values
none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int offset = ...;
  mqeMsgObj.setOffset(offset);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setOriginalLength

Syntax

```
public void setOriginalLength(int len) throws Exception
```

Description
This method sets the value of the *OriginalLength* header field in the MQSeries style message.

Parameters

len An int containing the value to be set in the original length field.

Return values
none

Exceptions

java.lang.Exception If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int len = ...;
  mqeMsgObj.setOriginalLength(len);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setPersistence

Syntax

```
public void setPersistence(int persistence) throws Exception
```

Description
This method sets the value of the *Persistence* header field in the MQSeries style message.

Parameters

persistence An int containing the value to be set in the persistence field

Return values
none

Exceptions

java.lang.Exception If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int persistence = ...;
  mqeMsgObj.setPersistence(persistence);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setPriority

Syntax

```
public void setPriority(int priority) throws Exception
```

Description

This method sets the value of the *Priority* header field in the MQSeries style message. It also sets the priority of the message for use within the MQSeries Everyplace system itself.

Parameters

priority An int containing the value to be set in the priority field. The value should be between 0 and 9 (inclusive).

Return values

none

Exceptions

java.lang.Exception If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int priority = ...;
  mqeMsgObj.setPriority(priority);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setPutApplicationName

Syntax

```
public void setPutApplicationName(String putApplicationName) throws Exception
```

Description

This method sets the value of the *PutApplName* header field in the MQSeries style message.

Parameters

putApplicationName

a String containing the value to be set in the put application name field.

Return values

none

Exceptions

java.lang.Exception If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  String putApplName = ...;
  mqeMsgObj.setPutApplicationName(putApplName);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setPutApplicationType

Syntax

```
public void setPutApplicationType(int putApplicationType) throws Exception
```

Description

This method sets the value of the *PutApplType* header field in the MQSeries style message.

Parameters

putApplicationType
An int containing the value to be set in the put application type field

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int putAppltype = ...;
  mqeMsgObj.setPutApplicationType(putApplType);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setPutDateTime

Syntax

```
public void setPutDateTime(GregorianCalendar calendar) throws Exception
```

Description

This method sets the value of the *PutDate* and *PutTime* header fields in the MQSeries style message. A GregorianCalendar object is used to specify the date and time, for consistency with the MQSeries Classes for Java.

Parameters

calendar	A GregorianCalendar object containing the value to be set in the put date and time fields.

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  GregorianCalendar calendar = ...;
  mqeMsgObj.setPutDateTime(calendar);
  ...
```

```
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setReplyToQueueManagerName

Syntax

```
public void setReplyToQueueManagerName(String replyToQMName) throws Exception
```

Description

This method sets the value of the *ReplyToQMgr* header field in the MQSeries style message.

Parameters

replyToQMName
A String containing the value to be set in the reply-to queue manager name field.

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  String replyToQMName = ...;
  mqeMsgObj.setReplyToQueueManagerName(replyToQMName);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setReplyToQueueName

Syntax

```
public void setReplyToQueueName(String replyToQueueName) throws Exception
```

Description

This method sets the value of the *ReplyToQ* header field in the MQSeries style message.

Parameters

replyToQueueName
A String containing the value to be set in the reply-to queue name field.

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  String replyToQueueName = [;
  mqeMsgObj.setReplyToQueueName(replyToQueueName);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setReport

Syntax

```
public void setReport(int report) throws Exception
```

Description

This method sets the value of the *Report* header field in the MQSeries style message.

Parameters

report	An int containing the value to be set in the report field

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  int report = ...;
  mqeMsgObj.setReport(report);
  ...
}
catch (Exception e)
{
  ...
}
```

MQeMQMsgObject setUserId

Syntax

```
public void setUserId(String userId) throws Exception
```

Description

This method sets the value of the *UserIdentifier* header field in the MQSeries style message.

Parameters

userId	A String containing the value to be set in the user ID field

Return values

none

Exceptions

java.lang.Exception	If there is an error setting the value in the message object

Example

```
try
{
  MQeMQMsgObject mqeMsgObj = new MQeMQMsgObject();
  String userId = ...;
  mqeMsgObj.setUserId(userId);
  ...
}
catch (Exception e)
{
  ...
}
```

Chapter 8. Classes in com.ibm.mqe.mqbridge

This section contains detailed information about the following MQSeries Everyplace classes and interfaces:

Table 18. Classes in package com.ibm.mqe.mqbridge

Class or Interface name	Purpose
MQeCharacteristicLabels	Groups together all the *labels* used in any MQeFields object used in the MQSeries-bridge code
MQeClientConnectionAdminMsg	Used to encapsulate an administration command that acts on the MQeClientConnection object.
MQeListenerAdminMsg	Used to encapsulate an administration command that acts on the MQeListener object.
MQeMQBridgeAdminMsg	Used to encapsulate an administration command that acts on the MQeMQBridge object.
MQeMQBridgeQueue	This queue is used as the interface to the MQSeries-bridge
MQeMQBridgeQueueAdminMsg	Used to administer an MQSeries-bridge queue
MQeMQBridges	Loads and maintains all MQeMQBrIdge objects associated with a given MQSeries Everyplace server
MQeMQBridgesAdminMsg	Used to encapsulate an administration command that acts on the MQeBridges object.
MQeMQQMgrProxyAdminMsg	Used to encapsulate an administration command that acts on the MQeQMgrProxy object.
MQeRunState	Holds the *run state* of an administered object
MQeTransformerInterface	All classes that can transform MQMessages to MQeMsgObjects (and vice versa) must conform to this interface

MQeCharacteristicLabels

This class groups together all the *labels* used in any MQeFields object used in the MQSeries-bridge code.

These labels are used by administration messages, and by the administered object runtime characteristics, and persistent registry entry objects.

Package **com.ibm.mqe.mqbridge**

This class extends **Object**

Constants and variables

MQeCharacteristicLabels provides the following constants and variables :

MQE_FIELD_LABEL_ADMINISTERED_OBJECT_CLASS

Syntax

```
public static final String MQE_FIELD_LABEL_ADMINISTERED_OBJECT_CLASS
```

Description

Used by all administered object registry entries. Indicates the class that should be loaded when you want to instantiate the administered object.

Example

```
String adminClass = fields.getUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_ADMINISTERED_OBJECT_CLASS);
```

MQE_FIELD_LABEL_AFFECT_CHILDREN

Syntax

```
public static final String MQE_FIELD_LABEL_AFFECT_CHILDREN
```

Description

Used to control whether a start or delete action affects child objects when applied to an administered object.

Example

```
myFields.putBoolean(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_AFFECT_CHILDREN, true );
```

MQE_FIELD_LABEL_BRIDGE_NAME

Syntax

```
public static final String MQE_FIELD_LABEL_BRIDGE_NAME
```

Description

Example

```
myFields.putUnicode(MQeCharacteristicLabels.MQE_FIELD_LABEL_BRIDGE_NAME,
                    "MQBridgeV100");
```

MQE_FIELD_LABEL_CCSID

Syntax

```
public static final String MQE_FIELD_LABEL_CCSID
```

Description

The label for the field holding the CCSID used on the underlying MQSeries Classes for Java client channel.

Example

```
fields.putInt( MQeCharacteristicLabels.MQE_FIELD_LABEL_CCSID , 819 );
```

MQE_FIELD_LABEL_CHILD

Syntax

```
public static final String MQE_FIELD_LABEL_CHILD
```

Description

The label of the MQSeries Everyplace field that holds the name of the child of an administered object

Example

```
String childName = myFields.getUnicode(
       MQeCharacteristicLabels.MQE_FIELD_LABEL_CHILD );
```

MQE_FIELD_LABEL_CHILDREN

Syntax

```
public static final String MQE_FIELD_LABEL_CHILDREN
```

Description

The label associated with the children of the MQSeries Everyplace field. The value of the field holds a list of proxy object names

Example

```
MQeFields[] children = bridgesDetails.getFieldsArray(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_CHILDREN );
```

MQE_FIELD_LABEL_CLIENT_CONNECTION_NAME

Syntax

```
public static final String MQE_FIELD_LABEL_CLIENT_CONNECTION_NAME
```

Description

Label for the MQSeries Everyplace field that holds the name of the client connection that the administration message is being sent to.

Example

```
fields.putUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_CLIENT_CONNECTION_NAME,
     "SYSTEM.DEF.SVRCONN");
```

MQE_FIELD_LABEL_DEAD_LETTER_Q_NAME

Syntax

```
 public static final String MQE_FIELD_LABEL_DEAD_LETTER_Q_NAME
```

Description

Label for the field holding the name of the dead letter queue on the MQSeries system.

Example

```
fields.putUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_DEAD_LETTER_Q_NAME,
      "MQE.DLQ" );
```

MQeCharacteristicLabels

MQE_FIELD_LABEL_DEFAULT_TRANSFORMER

Syntax

```
public static final String MQE_FIELD_LABEL_DEFAULT_TRANSFORMER
```

Description

Label holding the name of the MQSeries Everyplace field that holds the name of the default transformer class that is used to convert from MQSeries Everyplace to MQSeries and from MQSeries to MQSeries Everyplace message formats. This value is used if no transformer is specified on the target queue definition.

Example

```
fields.putUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_DEFAULT_TRANSFORMER,
      "com.ibm.mqe.mqbridge.MQeBaseTransformer");
```

MQE_FIELD_LABEL_FLOWS_PER_COMMIT

Syntax

```
public static final String MQE_FIELD_LABEL_FLOWS_PER_COMMIT
```

Description

Label indicating how many times through the listener flows the listener is allowed to go before the sync queue on the MQSeries system is cleaned up. This is only relevant when the listener is using the MQSeries sync queue as it's state store.

Example

```
fields.putInt(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_FLOWS_PER_COMMIT , 100 );
```

MQE_FIELD_LABEL_HEARTBEAT_INTERVAL

Syntax

```
public static final String MQE_FIELD_LABEL_HEARTBEAT_INTERVAL
```

Description

The label holding the value of the time interval (in units of 1minute) that dictates the period of each ″heartbeat″ event coming from the MQeHeart class. This affects the accuracy of any timer mechanisms in the MQSeries-bridge, as these all use the heartbeat as a ″tick″ for their timer.

Example

```
fields.putInt(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_HEARTBEAT_INTERVAL, 5);
```

MQE_FIELD_LABEL_HOST_NAME

Syntax

```
public static final String MQE_FIELD_LABEL_HOST_NAME
```

Description

MQSeries Everyplace field label for the hostname field.

Example

```
// Using an IP address
fields.putUnicode(MQeCharacteristicLabels.MQE_FIELD_LABEL_HOST_NAME,
                  "127.0.0.1");
// Using a host in the default domain
```

```
fields.putUnicode(MQeCharacteristicLabels.MQE_FIELD_LABEL_HOST_NAME,
                  "lizzie");
// Using a fully qualified hostname
fields.putUnicode(MQeCharacteristicLabels.MQE_FIELD_LABEL_HOST_NAME,
                  "daytona2.hursley.ibm.com");
// Using the MQSeries Java Bindings on localhost
fields.putUnicode(MQeCharacteristicLabels.MQE_FIELD_LABEL_HOST_NAME,
                  "");
```

MQE_FIELD_LABEL_LISTENER_NAME

Syntax

```
public static final String MQE_FIELD_LABEL_LISTENER_NAME
```

Description

Label for the field holding the MQSeries transmission queue listener name (the name of the transmit queue on MQSeries).

Example

```
fields.putUnicode( MQeCharacteristicLabels.MQE_FIELD_LABEL_LISTENER_NAME,
                   "MQE.XMITQ" );
```

MQE_FIELD_LABEL_LISTENER_STATE_STORE_ADAPTER

Syntax

```
public static final String MQE_FIELD_LABEL_LISTENER_STATE_STORE_ADAPTER
```

Description

Label holding the name of the MQSeries Everyplace field that holds the name of the adapter class used by the listener to store its state.

Example

```
fields.putUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_LISTENER_STATE_STORE_ADAPTER,
      "com.ibm.mqe.adapters.MQeDiskFieldsAdapter" );
```

MQE_FIELD_LABEL_MAX_CONNECTION_IDLE_TIME

Syntax

```
public static final String MQE_FIELD_LABEL_MAX_CONNECTION_IDLE_TIME
```

Description

The label for the field holding the maximum time value that an MQSeries client connection is kept open if it is idle. Connections that are idle for more than this time are closed by the MQSeries-bridge.

Example

```
fields.putInt(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_MAX_CONNECTION_IDLE_TIME , 5 );
```

MQE_FIELD_LABEL_MQ_BRIDGE_ADAPTER_CLASS

Syntax

```
public static final String MQE_FIELD_LABEL_MQ_BRIDGE_ADAPTER_CLASS
```

Description

The label for the field holding the name of the MQSeries-bridge

adapter class. The MQSeries-bridge adapter is a Java class that allows messages sent to an MQSeries-bridge queue to be moved to the MQSeries system.

Example

```
fields.putUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_MQ_BRIDGE_ADAPTER_CLASS,
      "com.ibm.mqe.mqbridge.MQeMQAdapter" );
```

MQE_FIELD_LABEL_MQ_Q_MGR_PROXY_NAME

Syntax

```
public static final String MQE_FIELD_LABEL_MQ_Q_MGR_PROXY_NAME
```

Description

Label of the MQSeries Everyplace field holding the name of the MQSeries queue manager proxy object.

Example

```
String name = myFields.getUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_MQ_Q_MGR_PROXY_NAME);
```

MQE_FIELD_LABEL_NAME

Syntax

```
public static final String MQE_FIELD_LABEL_NAME
```

Description

Label holding the name of the MQSeries Everyplace field that holds the name of the MQSeries-bridge, proxy, client connection, or listener.

Example

```
String fieldName = myFields.getUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_NAME );
```

MQE_FIELD_LABEL_PASSWORD

Syntax

```
public static final String MQE_FIELD_LABEL_PASSWORD
```

Description

Label holding the password used with the user ID when the MQSeries-bridge talks to MQSeries .

Example

```
fields.putUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_PASSWORD, "chocolate" );
```

MQE_FIELD_LABEL_PORT

Syntax

```
public static final String MQE_FIELD_LABEL_PORT
```

Description

Label for the MQSeries Everyplace field that holds the port number of the MQSeries channel listener

Example

```
fields.putInt( MQeCharacteristicLabels.MQE_FIELD_LABEL_PORT , 1414 );
```

MQE_FIELD_LABEL_RECEIVE_EXIT

Syntax

```
Public static final String MQE_FIELD_LABEL_RECEIVE_EXIT
```

Description

Label for the field holding the receive exit used on the underlying MQSeries Classes for Java client channel.

Example

```
fields.putUnicode( MQeCharacteristicLabels.MQE_FIELD_LABEL_RECEIVE_EXIT,
                   "my.ReceiveExit" );
```

MQE_FIELD_LABEL_RUN_STATE

Syntax

```
public static final String MQE_FIELD_LABEL_RUN_STATE
```

Description

The label of the MQSeries Everyplace field that holds the snapshot of the current state of the administered object.

Example

```
fields.putInt( MQeCharacteristicLabels.MQE_FIELD_LABEL_RUN_STATE,
               MQeRunState.RUN_STATE_RUNNING );
```

MQE_FIELD_LABEL_SECONDS_WAIT_FOR_MSG

Syntax

```
public static final String MQE_FIELD_LABEL_SECONDS_WAIT_FOR_MSG
```

Description

Label for the field holding the seconds that the MQSeries transmission queue listener uses in the MQSeries Classes for Java client **GetMessage(wait)** method. (For development use only).

Example

```
fields.putInt(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_SECONDS_WAIT_FOR_MSG, 10 );
```

MQE_FIELD_LABEL_SECURITY_EXIT

Syntax

```
public static final String MQE_FIELD_LABEL_SECURITY_EXIT
```

Description

Label for the field holding the security exit used on the underlying MQSeries Classes for Java client channel.

Example

```
fields.putUnicode( MQeCharacteristicLabels.MQE_FIELD_LABEL_SECURITY_EXIT,
                   "my.SecurityExit" );
```

MQE_FIELD_LABEL_SEND_EXIT

Syntax

```
public static final String MQE_FIELD_LABEL_SEND_EXIT
```

Description

Label for the field holding the send exit used on the underlying MQSeries Classes for Java client channel.

Example

```
fields.putUnicode( MQeCharacteristicLabels.MQE_FIELD_LABEL_SEND_EXIT,
                   "my.SendExit" );
```

MQE_FIELD_LABEL_STARTUP_RULE_CLASS

Syntax

```
public static final String MQE_FIELD_LABEL_STARTUP_RULE_CLASS
```

Description

Used by all the administered object registry entries. Indicates the class that should be used to decide whether or not the administered object is started up when it is loaded

Example

```
String ruleClass = fields.getUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_STARTUP_RULE_CLASS);
```

.

MQE_FIELD_LABEL_SYNC_Q_NAME

Syntax

```
public static final String MQE_FIELD_LABEL_SYNC_Q_NAME
```

Description

MQSeries Everyplace field label for the *SyncQName* field. Used to keep track of the state of progress through the assured delivery flows.

Example

```
fields.putUnicode( MQeCharacteristicLabels.MQE_FIELD_LABEL_SYNC_Q_NAME,
                   "SYNC.Q" );
```

MQE_FIELD_LABEL_SYNC_Q_PURGE_INTERVAL

Syntax

```
public static final String MQE_FIELD_LABEL_SYNC_Q_PURGE_INTERVAL
```

Description

The time interval between successive purges of the sync queue

Example

