



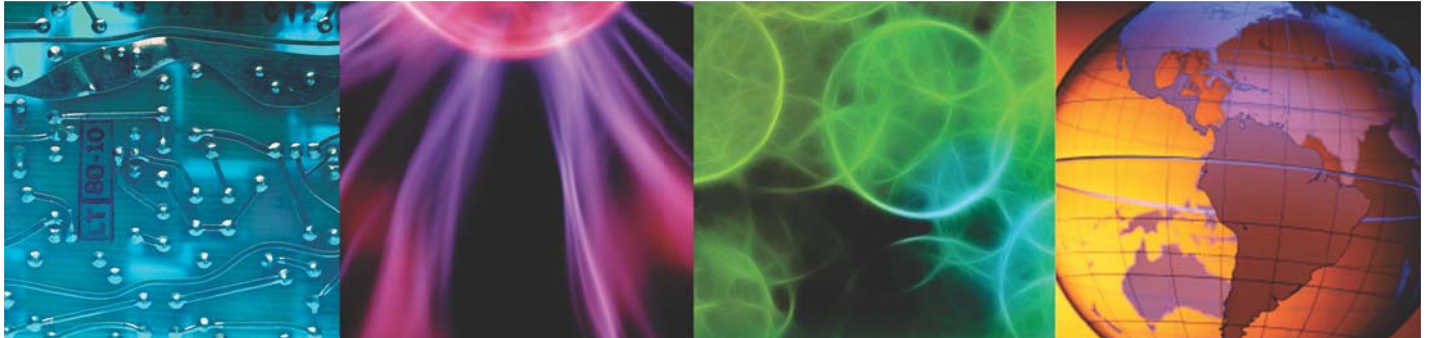
IBM Training

System Automation for z/OS 4.1 Operations

Student Exercises

Course code SM927 ERC 1.1

June 2019



z Systems software

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About these exercises

Typographical conventions

In this course, the following typographical conventions are used.

Convention	Usage
Bold	Commands, keywords, file names, authorization roles, web addresses, or other information that you must use literally appear in bold .
<i>Italics</i>	Variables and values that you must provide appear in <i>italics</i> . Words and phrases that are emphasized also appear in <i>italics</i> .
<i>Bold Italics</i>	New terms appear in <i>bold italics</i> when they are defined in the text.
Monospace	Code examples, output, and system messages appear in a monospace font.
UPPERCASE	Mainframe commands and parameters can be shown in UPPERCASE letters.
>	In this manual, the arrow character is used as a path arrow. The arrow indicates the path to the named window.

Lab access

IBM Labs are hosted on an IBM z/VM system named POKEDVM2.

POKEDVM2 runs z/OS guest systems.

POKEDVM2 can be accessed from a supported Internet browser using Skytap.

IBMers can access POKEDVM2 using the IBM intranet.

Skytap

Skytap is a cloud platform for sharing virtual machine environments.

IBM Training uses Skytap to provide a Microsoft Windows virtual machine (VM) that can be accessed by a supported Internet browser.

Inside the virtual machine you use the 3270 emulator PCOMM to logon to your z/OS guest systems running on POKEDVM2.



Note: There is a separate document about using Skytap. In the following only the basics are covered.

Skytap Access Requirements

You can access Skytap from any operating system. This includes most versions of Microsoft Windows, Apple OS X, and most major Linux distributions. Download and install a browser that supports HTML5.

Supported browsers include: Google Chrome 31+, Mozilla Firefox 31+, Apple Safari 7+, Microsoft Internet Explorer 10+, and Microsoft Edge.

Skytap does not support Internet Explorer in Compatibility View.

For more information about access requirements, check the Skytap link below

http://help.skytap.com/#Access_Requirements.html

For IBM labs helpdesk information, click the link below:

<https://labs.edu.ihost.com/>

Running the Connectivity Checker

To ensure that connection to the virtual class environment works as expected and as smoothly as possibly, please run the Skytap connectivity checker.

To access the Connectivity Checker:

1. Go to <https://cloud.skytap.com/connectivity>.
2. Select the Region that your VM is in from the drop-down menu. The default region for all IRLP VMs is US-Central. You may also check this with your Brand contact.
3. Then click Start Connectivity Checker.

During the test, Skytap will check whether you are using a supported browser. It will also check if you can connect to Skytap. Your network connection may be blocked by a firewall or network restriction.

Latency of your connection will also be checked to identify potential performance issues. If you get a latency of more than 150ms, you will probably experience noticeable lag when connecting to your VM.

For more information about connectivity checker, check the Skytap link below:

http://help.skytap.com/#HTML5_Connectivity_Checker.html

How to use the Virtual Classroom environment

The instructor assigns a Skytap URL to you. The Skytap URL provides “full control” to the VM which means that you can perform system level tasks on your assigned VM including operations like “Start”, “Suspend”, or “Shutdown”

- Start – this powers on the VM and start the operating system
- Suspend – will freeze any processes currently running, the next time you run the VM you will be able to pick it up where you left off. (Note: that if the VM is in idle for 4 hrs VM's will automatically suspend)
- Shutdown – will shut down the guest operating system, the next time you run the VM it will boot up from the power off state.

Once the VM is running you can open the VM desktop with your browser. To do this, click on the VM thumbnail.

The Skytap URL does not require a logon and the link to the VM can be shared which can create problems. Students can change their VM keyboard layout to match their local keyboard layout. Several keyboard layouts are available

System Automation for z/OS lab exercise systems access and operation

The System Automation for z/OS software is set up and ready for use on the POKEDVM2 z/OS systems. No further setup of System Automation for z/OS is required. The existing setup and how to access it are described in the following sections.

Sysplex and z/OS system information

This section describes the POKEDVM2-based sysplex and z/OS system configurations that are used in this course. All z/OS systems in this course run as guest systems under z/VM. The VM names for the guest systems are **MVSCn_x**, where n = numeric value of the delivery set that is assigned to the class (n = 0,1,2,3) and x is a guest number (n = 1,2,3,4,5,6,7,8, or I).

For class scheduling purposes, the systems are grouped into **delivery sets** with nine systems in each set. Each delivery set contains eight student systems and one instructor system. The value of n identifies a delivery set which supports up to four student team sysplexes and one instructor system.

Within a delivery set, there are four two-system sysplexes for the students and one monoplex system for the instructor. When classes are scheduled, one or more delivery sets is assigned to the class based on the number of students in the class.

Each guest system with an **odd-numbered suffix, n1, n3, n5, and n7 is named MVSA**. System MVSA, NetView domain **AOFDA**, is used as a standalone system (monoplex) in all lab exercises with the exception of unit 7.

Each of the guest systems with an **even-numbered suffix, n2, n4, n6, and n8 is named MVSB**. For system MVSB and has NetView domain **AOFDB**. Each sysplex has an odd numbered system which is coupled to an adjacent even-numbered system with which it shares data sets. The coupled pairs are n1 and n2, n3 and n4, n5 and n6, and n7 and n8.

Each student team is assigned two z/OS systems.

For all exercises students use the **MVSA system**. Students use MVSA and **MVSB during exercise 7**. The instructor uses MVSC or an unassigned sysplex for all demonstrations.



Important: MVSB should not be IPL'ed until it is needed. If it is IPL'ed, its System Automation for z/OS automation agent and automation manager will join the SAplex of MVSA as they use the same XCF group. To avoid confusion, stop the MVSB automation agent and manager.

User IDs

The student NetView and TSO user IDs are **SASTUD1**, and **SASTUD2**. The password is **B4zzzz4B** where **zzzz** is the class number. These IDs are defined in RACF. The NetView CAT table is not used for NetView security.

The instructor's TSO and NetView ID is **INGC102**, and the RACF password is B4zzzz4B where zzzz is the class number.

If an IPL is required you MUST use a surrogate ID: The surrogate ID is the guest name preceded by S. Example: The surrogate for MVSCH01 is SMV SCH01. Remember that you must change the password of the surrogate at the initial logon, so the student needs to remember the new password.

Table 1: IDs and passwords

ID	User name	Password	Comment
Instructor TSO and NetView ID	INGC102	B4zzzz4B where zzzz is the class number.	A different user ID and password might be assigned by the z/OS system administrators for a specific instance of a class delivery. The instructor will receive notification of this assignment.
Student TSO and NetView IDs	SASTUD1 and SASTUD2	B4zzzz4B	The same user ID and password is used for both TSO and NetView.
Instructor z/VM user ID and password	SMV SCH_nx	B4zzzz4B	<i>n</i> = numeric value of the delivery set that is assigned to the class. <i>x</i> = 1,2,3,4,5,6,7,8 , or I . zzzz is the class number.

Consoles

Each student team can use the following separate 3270 emulator sessions for these purposes:

- The MVSA automation NetView AOFDA
- The MVSA system console which requires logon to z/VM or
- The MVSA TSO session and SDSF

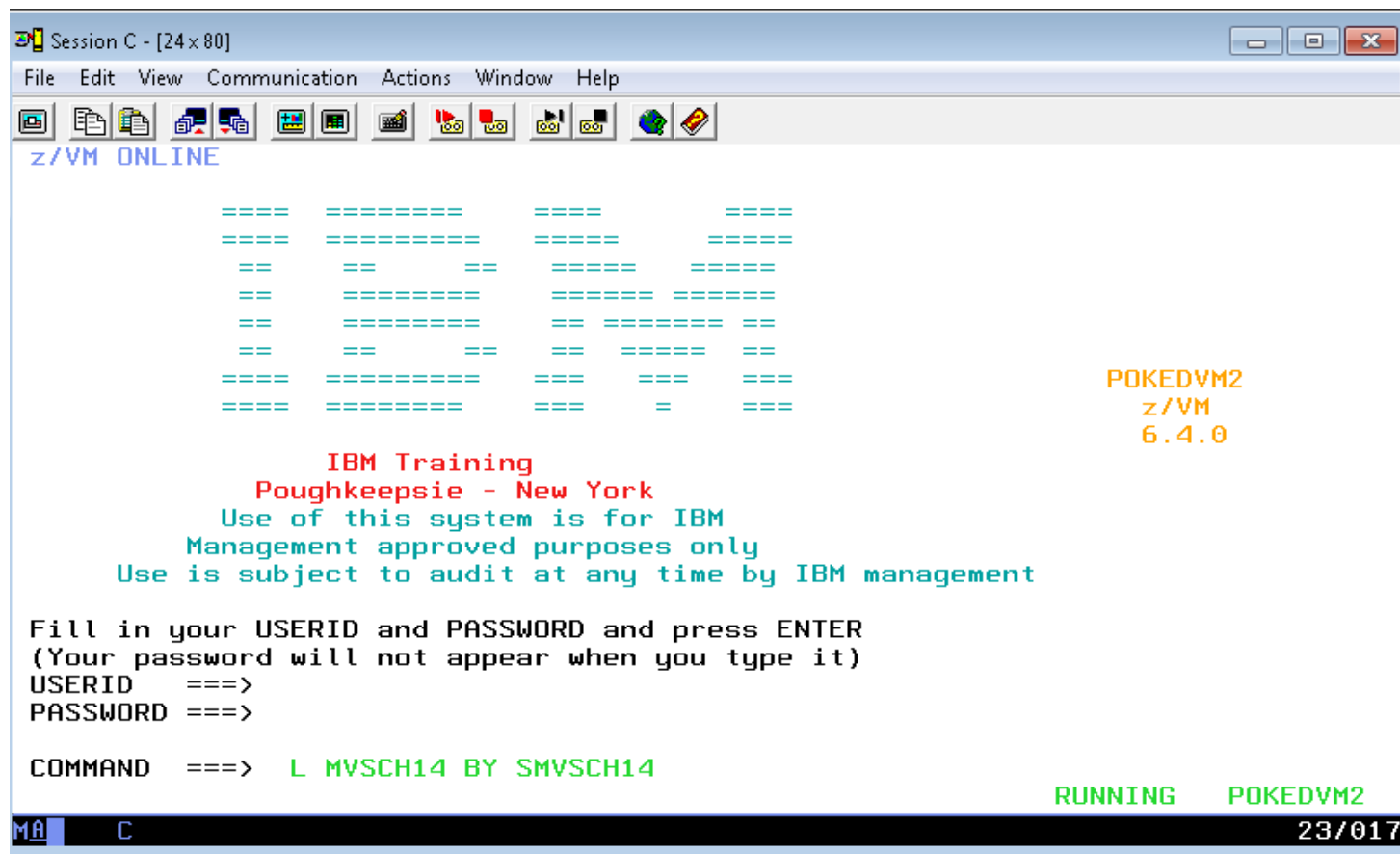
For exercise 7 only

- The MVSB automation NetView AOFDB
- The MVSB system console (used) or
- The MVSB TSO session and SDSF

Accessing the POKEDVM2 environment

The z/OS systems run as guest systems under z/VM. You access the z/VM systems in POKEDVM2, also known as CLP, with PCOMM running from your assigned VM. Because all of the lab exercises are conducted using 3270 sessions with TSO and NetView, you must use PCOMM to access the POKEDVM2 environment.

After you start your PCOMM session, you see the POKEDVM2 z/VM logo as shown in the following illustration.



IPL a guest system



Important: To IPL a guest z/VM knowledge is required. It is recommended to ask your instructor for help.

1. From the command line on the POKEDVM2 zVM logon screen, enter the following command:

LOGON MVSCH_{nx} BY SMVSCH_{nx}

2. Respond to the request for a password by entering the following command:

B4zzzz4B

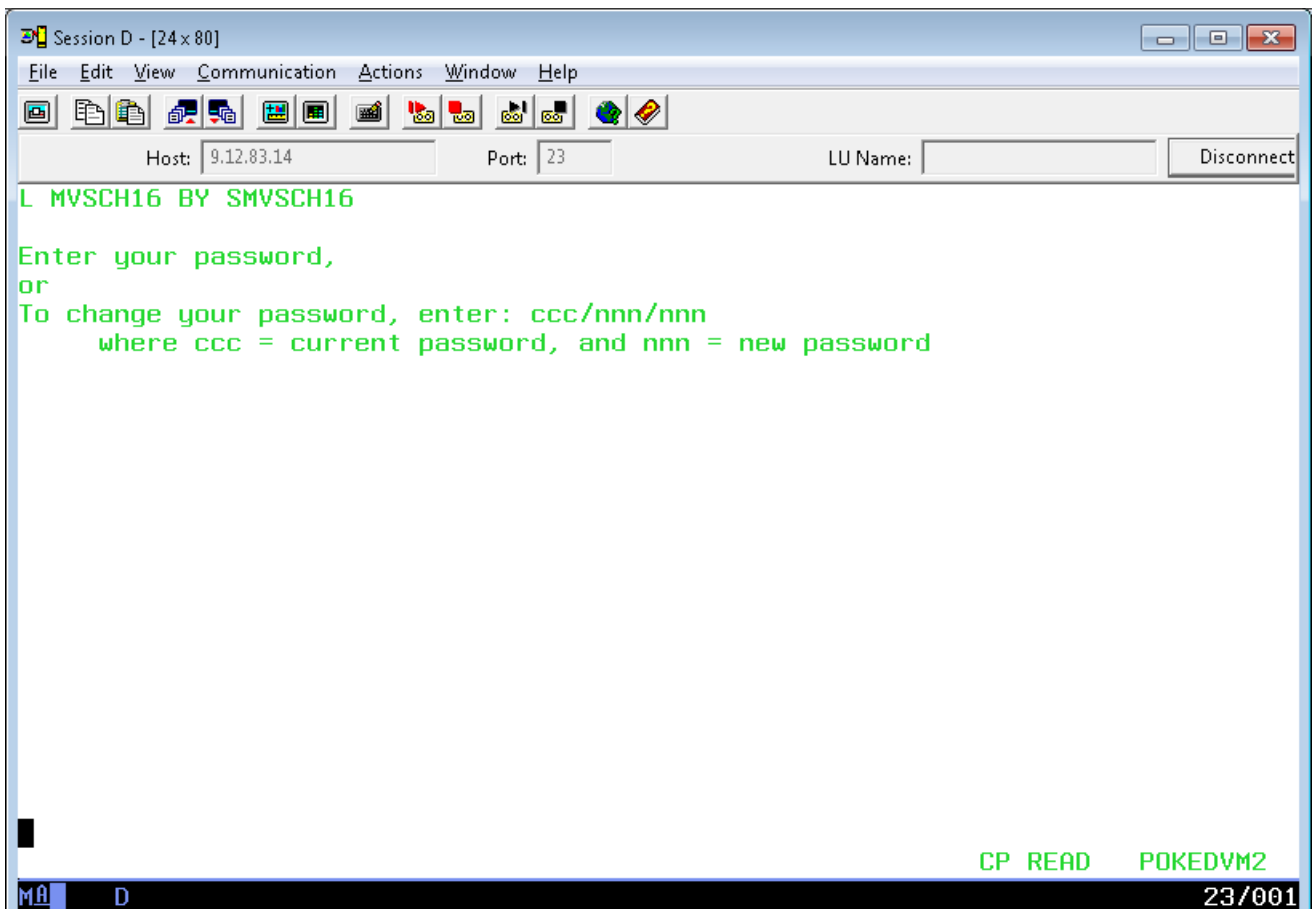
where zzzz is the class number (only for the first IPL of the system)

3. Respond to the password expired message by entering a new password in the following format (only for the first IPL of the system):

yyyyy/yyyyy

where yyyyy is the course code (recommended)

You can also specify the old and new password together:



4. Press the **PA1** (Pause) key when you see More or **HOLDING** at the lower-right corner of the screen.

When the VM **Ready**; appears, you see a message box with the names of the REXX EXECs that are run to IPL the z/OS systems:

- MVSAOPS to IPL z/OS system MVSA
- MVSBOPS to IPL z/OS system MVSB
- MVSCOPS to IPL z/OS system MVSC

5. Enter the name of the EXEC for the z/OS system that you want to IPL.



Note: MVSA must be IPL'd for each team before the start of the first lab exercise

```

Session C - [24x80]
File Edit View Communication Actions Window Help

*****
*                      SYSTEM LEVEL IS z/OS 2.2                      *
*****
*
* TO IPL YOUR MVSCH14 SYSTEM, ENTER ONE OF THE FOLLOWING:
*
*   MVSA62   -   NETVIEW 6.2 :WITHOUT AUTOMATION
*
*   SA 4.1 OPERS CLASS (WITH NETVIEW 6.2):
*   MVSAOPS  IPL MVSA WITH AUTOMATION
*   MVSBOPS  IPL MVSB WITH AUTOMATION
*   MVSCOPS  IPL MVSC (INSTRUCTOR SYSTEM) WITH AUTOMATION
*
*   SA 4.1 ADMIN CLASS (WITH NETVIEW 6.2):
*   SA41ADM0 IPL MVSA WITHOUT AUTOMATION - FOR UNITS 2 & 3
*   SA41ADMA IPL MVSA WITH FULL FUNCTION AUTOMATION
*   SA41ADMB IPL MVSB WITH FULL FUNCTION AUTOMATION
*
*****

Ready;
mvsbops

RUNNING  POKEDVM2
MA  C 23/008

```

- Normally your system should come up without any problems or replies. However if you re-IPL with the other system still running, there might be reply IXC420D to re-initialize the sysplex. IXC420D is responded to with I automatically after 2 seconds. If not, respond with:

0,I



Note: There are more messages responded to automatically, see SYS2.PARMLIB(AUTOR01)

Eventually you will see that the System Automation for z/OS address spaces are started and the AOF603D reply which will be responded to automatically after two minutes:

The screenshot shows a z/OS console window titled "Session E - [24 x 80]". The main display area contains green text logs from the System Automation for z/OS (SAF) subsystem. The logs indicate that initialization is complete, but history and message log requests failed. A successful load of the ACF (Automation Control File) is reported. The automation options are listed, including STOP, PAUSE, NOSTART, and ENTER. A specific command is entered: "AOF603D ENTER AUTOMATION OPTIONS OR 'R' (RE-DISPLAY) - DOMAIN AOFDB". Subsequent logs show timer elements being purged and a command being scheduled for execution. At the bottom, a blue bar displays "IEE163I MODE= R". A keyboard control overlay is visible in the bottom right corner, featuring buttons for PA1, PA2, Clear, Reset, ErEOF, ErInp, Attn, and SysRq, along with "Pad 1" and "Pad 2" indicators. The status bar at the very bottom shows "Connected to remote server/host 9.12.83.14 using port 23".

```

-  INITIALIZATION COMPLETE.
-  09.38.52 STC00104  HSAM5400I HISTORY LOG REQUEST 'CONNECT' FAILED.
-  RC=x'08', RSN=x'08E2'.
-  09.39.05 STC00104  HSAM5400I MESSAGE LOG REQUEST 'CONNECT' FAILED.
-  RC=x'08', RSN=x'08E2'.
-  09.39.08          HSAM1330I LOAD_ACF REQUEST COMPLETED SUCCESSFULLY ON
-  MVSB.
-  09.39.09 STC00104  AOF767I AUTOMATION OPTIONS:
-  . STOP          - CANCEL AUTOMATION
-  . PAUSE         - SUSPEND AUTOMATION
-  . NOSTART       - DO NOT AUTOMATE SUBSYSTEM STARTUP
-  . ENTER        - CONTINUE
*09.39.09 STC00104 *0013 AOF603D ENTER AUTOMATION OPTIONS OR 'R'
* (RE-DISPLAY) - DOMAIN AOFDB
-  09.39.09 STC00104  DSI205I 000 TIMER ELEMENTS PURGED  OP = 'PPT'
-  09.39.09 STC00104  DSI034I COMMAND SCHEDULED BY AT/EVERY/AFTER COMMAND -
-  'MVS R 0013'
-  09.39.09 STC00104  DSI201I TIMER REQUEST SCHEDULED FOR EXECUTION
-  'ID=AOF603D'
00- 09.39.20 STC00104  BNH697I REMOTE OPERATIONS TCP/IP SERVER SET-UP FAILED
IEE612I CN=MVSB3A0  DEVNUM=03A0 SYS=MVSB      CMDSYS=MVSB

```

IEE163I MODE= R

Connected to remote server/host 9.12.83.14 using port 23

With a right click you can enter special keys, clear the screen or reset the keyboard.

