

MQSeries Integrator

Get all environment variables Plug-In

Version 1.3

5th November, 2001

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Summary of Amendments

Date	Changes
18 January 2001	Initial release
13 February 2001	Fixed problem with variables with no (null) value on AIX.
3 March 2001	Section "Defining the node to the configuration repository" added
19 July 2001	Sun Solaris support added
26 September 2001	Linux (on Intel) support added Updated makefile for AIX and Sun Solaris.
19 October 2001	HP-UX support added

Preface

This SupportPac supplies an MQSeries Integrator plug-in node that constructs a new message and inserts an ENV branch, with all environments variables included, within the existing message. Versions are supplied for use in the Microsoft Windows, AIX, Sun Solaris, Linux (on Intel) and HP-UX environments along with source code and documentation

Bibliography

- *IBM MQSeries Integrator for Windows NT Version 2 Installation Guide*, IBM Corporation. SC34-5600.
- *IBM MQSeries Integrator for Sun Solaris Version 2 Installation Guide*, IBM Corporation. SC34-5842
- *IBM MQSeries Integrator for AIX Version 2 Installation Guide*, IBM Corporation. SC34-5841
- *IBM MQSeries Integrator for Linux Version 2 Installation Guide*, IBM Corporation. AA00-0000
- *IBM MQSeries Integrator for HP-UX Version 2 Installation Guide*, IBM Corporation. SC34-5907
- *IBM MQSeries Integrator Version 2 Using the Control Center*, IBM Corporation. SC34-5602
- *IBM MQSeries Integrator Version 2 Programming Guide*, IBM Corporation. SC34-5603

Installing the plug-in node

SupportPac contents

The supplied zip file should be unzipped in a temporary directory. The following files and sub-directories will be created:

/source

GetEnvPlugIn.c
GetEnvPlugIn.h
makefile.aix
makefile.sun

/NT

GetEnvPlugIn
GetEnvPlugIn.gif
GetEnvPlugIn.lil
GetEnvPlugIn.properties
GetEnvPlugIn.wdp
GetEnvPlugIn30.gif
GetEnvPlugIn42.gif
GetEnvPlugIn58.gif
GetEnvPlugIn84.gif

/AIX

GetEnvPlugIn.lil
makefile.getenv

/SUN

GetEnvPlugIn.lil
makefile.getenv

/Linux86

GetEnvPlugIn.lil
makefile.getenv

/HPUX

GetEnvPlugIn.lil
makefile.getenv

License2.txt

ia06.pdf

Prerequisites

This SupportPac provides a plug-in node to be used with the IBM MQSeries Integrator Version 2.0.1 and above. For normal use, there are no other prerequisite products other than those required by IBM MQSeries Integrator Version 2.0.1 itself. If any changes are to be made to the plug-in node, an appropriate C++ compiler is required.

Supported Platforms

This SupportPac has been developed and tested in a Microsoft Windows NT, AIX, Sun Solaris, Linux (on Intel) and HP-UX environment.

Installing the plug-in node on broker system

The plug-in 'lil' file can be installed by copying or moving the appropriate file to the following directory:

- <mqs_i_root>\bin (Windows)
- <mqs_i_root>/lil (AIX)
- <mqs_i_root>/lil (Sun Solaris)
- <mqs_i_root>/lil (Linux on Intel)
- <mqs_i_root>/lil (HP-UX)

You must stop and restart the broker to enable it to detect the existence of the new 'lil'.

Integrating the plug-in node into the Windows Control Center

The necessary files for integrating the plug-in into the Windows Control Center are provided in the /NT directory.

Use the following table to copy the files to their correct location. These locations should already exist providing you have deployed at least one message flow. Append your <MQSI V2 root install path> to the **Copy to location** value.

Use the following to replace the placeholders:

- <hostname> - TCP/IP hostname
 <CM QMName> - Configuration Manager's queue manager name

Filename	Copy to location
GetEnvPlugIn	\Tool\repository\private\<hostname>\<CM QMName>\MessageProcessingNodeType
GetEnvPlugIn.wdp	\Tool\repository\private\<hostname>\<CM QMName>\MessageProcessingNodeType
GetEnvPlugIn.gif	\Tool\images
GetEnvPlugIn30.gif	\Tool\images
GetEnvPlugIn42.gif	\Tool\images
GetEnvPlugIn58.gif	\Tool\images
GetEnvPlugIn84.gif	\Tool\images
GetEnvPlugIn.properties	\Tool\com\ibm\livm\mqitool\extensions

Defining the node to the configuration repository

When you have installed the files in the appropriate directories, as described in the previous section, you must make these definitions available to the Control Center.

