New Watch for Event Function for IBM i 7.1: How to Take Advantage of QSYSMSG Message Queue

The following two programs demonstrate how to use the New Watch for Event function for IBM® i 7.1 to monitor everything that goes to QSYS/QSYSMSG *MSGQ and send an alert by e-mail.

Program name: STRWSEM

```
BEGIN:      PGM
/* */
            MONMSG      MSGID(CPC0000 CPD0000 CPF0000 MCH0000)
            STRPJ       SBS(QUSRWRK) PGM(QSYS/QSCWCHPS)
            STRWCH      SSNID(WSEM) WCHPGM(QGPL/WSEM) +
                          CALLWCHPGM(*WCHEVT) WCHMSG((*ALL *NONE +
                          *MSGDTA *ALL *GE 00)) WCHMSGQ((QSYS/QSYSMSG))
/* */
END:        ENDPGM
```

Program name: WSEM

```
BEGIN:      PGM         PARM(&WCHOPTION &SESSIONID &ERROR &EVTDATA)
/* */
            DCL         VAR(&WCHOPTION) TYPE(*CHAR) LEN(10)
            DCL         VAR(&SESSIONID) TYPE(*CHAR) LEN(10)
            DCL         VAR(&ERROR) TYPE(*CHAR) LEN(10)
            DCL         VAR(&EVTDATA) TYPE(*CHAR) LEN(1024)
            DCL         VAR(&MSG) TYPE(*CHAR) LEN(173)
            DCL         VAR(&ALERT) TYPE(*CHAR) LEN(255)
/* */
            DCL         VAR(&MSGID) TYPE(*CHAR) STG(*DEFINED) LEN(7) +
                          DEFVAR(&EVTDATA 5)
            DCL         VAR(&MSGQ) TYPE(*CHAR) STG(*DEFINED) LEN(10) +
                          DEFVAR(&EVTDATA 13)
            DCL         VAR(&MSGQLIB) TYPE(*CHAR) STG(*DEFINED) +
                          LEN(10) DEFVAR(&EVTDATA 23)
            DCL         VAR(&MSGKEY) TYPE(*CHAR) STG(*DEFINED) +
                          LEN(4) DEFVAR(&EVTDATA 387)
/* */
            DCL         VAR(&MATMATR) TYPE(*CHAR) LEN(2617)
            DCL         VAR(&BYTESIN) TYPE(*CHAR) STG(*DEFINED) +
                          LEN(4) DEFVAR(&MATMATR)
            DCL         VAR(&TYPE) TYPE(*CHAR) STG(*DEFINED) LEN(4) +
                          DEFVAR(&MATMATR 2509)
            DCL         VAR(&MODEL) TYPE(*CHAR) STG(*DEFINED) LEN(3) +
                          DEFVAR(&MATMATR 2514)
            DCL         VAR(&PLANT) TYPE(*CHAR) STG(*DEFINED) LEN(2) +
```

```
                  DEFVAR(&MATMATR 2534)
            DCL       VAR(&SERIAL) TYPE(*CHAR) STG(*DEFINED) +
                        LEN(7) DEFVAR(&MATMATR 2537)
/* */
            DCL       VAR(&LPARDTA) TYPE(*CHAR) LEN(368)
            DCL       VAR(&FORMAT) TYPE(*INT) LEN(4) VALUE(1)
            DCL       VAR(&LPARDTALEN) TYPE(*INT) LEN(4) VALUE(368)
            DCL       VAR(&EC) TYPE(*CHAR) LEN(8)
            DCL       VAR(&ID) TYPE(*CHAR) STG(*DEFINED) LEN(4) +
                        DEFVAR(&LPARDTA 41)
            DCL       VAR(&LPARID) TYPE(*CHAR) LEN(4)
/* */