Disconnect a guest system

The system ID's run as long as the ID is logged on OR is placed in disconnect mode. If the student fails to "disconnect" the system properly, then the z/VM base system will automatically force out the system ID after 90 minutes and a re-IPL is required. So, do not log off from the z/VM guest. The logoff removes the z/OS system from the z/VM virtual machine. You must perform a disconnect so that z/OS stays running.

To run a guest system in disconnected mode, use these steps:

1. From the system console screen, press **PA2** or **PA1** to toggle from the z/OS console to the VM environment (will see "running" or "CP READ" in the lower right corner of the logon session..
2. At the VM CP READ screen, type **SET RUN ON**.
3. At the VM More screen, press **PA1**.

4. From the system console screen, press **PA2**.
5. At the VM CP READ screen, type **DISC** or “**#CP DISC**” and press enter (right CTL key) to place the system in “disconnect” mode.

Shut down a guest system

If your intention is to shut down z/OS, then log off the z/VM guest system. To shut down a guest system, use these steps:

1. For a clean shutdown enter a winning stop request against the SYG resource of the system. Alternatively you can enter the following MVS commands

```
s shutdown
```

2. Wait until the previous command has completed, then, from the system console screen, press **PA2**.
3. At the VM CP READ screen, type **LOG**.



Note: When you shut down one of the systems in the sysplex, you must respond to the XCF-related console messages on the remaining system.

If all else fails, take down (logoff) both the MVSA & MVSB systems and start IPL again.

Log on to NetView or TSO

To access TSO or NetView on a guest system, use the VM dial command from the POKEDVM2 VM screen. You can start a second PCOMM session to do this. Use the first PCOMM session for the system console and the second PCOMM session for TSO and NetView. A third session can also be used to have all three available at the same time.

VM DIAL

1. Select the PCOMM 3270 desktop icon, which was configured to access POKEDVM2
2. From the POKEDVM2 logon screen, enter the following command:

```
DIAL guestsystemname
```

An example is COMMAND ==> D MVSCH71.

After you dial into a guest system, you see the VTAM message 10 screen that allows you to log on to either TSO or NetView, as shown in the following example.

```

Session D - [24 x 80]
File Edit View Communication Actions Window Help
Host: 9.12.83.14 Port: 23 LU Name: Disconnect

*****ö *****ö **ö **ö *****ö **ö *****ö
*****ö *****ö **ö **ö *****ö **ö *****ö
**öööööö **öööö **ö **ö **öööööö**ö **ö **öööö
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**ö *****ö ****öö *****öö *****ö *****ö
**ö *****ö **öö *****öö *****ö *****ö
öö ööööööö öö ööööööö ööööööööö ööööööö

          S Y S T E M   A U T O M A T I O N
                V E R S I O N   4 . 1

THIS SYSTEM SUPPORTS THE FOLLOWING COURSES:

SM927 - S/A 4.1 INTRODUCTION AND OPERATIONS
SM937 - S/A 4.1 IMPLEMENTATION AND ADMINISTRATION

PRESS ENTER KEY FOR LOGON INFORMATION

M D 01/002
Connected to remote server/host 9.12.83.14 using port 23

```

3. Press enter and you see the following screen:

ENTER ONE OF THE FOLLOWING COMMANDS:

TSO - LOGON TO TSO
LOGON - LOGON TO TSO

AOFDA - LOGON TO NETVIEW 6.2 ON MVSA
AOFDB - LOGON TO NETVIEW 6.2 ON MVSB
AOFDC - LOGON TO NETVIEW 6.2 ON MVSC

LOGON APPLID=XXXXXX WHERE XXXXXX =
YOUR APPLICATION

OR PRESS CLEAR KEY TO RETURN

4. Select TSO for TSO or AOFDA for NetView in system MVSA

5. To check whether you logged on to the right system use the ISPF Primary Option Menu. At its top right, the z/VM guest name is listed under MVS System.
6. To check whether you logged on to the right NetView, enter the following pipe after using 'INPUT 2' to add a second input line:

```
pipe lit /System =&SYSNAME%Sysplex=&ABPLEX %SYSHOST=&SYSHOST /! split at /%/ !  
col ! subsym ! cons
```


System Automation for z/OS configuration files

During the lab exercises, students load required automation control files. The naming convention used for automation control files is SAZOS.ACFS.OPSUxEXn where:

OPS identifies the configuration file as one used for the System Automation for z/OS Operations course.

- **x** is the course unit number
- **n** is the number of the exercise

However, sometimes configuration files are used for multiple exercises and are numbered in sequence independent of the exercise number.

Configuration files for the instructor system are named as follows:

- SAZOS.ACFS.OPSUxEXn.INSTR

To check which configuration file is used, logon to NetView and watch the output.

Alternatively use the INGAMS command and option B against the PAM or enter the following pipe after using 'INPUT 2' to add a second input line:

```
pipe netview ingams status outmode=line!cons clear!sep!loc / PAM /!edit  
/ingams details / 1 word 2 n /outmode=line!/netview!sep!casei loc /fig  
data!/cons
```



Note: The Automation Manager loads SAZOS.ACFS.OPSU1EX1 automatically every time a cold start is performed on this system. During an IPL all System Automation for z/OS address spaces are started and a hot start is performed.



Important: Only automation control file SAZOS.ACFS.OPSU7EX1 and SAZOS.ACFS.OPSU7EX1.INSTR and SAZOS.ACFS.OPSDemo are configured to support both MVSA and MVSB in the sysplex. If you specify any other configuration files for the MVSB system, you see error messages.

The following System Automation for z/OS configuration files are used:

SAZOS.ACFS.OPSU1EX1 is for:

Unit 1 Introduction exercises:

Exercise 1: Introduction to System Automation for z/OS interfaces. **This policy is the default for a cold start.** It contains selected APLs from the *BASE Policy. No RV* APLs.

Unit 2 Initialization exercises:

Exercise 1 System Automation for z/OS initialization

SAZOS.ACFS.OPSU3EX1 is for:

Unit 3 Commands and operations exercises

This exercise uses applications RMF, RV01 and RV02.

- RV01 has a dependency to RMF.
- RV01 does not have a NORM start for msg VAPL21000A.
- AT override for IEF404I to set event.
- Does not have an UP msg VAPL21010I.

SAZOS.ACFS.OPSU4EX1 is for:

Unit 4 More commands and operations exercises

- Exercise 1 Using runmodes
- Exercise 2 Suspend and resume resources.
This exercise uses 3 applications: RV01 RV02 RV03. RV02 and RV03 have runtoken RVAPPLS, but not RV01. All others have runtoken NORVAPPLS.

SAZOS.ACFS.OPSU4EX2 is for:

- Exercise 3 Using service periods.
- Exercise 4 Working with triggers. This exercise uses 4 applications: RV01 RV02.
 - RV05 and RV06 have service period RV56SVP.
 - RV01 has start trigger RV01TRIG.

SAZOS.ACFS.OPSU4EX3 is for:

Exercise 5 Using pacing gates

This exercise uses 6 applications: RV01-RV06. All of the 6 RV resource are linked to the RV pacing gate. UP status delay is 30s.

SAZOS.ACFS.OPSU5EX1 is for:

Unit 5: Application groups exercises

Exercise 1 Using basic groups

This exercise uses 3 applications: RV01 RV02 RV03 as members of basic group RVBASIC. RV01 does not have a NORM start for msg VAPL21000A. Scenario 2 uses LLA and its APG LOOKASID.

SAZOS.ACFS.OPSU5EX2 is for:

Exercise 2 Using server groups

This exercise uses 4 APLs: RV01 RV02 RV03 RV04 as members of server group RVSERVER.

Unit 6: Application monitoring exercises

Exercise 1 Using monitor resource

SAZOS.ACFS.OPSU7EX1 is for:

Unit 7: Centralized operations exercises

Exercise 1 Centralized operations and Managing sysplex application move groups

This exercise uses both systems MVSA and MVSB.

- RVXMOVE Sysplex move group for RV05.
- RVXSERVER Sysplex Server Group for RV02,3,4,6.
- System MVSC is defined too in PLEX01.

SAZOS.ACFS.OPSU8EX1 is for:

Unit 8 Troubleshooting exercises

Exercise 1 Troubleshooting

This policy is for Troubleshooting using INGWHY. It contains infrastructure APLs, do not touch.
Plus many dummy resources in error.

SAZOS.ACFS.OPSDemo can be used for demonstration

- It contains selected APLs from the *BASE Policy.
- The course RV01, RV04, RV07 APLs grouped in RVBASICA for system MVSA and RV02, RV05, RV08 APLs grouped in RVBASICB for system MVSB.
- RV03, RV06 APLs are grouped in basic sysplex group RV_BASIC.
- RV09 belongs to sysplex move group RV_MOVE.
- RV02, RV03, RV04, RV03 APLs belong to sysplex server group RVPLEX.



1 Introduction exercises

Exercise 1 Introduction to System Automation for z/OS interfaces

The exercise in this unit provides an introduction to the System Automation for z/OS operational interfaces. At the end of the course, you can perform these tasks:

- Log on to the System Automation for z/OS NetView and run the main System Automation for z/OS dialog menu
- Perform basic navigation of the System Automation for z/OS operator interface and command dialogs in NetView
- Run System Automation for z/OS commands from the NetView command line
- Access System Automation for z/OS help information in NetView
- Verify that the System Automation for z/OS automation manager and the automation agent are running, and run System Automation for z/OS commands from the MVS console

In this exercise, you learn how to log on to the System Automation for z/OS NetView and access the System Automation for z/OS operator interface and command dialogs. You learn how to run System Automation for z/OS commands both in NetView and from the MVS console. You also learn how to access help information for System Automation for z/OS and verify that the automation manager and the NetView automation agent started tasks are running.

Looking at several System Automation for z/OS command dialog panels and commands, you learn how to navigate the System Automation for z/OS operational interfaces. However, the details of these commands are covered until later in the course. To run a command from the NetView or NCCF command line or from the MVS console, type the command, and then press Enter.

The System Automation for z/OS NetView interface

In this exercise, you use two 3270 sessions. You use one session for NetView, and the other for the MVS console.

1. Use instructions that the instructor provides to dial your z/OS system and log on to NetView.

2. Details of the lab setup is displayed, press enter until the NCCF panel has three question marks (???) in the lower left corner above the command line.
You are now in the NCCF console.

Some systems might not display the NetView main menu at logon. Based on installation setup, some systems might take you directly into NCCF at logon. Entering the command NCCF also displays the NCCF panel. Any time you see three asterisks (***) displayed near the bottom of the screen, press Enter to continue.

3. From the NCCF command line just below the three question marks (???), type **AOC** and press Enter to display the SA for z/OS main menu panel AOFPOPER.
You see the panel ID, NetView Domain ID, and Operator ID in the upper-left corner of the screen. You also see the date and time in the upper-right corner.
4. On the command line, type **1** and press Enter to select the Operator interface.
You see the Main Operator menu panel, AOFK2.
There are several options that you can select on this panel. You can look at two of them now. Gateways are described later.
5. On the command line, type **3** and press Enter to select MESSAGE.
You see the AOFK2SM panel.
The panel title is DISPMMSG because it is the System Automation for z/OS command that displays the panel. This panel shows all the messages and message prefixes that are assigned to automation operators.
6. Press PF8 to scroll down through the messages and press PF7 to scroll back up.
7. Press PF1 to request help information for this panel and read the help panel.
8. Press PF8 to scroll down through the help information and press PF7 to scroll back up.
9. Press PF3 twice to return to the main operator menu panel, AOFK2.
10. On the command line, type **4** and press Enter to select AUTO OPERS.
You see panel AOFK2SO. This panel shows all the automation functions defined in the automation control file and their status. The panel title is DISPAOPS.
11. Press PF1 to display help information for the panel. Read the displayed help panel. Press PF8 to scroll down through the help information, and press PF7 to scroll back up.
12. Press PF3 until you return to the System Automation for z/OS main menu panel, AOFPOPER.
13. On the command line, type **2** and press Enter to select **Command Dialogs**.
You see the panel AOFPOCIM.
You can also type **CD** on the command line and press Enter to display the Command Dialogs menu.
14. On the command line, type **11** and press Enter to select the INGLIST command.
You see the primary INGLIST panel, INGKYST0. This panel shows details about the resources

that are defined in the system or sysplex.

You learn about the INGLIST command and many others in detail later in the course.

15. On the panel, press PF4 to run the DISPSTAT command.

You see the DISPSTAT panel, INGKYDS0.

The information that you see on this panel is like the information on the INGLIST panel. The DISPSTAT panel shows the automation agent view of status, automation flags, and other information about resources that are defined on the system.

16. Press PF11 to scroll horizontally to the right and view more columns on the panel. Press PF10 to scroll back to the left.

On the DISPSTAT panel, you can use PF4 to display the INGLIST primary panel. However, if you display the DISPSTAT panel when you press PF4 on the INGLIST panel, you use PF3 to return to the INGLIST panel.

17. Press PF3 to return to the INGLIST command panel, INGKYST0.

18. Press PF11 several times to scroll the INGLIST panel horizontally to the right to see more columns of information.

PF11 wraps the column display back to the first set of columns.

19. Press PF2 or PF3 to return to the Command Dialogs menu panel, AOFPOCIM.

20. On the command line of panel AOFPOCIM, enter the following command:

```
INGAMS
```

You see the INGAMS command panel, INGKYAM0. This panel shows the registered automation managers and automation agents, their roles, and their status.

21. On the panel command line, enter the following command:

```
HELP INGAMS
```

Help and command_name is another way to display the System Automation for z/OS help information. The HELP command can be abbreviated to **H**.

22. Press PF3 until you return to the System Automation for z/OS main menu panel, AOFPOPER.

23. Press PF3 to return to NCCF.

More NetView navigation basics

In this section of the exercise, you use several NetView commands to do some basic operator tasks in System Automation for z/OS.

24. From the NCCF command line, enter the following command:

```
HELP AUTOWRAP
```

25. Read the help information about the AUTOWRAP command, and press PF3.

26. Enter the following command to disable autowrap:

```
AUTOWRAP NO
```

You see the message DSI083I AUTOWRAP STOPPED.

27. Run the following command from the NCCF command line:

```
MVS D A,A
```

In addition to the output of the command, you see three asterisks (***) in the lower-left corner. Because you stopped autowrap, NetView does not automatically wrap the screen output. The three asterisks (***) indicate that there is more output for display.

28. Press Enter to clear the three asterisks and view the next screen of output data from the MVS command.

When the last of the output is displayed, the three asterisks are not there.

29. Enter the following command to turn on autowrap:

```
AUTOWRAP FULL
```

You see the following message:

```
DSI082I AUTOWRAP STARTED
```

30. Press PF12 (Retrieve) until you see the MVS D A,A command. Press Enter to run the command again.

The entire output of the MVS command scrolls by quickly.

31. Enter the following command to force a two-second autowrap delay:

```
autowrap 2
```

32. Press PF12 again to retrieve the MVS D A,A command and press Enter to run the command.

33. Press PF12 to retrieve the previous command. Turn off AUTOWRAP again by modifying the retrieved command and pressing Enter.

Your command looks like the following example:

```
AUTOWRAP NO
```

You see the following message:

```
DSI083I AUTOWRAP STOPPED
```

34. Enter the following command to browse the NetView log:

```
BR NETLOGA
```

(PF5 gives the same result.)

You see the active NetView log. Use the PF8 and PF7 keys to scroll down and up while browsing the log. You can also use the FIND command to search the log.

35. Enter the command, `help find` to display and review information about the FIND command. You can also use the BLOG command to browse the NetView log. The command displays a panel on which you specify filtering criteria for a search.

36. Enter the following command:

```
HELP BLOG
```

37. Read the help information for the BLOG command.

38. Run the BLOG command and experiment with it. You can use the BLOG command as an alternative to the BR NETLOGA command.

39. Enter the following command to browse the NetView canzlog and filter for messages containing AOF:

```
BR LOG AOF
```

(AOF and PF5 gives the same result.)

You see the NetView canzlog. Use the PF8 and PF7 keys to scroll down and up while browsing the log. You can also use the FIND command to search the canzlog.

40. Enter the following command to browse the NetView canzlog using filters:

```
CANZLOG
```

You see the NetView canzlog filter panel CNMKCZLG. Try some of the filters.

41. Press PF3 to return to NCCF and run the following command:

```
WINDOW MVS D A,A
```

The WINDOW command is used to run another object command and place the output of that command in a window. You can use the FIND command in the window. When you type a command and press PF10, the output is sent to a window. PF10 is programmed to run the WINDOW command.

42. Press PF3 to return to NCCF, and then run the following command from the NCCF command line:

```
HELP ROLL
```

43. Read the help information for the **ROLL** command.

44. From the HELP panel, enter the following command:

```
DISPFK
```

A list of your current PFKEY settings is displayed. For example, PF6 is set as the ROLL key.

45. Press PF6 several times to run the NetView ROLL command repeatedly.

46. From the NCCF command line, type **LOGOFF** and press Enter.

In the next section of this exercise, you use the z/OS console interface to System Automation for z/OS.

Using the MVS console

The System Automation for z/OS NetView operational interface is the primary operational interface. However, if VTAM is inactive or inhibited, you can use the z/OS system console to enter System

Automation for z/OS commands. You can use the z/OS MODIFY command as a tool to manage certain components of System Automation for z/OS.

