

Installing MQ 9.0 in Windows, using only the defaults

<https://www.ibm.com/support/pages/node/598547>

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IBM MQ Support

+++ Objective +++

The objective of this techdoc is to show all the steps to install MQ 9.0 on Windows, using only the defaults.

Note: The End Of Support for MQ 9.0 was announced and it is: 30-Sep-2021

The MQ components that are INSTALLED are:

- MQ Server
- MQ Explorer
- MQ Java and .NET Messaging and Web Services
 - Web Administration (only in MQ 9.1)
- MQ Development Toolkit

Note:

For MQ 9.1 there is a new component (Web Administration) that is installed by default:

- Extended Messaging APIs
- Web Administration

This component is needed for running the MQ Web Server that is used by the MQ Web Console and MQ REST API features.

The MQ components that are NOT installed by default are:

- MQ Telemetry Service
- MQ AMQP Service
- MQ Advanced Message Security (AMS)
- MQ Managed File Transfer (MFT) Service
- MQ Managed File Transfer (MFT) Logger
- MQ Managed File Transfer (MFT) Agent
- MQ Managed File Transfer (MFT) Tools
- MQ Windows Client

The creation of a test queue manager is also illustrated.

This is Techdoc number 1 out of 3 techdocs on the matter.
The other techdocs are:

<http://www.ibm.com/support/docview.wss?uid=swg27050059>

Installing MQ 9.0 in Windows, specifying additional components (Telemetry, AMS, MFT)

<http://www.ibm.com/support/docview.wss?uid=swg27050128>

Uninstalling MQ 9.0 components in Windows (example Telemetry)

++ Update on 25-Mar-2020:

For MQ 9.1 there is a new component (Web Administration) that is installed by default:

- Extended Messaging APIs

- Web Administration

This component is needed for running the MQ Web Server that is used by the MQ Web Console and MQ REST API features.

++ Note about the licensing (Updated on 17-Apr-2020)

1) The following web page from the online manual for MQ has some information on MQ Licenses:

https://www.ibm.com/support/knowledgecenter/SSFKSJ_9.1.0/com.ibm.mq.pro.doc/q126140_.htm

IBM MQ 9.1.x / IBM MQ / About IBM MQ /
IBM MQ license information

2) You need to have an active subscription to upgrade to newer versions of MQ.
If you have questions about licenses and entitlement please consult with your IBM Sales representative.

+++++
+++ Chapter 1: Downloading installation image from IBM Passport Advantage
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+ Visit IBM Passport Advantage and download installation file

<http://www-01.ibm.com/support/docview.wss?uid=swg24042096>

Downloading IBM MQ Version 9.0.0.0 from the Passport Advantage web site

Part Number: CN9GGML

Description: MQ V9.0 Long Term Support Release for Windows 64-bit Multilingual

The file name to download is:

IBM_MQ_9.0.0.0_WINDOWS.zip

+++++
+++ Chapter 2: Installation
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As a Windows Administrator download from Passport Advantage the corresponding file for MQ 9.0 for Windows.

For this tutorial, the directory for storing the downloaded file is:

C:\downloads\MQ-9000

Unzip the zip file.

The following subdirectory is created.

C:\downloads\MQ-9000\IBM_MQ_9.0.0.0_WINDOWS

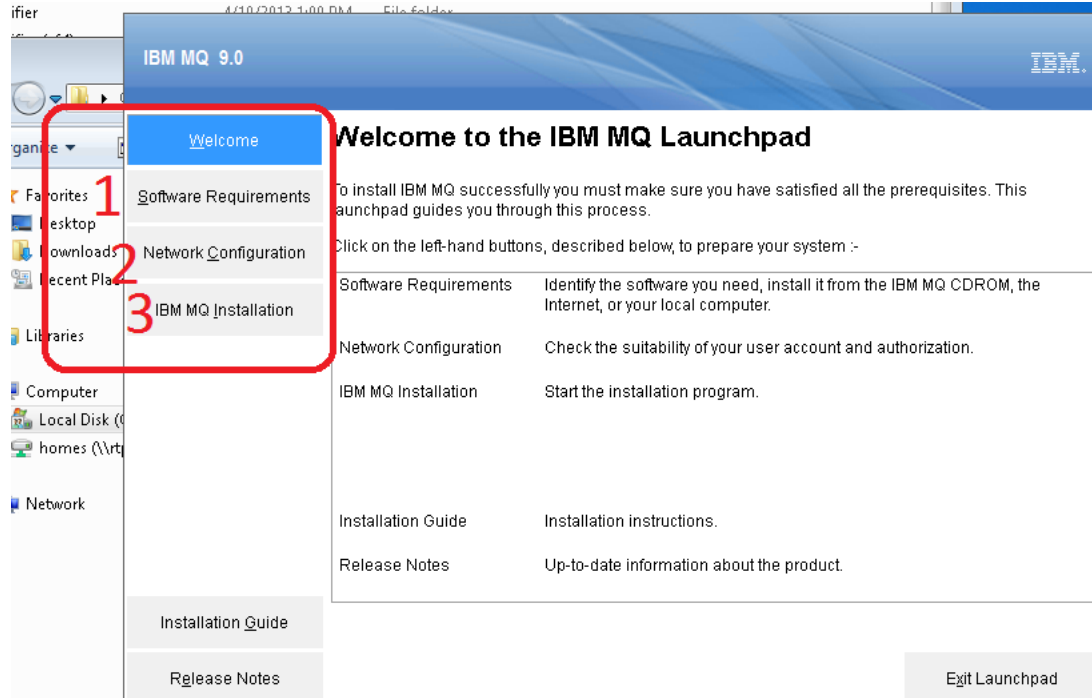
Move to that subdirectory. Noticed that there is another subdirectory:

C:\downloads\MQ-9000\IBM_MQ_9.0.0.0_WINDOWS\MQServer

Move to that subdirectory.

As an Administrator, double click to execute the following command:
Setup.exe

The following screen capture shows the main installation window:



Perform the step 1 by clicking on “Software Requirements” on the left panel. Assuming that everything is OK, then proceed to the next step.

Perform the step 2 by clicking on “Network Configuration” on the left panel. Answer appropriately to reflect your network setup. For this tutorial the answer “No” was selected. Proceed to the next step.

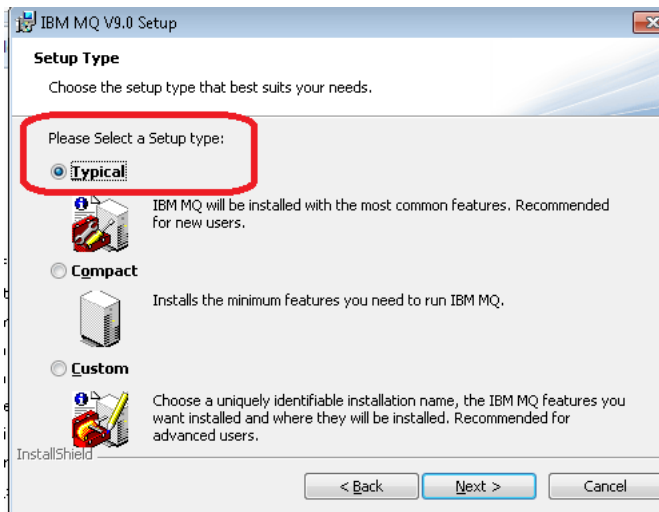
Perform the step 3 by clicking on “IBM MQ Installation”.

In the dialog window, you will need to click:
“Launch IBM MQ Installer”



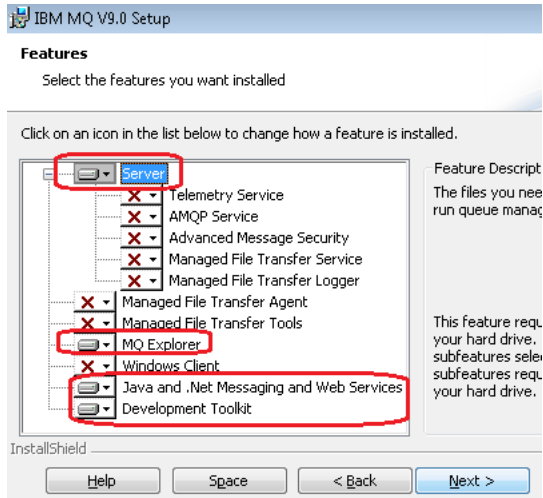
Follow the prompts.
To keep this tutorial short, only screens that need explanation will be shown.

You will see the dialog “IBM MQ 9.0 Setup”
The default Setup type is:
(*) Typical



++ Starting brief side-trip ++

Well, you might be curious to see what are the “Typical” components. Just for illustration, the following dialog shows what components are installed and which are NOT installed. This dialog is reached by selecting the Setup type of “(*) Custom”



As you can see above, the components that are INSTALLED are:

- MQ Server
- MQ Explorer
- MQ Java and .NET Messaging and Web Services
- MQ Development Toolkit

Correspondingly, the following components are NOT installed:

- MQ Telemetry Service
- MQ AMQP Service
- MQ Advanced Message Security (AMS)
- MQ Managed File Transfer (MFT) Service
- MQ Managed File Transfer (MFT) Logger
- MQ Managed File Transfer (MFT) Agent
- MQ Managed File Transfer (MFT) Tools
- MQ Windows Client

++ Ending brief side-trip ++

Let’s resume our original trip to choose a Setup type of (*) Typical.

After you have selected the Setup type of:
(*) Typical

Click Next.

You will be taken directly to the following dialog screen (bypassing other customization ones):

Title of dialog: Ready to Install IBM MQ

** begin of excerpt

IBM MQ Installation Summary for Computer NAME

Installation Mode:

Install

Installation Name:

Installation1

Top-level folder for Program Files:

C:\Program Files\IBM\MQ

Top-level folder for Data Files:

C:\ProgramData\IBM\MQ

Folder for Log Files:

C:\ProgramData\IBM\MQ\log\

Program Folder:

IBM MQ

Features to Install:

Server

MQ Explorer

Java and .NET Messaging and Web Services

Development Toolkit

** end of excerpt

Continue with the prompts.