            DCL       VAR(&CCSID1) TYPE(*INT) LEN(4) VALUE(1208)
            DCL       VAR(&ST1) TYPE(*INT) LEN(4) VALUE(1)
            DCL       VAR(&NAME) TYPE(*CHAR) STG(*DEFINED) +
                        LEN(256) DEFVAR(&LPARDTA 89)
            DCL       VAR(&L1) TYPE(*INT) LEN(4) VALUE(256)
            DCL       VAR(&CCSID2) TYPE(*INT) LEN(4)
            DCL       VAR(&ST2) TYPE(*INT) LEN(4) VALUE(2)
            DCL       VAR(&GCCASN) TYPE(*INT) LEN(4) VALUE(0)
            DCL       VAR(&L2) TYPE(*INT) LEN(4) VALUE(256)
            DCL       VAR(&LPARNAME) TYPE(*CHAR) LEN(256)
            DCL       VAR(&L3) TYPE(*INT) LEN(4) VALUE(0)
            DCL       VAR(&L4) TYPE(*INT) LEN(4) VALUE(0)
            DCL       VAR(&FB) TYPE(*CHAR) LEN(12)
            DCL       VAR(&CCSID) TYPE(*DEC) LEN(5 0)
            DCL       VAR(&DFTCCSID) TYPE(*DEC) LEN(5 0)
            DCL       VAR(&PRTTXT) TYPE(*CHAR) LEN(72)
/* */
            MONMSG    MSGID(CPC0000 CPD0000 CPF0000 MCH0000)
/* */
            CHGVAR    VAR(%BIN(&BYTESIN)) VALUE(2617)
            CALLPRC   PRC('_MATMATR1') PARM((&MATMATR *BYREF) +
                        (X'012C' *BYREF))
            CALLPRC   PRC('dlpar_get_info') PARM((&LPARDTA *BYREF) +
                        (&FORMAT *BYVAL) (&LPARDTALEN *BYVAL)) +
                        RTNVAL(&EC)
            CHGVAR    VAR(&EC) VALUE(X'0000000000000000')
            CHGVAR    VAR(&LPARID) VALUE(%BIN(&ID))
/* */
            RTVJOBA   CCSID(&CCSID) DFTCCSID(&DFTCCSID)
            IF        COND(&CCSID *EQ 65535) THEN(CHGVAR +
                        VAR(&CCSID2) VALUE(&DFTCCSID))
            ELSE      CMD(CHGVAR VAR(&CCSID2) VALUE(&CCSID))
            CALL      PGM(QTQCVRT) PARM(&CCSID1 &ST1 &NAME &L1 +
                        &CCSID2 &ST2 &GCCASN &L2 &LPARNAME &L3 +
                        &L4 &FB)
            IF        COND(&LPARNAME *EQ ' ') THEN(CHGVAR +
                        VAR(&LPARNAME) VALUE('*NONE'))
            ELSE      CMD(CHGVAR VAR(&LPARNAME) +
                        VALUE(%SST(&LPARNAME 1 50)))
            CHGVAR    VAR(&PRTTXT) VALUE(&TYPE |< '-' |< &MODEL |< +
                        '*' |< &PLANT |< &SERIAL |< '/' |< +
                        &LPARID |< '/' || &LPARNAME)
/* */
            RCVMSG    MSGQ(&MSGQLIB/&MSGQ) MSGKEY(&MSGKEY) +
                        RMV(*NO) MSG(&MSG)
            CHGVAR    VAR(&ALERT) VALUE('*MSG ' || &PRTTXT |< ': ' +
                        || &MSGID || ' - ' || &MSG)
            SNDDST    TYPE(*LMSG) TOINTNET((centenom@ar.ibm.com +
```

```
                          *PRI)) DSTD('*** ALERT ***') LONGMSG(&ALERT)
/* */
END:        CHGVAR     VAR(&ERROR) VALUE('          ')
            ENDPGM
```

