

# *SQLite DB To MQ Queue (SDB2MQ) Operation Manual*



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# 1 Introduction

## 1.1 Overview

*SQLite DB To MQ Queue* (SDB2MQ) program will load records from an SQLite database as messages to an MQ Queue.

SDB2MQ program can be run from the Windows Command Prompt, Unix/Linux Shell or IBM i Command Prompt. The user simply configures the IniFile (i.e. sdb2mq.ini) with the appropriate parameters before running the program. The user can control the starting position within the database to read records from and the number of records to be read.

SDB2MQ program has 3 parameters related to MQ: QMgrName, QueueName and Context. QMgrName is used for the name of the Queue Manager. QueueName is used for the name of the Queue. Context specifies whether or not SDB2MQ program should set the context for the messages.

SDB2MQ has been tested on Windows, IBM i, Unix and Linux environments.

If the message data in the SQLite database was compress when MQ2SDB inserted the record to the database, SDB2MQ will automatically decompress the message data before putting the message to the queue.

Note: Raspberry Pi is a Linux ARM 32-bit OS (Operating System). Hence, simply follow the Linux 32-bit instructions for installing and using the solution on a Raspberry Pi.

## **2 Installing SQLite DB To MQ Queue**

SDB2MQ is included with MQMR, so there is no extra installation steps.

## 3 Starting SDB2MQ

This section describes the starting of SDB2MQ.

### 3.1 Manually

SDB2MQ is started via a Windows Command Prompt, Unix/Linux shell or IBM i shell.

#### 3.1.1 Windows

To use the sdb2mq program on Windows, open a Command Prompt and type the following:

```
cd /D C:\Capitalware\MQMR\  
sdb2mq.exe
```

#### 3.1.2 Linux 32-bit

To use the sdb2mq program on Linux for MQ 32-bit, open a shell prompt and type the following:

```
cd /var/mqm/exits/  
./sdb2mq
```

#### 3.1.3 Unix and Linux 64-bit

To use the sdb2mq program on Unix/Linux for MQ 64-bit, open a shell prompt and type the following:

```
cd /var/mqm/exits64/  
./sdb2mq
```

#### 3.1.4 IBM i

To use the sdb2mq program on IBM i, issue the following command on the Command Prompt:

```
CALL MQMR/SDB2MQ
```

## 4 IniFile Parameters

### 4.1 Logging

- **LogMode** specifies what type of logging the user wishes to have. LogMode supports 4 values [Q/N/V/D] where Q is Quiet, N is Normal, V is Verbose and D is Debug. The default value is N.

LogMode =N

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

For Windows:

**LogFile=C:\CapitaIware\MQMR\sdb2mq.log**

For IBM MQ 32-bit on Linux:

**LogFile=/var/mqm/mqmr/sdb2mq.log**

For IBM MQ 64-bit on Unix and Linux:

**LogFile=/var/mqm/mqmr/sdb2mq.log**

For IBM MQ on IBM i:

**LogFile=/QIBM/UserData/mqm/mqmr/sdb2mq.log**

Token Replacement for LogFile keyword:

- **%QM%** - Substitutes the name of the queue manager
  - **%UID%** - Substitutes the UserID
  - **%PID%** - Substitutes the Process ID
  - **%TID%** - Substitutes the Thread ID
- **RotateLogDaily** specifies whether or not the log files will be rotated on a daily basis. A Y value for 'RotateLogDaily' will activate this feature; otherwise, the log files will left as is. The default value is Y.

In other words, it is possible to keep up to 9 backup log files. The first connection request after midnight (and not at midnight) will cause it to roll/rotate the log files. If there are already 9 backup log files, the ninth backup log file will be deleted and 8 becomes 9, 7 becomes 8, etc...

RotateLogDaily =Y

- **BackupLogFileCount** specifies the number of backup log files that should be kept by MQMR. The default value is 9. This keyword is only used if RotateLogDaily is set to 'Y'.

BackupLogFileCount =9

## 4.2 MQ

- **QMgrName** specifies the name of the queue manager that SDB2MQ will connect to. There is no default value.

QMgrName=MQA1

- **QueueName** specifies the name of the input queue that SDB2MQ will retrieve messages from. There is no default value.

QueueName=TEST.Q1

- **Context** indicates how SDB2MQ will handle the message's MQMD. Context supports 2 values [S/D]. The default value is D.

Context=D

## 4.3 SQLite

- **SQLiteDBFile** specifies the path and file name to the file that will be used by SQLite. There is no default value.