1. Start the Control Center. The user ID you are using must be a member of the MQSeries Integrator group ***mqbrdevt***. You are recommended to use the superuser ***IBMMQSI2*** to complete this task¹. This causes your new node to be locked under the same user ID as all the supplied IBM primitive nodes. If you do not use this user ID, the definition files in the configuration repository might be accidentally locked, and therefore open to unauthorized update.
2. Select the Message Flows view.
3. Select an existing Message Flow Category, or create a new one.
4. Right-click the selected category, and select *Add->Message Flow*.

A list box is displayed showing all existing IBM-supplied primitive nodes and any defined message flows you have installed following the instructions provided.

5. Select the message flow (the node).

This node now appears within the message flow category you selected in the tree view in the left-hand pane.

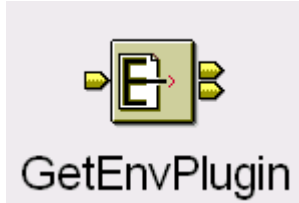
6. Select your new node, and right-click. Select *Check In*.
7. Right-click again, and select Lock. Then right-click again and select Check In for a second time. After this check, the interface and wdp definition files disappear from the local directory and go into the shared repository, where they are available to all users of the Control Center. However, user can only use this new node if they have installed the additional files (icons, properties files, and so on) on their own system.

¹ You must take care if you change logon IDs to complete this task. Changing logon IDs can effect the operation of the Configuration Manager's queue manager if it is on this system, but not running as a Windows NT service. See the *MQSeries Integrator Administration Guide* for more information about queue manager operation (Chapter 2) and the superuser ***IBMMQSI2*** (Chapter 4).

Using the plug-in node

Description

The plug-in node constructs a new message and adds an ENV branch within the existing message.



Plug-in node terminals

Terminal	Description
in	The input terminal that accepts a message for processing by the node
out	The output terminal that outputs the new message with the ENV branch.
failure	The output terminal which the message is routed if failure is detected during building the environment variable branch.

Plug-in node properties

These properties are displayed when you right click a GetEnvPlugIn node entry in the Message Flow Types pane, and click Properties. The values displayed are the default properties for this instance of the node. They cannot be edited when displayed from the Message Flow Types pane.

Convert

Specifies how to convert the environment variable name.

Valid values are:

No

No conversion

LowerCase

Convert all environment variable names to lower case

UpperCase

Convert all environment variable names to upper case.

Compiling the plug-in node

Windows NT

```
c1 /VERBOSE /LD /MT /I. GetEnvPlugIn.c -link /DLL imbdfplg.lib
/OUT:GetEnvPlugIn.lil
```

AIX

Makefile:

```
DEFINES      = -DAIX -qcpluscmt
CC           = xlc_r
MQSIROOT     = /home/mqmdvl/mqsiv2
```

```
all:  GetEnvPlugIn.lil
```

```
GetEnvPlugIn.o:  GetEnvPlugIn.c GetEnvPlugIn.h
                 $(CC) -I $(MQSIROOT)/include -I
$(MQSIROOT)/include/plugin -c GetEnvPlugIn.c $(DEFINES)
```

```
GetEnvPlugIn.lil:  GetEnvPlugIn.o
                  $(CC) -bM:SRE -bexpall -bnoentry -o GetEnvPlugIn.lil -L
$(MQSIROOT)/lib -l imbdfplg GetEnvPlugIn
```

Sun Solaris

Makefile:

```
DEFINES      = -DSUN -xCC
CC           = cc
MQSIROOT     = /opt/mqsi
MQSISAMPLE   = $(MQSIROOT)/sample/plugin
MQSIINCLUDE  = -I$(MQSIROOT)/include -I$(MQSIROOT)/include/plugin -
I$(MQSISAMPLE)
```

```
all:  GetEnvPlugIn.lil
```

```
GetEnvPlugIn.o:  GetEnvPlugIn.c GetEnvPlugIn.h
                 $(CC) -mt -I. $(MQSIINCLUDE) -c GetEnvPlugIn.c
$(DEFINES)
```

```
BipSampPluginUtil.o:  $(MQSISAMPLE)/BipSampPluginUtil.c
$(MQSISAMPLE)/BipSampPluginUtil.h
                  $(CC) -mt -I. $(MQSIINCLUDE) -c
$(MQSISAMPLE)/BipSampPluginUtil.c $(DEFINES)
```

```
GetEnvPlugIn.lil:  GetEnvPlugIn.o BipSampPluginUtil.o
                  cc -G -o GetEnvPlugIn.lil GetEnvPlugIn.o
BipSampPluginUtil.o -L$(MQSIROOT)/lib -l imbdfplg
```