Putting all the pieces together to make it work

Follow these instructions from an IBM i command line:

1. Use the Start Source Entry Utility (STRSEU) command to add a source member called STRWSEM to the QGPL/QCLSRC source physical file:

```
STRSEU SRCFILE(QGPL/QCLSRC) SRCMBR(STRWSEM) TYPE(CLP) OPTION(2) TEXT('Start
WSEM')
```

2. Paste the CLP code example for program STRWSEM and save the member.

3. Use the Start Source Entry Utility (STRSEU) command to add a source member called WSEM to the QGPL/QCLSRC source physical file:

```
STRSEU SRCFILE(QGPL/QCLSRC) SRCMBR(WSEM) TYPE(CLLE) OPTION(2) TEXT('Watch for
severe error messages')
```

4. Paste the CLLE code example for program WSEM and save the member.

5. Complete the setup by running these commands one by one:

```
CRTCLPGM PGM(QGPL/STRWSEM) SRCFILE(QGPL/QCLSRC) OPTION(*NOSRC) USRPRF(*OWNER)
LOG(*NO) ALWRTVSRC(*NO) REPLACE(*YES)

CHGPGM PGM(QGPL/STRWSEM) OPTIMIZE(*YES) RMVOBS(*ALL)

CHGOBJOWN OBJ(QGPL/STRWSEM) OBJTYPE(*PGM) NEWOWN(QSYS)

GRTOBJAUT OBJ(QGPL/STRWSEM) OBJTYPE(*PGM) USER(*PUBLIC) AUT(*EXCLUDE)

GRTOBJAUT OBJ(QGPL/STRWSEM) OBJTYPE(*PGM) USER(*PUBLIC) AUT(*OBJMGT *OBJOPR
*READ *EXECUTE)

CRTBNDCL PGM(QGPL/WSEM) SRCFILE(QGPL/QCLSRC) OUTPUT(*NONE) USRPRF(*OWNER)
LOG(*NO) ALWRTVSRC(*NO) REPLACE(*YES)

CHGPGM PGM(QGPL/WSEM) OPTIMIZE(*YES) RMVOBS(*ALL)

CHGOBJOWN OBJ(QGPL/WSEM) OBJTYPE(*PGM) NEWOWN(QSYS)

GRTOBJAUT OBJ(QGPL/WSEM) OBJTYPE(*PGM) USER(*PUBLIC) AUT(*EXCLUDE)

GRTOBJAUT OBJ(QGPL/WSEM) OBJTYPE(*PGM) USER(*PUBLIC) AUT(*OBJMGT *OBJOPR *READ
*EXECUTE)

CRTDUPOBJ OBJ(QSTRUPJD) FROMLIB(QSYS) OBJTYPE(*JOBD) TOLIB(QGPL) NEWOBJ(WSEM)

CHGOBJOWN OBJ(QGPL/WSEM) OBJTYPE(*JOBD) NEWOWN(QSYS)

GRTOBJAUT OBJ(QGPL/WSEM) OBJTYPE(*JOBD) USER(*PUBLIC) AUT(*EXCLUDE)
```

```
CHGJOBD JOBD(WSEM) JOBQ(QSYS/QUSRNOMAX) TEXT('Watch for severe error
messages') RQSDTA('CALL PGM(QGPL/STRWSEM)')

GRTOBJAUT OBJ(STRWCH) OBJTYPE(*CMD) USER(QPGMR) AUT(*USE)

CHGFCNUSG FCNID(QIBM_SERVICE_WATCH) USER(QPGMR) USAGE(*ALLOWED)

ADDAJE SBSD(QSYS/QUSRWRK) JOB(WSEM) JOBD(QGPL/WSEM)

CRTMSGQ MSGQ(QSYS/QSYSMSG) TEXT('MSGQ for severe error messages')

CHGOBJOWN OBJ(QSYS/QSYSMSG) OBJTYPE(*MSGQ) NEWOWN(QSYS)

GRTOBJAUT OBJ(QSYS/QSYSMSG) OBJTYPE(*MSGQ) USER(*PUBLIC) AUT(*EXCLUDE)

GRTOBJAUT OBJ(QSYS/QSYSMSG) OBJTYPE(*MSGQ) USER(*PUBLIC) AUT(*OBJOPR *ADD
*READ *EXECUTE)

GRTOBJAUT OBJ(QSYS/QSYSMSG) OBJTYPE(*MSGQ) USER(QPGMR QSRV QSRVBAS QSYSOPR)
AUT(*CHANGE)

ADDDIRE USRID(QPGMR QPGMR) USRD('Programmer and Batch User') USER(QPGMR)

SBMJOB JOB(*JOBD) JOBD(QGPL/WSEM) JOBQ(*JOBD) USER(*JOBD) RQSDTA(*JOBD)
```

How they work

The program WSEM sends an e-mail every time that a new message arrives to QSYS/QSYSMSG *MSGQ. The e-mail is sent to the address specified in the SNDDST command within program WSEM. The details of the message captured in QSYSMSG are included within the e-mail body.

For further information about the STRWCH command and the QSYSMSG message queue see the IBM i 7.1 Information Center at the following web pages:

- Start Watch (STRWCH)
  http://publib.boulder.ibm.com/infocenter/iseries/v7r1m0/topic/cl/strwch.htm
- Messages sent to QSYSMSG message queue
  http://publib.boulder.ibm.com/infocenter/iseries/v7r1m0/topic/rbam6/msmqu.htm

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