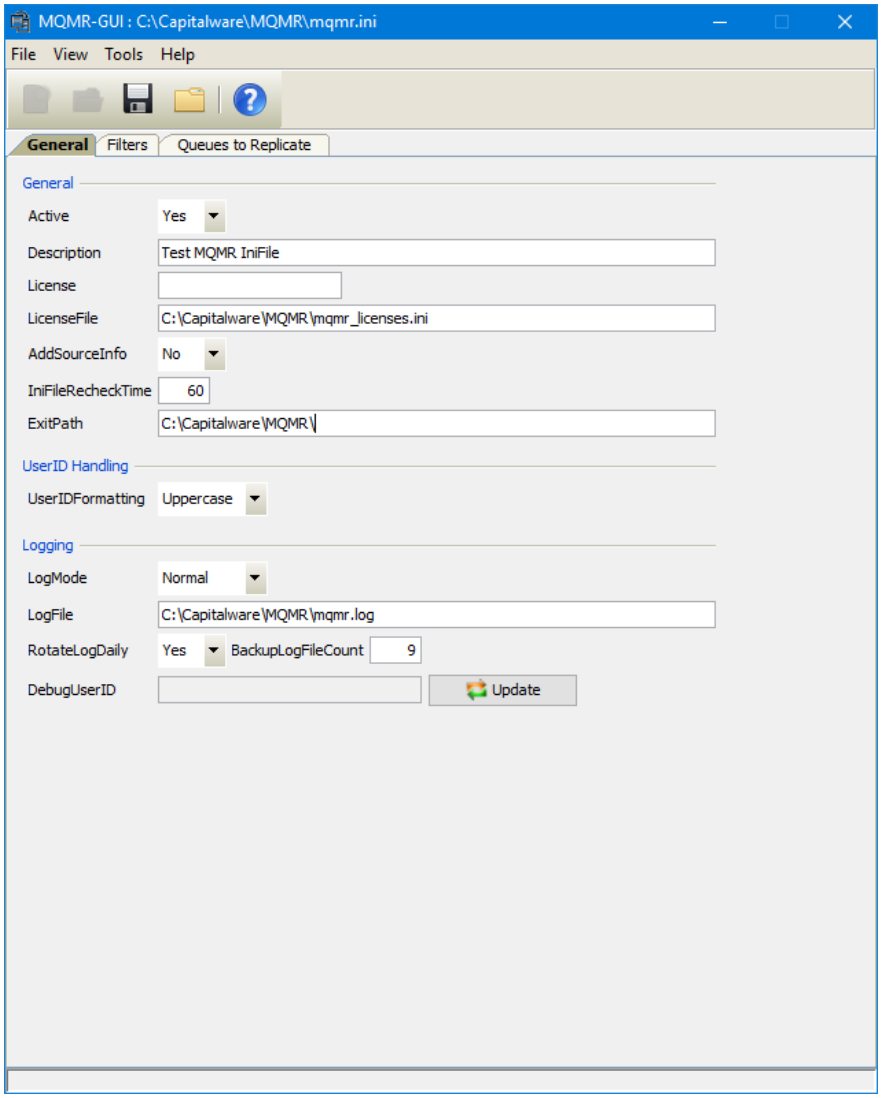
MQMR-GUI User Guide



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1 Introduction

1.1 Overview

MQMR-GUI application allows the user to create or update MQMR IniFiles. MQMR-GUI can run on any platform that supports Java v1.6 (or higher): Linux, Mac OS X and Windows Vista/7/8/8.1/10.

MQ Message Replication (MQMR) will clone messages being written (via MQPUT or MQPUT1 API calls) to an application's output queue and MQMR will write the exact same messages to 'n' target queues ('n' can be up to 100). When MQMR replicates a message both the message data and the message's MQMD structure will be cloned. This means that the fields of the MQMD structure (i.e. PutTime, MessageId, CorrelId, UserId, etc..) will be exactly the same as the original message's MQMD structure.

The MQAdmin can configure MQMR to perform message replication on any number of queues. The application messages put to each queue can be replicated and put to (up to) 100 target queues.

MQMR can clone messages being written to any MQ queue type. i.e. local, alias, remote and/or cluster queues (including transmission queues).

Existing applications do not need to be modified or updated nor is it necessary to set up Publish/Subscribe to use MQMR. MQMR is deployed and configured at the queue manager level; hence, no application changes are required.

MQMR is an MQ API Exit that operates with IBM MQ v7.1, v7.5, v8.0, v9.0, v9.1 and v9.2 in Windows, Unix, IBM i (OS/400) and Linux platforms.

2 Installation

This chapter will describe the installation and configuration (optional) of MQMR-GUI. For Windows users, the installation of MQMR-GUI is very simple and straightforward. Other Operating Systems will need to unzip the downloaded software package.

2.1 Prerequisites

This section lists the required hardware and software components needed to run the MQMR-GUI application.

2.2 Software

The following third party software components must be installed in order to properly run MQMR-GUI:

- Java Runtime Environment (JRE) 1.6 (or higher) or Java 2 SDK, Standard Edition (J2SE) v1.6 (or higher)

2.3 Hardware / OS

MQMR-GUI is capable of running on the following hardware platforms that support Java v1.6 (or higher):

- Linux
- Mac OS X
- WindowsVista, 7, 8, 8.1 & 10

2.4 Setting Up and Running the Application

The following section provides instructions on installing and running the MQMR-GUI application.

2.4.1 For Windows Users:

- Run the install program called: **mqmrgui-setup-withjre.exe**
- The installer should follow the standard Windows install procedures and provide default values for the users.
- When the install program has installed MQMR-GUI, there will be a newly created folder under **Start** -> All **Programs** called **MQMR-GUI**.
- To run **MQMR-GUI**, select the **MQMR-GUI** icon from within the **MQMR-GUI** folder.

2.4.2 For Linux and Max OS X (requires JRE/JDK):

- MQMR-GUI is provided as a zip file: **mqmrgui.zip**
- To unzip the file, open a shell prompt and execute the following commands:

  unzip mqmrgui.zip

- When the unzip command has finished, there should be a directory tree as follows:

  Capitalware/MQMR-GUI

- Change directory by typing the following:

  cd Capitalware/MQMR-GUI

- Before running MQMR-GUI for the first time, you need to add the execute attribute to the mqmrgui.sh shell scripts. Type the following:

  chmod +x mqmrgui.sh

- To run **MQMR-GUI** from the **Capitalware/MQMR-GUI** directory, then type the following:

  ./mqmrgui.sh

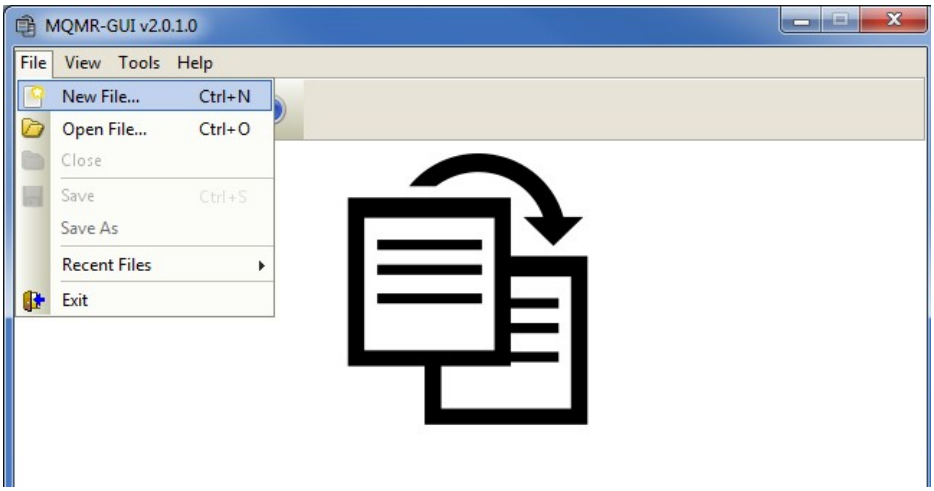
3 Creating / Updating IniFiles

This chapter will describe the how to create and/or update IniFiles.

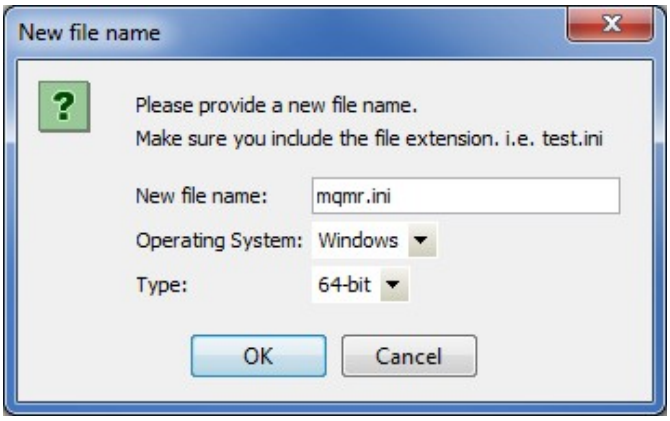
3.1 New IniFile

This section will describe how to create a new MQMR IniFile. The IniFile can be for a local or remote MQMR implementation.