Linux (on Intel)**Makefile:**

```

DEFINES      = -DLINUX
CC           = gcc
MQSIROOT     = /opt/mqsi
MQSISAMPLE   = $(MQSIROOT)/sample/plugin
MQSIINCLUDE  = -I$(MQSIROOT)/include -I$(MQSIROOT)/include/plugin -
I$(MQSISAMPLE)

all:  GetEnvPlugIn.lil

GetEnvPlugIn.o:      GetEnvPlugIn.c GetEnvPlugIn.h
                    $(CC) -I. $(MQSIINCLUDE) -c GetEnvPlugIn.c $(DEFINES)

BipSampPluginUtil.o: $(MQSISAMPLE)/BipSampPluginUtil.c
$(MQSISAMPLE)/BipSampPluginUtil.h
                    $(CC) -I. $(MQSIINCLUDE) -c
$(MQSISAMPLE)/BipSampPluginUtil.c $(DEFINES)

GetEnvPlugIn.lil:    GetEnvPlugIn.o BipSampPluginUtil.o
                    ld -shared -o GetEnvPlugIn.lil GetEnvPlugIn.o
BipSampPluginUtil.o -L$(MQSIROOT)/lib -l imbdfplg

```

HP-UX**Makefile:**

```

DEFINES      = -DHPUX +z
CC           = cc
MQSIROOT     = /opt/mqsi
MQSISAMPLE   = $(MQSIROOT)/sample/plugin
MQSIINCLUDE  = -I$(MQSIROOT)/include -I$(MQSIROOT)/include/plugin -
I$(MQSISAMPLE)

all:  GetEnvPlugIn.lil

GetEnvPlugIn.o:      GetEnvPlugIn.c GetEnvPlugIn.h
                    $(CC) -I. -I$(MQSIROOT)/include -
I$(MQSIROOT)/include/plugin -c GetEnvPlugIn.c $(DEFINES)

BipSampPluginUtil.o: $(MQSISAMPLE)/BipSampPluginUtil.c
$(MQSISAMPLE)/BipSampPluginUtil.h
                    $(CC) -I. $(MQSIINCLUDE) -c
$(MQSISAMPLE)/BipSampPluginUtil.c $(DEFINES)

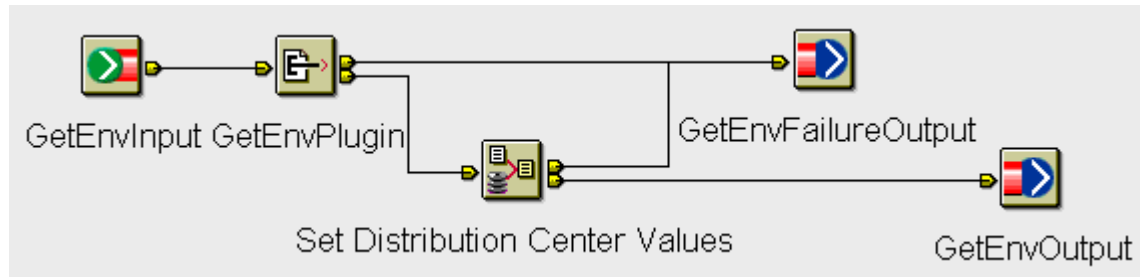
GetEnvPlugIn.lil:    GetEnvPlugIn.o BipSampPluginUtil.o
                    ld -b -o GetEnvPlugIn.lil GetEnvPlugIn.o
BipSampPluginUtil.o -L$(MQSIROOT)/lib -l imbdfplg

```

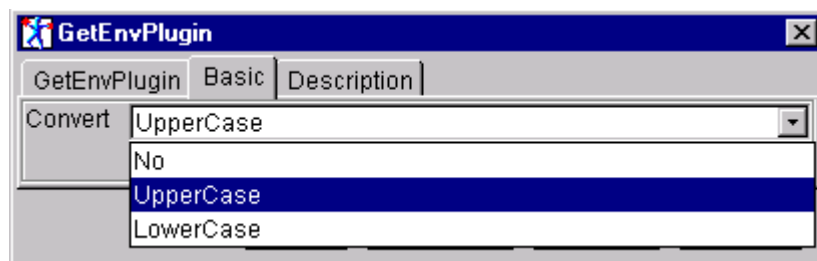
Example using the plug-in node

This example shows a possible use of the node. A Dutch company has two distribution centers in the Netherlands. The message must be enriched with distribution center specific data. Based upon the environment variable "COMPUTERNAME", a generic sub message flow can be defined.