```
fields.putInt(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_SYNC_Q_PURGE_INTERVAL , 60 );
```

MQE_FIELD_LABEL_SYNC_Q_PURGER_RULES_CLASS

Syntax

```
public static final String MQE_FIELD_LABEL_SYNC_Q_PURGER_RULES_CLASS
```

Description

MQSeries Everyplace field label for the *SyncQPurgerRulesClass* field

Example

```
fields.putUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_SYNC_Q_PURGER_RULES_CLASS,
      "com.ibm.mqe.mqbridge.MQeSyncQueuePurgerRule" );
```

MQE_FIELD_LABEL_TRANSFORMER

Syntax

```
public static final String MQE_FIELD_LABEL_TRANSFORMER
```

Description

Label indicating which transformer class should be used to convert the MQSeries message to an MQSeries Everyplace message before it is dispatched to the MQSeries Everyplace network.

Example

```
fields.putUnicode( MQeCharacteristicLabels.MQE_FIELD_LABEL_TRANSFORMER,
                   "com.ibm.mqe.mqbridge.MQeBaseTransformer" );
```

MQE_FIELD_LABEL_UNDELIVERED_MESSAGE_RULE_CLASS

Syntax

```
public static final String MQE_FIELD_LABEL_UNDELIVERED_MESSAGE_RULE_CLASS
```

Description

Label for the field holding the Java class name of the rule to use when the message cannot be delivered to its destination.

Example

```
fields.putUnicode(
      MQeCharacteristicLabels.MQE_FIELD_LABEL_UNDELIVERED_MESSAGE_RULE_CLASS,
      "com.ibm.mqe.mqbridge.MQeUndeliveredMessageRule" );
```

MQE_FIELD_LABEL_USER_ID

Syntax

```
public static final String MQE_FIELD_LABEL_USER_ID
```

Description

Label for the userid assumed by the MQSeries-bridge when talking to MQSeries

Example

```
fields.putUnicode( MQeCharacteristicLabels.MQE_FIELD_LABEL_USER_ID, "mqm" );
```

Constructor

MQeCharacteristicLabels

Syntax

```
public MQeCharacteristicLabels()
```

Description

Creates an MQeCharacteristicLabels object

Parameters

none

Return values

none

Exceptions

none

Example

MQeClientConnectionAdminMsg

This is a special type of MQSeries Everyplace message that is used to encapsulate an administration command. The message is created by the application that is doing the administration.

The logic performed on the target MQSeries Everyplace system is also in this class.

The administration queue invokes the **performAction** method.

Package **com.ibm.mqe.mqbridge**

This class extends MQeMQQMgrProxyAdminMsg

Constants and variables

MQeQueueAdminMsg provides the following constants and variables in addition to those provided by MQeMQQMgrProxyAdminMsg:

Constructors

MQeClientConnectionAdminMsg

Syntax

1. `public MQeClientConnectionAdminMsg() throws Exception`
2. `public MQeClientConnectionAdminMsg(String bridgeName,`
   `String nameOfMQQMgrProxy,`
   `String clientConnectionName,`
   `boolean affectChildren)`
   `throws Exception`

Description

There are two constructors:

1. This version creates and initializes a default MQeClientConnectionAdminMsg
2. This version includes fields that are needed to initialize the administration message. It does not include the action that the administration message will hold

Parameters

bridgeName A String containing the name of the MQSeries-bridge to which the administration message is directed. If set to `null`, or `""`, it is not set.

nameOfMQQMgrProxy
A String containing the name of the proxy to which the administration message is directed. If set to `null`, or `""`, it is not set.

clientConnectionName
A String containing the name of the client connection to which the administration message is directed. If set to `null`, or `""`, it is not set.

affectChildren A boolean flag indicating whether or not this administration message affects all the children. This is only applicable if the action is **start** or **delete**.

Return Values

none

Exceptions

Fails if any of the parameters contain invalid characters

Example

```
MQeClientConnectionAdminMsg msg ;
msg = new MQeClientConnectionAdminMsg( "ExampleQM.MQBridgeV100"
                                       , "MQA"
                                       , "MQ.to.ExampleQM"
                                       , false
                                       );
```

Methods

Method	Purpose
characteristics	Creates an MQeFields object containing all the fields required for an administration message of this type.
getClientConnectionName	Gets the client connection name from the administered object.
getName	Gets the name of the object to be administered.
putClientConnectionName	Puts the client connection name in a field in the MQeFields administration message object.
setName	Puts the name information in a field in the MQeFields administration message object and also sets the name of the MQSeries Everyplace queue manager that is associated with this MQSeries-bridge.

MQeClientConnectionAdminMsg characteristics

Syntax

```
public MQeFields characteristics() throws Exception
```

Description

Creates an MQefields object containing all the fields required for an administration message of this type.

Overrides **characteristics()** in class MQeMQQMgrProxyAdminMsg .

Parameters

none

Return values

An MQeFields object containing the characteristics of the resource. The complete set of field names and types for the resource can be determined from the resulting fields object.

Exceptions

java.lang.Exception If the MQeFields object cannot be created

Example

```
MQeClientConnectionAdminMsg msg;
msg = new MQeClientConnectionAdminMsg( "ExampleQM.MQBridgeV100",
                                       "MQA",
                                       "MQ.to.ExampleQM",
                                       false);
MQeFields cconAdminCharacteristics = msg.characteristics();
```

MQeClientConnectionAdminMsg getClientConnectionName

Syntax

```
public String getClientConnectionName() throws Exception
```

Description

Gets the client connection name from the administered object. This method can be issued against an MQeClientConnectionAdminMsg or one of its descendants.

Parameters

none

Return values

The name of the client connection to which this administration message is to be sent.

Exceptions

java.lang.Exception	If the name has not been set in this administration message, or if the name that has been set is invalid

Example

```
MQeClientConnectionAdminMsg msg;
msg = new MQeClientConnectionAdminMsg( "ExampleQM.MQBridgeV100",
                                       "MQA",
                                       "MQ.to.ExampleQM",
                                       false);
String cconName = msg.getClientConnectionName();
```

MQeClientConnectionAdminMsg getName

Syntax

```
public String getName()
```

Description

Gets the name of the client connection that is to be administered. In this case it's the name of the client connection that has been set by the **setName()** or **putClientConnectionName()** methods. When issued against an object of this class it is identical to `getClientConnectionName()`.

Overrides **getName()** in class MQeMQQMgrProxyAdminMsg.

Parameters

none

Return values

A String containing the name of the administered object we want to create, or `null` if the name is not set.

Exceptions

none

Example

```
MQeClientConnectionAdminMsg msg;
msg = new MQeClientConnectionAdminMsg( "ExampleQM.MQBridgeV100",
                                       "MQA",
                                       "MQ.to.ExampleQM",
                                       false);
String cconName = msg.getName();
```

MQeClientConnectionAdminMsg putClientConnectionName

Syntax

```
public void putClientConnectionName(String clientConnectionName)
                                                        throws Exception
```

Description

This is used to add the MQSeries queue manager name to the administration message. It puts the client connection name in an MQSeries Everyplace field in the MQSeries Everyplace fields administration message object.

Parameters

clientConnectionName
A String containing the name of the client connection to which the administration message is directed. This string is validated using the **validateName()** method to make sure it contains only legal characters.

Return values
none

Exceptions

java.lang.Exception
If there are any invalid characters in the name parameters

Example

```
MQeClientConnectionAdminMsg msg = new MQeClientConnectionAdminMsg();
msg.setName( "ExampleQM.MQBridgeV100" ,
             "MQA" ,
             "MQ.to.ExampleQM" );
```

MQeClientConnectionAdminMsg setName

Syntax

```
public void setName(String bridgeName,
                    String mqQMgrProxyName,
                    String clientConnectionName) throws Exception
```

Description

Puts the name information in an MQSeries Everyplace field in the MQSeries Everyplace fields administration message object and also sets the name of the MQSeries Everyplace queue manager that is associated with this MQSeries-bridge.

Parameters

bridgeName A String containing the name of the MQSeries-bridge to which the administration message is directed. If set to `null`, or `""`, it is not set.

mqQMgrProxyName
A String containing the name of the proxy to which the administration message is directed. If set to `null`, or `""`, it is not set.

clientConnectionName
A String containing the name of the client connection to which the administration message is directed. If set to `null`, or `""`, it is not set.

MQeClientConnectionAdminMsg

Return values

none

Exceptions

java.lang.Exception	If there are any invalid characters in the name parameters.

Example

```
MQeClientConnectionAdminMsg msg = new MQeClientConnectionAdminMsg();
msg.setName( "ExampleQM.MQBridgeV100" ,
             "MQA" ,
             "MQ.to.ExampleQM" )
```

MQeListenerAdminMsg

This is a special type of MQSeries Everyplace message used to encapsulate an administration command. The message is created by the application that is doing the administration.

The logic performed on the target MQSeries Everyplace system is also in this class.

The administration queue invokes the **performAction()** method.

Package **com.ibm.mqe.mqbridge**

This class extends MQeClientConnectionAdminMsg

Constructors

MQeListenerAdminMsg

Syntax

```
1. public MQeListenerAdminMsg() throws Exception
2. public MQeListenerAdminMsg(String bridge,
                              String MQQMgrProxy,
                              String clientConnection,
                              String listener
                              boolean affectChildren) throws Exception
```

Description

There are two constructors.

1. This version creates and initializes a default MQeListenerAdminMsg
2. This version includes the MQSeries Everyplace queue manager name, the name of the MQSeries-bridge, the name of the proxy, the name of the client connection, and the name of the listener

Parameters

bridge A String containing the name of the MQSeries-bridge to which the administration message is directed. If set to `null`, or `""`, it is not set.

MQQMgrProxy
A String containing the name of the MQSeries queue manager that owns the transmission queue that the listener is set up to read from. If set to `null`, or `""`, it is not set.

clientConnection
A String containing the name of the client connection used to talk to the MQSeries queue manager. If set to `null`, or `""`, it is not set.

listener A string containing the name of the listener. This matches the name of the transmission queue on MQSeries to which the listener "listens", for messages to be ready to move to the MQSeries Everyplace network.

affectChildren A boolean flag indicating whether or not this administration message affects the children of the listener.

Return Values

none

Exceptions

Fails if any of the parameters contain invalid characters

Example

```
MQeListenerAdminMsg msg = new MQeListenerAdminMsg( "MQBridgeV100",
                                                   "lizzieQM",
                                                   "svrconn",
                                                   "MQE.XMITQ",
                                                   true);
```

Methods

Method	Purpose
characteristics	Creates an MQeFields object containing all the fields required for an administration message of this type.
getListenerName	Gets the listener name from the administered object.
getName	Gets the name of the administered object to be created.
putListenerName	Puts the listener name in a field in the MQeFields administration message object.
setName	Puts the name information in a field in the MQeFields administration message object and also sets the name of the MQSeries Everyplace queue manager that is associated with this MQSeries-bridge.

MQeListenerAdminMsg characteristics

Syntax

```
public MQeFields characteristics() throws Exception
```

Description

Creates an MQeFields object containing all the fields required for an administration message of this type.

Returns an MQeFields object containing the characteristics of the resource. The complete set of field names and types for the resource can be determined from the resulting fields object.

Overrides **characteristics()** in class MQeClientConnectionAdminMsg.

Parameters

none

Return values

An MQeFields object containing the characteristics of the resource.

Exceptions

java.lang.Exception If the MQeFields object cannot be created

Example

```
MQeListenerAdminMsg msg = new MQeListenerAdminMsg( "MQBridgeV100",
                                                   "lizzieQM",
                                                   "svrconn",
                                                   "MQE.XMITQ",
                                                   true );
MQeFields characteristics = msg.characteristics();
```

MQeListenerAdminMsg getListenerName

Syntax

```
public String getListenerName() throws Exception
```

Description

Gets the listener name from the administered object.

Can be issued only against an MQeListenerAdminMsg object.

Parameters

none

Return values

The name of the listener.

Exceptions

java.lang.Exception

If the name has not been set in this administration message, or if the name that has been set is invalid

Example

```
MQeListenerAdminMsg msg = new MQeListenerAdminMsg( "MQBridgeV100",
                                                   "lizzieQM",
                                                   "svrconn",
                                                   "MQE.XMITQ",
                                                   true);
String listenerName = msg.getListenerName();
```

MQeListenerAdminMsg getName

Syntax

```
public String getName()
```

Description

Gets the name of the client connection that is to be administered.

When issued against an object of this class it is identical to **getListenerName()**.

Overrides **getName()** in class MQeClientConnectionAdminMsg.

Parameters

none

Return values

A String containing the name of the administered object to be created, or `null` if the name is not set.

Exceptions

none

Example

```
MQeListenerAdminMsg msg = new MQeListenerAdminMsg( "MQBridgeV100",
                                                   "lizzieQM",
                                                   "svrconn",
                                                   "MQE.XMITQ",
                                                   true);
String listenerName = msg.getName();
```

MQeListenerAdminMsg putListenerName

Syntax

```
public void putListenerName(String listener) throws Exception
```

Description

Used to add the MQSeries queue manager name to the administration message. Puts the listener name in an field in the MQeFields administration message object.

This method is used by the source of the administration message.

Parameters

listener A string containing the name of the listener. This matches the name of the transmission queue on MQSeries to which the listener ″listens″, for messages to be ready to move to the MQSeries Everyplace network.

Return values
none

Exceptions

java.lang.Exception If there are any invalid characters in the name parameters.

Example

```
MQeListenerAdminMsg msg = new MQeListenerAdminMsg();
msg.putListenerName("MQE.XMITQ");
```

MQeListenerAdminMsg setName

Syntax

```
public void setName(String bridge,
                    String mqQMgrProxy,
                    String clientConnection
                    String listener) throws Exception
```

Description

Puts the name information in a field in the MQeFields administration message object and also sets the name of the MQSeries Everyplace queue manager that is associated with this MQSeries-bridge.

This method is used by the source of the administration message.

Parameters

bridge A String containing the name of the MQSeries-bridge to which the administration message is directed. If set to `null`, or ″″, it is not set.

MQQMgrProxy
A String containing the name of the MQSeries queue manager that owns the transmission queue the listener is set up to read from. If set to `null`, or ″″, it is not set.

clientConnection
A String containing the name of the client connection used to talk to the MQSeries queue manager. If set to `null`, or ″″, it is not set.

listener A string containing the name of the listener. This matches the name of the transmission queue on MQSeries to which the listener ″listens″, for messages to be ready to move to the MQSeries Everyplace network.

Return values
none

Exceptions

java.lang.Exception
If there are any invalid characters in the name parameters.

Example

```
MQeListenerAdminMsg msg = new MQeListenerAdminMsg();
msg.setName("MQBridgeV100", "lizzieQM", "svrconn", "MQE.XMITQ");
```

MQeMQBridgeAdminMsg

This is a special type of MQSeries Everyplace message that is used to encapsulate an administration command. The message is created by the application that is doing the administration.

The logic performed on the target MQSeries Everyplace system is also in this class.

The administration queue invokes the **performAction()** method.

Package **com.ibm.mqe.mqbridge**

This class extends MQeMQBridgesAdminMsg

Constants and variables

MQeQueueAdminMsg provides the following constants and variables in addition to those provided by MQeMQBridgesAdminMsg:

DEFAULT_MQBRIDGE_NAME

```
public static final String DEFAULT_MQBRIDGE_NAME
```

Constructors

MQeMQBridgeAdminMsg

Syntax

1. `public MQeMQBridgeAdminMsg() throws Exception`
2. `public MQeMQBridgeAdminMsg(String bridgeName,`
   `boolean affectChildren) throws Exception`

Description

There are two constructors.

1. This version creates and initializes a default MQeBridgeAdminMsg
2. This version includes the name of the MQSeries-bridge and a flag to determine whether children should be affected by the administration commands

Parameters

bridge A String containing the name of the MQSeries-bridge to which the administration message is directed. If set to `null`, or `""`, it is not set.

affectChildren A boolean flag indicating whether or not this administration message affects the children of the listener.

Return Values

none

Exceptions

java.lang.Exception If any of the parameters contain invalid characters

Example

1. `MQeMQBridgeAdminMsg msg = new MQeMQBridgeAdminMsg();`
2. `public MQeMQBridgeAdminMsg(java.lang.String bridge,`
   `boolean affectChildren) Exception`

Methods

Method	Purpose
characteristics	Creates an MQeFields object containing all the fields required for an administration message of this type.
create	Causes this administration message to be a ″create″ message.
delete	Causes this administration message to be a ″delete″ message.
getBridgeName	Gets the MQSeries-bridge name from the administered object.
getName	Gets the name of the administered object to be created.
putBridgeName	Puts the MQSeries-bridge connection name in a field in the MQeFields administration message object.
setName	Puts the name information in a field in the MQeFields administration message object and also sets the name of the MQSeries Everyplace queue manager that is associated with this MQSeries-bridge.

MQeMQBridgeAdminMsg characteristics

Syntax

```
public MQeFields characteristics() throws Exception
```

Description

Creates an MQeFields object containing all the fields required for an administration message of this type.

Returns a fields object containing the characteristics of the resource. The complete set of field names and types for the resource can be determined from the resulting fields object.

Overrides **characteristics()** in class MQeBridgesAdminMsg .

Parameters

none

Return values

An MQeFields object containing the characteristics of the resource.

Exceptions

java.lang.Exception If the MQeFields object cannot be created.

Example

```
MQeMQBridgeAdminMsg msg = new MQeMQBridgeAdminMsg("MQBridgeV100", true);
MQeFields bridgeCharacteristics = msg.characteristics();
```

MQeMQBridgeAdminMsg create

Syntax