From the main menu of MQMR-GUI, select **File** then **New File**



The following is the New IniFile panel:



Fill in the following information:

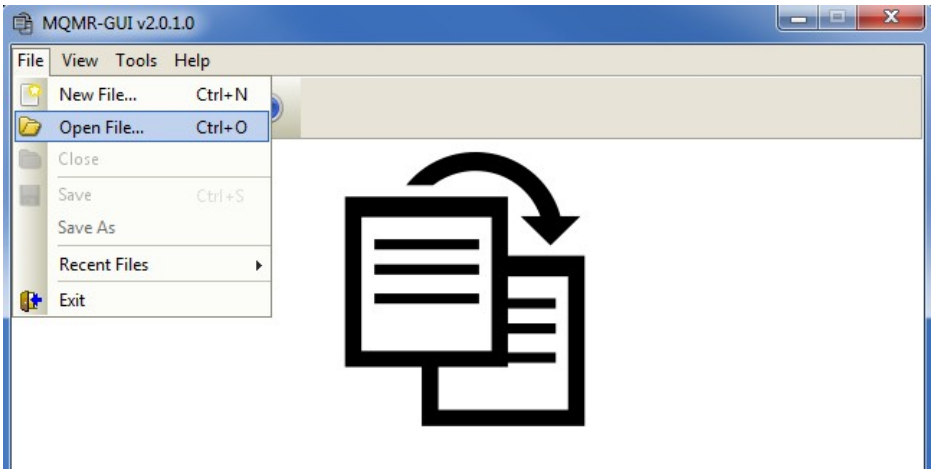
- Input a file name including the file extension of '.ini'
- Select the Operating System
- Choose between a 32-bit or 64-bit environment

Finally, click the **Ok** button to create and open the new MQMR IniFile.

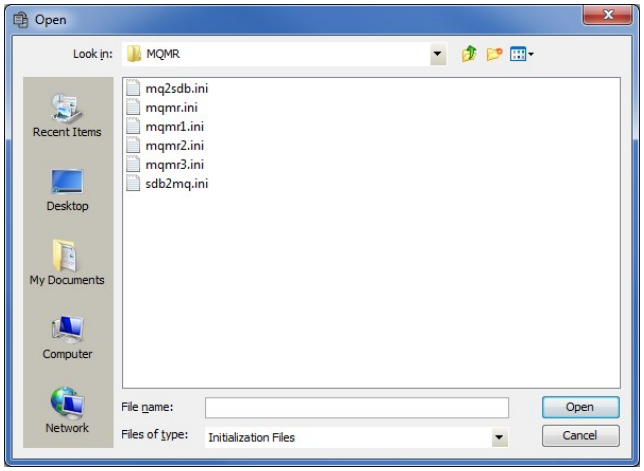
3.2 Open an IniFile

This section will describe how to open a MQMR IniFile to be viewed or edited. The IniFile can be for a local or remote MQMR implementation.

From the main menu of MQMR-GUI, select **File** then **Open File**



The following is the **Open** dialog box:

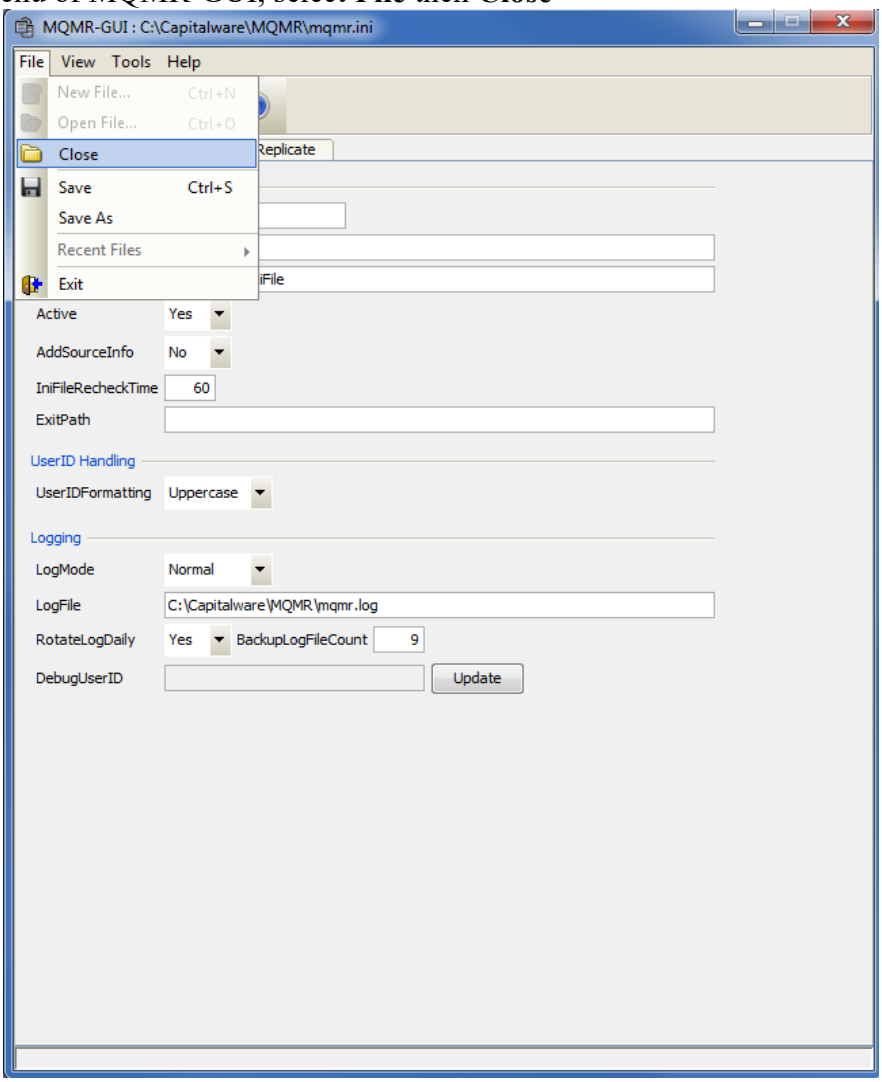


Select the IniFile that you wish to view / edit and then press the **Open** button.

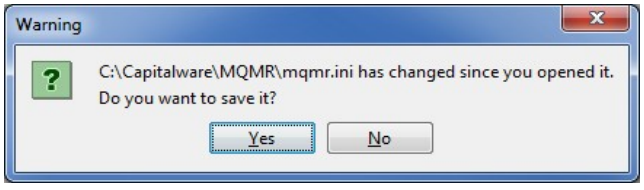
3.3 Close an IniFile

This section will describe how to close a MQMR IniFile.

From the main menu of MQMR-GUI, select **File** then **Close**



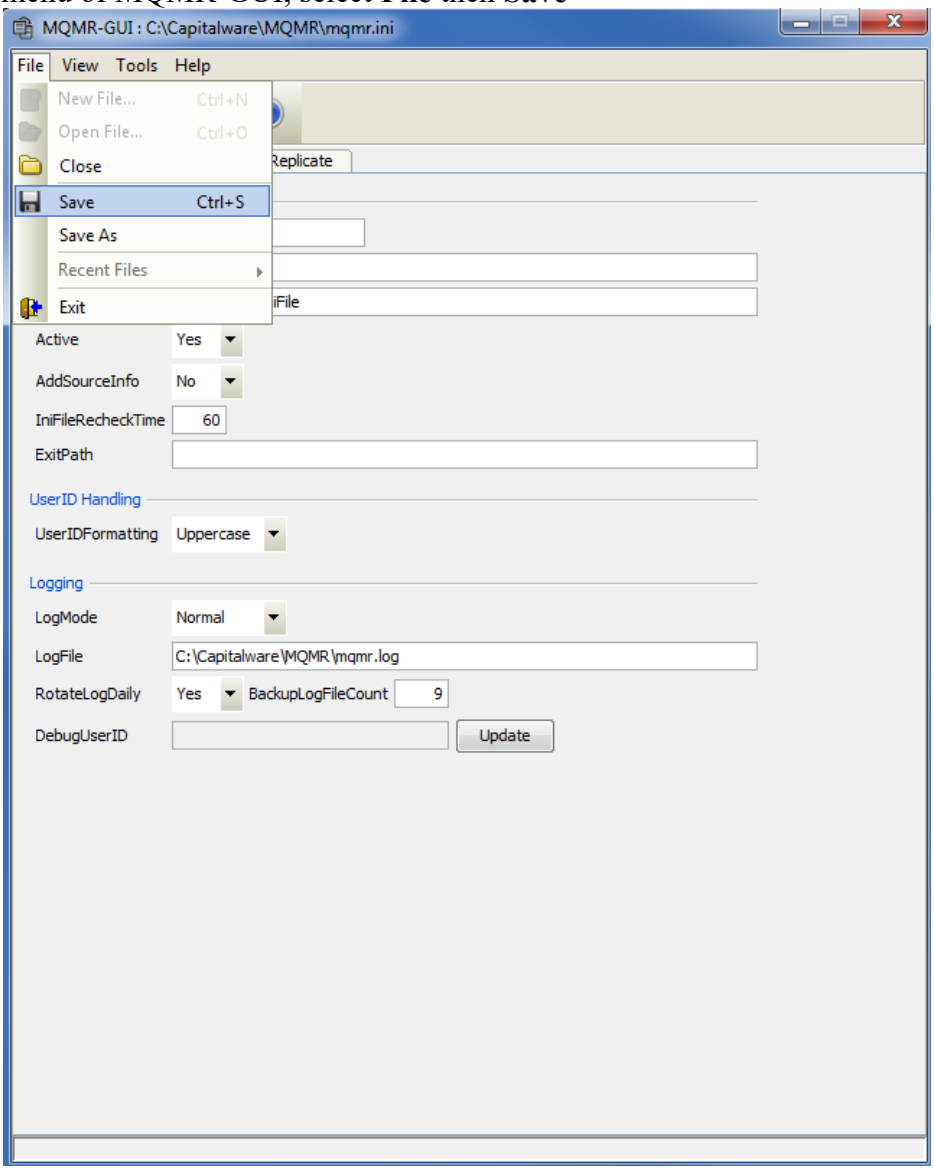
If the user has altered the IniFile then the user will be presented with the following dialog box:
Select **Yes** to save the changes otherwise select **No**.