Sub message flow



GetEnvPlugin



ESQL Compute node "Set Distribution Center Values"

```
SET OutputRoot.XML.Message.DistributionCenterCity =
CASE
    WHEN InputRoot.ENV.COMPUTERNAME = 'APTIVA'
        THEN 'Uithoorn'
    WHEN InputRoot.ENV.COMPUTERNAME = 'NETVISTA'
        THEN 'Amsterdam'
    ELSE 'UnknownCity'
END;
```

Message trace (only relevant elements)

```
(0x1000010)XML          = (
  (0x1000000)Message = (
    (0x1000000)DistributionCenterCity = (
      (0x2000000) = 'Uithoorn'
    )
  )
)

(0x1000000)ENV          = (
  (0x3000000)COMPUTERNAME      = 'APTIVA'
  (0x3000000)COMSPEC           = 'C:\WINNT\system32\cmd.exe'
  (0x3000000)DB2INSTANCE       = 'DB2'
  (0x3000000)DB2PATH           = 'C:\SQLLIB'
  (0x3000000)SYSTEMROOT        = 'C:\WINNT'
  (0x3000000)WINDIR            = 'C:\WINNT'
)
```

Sample ENV branch

Windows NT

```
(0x1000000)ENV = (
  (0x3000000)AMT_DATA_PATH = 'C:\Program Files\MQSeries\amt'
  (0x3000000)classpath =
'C:\PROGRA~1\MQSeries\java\lib\COMIBM~2.JAR;C:\PROGRA~1\MQSeries\java\lib\COMIBM~1.JAR
;C:\PROGRA~1\MQSeries\java\lib\COMIBM~3.JAR;C:\PROGRA~1\MQSeries\tools\javac\nt\sample
s\en_us;. ;C:\SQLLIB\java\db2java.zip;C:\SQLLIB\java\runtime.zip;C:\jdk1.1.8\lib\classe
s.zip;c:\PROGRA~1\IBMMQS~1.0\Tool\help;C:\Program Files\MQSeries\java\lib
.ibm.mq.amt.jar;;C:\Program
Files\MQSeries\amt\samples\java\bin\com.ibm.mq.amt.samples.jar;'
  (0x3000000)COMPUTERNAME = 'NLRG119'
  (0x3000000)ComSpec = 'C:\WINNT\system32\cmd.exe'
  (0x3000000)DB2INSTANCE = 'DB2'
  (0x3000000)DB2PATH = 'C:\SQLLIB'
  (0x3000000)DB2TEMPDIR = 'C:\SQLLIB'
  (0x3000000)IMNINST = 'help'
  (0x3000000)IMNINSTSRV = 'C:\IMNMQ_NT'
  (0x3000000)include = 'C:\Program
Files\MQSeries\tools\cplus\include;C:\Program
Files\MQSeries\tools\c\include;C:\jdk1.1.8\include;c:\PROGRA~1\IBMMQS~1.0\include;c:\P
ROGRA~1\IBMMQS~1.0\include\plugin'
  (0x3000000)lib = 'C:\Program
Files\MQSeries\tools\lib;c:\PROGRA~1\IBMMQS~1.0\lib'
  (0x3000000)MQSERVER = 'GOM.CLIENT/TCP/9.166.135.128(1515)'
  (0x3000000)MQSI_PARAMETERS_FILE = 'C:\Program Files\IBM MQSeries Integrator
2.0\bin\nlrg119.mpf'
  (0x3000000)NN_CONFIG_FILE_PATH = 'C:\Program Files\IBM MQSeries Integrator
2.0\bin\'
  (0x3000000)NUMBER_OF_PROCESSORS = '1'
  (0x3000000)OS = 'Windows_NT'
  (0x3000000)Os2LibPath = 'C:\WINNT\system32\os2\dll;'
  (0x3000000)Path = 'c:/program files/ibm mqseries integrator
2.0/bin;C:\WINNT\system32;C:\WINNT;c:\notes\;C:\Program Files\MQSeries\bin;C:\Program
Files\MQSeries\tools\c\samples\bin;C:\Program Files\Personal
Communications;C:\SQLLIB\BIN;C:\SQLLIB\FUNCTION;C:\SQLLIB\SAMPLES\REPL;C:\SQLLIB\HELP;
C:\IMNMQ_NT;C:\jdk1.1.8\bin;c:\PROGRA~1\IBMMQS~1.0\bin'
  (0x3000000)PATHEXT =
'.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH'
  (0x3000000)PCOMM_Root = 'C:\Program Files\Personal Communications'
  (0x3000000)PROCESSOR_ARCHITECTURE = 'x86'
  (0x3000000)PROCESSOR_IDENTIFIER = 'x86 Family 6 Model 5 Stepping 2,
GenuineIntel'
  (0x3000000)PROCESSOR_LEVEL = '6'
  (0x3000000)PROCESSOR_REVISION = '0502'
  (0x3000000)SystemDrive = 'C:'
  (0x3000000)SystemRoot = 'C:\WINNT'
  (0x3000000)USERPROFILE = 'C:\WINNT\Profiles\db2admin'
  (0x3000000)windir = 'C:\WINNT'
  (0x3000000)__MSVCRT_HEAP_SELECT = '__GLOBAL_HEAP_SELECTED,1'
)
```