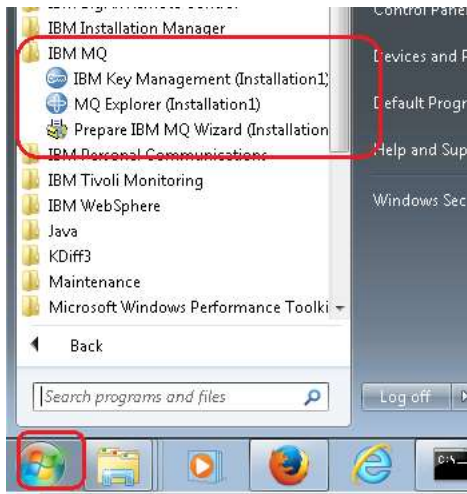
The installation of the files will take place and this task takes a while.

Continue with the prompts for the IBM MQ Wizard in order to complete the installation process.

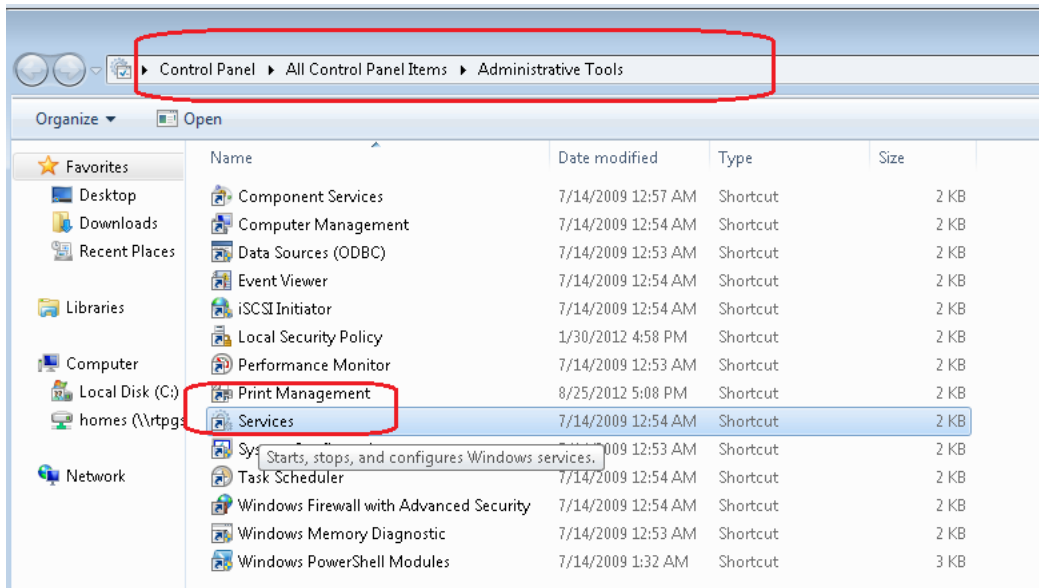
+++++
+++ Chapter 3: System changes done during the installation
+++++

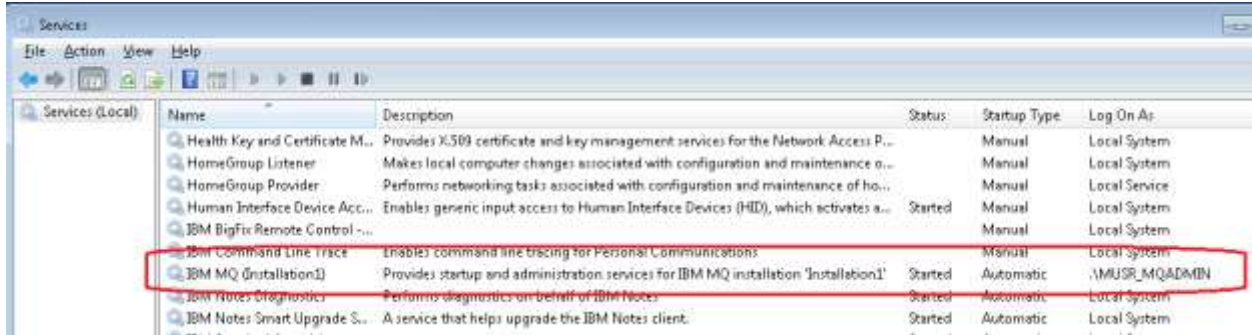
Let's explore what was installed.