47. Use instructor-supplied instructions to display the z/OS console for your system.

48. On the z/OS console, enter the following command:

```
D A,A*
```

You see these three started tasks:

- ◆ AM: The automation manager
- ◆ AUTONETV: The automation agent NetView
- ◆ AUTOSSI: The NetView subsystem interface

In this course, the subsystem interface name for the NetView subsystems on your z/OS system is AUTO. The first four characters of the automation agent and the subsystem interface job names form the subsystem interface name. These four characters might be different on other systems.

49. Type the following z/OS command on the z/OS console and press Enter:

```
D SSI,SUB=AUTO
```

The subsystem interface for AUTO has a status of ACTIVE.

50. To check if the automation manager on this system is the primary automation manager, type the following z/OS modify command on the z/OS console and press Enter:

```
F AUTONETV,INGAMS
```

The command output is the same as what you saw when you entered the INGAMS command on the NetView panel.

51. Type the following z/OS modify command on the MVS console and press Enter:

```
F AUTONETV,INGLIST
```

You ran the z/OS MODIFY command against the automation agent started task. Remember, the automation agent runs in the NetView address space.

52. If you are not sure which commands are supported, you can use the Tivoli NetView for z/OS help.

You also use the z/OS modify command to stop the automation manager. Tivoli NetView for z/OS supports the definition of a z/OS command prefix character. You can use the command prefix instead of the z/OS MODIFY command.

53. To display the command prefix character, run the following command from the z/OS console:

```
D OPDATA,PREFIX
```

If a NetView command prefix is defined, you see a message like the following example:

```
IEE603I 12.58.22 OPDATA DISPLAY 833
```

PREFIX	OWNER	SYSTEM	SCOPE	REMOVE	FAILDSP
\$	JES2	MVSA	SYSTEM	NO	SYSPURGE
%	NetView	MVSA	SYSTEM	NO	PURG
REXX31	AXR	MVSA	SYSPLEX	NO	PURG

The message shows that the NetView command prefix character is % (percent sign). Therefore, you can enter NetView commands from the z/OS system console with the command prefix (%).

54. Use the command prefix to issue the following INGLIST command:

```
%INGLIST T*
```



2 Initialization exercises

Exercise 1 System Automation for z/OS initialization

This exercise takes you through different System Automation for z/OS initialization scenarios on a single z/OS system. At the end of the exercise, you can perform the following tasks:

- Use System Automation for z/OS to shut down a z/OS system
- Stop and start the System Automation for z/OS address spaces
- Start the System Automation for z/OS automation manager with different start types
- Verify the initialization of System Automation for z/OS

Shutting down your MVSA system

In this exercise, you use System Automation for z/OS to shut down and restart your z/OS. You monitor the initialization of System Automation for z/OS, and verify that your system and automated applications started correctly. You use both the NetView session and the z/OS console during this lab exercise.



Important: Ask your instructor whether it is o.k. to shut down your z/OS system or NetView as it requires access to the z/VM host to restart it again.

1. Display the z/OS console for your system. Ask your instructor for help, if necessary.
2. Log on to NetView.
3. On the NetView session, enter the following command to verify the name of the automation control file:

ACF STATUS

The command response is like this example:

```
AOF005I MEMBER ACFZ999 CURRENTLY BEING USED FOR THE CONTROL FILE
AOF006I BUILT      BY INGC102  ON 08/27/18 AT 20:42:19
AOF006I REFRESHED BY AUTINIT1 ON 08/27/18 AT 20:43:31
AOF006I CONFIGURATION TOKEN    = 20180827204210FF01F9672827
AOF006I CONFIGURATION DATASET = SAZOS.ACFS.OPSU1EX1
AOF002I END OF MULTI-LINE MESSAGE GROUP
```

The name of control file must be SAZOS.ACFS.OPSU1EX1. If it is different, notify your instructor.

4. On the NCCF command line, type the following command and press Enter:

```
INGLIST MVSA*
```

You see a list of two resources. The first resource is a type SYG, and the second is a type SYS.

The MVSA system group (SYG) contains all of the members for the system. Stopping the system group stops all of its members.

5. Request a shutdown of your MVSA system by entering row command **C** next to the MVSA system group (SYG) on panel INGKYST0.

On the next panel, you see the INGREQ parameters. The scope of the stop request is ALL - all members of the system group.

(Alternatively use command `INGREQ ALL`)

6. Press Enter to submit the INGREQ STOP request.

The verification panel, AOFKVFY1, lists the affected resource, the type of request, and a **Y** in the W column. The **Y** indicates that the request generated a winning vote.

7. Press PF10 to run the request.

You see a message like the following message on panel AOFKMSG0:

```
AOF302I    12:08:28 : REQUEST INGREQ STOP BY SASTUD1 IS COMPLETED FOR
MVSA/SYG/MVSA
```

On your system console, you see the shutdown messages for the automated applications on your system. When the automation agent started task AUTONETV ends, the shutdown is complete.

The shutdown of MVSA might take several minutes as System Automation for z/OS issues the required commands to stop each of the resources on the system. Defined relationships determine the stop sequence of the resources.

8. After your MVSA system is down, ask the instructor to begin the IPL of your MVSA system.

For the exercises in this course, the automation manager is started HOT whenever you IPL your system. If a COLD start is required, which should be an exception, you must stop all automation managers and start the automation manager COLD with:

```
S AUTOMGR,TYPE=COLD,JOBNAME=AM,SUB=MSTR
```

On your system console, you see the IPL messages for the start of the automation manager, the NetView SSI, and the automation agent, NetView. These address spaces are started from the COMMNDxx member in the z/OS PARMLIB.

9. When you see the automation agent message, AOF603D, enter the following reply:

R xx (where xx is the reply ID on AOF603D)

You responded to the message with a null. The agent initialization completes, and it starts the automated applications on your system.

If a COLD start is required you can restart the automation manager COLD, see previous step. If you need more time you can respond PAUSE to SUSPEND AUTOMATION

10. Log on to NetView.

11. On the NCCF command line, type the following command and press Enter:

INGAMS

You see the INGAMS panel, INKYM0.

12. To verify that the automation manager is running with the correct automation configuration file, type row-command **B** next to the primary automation manager and press Enter.

13. On panel -INKYM3-, press PF8 until you locate the CONFIG DATASET NAME field.

In the field, you see SAZOS.ACFS.OPSU1EX1.

14. Press PF3 until you return to the NCCF panel.

15. Enter the following command to verify that the automation agent is using the same automation configuration file:

ACF STATUS

You see the following message:

AOF006I CONFIGURATION DATASET = SAZOS.ACFS.OPSU1EX1

Ask your instructor for help if your configuration data set name is different.

16. Enter the following command:

INGLIST

17. Press PF9 several times to refresh the INGLIST panel.

Each subsystem should have an observed status of AVAILABLE or a compound status of SATISFACTORY. For instance subsystem HZSPROC should be in a compound status of SATISFACTORY. Also, subsystem AUTONETV can be in a DEGRADED compound status dependent on its health status.

18. On the command line of the INGLIST panel, enter the following command to shut down NetView:

CLOSE IMMED

On your system console, you see the messages that are generated as AUTONETV stops.

19. Restart AUTONETV with the following command:

```
S AUTONETV,SUB=MSTR
```

20. Follow the initialization on your system console.

21. Disable automation by entering the following response to the AOF603D message:

R *xx,stop* (where *xx* is the reply ID on AOF603D)

You see the following messages:

```
IEE600I REPLY TO xx IS;STOP
```

```
AOF605I AUTOMATION DISABLED BY OPERATOR REQUEST
```

In the next steps, you stop and restart AUTONETV to enable automation.

22. On the z/OS console, enter the following command to stop NetView:

```
P AUTONETV
```

23. After **AUTONETV** stops, restart it with the following command:

```
S AUTONETV,SUB=MSTR
```

24. Reply to the WTOR message AOF603D as follows:

R *xx* (where *xx* is the reply ID on AOF603D)

25. Log on to the NetView domain AOFDA again.

26. Stop the automation manager by entering the following command on the NCCF panel:

```
MVS P AM
```

You see a message about confirming the stop. The WTOR message looks like the following example:

```
xx HSAM1390E REPLY "YES" TO CONFIRM OR "NO" TO CANCEL System Automation for z/OS  
AUTOMATION MANAGER STOP REQUEST.
```

27. Enter the following command to display help information for the message:

```
HELP HSAM1390E
```

28. Reply **YES** to the WTOR message HSAM1390E.

You see a message like the following example:

```
HSAM1396I System Automation for z/OS AUTOMATION MANAGER SHUTDOWN IN PROGRESS,  
TYPE=NORMAL.
```

The automation manager is now shut down.

On the z/OS system console, you see a message like the following example:

```
AOF575A 16:07:19 : JOB AM HAS ENDED - AUTOMATED RECOVERY NOT IN PROGRESS -  
OPERATION INTERVENTION REQUIRED
```

You stopped the automation manager, and there is no secondary automation manager to take over automation. Other messages state that there is no automatic restart of the automation manager.

29. On your NetView session, restart the AUTOMGR by entering the following command:

```
MVS S AUTOMGR,JOBNAME=AM,TYPE=HOT,SUB=MSTR
```

30. Enter the following command to browse the NetView log:

```
BR NETLOGA
```

Verify that the automation manager started successfully. You see messages like the following examples:

```
HSAM1370I TAKEOVER WILL BE DONE FROM TAKEOVER FILE.
```

```
HSAM1314I TAKEOVER WILL BE DELAYED FOR 12 SECONDS.
```

```
HSAM1309I System Automation for z/OS PRIMARY AUTOMATION MANAGER TAKEOVER  
COMPLETE
```

```
AOF571I 20:25:10 : AUTOMGR SUBSYSTEM STATUS FOR JOB AM IS UP - UP MESSAGE  
RECEIVED
```

Because the start type is HOT, the takeover file is used during initialization. The automation manager waits 12 seconds before taking over. Message HSAM1309I indicates that the takeover is complete.

31. On the z/OS console, enter the following commands to stop NetView and the automation manager:

```
P AUTONETV
```

```
F AM,STOP,NORMAL
```



Note: You must enter the automation manager stop command immediately after the stop command for NetView.

32. Watch them both shut down. When you see the HSAM1390E message, reply **YES**.
33. In this step, you start the automation manager with a type of COLD, and request a prompt for the name of the automation configuration file data set. Restart the automation manager from the MVS console with the following command:

```
S AUTOMGR,TYPE=COLD,P=YES,SUB=MSTR,JOBNAME=AM
```

P=YES generates message HSAM1302A. This message asks for the name of automation configuration file data set.

On the z/OS console, you see the following WTOR message:

```
xx HSAM1302A SPECIFY System Automation for z/OS AUTOMATION  
CONFIGURATION DATA SET NAME (where xx is the element reply ID for the WTOR message)
```

34. Enter the following reply:

```
R xx,SAZOS.ACFS.OPSU3EX1
```

You see the following message:

```
HSAM1308I System Automation for z/OS PRIMARY AUTOMATION MANAGER INITIALIZATION  
COMPLETE, TYPE=COLD.
```


35. Enter the following command to start NetView:

```
S AUTONETV,SUB=MSTR
```

36. Reply null to the automation agent AOF603D WTOR message:

```
R XX
```

When the automation agent initialization completes, you see messages like the following example:

```
AOF607I A BUILD OF THE AUTOMATION ENVIRONMENT IS IN PROGRESS
AOF540I 19:24:52 : INITIALIZATION RELATED PROCESSING HAS BEEN COMPLETED.
```

37. Log on to NetView.

38. Follow these steps to verify that the automation manager and the automation agent are initialized with the automation configuration file that you specified:

a. From the NCCF command line, run the following command:

```
AOC
```

b. On the AOC menu command line, type **2** and press **Enter**. You see the Command Dialogs menu.

c. On the Command Dialogs command line, type **6** and press Enter. You see the INGAMS panel INGKYAM0.

d. On panel INGKYAM0, enter row-command **B** next to the primary automation manager. You see panel INGKYAM3.

e. On panel INGKYAM3, press PF8 to scroll forward until you see the following field and value:
Config dataset name : SAZOS.ACFS.OPSU3EX1

f. Press PF3 to return to INGAMS panel INGKYAM0.

g. On panel INGKYAM0, enter row-command **B** next to the automation agent. You see the DISPSYS command panel. You see that the name of the configuration data set is SAZOS.ACFS.OPSU3EX1.

39. Press PF3 until you return to NCCF.

40. Enter the following command:

```
ACF STATUS
```

You see a response like the following example:

```
AOF005I MEMBER ACFZ999 CURRENTLY BEING USED FOR THE CONTROL FILE
AOF006I BUILT      BY IBMUSER  ON 10/26/07 AT 10:40:38
AOF006I RESTORED  BY AUTO1    ON 10/26/07 AT 12:37:47
AOF006I CONFIGURATION TOKEN   = 20071026104017FF0409622064
AOF006I CONFIGURATION DATASET = SAZOS.ACFS.OPSU3EX1
AOF002I END OF MULTI-LINE MESSAGE GROUP
```

41. On the z/OS console, enter the following command to stop the automation manager:

```
F AM,STOP,DEFER
```

You see the following message:

```
HSAM1380I 'STOP' REQUEST ACCEPTED.
```

The command that you entered causes the automation manager to wait until NetView stops.

After a short delay of 1 minute or less, you see the following message:

```
HSAM1393I DEFERRED STOP REQUEST WAITING FOR AUTOMATION AGENT TERMINATION.
```

42. On the z/OS console, enter the following command to verify that the AUTOMGR is still active:

```
F AUTONETV,INGLIST AUTOMGR
```

Notice that the DESIRED status is still AVAILABLE.

43. On the z/OS console, enter the following command to stop the automation agent:

```
P AUTONETV
```

On the z/OS console, you see that the AUTOMGR ends after you stop NetView.

44. Restart the automation manager with the following command:

```
S AUTOMGR,JOBNAME=AM,TYPE=WARM,SUB=MSTR
```

You see a message like the following example:

```
HSAM1308I System Automation for z/OS PRIMARY AUTOMATION MANAGER INITIALIZATION  
COMPLETE, TYPE=WARM.
```

45. Start NetView by entering the following command:

```
S AUTONETV,SUB=MSTR
```



Important: Do not reply to the WTOR message AOF603D.

46. Wait 2 minutes. After 2 minutes, the agent initialization continues.

47. Log on to NetView and enter the following command:

```
ACF STATUS
```

You see that the automation configuration file is SAZOS.ACFS.OPSU3EX1.



3 Commands and operations exercises

Exercise 1 Starting and stopping applications

This exercise covers starting and stopping applications. At the end of the exercise, you can perform these tasks:

- Use the INGREQ command to start and stop resources
- Use System Automation for z/OS commands to manage the automated environment and diagnose automation problems

In this exercise, you use different methods to start and stop applications. As you work through the exercise, answer the feedback questions to help you understand the concepts. Answers to the questions are at the end of the exercise instructions. You can review the answers at any time during the exercise. The panel ID references in the exercise are in the upper-left corner of the System Automation for z/OS panels.

This exercise uses two new applications, RV01 and RV02. The applications are already defined in the automation configuration file that you load for the exercise.

Each RV application produces two WTOR messages.

- The first WTOR requests that the operator input the start type:

```
Start up WTOR for RV01: xx VAPL21000A REPLY WARM OR COLD
```

```
Start up WTOR for RV02: xx VAPL22000A REPLY WARM OR COLD
```

- The second WTOR displays the response that is used to stop the application:

```
Shut down WTOR for RV01: xx VAPL21999A REPLY END TO STOP
```

```
Shut down WTOR for RV02: xx VAPL22999A REPLY END TO STOP
```

In this exercise, you manually respond to the RV01 startup WTOR (VAPL2100A), but System Automation for z/OS replies to the startup WTOR for RV02 (VAPL22000A).

After the startup, each RV application generates a WTO message. The WTO message indicates that the RV application started successfully. The message also shows the start type.

```
RV01 up message: +VAPL21010I VAPL21 WARM START COMPLETE
```

```
RV02 up message: +VAPL22010I VAPL22 COLD START COMPLETE
```

In subsequent exercises, you work with more RV applications that produce similar messages.

IPL your system

1. Verify that your MVSA system is still running. If not, ask the instructor to IPL your system.
2. Use the instructions that are provided to log on to NetView.
3. On the NCCF command line, enter the following command to load a new automation configuration file:

```
INGAMS REFRESH CFG=SAZOS.ACFS.OPSU3EX1
```

You see the following message:

```
ING004I REQUEST TO REFRESH CONFIGURATION SUBMITTED
```

4. Go to the z/OS console and wait for the following WTOR messages:

```
nn VAPL21000A REPLY WARM OR COLD (where nn is the reply ID)
```

```
nn VAPL22999A REPLY END TO STOP (where nn is the reply ID)
```

The first WTOR, VAPL21000A is from RV01, and the second, VAPL22999A is from RV02. Alternatively you can go to NetView and issue

```
mvs d r,l
```

to find above WTOR messages.

When both WTORS are displayed, browse the NetView log to look at several messages that System Automation for z/OS generated.

5. On the NetView session, enter the following command to browse the log:

```
BR NETLOGA
```

6. Find the message that shows that System Automation for z/OS replied to the RV02 startup WTOR. The message is similar to this one:

```
AOF570I 19:17:53 : ISSUED "MVS R 4,COLD" FOR SUBSYSTEM RV02 - MSGTYP IS  
VAPL22000A
```

You can use the following command to find the message:

```
FIND AOF570I PREV
```

7. Browse the log to find the WTOR startup message for RV01.

```
00xx VAPL21000A REPLY WARM OR COLD
```

8. On the command line in the log, enter the following command to reply to the RV01 startup message:

```
MVS R xx,WARM (xx is the RV01 WTOR reply ID)
```

9. Press Enter to clear the three asterisks at the bottom of your screen, and continue to browse the NetView log.

10. Press PF7 to scroll backwards until you find the messages that show that the **INGAMS REFRESH** command was processed and completed successfully.

The following messages are like the ones that you see:

```
HSAM1333I REFRESH_ACF REQUEST PROCESSED ON MVSA$$$1.  
HSAM1330I REFRESH_ACF REQUEST COMPLETED SUCCESSFULLY ON MVSA.  
HSAM1339I CONFIGURATION REFRESH REQUEST COMPLETED SUCCESSFULLY.  
AOF031I Configuration Refresh on 'MVSA' is 'IN PROGRESS'.  
AOF607I A REFRESH OF THE AUTOMATION ENVIRONMENT IS IN PROGRESS  
AOF723I MEMBER ACFMZ999 FROM SAZOS.ACFS.OPSU3EX1 LOADED INTO  
STORAGE AS AT INCLUDE FRAGMENT INGMMSG02  
AOF540I 19:46:08 : INITIALIZATION RELATED PROCESSING HAS BEEN COMPLETED.
```

11. Press PF3 to exit the log and return to the NetView Command Facility.

Start and stop applications

In this section of the exercise, you start and stop several applications. The first application is RMF, but you could use any other 'parent' application with a child which has a HasParent relationship. The parent must have no other stop relationships.

12. Enter the following command:

```
INGLIST RMF*
```

You see two resources. One of the resources is the RMF application, the Resource Measurement Facility, and the second is RMFGAT the RMF Monitor III Data Gatherer. For RMF, the automation manager shows a COMPOUND status of SATISFACTORY and a DESIRED status of AVAILABLE.

13. Enter row-command **F** next to RMF to run the INGINFO command.

You see panel INGKYIN0.