```
public void create(MQeFields parms) throws Exception
```

Description

Used by the source of the administration message.

Causes this administration message to be a ″create″ message. When the target MQSeries Everyplace system processes this message, it creates an MQSeries queue manager entry.

Overrides **create()** in class MQeAdminMsg.

Parameters

parms	Any extra parameters you want to add to the message, or `null`.

Return values

none

Exceptions

java.lang.Exception	If the MQeFields object cannot be created

.

Example

```
// Form a message that will create a new MQBridge.
MQeMQBridgeAdminMsg msg = new MQeMQBridgeAdminMsg();
msg.create( new MQeFields() );
```

MQeMQBridgeAdminMsg getBridgeName

Syntax

```
public String getBridgeName() throws Exception
```

Description

Gets the MQSeries-bridge name from the administered object.

Can be issued against an MQeMQBridgeAdminMsg or one of its descendants.

Parameters

none

Return values

The name of the MQSeries-bridge.

Exceptions

java.lang.Exception	If the name has not been set in this administration message, or if the name that has been set is invalid

Example

```
MQeMQBridgeAdminMsg msg = new MQeMQBridgeAdminMsg("MQBridgeV100", true);
String bridgeName = msg.getBridgeName();
```

MQeMQBridgeAdminMsg getName

Syntax

```
public String getName()
```

Description

Gets the name of the MQSeries-bridge that is to be administered. When issued against an object of this class it is identical to **getBridgeName()**.

Overrides **getName()** in class MQeBridgesAdminMsg.

Parameters

none

Return values

A String containing the name of the administered object to be created, or `null` if the name is not set.

Exceptions

none

Example

```
MQeMQBridgeAdminMsg msg = new MQeMQBridgeAdminMsg("MQBridgeV100", true);
String bridgeName = msg.getName();
```

MQeMQBridgeAdminMsg delete

Syntax

1. `public void delete(MQeFields parms,`
   `boolean affectChildren) throws Exception`
2. `public void delete(MQeFields parms) throws Exception`

Description

There are two versions of this method:

1. This version is used by the source of the administration message and it causes this administration message to be a ″delete″ message. When the target MQSeries Everyplace system processes this message, it finds the specified MQeMQBridge object, and deletes it. This operation is inherited by the other MQSeries-bridge object types.
2. This version is equivalent to `delete((MQeFields) parms, false)`. When the target MQSeries Everyplace system processes this message, it finds the specified MQeMQBridge object, and deletes it. This operation is inherited by the other MQSeries-bridge object types.

   Overrides **delete()** in class MQeAdminMsg

Parameters

parms Any extra parameters you want to add to the message, or `null`.

affectChildren A boolean flag indicating whether or not this administration message affects the children of the listener.

Return values

none

Exceptions

java.lang.Exception If the delete fails

Example

1. `// Form a message that will delete an MQBridge and its children.`
   `MQeMQBridgeAdminMsg msg = new MQeMQBridgeAdminMsg();`
   `msg.delete( new MQeFields(), true );`
2. `// Form a message that will delete an MQBridge.`
   `MQeMQBridgeAdminMsg msg = new MQeMQBridgeAdminMsg();`
   `msg.delete( new MQeFields() );`

MQeMQBridgeAdminMsg putBridgeName

Syntax

```
public void putBridgeName(String bridge) throws Exception
```

Description

Used by the source of the administration message to add the MQSeries queue manager name to the administration message.

Puts the MQSeries-bridge name in a field in the MQeFields administration message object.

Parameters

bridge A String containing the name of the MQSeries-bridge to which the administration message is directed. If set to `null`, or `""`, it is not set.

Return values
none

Exceptions

java.lang.Exception If there are any invalid characters in the name parameters

Example

```
MQeMQBridgeAdminMsg msg = new MQeMQBridgeAdminMsg();
msg.putBridgeName("MQBridgeV100");
```

MQeMQBridgeAdminMsg setName

Syntax

```
public void setName(String bridge) throws Exception
```

Description

Used by the source of the administration message to add the MQSeries-bridge name to the administration message.

Puts the name information in a field in the MQeFields administration message object and also sets the name of the MQSeries Everyplace queue manager that is associated with this MQSeries-bridge.

Overrides **setName()** in class MQeAdminMsg

Parameters

bridge A String containing the name of the MQSeries-bridge to which the administration message is directed. If set to `null`, or `""`, it is not set.

Return values
none

Exceptions

java.lang.Exception If there are any invalid characters in the name parameters

Example

```
MQeMQBridgeAdminMsg msg = new MQeMQBridgeAdminMsg();
msg.setName("MQBridgeV100");
```

MQeMQBridgeQueue

This queue is used as the interface to the MQSeries-bridge and is passed into the user-written ″transformer″ code.

The transformer is responsible for conversion from MQSeries Everyplace to MQSeries message formats, and vice-versa, but a reference to the MQeMQBridgeQueue class is passed to the transformer code only when the message is moving from MQSeries Everyplace to MQSeries.

The class holds details that the user-written transformer class implementation may wish to use when performing a transform operation on the message data.

Package **com.ibm.mqe.mqbridge**

This class extends MQeRemoteQueue

Method summary

Method	Purpose
getMQQMgr	Gets the name of the MQSeries queue manager that the MQSeries-bridge queue is using.
getQueueAttribute	Gets the attribute attached to the MQSeries-bridge queue.
getQueueManagerName	Gets the owning queue manager name.
getQueueName	Gets the name of the MQSeries-bridge queue.
getRemoteQName	Gets the name of the MQSeries queue that the MQSeries-bridge queue refers to.

MQeMQBridgeQueue getMQQMgr

Syntax

```
public String getMQQMgr() throws Exception
```

Description

Gets the name of the MQSeries queue manager that the MQSeries-bridge queue is using

Parameters

none

Return Values

A String containing the name of the MQSeries queue manager that the MQSeries-bridge queue is using.

If the administrator specified ″″ or a `null` in the MQSeries-bridge queue parameter, the value returned by this string matches that returned by the **getQueueManagerName()** method.

Exceptions

java.lang.Exception	If the name get fails, or if the name is invalid.

Example

```
String mqQMgrName = transformersBridgeQueue.getMQQMgr();
```

MQeMQBridgeQueue getQueueAttribute

Syntax

```
public MQeAttribute getQueueAttribute() throws Exception
```

Description

Gets the attribute attached to the MQSeries-bridge queue.

Overrides **getQueueAttribute()** in class MQeQueue

Parameters

none

Return values

An MQeAttribute object containing the attribute the MQSeries-bridge queue is configured with.

Exceptions

java.lang.Exception	If the get fails

Example

```
MQeAttribute attribute = transformersBridgeQueue.getQueueAttribute();
```

MQeMQBridgeQueue getQueueManagerName

Syntax

```
public String getQueueManagerName() throws Exception
```

Description

Gets the name of the owning MQSeries queue manager.

Overrides **getQueueManagerName()** in class MQeQueue.

Parameters

none

Return values

A String containing the name of the owning queue manager.

Exceptions

java.lang.Exception	If the get fails or the name is invalid

Example

```
String qMgrName = transformersBridgeQueue.getQueueManagerName();
```

MQeMQBridgeQueue getQueueName

Syntax

```
public String getQueueName() throws Exception
```

Description

Gets the name of the MQSeries-bridge queue as it is known on MQSeries Everyplace.

Overrides **getQueueName()** in class MQeQueue.

Parameters

none

Return values

A string containing the name of the MQSeries-bridge queue.

Exceptions

java.lang.Exception If the get fails or the name is invalid

Example

```
String mqQName = transformersBridgeQueue.getQueueName();
```

MQeMQBridgeQueue getRemoteQName

Syntax

```
public String getRemoteQName() throws Exception
```

Description

Gets the name of the MQSeries queue that the MQSeries-bridge queue refers to.

Parameters

none

Return values

A String containing the string contents of the remote queue name configuration information that was specified when the queue was configured by the administrator.

If the remote queue name is blank or `null`, then the value returned is the queue name of the MQSeries-bridge queue itself.

Exceptions

java.lang.Exception If the get fails or the name is invalid

Example

```
String remoteQName = transformersBridgeQueue.getRemoteQName();
```

MQeMQBridgeQueueAdminMsg

Used to administer an MQBridge queue.

Package **com.ibm.mqe.mqbridge**

This class extends MQeRemoteQueueAdminMsg

Constants and variables

MQeQueueAdminMsg provides the following constants and variables :

Queue_BridgeName
Constant used when dumping this queue's details to the registry. This field holds the name of the MQSeries-bridge.

```
public static final String Queue_BridgeName
```

Queue_ClientConnection
Constant used when dumping this queue's details to the registry. This field holds the name of the client connection.

```
public static final String Queue_ClientConnection
```

Queue_MaxIdleTime
The name of the *MaxIdleTime* configuration parameter field that indicates how long an MQSeries-bridge queue is allowed to keep an idle connection before the connection is returned to the connection pool.

```
public static final String Queue_MaxIdleTime[]
```

Queue_MQQMgr
Constant used when dumping this queue's details to the registry. This field holds the name of the MQSeries queue manager.

```
public static final String Queue_MQQMgr
```

Queue_RemoteQName
Constant used when dumping this queue's details to the registry. This field holds the remote queue name.

```
public static final String Queue_MQQMgr
```

Queue_Transformer
The name of the transformer to use when converting an MQSeries Everyplace message into an MQSeries message.

```
public static final String Queue_Transformer
```

Queue characteristics

Name
The name of the queue.

For an MQSeries-bridge queue it is the name by which the MQSeries queue is known on the MQSeries Everyplace system. (Ascii)

This characteristic is mandatory.

MQeField label: *MQeMQBridgeQueueAdminMsg.Admin_Name*

QMgrName
As described in the MQeQueueAdminMsg class.

For an MQSeries-bridge queue, this should hold the name of the local MQSeries queue manager on which the queue is located, not necessarily the queue manager to which the MQSeries-bridge has a direct connection.

MQeField label: *MQeMQBridgeQueueAdminMsg.Queue_QMgrName*

Active

CreationDate

As described in the MQeQueueAdminMsg class.

MQeField label: *MQeMQBridgeQueueAdminMsg.Queue_CreationDate*

Description

As described in the MQeQueueAdminMsg class.

MQeField label: *MQeMQBridgeQueueAdminMsg.Queue_Description*

Expiry

As described in the MQeQueueAdminMsg class.

The Message expiry time.

This value is available to the transformer of the message, so the transformer can use it to set the message expiry time of the MQSeries message that is sent to the MQSeries system.

A value of less than 1 means ″never expire″.

The transformer (being user customized) may choose not to use this information.

The MQSeries Everyplace message may itself contain an expiry time which overrides this value also.

MQeField label: *MQeMQBridgeQueueAdminMsg.Queue_Expiry*

MaxMsgSize

As described in the MQeQueueAdminMsg class.

The Maximum message length is an optional field. It is NOT used by the base MQSeries-bridge code at all, but is available to the rules class to decide whether the message should be sent to the MQSeries queue or not.

Checking is not performed to make sure this value is the same as that specified by the MQSeries queue this MQSeries-bridge queue refers to. For example, the rule may use this value to prevent messages over a certain length being sent to MQSeries, even though the MQSeries queue could accept bigger messages.

MQeField label: *MQeMQBridgeQueueAdminMsg.Queue_MaxMsgSize*

Mode Type

As described in the MQeQueueAdminMsg class.

MQeField label: *MQeMQBridgeQueueAdminMsg.Queue_Mode*

Note: The Cryptor, Authenticator and compressor characteristics (below) define a set of queue attributes that dictate the level of security for any message being passed to this queue. From the point in MQSeries Everyplace where the message is sent initially, to the point where the message is passed to the MQSeries-bridge queue, the message is protected with at least the specified level of security, enforced by MQSeries Everyplace. These values are not applicable when the MQSeries-bridge queue passes the message to the MQSeries system. The security, send and receive exits specified on the client connection configuration object on the MQSeries-bridge are used to protect the message as it passes to MQSeries. There is no checking that the link between the MQSeries-bridge queue and the

MQSeries system is at least as secure as the security attributes specified in the cryptor, authenticator and compressor classes here.

AttrRule
As described in the MQeQueueAdminMsg class.

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_AttrRule

Authenticator
As described in the MQeQueueAdminMsg class.

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_Authenticator

Compressor
As described in the MQeQueueAdminMsg class.

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_Compressor

Cryptor
As described in the MQeQueueAdminMsg class.

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_Cryptor

TargetRegistry
As described in the MQeQueueAdminMsg class.

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_TargetRegistry

Rule As described in the MQeQueueAdminMsg class.

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_Rule

Bridge Name
The name of the MQSeries-bridge that should be used to convey MQSeries Everyplace messages onto the MQSeries network. (Ascii)

This field is mandatory.

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_BridgeName

MQSeries Queue Manager Proxy
The name of the MQSeries queue manager proxy in the MQSeries-bridge that is used to convey MQSeries Everyplace messages onto the MQSeries network.

This field is mandatory.

(This is the same as the name of the MQSeries queue manager to which the message is initially sent using a client connection).

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_ClientConnection

MQSeries Remote Q name
The remote MQSeries queue name is optional.

It indicates the name of the queue to which messages are put on the MQSeries queue manager.

If set to blank or *null*, it indicates that the queue name on the MQSeries queue manager (at the other end of the specified client connection) has the same name as this MQSeries-bridge queue definition (so the value is derived from the ″Name″ field above).

This parameter provides a form of name change to allow two similarly-named queues on two MQSeries queue managers, to have different MQSeries-bridge queue names on the MQSeries Everyplace system.

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_RemoteQName

Transformer class

The Transformer class is the name of the java class used to convert an MQSeries Everyplace message into an MQSeries message, before the MQSeries message is put onto the MQSeries network.

If this parameter is left blank, or is *null*, then the default transformer class for the specified MQSeries-bridge is used.

This paramerer is optional.

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_Transformer

Return idle connection timeout

The ″idle time″ parameter indicates the maximum number of minutes that the queue can hold an idle MQSeries connection, before it has to be released back to an idle connection pool maintained by the MQSeries-bridge.

If the queue is unused for a while, the underlying MQSeries connection is released back to a pool where another queue could pick it up, and use it. When the original idle queue has any message activity, it can go to the pool for another (possibly different) connection, to use.

The fact that the MQSeries connections logically underpinning an MQSeries-bridge queue may be freed, and re-allocated, is transparent to users of the queue, except that a small time penalty is incurred releasing and getting an idle connection to/from the connection pool.

The idle time is in units of 1 minute.

The timer parameter is directly dependent on the granularity of the MQSeries-bridge heartbeat parameter.

See MQSeries-bridge object configuration parameters in the *MQSeries Everyplace for Multiplatforms Programming Guide*.

In the extreme case, specifying an idle time of 0 means ″always free a connection to the pool once you have used it″. Although this allows a very small number of MQSeries client connection channels to be effectively ″shared″ between a large number of MQSeries-bridge queues (provided they all use the same MQSeries-bridge/MQProxy/ClientConnection details) it is at the cost of the release-to-pool and aquire-from-pool operations for each message.

A default of 5 minutes is recommended.

MQeField label: MQeMQBridgeQueueAdminMsg.Queue_MaxIdleTime

Constructors

MQeMQBridgeQueueAdminMsg

Syntax

```
1. public MQeMQBridgeQueueAdminMsg() throws Exception
2. public MQeMQBridgeQueueAdminMsg(String bridge,
                                   String mqQMgrProxy,
                                   String clientConnection
                                   int maxIdleTimeout) throws Exception
```

Description

There are two constructors:

MQeMQBridgeQueueAdminMsg

1. This version creates and initializes a default administration message to administer the MQSeries-bridge queue
2. This version includes initial values for the name of the MQSeries-bridge, the name of the proxy, and the name of the client connection

Parameters

bridge A String containing the name of the MQSeries-bridge to which the administration message is directed. If set to null, or "", it is not set.

MQQMgrProxy
A String containing the name of the MQSeries queue manager that owns the transmission queue the MQSeries-bridge queue is set up to read from. If set to *null* or "", it is not set.

clientConnection
A String containing the name of the client connection used to talk to the MQSeries queue manager. If set to *null* or "", it is not set.

maxIdleTimeout
The number of minutes the queue is allowed to keep hold of a connection to the MQSeries system without using it. When the queue has been unused for this duration, the connection is returned to the connection pool. If 0, the connection is returned to the connection pool immediately after use.

Return Values
none

Exceptions

java.lang.Exception If the message cannot be created

Example

1.
```
MQeMQBridgeQueueAdminMsg msg;
msg = new MQeMQBridgeQueueAdminMsg( );
```
2.
```
MQeMQBridgeQueueAdminMsg msg;
msg = new MQeMQBridgeQueueAdminMsg( "MQBridgeV100",
                                    "lizzieQM",
                                    "svrconn",
                                    5 );
```

Methods

Method	Purpose
characteristics	Create a fields object containing the valid characteristics of a queue.

MQeMQBridgeQueueAdminMsg characteristics

Syntax

```
public MQeFields characteristics() throws Exception
```

Description
Creates a fields object containing the valid characteristics of a queue. The

MQeFields object contains the valid field names, it does not contain the value of each characteristic. It can be used to determine the name and type of all valid characteristics.

Overrides **characteristics()** in class MQeRemoteQueueAdminMsg .

Parameters

none

Return values

An MQeFields object containing the characteristics of the queue.

Exceptions

java.lang.Exception	If the MQeFields object cannot be created

Example

```
MQeMQBridgeQueueAdminMsg msg;
msg = new MQeMQBridgeQueueAdminMsg( "MQBridgeV100",
                                    "lizzieQM",
                                    "svrconn",
                                    5 );
MQeFields adminMsgChars = msg.characteristics();
```

MQeMQBridges

The MQeMQBridges class acts as a ″loader″ for all the MQSeries-bridges. It is the class that is specified as the MQeMQBridge class alias in the `ini` file and causes an instance of this class to be loaded dynamically by the MQSeries Everyplace server.

The aim of the MQeMQBridges class is to load MQSeries-bridge objects from the registry into memory and to maintain a list of MQSeries-bridges that are available within the JVM. There is only ever one MQeMQBridges object in a single JVM.

The server code calls the **activate()** method just after the **constructor()** and calls the **close()** method when the MQSeries-bridges should all be cleanly shut down. Between starting the MQeMQBridges object and shutting it down, the server must retain a reference to the MQeMQBridges object to stop it from being garbage-collected.

Package **com.ibm.mqe.mqbridge**

This class extends **MQeAdminMsg**

Constructor summary

MQeMQBridges

Syntax

```
Syntax: public MQeMQBridges() throws Exception
```

Description

Simple constructor.

The gateway should load this class using the MQSeries Everyplace class loader, and so the constructor is not called directly. The server should then call the **activate()** method passing in any configuration parameters.

Parameters

none

Return Values

none

Exceptions

java.lang.Exception

Example

```
MQeMQBridges mqBridges = (MQeMQBridges) MQe.loader.loadObject( "MQBridge" );
```

Method summary

Method	Purpose
activate	Called by the gateway just after the constructor to activate the MQeMQBridges object
close	Closes the MQeMQBridges object

MQeMQBridges activate

Syntax

```
public void activate(com.ibm.mqe.MQeFields config) throws Exception
```

Description

Called by the MQSeries Everyplace server just after the null constructor. Used to pass configuration to the MQeMQBridges object, so that it can load any MQSeries-bridges specified in the configuration

Parameters

config An MQeFields object that contains the complete contents of the `ini` file with which the MQSeries Everyplace server was initialized.