+ Start menu:

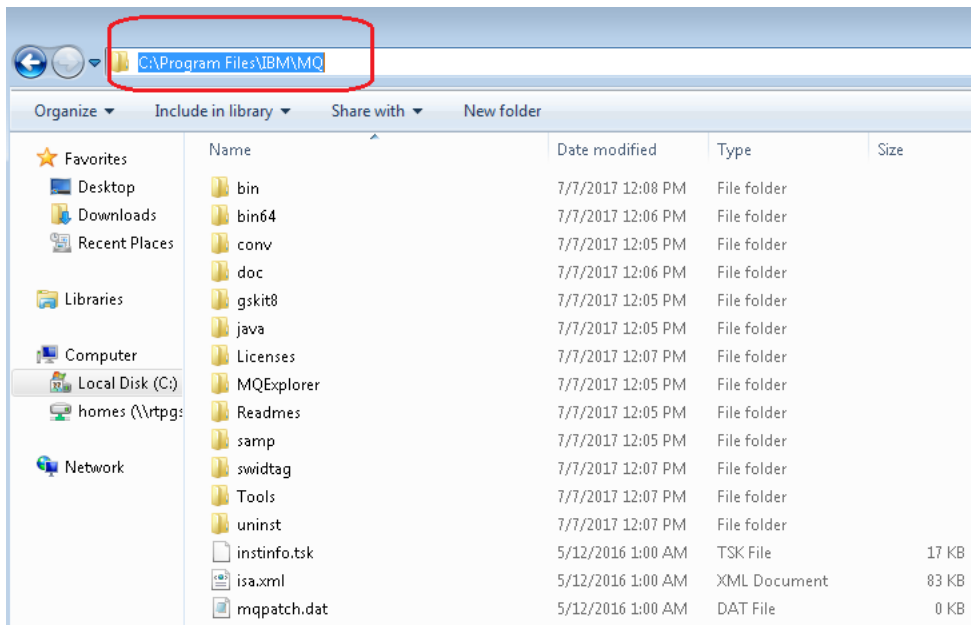


+ Services:





+ Location of the MQ executables and shared libraries



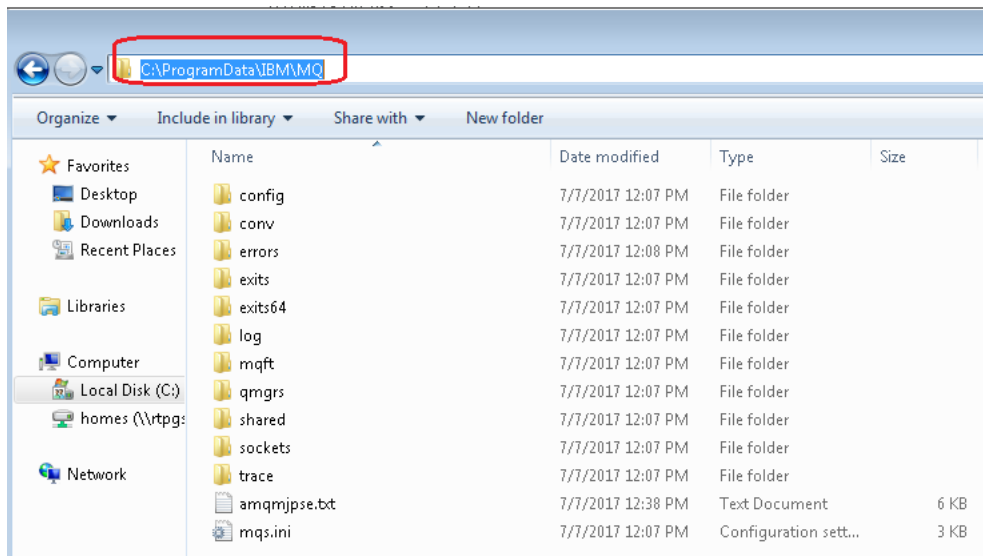
The MQ commands are located at:

C:\Program Files\IBM\MQ\bin
C:\Program Files\IBM\MQ\bin64

Of special importance is the full path for the MQ command “setmqenv.cmd”, because it needs to be used to setup the MQ environment variables and update the PATH:

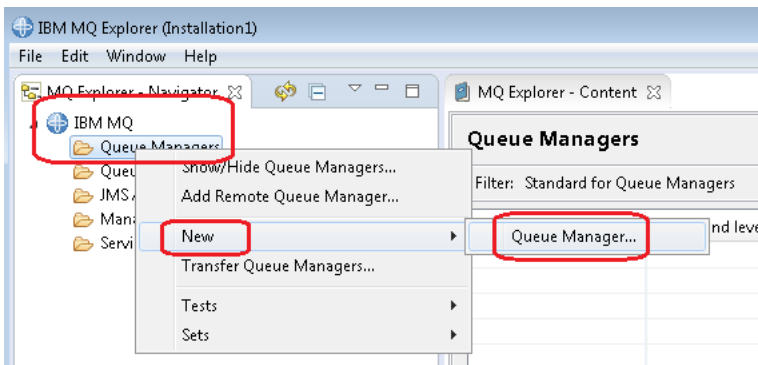
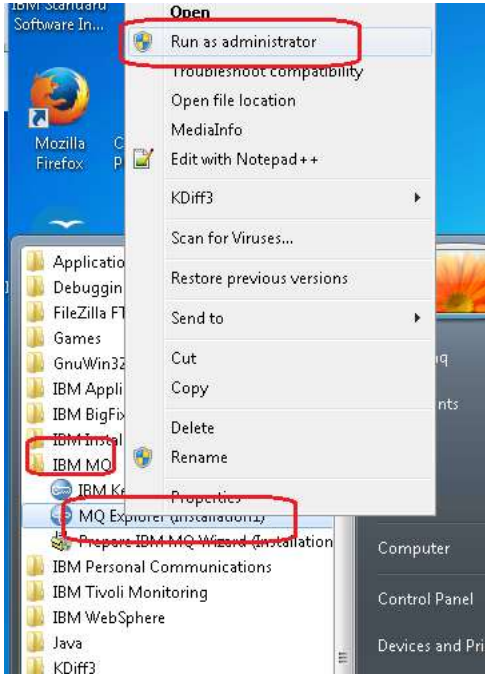
C:\Program Files\IBM\MQ\bin\setmqenv.cmd

