IBM Education Assistance for z/OS V2R2

Item: Sysrexx Enhancements
Element/Component: MVS/System REXX

Material current as of May 2015

Agenda

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Trademarks

- See url http://www.ibm.com/legal/copytrade.shtml for a list of trademarks.

Presentation Objectives

- Seven enhancements for System Rexx
  - New MODIFY AXR command options and STOP command support
  - New parmlib options for better customization
  - New exec functionality

Overview

- Operator command enhancements:
  - Operator Cancel Command for execs
    - SVT runs REXX execs that monitor LDAP. Need to address the case where 2 or more such execs run concurrently on the same system
  - Operator command to terminate AXRnn address spaces.
    - Needed as a precursor to terminating JES
  - Operator initiated TSO=NO exec
    - Operator would like to issue an exec that can run w/o POSIX, CONSOL and TSO subcommands. Lightweight environment is fine
  - STOP AXR command support
    - Graceful termination
    - A much better alternative than FORCE AXR,ARM

Overview – continued

- Parmlib customization:
  - Parmlib TimeInt keyword
    - The default TimeInt value of 30 seconds is inappropriate for some installations – now can be overridden
  - Parmlib MaxTsoServers keyword
    - The limit of 8 TSO Servers may be inappropriate for all installations – now it can be changed from 1-16
- New functionality:
  - AXRWTOR – provides the ability for an exec to issue a WTOR
    - WTOR sent as a command response to the invoker of the exec

Usage & Invocation

- Commands:
  - MODIFY AXR,SR CANCEL,REQTOKEN=<reqtoken>
    - Request token uniquely identifies an in progress exec.
    - Can now be obtained when initiating an exec from the command line by using the new OREQTOKEN option:
      - MODIFY AXR,<exec>,OREQ
  - MODIFY AXR,SR STOPTSO
    - Stops all TSO Server address address spaces
      - Allows currently running execs to complete and aborts if they do not within a time threshold (30 sec - 1min)
    - Subsequent AXREXX TSO=YES requests fail with RC=0C, RSN=xxxx0C11
    - Possible long running command.
      - Other F AXR commands may be issued while this is in progress

Usage and Invocation

```
 - f axr,wtor,oreq
  AXR0213I EXEC NAME=WTOR
  REQTOKEN=000040000000000CE719B4F1136F74A
- IRR813I NO PROFILE WAS FOUND IN THE STARTED CLASS FOR

- AXR04 WITH JOBNAME AXR04. RACF WILL USE ICHRIN03.
  $HASP100 AXR04    ON STCINRDR
- $HASP373 AXR04    STARTED
 *04 Reply to  this


IEE612I CN=RSMCON1  DEVNUM=03E0 SYS=S7A0


IEE163I MODE= RD
```

Usage and Invocation

```
 - f axr,wtor,oreqtoken
   AXR0213I EXEC NAME=WTOR
   REQTOKEN=00004000000000CE719CAC331A1763
  | 06 Reply to  this
  - f axr,sr cancel,REQTOKEN=00004000000000CE719CAC331A1763

    AXR0208I SYSREXX CANCEL OF
REQTOKEN=00004000000000CE719CAC331A1763
     COMPLETED SUCCESSFULLY.  EXEC NAME IS WTOR
00  IEE400I THESE MESSAGES CANCELLED - 06.
    AXR0203I AXREXX INVOCATION OF WTOR FAILED.
    RETCODE=0000000C RSNCODE=05050C07
    REQTOKEN=00004000000000CE719CAC331A1763
    DIAG1=00000000 DIAG2=00000000 DIAG3=00000000 DIAG4=00000000

IEE612I CN=RSMCON1  DEVNUM=03E0 SYS=S7A0


IEE163I MODE= RD
```

Usage & Invocation

- Additional commands
  - MODIFY AXR,SR STARTTSO
    - Inverse of STOPTSO
    - Can also be used to interrupt an in progress STOPTSO
  - MODIFY AXR,<exec name>,TSO=<NO|YES>
    - YES is the default
  - STOP AXR
    - Graceful termination
    - Waits for all in progress execs to complete
      - Aborts after a period of time (30sec - 1min)
    - New execs cannot start
    - Operator can issue MODIFY AXR commands while STOP is in progress

Usage and Invocation

```
00- @sr st
 AXR0200I SYSREXX STATUS DISPLAY      FRAME  1     F      E   SYS=S7A0
  SYSTEM REXX STARTED AT 14.36.57 ON 01/02/2015
  PARMLIB MEMBERS:      AXRHM
  CPF:  @ (SYSTEM)      AXRUSER:  IBMUSER
  TIMEINT:       30     TMP: NOT ENABLED
  SUBSYSTEM:   AXR      TSO=YES DISABLED
  REQUESTS QUEUED:      0  ACCEPTING NEW WORK
  REXX WORKER TASKS:    ACTIVE:   0     TOTAL:   4
                        IDLE:     4     MAX:    32
                        ASYNC:    0     SYNC:    0
IEE612I CN=RSMCON1  DEVNUM=03E0 SYS=S7A0


IEE163I MODE= RD
```

Usage and invocation

- New parmlib options:
  - TIMEINT – value to override the default of 30 sec
    - 0 to 21474536 may be specified
    - Value of 0 means execs do not time out by default
  - MAXTSOSERVERS
    - 1-16 can be specified
    - Overrides the current default of 8

Usage and Invocation – AXRWTOR function

```
/* REXX */
CALL AXRWTOR 'Reply to  this';
/* REXX exec stops here until reply is received */
Say AxrReply  /* Operator's reply stored in AxrReply variable */
```

- AXRWTOR msg routing is identical to AXRWTO
  - Message is sent to console name specified in the CONSDATA keyword of the AXREXX invocation
  - If CONSDATA not specified then system default routing attributes apply

Interactions & Dependencies

- RACF passphrase support
  - Internal EMCS consoles are initialized at System REXX initialization time instead of when a new worker task is created for TSO=NO
  - Needed to avoid potential deadlock on SYSZMCS when AXREXX is invoked during CONSOLE LOGON
  - Possible deadlock still exists for TSO=YES
    - TSO=YES should not be used for parsing RACF passphrase

Migration & Coexistence Considerations

- MAXWORKERTASKS AXRxx parmlib option limit changed
  - Used to support 4-64, now 4-32. Default is still 32.
  - Error message is issued if the value specified exceeds 32
    - the default is applied

Presentation Summary

- Sysrexx Command enhancements:
  - CANCEL and OREQ options
  - STOPTSO
  - STARTTSO
- Stop command
- Parmlib enhancements
  - TIMEINT
  - MAXTSOSERVERS
- AXRWTOR – new external function
  -

Appendix

- z/OS MVS: Authorized Assembler Guide
- z/OS MVS: System Commands
- z/OS MVS: Initialization and Tuning Reference