- **StartPosition** specifies the starting position of the record in the SQLite database. The default value is 1.

StartPosition=15

- **RecordCount** specifies the maximum number of records to be read from the SQLite database. The default value is '\*' (\* means all records).

RecordCount=50

- **UseSelect** specifies whether or not the rows of the IBM\_MQ\_MESSAGES table will be selected by either queue manager name or queue name or both. UseSelect supports 2 values: [Y / N]. The default value is N.

UseSelect =Y

- **SelectQMgrName** specifies the name of the queue manager to select the rows of the IBM\_MQ\_MESSAGES table by. There is no default value.

SelectQMgrName =MQA1

- **SelectQName** specifies the name of the queue to select the rows of the IBM\_MQ\_MESSAGES table by. There is no default value.

SelectQName =TEST.Q1



## 4.4 Other

- **HomeDirectory** specifies the full path to where the SDB2MQ IniFile and License file are located. The default values are as follows:

For Windows:

**HomeDirectory=C:\Capitalware\MQMR\**

For IBM MQ 32-bit on Linux:

**HomeDirectory=/var/mqm/exits/**

For IBM MQ 64-bit on Unix and Linux:

**HomeDirectory=/var/mqm/exits64/**

For IBM MQ on IBM i:

**HomeDirectory=/QIBM/UserData/mqm/mqmr/**

## 5 Log File

To verify that the process flow was successful, you can view the log file for the events that are generated.

### 5.1 Windows

The log file is located at the following (assuming a default install of C:\Capitalware\MQMR):

**C:\Capitalware\MQMR\sdb2mq.log**

```
2018/03/07 13:32:00.303 SDB2MQ I: -----
2018/03/07 13:32:00.303 SDB2MQ I: SDB2MQ is now starting.
2018/03/07 13:32:00.304 SDB2MQ I: SDB2MQ version 0.0.0.5 (windows64)
2018/03/07 13:32:00.304 SDB2MQ I: HomeDirectory = C:\Capitalware\MQMR\
2018/03/07 13:32:00.304 SDB2MQ I: IniFile = C:\Capitalware\MQMR\sdb2mq.ini
2018/03/07 13:32:00.304 SDB2MQ I: LogMode = N
2018/03/07 13:32:00.304 SDB2MQ I: LogFile = C:\Capitalware\MQMR\sdb2mq.log
2018/03/07 13:32:00.304 SDB2MQ I: RotateLogDaily = Y
2018/03/07 13:32:00.304 SDB2MQ I: BackupLogFileCount = 9
2018/03/07 13:32:00.305 SDB2MQ I: QMgrName = MQWT1
2018/03/07 13:32:00.305 SDB2MQ I: QueueName = TEST.Q1
2018/03/07 13:32:00.305 SDB2MQ I: GetWithConvert = N
2018/03/07 13:32:00.305 SDB2MQ I: GetBufferSize = 65536
2018/03/07 13:32:00.305 SDB2MQ I: SQLiteDBFile = C:\Capitalware\MQMR\
2018/03/07 13:32:00.306 SDB2MQ I: -----
2018/03/07 13:32:00.312 SDB2MQ I: Connected to 'MQWT1'
2018/03/07 13:32:00.313 SDB2MQ I: Opened queue 'TEST.Q1'
2018/03/07 13:32:00.313 SDB2MQ I: Begin retrieving messages.
2018/03/07 13:32:15.761 SDB2MQ I: Received quit message - time to exit.
2018/03/07 13:32:15.761 SDB2MQ I: Closed queue 'TEST.Q1'
2018/03/07 13:32:15.761 SDB2MQ I: Disconnected from 'MQWT1'
2018/03/07 13:32:15.761 SDB2MQ I: Statistics of this executions:
2018/03/07 13:32:15.762 SDB2MQ I:     MQ Messages Read : 101
2018/03/07 13:32:15.762 SDB2MQ I:     DB Rows Written  : 100
2018/03/07 13:32:15.762 SDB2MQ I: SDB2MQ is now ending.
```

### 5.2 Unix and Linux

The log file is located at the following (assuming a default install of /var/mqm/exits64/):