+ Location of the MQ data for the queue managers



+++++
+++ Chapter 4: Creating test queue manager via MQ Explorer
+++++

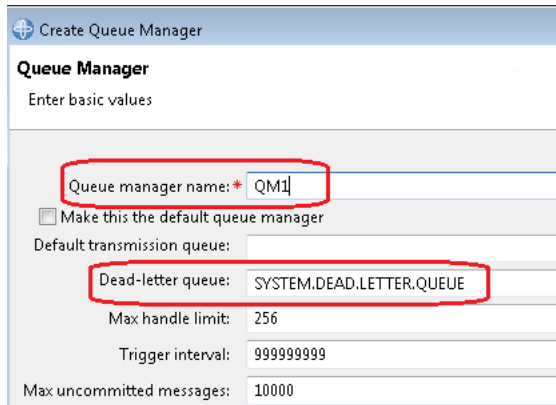
+ Let's create a queue manager in the MQ Explorer



Let's give the name: QM1

Best practice: Assign a "dead letter queue" (or DLQ), in this case, it is sufficient to use:

SYSTEM.DEAD.LETTER.QUEUE



Create Queue Manager

Queue Manager

Enter basic values

Queue manager name: * QM1

Make this the default queue manager

Default transmission queue:

Dead-letter queue: SYSTEM.DEAD.LETTER.QUEUE

Max handle limit: 256

Trigger interval: 999999999

Max uncommitted messages: 10000

Continue with the prompts, accepting the defaults.

Because this queue manager is for sporadic testing purposes, it is best to modify the startup to:

(*) Interactive (manual)

... which means that only when the queue manager will be used, then it is necessary to manually start it.

Also, because this queue manager very likely will be used with remote MQ clients, then it is necessary to add a server-connection channel (and a listener in a subsequent dialog).

(*) Create server-connection channel

Note: The actual channel that is created is called: SYSTEM.ADMIN.SVRCONN
define channel(SYSTEM.ADMIN.SVRCONN) chltype(SVRCONN)

Create Queue Manager

Queue Manager
Enter configuration options

Queue manager name: QM1

Start queue manager after it has been created

Multi-instance Queue Manager:

Permit a standby instance

Select type of queue manager startup

Automatic

Service (manual)

Interactive (manual)

Configures the queue manager to start only when the user who started it logs off.

Create server-connection channel to allow remote administration of the queue manager over TCP/IP

Create server-connection channel

Click Next.

Accept the default to create a listener:
(*) Create listener configured for TCP/IP

If this is the first queue manager in the box, you could accept the default port number:
1414

Create Queue Manager

Queue Manager
Enter listener options

Queue manager name: QM1

The queue manager needs a listener to monitor for incoming connections, for some network protocols.

Create listener configured for TCP/IP

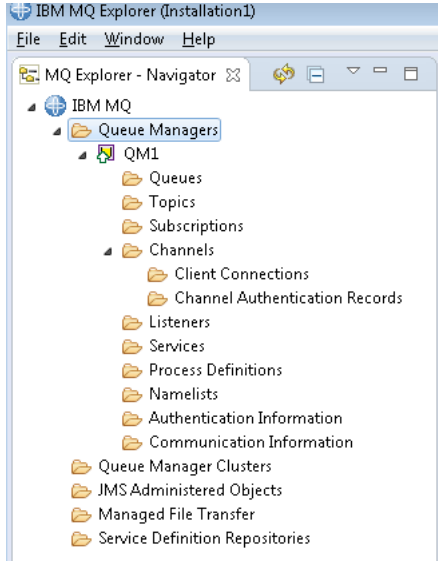
The listener needs to listen on a port number not used by manager, service or application on this computer

Listen on port number: 1414

Click Next and eventually click Finish.

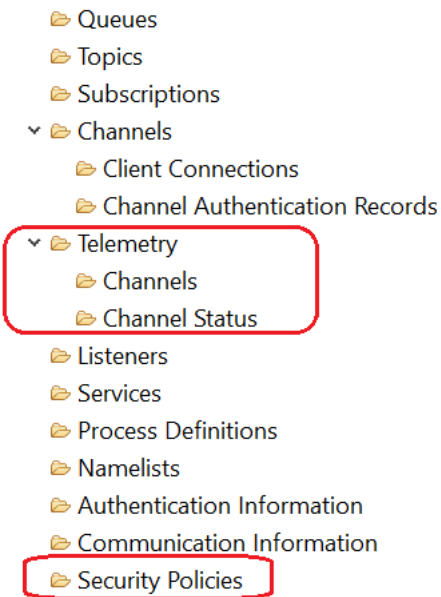
The queue manager QM1 will be created and will be shown in the left navigation panel.