```
Fields=Aliases
    ...
    (ascii)MQBridge=com.ibm.mqe.mqbridge.MQeMQBridges
Fields=ChannelManager
  ...
Fields=Listener
    ...
Fields=QueueManager
    ...
Fields=MQBridge
(ascii)LoadBridgeRule=RuleClass
```

Return values

none

Exceptions

java.lang.Exception Fails if the underlying server could not activate the MQeMQBridges object, or the configuration parameters supplied were invalid.

Example

```
mqBridges.activate( myConfigFields );
```

MQeMQBridges close

Syntax

```
public void close() throws Exception
```

Description

Closes the MQeMQBridges object as cleanly as possible.

Parameters

none

Return values

none

Exceptions

java.lang.Exception If the objects could not be shut down cleanly.

Example

```
mqBridges.close( );
```

MQeMQBridgesAdminMsg

Used to encapsulate an administration command that acts on the MQeMQBridges object.

This message is created by the application doing the administration.

The logic performed on the target MQSeries Everyplace system is also in this class.

The administration queue invokes the `performAction` method.

Package **com.ibm.mqe.mqbridge**

This class extends MQeAdminMsg

Constants and variables

MQeQueueAdminMsg provides the following constants and variables in addition to those provided by MQeAdminMsg :

Action_Start
Operation code for starting an administered object

```
public static final int Action_Start
```

Action_Stop
Operation code for stopping an administered object.

```
public static final int Action_Stop
```

Constructors

MQeMQBridgesAdminMsg

Syntax

1. `public MQeMQBridgesAdminMsg() throws Exception`
2. `public MQeMQBridgesAdminMsg(boolean affectChildren) throws Exception`

Description
There are two constructors:

1. This version creates and initializes a default MQeMQBridgesAdminMsg
2. This version includes a flag to determine whether children should be affected by the administration commands

Parameters

affectChildren A boolean flag indicating whether or not this administration message affects the children of the MQeMQBridges object.

true means it is allowed to affect the children, **false** indicates that the children should not be affected.

Some commands ALWAYS affect the children (Stop for example).

This flag is sometimes transferred into the MQeEvent that is sent to the bridges administered object.

Return Values
none

Exceptions

java.lang.Exception	If the field holding the `affectChildren` flag cannot be created.

Example

```
MQeMQBridgesAdminMsg msg = new MQeMQBridgesAdminMsg(true);
```

Related functions

MQeEvent

Methods

Method	Purpose
characteristics	Creates an MQeFields object containing all the fields required for an administration message of this type.
getName	Gets the name of the administered object to be created.
start	Tells the administered object to start.
stop	Tells the administered object to stop

MQeMQBridgesAdminMsg characteristics

Syntax

```
public MQeFields characteristics() throws Exception
```

Description

Creates an MQeFields object containing all the fields required for an administration message of this type.

Overrides **characteristics()** in class MQeBridgesAdminMsg .

Parameters

none

Return values

An MQeFields object containing the characteristics of the resource.

Exceptions

java.lang.Exception	If the MQeFields object cannot be created

Example

```
MQeMQBridgesAdminMsg msg = new MQeMQBridgesAdminMsg(true);
MQeFields theseCharacteristics = msg.characteristics();
```

MQeMQBridgesAdminMsg getName

Syntax

```
public String getName()
```

Description

Returns the name of the administered object we want to create.

Overrides **getName()** in class MQeAdminMsg

Parameters

none

Return values

null if the name was not set, otherwise a string.

Exceptions

none

Example

```
MQeMQBridgesAdminMsg msg = new MQeMQBridgesAdminMsg(true);
String name = msg.getName();
```

MQeMQBridgesAdminMsg start

Syntax

1. `public void start() throws Exception`
2. `public void start(boolean affectChildren) throws Exception`
3. `public void start(MQeFields fields) throws Exception`

Description

There are three versions:

1. This version is used by the source of the administration message and tells the administered object to start. It also tells all its child objects to start.
2. This version is used by the source of the administration message and tells the administered object to start. It also tells all it's child objects to start depending on the value of a parameter.
3. This version tells the administered object to start and also tells all its child objects to start or not, depending on the value of the *affectChildren* field.

   Other MQSeries-bridge related parameters can also be passed in the MQeFields object.

Parameters

affectChildren A boolean that indicates whether the command operation set in this administration message is allowed to affect the children of the MQeMQBridges object.

true means it is allowed to affect the children, **false** indicates that the children should not be affected.

Some commands ALWAYS affect the children (stop for example).

This flag is sometimes transferred into the **MQeEvent** that is sent to the MQeMQBridges administered object.

fields An MQeFields object that contains a set of fields that can contain the MQSeries-bridge name, the *affectChildren* flag, and other MQSeries-bridge related parameters.

These fields are blindly copied into this administration message ready for transmission. No validation is performed on these field parameters.

If the *affectChildren* flag is present , it overrides the default value of **true**.

Return values

none

Exceptions

java.lang.Exception If the start action or the **affectChildren**

flag, or any of the passed fields cannot be set into this administration message

Example

1. ```
   MQeMQBridgesAdminMsg msg = new MQeMQBridgesAdminMsg();
   msg.start();
   ```
2. ```
   MQeMQBridgesAdminMsg msg = new MQeMQBridgesAdminMsg();
   msg.start(true);
   ```
3. ```
   MQeMQBridgesAdminMsg msg = new MQeMQBridgesAdminMsg();
   MQeFields fields = new MQeFields();
   fields.putBoolean( MQeCharacteristicLabels.MQE_FIELD_LABEL_AFFECT_CHILDREN,
                      true );
   msg.start(fields);
   ```

MQeMQBridgesAdminMsg stop

Syntax

1. ```
   public void stop() throws Exception
   ```
2. ```
   public void stop(MQeFields fields) throws Exception
   ```

Description

There are two versions:

1. This version is used by the source of the administration message and tells the administered object to stop. It also tells all its child objects to stop.
2. This version tells the administered object to stop and also tells all its child objects to stop.

   This version accepts a set of fields that can contain the fields that identify which MQeAdminMsg should be stopped.

Parameters

fields	An MQeFields object. These fields are copied into the administration message fields, overriding any current field values.

Return values

none

Exceptions

java.lang.Exception	If the action cannot be set into this administration message

Example

1. ```
   MQeMQBridgesAdminMsg msg = new MQeMQBridgesAdminMsg();
   msg.start();
   ```
2. ```
   MQeMQBridgesAdminMsg msg = new MQeMQBridgesAdminMsg();
   MQeFields fields = new MQeFields();
   fields.putBoolean( MQeCharacteristicLabels.MQE_FIELD_LABEL_AFFECT_CHILDREN,
                      true );
   msg.start(fields);
   ```
   ```

MQeMQQMgrProxyAdminMsg

This message is created by the application doing the administration and is used to encapsulate an administration command that acts on the MQeMQQMgrProxy object.

The logic performed on the target MQSeries Everyplace system is also in this class.

The administration queue invokes the `performAction` method.

Package **com.ibm.mqe.mqbridge**

This class extends MQeMQBridgeAdminMsg

Constructors

MQeMQQMgrProxyAdminMsg

Syntax

1. `public MQeMQQMgrProxyAdminMsg() throws Exception`
2. `public MQeMQQMgrProxyAdminMsg(String bridge,`
   `String MQQMgrProxy,`
   `boolean affectChildren) throws Exception`

Description

There are two constructors:

1. This version creates and initializes a default MQeMQQMgrProxyAdminMsg
2. This version includes the MQSeries Everyplace queue manager name, the name of the MQSeries-bridge, and the name of the proxy

Parameters

bridge A String containing the name of the MQSeries-bridge to which the administration message is directed. If set to *null*, or `""`, it is not set.

MQQMgrProxy
A String containing the name of the proxy to which the administration message is directed. If set to *null*, or `""`, it is not set.

affectChildren A boolean flag indicating whether or not this administration message affects the children of the MQeMQBridges object.

true means it is allowed to affect the children, **false** indicates that the children should not be affected.

Return Values

none

Exceptions

java.lang.Exception If any fields could not be set or if the MQSeries queue manager name is invalid.

Example

1. `MQeMQQMgrProxyAdminMsg msg = new MQeMQQMgrProxyAdminMsg();`
2. `MQeMQQMgrProxyAdminMsg msg;`
   `msg = new MQeMQQMgrProxyAdminMsg("MQBridgeV100", "lizzieQM");`

Methods

Method	Purpose
characteristics	Creates an MQSeries Everyplace fields object containing all the fields required for an administration message of this type.
getMQQMgrProxyName	Gets the MQSeries queue manager proxy name from the administered object.
getName	Gets the name of the administered object to be created.
putMQQMgrProxyName	Puts the MQSeries queue manager proxy name in a field in the MQeFields administration message object
setName	Puts the name information in a field in the MQeFields administration message object

MQeMQQMgrProxyAdminMsg characteristics

Syntax

```
public MQeFields characteristics() throws Exception
```

Description

Creates an MQeFields object containing all the fields required for an administration message of this type.

Returns a fields object containing the characteristics of the resource. The complete set of field names and types for the resource can be determined from the resulting fields object.

Overrides **characteristics()** in class MQeBridgeAdminMsg .

Parameters

none

Return values

An MQeFields object containing the characteristics of the resource.

Exceptions

java.lang.Exception If the MQeFields object cannot be created

Example

```
MQeMQQMgrProxyAdminMsg msg;
msg = new MQeMQQMgrProxyAdminMsg("MQBridgeV100", "lizzieQM");
MQeFields proxyChars = msg.characteristics();
```

MQeMQQMgrProxyAdminMsg getMQQMgrProxyName

Syntax

```
public String getMQQMgrProxyName() throws Exception
```

Description

Gets the MQSeries queue manager proxy name from the administration object.

This method also checks the field for validity. It can be issued against an MQeMQQMgrProxyAdminMsg or one of its descendants.

Parameters

none

Return values

none

Exceptions

java.lang.Exception	If the get fails

Example

```
MQeMQQMgrProxyAdminMsg msg;
msg = new MQeMQQMgrProxyAdminMsg("MQBridgeV100", "lizzieQM");
String proxyName = msg.getMQQMgrProxyName();
```

MQeMQQMgrProxyAdminMsg getName

Syntax

```
public String getName()
```

Description

Returns the name of the current administration object. When issued against an object of this class it is identical to `getMQQMgrProxyName()`.

Overrides **getName()** in class MQeMQBridgeAdminMsg

Parameters

none

Return values

null if the name was not set, a string otherwise.

Exceptions

none

Example

```
MQeMQQMgrProxyAdminMsg msg;
msg = new MQeMQQMgrProxyAdminMsg("MQBridgeV100", "lizzieQM");
String proxyName = msg.getMName();
```

MQeMQQMgrProxyAdminMsg putMQQMgrProxyName

Syntax

```
public void putMQQMgrProxyName(String mqQMgrProxy) throws Exception
```

Description

Puts the MQSeries queue manager proxy name in a field in the MQeFields administration message object.

Parameters

mqQMgrProxy

A String containing the name of the proxy to which the administration message is directed. If set to *null*, or *""*, it is not set.

Return values

none

Exceptions

java.lang.Exception	If any fields could not be set or if the MQSeries queue manager name isinvalid

Example

```
MQeMQQMgrProxyAdminMsg msg = new MQeMQQMgrProxyAdminMsg();
msg.putMQQMgrProxyName("lizzieQM");
```

MQeMQQMgrProxyAdminMsg setName

Syntax

```
public void setName(String bridge,
                    String mqQMgrProxy) throws Exception
```

Description

Puts the MQSeries-bridge name and proxy name into the administration message object.

Parameters

bridge A String containing the name of the MQSeries-bridge to which the administration message is directed. If set to *null*, or *""*, it is not set.

mqQMgrProxy
A String containing the name of the proxy to which the administration message is directed. If set to *null*, or *""*, it is not set.

Return values
none

Exceptions

java.lang.Exception If any fields could not be set or if the MQSeries queue manager name is invalid.

Example

```
MQeMQQMgrProxyAdminMsg msg = new MQeMQQMgrProxyAdminMsg();
msg.setName("MQBridgeV100", "lizzieQM");
```

MQeRunState

A class that holds the ″run state″ of an administered object, for example whether it’s running, stopped, quiescing, or starting.

Package **com.ibm.mqe.mqbridge**

This class extends **MQeBridgeServices**

Constants and variables

MQeQueueAdminMsg provides the following constants and variables in addition to those supplied by MQeBridgeServices :

RUN_STATE_RUNNING

Administered objects have this state when they are active.

```
public static final int RUN_STATE_RUNNING
```

RUN_STATE_STOPPED

Administered objects have this state when they are inactive.

```
public static final int RUN_STATE_STOPPED
```

MQeTransformerInterface

All classes that transform MQSeries messages to MQeMsgObjects, and vice versa, must conform to this interface.

Package **com.ibm.mqe.mqbridge**

Methods

Method	Purpose
activate	Tells the class implementing this interface any parameters that may have been supplied with the transformer definition
transform	Converts the given MQSeries message into an MQeMsgObject and vice versa.

MQeTransformerInterface activate

Syntax

```
public abstract void activate(StringTokenizer params) throws Exception
```

Description

Tells the class implementing this interface any parameters that may have been supplied with the transformer definition

Parameters

params StringTokenizer containing the transformer definition parameters.

Return values

none

Exceptions

java.lang.Exception If the parameters are not correct, valid, or if there is a problem initializing the transformer.

MQeTransformerInterface transform

Syntax

1.
```
public abstract MQeMsgObject transform(MQMessage msg,
                                       String remoteQMgrName,
                                       String remoteQName) throws Exception
```
2.
```
public abstract MQMessage transform(MQeMsgObject msg,
                                    MQeMQBridgeQueue queue,
                                    MQPutMessageOptions pmo) throws Exception
```

Description

There are two versions of this method:

1. This version converts the given MQSeries message into an MQeMessageObject
2. This version converts the given MQeMsgObject into an MQSeries message

Parameters

msg The MQSeries or MQSeries Everyplace message that is to be transformed.

remoteQMgrName
The name of the destination MQSeries Everyplace queue manager (obtained from the remote queue definition on MQSeries).

remoteQName
The name of the destination MQSeries Everyplace queue (obtained from the remote queue definition on MQSeries).

msg The MQSeries Everyplace message that is to be transformed.

queue A reference to the bridge queue that accepted the message

remoteQName
The name of the destination MQSeries Everyplace queue (obtained from the remote queue definition on MQSeries).

pmo A reference to a blank MQPutMessageOptions object that can be modified by the transformer. This parameter enables the user to specify any context options that are needed to put the new MQSeries Everyplace message to MQSeries.

Return values

1. The transformed message in the form of an MQeMsgObject
2. The transformed message in the form of an MQSeries message

Exceptions

java.lang.Exception If any of the parameters are invalid, if the message is in a format that this transformer does not understand, or if there is a problem when the transformation is taking place.

Example

Chapter 9. Classes in com.ibm.mqe.adapters

This section contains detailed information about the following MQSeries Everyplace classes:

Table 19. Classes in com.ibm.mqe.adapters

Class name	Purpose
MQeDiskFieldsAdapter	Provides support for reading and writing MQeFields information to a local disk.
MQeMemoryFieldsAdapter	Provides a non-persistent store for MQeFields information
MQeReducedDiskFieldsAdapter	Provides support for high speed writing of MQeFields information to a local disk.
MQeTcpipAdapter	Provides support for reading and writing data over TCP/IP streams.
MQeTcpipHttpAdapter	Extends the MQeTcpipAdapter to provide basic support for the HTTP 1.0 protocol.
MQeTcpipLengthAdapter	Extends the MQeTcpipAdapter to provide a simple, byte efficient protocol.
MQeTcpipHistoryAdapter	Extends the MQeTcpipLengthAdapter to provide a more efficient protocol that caches recently used data.
MQeUdpipAdapter	Provides support for assured data transfer over UDP/IP datagrams.
MQeWESAuthenticationAdapter	Provides support for tunnelling HTTP requests through Websphere Everyplace authentication proxies and transparent proxies.

MQeDiskFieldsAdapter

The MQeDiskFieldsAdapter is an adapter that provides support for reading and writing MQeFields information to a local disk. A single instance of this class refers to a single file on disk.

Package **com.ibm.mqe.adapter**

This class is a descendant of **MQeAdapter**

Methods

Method	Purpose
accept	Checks the extension of the given string to see if it ends with the currently defined file filter.
activate	Initializes a new MQeDiskFieldsAdapter object.
close	Closes the current MQeDiskFieldsAdapter object.
control	Allows the user to set the file filter or to list the files in the current file's folder.
erase	Removes a file from disk.
open	Opens a file for use.
readObject	Reads an MQeFields object from the current file.
status	Provides information on the currently active settings.
writeObject	Writes an MQeFields object to disk.

MQeDiskFieldsAdapter accept

Syntax