**/var/mqm/exits64/sdb2mq.log**

```
2018/03/07 13:45:05.313 SDB2MQ I: -----
2018/03/07 13:45:05.313 SDB2MQ I: SDB2MQ is now starting.
2018/03/07 13:45:05.314 SDB2MQ I: SDB2MQ version 0.0.0.5 (Linux64)
2018/03/07 13:45:05.314 SDB2MQ I: HomeDirectory = /var/mqm/exits64/
2018/03/07 13:45:05.314 SDB2MQ I: IniFile = /var/mqm/exits64/sdb2mq.ini
2018/03/07 13:45:05.314 SDB2MQ I: LogMode = N
2018/03/07 13:45:05.314 SDB2MQ I: LogFile = /var/mqm/exits64/sdb2mq.log
2018/03/07 13:45:05.314 SDB2MQ I: RotateLogDaily = Y
2018/03/07 13:45:05.314 SDB2MQ I: BackupLogFileCount = 9
2018/03/07 13:45:05.315 SDB2MQ I: QMgrName = MQWT1
2018/03/07 13:45:05.315 SDB2MQ I: QueueName = TEST.Q1
2018/03/07 13:45:05.315 SDB2MQ I: GetWithConvert = N
2018/03/07 13:45:05.315 SDB2MQ I: GetBufferSize = 65536
2018/03/07 13:45:05.315 SDB2MQ I: SQLiteDBFile = /var/mqm/exits64/
2018/03/07 13:45:05.316 SDB2MQ I: -----
2018/03/07 13:45:05.317 SDB2MQ I: Connected to 'MQWL1'
2018/03/07 13:45:05.318 SDB2MQ I: Opened queue 'TEST.Q1'
2018/03/07 13:45:05.318 SDB2MQ I: Begin retrieving messages.
2018/03/07 13:45:11.811 SDB2MQ I: Received quit message - time to exit.
2018/03/07 13:45:11.811 SDB2MQ I: Closed queue 'TEST.Q1'
2018/03/07 13:45:11.811 SDB2MQ I: Disconnected from 'MQWL1'
2018/03/07 13:45:11.811 SDB2MQ I: Statistics of this executions:
2018/03/07 13:45:11.812 SDB2MQ I:     MQ Messages Read : 101
2018/03/07 13:45:11.812 SDB2MQ I:     DB Rows Written  : 100
2018/03/07 13:45:11.812 SDB2MQ I: SDB2MQ is now ending.
```

## 6 Appendix A – sdb2mq.ini file

The table below is the supplied sdb2mq.ini file. The IniFile supports the following keywords and their values:

```
LogMode = N
LogFile = C:\Capitalware\MQMR\sdb2mq.log
RotateLogDaily = Y
BackupLogFileCount = 9
QMGrName = MQA1
QueueName = TEST.Q1
SQLiteDBFile = C:\Capitalware\MQMR\
GetWithConvert = N
GetBufferSize = 1048576
```

**Note: Keywords are case sensitive.**

The IniFile supports the following keywords and their values:

Keyword	Description of Server-side keywords
BackupLogFileCount	<b>BackupLogFileCount</b> specifies the number of backup logfiles that MQMR will be keeping. The default value is 9.  e.g. BackupLogFileCount=9
Context	<b>Context</b> indicates how SDB2MQ will handle the message's MQMD. Context supports 2 values [S/D]. The default value is D. <ul style="list-style-type: none"><li>• <b>S</b> means that SDB2MQ will set the context of the message's MQMD to be the same as the Sqlite's message's MQMD.</li><li>• <b>D</b> means that SDB2MQ will use the default context for the message's MQMD</li></ul> e.g. Context=S

Keyword	Description of Server-side keywords
HomeDirectory	<p><b>HomeDirectory</b> specifies the full path to where the SDB2MQ IniFile and License file is located.</p> <p>The default values for HomeDirectory are as follows:</p> <p>For Windows: HomeDirectory=C:\Capitalware\MQMR\</p> <p>For IBM MQ 32-bit on Linux: HomeDirectory=/var/mqm/exits/</p> <p>For IBM MQ 64-bit on Unix and Linux: HomeDirectory=/var/mqm/exits64/</p> <p>For IBM MQ on IBM i: HomeDirectory=/QIBM/UserData/mqm/mqmr/</p> <p>e.g. <b>HomeDirectory</b>=C:\Capitalware\MQMR\</p>
License	<p><b>License</b> specifies the queue manager's license key. Your license key will look something like: 10S0-AAAA-BBBBBBBB (Note: This is a sample license only and will NOT work).</p> <p>e.g. <b>License</b>=10M0-AAAA-BBBBBBBB</p>
LicenseFile	<p><b>LicenseFile</b> specifies the location of License file that contains all of the customer's license keys.</p> <p>The default values for LicenseFile are as follows:</p> <p>For Windows: LicenseFile=C:\Capitalware\MQMR\mqmr_licenses.ini</p> <p>For IBM MQ 32-bit on Linux: LicenseFile=/var/mqm/exits/mqmr_licenses.ini</p> <p>For IBM MQ 64-bit on Unix and Linux: LicenseFile=/var/mqm/exits64/mqmr_licenses.ini</p> <p>For IBM MQ on IBM i: LicenseFile=/QIBM/UserData/mqm/mqmr/mqmr_licenses.ini</p> <p>e.g. LicenseFile=/var/mqm/exits64/mqmr_licenses.ini</p>