The following picture shows this queue manager QM1 with the folders expanded.



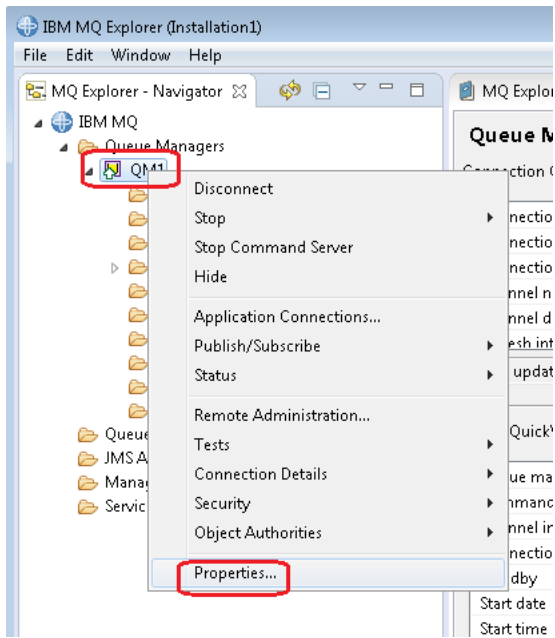
**** Start of brief side-trip ****

Comparison with the corresponding picture AFTER installing Telemetry, AMS and MFT. Notice the presence of 2 new folders: Telemetry and "Security Policies" (for AMS).



**** End of brief side-strip ****

Let's take a look at the properties for the queue manager.



Then select the “Extended” properties:

QML - Properties

General
Extended
 Exits
 Cluster
 Repository
 Communication
 Events
 SSL
 Statistics
 Online monitoring
 Statistics monitoring
 Accounting monitoring
 Log
 XA resource managers
 Installable services
 Channels
 TCP
 LU6.2
 NetBIOS
 SPX
 Publish/Subscribe

Extended

Dead-letter queue: SYSTEM.DEAD.LETTER.QUEUE

Trigger interval: 999999999

Max uncommitted messages: 10000

Max handles: 256

Maximum message length (bytes): 4194304

Max properties length: Unrestricted length
 0

Max priority: 9

Message mark browse interval: Unlimited
 5000

Command input queue: SYSTEM.ADMIN.COMMAND.QUEUE

Syncpoint: Available

Distribution lists: Supported

Default bind type: Shared

Error log size: 262144

Excluded messages:

Suppressed messages:

Suppressed messages interval (seconds): 30

Telemetry: Not supported

MQ Light: Not supported

Custom:

Security policies: Not supported

Connection authentication: SYSTEM.DEFAULT.AUTHINFO.IDPWOS

Notice the following at the bottom:

Telemetry ==> Not supported
 MQ Light ==> Not supported
 Security policies ==> Not supported

+ Now let's work with MQ line commands ...

... but before we do that, it is a good idea to create a Windows batch file to help facilitate the task of setting the MQ environment variables and directories that are needed to work with MQ line commands.

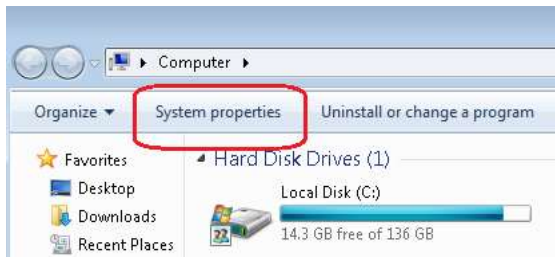
The following might look like an overkill, but it will be very handy in the likely case that you want to have multiple installations of MQ in the box. You will need a dedicated Windows batch file for each installation.

If you have a directory that is already in your PATH then you can use that directory to store the batch file. For this tutorial, a directory called C:\bin will be used.

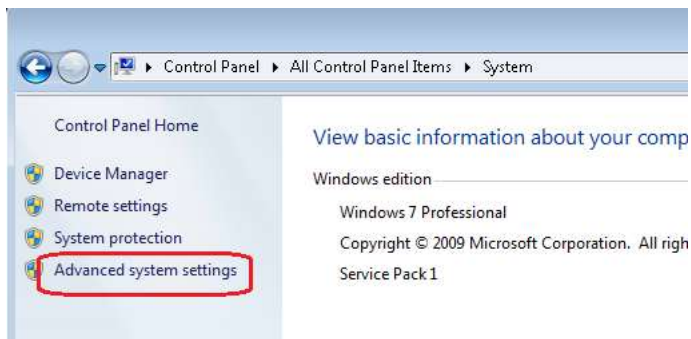
Let's create the following directory:
C:\bin

And modify the PATH variable to add the above directory.