```
public boolean accept( File dir, String name )
```

Description

Checks the extension of the given string to see if it ends with the currently defined file filter.

Parameters

File dir Not used

String name The name of the file to be checked

Return Values

True If the named parameter ends with the current filter String.

Exceptions

None

Example

```
Boolean isText = mydfa.accept(null, ".txt");
```

MQeDiskFieldsAdapter activate

Syntax

```
public void   activate( String  fileDesc,
                        Object  param,
                        Object  options,
                        int     lrecl,
                        int     noRec ) throws Exception
```

Description

This method initializes a new MQeDiskFieldsAdapter object. Sets the Quality of Service (QOS) Size parameter to be the size of the file or MQeFields object.

Parameters

String fileDesc

The directory path to be opened. Only the path to a file should be specified here. If you want to open a file the name of the file is specified on the open. This value is used in a number of subsequent methods as the *File descriptor*.

Object options

A String that specifies the open options:

MQe.MQe_Adapter_READ
Reads the file

MQe.MQe_Adapter_WRITE
Writes the file

MQe.MQe_Adapter_UPDATE
Reads and writes the file

param Not used

lrecl Not used

norec Not used

Return Values

None

Exceptions

MQeException
If the specified directory hierarchy could not be created dynamically.

Example

```
mydfa.activate("./mydir/mysubdir", null, MQe.MQeAdapter_READ, 0, 0);
```

MQeDiskFieldsAdapter close

Syntax

```
public void close( Object opt ) throws Exception
```

Description

Closes the current adapter so that it can no longer be read from or written to.

Parameters

None

Return Values

None

Exceptions

None

Example

```
mydfa.close(null);
```

MQeDiskFieldsAdapter control

Syntax

```
public Object control( Object opt, Object ctrlObj ) throws Exception
```

Description

Allows the user to set the file filter or to list the files in the current directory.

Parameters

Object opt A String containing one of the following values:

MQe_Adapter_FILTER
Sets the filter to the value of the second parameter

MQe_Adapter_LIST
Lists the files

Object ctrlObj
A String that specifies the filter to use (if `MQe_Adapter_FILTER` is specified). Not used for `MQe_Adapter_LIST`

Return Values

null for `MQe_Adapter_FILTER`, or a String[] list of files in the case of `MQe_Adapter_LIST`.

Exceptions

None

Example

```
String[] fileList = (String[]) mydfa.control(MQe.MQe_Adapter_LIST,
                    null);
```

MQeDiskFieldsAdapter erase

Syntax

```
public void erase( Object opt ) throws Exception
```

Description

Erases a file from disk. Does not erase directories.

Parameters

Object opt A String that contains the file name to be deleted. Before the name is passed to the operating system's delete routine, the file name is appended to the current value of the *File descriptor*.

Return Values

None

Exceptions

MQeException
If the delete failed, or if the argument supplied referred to a directory or was not a String.

Example

```
mydfa.erase("myfile.txt");
```

MQeDiskFieldsAdapter open

Syntax

```
public void open( Object opt ) throws Exception
```

Description

Closes any open files and then opens a file for use.

Parameters

Object opt A String that specifies the filename to be opened. This file should exist in the folder specified on the *File Descriptor* value (supplied on the activate call).

Return Values

None

Exceptions

None

Example

```
mydfa.open("myfile.txt");
```

MQeDiskFieldsAdapter readObject

Syntax

```
public synchronized Object readObject( Object opt ) throws Exception {
```

Description

Reads an MQeFields object from the current file.

Parameters

Object opt An MQeFields object that can be used to provide a filter within the directory object. Otherwise *null*.

Return Values

The MQeFields object that was read.

Exceptions

MQeException
If no file matching the filter was found, or if the file is not open for reading.

Example

```
MQeFields myFields = (MQeFields) mydfa.readObject(null);
```

MQeDiskFieldsAdapter status

Syntax

```
public String status( Object  opt  ) throws Exception
```

Description

Provides details of the current settings.

Parameters

Object opt A String containing one of the following values:

MQe.MQe_Adapter_FILTER
Gets the name of the currently active filter

MQe.MQe_Adapter_FILENAME
Gets the name of the currently active file.

Return Values

A String containing either the name of the filter or the name of the file.

Exceptions

None

Example

```
String filename = (String) mydfa.status(MQe.MQe_Adapter_FILENAME);
```

MQeDiskFieldsAdapter writeObject

Syntax

```
public synchronized void writeObject(Object opt, Object data)
                                        throws Exception
```

Description

Writes an MQeFields object to disk.

Parameters

Object opt Not used

Object data An MQeFields object to dump to disk

Return Values

None

Exceptions

MQeException

If an invalid data argument was supplied, or if the file was not opened for writing.

Example

```
mydfa.writeObject(null, myMQeFields);
```

MQeMemoryFieldsAdapter

The MQeMemoryFieldsAdapter is an adapter that provides support for reading and writing MQeFields information to memory. This adapter behaves in a similar fashion to the MQeDiskFieldsAdapter, except that the directory structure is actually an internal hash table.

Package **com.ibm.mqe.adapter**

This class is a descendant of MQeAdapter

Method summary

Method	Purpose
activate	Initializes a new MQeMemoryFieldsAdapter object.
close	Closes the current MQeMemoryFieldsAdapter object.
control	Allows the user to list the files in the current file's folder.
erase	Removes a file from memory.
open	Opens a file for use.
readObject	Reads an MQeFields object from the current file.
status	Provides information on the current settings.
writeObject	Writes an MQeFields object to memory.

MQeMemoryFieldsAdapter activate

Syntax

```
public void   activate( String  fileDesc,
                        Object  param,
                        Object  options,
                        int     lrecl,
                        int     noRec ) throws Exception
```

Description

This method initializes a new MQeMemoryFieldsAdapter object.

Parameters

String fileDesc

The directory path to be opened. Only the path to a file should be specified here. If you want to open a file the name of the file is specified on the open. This value is used in a number of subsequent methods as the *File descriptor*.

Object options

A String that specifies the open options:

MQe.MQe_Adapter_READ
Reads the file

MQe.MQe_Adapter_WRITE
Writes the file

MQe.MQe_Adapter_UPDATE
Reads and writes the file

param Not used

lrecl Not used

norec Not used

Return Values
None

Exceptions
None

Example

```
mymfa.activate("./mydir/mysubdir", null,
                MQe.MQeAdapter_READ, 0, 0);
```

MQeMemoryFieldsAdapter close

Syntax

```
public void close( Object opt ) throws Exception
```

Description
Closes the current adapter so that it can no longer be read from or written to.

Parameters
None

Return Values
None

Exceptions
None

Example

```
mymfa.close(null);
```

MQeMemoryFieldsAdapter control

Syntax

```
public Object control( Object opt, Object ctrlObj ) throws Exception
```

Description
Allows the user to set the file filter or to list the files in the current directory.

Parameters

Object opt A String object containing one of the following:

MQe_Adapter_FILTER
Sets the filter to the value of the second parameter

MQe_Adapter_LIST
Lists the files

Object ctrlObj
A String that specifies the filter to use (if `MQe_Adapter_FILTER` is specified). Otherwise *null*.

Return Values
null for `MQe_Adapter_FILTER`, or a String[] list of files in the case of `MQe_Adapter_LIST`.

Exceptions
None

Example

```
String]] fileList = (String]]) mydfa.control(MQe.MQe_Adapter_LIST,
                    null);
```

MQeMemoryFieldsAdapter erase

Syntax

```
public void erase( Object opt ) throws Exception
```

Description

Erases a file from memory. Does not erase directories.

Parameters

Object opt A String that contains the file name to be deleted. Before the name is passed to the hash tables remove routine, the file name is appended to the current value of the *File descriptor*.

Return Values

None

Exceptions

MQeException
If the argument supplied referred to a directory or was not a String.

Example

```
mydfa.erase("myfile.txt");
```

MQeMemoryFieldsAdapter open

Syntax

```
public void open( Object opt ) throws Exception
```

Description

Closes any open files and then opens a file for use.

Parameters

Object opt A String that specifies the filename to be opened. This file should exist in the folder specified on the *File Descriptor* value (supplied on the activate call).

Return Values

None

Exceptions

None

Example

```
mymfa.open("myfile.txt");
```

MQeMemoryFieldsAdapter readObject

Syntax

```
public synchronized Object readObject( Object opt ) throws Exception
```

Description

Reads an MQeFields object from the current file.

Parameters

Object opt An MQeFields object that can be used to provide a filter within the directory object. Otherwise *null*.

Return Values
The MQeFields object that was read.

Exceptions

MQeException
If no file matching the filter was found, or if the file is not open for reading.

Example

```
MQeFields myFields = (MQeFields) mymfa.readObject(null);
```

MQeMemoryFieldsAdapter status

Syntax

```
public String status( Object  opt  ) throws Exception
```

Description
Provides details of the current settings.

Parameters

Object opt A String containing `MQe.MQe_Adapter_FILENAME` which gets the name of the currently active file.

Return Values
A String containing the name of the file.

Exceptions
None

Example

```
String filename = (String) mymfa.status(MQe.MQe_Adapter_FILENAME);
```

MQeMemoryFieldsAdapter writeObject

Syntax

```
public synchronized void writeObject(Object opt, Object data)
                                     throws Exception
```

Description
Writes an MQeFields object to memory.

Parameters

Object opt Not used

Object data An MQeFields object to dump to memory

Return Values
None

Exceptions

MQeException
If an invalid data argument was supplied, or if the file was not opened for writing.

Example

```
mymfa.writeObject(null, myMQeFields);
```

MQeReducedDiskFieldsAdapter

The MQeDiskFieldsAdapter is an adapter that provides support for reading and writing MQeFields information to a local disk. This adapter provides a high performance version of MQeDiskFieldsAdapter.

Package **com.ibm.mqe.adapter**

This class extends MQeDiskFieldsAdapter

Methods

Method	Purpose
writeObject	Writes an MQeFields object to disk.

MQeDiskFieldsAdapter writeObject

Syntax

```
public synchronized void writeObject(Object opt, Object data)
                                          throws Exception
```

Description

Writes an MQeFields object to disk.

Parameters

Object opt Not used

Object data An MQeFields object to dump to disk

Return Values

None

Exceptions

MQeException

If an invalid data argument was supplied, or if the file was not opened for writing.

Example

```
myrdfa.writeObject(null, myMQeFields);
```

MQeTcpipAdapter

The MQeTcpipAdapter is an adapter that provides support for reading and writing data over TCP/IP streams.

This adapter cannot be used to connect two MQSeries Everyplace applications, as it does not provide a protocol for the exchange of data. Various adapters that inherit from this class provide some possible protocols . MQeTcpipLengthAdapter, and MQeTcpipHttpAdapter, for example.

An instance of this class can be used to either listen for incoming TCP/IP connections, or connect to an existing listener. It is not possible for a single MQeTcpipAdapter object to do both.

Package **com.ibm.mqe.adapter**

This class is a descendant of MQeAdapter

Method summary

Method	Purpose
activate	Initializes a new MQeTcpipAdapter object.
close	Closes the current MQeTcpipAdapter object.
control	Sets or gets information on the current adapter instance.
open	Opens a socket for use.
read	Reads bytes from the underlying TCP/IP stream.
readln	Reads a line of data from the underlying TCP/IP stream.
status	Returns information on the adapter.
write	Writes bytes to the underlying TCP/IP stream.
writeln	Writes a line of data to the underlying TCP/IP stream.

MQeTcpipAdapter activate

Syntax

```
public void   activate( String  fileDesc,
                        Object  param,
                        Object  options,
                        int     lrecl,
                        int     noRec ) throws Exception
```

Description

This method initializes a new MQeTcpipAdapter object. While the MQeTcpipAdapter is not intended for use by MQSeries Everyplace applications, this method should be called inside the activate method of all the adapters that extend this class.

Parameters

fileDesc The String that represents this adapter. (″Network:1.2.3.4:8082″ for example.)

param The param object is given to the created adapter when an ACCEPT is issued.

options An object supplied as a string that specifies the open options:

MQe.MQe_Adapter_LISTEN
Creates a listening socket

MQe.MQe_Adapter_ACCEPT
Accepts a connection

MQe.MQe_Adapter_LOCALHOST
Returns the local host address

MQe.MQe_Adapter_NETWORK
Returns the network type (TCPIP)

MQe.MQe_Adapter_PERSIST
Copies the persistent object on the accept call

MQe.MQe_Adapter_QOSINPUTS
Returns valid Quality of Service (QOS) names

MQe.MQe_Adapter_SETSOCKET
Reserved

For example, to configure a TCP/IP-based adapter to perform listening operations, specify `MQe.MQe_Adapter_LISTEN` for this parameter.

lrecl An integer that specifies the TCP/IP block size. If the value supplied is less than zero the default of 4096 is used.

norec An integer that specifies the time-out value of the socket in milliseconds.

Return Values
None

Exceptions
None

Example

```
super.activate(fileDesc, param, options, lrecl,
        noRec);
```

MQeTcpipAdapter close

Syntax

```
public void close( Object opt ) throws Exception
```

Description
Closes the current adapter so that it can no longer be read from or written to.

Parameters

opt An object that contains `MQe.MQe_Adapter_FINAL`, if this is the last close for this adapter. If the adapter was opened with the `MQe.MQe_Adapter_PERSIST` option set, close has no effect unless the `MQe.MQe_Adapter_FINAL` option is included on the close method call.

Return Values
None

Exceptions
None

Example

```
super.close(null);
```

MQeTcpipAdapter control

Syntax

```
public Object control( Object opt, Object ctrlObj ) throws Exception
```

Description

Sets or gets information on the current adapter instance.

Parameters

opt An object, supplied as a String that may contain any of the following:

MQe.MQe_Adapter_ACCEPT
Waits for and accepts a connection (listening sockets)

MQe.MQe_Adapter_SETSOCKET
Uses the supplied socket object

MQe.MQe_Adapter_PULSE
Starts a timer pulse thread

MQe.MQe_Adapter_QOSINPUTS -
Returns a list of Quality of Service (QOS) input parameters

;

ctrlObj For `MQe.MQe_Adapter_ACCEPT`, this is a String representation of the *file descriptor* of the connecting adapter ("HTTP:1.2.3.4..." for example). For `MQe.MQe_Adapter_SETSOCKET`, this is the socket that should be used.

Return Values

For `MQe.MQe_Adapter_ACCEPT`, this is the adapter object that was created as a result of a connection request. Otherwise *null*, or an object that wrappers the information that was requested.

Exceptions

MQeException
If the parameter object was not correct for the given option.

Example

```
super.control(opt, ctrlObj);
```

MQeTcpipAdapter open

Syntax

```
public void open( Object opt ) throws Exception
```

Description

Opens a socket for use. If this is a listening adapter then a new server socket is created. Otherwise a new socket is created.

Parameters

opt Not used

Return Values

None

Exceptions
None

Example

```
super.open(null);
```

MQeTcpipAdapter read

Syntax

```
public byte[] read( Object opt, int recordSize )
                    throws Exception
```

Description
Reads bytes from the underlying TCP/IP stream

Parameters

opt Not used

recordSize An integer that specifies the maximum buffer size to read in one go. If this parameter is less than or equal to zero, then the Size parameter from the Quality of Service (QOS) object is used as a default.

Return Values
The data in a byte array of up to the number of bytes specified. The block may be an array of less than the requested number of bytes.

Exceptions

EOFException
If no more data is available.

Example

```
byte[] results = super.read(null, 4096);
```

MQeTcpipAdapter readln

Syntax

```
public String readln( Object opt ) throws Exception
```

Description
Reads a line of text from the underlying TCP/IP stream

Parameters

opt Not used

Return Values
A String containing the line that was read.

Exceptions

EOFException
If no more data is available.

Example

```
String results = super.readln(null);
```

MQeTcpipAdapter status

Syntax

```
public String status( Object  opt  ) throws Exception
```

Description
Provides details of the current settings.

Parameters

opt A string containing one of the following:

MQe.MQe_Adapter_NETWORK
Gets the type of network in use

MQe.MQe_Adapter_LOCALHOST
Gets the name of the local host

Return Values
The literal 'TCPIP' for `MQe.MQe_Adapter_NETWORK` or the name of the local machine for `MQe.MQe_Adapter_LOCALHOST`.

Exceptions
None

Example