The MQMR-GUI program will make a backup of the original file in the same directory and call it:
{inifilename}.backup

3.4 Save IniFile

This section will describe how to save an open MQMR IniFile.
From the main menu of MQMR-GUI, select **File** then **Save**

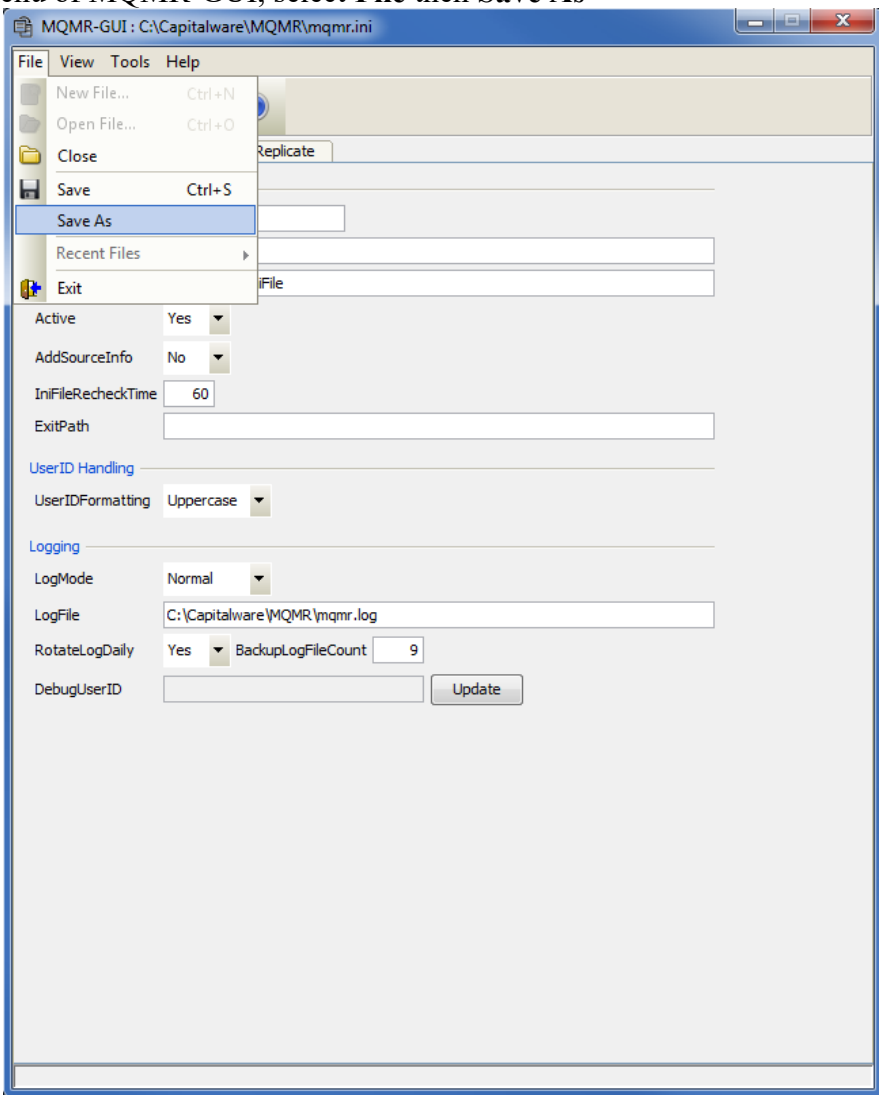


The parameter information will be saved to the IniFile.

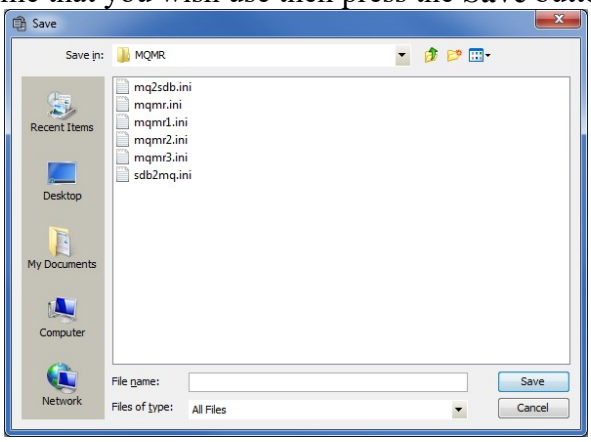
The MQMR-GUI program will make a backup of the original file in the same directory and call it:
{inifilename}.backup

3.5 Save As IniFile

This section will describe how to save an open MQMR IniFile.
From the main menu of MQMR-GUI, select **File** then **Save As**



Select or Input the IniFile name that you wish use then press the **Save** button.

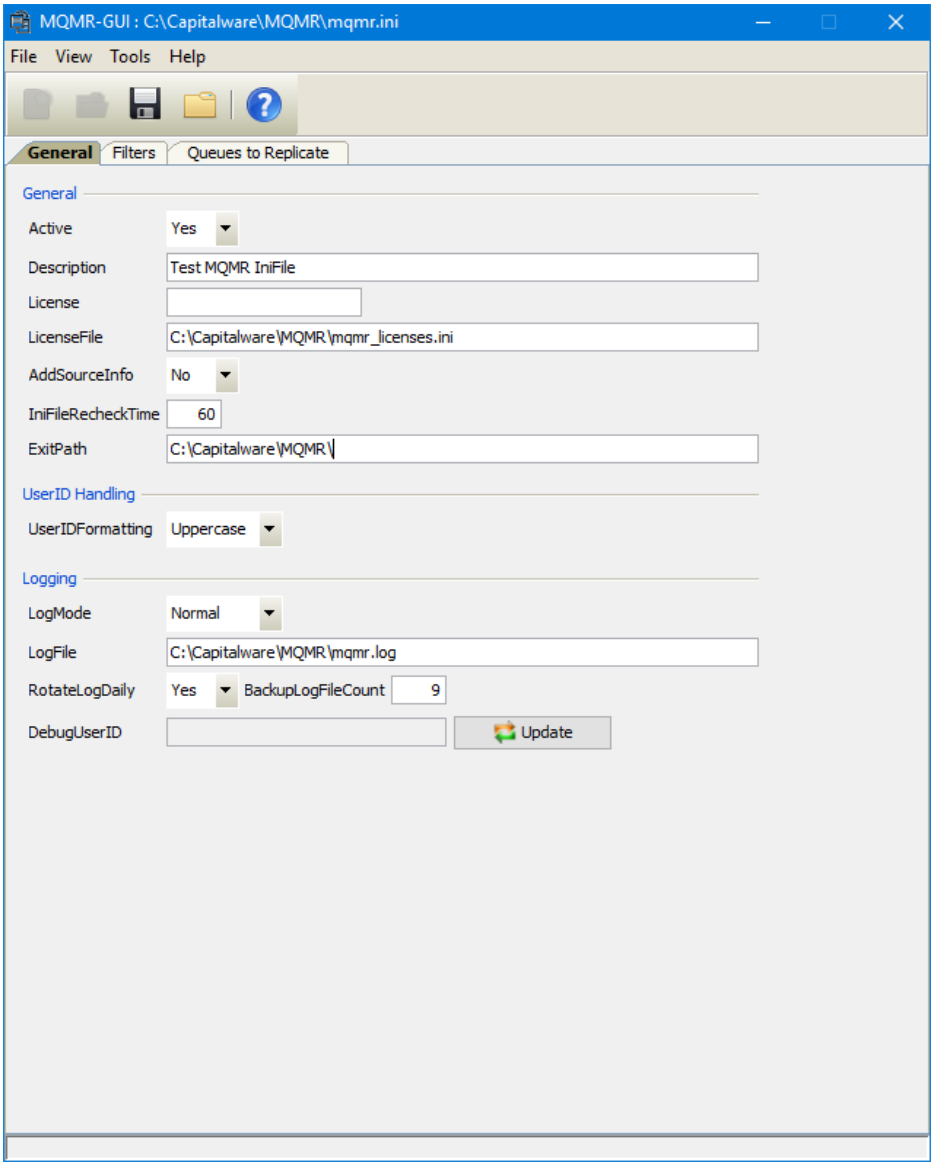


4 Tabs

This chapter will describe the various parameters on each tab.

4.1 General Tab

This section will describe various parameters on the General tab of a MQMR IniFile.
The following is a General Tab with default values:



The IniFile keywords and their values on the General Tab are discussed below.

4.1.1 General

This section describes the general keywords and their values.

➢ **Active** controls enabling or disabling MQMR.

➢ **Description** parameter is optional and is not used by MQMR. It can be used to provide a brief description / purpose of the IniFile.

➢ **License key** is provided by Capitalware Inc. The license is for a particular queue manager. Your license will look something like: 1000-AAAA-BBBBBBBB (Note: This is a sample license only and will NOT work).

➢ **LicenseFile** specifies the location of License file that contains all of the customer's license keys. The following are the default values for LicenseFile:

- For Windows: **C:\Capitalware\MQMR\mqmr_licenses.ini**
- For IBM MQ 32-bit on Linux: **/var/mqm/exits/mqmr_licenses.ini**
- For IBM MQ 64-bit on Unix and Linux: **/var/mqm/exits64/mqmr_licenses.ini**
- For IBM i: **/QIBM/UserData/mqm/mqmr/mqmr_licenses.ini**

➢ **AddSourceInfo** specifies if MQMR is will add the source queue and queue manager name to the message as a message property. AddSourceInfo supports 2 values [Y / N]. The default value is N.

➢ **IniFileRecheckTime** specifiies how often the MQMR IniFile will be read. Default is 60 seconds.

➢ **ExitPath** explicitly sets the API exit path.

4.1.2 UserID Handling

This section describes the necessary entries on how to handle the incoming UserID.