14. Find the forward relationships that are defined for RMF.

Remember that a forward relationship identifies the supporting resources for an application. A backward relationship identifies the resources for which this application is the supporting resource. The relevant forward relationships must be satisfied for the chosen order.

What are the forward relationships for RMF? Remember a HasParent relationship actually consists of two relationships, one of which is a backward relationship.

-
15. Press PF3 to return to the INGLIST output for RMF.

16. Enter row-command **D** next to RMF to run the INGRELS command.

On INGRELS panel INGKYRL0, you see the same forward and backward relationships.

You can use PF5 to collapse the panel output into a more readable form. PF11 expands it.

17. Press PF3 to return to the INGLIST output for RMF.

18. Enter row-command **C** to Stop RMF.

You see INGREQ options panel, INGKYRU0.

The default values for the STOP request are already provided.

19. Change the value of the SCOPE parameter from ALL to ONLY. Do not change any other options. Press Enter.

You see the request verification panel, AOFKVFY1. On this panel, you see a list of the resources that the stop request affects. RMF is the only resource that has a winning vote. There is a Y in the W column.

Why is RMF the only resource that received a winning vote?

20. Press PF10 (**GO**) to confirm your request.

You see a confirmation message on panel AOFKMSG0.

21. Press PF3 to return to the INGLIST panel, INGKYST0.

22. Press PF9 to refresh the panel.

RMF now has a COMPOUND status of AWAITING, a DESIRED status of UNAVAILABLE, and the OBSERVED status is AVAILABLE. The stop request is inhibited, although it was the winning vote on the verification panel, AOFKVFY1.

For more information, you can enter the following command on the command line:

```
HELP AWAITING
```

23. Enter row-command **F** next to RMF to run the INGINFO command.

24. Press PF8 to scroll down to the DEPENDENCIES section.

This section lists whether the dependencies for the different orders are satisfied or unsatisfied. Are there any dependencies that are unsatisfied?

25. Press PF8 to scroll down to the CURRENT ORDER field.

This field contains the last order that was sent to the automation agent. You see that the last order is PREPARE UNAVAILABLE DONE.

Continue the following sentence to explain why the contents of last order field are not what you expected to see:

The current content of the field means:

26. Press PF3 to return to the INGLIST panel, INGKYST0.

27. Press PF4 to go the automation agent DISPSTAT panel, INGKYDS0.

The automation agent status for RMF is UP, and the activity column shows STOPPING.

28. Enter row-command **F** next to RMF to run the DISPINFO command.

You see panel, AOFKINFO.

29. Press PF8 until you get to the ACTIVE SHUTDOWN fields.

The LAST PASS field is blank. Why?

30. Press PF3 to return to the DISPSTAT output panel, INGKYDS0.

31. Press PF3 to return to the INGLIST output panel, INGKYST0.

32. Enter row-command **E** next to RMF to display all its votes.

You see panel INGKYRQ0, which shows a STOP vote for RMF. The status of the vote is WINNING/UNSATISFIED.

33. Press PF3 to return to the INGLIST output panel, INGKYST0.

To better understand why RMF did not stop, use the INGWHY command which explains, why a resource is in the displayed states. The analysis program examines the automation manager and automation agent data of the resource and its supporting resources and provides information about why a particular action cannot succeed, or why the resource entered the indicated states.

34. Enter row-command **X** next to RMF to run the INGWHY command.

You see INGWHY panel, INGKYAN2. INGWHY explains that RMF/APL/MVSA is waiting to be stopped. Read the first reason and action:

```
RMF/APL/MVSA is desired to be UNAVAILABLE.  
RMF/APL/MVSA got a MAKEUNAVAILABLE request.  
The request was issued by OPERATOR ...
```

This explains why RMF is waiting to be stopped, but not why it did not stop.

You see that INGWHY has found a second reason. Press PF11 to display the second reason.

Read the first reason and action:

```
RMF/APL/MVSA has a dependency on RMFGAT/APL/MVSA.  
The 'Desired Availability' of RMFGAT/APL/MVSA is set to 'Always'.  
RMFGAT/APL/MVSA is started by default once its dependencies are satisfied.  
You see that RMF is waiting to be stopped because its dependency on RMFGAT.  
RMFGAT is available because its 'Desired Availability' is set to 'Always'.  
In step 14 you determined the forward relationships of RMF.
```

Why is the stop relationship of RMF UNSATISFIED?

35. After you are satisfied with your answer, press PF3 to return to the INGLIST output panel, INGKYST0.

36. Enter row-command **C** next to RMF again.

You see INGREQ panel, INGKYRU0.

37. In the SCOPE field, type **ONLY**, and in the OVERRIDE field, type **DPY**, and press Enter. This modifies the first INGREQ. The override tells the automation manager to ignore any dependencies that can inhibit the RMF stop request.

38. On the verification panel AOFKVFY1, press PF10 to confirm your request.

You see the AOFKMSG0 panel with a message that states that the INGREQ stop request is completed.

39. Press PF3 again to return to the INGLIST panel.

40. Press PF9 to refresh the screen.

You see that the COMPOUND status of RMF is SATISFACTORY, its DESIRED status is UNAVAILABLE, and the OBSERVED status is SOFTDOWN.

You see that RMFGAT is stopped too. The COMPOUND status of RMFGAT is AWAITING, its DESIRED status is AVAILABLE, and the OBSERVED status is SOFTDOWN.

41. From the command line enter the blog command and specify RMF as Message text in panel CNMKBLIP. Search for the RMFGAT ERB102I III: TERMINATED message. RMFGAT terminates without any automation action immediately after the RMF stop command. What you can learn is that



Important: Dependencies are there for a reason and should only be ignored in emergencies.

42. Enter row-command **E** next to RMF to Check its votes.

What happened to your previous request to stop RMF?

43. Press PF3 to return to the INGLIST panel.

44. Press PF4 to go to the DISPSTAT panel, INGKYDS0.

You see the agent status for RMF is AUTODOWN.

45. Press PF3 to return to INGLIST.

In the next step, you force the manager to set the COMPOUND status of RMF to PROBLEM.

46. Enter row-command **A** (Update) next to RMF.

You see panel, INGKYST1.

47. Follow these steps to change the automation agent status for RMF:

- In the ACTION TO BE PERFORMED field, type **8**.
- In the SET AGENT STATUS field, type **CTLDOWN**, a hard down status which means that automation must not start it.
- Press Enter. You see a message panel, AOFKMSG0 on which message AOF571I shows that the change completed.
- Optionally use INGWHY for an explanation.

48. Press PF3 until you return to the INGLIST panel.

49. Press PF9 to refresh the INGLIST panel.

You see that RMF has a COMPOUND status of PROBLEM, a DESIRED status of UNAVAILABLE, and an OBSERVED status of HARDDOWN.

50. Press PF11 to scroll to the right and see the other automation manager statuses.

You see an AUTOMATION status of IDLE, a STARTABLE status of NO, and a HEALTH status of N/A.

51. Press PF10 to scroll to the left.

Can the automation manager send orders to the automation agent for a resource that has a compound status of PROBLEM?

In the next step, you submit a start request for RMF. Later in this lab exercise. You use a much better approach for starting a resource that has a MakeUnavailable vote against it.

52. Enter row-command **B** (Start) next to RMF.

You see INREQ panel, INGKYRU0.

53. On INREQ panel, INGKYRU0 press Enter without changing any fields on the panel.

You see message panel, AOFKMSG0. Message AOF757I states that the automation manager rejected your request because of an OBSERVED status of HARDDOWN.

You can put the cursor in the Sel column and press PF1 to see an explanation of the message.

54. Press PF3 until you return to the INREQ parameter panel, INGKYRU0.

55. In the OVERRIDE field, change the value from NO to **STS** to override status values.

56. Press Enter.

57. You see panel, AOFKVFY1.

Why is JES2 in the affected resources list?

If you are not sure, issue the **INGRELS RMF** command from the panel command line and review the existing RMF relationships, and press PF3 when you are ready to return.

58. Press PF10 to submit your request to the automation manager.

You see panel AOFKMSG0 with message AOF302I, which indicates that your request completed.

59. Press PF3 to return to the INGLIST output panel, INGKYST0.

60. Press PF9 to refresh the panel.

The automation manager statuses for RMF are the same as before.

61. Enter row-command **F** (INGINFO) next to RMF and press PF8 until you see the CURRENT ORDER field.

Why does the field contain -None-?

62. Press PF3 to return to the INGLIST output panel, INGKYST0.

63. Press PF4 to show the DISPSTAT panel, INGKYDS0.

You see that the Activity column for RMF is --none--.

64. Press PF2 to exit from the DISPSTAT panel, end the INGLIST dialog, and return to NCCF.

65. Leave RMF in its current state.



Important: Do not try to start the application now.

By this time, you are more comfortable navigating through the basic System Automation for z/OS panels. From this point, the exercise instructions are less detailed.

The RV01 application

66. Enter the following command to list the automation manager statuses for RV01:

```
INGLIST RV01
```

RV01 has a COMPOUND status of SATISFACTORY, a DESIRED status of AVAILABLE, and an OBSERVED status of AVAILABLE. If the statuses are not as stated, check the NetView log to ensure that the reply to the VAPL21000A WTOR was issued.

67. Enter row-command **F** to display the forward relationships for RV01.

What are the forward relationships?

68. Press PF3 to return to the INGLIST output panel.

69. Enter row-command **C** to request a stop of RV01.

70. Press Enter to accept the default values.

71. Press PF10 to submit your request.

72. Press PF3 to return to the INGLIST output panel.

73. Press PF9 to refresh the panel.

You see that RV01 has a COMPOUND status of SATISFACTORY, a DESIRED status of UNAVAILABLE, and an OBSERVED status of SOFTDOWN.

74. Press PF11 (RIGHT) to see the AUTOMATION and STARTABLE status values for RV01.

The AUTOMATION status is IDLE and the STARTABLE status is INHIBITED.

What does the STARTABLE status of INHIBITED mean?

Use the following command to get an explanation for the status value:

HELP INHIBITED

75. On the INGLIST RV01 panel, enter row-command **B** to request a start of RV01.
76. On panel INGKYRU0, press Enter to accept the default values.
You see panel AOFKVFY1, which shows a list of affected resources.
Why are so many other applications affected by this request?
-

77. Press PF10 to submit your request to the automation manager.
78. Press PF3 to return to the INGLIST output panel.
79. Press PF9 to refresh the panel.
The compound status of RV01 is INHIBITED. Why?
-

80. Enter row-command **E** (INGVOTE) next to RV01.
Why is the request UNSATISFIED?
-

81. Press PF3 to return to the INGLIST panel.
82. Enter row-command **F** (INGINFO) next to RV01.
83. Press PF8 until you see the CURRENT ORDER field.
Why was no order sent to the automation agent?
-

84. Enter another start request for RV01.
85. In the OVERRIDE field on panel INGKYRU0, change NO to **DPY** to override any dependency requirements.
86. Press Enter.
87. Press PF10 to submit your request.
88. Press PF3 to return to the INGLIST RV01 panel.
89. Press PF9 to refresh the panel.

You see the following status values:

- Compound: INAUTO
- Desired: AVAILABLE
- Observed: STARTING
- Automation: BUSY
- Startable: YES

90. Press PF4 to jump to the DISPSTAT screen for RV01.

You see that its agent status is ACTIVE.

91. Press PF9 repeatedly to refresh this screen.

In approximately 1 minute, the automation agent status for RV01 changes to STARTED2.

What does a status of STARTED2 mean?

92. On the DISPSTAT panel, enter row-command **E** (EXPLAIN) next to RV01.

You see the explanation for STARTED2.

93. Press PF3 until you return to the INGLIST panel.

94. Press PF9 to refresh the panel.

You see the following automation manager status values for RV01:

- Compound: PROBLEM
- Desired: AVAILABLE
- Observed: PROBLEM
- Automation: BUSY
- Startable: YES

a. Why do the compound status and observed status show PROBLEM?

b. Does the compound status of PROBLEM inhibit the automation manager from sending orders to the automation agent?

In the next few steps, you create a situation that demonstrates why you do not set the status of an application to UP when the application is not currently in an UP status.

95. Press PF4 to jump to the DISPSTAT panel for RV01.

96. Enter row-command **B** (SETSTATE) next to RV01.

You see SETSTATE panel, AOFKSAST.

97. In the STATE field, type **UP** and press Enter to set the agent status of RV01 to UP.

98. Press PF3 until you return to the INGLIST panel for RV01.

99. Press PF9 to refresh the panel.

You see the following automation manager status values for RV01:

- Compound: SATISFACTORY
- Desired: AVAILABLE
- Observed: AVAILABLE
- Automation: IDLE
- Startable: YES

100. Enter row-command **C** next to RV01 to request a stop of the application.

101. Press Enter to accept all the stop request default values.

102. Press PF10 to submit your request.

103. Press PF3 to return to the INGLIST panel.

You see the following automation manager status values for RV01:

- Compound: INAUTO
- Desired: UNAVAILABLE
- Observed: STOPPING
- Automation: BUSY
- Startable: INHIBITED

104. Press PF4 to go to the DISPSTAT panel for RV01.

You see a status of AUTOTERM.

105. Press PF9 to refresh the panel.

RV01 stays in this status for approximately 1 minute before going to a status of AUTODOWN.

In a previous step, you changed the status of RV01 to UP when it was STARTED2, which caused a problem during the stop request. The outstanding WTOR for RV01 expected a reply of either WARM or COLD, but the stop request replied END. RV01 rejected that reply.

106. Enter the following command to browse the NetView log:

```
BR NETLOGA
```

107. On the command line of the log, type the following command and press Enter:

```
Find VAPL21888I prev
```

You see a message like this one:

```
VAPL21888I INVALID RESPONSE ENTER WARM OR COLD
```

The start-up WTOR message for RV01 is repeated with a new reply-id. The message is like the next example:

```
0010 VAPL21000A REPLY WARM OR COLD
```

Make note of the reply number because you need it for an upcoming step. Just before the VAPL21888I message you see the invalid response in a message like the following example:

```
AOF570I 15:51:02 : ISSUED "MVS R 9,END" FOR SUBSYSTEM RV01 - MSGTYP IS SHUTNORM
```

After the shut delay time passed, the automation agent attempted pass **2** of the shutdown and canceled the application. This condition eventually causes the shutdown to complete, and the automation agent status changes to AUTODOWN.

108.Press PF3 to return to the INGLIST panel for RV01.

109.Press PF9 to refresh the panel.

You see the following automation manager status values for RV01:

- Compound: SATISFACTORY
- Desired: UNAVAILABLE
- Observed: SOFTDOWN
- Automation: IDLE
- Startable: INHIBITED

110.Press PF4 to go back to the DISPSTAT panel for RV01.

111.Enter row-command **M** (PARENTS) to display the parents of RV01.

You see RMF and VTAM on the panel. VTAM is UP but RMF has a status of CTLDOWN. In a previous step, you set the status of RMF to CTLDOWN.

112.Enter row-command **B** (SETSTATE) next to RMF.

113.On panel AOFKSAST, type **AUTODOWN** in the STATE field and press Enter.

114.Press PF3 to return to DISPSTAT panel, INGKYDS0.

Why does RMF start, even though you only changed the state to **AUTODOWN**?

115.Press PF3 until you return to the INGLIST panel.

116.Press PF9 to refresh the panel.

Why does the startable status of RV01 change to YES from its previous value of INHIBITED?

117.Enter row-command **B** next to RV01 to submit a start request.

118.Press Enter to accept the default values for the request.

119.Press PF10 to submit the request.

120. Press PF3 to return to the INGLIST panel.

121. Press PF9 until the COMPOUND status of RV01 is set to PROBLEM.

Why does RV01 go into a PROBLEM status?

122. Enter row-command **C** next to RV01 to submit a stop request.

123. Press Enter to accept the default values for the request.

On panel AOFKMSG0, you see the following message:

```
AOF757I      UNABLE TO PROCESS SHUTDOWN FOR RV01/APL/MVSA -  
              SUBSYSTEM IS CURRENTLY IN STARTUP PHASE
```

RV01 is in a PROBLEM state and still waiting for a reply to the startup WTOR message.

124. Press PF3 until you return to the INGLIST panel.

125. Use the reply number that you saved from a previous step to reply with the following command:

```
MVS R nn, WARM (where nn is the reply-number)
```

126. Press PF9 to refresh the INGLIST panel.

RV01 completed its initialization and has an OBSERVED status of AVAILABLE.

In the next steps, submit a stop request with restart=YES to recycle RV01.

127. Enter row-command **C** next to RV01

128. In the RESTART field on INGREQ panel INGKYRU0, type **YES** and press Enter.

129. Press PF10 to submit the request.

130. When the stop request is completed, press PF3 to return to INGLIST.

131. On the NetView or z/OS console, respond **WARM** to the VAPL21000A WTOR message.

132. After RV01 is up, switch back to your NetView session.

The RV02 application

Application RV02 is like RV01. However, automation responds to the startup WTOR message for RV02. The Message ID is VAPL22000A. Also, RV02 has three defined start-types with matching responses: **NORM**, **WARM**, and **COLD**.

133. Issue the following command:

```
INGLIST RV02
```

You see that the application is AVAILABLE, and has a COMPOUND status of SATISFACTORY.

134. Enter row-command **C** next to the application to submit a stop request.

135. Before proceeding, ensure that the OBSERVED status is SOFTDOWN.

136. Enter row-command **B** next to the application to submit a start request.

137. In the TYPE field on INGREQ panel INGKYRU0, type a question mark (?) and press Enter.

You see which panel, AOFKSEL3, which shows the three start types that are defined for RV02.

138. Type **S** next to value WARM and press Enter to return to the INGREQ panel.

The TYPE field now has a value of WARM.

139. Press Enter to proceed.

In the TYPE column on INGREQ panel AOFKVFY1, you see the start type that you selected in a previous step.

140. Press PF10 to submit your request and press PF3 to return to the INGLIST panel.

141. After RV02 is Available, browse the NetView log and find the application message, VAPL22010I. It contains the text, WARM START COMPLETE.

142. Repeat the stop and start steps, but use a COLD start, and check the NetView log for message VAPL22010I. It contains the text, COLD START COMPLETE.

In the next steps, you learn to override start-types that are specified on the INGREQ start options panel.

143. On the primary INGLIST panel, enter row-command **A** (Update) to specify a start type for *the next start* of RV02.

You see panel INGKYST1.

144. On panel INGKYST1, type these values and press Enter:

a. In ACTION TO BE PERFORMED: **1**

b. In Set START Type: **COLD**

At the bottom of the panel, you see the following message:

```
ING009I UPDATE OF START TYPE COMPLETED; SET TO COLD
```

The next start of RV02 is now defined as a COLD start.

145. Press PF3 to return to the primary INGLIST panel.

146. Press PF11 several times to scroll to the right until you see the STARTTYPE field.

In the field, you see the word COLD. The next start of RV02 will be COLD. For the next start of RV02, this STARTTYPE value overrides any value that is specified in the TYPE field of the INGREQ panel.

147. Submit a stop request for RV02.

148. When RV02 is down, enter a start request for the application, and specify **WARM** in the TYPE field on panel INGKYRU0 and press Enter.

In the TYPE column on INGREQ panel AOFKVFY1, you see a start type of COLD.

149. When RV02 is back up, browse the NetView log for the VAPL22010I message. It should contain the following text:

```
COLD START COMPLETE
```

150. Press PF3 to return to the INGLIST panel and press PF9 to refresh the screen.

151. Press PF11 until you see the STARTTYPE column. It is empty.

Start types that are set with the UPDATE row-command or the INGSET API command are persistent (remembered across IPL), and are used for only the next start request.

You can use the same facilities to set the next stop type.

The following steps show another way to restart RV02 after it is stopped with the INREQ command. This method does not generate any votes. You restart the application by canceling the stop request. The cancel action causes the removal of the stop vote.