AIX

```

(0x1000000)ENV          = (
  (0x3000000)_          =
  '/var/mqsi/brokers/DISRS08BK/bin/mqsistart' =
  (0x3000000)LANG       = 'en_US'
  (0x3000000)LOGIN      = 'mqmdvl'
  (0x3000000)NLSPATH    =
  '/usr/lib/nls/msg/%L/%N:/usr/lib/nls/msg/%L/%N.cat'
  (0x3000000)IMQCONFIGL = '/etc/IMNSearch/dbcshelp'
  (0x3000000)PATH       =
  '/usr/bin:/etc:/usr/sbin:/usr/ucb:/home/mqmdvl/bin:/usr/bin/X11:/sbin:./home/mqmdvl/s
qllib/bin:/home/mqmdvl/sqlllib/adm:/home/mqmdvl/sqlllib/misc'
  (0x3000000)Notes_ISOLATION = '1'
  (0x3000000)LC_FASTMSG    = 'true'
  (0x3000000)CGI_DIRECTORY = '/var/docsearch/cgi-bin'
  (0x3000000)IMQCONFIGSRV  = '/etc/IMNSearch'
  (0x3000000)CLASSPATH    =
  '/usr/opt/mqsi/classes/broker.jar:/usr/jdk_base/lib/aix/native_threads/../../../../classe
s:/usr/jdk_base/lib/aix/native_threads/../../../../classes.zip:/usr/jdk_base/lib/aix/native_
threads/../../../../classes.jar:/usr/jdk_base/lib/aix/native_threads/../../../../rt.jar:/usr/jdk_b
ase/lib/aix/native_threads/../../../../il8n.jar:/home/mqmdvl/sqlllib/java/db2java.zip:/home/
mqmdvl/sqlllib/java/runtime.zip:.'
  (0x3000000)LOGNAME      = 'mqmdvl'
  (0x3000000)MAIL         = '/usr/spool/mail/mqmdvl'
  (0x3000000)LOCPATH      = '/usr/lib/nls/loc'
  (0x3000000)USER        = 'mqmdvl'
  (0x3000000)DOCUMENT_SERVER_MACHINE_NAME = 'localhost'
  (0x3000000)AUTHSTATE    = 'compat'
  (0x3000000)AIXTHREAD_MNRRATIO = '1:1'
  (0x3000000)SHELL        = '/usr/bin/ksh'
  (0x3000000)ODMDIR       = '/etc/objrepos'
  (0x3000000)DOCUMENT_SERVER_PORT = '49213'
  (0x3000000)ODBCINI      = '/var/mqsi/odbc/.odbc.ini'
  (0x3000000)HOME         = '/home/mqmdvl'
  (0x3000000)DB2INSTANCE  = 'mqmdvl'
  (0x3000000)TERM         = 'ANSI'
  (0x3000000)LD_LIBRARY_PATH = '/usr/lpp/mqm/lib'
  (0x3000000)MAILMSG      = '[YOU HAVE NEW MAIL]'
  (0x3000000)PWD          = '/tmp'
  (0x3000000)DOCUMENT_DIRECTORY = '/usr/docsearch/html'
  (0x3000000)TZ           = 'NFT-1DFT,M3.5.0,M10.5.0/03:00'
  (0x3000000)MQS_APPL_HANDLE_SIGNALS = '1'
  (0x3000000)AIXTHREAD_SCOPE = 'S'
  (0x3000000)MALLOCMULTIHEAP = '1'
  (0x3000000)A__z        = '! LOGNAME'
  (0x3000000)LIBPATH      =
  '/home/mqmdvl/sqlllib/lib:/home/intfdb2/sqlllib/lib:'
)

```

----- End of Document -----