Keyword	Description of Server-side keywords
LogFile	<p><b>LogFile</b> specifies the location of the log file. The defaults are as follows:</p> <p>For Windows:  LogFile=C:\Capitalware\MQMR\sdb2mq.log</p> <p>For IBM MQ 32-bit on Linux:  LogFile=/var/mqm/audit/sdb2mq.log</p> <p>For IBM MQ 64-bit on Unix and Linux:  LogFile=/var/mqm/audit/sdb2mq.log</p> <p>For IBM MQ on IBM i:  LogFile=/QIBM/UserData/mqm/mqmr/sdb2mq.log</p>
LogMode	<p><b>LogMode</b> specifies what type of logging the user wishes to have. LogMode supports 4 values [Q / N / V / D] where Q is Quiet, N is Normal, V is Verbose and D is Debug. The default value is N.</p> <p>e.g.  LogMode=N</p>
RotateLogDaily	<p><b>RotateLogDaily</b> specifies whether or not daily log file rotation should take place. RotateLogDaily supports 2 values [Y / N]. The default value is Y.</p> <p>e.g.  RotateLogDaily=Y</p>
QMgrName	<p><b>QMgrName</b> specifies the name of the queue manager that SDB2MQ will connect to. There is no default value.</p> <p>e.g.  <b>QMgrName</b>=MQA1</p>
QueueName	<p><b>QueueName</b> QueueName specifies the name of the input queue that SDB2MQ will retrieve messages from. There is no default value.</p> <p>e.g.  <b>QueueName</b>=TEST.Q1</p>
RecordCount	<p><b>RecordCount</b> specifies the maximum number of records to be read from the SQLite database. The default value is '*' ('*' means all records).</p> <p>e.g.  RecordCount=120</p>

Keyword	Description of Server-side keywords
SelectQMgrName	<p><b>SelectQMgrName</b> specifies the name of the queue manager to select the rows of the IBM_MQ_MESSAGES table by. There is no default value.</p> <p>e.g. SelectQMgrName=MQA1</p>
SelectQName	<p><b>SelectQName</b> specifies the name of the queue to select the rows of the IBM_MQ_MESSAGES table by. There is no default value.</p> <p>e.g. SelectQName=TEST.Q1</p>
SQLiteDBFile	<p><b>SQLiteDBFile</b> specifies the path and file name to the file that will be used by SQLite. There is no default values.</p> <p>e.g. SQLiteDBFile=C:\Capitalware\MQMR\MQWT1-TEST.Q1-2018_03_09.mqsdb</p>
StartPosition	<p><b>StartPosition</b> specifies the starting position of the record in the SQLite database. The default value is 1.</p> <p>e.g. StartPosition=15</p>
UseSelect	<p><b>UseSelect</b> specifies whether or not the rows of the IBM_MQ_MESSAGES table will be selected by either queue manager name or queue name or both. UseSelect supports 2 values: [Y / N]. The default value is N.</p> <p>e.g. UseSelect=Y</p>

## 7 Appendix B – SDB2MQ Upgrade Procedures

To upgrade an existing installation of SDB2MQ, please do the following the instructions in Appendix B of the *MQMR Server-side Installation and Operation* manual.

## **8 Appendix C – Technical Support**

The support for MQMR SDB2MQ can be found at the following location (requires a support contract):

**By email at:**

support@capitalware.com

**By regular mail at:**

Capitalware Inc.  
Attn: MQMR SDB2MQ Support  
Unit 11, 1673 Richmond Street, PMB524  
London, Ontario N6G2N3  
Canada



## 9 Appendix D – Summary of Changes

- SDB2MQ v1.2.0
  - Added keywords: UseSelect, SelectQMgrName & SelectQName
- SDB2MQ v1.1.0
  - Added code to append trailing slash for HomeDirectory if it is missing.
  - Tuned the logging code
- SDB2MQ v1.0.0
  - Initial release.

## 10 Appendix E – Notices

### **Trademarks:**

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