```
String netType = (String) super.status(MQe.MQe_Adapter_NETWORK);
```

MQeTcpipAdapter write

Syntax

```
public void write( Object opt, int recordSize, byte data[] )
                   throws Exception
```

Description
Writes the given array of bytes to the TCP/IP output stream.

Parameters

opt A string containing the options to be used on the write. Currently only `MQe.MQe_Adapter_FLUSH` is supported. This means flush the data currently in the buffers.

recordSize An integer that specifies the number of bytes to write.

byte[] data The data to be written.

Return Values
None

Exceptions
None

Example

```
super.write(MQe.MQe_Adapter_FLUSH, 4096, myByteArray);
```

MQeTcpipAdapter writeln

Syntax

```
public void writeln( Object opt, String data ) throws Exception
```

Description
Writes the given String to the output stream, followed by a new-line character.

Parameters

opt A String containing the options to be used on the write. Currently only `MQe.MQe_Adapter_FLUSH` is supported. This means flush the data currently in the buffers.

data A String containing the data to be written.

Return Values
None

Exceptions
None

Example

```
super.writeln(null, "Hello");
```

MQeTcpipHttpAdapter

The MQeTcpipHttpAdapter adds support for the HTTP 1.0 protocol to the MQeTcpipAdapter. This enables two MQSeries Everyplace systems to communicate over a TCP/IP network.

This adapter provides read and write calls that attach HTTP headers to data flows on the TCP/IP stream. As HTTP flows are generally permitted through certain ports on a firewall, this allows MQSeries Everyplace data to flow through a firewall and allows access to the World Wide Web.

Package **com.ibm.mqe.adapter**

This class is a descendant of MQeTcpipAdapter. All usual adapter operations that are not listed here use the implementation provided by this super-class.

Methods

Method	Purpose
read	Reads bytes from the underlying TCP/IP stream.
readEOF	Reads bytes from the underlying TCP/IP stream, until the end of file marker.
readln	Reads a line of data from the underlying TCP/IP stream.
write	Writes bytes to the underlying TCP/IP stream.
writeln	Writes a line of data to the underlying TCP/IP stream.

MQeTcpipHttpAdapter read

Syntax

```
public byte[] read( Object opt, int recordSize )
                    throws Exception
```

Description

Reads bytes from the underlying TCP/IP stream

Parameters

opt One of the following:

MQe.MQe_Adapter_HEADER
Reads the HTTP header information

MQe.MQe_Adapter_CONTENT
Reads the data content

int recordSize The maximum buffer size to read in one read operation.

Return Values

The data in a byte array of up to the number of bytes specified. The block may be an array of less than the requested number of bytes.

Exceptions

EOFException
If no more data is available.

Example

```
byte[] results = myHttpAdapter.read
        (MQe.MQe_Adapter_HEADER + MQe.MQe_Adapter_CONTENT,
        4096);
```

MQeTcpipHttpAdapter readEOF

Syntax

```
public byte[] readEOF( Object opt ) throws Exception
```

Description

Reads bytes from the underlying TCP/IP stream, until the end of file marker. Equivalent to `MQeTcpipHttpAdapter.read(opt, -1)`

Parameters

opt One of the following:

MQe.MQe_Adapter_HEADER
Reads the HTTP header information

MQe.MQe_Adapter_CONTENT
Reads the data content

Return Values

The data in a byte array of up to the number of bytes specified. The block may be an array of less than the requested number of bytes.

Exceptions

EOFException
If no more data is available.

Example

```
byte[] results = myHttpAdapter.readEOF(MQe.MQe_Adapter_HEADER);
```

MQeTcpipHttpAdapter readln

Syntax

```
public byte[] readln( Object opt ) throws Exception {
```

Description

Reads a line from the underlying TCP/IP stream

Parameters

opt One of the following:

MQe.MQe_Adapter_HEADER
Returns HTTP header information

NULL.
Returns the next line from the input stream

Return Values

A String containing the line that was read.

Exceptions

EOFException
If no more data is available.

Example

```
String top = myHttpAdapter.readln(MQe.MQe_Adapter_HEADER);
```

MQeTcpipHttpAdapter write

Syntax

```
public void write( Object opt, int recordSize, byte data[] )
                   throws Exception
```

Description

Writes the given array of bytes to the TCP/IP output stream. Once written, the data stream is flushed to prevent unwanted data being left on the sender.

Parameters

opt One of the following:

MQe.MQe_Adapter_HEADER
Tells the adapter to attach header information (as a POST request)

MQe.MQe_Adapter_HEADERSP
Tells the adapter to attach an HTTP response to the data (200 OK)

recordSize An integer that specifies the number of bytes to write.

data The data to be written.

Return Values

None

Exceptions

None

Example

```
myHttpAdapter.write(MQe.MQe_Adapter_HEADER, 4096,
                    myByteArray);
```

MQeTcpipHttpAdapter writeln

Syntax

```
public void writeln( Object opt, String data ) throws Exception
```

Description

Writes the given String to the output stream. Once written, the data stream is flushed to prevent unwanted data being left on the sender.

Parameters

opt One of the following:

MQe.MQe_Adapter_HEADER
Tells the adapter to attach header information (as a GET request)

MQe.MQe_Adapter_HEADERSP
Tells the adapter to attach an HTTP response to the data (200 OK)

data The data to be written.

Return Values

None

Exceptions

None

Example

```
myHttpAdapter.writeln(MQe.MQe_Adapter_HEADER,
                      "Hello");
```

MQeTcpipLengthAdapter

The MQeTcpipLengthAdapter adds a simple protocol to the MQeTcpipAdapter that enables two MQSeries Everyplace systems to communicate over a TCP/IP network.

This adapter overrides the read and write calls from MQeTcpipAdapter to attach a header of between one and three bytes to each data flow. This header indicates the length of the following data. Using this protocol a flow of up to 1,073,741,823 bytes (230 – 1) is possible.

Package **com.ibm.mqe.adapter**

This class is a descendant of MQeTcpipAdapter. All usual adapter operations that are not listed here use the implementation provided by this super-class.

Methods

Method	Purpose
activate	Initializes a new MQeTcpipLengthAdapter object.
read	Reads bytes from the underlying TCP/IP stream.
write	Writes bytes to the underlying TCP/IP stream.

MQeTcpipLengthAdapter activate

Syntax

```
public void   activate( String  fileDesc,
                        Object  param,
                        Object  options,
                        int     lrecl,
                        int     noRec ) throws Exception
```

Description

This method initializes a new MQeTcpipLengthAdapter object.

Parameters

fileDesc The String that represents this adapter. ("Network:1.2.3.4:8082" for example.)

param The parameters to be given to the created adapter when an ACCEPT is issued.

options An object supplied as a string that specifies the open options:

MQe.MQe_Adapter_LISTEN
Creates a listening socket

MQe.MQe_Adapter_ACCEPT
Accepts a connection

MQe.MQe_Adapter_LOCALHOST
Returns the local host address

MQe.MQe_Adapter_NETWORK
Returns the network type (TCPIP)

MQe.MQe_Adapter_PERSIST
Copies the persistent object on the accept call

MQe.MQe_Adapter_QOSINPUTS
Returns valid Quality of Service (QOS) names

MQe.MQe_Adapter_SETSOCKET
Reserved

lrecl An integer that specifies the TCP/IP block size. If the value supplied is less than zero the default of 4096 is used.

noRec An integer that specifies the time-out value of the socket in milliseconds.

Return Values
None

Exceptions
None

Example

```
myLengthAdapter.activate("Network:localhost:8082",null,MQeTcpipLengthAdapter.MQe_Adapter_NOP
```

MQeTcpipLengthAdapter read

Syntax

```
public byte[] read( Object opt, int recordSize )
                    throws Exception {
```

Description
Reads bytes from the underlying TCP/IP stream

Parameters

opt

MQe.MQe_Adapter_HEADER
Reads the header (data length) information

recordSize An integer that specifies the maximum buffer size to read in one read operation.

Return Values
The data in a byte array of up to the number of bytes specified. The block may be an array of less than the requested number of bytes.

Exceptions

EOFException
If no more data is available.

Example

```
byte[] results = myLengthAdapter.read(MQe.MQe_Adapter_HEADER, 4096);
```

MQeTcpipLengthAdapter write

Syntax

```
public void write( Object opt, int recordSize, byte data[] )
                   throws Exception
```

Description
Writes the given array of bytes to the TCP/IP output stream. Once written, the data stream is flushed to prevent unwanted data being left on the sender.

Parameters

opt

MQe.MQe_Adapter_HEADER
A String that sets the header (data length) information

recordSize An integer that specifies the number of bytes to write.

data The data to be written.

Return Values
None

Exceptions
None

Example

```
myLengthAdapter.write(MQe.MQe_Adapter_HEADER, 4096, myByteArray);
```

MQeTcpipHistoryAdapter

The MQeTcpipHistoryAdapter provides an extra protocol layer on top of MQeTcpipLengthAdapter that supports persistent socket connections and the ability to encode recently used data in a shortened form. This makes the MQeTcpipHistoryAdapter a highly efficient communications mechanism in terms of general packet size.

Care needs to be exercised if channel level encryption or compression is used with the history encoding option, as it is possible for the sending and receiving adapters to contain different history data, (if the encryption keys change, for example).

Package **com.ibm.mqe.adapter**

This class is a descendant of MQeTcpipLengthAdapte. All usual adapter operations that are not listed here use the implementation provided by this super-class.

Methods

Method	Purpose
activate	Initializes a new MQeTcpipHistoryAdapter object.
close	Closes an MQeTcpipHistoryAdapter object.

MQeTcpipHistoryAdapter activate

Syntax

```
public void   activate( String  fileDesc,
                        Object  param,
                        Object  options,
                        int     lrecl,
                        int     noRec ) throws Exception
```

Description

Initializes a new MQeTcpipHistoryAdapter object

Parameters

fileDesc The String that represents this adapter (″Network:1.2.3.4:8082″ for example).

param The parameters to be given to the created adapter when an ACCEPT is issued.

options A String that specifies the open options:

MQe.MQe_Adapter_LISTEN
Creates a listening socket

MQe.MQe_Adapter_ACCEPT
Accepts a connection MQe.MQe_Adapter_LOCALHOST. Returns the local host address

MQe.MQe_Adapter_NETWORK
Returns network type (TCPIP)

MQe.MQe_Adapter_PERSIST
Enables socket persistence (Deprecated, as persistence is enabled by default)

MQe.MQe_Adapter_QOSINPUTS
Returns valid Quality of Service (QOS) names

MQe.MQe_Adapter_SETSOCKET
Reserved

MQeTcpipHistoryAdapter.MQe_Adapter_HISTORY
Use history functionality. (Deprecated, as history is enabled by default)

MQeTcpipHistoryAdapter.MQe_Adapter_NOHISTORY
Disable history functionality

MQeTcpipLengthAdapter.MQe_Adapter_NOPERSIST
Disable persistent sockets

For example, to configure a history adapter to disable support for persistence and history specify `MQeTcpipLengthAdapter.MQe_Adapter_NOPERSIST + MQeTcpipHistoryAdapter.MQe_Adapter_NOHISTORY` here. This is equivalent to the string `"<NOPERSIST><NOHISTORY>"`.

lrecl An integer that specifies the TCP/IP block size. If the value supplied is less than zero the default of 4096 is used.

noRec An integer that specifies the time-out value of the socket in milliseconds

Return Values
None

Exceptions
None

Example

```
myHistoryAdapter.activate("Network:localhost:8082", null,
                          MQe.MQe_Adapter_PERSIST +
                          MQeTcpipHistoryAdapter.MQe_Adapter_HISTORY,
                          4096, 300000);
```

MQeTcpipHistoryAdapter close

Syntax

```
public void close( Object opt ) throws Exception {
```

Description
Closes the current adapter, so that it can no longer be read from or written to.

Parameters

opt

MQe.MQe_Adapter_HEADER
A String that contains `MQe.MQe_Adapter_FINAL` if this is the last close for this adapter. This causes any history buffers to be emptied.

Return Values
None

Exceptions
None

Example

```
myHistoryAdapter.close(MQe.MQe_Adapter_FINAL);
```

MQeUdpipAdapter

The MQeUdpipAdapter provides support for assured data transfer over UDP/IP datagrams.

Package **com.ibm.mqe.adapter**

This class is a descendant of MQeAdapter

Method summary

Method	Purpose
activate	Initializes a new MQeUdpipAdapter object
close	Closes the current MQeUdpipAdapter object.
control	Sets or gets information on the current adapter instance.
open	Opens the adapter for use.
read	Reads bytes from the adapter.
status	Returns information about the adapter.
write	Writes bytes to the adapter.

MQeUdpipAdapter activate

Syntax

```
public void activate(String fileDesc,
                     Object param,
                     Object options,
                     int blocksize,
                     int timeout) throws Exception
```

Description

The activate method initializes the adapter.

Overrides **activate()** in class MQeAdapter.

Parameters

fileDesc The String that represents this adapter.

param The param object is given to the created adapter when an ACCEPT is issued.

options Initial options to use. One or more of:

MQe.MQe_Adapter_LISTEN
Creates a listening socket

MQe.MQe_Adapter_ACCEPT
Accepts a connection

blocksize An integer that specifies the UDP/IP block size to be used (default 4096)

timeout An integer that specifies the time-out value in milliseconds.

Return Values

None

Exceptions

Example

MQeUdpipAdapter close

Syntax

```
public void close( Object opt ) throws Exception
```

Description

This method closes the adapter. Note that if the adapter was opened with the MQe_Adapter_PERSIST option set, then close will have no effect unless the MQe_Adapter_FINAL option is included on the **close()** method call.

Overrides **close()** in class MQeAdapter .

Parameters

opt Options to use on the close - As MQeAdapter

Return Values

None

Exceptions

Example

MQeUdpipAdapter control

Syntax

```
public Object control(Object opt, Object ctrlobj ) throws Exception
```

Description

This method sets or gets information on the current adapter instance.

Overrides **control()** in class MQeAdapter.

Parameters

opt Options to enquire or set that may contain any of the following:

MQe.MQe_Adapter_ACCEPT
Waits for and accepts a connection (listening sockets)

MQe.MQe_Adapter_SETSOCKET
Uses the supplied socket object

MQe.MQe_Adapter_PULSE
Starts a timer pulse thread

MQe.MQe_Adapter_QOSINPUTS -
Returns a list of Quality of Service (QOS) input parameters

ctrlObj A parameter used by some of the options. The object will either be a string identifying the network definition (MQe_Adapter_ACCEPT), or will be the socket to be used by the adapter for sending packets (MQe_Adapter_SETSOCKET).

Return Values

For MQe_Adapter_QOSINPUTS, this is an object containing an enumeration of the Quality of Service parameters.

Exceptions

Example

MQeUdpipAdapter open

Syntax

```
public void open( Object opt ) throws Exception
```

Description

This method creates the socket (if necessary) and prepares the adapter for use.

Overrides **open()** in class MQeAdapter.

Parameters

opt Not used

Return Values

None

Exceptions

Example

MQeUDPAdapter read

Syntax

```
public byte[] read( Object opt, int recordSize )
                    throws Exception
```

Description

This method reads data from the adapter's target system.

Overrides **read()** in class MQeAdapter.

Parameters

opt Options to use on the read.

recordSize An integer that specifies the number of bytes to read.

Return Values

The data that was read.

Exceptions

Example

MQeUdcpipAdapter status

Syntax

```
public String status( Object  opt  ) throws Exception
```

Description

This method gets information on the current adapter instance.

Overrides **status()** in class MQeAdapter.

Parameters

opt A string containing options to inquire which must be one of the following:

MQe.MQe_Adapter_NETWORK
Gets the type of network in use (UDPIP)

MQe.MQe_Adapter_LOCALHOST
Gets the name of the local host

Options valid on MQeAdapter are also inherited.

Return Values

The requested information as a String

Exceptions

Example

MQeUdpipAdapter write

Syntax

```
public void write( Object opt, int length, byte data[] )
                   throws Exception
```

Description

This method sends the given byte array to the target system.

Overrides **write()** in class MQeAdapter.

Parameters

opt	A string containing the options to be used on the write.
length	An integer that specifies the number of bytes to write.
data	The data to send.

Return Values

None

Exceptions

Example

MQeWESAuthenticationAdapter

This adapter provides support for tunnelling HTTP requests through Websphere Everyplace authentication proxies and transparent proxies. This is a communications adapter that extends com.ibm.mqe.adapters.MQeTcpipHttpAdapter and, as such, can be used as a replacement for this - or any other - communications adapter. The adapter provides the MQSeries Everyplace application with the static method **setBasicAuthorization()** in which the user can include user ID and password strings. Once set, each subsequent **write** call causes the class to add an authorization line to the HTTP header. This authorization line contains the user ID and password information which the adapter encodes to Base64. For example:

```
Authorization: Basic QmFzZTY0OmlzTm90RW5jcnlwdGVk
```

If an HTTP header that is supplied to the adapter **write** already contains an authorization line, the existing line is used. Note that basic Web authorization requires that the user's credentials are encoded in Base64 inside the HTTP header. Note that this is not an encrypted format, Base64 is a clear text encoding, the contents of which can be viewed by anyone that has access to the HTTP flows. If you wish to avoid sending Base64 information unencrypted over a network, you need to provide a security solution such as MQSeries Everyplace message level security.

The MQeWESAuthenticationAdapter also intercepts adapter **reads**, checking for the following invalid responses from the server:

- Unauthorized (401), Forbidden (403) or Proxy Authentication Required (407) responses. The adapter throws an MQeException of type `MQe.Except_Authenticate` back to the application.
- Not found responses (404). An MQeException of type `MQe.Except_NotFound` is thrown.
- Server errors (50x) and all other client errors (40x). An MQeException of type `MQe.Except_NotSupported` is thrown.

The text of all exceptions is the header line that contains the actual response type, for example "HTTP/1.1 500 Internal Server Error".

After a failure response, the adapter scans the returned response header for any realm information. This information can be obtained later by using the static **getRealm()** method on the MQeWESAuthenticationAdapter.

Package **com.ibm.mqe.adapter**

This class extends MQeTcpipHttpAdapter

Methods

Method	Purpose
activate	Initializes the adapter.
getDeviceName	Returns the current originating device name.
getRealm	Returns the realm information, based on the challenge supplied by the server.
read	Reads data coming from WES.
readEOF	Reads as much as possible from the HTTP stream.

Method	Purpose
readln	Reads a line of data.
setBasicAuthorization	Sets the user ID and password that should be encoded into Base64 before being sent across the HTTP flow.
setDeviceName	Sets the name of the originating device, as used by the User-Agent field in the HTTP requests.
write	Writes bytes to the HTTP stream.
writeln	Sends a line of text to the adapter.

MQeWESAuthenticationAdapter activate

Syntax

```
public void activate(String fileDesc,
                     Object param,
                     Object options,
                     int lrecl,
                     int noRec) throws Exception
```

Description

The activate method initializes the adapter. When the adapter is being used as a transparent proxy, it also sets up the adapter's proxy settings. Otherwise this method behaves like the MQeTcpipAdapter.

Overrides, **activate** in class MQeTcpipAdapter

Parameters

fileDesc A String representing the HTTP target url, for example `http://mqe.hursley.ibm.com:8082`.

param The parameters to be given to the created adapter when an ACCEPT is issued.

options An object that specifies the open options:

MQe.MQe_Adapter_LISTEN
Creates a listening socket

MQe.MQe_Adapter_ACCEPT
Accepts a connection

MQe.MQe_Adapter_LOCALHOST
Returns the local host address

MQe.MQe_Adapter_NETWORK
Returns the network type (TCPIP)

MQe.MQe_Adapter_PERSIST
Copies the persistent object on the accept call

MQe.MQe_Adapter_QOSINPUTS
Returns valid Quality of Service (QOS) names

MQe.MQe_Adapter_SETSOCKET
Reserved

lrecl An integer that specifies the TCP/IP block size. If the value supplied is less than zero the default of 4096 is used.

norec An integer that specifies the time-out value of the socket in milliseconds.

Return Values
None

Exceptions
None

Example

MQeWESAuthenticationAdapter setBasicAuthorization

Syntax

```
public static void setBasicAuthorization(String userid,
                                         String password)
```

Description
The setBasicAuthorization method sets the user ID and password that will be encoded in to Base64 and sent across the HTTP flow.

Parameters

userid A String containing the iser ID

password A String containing the user password

Return Values
None

Exceptions
None

Example

MQeWESAuthenticationAdapter setDeviceName

Syntax

```
public static void setDeviceName(String name)
```

Description
Sets the name of the originating device, as used by the User-Agent field in the HTTP requests.

Parameters

name A String representing the device name

Return Values
None

Exceptions
None

Example

MQeWESAuthenticationAdapter getDeviceName

Syntax

```
public static String getDeviceName()
```

Description
Returns the current originating device name.

Parameters
None

Return Values
The device name

Exceptions

None

Example

MQeWESAuthenticationAdapter read

Syntax

```
public byte[] read(Object opt,
                   int recordSize) throws Exception
```

Description

Reads data coming from Websphere Everyplace. The authentication server always sends a standard HTTP response, so we can use the superclass to do the reading for us. However, this method interprets any failure response codes and converts them into an appropriate MQeException.

Overrides **read()** in class MQeTcpipAdapter

Parameters

opt A String that specifies the object to be read:.

MQe_Adapter_HEADER
Read the HTTP header

MQe_Adapter_CONTENT
read the content data

recordSize An integer that specifies the number of bytes to read

Return Values

A byte array that contains the data that was read

Exceptions

MQeException

- `MQe.Except_Authenticate` for Unauthorized (401), Forbidden (403) or proxy authentication required (407) responses
- `MQe.Except_NotFound` for ″not found″ responses (404)
- `MQe.Except_NotSupported` for server errors (50x) and all other client errors (40x)

Example

MQeWESAuthenticationAdapter readEOF

Syntax

```
public byte[] readEOF(Object opt) throws Exception
```

Description

Read as much as possible from the HTTP stream.

Overrides **readEOF()** in class MQeAdapter.

Parameters

opt A String that specifies the object to be read.

MQe_Adapter_HEADER
Read the HTTP header

MQe_Adapter_CONTENT
read the content data

Return Values
The data that was read

Exceptions

Example

MQeWESAuthenticationAdapter readln

Syntax

```
public String readln(Object opt) throws Exception
```

Description
Reads a line of data coming from Websphere Everyplace.

Overrides **readln()** in class MQeTcpipAdapter.

Parameters

opt A String that specifies the object to be read.

MQe_Adapter_HEADER
Read the HTTP header

MQe_Adapter_CONTENT
read the content data

Return Values
The data that was read

Exceptions

Example

MQeWESAuthenticationAdapter write

Syntax

```
public synchronized void write(Object opt,
                               int recordSize,
                               byte data[]) throws Exception
```

Description
Writes bytes to the HTTP stream. Adds the WWW-Authenticate line (or proxy-authenticate line for transparent proxies) to the user data before passing it on to the underlying adapter.

Overrides **write()** in class MQeTcpipAdapter.

Parameters

opt A String containing one of the following values:

MQe_Adapter_HEADER
To write the 'add an HTTP POST' request to the front of the data

MQe_Adapter_HEADERSP
To write an HTTP response header

If no option is specified the data is sent as is.

recordSize An integer that specifies the length of the data to be written, or -1 to write everything.

data The data to be written

Return Values
A String containing either the name of the filter or the name of the file.

Exceptions
None

Example

```
String filename = (String) mydfa.status(MQe.MQe_Adapter_FILENAME);
```

MQeWESAuthenticationAdapter writeln

Syntax

```
public void writeln(Object opt,
                    String data) throws Exception
```

Description
Sends a line of text to the adapter.

Overrides **writeln()** in class MQeTcpipAdapter.

Parameters

opt A String containing one of the following values:

MQe_Adapter_HEADER
Tto wrap the line in a HTTP GET request

MQe_Adapter_HEADERSP
To wrap the line in a HTTP response

data The line to write.

Return Values
None

Exceptions

Example

MQeWESAuthenticationAdapter getRealm

Syntax