➢ **UserIDFormatting** supports 3 values [A / U / L]. ('As Is, Uppercase and Lowercase). The default value is A.

4.1.3 Logging

This section describes the keywords related to logging and their values.

➢ **LogMode** specifies what type of logging the user wishes to have. LogMode supports 4 values: Quiet, Normal, Verbose and Debug. The default value is Normal.

➢ **LogFile** specifies the location of the log file. The default is as follows:

- For Windows: C:\Capitalware\MQMR\mqmr.log
- For IBM MQ 32-bit on Linux: /var/mqm/exits/mqmr.log
- For IBM MQ 64-bit on Unix and Linux: /var/mqm/exits64/mqmr.log
- For IBM I: /QIBM/UserData/mqm/mqmr/mqmr.log

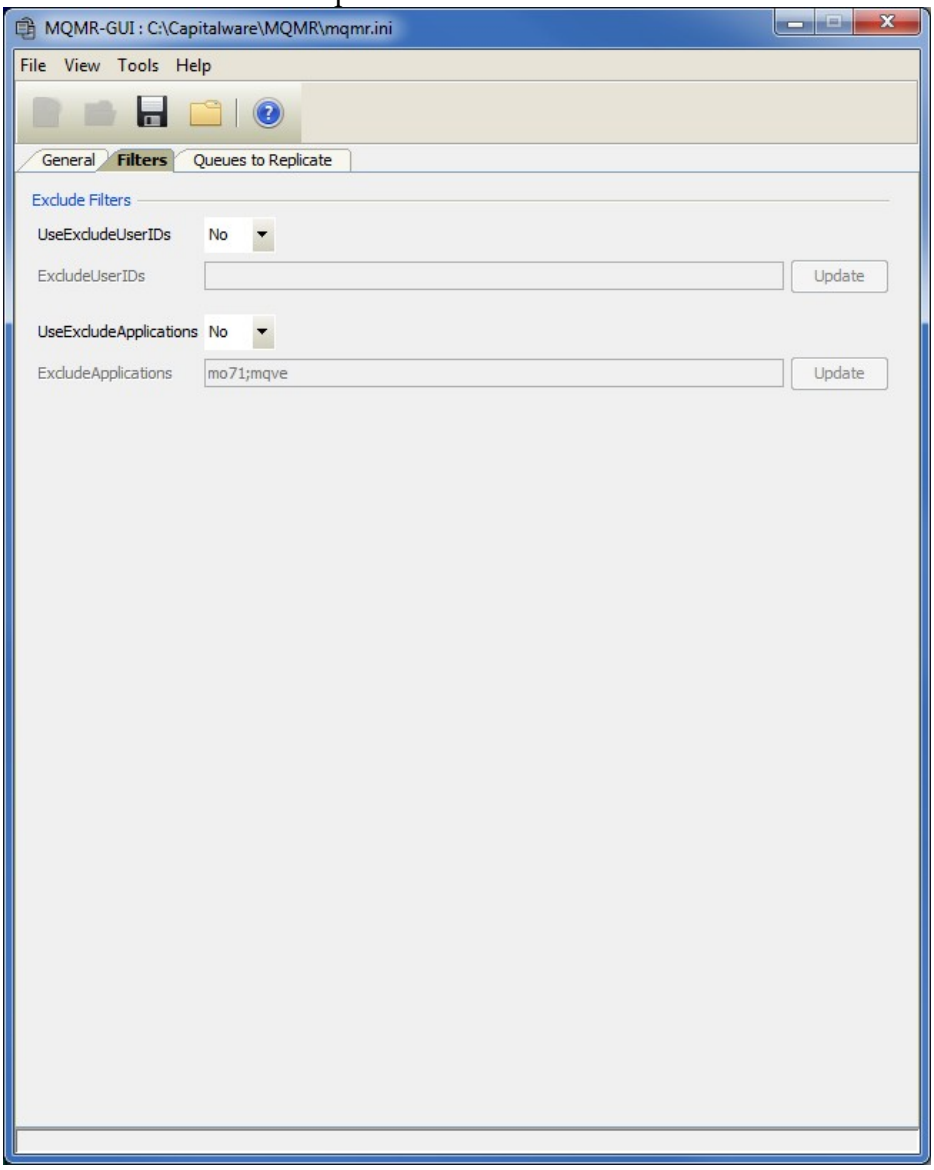
➢ **RotateLogDaily** specifies whether or not MQMR when auto-rotate the log files. The default value is Yes.

➢ **BackupLogFileCount** specifies the number of backup log files to be kept / retained. The default value is 9.

4.2 Filters Tab

This section will describe various parameters on the Filters tab of a MQMR IniFile.

The following is the Filters Tab with sample values:



The following are the IniFile parameters on the Filters Tab:

4.2.1 Exclude Filters

This section describes the Exclude Filter keywords and their values.

- **UseExcludesApplications** allows the user to specifically exclude applications from the encryption / decryption processing.

- **ExcludesApplications** explicitly specifies which applications should not be protected by MQMR.

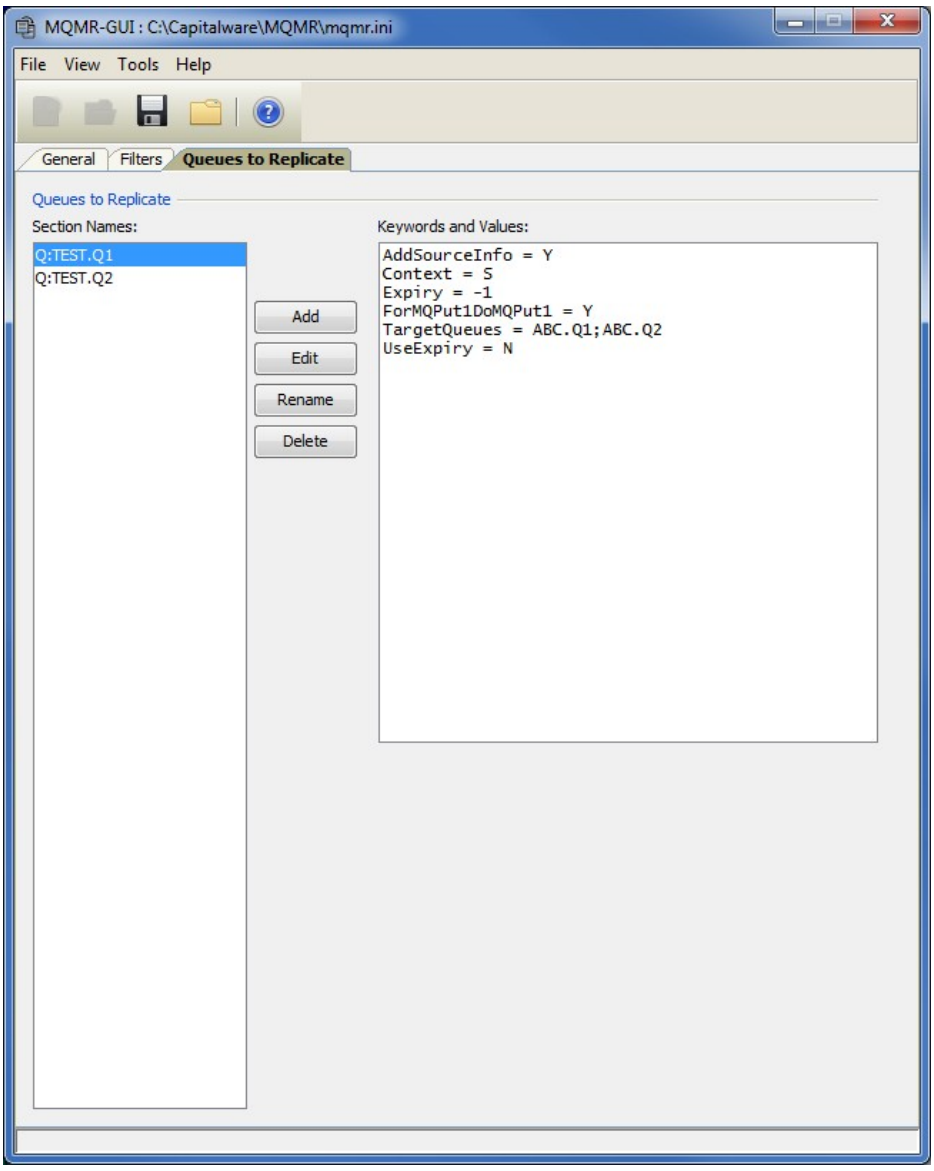
- **UseExcludesUserIDs** allows the user to specifically exclude UserIDs from the encryption / decryption processing.

- **ExcludesUserIDs** explicitly specifies which UserIDs should not be protected by MQMR.

4.3 Queues To Replicate Tab

This section will describe various parameters on the Queues To Replicate tab of a MQMR IniFile.

The following is the Queues To Replicate Tab with sample values:

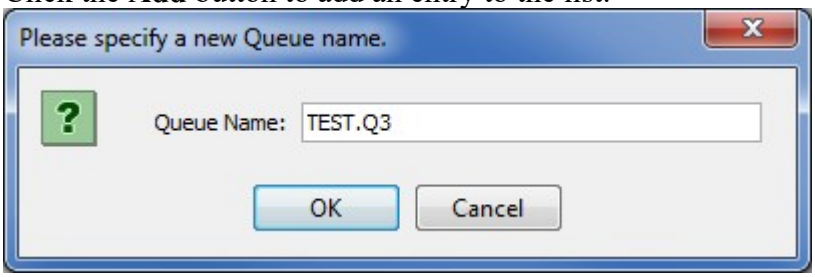


This section describes IniFile keywords that the user will use so that MQMR will perform message replication against a queue.