152. Shut down RV02.

153. Use the INGLIST Update row-command to set the start type to **WARM**, and return to the INGLIST primary panel.

154. Use PF11 to scroll right and verify that the Starttype is WARM.

155. Enter row-command **E** (INGVOTE) to check the votes against RV02.

On panel INGKYRQ0, you see a MakeUnavailable vote.

156. Enter row-command **K** to kill the STOP request, and press PF3 to return to the INGLIST panel.

157. Refresh the screen.

158. Stop RV02 again, and verify that there is a MakeUnavailable against the resource.

159. Return to the INGLIST panel.

In the following steps, you use an INGREQ CANCEL request to restart the resource after your previous STOP request.

160. Enter either row-command **B** or **C** next to RV02.

161. On panel INGKYRU0, change the REQUEST field to **CANCEL** and press Enter.

On confirmation panel AOFKVFY1, you see the following text:

```
Verify list of affected resources for request CANCEL MakeUnAvailable
```

162. Press PF10 to confirm, and submit the cancel request.

163. Return to the INGLIST panel and press PF9 to refresh the screen.

164. RV02 is now AVAILABLE.

165. Press PF2 to exit from the INGLIST panel.

166. On the NCCF command line, enter the following command to display all votes:

```
INGVOTE
```

167. Kill all outstanding RV01 and RMF requests.



Note: From an operational viewpoint, determining why a resource is down is better than issuing a start request. The new start request might not work. Instead, remove the cause that the resource is down (for example, kill the MakeUnavailable request) to restart the resource.

Viewing application policy definitions

After working with the RV01 and RV02 applications you might wonder why automation replies to the RV02 startup WTOR message, but not to the RV01 message. The reason is the applications have different policy definitions. In the automation policy for RV01, a reply type of NORM is not defined for the startup WTOR message; however, it is defined in the policy definition for RV02. NORM is a special keyword in System Automation for z/OS, and is the reply type that is used when an applications start.

168. On the NCCF command line, enter the following command:

```
INGLIST RV0*
```

169. Press PF4 to go to the DISPSTAT panel.

170. Enter row-command **F** (DISPINFO) to display information for RV02.

171. Use PF8 to scroll down until you see the policy definitions for RV02.

You must press PF8 several times and scroll past the captured messages to see the following policy definition for message VAPL22000A:

```
VAPL22000A :  
  REPLY=(COLD, , 'COLD')  
  REPLY=(NORM, , 'COLD')  
  REPLY=(WARM, , 'WARM')
```

Reply type NORM is defined for RV02 startup WTOR message VAPL22000A. The automation manager responds to the message with the NORM reply.

172. In the SUBSYSTEM field near the top of the panel, type **RV01** and press Enter. Review the policy definition information for the RV01 startup message VAPL21000A:

```
VAPL21000A :  
  REPLY=(COLD, , 'COLD')  
  REPLY=(WARM, , 'WARM')
```

The policy information shows that no NORM reply type is defined for message VAPL21000A.

173. Press PF3 (several times) to end DISPSTAT and INGLIST.

Answers to Unit 3 Exercise 1 questions

Step 14

RMF has a forward relationship to JES2 (HasParent). RMF also has backward relationships with RMFGAT/APL (HasParent), BASE_SYS/APG (HasMember).
HasParent is equivalent to a combination of MakeAvailable/WhenAvailable and MakeUnavailable/WhenDown.

- For a start request, the child RMFGAT is the dependent resource and the parent is the supporting resource.
- For a stop request, the parent RMF is the dependent resource and the child is the supporting resource.

Step 19

RMF is the only resource with a winning vote because the scope of the request is ONLY.

Step 24

The Stop dependency is unsatisfied..

Step 25

If a MakeUnavailable order was sent to the automation agent, this field would contain MakeUnavailable Order Sent. Therefore, no MakeUnavailable was sent.

Step 29

The LAST PASS field is blank because the automation agent did not issue any shutdown commands.

Step 34

For a MakeUnavailable (STOP) vote against the parent, a HasParent backward relationship of the parent, RMF, is only satisfied when the child is unavailable.

Step 42

The second STOP request replaced the first STOP request. Each source can have only one active request. System Automation for z/OS uses the last request that is entered as the one that is kept.

Step 51

No. A COMPOUND status of PROBLEM inhibits the manager from sending orders for the resource.

Step 57

RMF has a forward relationship with JES2 (HasParent). Your start request for RMF caused the propagation of a start vote for JES2.

Step 64

The automation manager cannot send orders for RMF to the automation agent because the resource has a COMPOUND status of PROBLEM. The PROBLEM status is an inhibitor.

Step 67

RV01 has forward relationships to both RMF (MakeAvailable/WhenAvailable) and VTAM (HasParent).

Step 74

A status of INHIBITED means that there is a problem with a supporting resource, which is RMF.

Step 76

RV01 has forward relationships with both VTAM (HasParent) and RMF (MakeAvailable/WhenAvailable). They are defined as active relationships. HasParent implies strong chaining for the MakeAvailable part. The automation manager propagates start votes to all applications in the chain.

Step 79

RMF, which is one of the supporting resources for RV01, has a COMPOUND status of PROBLEM.

Step 80

The MakeAvailable request for the RV01 is unsatisfied because the COMPOUND status of the application is INHIBITED.

Step 83

RV01 has a STARTABLE status of INHIBITED (supporting resource, RMF is in a PROBLEM state). The manager can send no MakeAvailable order to the automation agent.

Step 91

STARTED2 means that the application started, but the agent did not receive the defined UP message before the start-up timer expired. The value of the timer is equal to the time period defined for Start Delay, multiplied by the number of Start Cycles. In this case, the UP message was not received because you did not reply to the VAPL21000A WTOR message.

Step 94

- a. The OBSERVED and COMPOUND status values for RV01 changed to PROBLEM because of the application status at the automation agent is STARTED2.
- a. Yes. The compound status of PROBLEM for RV01 is an INHIBITOR. It prevents the automation manager from sending orders to the automation agent.

Step 114

RMF started because there was an outstanding START request for RMF from a previous step in the exercise. When the startable status for RMF was changed from NO to YES by changing the resource agent status to AUTODOWN, the automation manager honored the previous request.

Step 116

RV01 is no longer INHIBITED because its supporting resource RMF is in a SATISFACTORY status.

Step 121

The COMPOUND status of RV01 was set to PROBLEM because there was no response to the application start-up, WTOR message, VAPL21000A. The UP message for RV01 was not received. The agent set the resource status to STARTED2; therefore, the manager set the COMPOUND status to PROBLEM.



4 More commands and operations exercises

In this unit, you perform the following tasks:

- Activate a defined runmode during automation agent initialization
- Use System Automation for z/OS commands to find the active runmode on a system
- Activate and deactivate defined runmodes
- Use the INGRUN command to *force* runmode *qualification* for selected resources
- List and describe the types of runmode qualifications

Exercise 1 Using runmodes

This exercise teaches several ways to harness the power and flexibility of System Automation for z/OS runmodes. In this exercise, you use the z/OS console and your NetView session. When working on System Automation for z/OS panels, you find the panel ID in the upper-left corner of the panel.

1. Resume your z/OS console session or logon to TSO.
2. Log on to your NetView.
3. On to your NetView session, enter the following command:

```
INGAMS
```

You see panel INKGYAM0, which lists one automation manager and one automation agent in XCF group INGXSG.

4. Enter row-command **B** next to the automation to display details about the primary automation manager.

You see panel INKGYAM3.

5. Scroll forward until you see the CONFIG DATA SET NAME field that contains the following information:

```
Config dataset name : SAZOS.ACF.SOPSU4EX1
```

For this exercise, you use a different configuration data set which you load from the z/OS console.

6. Press PF3 until you return to the NCCF screen.
7. Enter the following command to display the automation applications:

```
INGLIST AUTO*
```

You see a list like the following example:

Name	Type	System	Compound	Desired	Observed
-----	----	-----	-----	-----	-----
AUTOMGR	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
AUTONETV	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
AUTOSSI	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE

In the next steps, you enter a stop request for the automation agent AUTONETV, and on the z/OS console, you load a new configuration file.

8. Enter row-command **C** next to AUTONETV.
9. On panel INGKYRU0, perform the following steps:
 - a. Type **ONLY** in the SCOPE field
 - b. Type **+00:01** in the time subfield of the EXPIRE field
 - c. Type **DPY** in the OVERRIDE field and press **Enter**.

The **+00:01** that you entered in the EXPIRE field is a relative time. System Automation for z/OS removes your request 1 minute from the time that you submit the request. Using the EXPIRE field with a relative time of up to 24:00 ensures the automatic removal of the vote that is generated for a request.

10. On panel AOFKVFY1, press PF10 to submit your request.
You lose your NetView session.

11. Go to your z/OS console (or TSO SDSF) to continue.

12. On the z/OS console, look for the message that indicates that the agent is ended:

```
IEF404I AUTONETV - ENDED
```

After you see the message, you use the z/OS MODIFY command, which is shown in the next step of the exercise, to load the new configuration file.

13. On the z/OS console, enter the following command to load the configuration file for this exercise:

```
F AM,REFRESH,SAZOS.ACFS.OPSU4EX1
```

The load is completed successfully when you see messages like the following example:

```
00- 20.50.03 HSAM1339I CONFIGURATION REFRESH REQUEST COMPLETED
- SUCCESSFULLY.
- 20.50.03 HSAM1333I REFRESH_ACF REQUEST PROCESSED ON MVSA$$$$1.
```


You are now ready to restart the automation agent and specify a runmode.

14. Enter the following command on the z/OS console:

```
S AUTONETV,SUB=MSTR
```

15. Reply **PAUSE** to the **AOF603D** WTOR message.

You paused the agent initialization to get the information that you need to proceed. Two runmodes are defined in the configuration file that you loaded. One of the runmodes is named Base. The runtoken for this runmode is used in all automated applications except the RV applications. The other runmode is named RVAPPLS. The runtoken for runmode RVAPPLS is used in all automated applications, and all RV applications, except RV01. Therefore, no user-defined runmode is active now. System Automation for z/OS uses the predefined default, *ALL. Runmode *ALL allows all eligible (DESIRED AVAILABILITY = ALWAYS) resources to start. When you are ready to proceed with the agent initialization, you specify the Base runmode in your response to the latest **AOF603D** WTOR message. RV applications do not have a runtoken from the Base runmode. They are not started, and any active RV application is shut down.

16. To resume the agent initialization, enter the following command on the z/OS console:

```
nn,RUNMODE=BASE (where nn is the reply number)
```

17. Log on to your NetView session when the agent initialization is complete.

18. On the NCCF command line, enter the following command:

```
DISPSYS
```

You see panel AOFKADAE. Near the bottom of the panel, you see the RUNMODE(S) field, which shows the active runmode, and all runmodes that are defined in the configuration file. For each defined runmode, its runtokens are listed to the right of the runmode name.

The name of the configuration data set is shown in the CONFIGURATION field, which is above the RUNMODE(S) field.

19. Press PF3 to return to the NCCF panel, and enter the following command to list all RV resources:

```
INGLIST RV*
```

You see panel INGKYST0. Each RV resource has an OBSERVED status of SOFTDOWN and a DESIRED status of UNAVAILABLE.

20. Press PF10 to scroll left.

For each resource, the last column on the right QUAL has dashes. Dashes in this column mean that the resource has no qualifications for the active runmode. The manager inserted a MakeUnavailable, but no MakeAvailable vote for the resource.

21. Press PF11 to return to the entry panel.

22. Enter row command **E** (INGVOTE) next to any of the RV resources.

On panel INGKYRQ0, you see the vote for a MakeUnavailable request that you cannot cancel or kill. The originator of the request was autoops AUTINIT1 through the INGRUN command. You see also the name of the active runmode and its runtoken.

23. Press PF3 until you return to the NCCF screen, and enter the following command.

```
INGLIST RMF
```

The resource has an OBSERVED status of AVAILABLE.

24. Press PF10 to scroll left.

The QUAL column for this resource has two dashes and the letter T. Therefore, the T means that the resource has a qualifying runtoken for the active runmode. The manager inserted an implied MakeAvailable request for the resource after the default MakeUnavailable vote.

25. Enter row command **E** (INGVOTE) next to the resource.

You see the default MakeUnavailable vote.

26. Press PF3 until you return to the NCCF screen.

In the next steps, you change the runmode to allow the start of RV applications.

27. Enter the following command:

```
INGRUN
```

You see panel INGKYRM0.

28. On panel INGKYRM0, perform the following steps:

- Type **SET** in the REQUEST field.
- Type **MVSA** in the SYSTEM field.
- Type **?** in the RUNMODE field, and press Enter. You see panel AOFKSEL5, which shows a list of the active runmode Base, the other defined runmode **RVAPPLS**, and the default runmode *ALL.
- Select runmode **RVAPPLS**, and press Enter. You return to panel INGKYRM0.
- On panel INGKYRM0, press Enter. You see panel AOFKVFY1.
- On panel AOFKVFY1, press PF10 to submit your request, and press PF3.

29. Enter the following command to verify that the selected runmode is active:

```
DISPSYS
```

You see panel AOFKADAE. Near the bottom of the panel, you see the RUNMODE(S) field, which shows the active runmode and all runmodes that are defined in the configuration file.

Runmode RVAPPLS is now active.

30. Press PF3 to return to the NCCF screen, and enter the following command to list all RV resources:

```
INGLIST RV*
```

You see panel INGKYST0. Applications RV02 and RV03 each has an OBSERVED status of AVAILABLE. RV01 has an OBSERVED status of SOFTDOWN, and a DESIRED status of UNAVAILABLE. RVBASIC, which is an *application group*, has an OBSERVED status of STARTING, and a DESIRED status of AVAILABLE.

31. Press PF10 to scroll left.

Except for RV01, each resource has a T in the QUAL column. RV01 is the only resource that is not qualified. The next steps show how to *force* a qualification for RV01.

32. Press PF3 until you return to the NCCF screen, and enter the following command:

```
INGRUN
```

You see panel INGKYRM0.

33. On panel INGKYRM0, perform the following steps:

- Type **ADD** in the REQUEST field.
- Type **RV01/APL/MVSA** in the RESOURCE field at the bottom of the panel, and press Enter.
You see panel AOFKSEL7
- On panel AOFKSEL7, select RV01, press PF10 to submit your request, and press PF3. The agent starts RV01.

34. On the z/OS console, reply WARM or COLD to the RV01 startup WTOR message, VAPL21000A.

35. On your NetView NCCF session, enter the following command to list all RV resources:

```
INGLIST RV*
```

All RV resources are now available.

36. Press PF10 to scroll left until you see the QUAL column:

You see **R** in the RV01 QUAL column. The R means that the resource qualification was added (forced) with the INGRUN command dialog.

The next steps show how to delete the forced qualification.

37. Press PF3 until you return to the NCCF screen.

38. Enter the following command:

```
INGRUN
```

You see panel INGKYRM0.

39. On panel INGKYRM0, perform the following steps:

- Type **DEL** in the REQUEST field.
- Type **RV01/APL/MVSA** in the RESOURCE field at the bottom of the panel, and press Enter.
You see panel AOFKSEL7
- On panel AOFKSEL7, select RV01, press PF10 to submit your request, and press PF3.

40. On the NCCF screen, enter the following command to list all RV resources:

```
INGLIST RV*
```

You see panel INGKYST0. Applications RV02 and RV03 each has an OBSERVED status of AVAILABLE. RV01 has an OBSERVED status of SOFTDOWN, and a DESIRED status of UNAVAILABLE. RVBASIC has an OBSERVED status of STARTING, and a DESIRED status of AVAILABLE.

41. Press PF10 to scroll left.

Except for RV01, each resource, has a T in the QUAL column. RV01 is the only resource that is not qualified.

In the next steps, you change the runmode back to Base and learn about another type of runmode qualification.

42. On the command line, enter the following command:

```
INGRUN
```

43. On panel INGKYRM0, perform the following steps:

- a. Type **SET** in the REQUEST field.
- b. Type **MVSA** in the SYSTEM field.
- c. Type **Base** in the RUNMODE field, and press Enter.

44. On panel AOFKVFY1, press PF10 to submit your request, and press PF3.

45. On panel INGKYST0, press PF9 to refresh the panel.

The RV resources have no runmode qualification.

In the next steps, you add (force) a runmode qualification for RVBASIC, which is an *application group*. Applications RV01, RV02, and RV03 are members of the group. They inherit the qualification. Application groups are explained in the next lecture unit.

46. On the command line, enter the following command:

```
INGRUN
```

47. On panel INGKYRM0, perform the following steps:

- a. Type **ADD** in the REQUEST field.
- b. Type **RVBASIC/APG/MVSA** in the RESOURCE field at the bottom of the panel, and press Enter. You see panel AOFKSEL7
- c. On panel AOFKSEL7, select RVBASIC, press PF10 to submit your request, and press PF3.

48. On the z/OS console, reply WARM or COLD to the RV01 startup WTOR message, VAPL21000A.

49. Refresh panel INGKYST0 on your NetView session.

All the RV resources have qualification indicators. RVBASIC has the INGRUN indicator, **R**, and the RV applications have the group indicator, **G**.

50. Press PF11.

You see that all the RV resources are available.

In preparation for the next exercises, you change the active runmode to the default *ALL.

51. On the command line, enter the following command:

```
INGRUN
```

52. On panel INGKYRM0, perform the following steps:

- Type **SET** in the REQUEST field.
- Type **MVSA** in the SYSTEM field.
- Type **?** in the RUNMODE field, and press Enter.
- On panel AOFKSEL5, select runmode ***ALL**, and press Enter.
- On panel INGKYRM0, press Enter.
- On panel AOFKVFY1, press PF10 to submit your request, and press PF3. You see panel AOFKSEL7, which displays the following message:

```
AOF345I RUNMODE CHANGED FOR MVSA. PLEASE REVISE RUNMODE QUALIFICATIONS
```

- On panel AOFKSEL7, select RVBASIC, and press PF10 to submit your request. You see panel AOFKMSG0, which displays the following message:

```
AOF302I      15:12:29 : REQUEST INGRUN DEL BY INGC100 IS COMPLETED  
                FOR RVBASIC/APG/MVSA
```

You received the two previous messages because RVBASIC had a forced qualification for the runmode that you replaced. Your action in response to the first message allowed System Automation for z/OS to delete the outstanding qualification. The default runmode, *ALL does not use qualifications. All resources with DESIRED AVAILABILITY of ALWAYS are started.

53. Press PF3, and enter the following command to verify that the selected runmode is active:

```
DISPSYS
```

The active runmode must be *ALL.



Important: Deleting the runmode by setting it to *ALL is required if you want to load another configuration that does not contain the active runmode. This is indicated by message AOF618I.

54. Press PF3 to return to the INGLIST panel, and press PF10 to scroll to the QUAL column.

There are no dashes in the column.

Exercise 2 Suspend and resume resources

At the end of the exercise, you can suspend and resume resources.

You learn how to enter suspend and remove suspend requests. You also learn how automation has implemented the suspend function.

Answer the feedback questions as you proceed through the exercise. Answers to the questions are at the end of the exercise.

This exercise uses configuration file SAZOS.ACFS.OPSU4EX1, which should be loaded if you worked the exercises in sequence.

If you are not sure check the active configuration and change if required as you did in previous exercises.

1. Enter the following command to list all RV resources:

```
INGLIST RV*
```

You see applications RV01, RV02, RV03, and application group RVBASIC. If you do not see all the resources, notify the instructor.

2. Enter row-command **S** (Suspend) next to RVBASIC group.

You see panel INGKYP0, which allows you to enter a suspend request. The panel is already filled out as required.