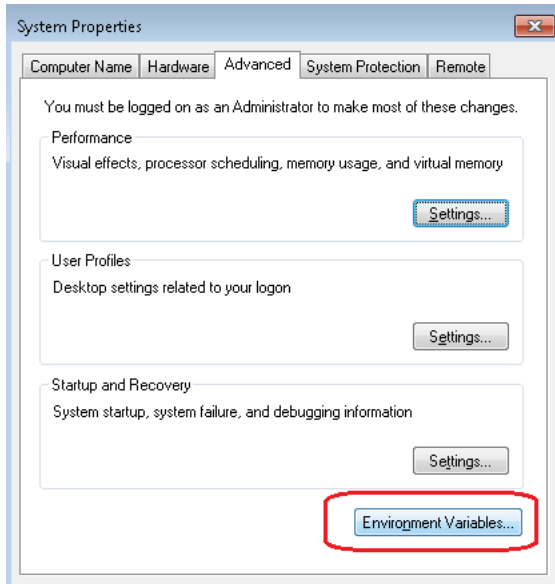
Bring the window for "My Computer": Start > My Computer



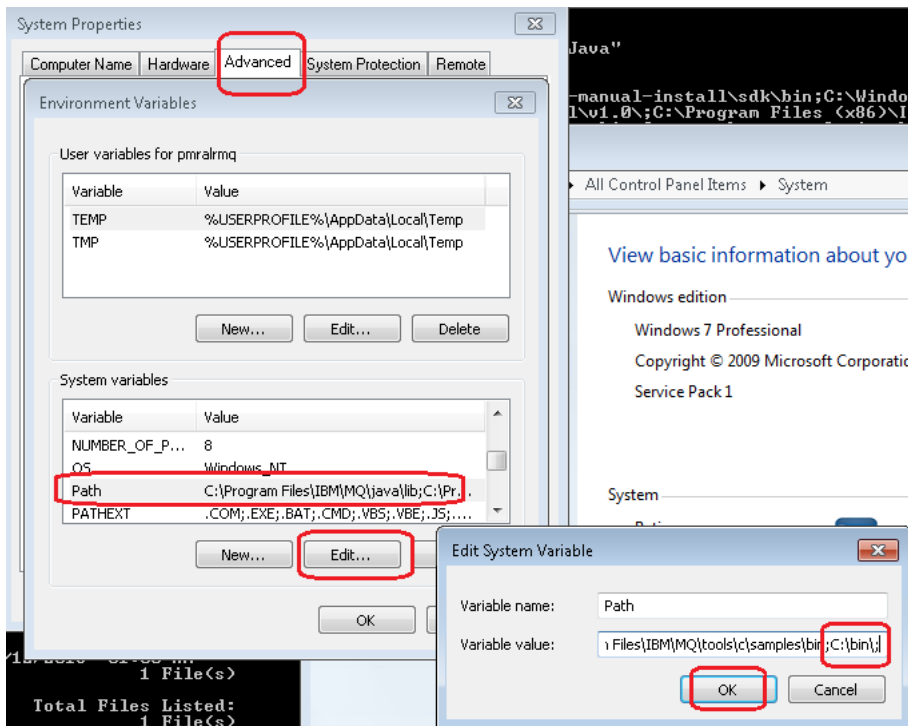
Click on "System properties"



Click on "Advanced system settings"



Click on “Environment Variables ...”, select PATH and edit it.

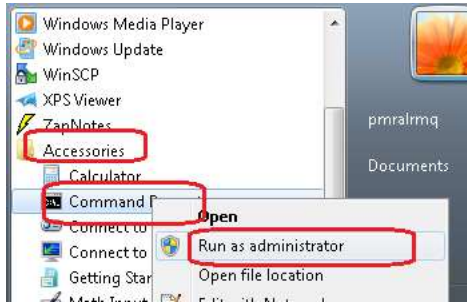


Add at the end of the “Variable value” for “Path”:
;C:\bin;

Click OK several times to get out of the deep navigation of menus for setting the PATH.

Start a Windows Command Prompt and run it as an Administrator:

Start > Accessories > Command Prompt > right click → Run as administrator



Note:

If you do not want to create and use the set-mq-90.cmd batch file, then you will need to manually execute:

```
"C:\Program Files\IBM\MQ\bin\setmqenv" -n Installation1
```

In the Windows Command Prompt issue:

```
cd \bin
notepad set-mq-90.cmd
```

Then in the Notepad edit window enter the following statements.
Notice that “setmqenv” is the main command that is invoked.

```
REM Setup the environment to run MQ 9.0
CALL "C:\Program Files\IBM\MQ\bin\setmqenv" -n Installation1
REM Adding Samples to the path
SET
PATH=%PATH%;%MQ_FILE_PATH%\Tools\c\Samples\Bin;%MQ_FILE_PATH%\Tools\c\Samples\Bin64;%MQ_FILE_PATH%\Tools\jms\samples;%MQ_JAVA_INSTALL_PATH%\bin\
dspmqrver -f 2
SET CLASSPATH=%CLASSPATH%;.
```

Save the file.

Do not execute the file yet!