4.3.1 Managing the Queues

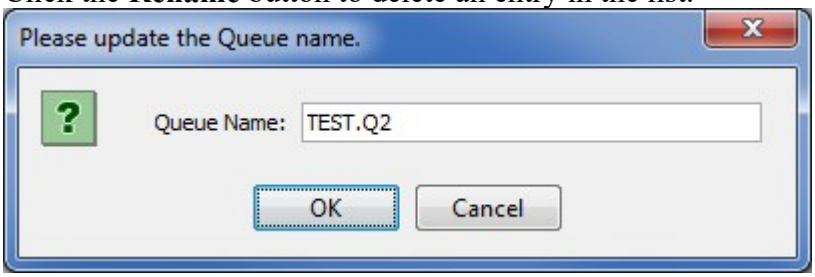
This section describes the necessary steps to manage the queues:

Click the **Add** button to add an entry to the list.



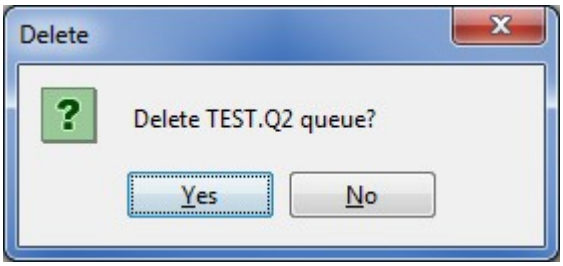
Input the queue name (wildcards are not allowed) and then click the **Ok** button.

Click the **Rename** button to delete an entry in the list.



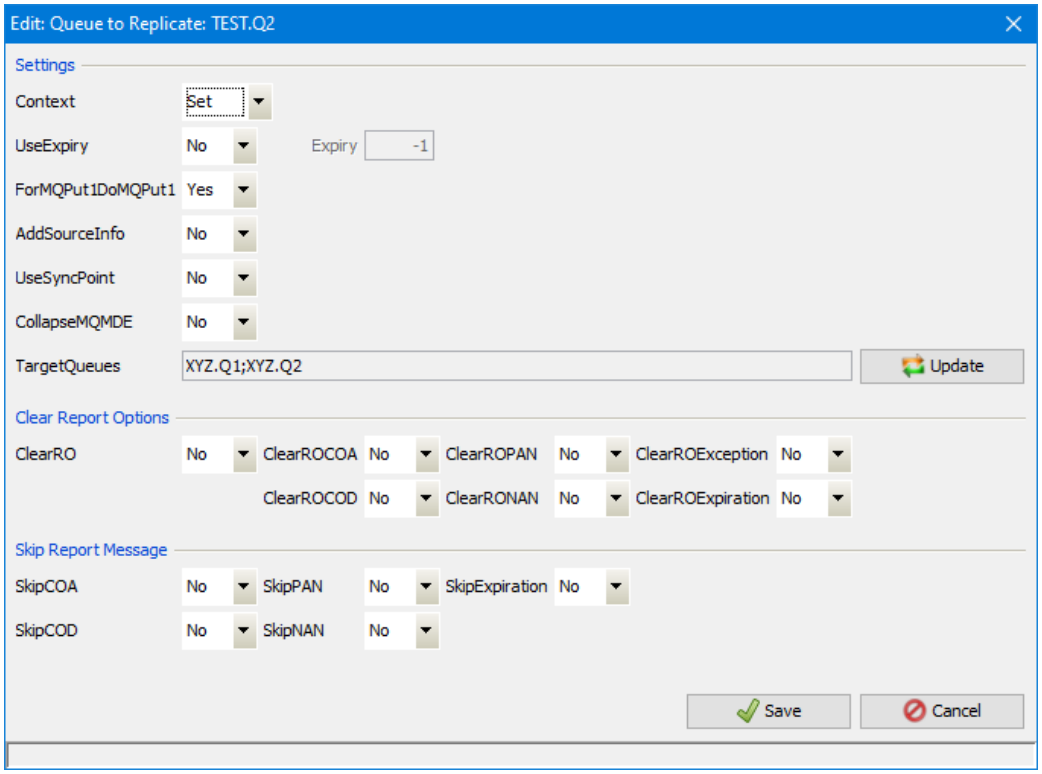
Update the queue name then click the **Ok** button.

Click the **Delete** button to delete an entry in the list.



Click the **Yes** button to permanently remove the entry from the list.

Click the **Edit** button to update an entry in the list.



4.3.1.1 Settings

This section describes the settings for the particular queue.

➢ **Context** indicates how MQMR will handle the clone message's MQMD. Context supports 2 values [Set/Default]. The default value is 'Set'.

- ***Set*** means that MQMR will set the context of the clone message's MQMD to be the same as the original message's MQMD.
- ***Default*** means that MQMR will use the default context for the clone message's MQMD.

➢ **UseExpiry** indicates if MQMR will overwrite the cloned/replicated message's Expiry value. The original message's Expiry value is NOT altered. UseExpiry supports 2 values [Y/N]. The default value is N.

➢ **Expiry** value (in milliseconds) used by MQMR to set the cloned/replicated message's Expiry value. The original message's Expiry value is NOT altered. The default value is '-1' (MQEI_UNLIMITED).

➢ **ForMQPut1DoMQPut1** indicates how MQMR will put a message to the target queues when an application uses MQPUT1 to put a message to the application's output queue. ForMQPut1DoMQPut1 supports 2 values [Y/N]. The default value is Y.

➢ **AddSourceInfo** specifies if MQMR is will add the source queue and queue manager name to the message as a message property. AddSourceInfo supports 2 values [Y / N]. The default value is N.

- **UseSyncPoint** specifies if MQMR should perform the MQPUT of the cloned message to the targets queues under a SyncPoint (unit of Work). UseSyncPoint supports 2 values [Y / N]. The default value is N.

- **CollapseMQMDE** specifies that MQMR should change the MQMD version from 1 to 2 (of the cloned message), move the MQMDE values from the embedded MQMDE structure and then remove the embedded MQMDE structure. CollapseMQMDE supports 2 values [Y / N]. The default value is N.

- **TargetQueues** keyword specifies a list of target queues. Separate each target queue with a semi-colon ';'.

4.3.1.2 Clear Report Options

- **ClearRO** indicates how MQMR will handle the message's MQMD Report Option field. ClearRO supports 2 values [Yes/No]. The default value is 'No'. Note: CleaRO keyword takes precedence over the other ClearRO*** fields.

- **ClearROCOA** indicates how MQMR will handle the message's MQMD Report Option field. ClearROCOA supports 2 values [Yes/No]. The default value is 'No'.

- **ClearROCOD** indicates how MQMR will handle the message's MQMD Report Option field. ClearROCOD supports 2 values [Yes/No]. The default value is 'No'.

- **ClearROPAN** indicates how MQMR will handle the message's MQMD Report Option field. ClearROPAN supports 2 values [Yes/No]. The default value is 'No'.

- **ClearRONAN** indicates how MQMR will handle the message's MQMD Report Option field. ClearRONAN supports 2 values [Yes/No]. The default value is 'No'.

- **ClearROException** indicates how MQMR will handle the message's MQMD Report Option field. ClearROException supports 2 values [Yes/No]. The default value is 'No'.

- **ClearROExpiration** indicates how MQMR will handle the message's MQMD Report Option field. ClearROExpiration supports 2 values [Yes/No]. The default value is 'No'.

4.3.1.3 Skip Report Message

- **SkipCOA** indicates how MQMR will handle a message with MQMD Feeback field set to MQFB_COA. SkipCOA supports 2 values [Yes/No]. The default value is 'No'.

- **SkipCOD** indicates how MQMR will handle a message with MQMD Feeback field set to MQFB_COD. SkipCOD supports 2 values [Yes/No]. The default value is 'No'.

- **SkipPAN** indicates how MQMR will handle a message with MQMD Feeback field set to MQFB_PAN. SkipPAN supports 2 values [Yes/No]. The default value is 'No'.

- **SkipNAN** indicates how MQMR will handle a message with MQMD Feeback field set to MQFB_NAN. SkipNAN supports 2 values [Yes/No]. The default value is 'No'.

- **SkipExpiration** indicates how MQMR will handle a message with MQMD Feeback field set to MQFB_EXPIRATION. SkipExpiration supports 2 values [Yes/No]. The default value is 'No'.

5 Other Tools

This chapter will describes how the other tools included with MQMR-GUI.

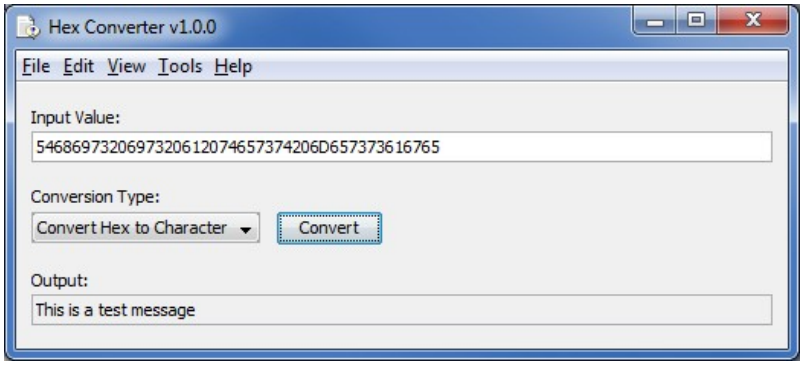
5.1 Hex Converter

This section will describe how to invoke and use the Hex Converter tool. Hex Converter tool can convert a hexadecimal number to its corresponding string representation and vice versa. i.e. 0x'3132333041424344' to '1230ABCD'.

For the Other Tools, you can have unlimited number of them running (up to what your box can support). Also, while any of the Other Tools are running, the user can still use MQMR-GUI.

From the main panel of MQMR-GUI, select **Tools**, then **Hex Converter**.