Review the panel, optionally you can specify a comment or an expiration and press Enter.

3. On panel AOFKVFY1, review whether the resources you want to be suspended are listed and that you have the winning vote.
 - a. Why are RV01, RV02, RV03 also suspended even though you specified SCOPE=ONLY for the RVBASIC group in panel INGKYP0?

4. Press PF10 to submit your request. You see panel AOFKMSG0, which displays the following message:

```
AOF302I    22:10:58 : REQUEST INGSUSPD SUSPENDSO BY INGC102 IS COMPLETED FOR  
RVBASIC/APG/MVSA
```

- a. Now that RV01, RV02, RV03 are suspended what are the typical actions an operator would do?

- b. How has automation implemented the suspend function

5. Press PF3 to return to the INGLIST panel. Press PF9 to refresh the INGLIST panel
 - a. What has changed

6. Enter row-command E (INGVOTE) next to RV01
On panel INGKYRQ0, you see a Suspend_Only vote.
 - a. Where does the vote originate from?

- b. Why can you not cancel the Suspend_Only vote for RV01

7. Press PF3 to return to the INGLIST panel

8. Enter row-command F(INGINFO) next to RV01
You see panel INGKYIN0

9. Enter the following command to find information about suspend:

`F suspend`

You see that the Suspend flag is indirect

10. Scroll down to the History section and review the automation actions for suspend

11. Press PF4 to jump to the DISPINFO panel.

12. Enter the following command to find information about suspend:

`F flag`

13. You see that all automation flags have the value of Suspended

14. Press PF3 until return to the INGLIST panel

15. Enter row-command **R** (Resume) next to RVBASIC group.

You see panel INGKYPS0, which allows you to enter a Resume request. The panel is already filled out as required.

Review the panel, optionally you can specify a comment or an expiration and press Enter.

16. On panel AOFKVFY1, review whether the resources you want to be resumed are listed.

17. Press PF10 to submit your request. You see panel AOFKMSG0, which displays the following message:

AOF302I 23:01:45 : REQUEST INGSUSPD RESUME BY INGC102 IS COMPLETED FOR
RVBASIC/APG/MVSA

18. Press PF3 to return to the INGLIST panel
19. Press PF9 to refresh the INGLIST panel
 - a. What has changed

Answers to Unit 4 Exercise 2 questions

Step 3

The RVBASIC group is an active group which propagates votes to its members. The scope is related to dependent resources.

Step 4a

Now you can use MVS commands to start or stop suspended resources outside of automation and use display commands (INGLIST, DISPSTAT, etc.) to track the status of suspended resources.

Step 4b

For suspended resources the automation manager suspend flag and the agent automation flags are set to suspended.

Step 5

- INGLIST shows a non blank value for the automation manager suspend flag in the SUS column
- The status colors have changed to turquoise
- The Desired Status is unchanged
- The Observed Status shows either AVAILABLE or SOFTDOWN

Step 6a

The vote originates from INGSUSPD(xxx) with xxx being your UserID

Step 6b

You cannot cancel the Suspend_Only vote for RV01 because it is a propagated vote. In order to remove it you have to kill the Suspend request against the RVBASIC group

Step 19

- The resources are no longer suspended: INGLIST shows a blank value for the automation manager suspend flag in the SUS column
- The status colors have no different colors than turquoise
- The Desired Status is unchanged
- The Observed Status shows more values than just AVAILABLE or SOFTDOWN

Exercise 3 Using service periods

At the end of the exercise, you can display defined service periods, and add and remove overrides to defined service periods. This exercise shows how to use of service periods to start and stop applications. You learn to manage applications that are linked to service periods. Answer the feedback questions as you proceed through the exercise. Answers to the questions are at the end of the exercise.

1. Enter the following command to load the automation configuration file for this exercise:

```
INGAMS REFRESH CFG=SAZOS.ACFS.OPSU4EX2
```

Check whether the configuration file loaded successfully by searching for message AOF540I. If it did not and you see error messages related to a non-existing runmode BASE, you have to perform Step 51 on page 4-41 to the end to set the active runmode to *ALL.

Enter the following command to list all RV resources:

```
INGLIST RV*
```

You see applications RV01, RV02, RV05, RV06, and application group RVBASIC. If you do not see all the resources, notify the instructor.

RVBASIC has an OBSERVED status of STARTING.

2. Press PF4 to jump to the DISPSTAT panel.
3. Enter row-command **F** (INFO) next to RV01 to check a policy definition.
4. On the DISPINFO panel AOFKINFO, enter the following command to find message definition VAPL21000A:

```
FIND VAPL21000A
```

5. Verify that the NORM reply of WARM is defined for RV01.

The following example shows the VAPL21000A definition:

```
REPLY=(COLD, , 'COLD')
```

```
REPLY=(NORM, , 'WARM')
```

```
REPLY=(WARM, , 'WARM')
```

6. Press PF3 until you return to the INGLIST panel.

Both RV05 and RV06 show DESIRED status values of UNAVAILABLE, and OBSERVED status values of SOFTDOWN.

Working with service periods

7. Enter row-command **E** next to RV05 and RV06.

Each application has a stop vote. A stop request from service period RV56SVP generated the votes. In each case, the stop vote is the winning vote. The ORIGINATOR field shows SCHEDULE.



Hint: Schedule and service period are names for the same policy item. A service window is a time interval that is defined for each day of the schedule. A service window can be an Up (MakeAvailable) or a Down (MakeUnavailable) window.

8. Press PF3 to return to the INGLIST panel.
9. Press PF11 (RIGHT) several times to scroll through the INGLIST panel to the SCHEDULE column.

In the SCHEDULE column of each application, you see RV56SVP.

10. Press PF2 to exit the INGLIST panel.

In the next steps, you explore the defined service period RV56SVP.

11. On the command line, enter the following command to display the list of defined service periods:

```
INGSCHED
```

On panel INGKYSP0, you see service period RV56SVP.

12. Enter row-command **C** next to the service period.

You see panel INGKYSP3, which shows the list of applications that are linked to the service period.

13. Enter row-command **S** next to RV05 to display any overrides (changes to the original policy definitions).

You see panel INGKYSP2, which shows the defined UP (UP) and DOWN (DN) service windows that are used by RV05. On panel INGKYSP2, original service window definitions are green. Any changes definitions are yellow or pink. Changes that affect a single resource (*resource overrides*) are pink. Changes that affect all resources (*schedule overrides*) that are linked to the service period, are yellow.

This panel shows values that start with today. You can scroll forward by using PF8 to see future dates. You can also enter a date in the STARTING DATE field to display the schedule from that date forward.

On your panel, you see that for today, a DOWN (DN) service window starts at 0100 (1:00 a.m.), and ends at 2100 (9:00 p.m.). The service period inserts a MakeUnavailable request for RV05 at 0100 (1:00 a.m.), and withdraws the request at 2100 (9:00 p.m.). The vote has a LOW priority.

14. Press PF3 to return to panel INGKYSP3.

The service windows for RV06 are identical to RV05. There are no overrides.

15. Press PF3 until you return to the INGSCHED panel, INGKYSP0.

Creating schedule overrides

In this section of the exercise, you modify service period RV56SVP so that both RV05 and RV06 are affected.

16. Enter row-command **A** (Show Details) next to RV56SVP.

You see panel INGKYSP1, which shows details of the definitions for RV5SVP. This panel is read-only.

17. Press PF3 to return to panel INGKYSP0.

18. Enter row-command **B** (Show Overrides) next to RV56SVP.

You see panel INGKYSP2 on which you can change the base (*defined*) policy. The current date is the first day that is shown by default. Any changes that are made on this panel affect all resources that are linked to the service period.

In the next steps, you modify service period RV56SVP to accomplish the following tasks:

- a. Create a high priority UP request for RV05 and RV06, for today only. The UP request must start 3 minutes from the current time, and remain in effect until 20:00 (8:00 p.m.).
- b. At 20:00, create a high priority DOWN request that stays in effect until 24:00.

To modify the service period, you must alter the STOP time of the existing DOWN window, which is 2100, and create new UP and DOWN windows that meet the time requirements. If you don't do that you see the following error message:

```
AOF450I    ORIGINAL TIME HAS PASSED AND CANNOT BE CHANGED
```

19. Follow these instructions to modify the service period:

- a. Press Enter to refresh the NetView clock, which is displayed in the upper-right corner of your screen.
- b. Use the time that is displayed as the current time.
- c. Modify the existing entry so it looks like the following example:
xxxx represents a time that is 3 minutes later than the current time.

```
Pri Strt/Stop Strt/Stop
-----
UP    H xxxx 2000
DN    H 0100 xxxx 2000 2400
```

- a. Set both xxxx values to the new time.
- a. Press Enter.

Why is the color of the new values yellow?

20. Press PF2 to exit **INGSCHED**.

21. On the command line, enter the following command to list all RV resources:

```
INGLIST RV*
```

22. Enter row-command **I** (INGSCHED) next to RV05.

You see panel INGKYSP2, on which the color of the current service windows is yellow.

23. Return to the INGLIST output panel, and repeat the check for RV06.

24. Press PF3 to return to INGLIST.

When the new UP service window starts, both RV05 and RV06 are started.

25. Press PF9 to refresh the panel.

When the UP service window starts, a MakeAvailable request is inserted for all applications that are linked to the service period.

26. Enter row-command **E** (INGVOTE) (CMD **E**) next to RV05 and RV06 to verify the votes for each application.

You now submit a stop request for RV05 and examine the result of your action.

27. Submit a stop request for RV05, without changing any of the request options.

On panel AOFKVFY1, you see that your request did not receive the winning vote - (the W column is blank). You see also that there is a service period (SVP column) which has an UP vote.

28. Press PF10 to submit your request.

29. Return to the INGLIST panel, and check the votes for RV05.

30. You see a winning vote from the service period and a PENDING vote from your stop request.

a. Why is your vote not the winning vote?

b. What happens at 20:00 when the UP service window ends?

c. What happens at 24:00 when the DOWN service window ends?

31. Kill the STOP vote that you recently created.

Why can you not kill the service period vote that is shown on this panel?

Creating resource overrides

In the next steps, you change the DOWN service window for application RV05. You set a low priority request to keep the application down for the rest of today. This override must not affect application RV06.

32. On the INGLIST panel, enter row-command **I** (INGSCHED) next to RV05 to display schedules for the application.

You see the schedule overrides for today, and the unchanged service windows of the base schedule. In the next steps, you modify the schedule for RV05 only.

In the following example, *yyyy* represents a time that is 3 minutes later than the current time.



Important: Do not change the values that *xxxx* represents.

	Pri	Strt/Stop	Strt/Stop
UP	L	xxxx yyyy	
DN	L	0100 xxxx yyyy	2400

33. Follow these steps to create the resource override:

- Enter the new values in UP STOP field (*yyyy*), and the DOWN START field (*yyyy*).
- Change the priorities for the UP and DOWN windows to low.

34. Press Enter.

The color of the new times changes to pink.

- What does pink mean?

- Why did this low priority DOWN service period request supersede the previous high priority UP service period request?

Before you continue the exercise, wait for the resource override to stop RV05.

More about service periods and votes

In the next steps, you submit a low priority start request for RV05, observe the result, and examine votes for the resource.

35. On the INGLIST panel, enter a start request for RV05, and do not change the fields before you press Enter on panel INGKYRU0.

On panel AOFKVFY1, you see that your START (in the ACTION column) request received the winning vote. The DOWN (in the SVP column) request for the service period did not.

Why did your request receive the winning vote?

36. Press PF10 to submit your request, and verify that RV05 starts.

37. On the INGLIST panel, enter row-command **E** (INGVOTE) next to RV05.

You see two votes for RV05. One vote is for your start request, which has a status of WINNING/SATISFIED. The second vote is for the stop request from the service period. The status of the vote from the service period request is LOSING/UNSATISFIED.

You cannot kill or cancel the vote from the service period.

Why can you not kill or cancel the vote from the service period?

38. Enter row-command **K** (Kill request) next to your start request, press PF3 to return to the INGLIST panel, and press PF9 to refresh the panel.

a. What happens?

b. Why?

In the next steps, you remove the resource override that you created for RV05.

39. Enter row-command **I** next to RV05.

40. On the next panel, INGKYSP2, enter row-command **D** next to the service windows for today.

The color of the values in the overridden service windows changes from pink to yellow.

Why did the color of the values in the overridden service windows change from pink to yellow?

41. Press PF3 to return to INGLIST, and press PF9 to refresh the panel.

a. What happens to RV05?

b. Why?

In the next steps, you remove the schedule override that you created for RV56SVP.

42. On the command line, enter the following command:

INGSCHED

43. On panel INGKYSP0, enter row-command **B** (Show Overrides) next to RV56SVP.

You see the SHOW OVERRIDES panel INGKYSP2. The color of the overridden service windows is yellow.

44. On panel INGKYSP2, enter row-command **D** next to RV56SVP.

The color of the service windows changes from yellow back to green, and the original times are shown. Your last action removed the schedule overrides, which affected all resources that are linked to RV56SVP.

45. Press PF3 until you return to the INGLIST panel, and press PF9 to refresh the panel.

a. What happens to RV05 and RV06?

b. Why?

46. Press PF3 to end INGLIST.

Answers to Unit 4 Exercise 3 questions

Step 20

Yellow values in a service period indicate that service window times from the base schedule are overridden with the displayed values. All resources that are linked to the service period are affected.

Step 31

- a. The stop request did not receive the winning vote because the service period request has a high priority; while your stop request was submitted with a low priority.
- b. At 20:00, the service period withdraws its MakeAvailable request and replaces it with a high priority MakeUnavailable request. The service period request receives the winning vote, and RV05 comes down.
- c. At 24:00 the service period withdraws its MakeUnavailable request, and your low priority MakeUnavailable request receives the winning vote. RV05 remains down.



Note: If no stop request exists at 24:00, the implied automation manager MakeAvailable request receives the winning vote.

Step 32

You cannot kill the service period request vote on this panel because the request was not submitted specifically for RV05. The request was made for all applications that use the service period.



Hint: The best way to remove the service period request vote is to modify the service period.

Step 35

- a. The color is pink because this override is for a single resource, RV05. System Automation for z/OS sets resource override times to the color pink.
- b. This low priority request replaced the high priority request because System Automation for z/OS honors only the last request from a source. It replaces any previous request with the latest.

Step 36

Your start request and the service period request are low priority requests. However, your request received the winning vote because operator requests have a higher “source priority value” starting with 017 than service period requests 011.

Step 38

You cannot kill this vote as it originates from a service period request, which is generated internally. If you tried, you would get the following error message:

ING024I DELETION OF INTERNAL REQUEST IS NOT ALLOWED.



Note: You should modify the service period to change the resulting votes.

Step 39

- a. After you kill the start request, the service period request for RV05 receives the winning vote.
- b. RV05 shuts down.

Step 41

Therefore, in the step, you deleted the resource override for RV05, and the automation manager displayed the remaining override, a schedule override. For schedule overrides, yellow is the color of overridden service window value.

Step 42

- a. RV05 starts.
- b. RV05 starts because the service period override for RV56SVP has a MakeAvailable request. That request received the winning vote.

Step 46

When you deleted the schedule override to RV56SVP, all applications that linked to the service period are started or stopped according to the service windows in the base schedule.

- a. Applications RV05 and RV06 are shut down.
- b. The applications are shut down because RV56SVP has a MakeUnavailable request that received the winning vote.

Exercise 4 Working with triggers

In this exercise, you display defined triggers, set, and unset events. You use an event and a trigger to control the start of an application. The application, RV01, is linked to a startup trigger. There are no feedback questions in this exercise.

This exercise uses configuration file SAZOS.ACFS.OPSU4EX2, which should be loaded if you worked the exercises in sequence.

If you are not sure check the active configuration and change if required as you did in previous exercises.

1. On the command line, enter the following command:

```
INGLIST RV01
```

2. Enter row-command **C** (Stop) next to RV01.
3. On panel INGKYRU0, press Enter without changing any fields on the panel.
4. Press PF10 to submit your request, and press PF3 to return to the INGLIST panel.

In the next steps, you submit a start request for RV01 but the request, gets a status of winning/unsatisfied. The request is not satisfied because the startup trigger for the application is not satisfied; therefore, the MakeAvailable order from the manager is inhibited.

5. After the stop request completes, enter row-command **B** (Start) next to RV01.
6. On panel INGKYRU0, press Enter without changing any fields on the panel.
In the TRG (trigger) column on panel AOFKVFY1, you see **U**. The **U** indicates that RV01 has an unset trigger.



Important: Do not investigate the condition in this step.

7. Press PF10 to confirm the stop request, and press PF3 to return to the INGLIST panel.
You see the following manager status values for the resource:

- COMPOUND: AWAITING
- DESIRED: AVAILABLE
- OBSERVED: SOFTDOWN
- AUTOMATION: IDLE
- STARTABLE: YES

8. Enter row-command **E** (INGVOTE) next to RV01.

You see the vote for your start request. It has a status of WINNING/UNSATISFIED. The request is inhibited.

9. Return to the INGLIST panel, and press PF11 until you see the TRIGGER column.
In the column, you see the name of a trigger. It is RV01TRIG.

10. Enter row-command **H** (DISPTRG) next to RV01.

On panel AOFLT000, you see that RV01TRIG is described as a STARTUP trigger for RV01. The trigger is associated with event RV01EVT.

RV01EVT is displayed in red. The red color indicates that the event that is associated with the trigger is not set. Therefore, the trigger is not satisfied. The unsatisfied trigger is the reason for the COMPOUND status of AWAITING for RV01.

11. Enter row-command **S** (show details) next to STARTUP.

On panel AOFLT100, you see that the STATUS of event, RV01EVT is UNSET.

The value in the UNSET column shows that the event, RV01EVT is *unset* when application RV01 receives an agent status of UP.

The OBSERVED status of the application is SOFTDOWN.

In the next steps, you manually set the event and observe the results.

12. Enter row-command **S** (set event for resource) next to RV01EVT.

You see panel AOFKMSG0 with message AOF442I, which indicates that the event was set.

13. Press PF3 to return to panel AOFLT100.

The OBSERVED status of the application is now AVAILABLE.

14. Return to the INGLIST panel, and press PF9 to refresh the panel.

RV01 has a COMPOUND status of SATISFACTORY, and an OBSERVED status of AVAILABLE.

In the next steps, you stop RV01 with the RESTART=YES option. On restart, the COMPOUND status of the application is set to AWAITING. You submit a job that generates a message that sets the event. The startup trigger is satisfied, and RV01 starts. The result is the same as when you set the event manually.

15. Follow these instructions to complete the task:

- a. Enter row-command **C** (Stop) next to RV01.
- b. On panel INGKYRU0, type **YES** in the RESTART field, and press Enter.
- c. On panel AOFKVFY1, press PF10 to submit your request, press PF3 to return to the INGLIST panel, and press PF9 to refresh the panel. RV01 has a COMPOUND status of AWAITING.

16. On the command line, enter the following command to submit job RV01BKUP:

SUBMIT (RV01BKUP)

(There must be a space between the submit command and the left parenthesis.)

17. When you return to the INGLIST panel, press PF9 to refresh the panel.

RV01 now has a COMPOUND status of SATISFACTORY, and an OBSERVED status of AVAILABLE.

An automation table statement trapped the message that the job generated, and set the event.

Exercise 5 Using pacing gates

At the end of the exercise, you can display pacing gates that allow you to determine how many resources are started or stopped at the same time. You will be able to display details about pacing gate contention with the resources currently granted access to the gate and those waiting for access to pacing gate RV.

All of the 6 RV resources are in an active basic group RVBASIC and are linked to the RV pacing gate. An RV resource needs at least 30 seconds to reach the UP status after it has been started.