Let’s take a baseline of the MQ environment variables that are set by the MQ installer (Note it is a SUBSET that is needed to work with MQ):

```
C:\> set MQ
MQ_FILE_PATH=C:\Program Files\IBM\MQ
MQ_JAVA_DATA_PATH=C:\ProgramData\IBM\MQ
MQ_JAVA_INSTALL_PATH=C:\Program Files\IBM\MQ\java
```

```
MQ_JAVA_LIB_PATH=C:\Program Files\IBM\MQ\java\lib64;C:\Program
Files\IBM\MQ\java\lib
MQ_JRE_PATH=C:\Program Files\IBM\MQ\java\jre
```

Now execute the batch file:

```
C:\> set-mq-90
```

```
C:\>REM Setup the environment to run MQ 9.0
C:\>CALL "C:\Program Files\IBM\MQ\bin\setmqenv" -n Installation1
Version: 9.0.0.0
```

Repeat the operation to show the MQ environment variables.
Notice that there are 4 new variables.

```
C:\>set MQ
MQ_DATA_PATH=C:\ProgramData\IBM\MQ
MQ_ENV_MODE=64
MQ_FILE_PATH=C:\Program Files\IBM\MQ
MQ_INSTALLATION_NAME=Installation1
MQ_INSTALLATION_PATH=C:\Program Files\IBM\MQ
MQ_JAVA_DATA_PATH=C:\ProgramData\IBM\MQ
MQ_JAVA_INSTALL_PATH=C:\Program Files\IBM\MQ\java
MQ_JAVA_LIB_PATH=C:\Program Files\IBM\MQ\java\lib64
MQ_JRE_PATH=C:\Program Files\IBM\MQ\java\jre
```

Let's start the queue manager and use the MQ "runmqsc" tool:

```
C:\> strmqm QM1
IBM MQ queue manager running.
```

```
C:\> runmqsc QM1
5724-H72 (C) Copyright IBM Corp. 1994, 2016.
Starting MQSC for queue manager QM1.
```

display qmgr

```
1 : display qmgr
AMQ8408: Display Queue Manager details.
  QMNAME (QM1)
  ACCTINT (1800)
  ACCTQ (OFF)
  ACTVCONO (DISABLED)
  ALTDATE (2017-07-07)
  AMQPCAP (NO)
  ACCTCONO (DISABLED)
  ACCTMQI (OFF)
  ACTIVREC (MSG)
  ACTVTRC (OFF)
  ALTTIME (13.54.26)
  AUTHOREV (DISABLED)
```

```

CCSID(437)
CERTLABL(ibmwebspheremqmqm1)
  CERTVPOL(ANY)
  CHADEV(DISABLED)
  CHLEV(DISABLED)
  CLWLDATA( )
  CLWLLEN(100)
  CLWLUSEQ(LOCAL)
  CMDLEVEL(900)
COMMANDQ(SYSTEM.ADMIN.COMMAND.QUEUE)
  CONFIGEV(DISABLED)
  CONNAUTH(SYSTEM.DEFAULT.AUTHINFO.IDPWOS)
  CRDATE(2017-07-07)
  CUSTOM( )
DEADQ(SYSTEM.DEAD.LETTER.QUEUE)
  DEFCLXQ(SCTQ)
  DESCR( )
  INHIBTEV(DISABLED)
  LOCALEV(DISABLED)
  MARKINT(5000)
  MAXMSGL(4194304)
  MAXPRTY(9)
  MONACLS(QMGR)
  MONQ(OFF)
  PERFMEV(DISABLED)
  PSMODE(ENABLED)
  PSNPMSG(DISCARD)
  PSRTYCNT(5)
  QMID(QM1_2017-07-07_13.54.26)
  REPOS( )
  REVDNS(ENABLED)
  SCHINIT(QMGR)
  SPLCAP(DISABLED)
  SSLCRYP( )
  SSLFIPS(NO)
  SSLKEYR(C:\ProgramData\IBM\MQ\qmgrs\QM1\ssl\key)
  SSLRKEYC(0)
  STATCHL(OFF)
  STATMQI(OFF)
  STRSTPEV(ENABLED)
  SYNCPT
  TRIGINT(999999999)
  XRCAP(NO)
  CHAD(DISABLED)
  CHADEXIT( )
  CHLAUTH(ENABLED)
  CLWLEXIT( )
  CLWLMRUC(999999999)
  CMDEV(DISABLED)
  CRTIME(13.54.26)
  DEFXMITQ( )
  DISTL(YES)
  IPADDRV(IPV4)
  LOGGEREV(DISABLED)
  MAXHANDS(256)
  MAXPROPL(NOLIMIT)
  MAXUMSGS(10000)
  MONCHL(OFF)
  PARENT( )
  PLATFORM(WINDOWSNT)
  PSCLUS(ENABLED)
  PSNPRES(NORMAL)
  PSSYNCPT(IFPER)
  REMOTEEV(DISABLED)
  REPOSNL( )
  ROUTEREC(MSG)
  SCMDSERV(QMGR)
  SSLCRLNL( )
  SSLEV(DISABLED)
  STATACLS(QMGR)
  STATINT(1800)
  STATQ(OFF)
  SUITEB(NONE)
  TREELIFE(1800)
  VERSION(09000000)

```

Notice the following attributes related to the additional components that will be installed in Techdoc number 2 (mentioned in the cover page)

AMQPCAP(NO) => For the AMQP Service Component
SPLCAP(DISABLED) => For AMS
XRCAP(NO) => For Telemetry

+++ end +++