This is the main panel of the Hex Converter.



- The user first selects the Conversion type: "Hex to Character" or "Character to Hex"
- Input the value hex or character value into the "Input Value" field
- Click the Convert button to convert the data

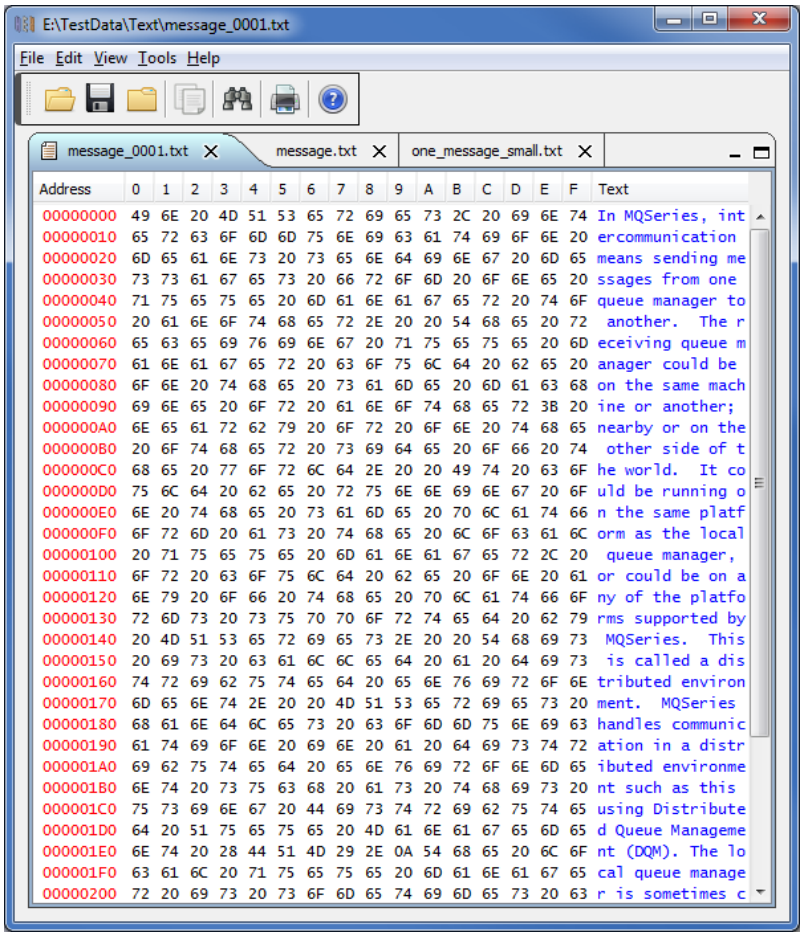
5.2 Hex Editor

This section will describe how to invoke and use the Hex Editor tool. The Hex Editor is a simple multipurpose hex editor. The Hex Editor supports multi-file editing.

For the Other Tools, you can have unlimited number of them running (up to what your box can support). Also, while any of the Other Tools are running, the user can still use MQMR-GUI.

From the main panel of MQMR-GUI, select **Tools**, then **Hex Editor**.

This is the main panel of the Hex Editor and it has 3 open files.



Supported features:

- Open / editing of multiple files
- Recent File List
- Copy, Find and Find Next
- Save, Save As and Print

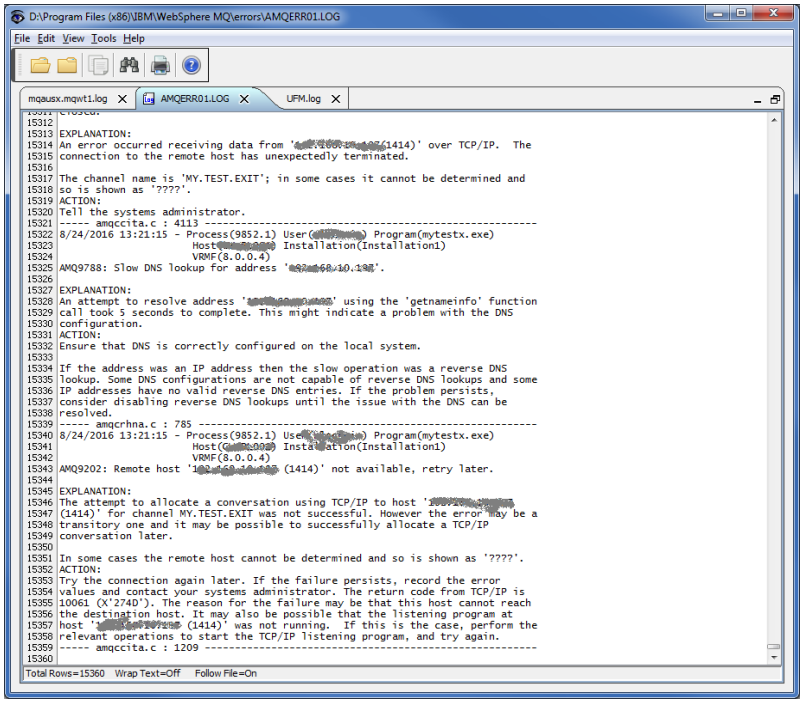
5.3 Tail File

This section will describe how to invoke and use the Tail File tool. The Tail File is a simple multipurpose file monitoring viewer. The Tail File supports monitoring of multiple files at the same time.

For the Other Tools, you can have unlimited number of them running (up to what your box can support). Also, while any of the Other Tools are running, the user can still use MQMR-GUI.

From the main panel of MQMR-GUI, select **Tools**, then **Tail File**.

This is the main panel of the Tail File and it has 3 open files.



Supported features:

- Opening of multiple files
- Wrap Text and Recent File List
- Copy, Find, Find Next and Print

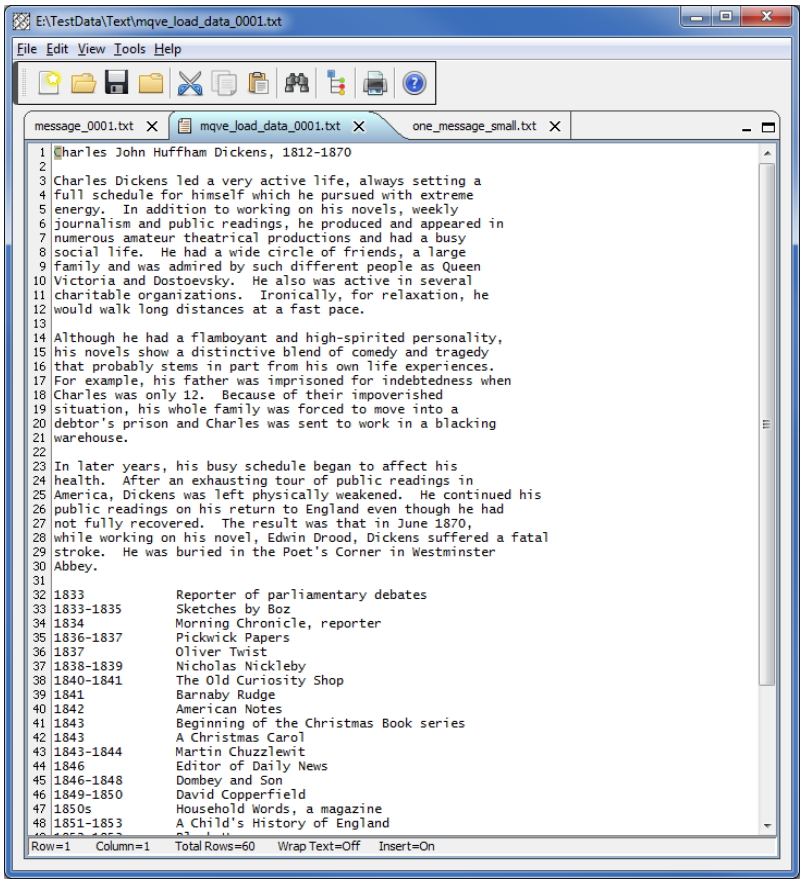
5.4 Text Editor

This section will describe how to invoke and use the Text Editor tool. The Text Editor is a simple multipurpose plain-text editor. The Text Editor supports multi-file editing.

For the Other Tools, you can have unlimited number of them running (up to what your box can support). Also, while any of the Other Tools are running, the user can still use MQMR-GUI.

From the main panel of MQMR-GUI, select **Tools**, then **Text Editor**.

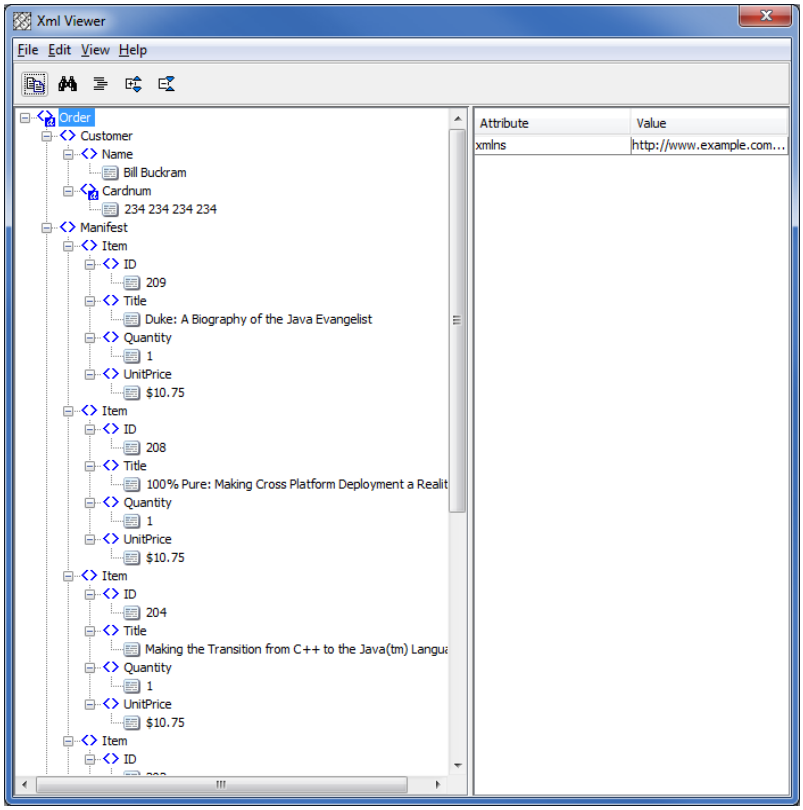
This is the main panel of the Text Editor and it has 3 open files.