1. Enter the following command to load the automation configuration file for this exercise:

```
INGAMS REFRESH CFG=SAZOS.ACFS.OPSU4EX3
```

2. Enter the following command to list all RV resources:

```
INGLIST RV*
```

You see applications RV01, RV02, RV03, RV04, RV05, RV06, and application group RVBASIC. If you do not see all the resources, notify the instructor.

If RVBASIC has an DESIRED status of AVAILABLE enter a stop request.

3. Press PF4 to jump to the DISPSTAT panel.

4. Enter row-command **C** to Stop RVBASIC.

You see INGREQ options panel, INGKYRU0.

The default values for the STOP request are already provided.

5. Press Enter.

You see the request verification panel, AOFKVFY1. On this panel, you see a list of all the RV resources that the stop request affects. There is a Y in the W column that indicates the winning vote,

6. Press PF10 (**GO**) to confirm your request.

You see a confirmation message on panel AOFKMSG0.

7. Press PF3 to return to the INGLIST panel, INGKYST0.

8. Press PF9 to refresh the panel until all RV resources are UNAVAILABLE.

Group RVBASIC has a COMPOUND status of SATISFACTORY, a DESIRED status of UNAVAILABLE, and the OBSERVED status is UNAVAILABLE. The stop request is satisfied.

9. Press PF10 until you see the Pacing Gate and Pacing Status columns.
You see that the RV resources are linked to the RV pacing gate and that the Pacing Status is Inactive.
10. Enter command INGPAC to display all pacing gates.
How many resources does the RV pacing gate allow to start in parallel?

11. Enter row-command **E** (INGVOTE) to check the votes against RVBASIC.
On panel INGKYRQ0, you see a MakeUnavailable vote, generated by you.
12. Enter row-command **K** to kill the STOP request, and press PF3 to return to the INGLIST panel.
13. Refresh the screen.
You see that one of the RV resources has Pacing Status of STARTING, the others are Waiting.
14. Refresh the screen to see how the RV resources are progressing through the gate.
15. If you scroll to the right you see that group RVBASIC has a COMPOUND status of INAUTO, a DESIRED status of AVAILABLE, and the OBSERVED status is STARTING.
One of RV resources is in the same status, the others have a COMPOUND status of AWAITING, a DESIRED status of AVAILABLE, and the OBSERVED status is SOFTDOWN.
The longer you wait, the more RV resources become AVAILABLE.
An RV resource needs at least 30 seconds to reach the UP status after it has been started.
16. If the previous steps since starting the group lasted more than 2 minutes, you can stop and start the group again as often as you like.
17. Enter command INGPAC to display all pacing gates.
You see:
 - Num Res: Total number of applications either waiting or transitioning through the gate
 - Num Wait: Number of applications waiting for other applications leaving the gate
 - Cur Wait: The average time in seconds applications currently are waiting to transition through the gate. If no application is currently waiting, '-' is shown.
18. Press PF11 to see average times in seconds for transition, wait, average start, and the maximum wait time
19. Enter row-command **D** to display Details of the RV pacing gate for type Start.
You see that one of the RV resources has Pacing Status of STARTING, the others are Waiting.
For each resources you see the Wait and Active and total time in seconds and at what date the request was entered.
20. Press PF11 to see the request time and the activation date and time.
21. Stop and start the group again.
22. Enter command INGPAC to display all pacing gates.

23. Enter row-command **D** to display Details of the RV pacing gate for type Start.
24. To speed up the start, release some of the RV resources using row-command **R**.
25. Press PF9 to refresh the panel until no RV resources are shown.
- a. Why is the maximum wait time longer than the maximum active time.

 - b. Why are no RV resources shown anymore?

 - c. Why does a RV resource need at least 30 seconds to reach the UP status after it has been started? Hint: use DISPINFO.

Answers to Unit 4 Exercise 5 questions

Step 10

One.

Step 25

- a. The maximum wait time is longer than the maximum active time, because each resource has to wait 30 seconds longer than its predecessor, so the maximum wait time is at least $5 * 30 \text{ seconds} = 150 \text{ seconds}$.
- b. There are no RV resources shown because no RV resource is waiting for the gate.
- c. A RV resource needs at least 30 seconds to reach the UP status because its UP status delay is 30 seconds.



5 Application groups exercises

Exercise 1 Using basic groups

This exercise covers the use of application groups with basic nature. At the end of the exercise, you can monitor basic groups, and start and stop basic groups. In this exercise, you use System Automation for z/OS facilities to manage basic application groups and their members. When working on System Automation for z/OS panels, you find the panel ID in the upper-left corner of the panel. Answers to the feedback questions in the exercise are at the end of the exercise.

The automated response to the startup WTOR message for RV01 is disabled. The automated responses to the startup WTOR messages for RV02 and RV03 are enabled.

1. Log on to NetView.
2. On the NCCF command line, enter the following command to cancel RV01:

```
MVS C RV01
```

3. Enter the following command to verify that RV01 is stopped:

```
MVS D J,RV01
```

If RV01 is not active, you see the following message:

```
AOFDA
IEE115I 16.53.09 2003.111 ACTIVITY 469
JOBS M/S TS USERS SYSAS INITS ACTIVE/MAX VTAM OAS
00001 00012 00000 00025 00006 00000/00025 00005
RV01 NOT FOUND
```

4. Enter the following command to load configuration file SAZOS.ACF5.OPSU5EX1:

```
INGAMS REFRESH CFG=SAZOS.ACF5.OPSU5EX1
```

5. Enter the following command to display the INGAMS main panel and monitor the status of the load:

```
INGAMS
```

The load is complete when the primary automation manager and the agent are READY.

6. Verify the result from NCCF (Alternatively use line command `B Show Details` against the PAM in INGAMS):

`ACF STATUS`

7. Look for the following line in the message that is returned:

`AOF006I CONFIGURATION DATASET = SAZOS.ACFS.OPSU5EX1`

If you do not see the correct data set name, ask your instructor for assistance.

8. Issue the following command:

`INGLIST RV*`

If RV05 or RV06 is on the INGLIST panel, cancel each of them using the MVS cancel command. These applications are not used in this exercise.

9. Press PF3 to end INGLIST.

RV01 has a PROBLEM status because you shut it down outside of automation, and the policy does not support a restart.

10. Issue the following command:

`INGLIST RV01`

11. Press PF4 to run the **DISPSTAT** command for RV01.

The status of RV01 is STOPPED.

12. Enter row-command **B** (SETSTATE) to set the state of RV01 to **AUTODOWN**. (Alternatively use line command `A Update` in INGLIST)

System Automation for z/OS attempts to start the application.

13. Press PF3 to return to the INGLIST panel for RV01, and press PF9 until RV01 has a COMPOUND status of PROBLEM.

The status change takes approximately 1 minute.

14. Press PF11 to scroll to the right until you see the STARTABLE column.

The value is YES. RV01 is startable even though it returned to a COMPOUND status of PROBLEM.

There is no automated reply for the RV01 NORM startup WTOR message VAPL21000A. That fact is the reason for the PROBLEM state of RV01.



Important: Respond to the WTOR message only when you are instructed to do so.

15. Press PF3 to end INGLIST.

Working with basic groups

The automation configuration file that you loaded contains definitions for applications RV01, RV02, and RV03. These applications are defined as members in basic group named RVBASIC.

16. Enter the following command to list the resources:

INGLIST RV*

RV02 and RV03 are UP, but RV01 is not. Because RV01 is in a PROBLEM state, the group RVBASIC also has a COMPOUND and OBSERVED status of PROBLEM.

17. Enter row-command **E** next to each resource in the list.

Why are no votes displayed?

18. Return to the primary INGLIST panel.

19. Press PF4 to go to the automation agent DISPSTAT panel.

RV01 has a status of STARTED2 status because it is not fully initialized. The UP message VAPL21999A was not received.

Why is RVBASIC not listed on the DISPSTAT panel?

20. Press PF3 **to** return to the INGLIST panel.

21. Enter row-command **J** (INGGROUP) next to RVBASIC.

22. On panel INGKYGRA, press PF4 to list the members of the group.

You see panel INGKYRB.

23. Press PF3 until you see the primary INGLIST panel.

Base your answer to the following question on what you saw on the INGLIST, INGGROUP, and DISPSTAT panels.

Why does RVBASIC have a COMPOUND status of PROBLEM?

24. On the command line of the INGLIST panel, enter the following command to display the Status Display Facility:

SDF

25. Position the cursor on flashing text >APPLS, and press PF2.

You see the DETAIL STATUS DISPLAY PANEL for RV01. You see a message like the following example:

AOF571I 21:36:03: RV01 SUBSYSTEM STATUS FOR JOB RV01 IS STARTED2 - ACTIVE
BUT NOT UP AFTER START DELAY

26. Press PF3 to return to the previous panel.

The text >WTOR is the same color as text >APPLS.

27. Position the cursor on text >WTOR, and press PF2.

In the REFERENCE VALUE field on the panel, you see a number that is the reply ID of the WTOR message. In the next line, you see a message like the following example:

```
0023 VAPL21000A REPLY WARM OR COLD
```

If you do not see this WTOR press F8 until you see it.

28. Take note of the reply ID, and press PF3 to return to the previous panel.

29. On the command line at the bottom of the main SDF panel, respond to the WTOR for RV01 with the following command:

```
MVS R xx,WARM (where xx is the reply ID for the WTOR)
```

When the command completes, the colors of text >APPLS, >GROUPS, and >WTOR change to green.

30. Press PF3 to return to the INGLIST panel.

31. Press PF9 to refresh the panel.

The COMPOUND status of each RV resource is now SATISFACTORY.

32. Enter row-command **J** (INGGROUP)next to RVBASIC.

33. Press PF4 to see the members of the group.

The SEL column shows that each member of the group is selected.

34. Press PF3 twice to return to the INGLIST panel.

35. From the command line of the INGLIST output panel, enter the following command to cancel RV02:

```
MVS C RV02
```

36. Press PF9 to refresh the INGLIST panel.

RV02 has an OBSERVED status of HARDDOWN, and a COMPOUND status of PROBLEM. The OBSERVED and COMPOUND status values for RVBASIC are PROBLEM.

37. Press PF4 to jump to the DISPSTAT panel and see the automation agent status.

RV02 has an automation agent status of STOPPED.

Why does RV02 have an automation agent status of STOPPED?

38. Press PF3 to return to the INGLIST panel.

39. Enter row-command **J** (INGGROUP)next to RVBASIC.

40. Press PF4 to list its members.

RVBASIC has an availability target of **3**, but only two members are selected.

Why does the manager not try to restart RV02?

41. Press PF3 until you return to the INGLIST panel, and press PF4 to go to DISPSTAT.

42. Enter row-command **B** (SETSTATE) and change the state of RV02 to **AUTODOWN**.

43. Press PF3 until you return to the INGLIST panel.

44. Press PF9 to refresh the panel.

a. Why did RV02 restart?

b. Why is the compound status of RVBASIC now SATISFACTORY?

45. Use row-command **E** (INGVOTE) to check for votes on RVBASIC, RV01, and RV02. There are no votes.

Why?

46. Use row-command **C** (STOP) to submit a stop request for RVBASIC. Do not change any options.

a. Why do RV01, RV02, and RV03 all come down?

b. What votes do the RV resources have?

47. From your z/OS console, try to start RV03 with the following command:

```
S RUNVAPL,JOBNAM=RV03,NAME=VAPL23
```

RV03 comes up and is immediately taken down.

Why?

48. Return to your NetView session and enter row-command **E** next to each of the RV applications on the INGLIST panel in NetView.

There are now MakeUnavailable votes for each application from RVBASIC.

49. On the INGLIST panel, enter row-command **E** next to RVBASIC.

50. Enter row-command **K** next to the vote.

You see the red ****CANCELLED**** message.

51. Press PF3 to return to the INGLIST panel. Press PF9 to refresh the screen.
52. After approximately 2 minutes, check the status of RVBASIC.
 - a. What is the status of RVBASIC and the RV applications?

 - b. Why?

53. Check for votes against the RV applications. There should be none.
54. Press PF3 to end INGLIST.

Working with basic groups that have relationships

In this section of the exercise, you start and stop LLA.

Note: start and stop LLA is not recommended in your system as it affects performance

55. Enter the following command:

INGLIST L*

You see two resources. One of the resources is the LLA application, and the second is an application group, LOOKASIDE. For LLA, the automation manager shows a COMPOUND status of SATISFACTORY and a DESIRED status of AVAILABLE.

56. Enter row-command **F** next to LLA to run the INGINFO command.

You see panel INGKYIN0.

57. Find the forward relationships that are defined for LLA.

Remember that a forward relationship identifies the supporting resources for an application. A backward relationship identifies the resources for which this application is the supporting resource.

What are the forward relationships for LLA?

58. Press PF3 to return to the INGLIST output for LLA.
59. Enter row-command **D** next to LLA to run the INGRELS command.

On INGRELS panel INGKYRL0, you see the same forward and backward relationships.

You can use PF5 to collapse the panel output into a more readable form. PF11 expands it.
60. Press PF3 to return to the INGLIST output for LLA.
61. Enter row-command **C** to Stop LLA.

You see INGREQ options panel, INGKYRU0.

The default values for the STOP request are already provided.

62. Change the value of the SCOPE parameter from ALL to ONLY and press Enter.

You see the request verification panel, AOFKVFY1. On this panel, you see a list of the resources that the stop request affects. LLA is the only resource that has a winning vote. There is a Y in the W column.

Why is LLA the only resource that received a winning vote?

63. Press PF10 (**GO**) to confirm your request.

You see message on panel, AOFKMSG0.

64. Press PF3 to return to the INGLIST panel, INGKYST0.

65. Press PF9 to refresh the panel.

LLA now has a COMPOUND status of AWAITING, d a DESIRED status of UNAVAILABLE, and the OBSERVED status is AVAILABLE. The stop request is inhibited.

66. Enter row-command **F** next to LLA to run the INGINFO command.

67. Press PF8 to scroll down to the CURRENT ORDER field.

This field contains the last order that was sent to the automation agent. You see that the last order is PREPARE UNAVAILABLE DONE.

Continue the following sentence to explain why the contents of last order field are not what you expected to see:

The current content of the field means:

68. Press PF3 to return to the INGLIST panel, INGKYST0.

69. Press PF4 to go the automation agent DISPSTAT panel, INGKYDS0.

The automation agent status for LLA is UP, and the activity column shows STOPPING.

70. Enter row-command **F** next to LLA to run the DISPINFO command.

You see panel, AOFKINFO.

71. Press PF8 until you get to the ACTIVE SHUTDOWN fields.

The LAST PASS field is blank. Why?

72. Press PF3 to return to the DISPSTAT output panel, INGKYDS0.

73. Press PF3 to return to the INGLIST output panel, INGKYST0.

74. Enter row-command **E** next to LLA to display all its votes.

You see panel INGKYRQ0, which shows a STOP vote for LLA. The status of the vote is WINNING/UNSATISFIED.

75. Press PF3 to return to the INGLIST output panel, INGKYST0.

To better understand why LLA did not stop, look at the LOOKASIDE application group. You learn about application groups later in the course. LLA is a member of the LOOKASIDE application group, which requires all its members to be Available in order for the group to be Available. You see that the resource LOOKASIDE has a DESIRED status of Available and a COMPOUND status of Satisfactory. Next, you look at the information about the LOOKASIDE application group.

76. Enter row-command **G** next to LOOKASIDE to display the members of the application group.

You see three members in the application group.

77. Enter row-command **X** next to LLA to run the INGWHY command.

You see INGWHY panel, INGKYAN2.

78. Read the SITUATION, REASON, and ACTION on the first and following pages which you can navigate to by pressing F10. Press PF3 when you are finished.

You returned to the INGLIST panel for LOOKASIDE. On the panel, you see that the other two members in the application group. Each of those members has DESIRED and OBSERVED status values of AVAILABLE.

79. Press PF3 again to return to the INGLIST panel on which you see LLA and LOOKASIDE.

80. Enter row-command **F** next to LOOKASIDE to run the INGINFO command.

You see the INGINFO panel, INGKYIN0.

81. Press PF8 until you see the FORWARD RELATIONSHIPS field.

In that field, you see the application JES2 is the supporting resource in a MakeUnavailable/passive/WhenDownOrStopping Forward Relationship for the LOOKASIDE application group. This means when LOOKASIDE should be stopped JES2 needs to be in a WhenDownOrStopping state. The reason is to benefit from the LOOKASIDE performance benefits as long as possible during a system shutdown.

Does anything in the field indicate why the STOP request is UNSATISFIED?

For more information, you can enter the following command on the command line:

HELP AWAITING

82. After you are satisfied with your answer, press PF3 to return to the INGLIST output panel, INGKYST0.

83. Enter row-command **C** next to LLA again.

You see INGREQ panel, INGKYRU0.

84. In the SCOPE field, type **ONLY**, and in the OVERRIDE field, type **DPY**, and press Enter.

The override tells the automation manager to ignore any dependencies that can inhibit the LLA stop request.

85. On the verification panel AOFKVFY1, press PF10 to confirm your request.

You see the AOFKMSG0 panel with a message that states that the INGREQ stop request is completed.

86. Press PF3 again to return to the INGLIST panel.

87. Press PF9 to refresh the screen.

You see that the COMPOUND status of LLA is SATISFACTORY, its DESIRED status is UNAVAILABLE, and the OBSERVED status is SOFTDOWN.

88. Enter row-command **E** next to LLA to Check its votes.

What happened to your previous request to stop LLA?

89. Press PF3 to return to the INGLIST panel.

90. Press PF4 to go to the DISPSTAT panel, INGKYDS0.

You see the agent status for LLA is AUTODOWN.

91. Press PF3 to return to INGLIST.

In the next step, you force the manager to set the COMPOUND status of LLA to PROBLEM.

92. Enter row-command **A** (Update) next to LLA.

You see panel, INGKYST1.

93. Follow these steps to change the automation agent status for LLA:

- In the ACTION TO BE PERFORMED field, type **8**.
- In the SET AGENT STATUS field, type **CTLDOWN**.
- Press Enter. You see a message panel, AOFKMSG0 on which message AOF571I shows that the change completed.

94. Press PF3 until you return to the INGLIST panel.

95. Press PF9 to refresh the INGLIST panel.

You see that LLA has a COMPOUND status of PROBLEM, a DESIRED status of UNAVAILABLE, and an OBSERVED status of HARDDOWN.

96. Press PF11 to scroll to the right and see the other automation manager statuses.

You see an AUTOMATION status of IDLE, a STARTABLE status of NO, and a HEALTH status of N/A.

97. Press PF10 to scroll to the left.

Can the automation manager send orders to the automation agent for a resource that has a compound status of PROBLEM?

In the next step, you submit a start request for LLA. Later in this lab exercise. You use a much better approach for starting a resource that has a MakeUnavailable vote against it.

98. Enter row-command **B** (Start) next to LLA.

You see INREQ panel, INGKYRU0.

99. On INREQ panel, INGKYRU0 press Enter without changing any fields on the panel.

You see message panel, AOFKMSG0. Message AOF757I states that the automation manager rejected your request because of an OBSERVED status of HARDDOWN.

You can put the cursor in the Sel column and press PF1 to see an explanation of the message.

100. Press PF3 until you return to the INREQ parameter panel, INGKYRU0.

101. In the OVERRIDE field, change the value from NO to **STS** to override status values.

102. Press Enter.

103. You see panel, AOFKVFY1.

Why is VLF in the affected resources list?

If you are not sure, issue the **INGRELS LLA** command from the panel command line and review the existing LLA relationships, and press PF3 when you are ready to return.

104. Press PF10 to submit your request to the automation manager.

You see panel AOFKMSG0 with message AOF302I, which indicates that your request completed.