```
public static String getRealm()
```

Description
Determines the realm information, based on the challenge supplied by the server.

Parameters
None

Return Values
A String representing the realm for which authentication is sought, or a blank string if no realm could be determined.

Exceptions
None

Example

Part 2. Exceptions and return codes

Chapter 10. Exceptions

This chapter contains details of the exceptions that can be thrown by MQSeries Everyplace. The exceptions are listed in numerical order, and are then listed alphabetically with detailed explanations.

Ordered numerically

- 002 – Except_NotSupported
- 003 – Except_Syntax
- 004 – Except_Type
- 006 – Except_NotFound
- 007 – Except_Data
- 008 – Except_BadRequest
- 009 – Except_Stopped
- 010 – Except_Closed
- 011 – Except_Duplicate
- 012 – Except_NotAllowed
- 013 – Except_Rule
- 014 – Except_Timeout
- 020 – Except_Chnl_Attributes
- 022 – Except_Chnl_Destination
- 023 – Except_Chnl_Limit
- 024 – Except_Chnl_ID
- 025 – Except_Chnl_Overrun
- 041 – Except_Trnsport_Request
- 100 – Except_QMgr_NotActive
- 101 – Except_QMgr_InvalidQMgrName
- 102 – Except_QMgr_Activated
- 103 – Except_QMgr_AlreadyExists
- 104 – Except_QMgr_InvalidQName
- 105 – Except_QMgr_QExists
- 106 – Except_QMgr_UknownQMgr
- 107 – Except_QMgr_QNotEmpty
- 108 – Except_QMgr_QDoesNotExist
- 110 – Except_QMgr_WrongQtype
- 113 – Except_QMgr_NotConfigured
- 121 – Except_Q_NoMatchingMsg
- 124 – Except_Q_InvalidPriority
- 125 – Except_Q_Full
- 126 – Except_Q_MsgTooLarge
- 127 – Except_Q_NotActive
- 128 – Except_Q_Active
- 129 – Except_Q_InvalidName

- 130 – Except_Q_TargetRegistryRequired
- 231 – Except_Con_AliasAlreadyExists
- 232 – Except_Con_AdapterRequired
- 233 – Except_Con_InvalidName
- 301 – Except_Reg_NullName
- 302 – Except_Reg_AlreadyExists
- 303 – Except_Reg_DoesNotExist
- 304 – Except_Reg_OpenFailed
- 305 – Except_Reg_InvalidSession
- 306 – Except_Reg_NotDefined
- 309 – Except_Reg_AddFailed
- 310 – Except_Reg_DeleteFailed
- 311 – Except_Reg_ReadFailed
- 312 – Except_Reg_UpdateFailed
- 313 – Except_Reg_ListFailed
- 314 – Except_Reg_SearchFailed
- 315 – Except_Reg_RenameFailed
- 316 – Except_Reg_ResetPINFailed
- 317 – Except_Reg_CRTKeyDecFailed
- 318 – Except_Reg_CRTKeySignFailed
- 319 – Except_Reg_DeleteRegistryFailed
- 320 – Except_Reg_AlreadyOpen
- 321 – Except_Reg_NotSecure
- 350 – Except_PrivateReg_BadPIN
- 351 – Except_PrivateReg_ActivateFailed
- 361 – Except_MiniCertreg_ActivateFailed
- 370 – Except_PublicReg_ActivateFailed
- 371 – Except_PublicReg_InvalidRequest
- 400 – Except_Admin_NotAdminMsg
- 401 – Except_Admin_ActionNotSupported
- 402 – Except_Admin_InvalidField
- 500 – Except_Authenticate
- 501 – Except_S_Cipher
- 502 – Except_S_InvalidSignature
- 503 – Except_S_CertificateExpired
- 504 – Except_S_InvalidAttribute
- 505 – Except_S_MiniCertNotAvailable
- 506 – Except_S_RegistryNotAvailable
- 507 – Except_S_BadIntegrity
- 508 – Except_S_NoPresetKeyAvailable
- 509 – Except_S_MissingSection
- 510 – Except_S_BadSubject
- 600 – Except_Generic_MQ_Error
- 601 – Except_MQ_QMgr_Not_Available
- 602 – Except_Characteristic_Unknown

- 603 – Except_Characteristic_Read_Only_Violation
- 604 – Except_Bridge_Not_On_PreLoad_List
- 605 – Except_Registry_Update_Failed
- 606 – Except_Characteristic_Not_Found_In_Input
- 608 – Except_Invalid_Registry_Entry_Name
- 609 – Except_Not_Transmission_Queue
- 610 – Except_Bridge_Internal_Error
- 611 – Except_MQ_QMgr_InvalidName
- 612 – Except_MQ_Q_InvalidName
- 613 – Except_Lost_MQ_Q_Handle
- 614 – Except_Resource_Not_Found
- 615 – Except_Transformation_Error
- 616 – Except_Parent_Not_Running
- 617 – Except_Invalid_Run_State
- 618 – Except_Could_Not_Delete_Myself
- 619 – Except_Listener_State_Error
- 620 – Except_Invalid_Characteristic
- 621 – Except_Delete_Children_First
- 622 – Except_InvalidName
- 623 – Except_Class_Not_MQeRules
- 625 – Except_Object_Not_Started
- 626 – Except_ShutDown_Children_First
- 627 – Except_Invalid_Reg_Type
- 629 – Except_Message_Undelivered
- 630 – Except_Bridges_Already_Loaded
- 631 – Except_No_Transformer_Found
- 632 – Except_Lost_MQ_Connection
- 633 – Except_Client_Con_Not_Available
- 634 – Except_Exit_Class_Init_Error

Ordered alphabetically

Except_Admin_ActionNotSupported – 401

Description: The action is not supported in the base class. Sub-classes over-ride these blocked methods.

User action: This need not be a problem since MQSeries Everyplace should handle this condition internally.

Except_Admin_InvalidField – 402

Description: An unsupported field was specified in the MQeAdminMsg request.

User action: The supported MQeAdminMsg fields are available through the characteristics method.

Except_Admin_NotAdminMsg – 400

Description: A message arrived on the administration queue that was not a descendant of MQeAdminMsg.

User action: This need not be a problem since MQSeries Everyplace should handle this condition internally.

Except_Authenticate – 500

Description: The information provided to authenticate an action failed.

User action: Ensure that the credentials supplied are valid and repeat the request.

Except_BadRequest – 008

Description: An encrypt/decrypt key has not been set, or some bad hexadecimal data was passed for conversion.

User action: The associated text will be should provide guidance.

Except_Bridge_Internal_Error – 610

Description: An unexpected error occurred.

User action: Contact your local support representative.

Except_Bridge_Not_On_PreLoad_List – 604

Description: You tried to access a bridge resource and the MQbridges object is not loaded.

User action: You must set up the MQBridge class alias and restart the server before you can use a bridge resource on the MQSeries Everyplace server. The server program must also load and activate the bridge.

Except_Bridges_Already_Loaded – 630

Description: Two MQeBridges objects were attempted to be instantiated in one JVM. This is not allowed.

User action: Ensure that your configuration does not allow this to happen.

Except_Characteristic_Not_Found_In_Input – 606

Description: A resource in the MQSeries-bridge was trying to find a specific characteristic in an MQeFields object but it didn't exist in the MQeFields object. This could occur if some of the registry entry for this MQSeries-bridge resource has been removed.

User action: Only attempt to access valid characteristics from MQeFields objects.

Except_Characteristic_Read_Only_Violation – 603

Description: You tried to set a characteristic that cannot be set. Foe example, the name of the object cannot be changed. Neither can it's run state, without using a start/stop administration message.

User action: Amend the application that sets the characteristic so that it does not try to set any read-only attributes.

Except_Characteristic_Unknown – 602

Description: You tried to query a characteristic by sending an Inquire or InquireAll administration message to the bridge. The characteristic you asked for is not known to the object you directed the Inquire message at.

User action: Amend the application that generates the administration message so that it enquires only valid characteristics.

Except_Chnl_Attributes – 020

Description: MQSeries Everyplace channel attribute mis-match.

User action: The text accompanying this exception should be sufficient to determine why this problem occurred.

Except_Chnl_Destination – 022

Description: The MQSeries Everyplace channel destination is not recognised.

User action: Determine if your MQSeries Everyplace connection definition is correct. It may be that the adapter specified is not a descendant of MQeAdapter or a file descriptor string is incorrect.

Except_Chnl_ID – 024

Description: The MQSeries Everyplace channel is no longer available.

User action: Ensure that the remote queue manager is contactable. Determine whether the remote queue manager has closed this channel.

Except_Chnl_Limit – 023

Description: The maximum number of channels has been exceeded.

User action: You may consider increasing the maximum number of channels by adjusting the MaxChannels setting in the queue managers startup ini file.

Except_Chnl_Overrun – 025

Description: An MQePeerChannel has received two replies.

User action:

Except_Class_Not_MQeRules – 623

Description: A rules class was invoked that does not inherit from MQeRules.

User action: All rules must inherit from com.ibm.MQe.MQeRules- in other words, they must implement the **Permit()** method. Ensure that the rules classes specified in the configuration information is valid. See elsewhere in the documentation for a complete list of rule classes used by the MQSeries-bridge, and where they are used.

Except_Client_Con_Not_Available – 633

Description: An attempt was made to access a Client Connection object that does not exist.

User action: Ensure that your MQSeries-bridge objects point to a valid Client Connection object. If necessary, inquire that the Client Connection exists and is accessible.

Except_Closed – 010

Description: A communications channel is closed.

User action: This need not be a problem since MQSeries Everyplace should handle this condition internally. If you are developing an MQSeries Everyplace peer-to-peer solution you may need to handle this exception.

Except_Con_AdapterRequired – 232

Description: An adapter is required when a channel has been specified.

User action: Specify an adapter to use with the channel.

Except_Con_AliasAlreadyExists – 231

Description: The connection alias already exists.

User action: This connection alias is defined already, choose a new alias name. You may need to handle this exception.

Except_Con_InvalidName – 233

Description: The connection name does not conform to the naming standards.

User action:The connection name is an ascii string of at least 1 character long with a value between 20 and 128. The characters can be any of the following:

- Uppercase A-Z
- Lowercase a-z
- Numerics 0-9
- Period (.)
- Underscore (_)
- Percent sign (%)

The first and last character must not be a period (.)

Except_Could_Not_Delete_Myself – 618

Description: An unexpected error occurred.

User action: Contact your local support representative.

Except_Data – 007

Description: This exception occurs when MQSeries Everyplace detects a problem with the data. It may be to do with encryption/decryption or some corruption.

User action: The text accompanying this exception should be sufficient to determine why this problem was found.

Except_Delete_Children_First – 621

Description: The user tried to delete an administered object in the MQSeries-bridgeparent-child hierarchy, without having first deleted its children. This also means that the ″effect-children″ flag has not been set, so the delete event does not propogate to the administered object's children first. The children of the administered object must be deleted before the administered object can be deleted.

User action: Either delete all the administered object's children individually, or use the ″effects-children″ to cause them all to be deleted in the same action as deleting this administered object.

Except_Duplicate – 011

Description: An MQeFields object was being copied and a duplicate item was detected.

User action: Consider setting the replace parameter to `true` on the MQeFields.copy method.

Except_Exit_Class_Init_Error – 634

Description: A user exit defined as part of your Client Connection object could not be initialised.

User action: Ensure that your exits conform to the MQSeries Classes for Java user exits interfaces. Refer to the MQSeries Using Java book for more information.

Except_Generic_MQ_Error – 600

Description: When communicating with the MQSeries Everyplace server, the MQSeries classes for Java returned an error code. The MQSeries reason code is included in the exception.

User action: Refer to the *MQSeries Application Programming Reference* for details on how to interpret this error.

Except_Invalid_Characteristic – 620

Description: The user is probably trying to set the value of a characteristic via a update admin message, or a create admin message. For instance, the value is too high or too low.

User action: Check the range of values a particular characteristic can take, amend your request and try again.

Except_InvalidName – 622

Description: An MQSeries-bridge name contained invalid characters or is too long or too short.

User action: Choose a bridge name that is shorter than 40 characters, and contains only alphanumeric characters.

Except_Invalid_Registry_Entry_Name – 608

Description: The MQSeries-bridge was attempting to build the registry entry name of one of its objects, probably based off input from the user, through an administration message. The name does not conform to the rules set by the registry.

User action: Check if the characters in the registry entry name which were invalid, or the name was too long. Amend and try again.

Except_Invalid_Reg_Type – 627

Description: The registry did not understand the registry type used.

User action: The MQSeries Everyplace registry uses the concept of a ″registry type″ to indicate which sort of registry record it is currently dealing with. Entries of the same type are stored in the same file directory. Ensure that this registry type is valid.

Except_Invalid_Run_State – 617

Description: An unexpected error occurred.

User action: Contact your local support representative.

Except_Listener_State_Error – 619

Description: An error occurred while the listener tried to read or write state logging information.

User action: Verify that the listener state store class is correct, and that the state file is read/writable (in the case of MQeDiskFieldsAdapter) or the sync queue is accessible and with put and get enabled (in the case of MQeMQAdapter).

Except_Lost_MQ_Connection – 632

Description: The MQeMQAdapter could not acquire a valid handle to MQSeries.

User action: Review any previous information to determine why the connection to MQSeries failed. Correct the problem and retry.

Except_Lost_MQ_Q_Handle – 613

Description: A reference to an open MQSeries queue was suddenly found to be invalid.

User action: Determined how and why the connection to MQSeries failed. Try to restart the MQBridge object.

Except_Message_Undelivered – 629

Description: The listener was told (by a rule) to stop as a result of a message being undelivered. Alternatively, the listener can pass this MQeException onto the Undelivered Message Rules class after an unspecified error occurred during the put.

User action: Amend the Undelivered Message Rule if you do not want this exception to be thrown.

Except_MiniCertreg_ActivateFailed – 361

Description: The activate may fail for several reasons.

– A keyRingPassword was not supplied

– A certificate request failed

– A failure in the registration process

User action: The accompanying text to this exception gives more details.

Except_MQ_Q_InvalidName – 612

Description:

User action:

Except_MQ_QMgr_InvalidName – 611

Description: An MQSeries queue field contained invalid characters or is too long or too short.

User action: Ensure that the name of the MQSeries queue manager you are trying to access matches the value that is configured in MQSeries Everyplace.

Except_MQ_QMgr_Not_Available – 601

Description: When communicating with the MQSeries server, the Java Client returned an error code. The error returned seems to suggest that the MQSeries queue manger is unavailable. The MQSeries reason code is included in the exception.

User action: Refer to the *MQSeries Application Programming Reference* for details on how to interpret this error.

Except_No_Transformer_Found – 631

Description: The name of the default transformer could not be found.

User action: Set the classname of the transformer you wish to use inside the MQeMQBridgeQueue definition. In addtion, a default transformer should be set inside the bridge's configuration.

Except_NotAllowed – 012

Description: This occurs when MQSeries Everyplace detects a problem with the request and the state of a resource.

User action: The text accompanying this exception should be sufficient to determine why this problem was found.

Except_NotFound – 006

Description: The object is not found. For example, it may be a message, queue manager, field, or connection definition. This exception can also occur if the requested resource could not be located by the proxy when using the MQeWESAuthenticationAdapter, .

User action: The additional text accompanying this exception should enable you to understand this condition. Correct the problem and try again.

Except_NotSupported – 002

Description: This exception is thrown when an invalid method or operation is invoked for an object. This exception can also occur if an unrecognised error is thrown by the proxy when using the MQeWESAuthenticationAdapter .

User action: Determine why you are calling an inappropriate method for the class object. For example, a putMessage is not supported for MQeHomeServerQueue, MQeRemoteQueue and MQeStoreAndForwardQueue objects and will result in this exception being thrown. Correct the problem and try again.

Except_Not_Transmission_Queue – 609

Description: The MQBridge listener was told to listen for messages on an MQSeries queue that was not a transmission queue

User action: Change the listener's configuration so that it gets messages from a transmission queue, or change the queue definition on the server so that its usage is as a transmission queue.

Note: Applications putting messages for the listener should never put directly to this transmission queue- they should put to a remote queue definition whose target queue manager is the MQSeries Everyplace system

Except_Object_Not_Started – 625

Description: Thrown by a client connection object if it was asked to allocate a connection when its run state was 'stopped'.

User action: Ensure that the client connection object is started before trying to perform an MQSeries-bound operation.

Except_Parent_Not_Running – 616

Description: An unexpected error occurred.

User action: Contact your local support representative.

Except_PrivateReg_ActivateFailed – 351

Description: The activate may fail for several reasons.

- A keyRingPassword was not supplied
- A certificate request failed
- A failure in the registration process

User action: The accompanying text to this exception gives more details.

Except_PrivateReg_BadPIN – 350

Description: A PIN is required for a Private registry.

User action: Supply a valid PIN.

Except_PublicReg_ActivateFailed – 370

Description: The activate may fail for several reasons. The text accompanying the exception gives more information about the reason for failure.

User action: Resolve the problem and try again.

Except_PublicReg_InvalidRequest – 371

Description: The request type was not recognised.

User action: The accompanying text to this exception gives more details.

Except_Q_Active – 128

Description: A queue may not be deleted or restored whilst it is active.

User action: Stopping the queue manager will deactivate the queue.

Except_Q_Full – 125

Description: The queue is full, as specified by the value set for *MQeQueueAdminMsg.Queue_MaxQSize*.

User action: Determine if the queue size is sufficient for your solution. You may need to handle this exception.

Except_Q_InvalidName – 129

Description: The queue name does not conform to the naming standards.

User action: The queue name is an ascii string of at least 1 character long and in the range 21 to127. The characters can be any of the following:

- Uppercase A-Z
- Lowercase a-z Numerics 0-9
- Period (.)
- Underscore (_)
- Percent sign (%)

The first and last character must not be a period (.)

Except_Q_InvalidPriority – 124

Description: A queue's default priority is outside the valid range.

User action: Determine if your are attempting to set a queues' priority to a value outside the accepted range of 0-9.

Except_Q_MsgTooLarge – 126

Description: The message about to be put to a queue exceeds the value set for *MQeQueueAdminMsg.Queue_MaxMsgSize*.

User action: Determine if the max message size for this queue is sufficient for your solution. You may need to handle this exception.

Except_Q_NoMatchingMsg – 121

Description: On a **getMessage** there were no messages matching the filter.

User action: Check your filter is correctly specified. Check for messages in the queues' message store.

Except_Q_NotActive – 127

Description: An attempt was made to use a queue that was not initialized correctly.

User action: Check that the queue parameters are correct and repeat the request.

Except_Q_TargetRegistryRequired – 130

Description: The authenticator object indicates a registry is required for this queue, but none is set.

User action: Ensure that the queue registry characteristics match those specified in the authenticator object.

Except_QMgr_Activated – 102

Description: The queue manager is being either restored or reactivated when it is still active. This is not allowed.

User action: Stop the queue manager using the **MQeQueueManager.close** method before attempting to restore or activate it.

Except_QMgr_AlreadyExists – 103

Description: The queue manager already exists in the registry or in a connection definition.

User action: Choose a new queue manager name.

Except_QMgr_InvalidQMgrName – 101

Description: The queue manager name does not conform to the naming standards.

User action: The queue manager name is an ascii string of at least 1 character long and in the range 21 to 127. The characters can be any of the following:

- Uppercase A-Z
- Lowercase a-z
- Numerics 0-9 Period (.)
- Underscore (_)
- Percent sign (%)

The first and last character must not be a period (.)

Except_QMgr_InvalidQName – 104

Description: The queue manager name and queue name combination is invalid.

User action: Check that the name is not null or zero length.

Except_QMgr_NotActive – 100

Description: The queue manager is not in an active state to process this request.

User action: The **MQeQueueManager.activate** method is used to start a queue manager, and MQeQueueManager.close method is used to stop the queue manager. Restart the queue manager and repeat your request.

Except_QMgr_QExists – 105

Description: A queue, queue alias, home-server queue, or a store-and-forward queue definition already exists for this queue manager/queue combination.

User action: Only one homeserver-queue or one store-and-forward queue definition is allowed to a given destination.

Except_QMgr_NotConfigured – 113

Description: The queue manager's registry cannot be correctly validated.

User action: Determine if the registry subdirectory and files are in the correct location as specified in the ini file.

Except_QMgr_QDoesNotExist – 108

Description: A queue, queue alias, or a store-and-forward queue definition does not exist for this queue manager/queue combination.

User action: Create the queue, or queue alias, or add a queue manager to a store-and-forward queue.

Except_QMgr_QNotEmpty – 107

Description: An attempt has been made to delete a queue that still contains messages.

User action: Determine if you need to empty this queue before attempting to delete it. This may be an asynchronous queue which has not been able to transfer its messages to a remote queue manager.

Except_QMgr_UknownQMgr – 106

Description: The queue manager referenced has not been defined to this queue manager.

User action: Create a definition to the remote queue manager.

Except_QMgr_WrongQtype – 110

Description: A queue can only be created with a type of MQeQueue.Queue_Synchronous or MQeQueue.Queue_ASynchronous. The type specified is not recognised.

User action: Specify a correct value for the queue type.

Except_Reg_AddFailed – 309

Description: Creating a new registry entry has failed.

User action: The accompanying text to this exception gives more details.

Except_Reg_AlreadyExists – 302

Description: Either creating or renaming a registry entry the target name already exists.

User action: Choose a new target name.

Except_Reg_AlreadyOpen – 320

Description: An attempt has been made to activate the registry a second time.

User action: The registry is already open. Determine why a second attempt is being made.

Except_Reg_CRTKeyDecFailed – 317

Description: Decrypting data using the PrivateRegistry credentials has failed.

User action: The accompanying text to this exception gives more details.

Except_Reg_CRTKeySignFailed – 318

Description: Digitally signing (ISO9796) data using the PrivateRegistry credentials has failed.

User action: The accompanying text to this exception gives more details.

Except_Reg_DeleteFailed – 310

Description: Deleting a registry entry has failed.

User action: The accompanying text to this exception gives more details.

Except_Reg_DeleteRegistryFailed – 319

Description: Cleanup of the registry has failed.

User action: The accompanying text to this exception gives more details.

Except_Reg_DoesNotExist – 303

Description: A registry entry cannot be located.

User action: Determine why the entry does not exist.

Except_Reg_InvalidSession – 305

Description: Either the registry session is not active or LocalRegType is not specified.

User action: Check that the LocalRegType entry exists in the `[Registry]` section of the queue manager startup ini file.

Except_Reg_ListFailed – 313

Description: Listing registry entries has failed.

User action: The accompanying text to this exception gives more details.

Except_Reg_NotDefined – 306

Description: The registry type is null.

User action: The registry type may be QueueManager, Queue or RemoteQMgr.

Except_Reg_NotSecure – 321

Description: A secure registry is required but not available.

User action: Check to see why the registry is not secure.

Except_Reg_NullName – 301

Description: Rename of a registry entry has failed because one of the arguments is null.

User action: Determine why the argument is null and correct it.

Except_Reg_OpenFailed – 304

Description: Unable to open the registry.

User action: The accompanying text to this exception gives more details. Check that the file and correct permissions exist.

Except_Reg_ReadFailed – 311

Description: Reading a registry entry has failed.

User action: The accompanying text to this exception gives more details.

Except_Reg_RenameFailed – 315

Description: Renaming a registry entry has failed.

User action: The accompanying text to this exception gives more details.

Except_Reg_ResetPINFailed – 316

Description: Resetting the PIN on the registry entry has failed.

User action: The accompanying text to this exception gives more details.

Except_Reg_SearchFailed – 314

Description: Searching registry entries has failed.

User action: The accompanying text to this exception gives more details.

Except_Reg_UpdateFailed – 312

Description: Updating a registry entry has failed.

User action: The accompanying text to this exception gives more details.

Except_Registry_Update_Failed – 605

Description: An administration message has been sent to the MQSeries-bridge in order to create or update the value of a characteristic of one specific bridge resource. The bridge tried to store the new updated value in the registry but the store operation failed.

User action: Investigate why the registry could not store the information and retry the operation.

Except_Resource_Not_Found – 614

Description: An administration message was directed at an MQSeries-bridge resource that does not exist. (For example sending a stop message to a listener that does not exist).

User action: Check that all the ″name″ fields of the administration message to make sure the objects all exist.

Except_Rule – 013

Description: The MQeQueueRules class can't be loaded or an MQSeries Everyplace rules class has determined the action should be disallowed.

User action:

Except_S_BadIntegrity – 507

Description: The data digest sent as part of a message protected with either the MQeMAttribute or the MQeMTrustAttribute does not correspond to the data in the message. The message may have been tampered with.

User action: Report the problem to your security administrator.

Except_S_BadSubject – 510

Description: The subject name encoded in a mini-certificate is not the same as the name of the certificate in the registry. Someone may have been tampering with the certificate.

User action: Report the problem to your security administrator.

Except_S_Cipher – 501

Description: The wrong cipher or key was used when decrypting data.

User action: Ensure that the correct cipher and key are specified.

Except_S_CertificateExpired – 503

Description: The mini-certificate has expired.

User action: Report the problem to your security administrator and renew the certificate.

Except_S_MiniCertNotAvailable – 505

Description: The mini-certificate is not available. The text accompanying the exception specifies which certificate could not be found.

User action: If this happened putting or getting a message with the MQeMTrustAttribute, ensure that the sender and receiver mini-certificates are available in the appropriate public registries. If this happened with the MQeWTLSCertAuthenticator, one of the participating queue managers or queues may not have obtained their credentials correctly.

Report the problem to your security administrator.

Except_S_InvalidAttribute – 504

Description: There may be serveral reasons for this exception to be thrown.

User action: The accompanying text to this exception gives more details.

Except_S_InvalidSignature – 502

Description: The digital signature failed the ISO9796 verification. If the text accompanying the exception starts with ″validating data ...″, this happened when checking the signature on a message sent with the MQeMTrustAttribute. If the text accompanying the exception starts with ″MiniCert = ″ the mini-certificate named in the text was invalid.

User action: Report the problem to your security administrator.

Except_S_MissingSection – 509

Description: A section is missing from the startup parameters for the mini-certificate server.

User action: Ensure that all the sections are included in the startup parameters.

Except_S_NoPresetKeyAvailable – 508

Description: A key has not been provided when putting or sending a message with the MQeMAttribute.

User action: Provide the attribute with a key.

Except_S_RegistryNotAvailable – 506

Description: A private or public registry is not available.

User action: If this happened putting or getting a message with the MQeMTrustAttribute, ensure that you give the attribute the correct private and public registries. If this happened with the MQeWTLSCertAuthenticator, one of the participating queue managers or queues has not been set up correctly.

Report the problem to your security administrator.

Except_ShutDown_Children_First – 626

Description: An unexpected error occurred.

User action: Contact your local support representative.

Except_Stopped – 009

Description: A communications channel is not in the correct state. This need not be a problem since MQSeries Everyplace should handle this condition internally.

User action: If you are writing rules class extensions or developing an MQSeries Everyplace peer-to-peer solution then you may need to handle this exception.

Except_Syntax – 003

Description: This exception is thrown when an MQSeries Everyplace object is expecting some data to be in a particular format or style and it isn't.

User action: The text accompanying the exception should provide a clue as to the nature of the problem. For example, an MQSeries Everyplace adapter requires a correct specification that includes at least one colon (:) in the string - `Network:127.0.0.1:8080`

Except_Timeout – 014

Description: This exception is thrown when an MQSeries Everyplace channel fails to connect after a timeout period.

User action: Ensure the remote queue manager is contactable. Networking problems may be attributable to this condition.

Except_Transformation_Error – 615

Description: A problem occurred while trying to transform an MQSeries message into an MQSeries Everyplace message (or while trying to transform an MQSeries Everyplace message into an MQSeries message).

User action: If you're using a custom transformer, check your application logic so that it correctly transforms messages.

Except_Transport_Request – 041

Description: Unknown MQSeries Everyplace command request received.

User action: Contact your local IBM support representative.

Except_Type – 004

Description: The class object passed to an MQSeries Everyplace method is not of the correct type.

User action: The text accompanying the exception should provide additional information to resolve this problem.

Part 3. Appendixes

Appendix. Notices

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Bibliography

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- *MQSeries Everyplace for Multiplatforms Introduction*, GC34-5843-00
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