Supported features:

- Open / editing of multiple files
- Builtin XML Viewer, Wrap Text
- Recent File List
- Cut, Copy, Paste, Find and Find Next
- Save, Save As and Print

The following shows the Text Editor's builtin XML Viewer.



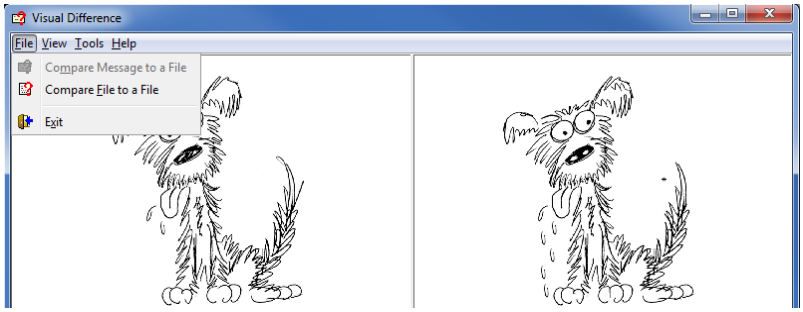
5.5 Visual Difference

This section will describe how to invoke and use the Visual Difference tool. The Visual Difference is a simple file to file comparison tool.

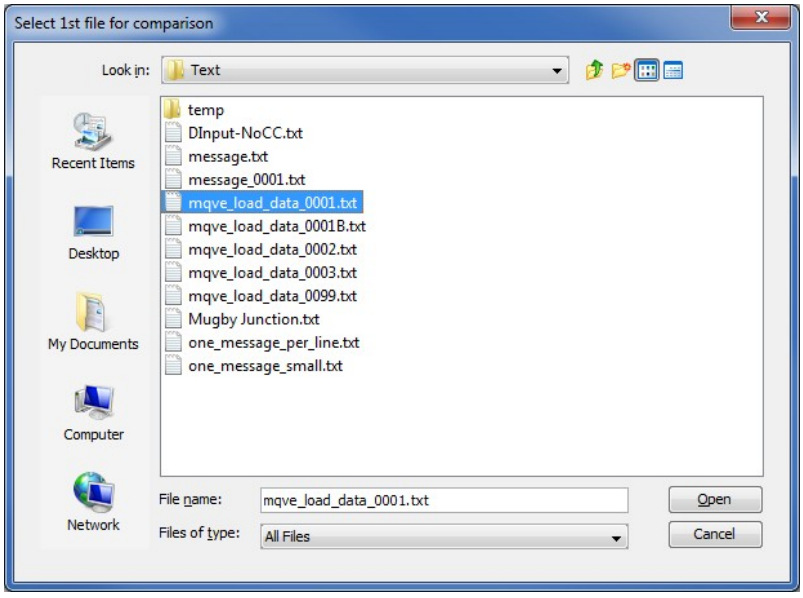
For the Other Tools, you can have unlimited number of them running (up to what your box can support). Also, while any of the Other Tools are running, the user can still use MQMR-GUI.

From the main panel of MQMR-GUI, select **Tools**, then **Visual Difference**.

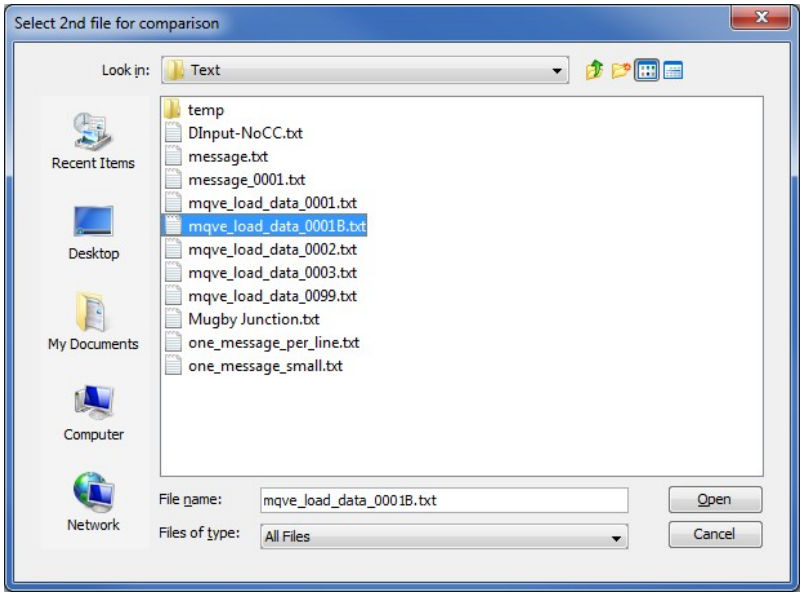
This is the main panel of the Visual Difference. To initiate the file comparison process, click File and then click Compare File to File



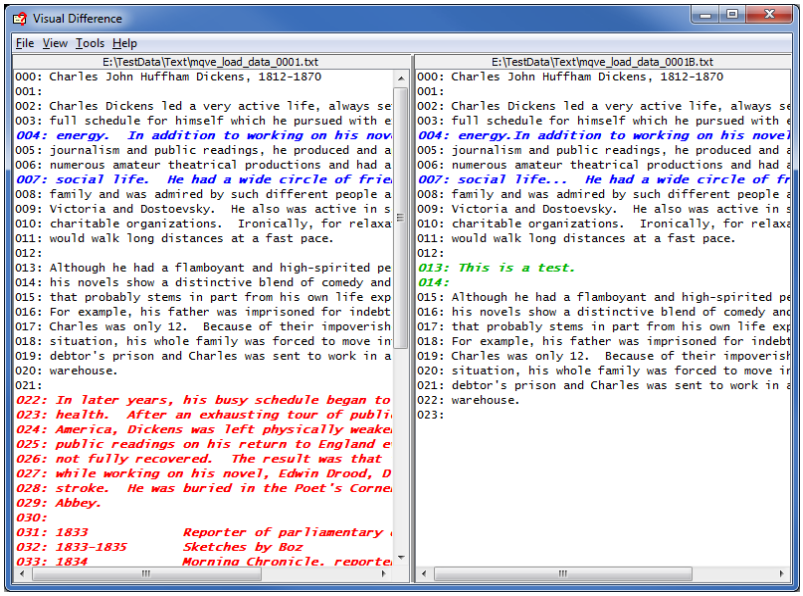
First the user needs to select the first file for the comparison.



Next, the user needs to select the second file for the comparison.



The following shows the difference between 2 files. Differences are highlighted: Green for inserts, Red for deletions and Blue for changes.



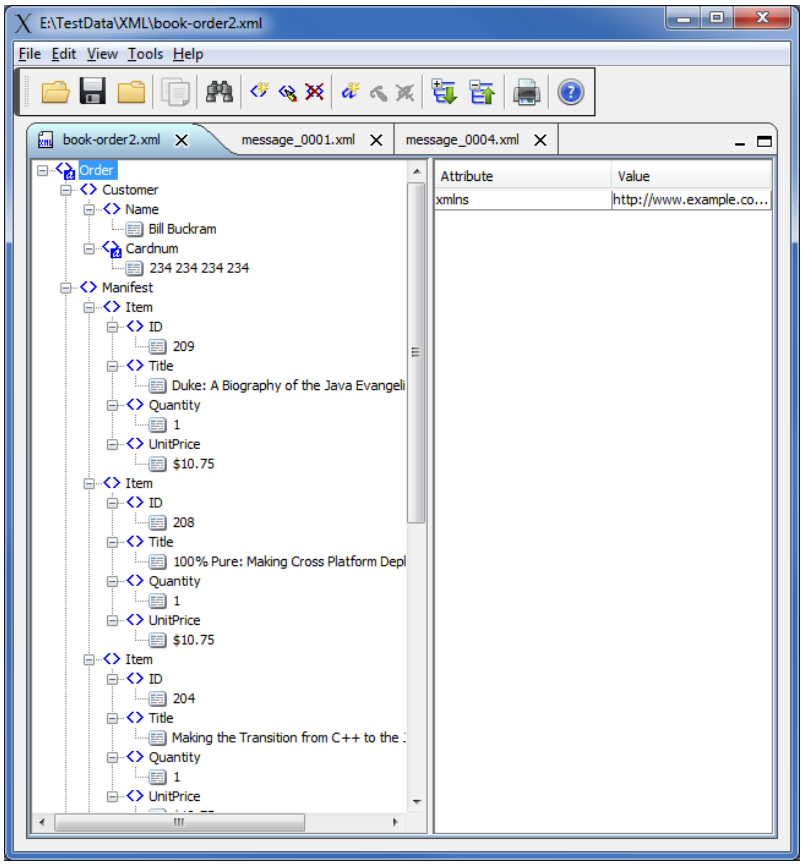
5.6 XML Editor

This section will describe how to invoke and use the XML Editor tool. The XML Editor is a simple multipurpose plain-text editor. The XML Editor supports multi-file editing.

For the Other Tools, you can have unlimited number of them running (up to what your box can support). Also, while any of the Other Tools are running, the user can still use MQMR-GUI.

From the main panel of MQMR-GUI, select **Tools**, then **XML Editor**.

This is the main panel of the XML Editor and it has 3 open files.



Supported features:

- Open / editing of multiple files
- Recent File List
- Copy, Find and Find Next
- Save, Save As and Print

6 Miscellaneous

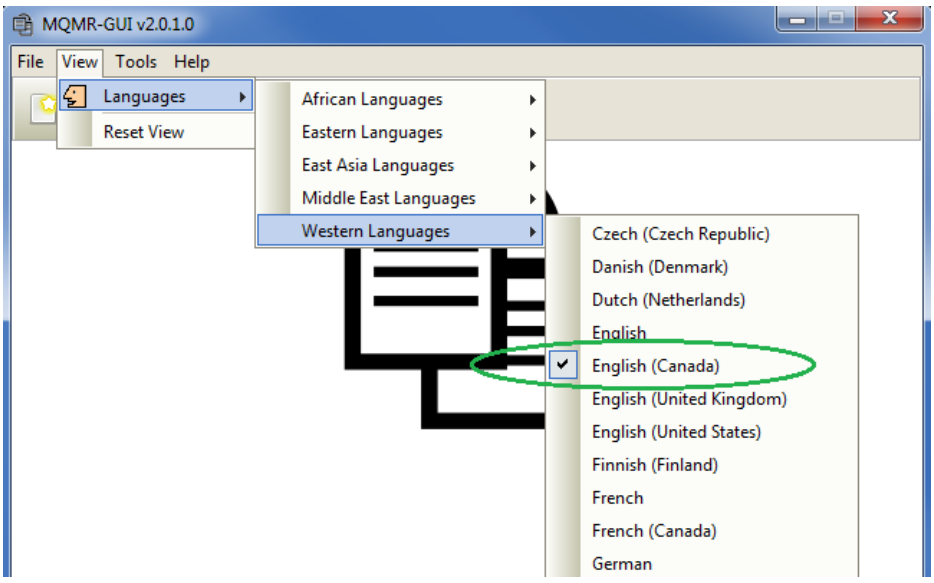
This chapter will describes how the miscellaneous features of MQMR-GUI.

6.1 Language

This section will describe how to switch MQMR-GUI's Language Text to another Language Text. MQMR-GUI has been designed to support Java's multi-language environment. Currently, MQMR-GUI has language support (menu items, buttons and titles) for the following 55 languages:

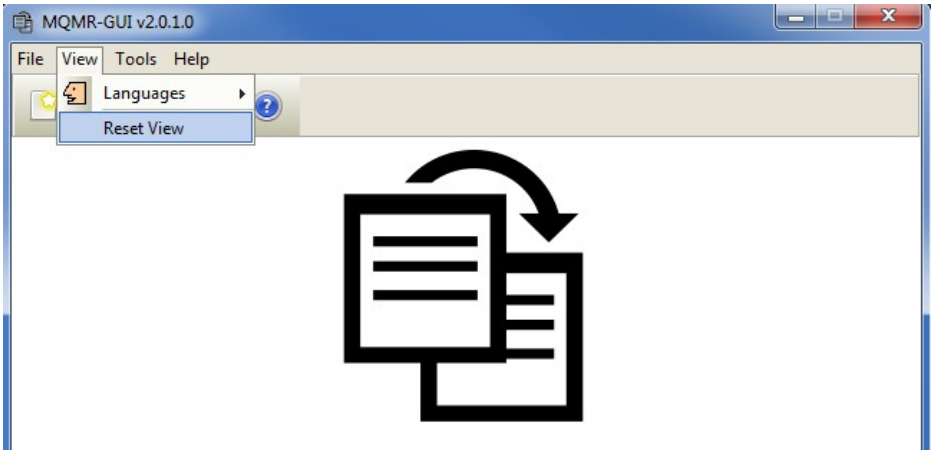
➢ Amharic (am)	➢ Hungarian (hu)	➢ Shona (sn)
➢ Arabic (ar)	➢ Igbo (ig)	➢ Sindhi (sd)
➢ Azerbaijani (az)	➢ Indonesian (in)	➢ Spanish (es)
➢ Bengali (bn)	➢ Italian (it)	➢ Sundanese (su)
➢ Cebuano (ceb)	➢ Japanese (ja)	➢ Swahili (sw)
➢ Chinese (China) (zh)	➢ Javanese jv)	➢ Swedish (sv)
➢ Chinese (Taiwan) (zh)	➢ Kannada (kn)	➢ Tamil (ta)
➢ Czech (cs)	➢ Korean (ko)	➢ Telugu (te)
➢ Danish (da)	➢ Malay (ms)	➢ Thai (th)
➢ Dutch (nl)	➢ Malayalam (ml)	➢ Turkish (tr)
➢ English (en)	➢ Marathi (mr)	➢ Ukrainian (uk)
➢ Finnish (fi)	➢ Norwegian (no)	➢ Urdu (ur)
➢ French (fr)	➢ Panjabi (pa)	➢ Uzbek (uz)
➢ German (de)	➢ Pashto (ps)	➢ Vietnamese (vi)
➢ Greek (el)	➢ Persian (fa)	➢ Xhosa (xh)
➢ Gujarati (gu)	➢ Polish (pl)	➢ Yoruba (yo)
➢ Hausa (ha)	➢ Portuguese (pt)	➢ Zulu (zu)
➢ Hebrew (iw)	➢ Romanian (ro)	
➢ Hindi (hi)	➢ Russian (ru)	

From the main panel of MQMR-GUI, select **View**, then **Language**.



6.2 Reset View

This section will describe how to reset the view of MQMR-GUI if the display is not correct.



The user can also reset the view from the command line by passing in the ***RG*** parameter.

6.2.1 Windows Command Line

On Windows, issue the following command to reset the view of MQMR-GUI:

mqmrgui.exe RG

6.2.2 Linux and macOS Command Line

On Linux and macOS, issue the following command to reset the view of MQMR-GUI:

./mqmrgui.sh RG

7 Appendix A – Frequently Asked Questions (FAQ)

Q. Can IniFiles be create on Windows for MQMR on Unix?
A. Yes. Once the IniFile has been saved, the user can copy or ftp (in ASCII mode) the file to the remote server.

8 Appendix B – MQMR-GUI Upgrade Procedures

To upgrade an existing installation of MQMR-GUI, please do the following in the appropriate section below.

8.1 Windows Upgrade

- Stop all instances of MQMR-GUI
- Backup any MQMR-GUI data files in the MQMR-GUI install directory
- Go to the Windows **Control Panel** and select **Program and Features**
- Select MQMR-GUI and then click the **Uninstall** button
- Run the install program called: **mqmrgui-setup-withjre.exe**
- The installer follows the standard Windows install procedures and provides default values for the user.
- When the install program has completed execution, there will be a newly created folder under **Start** -> **All Programs** called **MQMR-GUI**.
- Restore the MQMR-GUI data files if necessary
- To run MQMR-GUI, select the MQMR-GUI icon from within the MQMR-GUI folder.

8.2 Linux or macOS Upgrade

- Stop all instances of MQMR-GUI
- Backup any MQMR-GUI data files in the MQMR-GUI install directory
- Remove the installation i.e. rm -Rf Capitalware/MQMR-GUI/
- Unzip the file, open a shell prompt and execute the following commands:

  unzip mqmrgui.zip

- When the unzip command has finished, there should be a directory tree as follows:

Capitalware/MQMR-GUI

- Change directory by typing the following:

  cd Capitalware/MQMR-GUI

- Before running MQMR-GUI for the first time, you need to add the execute attribute to the mqmrgui.sh shell scripts. Type the following:

  chmod +x mqmrgui.sh

- To run MQMR-GUI from the Capitalware/MQMR-GUI directory, then type the following:

  ./mqmrgui.sh

9 Appendix C – Support

The support for MQMR-GUI can be found at the following location:

By email at:
support@capitalware.com

By regular mail at:

Capitalware Inc.
Attn: MQMR-GUI Support
Unit 11, 1673 Richmond Street, PMB524
London, Ontario N6G2N3
Canada

10 Appendix D – Summary of Changes

- MQMR-GUI v2.2.0
  - Rearranged the fields on the General tab.

- MQMR-GUI v2.1.0
  - Added the 'Recent Files' menu option under the File menu option.
  - Added images to buttons for more user-friendly display.
  - Added support for 55 languages for the menu options, buttons and titles (not IniFile keywords).
  - Added the 'Reset View' menu option under the View menu option.
  - Added 6 tools under the Tools menu option:
    - Compare File to a File
    - Hex Converter
    - Hex Editor
    - Tail File
    - Text Editor
    - XML Editor

- MQMR-GUI v2.0.0
  - Added the ability to clear the MQMD Report Options field - new keywords: ClearRO, ClearROCOA, ClearROCOD, ClearROPAN, ClearRONAN, ClearROException & ClearROExpiration
  - Added the ability to skip messages with the MQMD Feedback field set to particular values - new keywords: SkipCOA, SkipCOD, SkipPAN, SkipNAN & SkipExpiration
  - Added the ability to use SyncPoint for cloned messages - new keyword: UseSyncPoint

- MQMR-GUI v1.2.0
  - Added the ability to exclude applications - new keywords: UseExcludeApplications & ExcludeApplications
  - Added the ability to exclude UserIDs - new keywords: UseExcludeUserIDs & ExcludeUserIDs
  - Added UserIDFormatting flag to force lowercase/uppercase/as_is UserID formatting on all platforms

- MQMR-GUI v1.0.1
  - Added new keyword AddSourceInfo which will add the source queue manager name and queue name to the cloned message as message properties

- MQMR-GUI v1.0.0
  - Initial release.

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