105. Press PF3 to return to the INGLIST output panel, INGKYST0.

106. Press PF9 to refresh the panel.

The automation manager statuses for LLA are the same as before.

107. Enter row-command **F** (INGINFO) next to LLA and press PF8 until you see the CURRENT ORDER field.

Why does the field contain -None-?

108. Press PF3 to return to the INGLIST output panel, INGKYST0.

109. Press PF4 to show the DISPSTAT panel, INGKYDS0.

You see that the Activity column for LLA is --none--.

110. Press PF2 to exit from the DISPSTAT panel, end the INGLIST dialog, and return to NCCF.

111. Leave LLA in its current state.



Important: Do not try to start the application now.

Answers to Unit 5 Exercise 1 questions

Step 17

The default vote for all applications is for the application to be AVAILABLE. The source of the default vote is the automation manager and the vote is not displayed.

Step 19

DISPSTAT shows statuses that are known by the automation agent. Groups are only known to the automation manager.

Step 23

The status of a basic group is based on the aggregated status values of its members. RV01 is in PROBLEM status, therefore, the group is in PROBLEM status also.

Step 37

When RV02 is canceled, its status goes to STOPPING. The group goes to DEGRADED because one of its members is stopping. The final agent status for RV02 is STOPPED. This agent status translates to a manager status of PROBLEM. When a member of a group has a PROBLEM status, the group is placed in a PROBLEM state.

Step 40

RV02 is not startable, and it is in a PROBLEM state. Its effective preference value is 0.

Step 44a

- a. The AUTODOWN state removes the PROBLEM status for RV02. Because there are no votes for RV02, the default vote is to start it up.
- b. When the COMPOUND status of each member is SATISFACTORY, the COMPOUND status of the group becomes SATISFACTORY.



Note: The group did not try to start RV02. The automation manager started the application with the default MakeAvailable vote.

Step 45

Basic groups do not propagate votes unless there is a specific **START** or **STOP** request against the group.

Step 46

- a. The MakeUnavailable vote that is generated for the stop request is propagated to all members of the group. They come down because their only vote is a winning vote.
- b. There is a request against RVBASIC, which can be killed. RV01, RV02, and RV03 have votes that were propagated from the group.

Step 47

When the automation manager sees the UP status for RV03, it checks votes, sees the MakeUnavailable vote from the group, and takes down the application. RV03 is taken down after it comes up because of the winning stop vote that the basic group propagated.

Step 52

- a. RVBASIC has a COMPOUND status of PROBLEM.
- b. RVBASIC has a COMPOUND status of PROBLEM because one of its members, RV01, is in a PROBLEM state.

LLA scenario

Step 57

LLA has a forward relationship with VLF (HasParent). LLA also has backward relationships with DLF (MakeUnavailable/WhenDownOrStopping), Lookaside (HasMember), and RV01 (MakeAvailable/WhenAvailable).

Step 62

LLA is the only resource with a winning vote because the scope of the request is ONLY.

Step 67

If a MakeUnavailable order was sent to the automation agent, this field would contain MakeUnavailable Order Sent. Therefore, no MakeUnavailable was sent.

Step 71

The LAST PASS field is blank because the automation agent did not issue any shutdown commands.

Step 81

The condition: MakeUnavailable/passive/WhenDownOrStoppingstopDependency.

The LOOKASIDE application group in which LLA is a member can be stopped only when JES2 is DOWN or STOPPING, and The type of *automation* that is used in the condition for this relationship is *passive*. The stop request vote is not propagated from LLA to JES2.

Step 88

The second STOP request replaced the first STOP request. Each source can have only one active request. System Automation for z/OS uses the last request that is entered as the one that is kept.

Step 97

No. A COMPOUND status of PROBLEM inhibits the manager from sending orders for the resource.

Step 103

LLA has a forward relationship with VLF (HasParent). Your start request for LLA caused the propagation of a start vote for VLF.

Step 107

The automation manager cannot send orders for LLA to the automation agent because the resource has a COMPOUND status of PROBLEM. The PROBLEM status is an inhibitor.

Exercise 2 Using server groups

This exercise covers the use of application groups with a server nature. At the end of the exercise, you can perform the following tasks:

- Monitor a server group
- Adjust the following values in server groups:
 - Preference values
 - Availability targets
 - Satisfactory targets

In this exercise, you learn to manage System Automation for z/OS application server groups. Answer the feedback questions as you work through the exercise. Answers to the questions are at the end of the exercise. You are now more familiar with the System Automation for z/OS and NetView dialogs, so the exercise instructions are less detailed.

1. Enter the following command to load the automation configuration file for the exercise:

```
INGAMS REFRESH CFG=SAZOS.ACFS.OPSU5EX2
```

2. Enter the following command to verify that the file loaded successfully (Alternatively use line command `B Show Details` against the PAM in INGAMS):

```
ACF STATUS
```

3. Ask your instructor for help, if the file did not load.

This exercise uses four RV applications. They are RV01, RV02, RV03, and RV04.

Working with server groups

The configuration file that you just loaded contains definitions for applications RV01, RV02, RV03, and RV04. These applications are defined to be part of a server group called RVSERVER.

4. Enter the following command to list all RV resources:

```
INGLIST RV*
```

The list on your screen is like the following example:

Name	Type	System	Compound	Desired	Observed
-----	----	-----	-----	-----	-----
RVSERVER	APG	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
RV01	APL	MVSA	SATISFACTORY	UNAVAILABLE	SOFTDOWN
RV02	APL	MVSA	SATISFACTORY	UNAVAILABLE	SOFTDOWN
RV03	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
RV04	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE

5. Check the votes for RV01, RV02, RV03, and RV04.

You see MakeUnavailable votes for RV01 and RV02, and MakeAvailable votes for RV03 and RV04. RVSERVER propagated the votes.

Why does the group RVSERVER have an observed status of AVAILABLE?

6. Enter row-command **J** (INGGROUP) next to RVSERVER.

7. On panel INGKYGRA, press PF4 to list the members of the group.

You see panel INGKYGRB. In the STAT column, *Se/* means that the application is counted in the availability target number. A status of *Rcv* means that the application is included in the count only when the group is in recovery mode.

- a. Why were RV03 and RV04 chosen to meet the availability target?
-

- b. Why are RV01 and RV02 eligible only if the group is in recovery mode?
-

- c. Why are the effective preference values for RV03 and RV04, 950?
-

8. Enter the following command to cancel RV03:

```
MVS C RV03
```

9. When the INGROUP panel is redisplayed, press PF9 to refresh the panel. You might have to press PF9 several times until RV03 has a status of *Uns* (unselected).

The MODE field on the INGGROUP panel shows Recovery.

- a. Why is the group in recovery mode?
-

- b. Why is RV03 unselected with an effective preference value of zero?
-

- c. Why did RV01 start? (RV02 might be selected instead)
-

- d. Why is the effective preference value of RV02 750?
-

Assume that the problem with RV03 is corrected. You can now change the agent status of the application to AUTODOWN.

10. Press PF3 until you return to the INGLIST panel, and press PF9 to refresh the INGLIST screen.

Your INGLIST display is like the following example:

Name	Type	System	Compound	Desired	Observed
RVSERVER	APG	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
RV01	APL	MVSA	SATISFACTORY	UNAVAILABLE	SOFTDOWN
RV02	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
RV03	APL	MVSA	PROBLEM	UNAVAILABLE	HARDDOWN
RV04	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE

11. Enter row-command **A**(UPDATE) next to RV03.
12. On panel INGKYST1, perform these steps:
 - a. Type **8** in the ACTION TO BE PERFORMED field.
 - b. Type **AUTODOWN** in the SET AGENT STATUS field, and press Enter. This action sets the agent status to AUTODOWN.
13. Press PF3 to return to the INGLIST panel, and press PF9 to refresh the panel.
RV03 does not have a PROBLEM status; however, it has a DESIRED status of UNAVAILABLE.
14. Enter row-command **J** next to RVSERVER, and press PF4 to list the members of the group.
 - a. Why is RV03 not started instead of RV02?

 - b. Why is the group still in recovery mode?

15. Type **800** in the RESULTS column, and press Enter to adjust the preference value of RV03.
Why does the ACT column show an action of **MU** for RV02, and **MA** for RV03?

16. Press PF10 to submit the adjustment, and press PF9 to refresh the panel.
 - a. Why is there a value of 100 in the ADJ column for RV03?

 - b. Why is the effective preference value for RV03 1050?

17. Type **3** over the **2** in the RESULT field, change the SATISFACTORY TARGET also to 3 and press Enter to change the availability and satisfactory targets for RVSERVER.
Why does RV02 not have an **MA** in the ACT column?

18. Press PF10 to submit your change, and return to the INGLIST panel and refresh it.

Why does RVSERVER have an OBSERVED Status of DEGRADED?

19. Go to the INGGROUP panel and set the Satisfactory Target back to **2**, and press PF10 to submit your change.

20. Return to the INGLIST panel, and press PF9 to refresh the panel.

Why is the OBSERVED status of RVSERVER now AVAILABLE?

In the next steps, you reduce the availability target of the group and monitor the results of your action.

21. Return to the INGGROUP members panel for RVSERVER.



Hint: Remember to enter your change in the RESULT field.

22. Change the availability target from 2 to **1**, and press Enter.

Why is there an action of **MU** for RV04?

23. Press PF10 to submit your change, and press PF9 to refresh the panel.

a. What is the value of the STAT column for RV04 on the INGGROUP panel?

b. Why?

c. What value is in the availability target **Adjust** field?

24. Return to the INGLIST panel and refresh its data.

25. Check the RV04 votes to verify that the winning MakeUnavailable vote is from an RVSERVER.
Can you kill the vote from this panel?

26. Press PF3 to return to the INGLIST panel.

27. Go to the INGGROUP members panel for RVSERVER and take the following actions:

a. Change the availability target to **4**.

b. Type **2** in the SATISFACTORY TARGET field, and press Enter.

Why does RV04 now have an **MA** in the ACT column?

28. Press PF10, and press PF9 to refresh the panel.

Now, both RV03, and RV04 have **Se/** in the STAT column.

29. Press PF3 until you return to the INGLIST panel, and press PF9 to refresh the panel.

a. Even though the availability target of **4** is not satisfied; why does RVSERVER show a COMPOUND status of SATISFACTORY instead of DEGRADED?

b. Why are RV01 and RV02 not started to meet the availability target of four?

Answers to Unit 5 Exercise 2 questions

Step 5

RVSERVER is AVAILABLE because it has an availability target of two, and two of its members are available.

Step 7

- a. RV03 and RV04 were chosen because they have the highest preference values.
- b. RV01 and RV02 are eligible for selection only when the group is in recovery mode because their preference values are less than 601.
- c. RV03 and RV04 each has an effective Preference value of 950 because they each received an extra 250 bonus points from the automation manager when they were selected.

Step 9

- a. The group is now in recovery mode because the base preference value of a selected member is 500.
- b. RV03 is unselected and has an effective preference value of 0 because it is in a PROBLEM state.
- c. RV02 started to meet the availability target after RV03 failed (was canceled).
- d. RV02 received 250 bonus points from the automation manager when it was selected to start. The bonus is calculated as follows:
25: Member is currently selected and has an adjusted preference ≤ 1000 .
225: Member has an observed status of Available and the system is not being stopped.
During the startup the bonus is 220 which results in an effective preference of 745

Step 14

- a. Although RV03 is no longer in a PROBLEM state, its base preference value of 700 is less than the effective preference value of RV02.
- b. The group remains in recovery mode because one of the selected members has a base preference value that is less than 601.

Step 15

The ACT column shows the actions that start when you press **PF10**. RV03 has a higher preference value than RV02. Therefore, a MakeUnavailable vote is generated for RV02, and a MakeAvailable vote is generated for RV03.

Step 16

- a. The ADJ column shows the difference between the base preference value and the new (adjusted) value in the RESULT column.
- b. When RV03 was selected, it received 250 bonus points from the automation manager.

Step 17

Although the availability and satisfactory targets increased to 3, RV02 is not started because the group is in normal mode. Only applications with a preference value greater than 600 can be selected in normal mode.

Step 18

The group is DEGRADED because the number of members that are available is less than the satisfactory target.

Step 20

The group is available because the number of available members satisfies the satisfactory target.

Step 22

When you press **PF10**, a MakeUnavailable request is generated for RV04 for these reasons:

- The availability target was lowered to 1.
- The effective preference value for RV03 is higher than RV04.

Step 23

- a. Uns
- b. The status changes to *Uns* because the MakeUnavailable request for RV04 is completed.
- c. The ADJUST field now has **-1**, which indicates that the availability target reduced by 1.

Step 25

No. Votes that originate from a server group cannot be killed.

Step 27

RV04 received a MA vote because the availability target was increased to **4**. When you press PF10, the server group tries to start RV04 to meet the availability target. However, because RV01 and RV02 are eligible to start in recovery mode only, RVSERVER tries to start only RV04.

Step 29

- a. Even though the availability target of **4** is not reached, the satisfactory target of **2** is attained; therefore, the compound status is SATISFACTORY.
- b. RV01 and RV02 have effective preference values that are less than 601; therefore, they are not eligible to start when the server group is in Normal mode.



6 Application monitoring exercises

Exercise 1 Using monitor resources

At the end of the exercise, you can perform the following tasks:

- Start and stop System Automation for z/OS monitor resources
- Use monitor resource to monitor the health of automated resources

In this exercise, you use a monitor resource to monitor and set the health status of NetView. The monitor uses a REXX CLIST that runs a NetView command, TASKUTIL. The CLIST runs each minute to monitor processor utilization by NetView and warn about large autoops message queues. The MTRNETV REXX routine sets the health status of the application.

The following example shows the criteria that is used for the health status of the application:

```
/* SET HEALTH STATE BASED ON: */  
/* (1) S-CPU%: IF GREATER THAN .10 and HEALTH = MINOR */  
/* (2) MESSAGEQ: IF GREATER THAN 5 and HEALTH = CRITICAL */  
/* (3) OTHERWISE HEALTH = NORMAL */
```

Answer the feedback questions as you proceed through the exercise. Answers to the feedback questions are at the end of the exercise instructions.

This exercise can use any of the previous configuration files.

1. On the NCCF command line, enter the following command:

```
INGLIST AUTONETV
```

The COMPOUND status for AUTONETV is DEGRADED.

2. Press PF11 to scroll right to see the health status.

What is the health status?

3. Follow these instructions to display the monitor resource that is linked to AUTONETV:

- a. Enter row-command **M** (DISPMTR) next to AUTONETV. You see MTRNETV, the name of the only monitor resource in the list on panel INGKYM00. MTRNETV runs the NetView command, TASKUTIL. The status of MTRNETV is ACTIVE.

- b. Press PF11 to scroll right to the STATUS MESSAGE column. Dots (...) at the end of the message indicate that there is more information available.

4. On panel INGKYMO0, enter row-command **D** (Details).

You see the DISPMTR detail panel, INGKYMO1.

In the commands section, you see the name of the MONITORING command, also called the monitor routine. It is MTRNETV.

5. Press PF9 to refresh the monitor details panel.

You can see previous health status for AUTONETV in the MONITORING HISTORY section on the panel.

6. Press PF3 to return to DSIPMTR panel, INGKYMO0.

7. Enter row-command **C** (Stop) next to the monitor resource.

8. On panel INGKYRU0, press Enter, and press PF10 on panel AOFKVFY1 to submit your request.

9. Press PF3 to return to the DISPMTR panel, and press PF9 to refresh the panel.

- a. What values are in the STATUS and HEALTH columns?

- b. Why is one of the values UNKNOWN?

10. Enter row-command **E** (INGVOTE) next to monitor resource, and remove the MakeUnavailable request.

When you remove the request, the monitor resource starts.

11. Press PF3 to return to the DISPMTR panel, and press PF9 to refresh the panel.

The status changes to ACTIVE, and the HEALTH status column no longer has the value, UNKNOWN.

12. Enter row-command **A** (Reset) to reset the monitor resource, and press PF9 to refresh the panel.

What happens to the value of the HEALTH status column?

13. Reset the monitor resource again, press PF3 to return to the INGLIST panel, and press PF9 to refresh the panel.

The COMPOUND status of AUTONETV is SATISFACTORY because you reset the monitor resource status to NORMAL.

Wait 1 minute. The monitor routine for MTRNETV runs, and the COMPOUND status of AUTONETV changes to DEGRADED again.

14. Enter row-command **M** (DISPMTR), and submit a stop request for MTRNETV.

15. Press PF3 until you return to the INGLIST panel.
16. Press PF9 to refresh the panel.

The COMPOUND status of AUTONETV is SATISFACTORY.

17. Press PF3 to end INGLIST.

Answers to Unit 6 Exercise 1 questions

Step 2

Based on the response from the MTRNETV CLIST, the health status is NORMAL, WARNING, MINOR, or CRITICA.

Step 9

- ___ a. INACTIVE and UNKOWN.
- ___ b. The HEALTH status is UNKOWN because the monitor resource is stopped.

Step 12

The HEALTH status changes to NORMAL.

Note: After the monitor routine runs, the HEALTH status changes to one of the states that are defined in the MTRNETV routine.



7 Centralized operations exercises

Exercise 1 Centralized operations

At the end of the exercise, you can perform the following tasks:

- Use the Status Display Facility to monitor resources in a multisystem environment
- Change the location of a primary automation manager
- Start and stop resources in a multisystem environment
- Manage sysplex application move and server groups

In this exercise, you manage resources in a multisystem System Automation for z/OS environment. The focal point for operations is on system MVSB. You use the focal point as the “single point of control” to manage resources in a two-system sysplex. The domain name of the focal point is AOFDB.

Answer the feedback questions as you proceed through the exercise. Answers to the feedback questions are at the end of the exercise instructions.

1. Resume your z/OS console session.
2. Log on to your NetView session.
3. Enter the following command to display the automation applications:

```
INGLIST AUTO*
```

You see a list like the following example:

Name	Type	System	Compound	Desired	Observed
-----	----	-----	-----	-----	-----
AUTOMGR	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
AUTONETV	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
AUTOSSI	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE

In the next steps, you enter a stop request for the automation agent AUTONETV, and on the z/OS console, you load the configuration file for this exercise.

4. Enter row-command **C** next to AUTONETV.

5. On panel INGKYRU0, type **ONLY** in the SCOPE field, **+00:01** in the time subfield of the EXPIRE field, and **DPY** in the OVERRIDE field, and press Enter.
6. On panel AOFKVFY1, press PF10 to submit your request.
You lose your NetView session.
7. Go to your z/OS console to continue.

8. On the z/OS console, look for the message that indicates that the agent is ended:

```
IEF404I AUTONETV - ENDED
```

After you see the message, you use the z/OS MODIFY command, which is shown in the next step of the exercise, to load the new configuration file.

9. On the z/OS console, enter the following command to load the configuration file for this exercise:

```
F AM, REFRESH, SAZOS.ACFS.OPSU7EX1
```

The load completes successfully when you see two messages like the following example. The load of this configuration file takes a little longer than the configuration files that you used in previous exercises.

```
00- 20.50.03 HSAM1339I CONFIGURATION REFRESH REQUEST COMPLETED  
- SUCCESSFULLY.  
- 20.50.03 HSAM1333I REFRESH_ACF REQUEST PROCESSED ON MVSA$$$$$1.
```

You are now ready to restart the automation agent and specify the base runmode for this exercise.

10. Enter the following command on the z/OS console:

```
S AUTONETV, SUB=MSTR
```

11. Enter the following reply to the AOF603D WTOR message:

```
nn, RUNMODE=*ALL (where nn is the reply number)
```

12. Ask your instructor to IPL system MVSB.
13. After the IPL of MVSB is complete, log off the NetView on MVSA, and log on to domain **AOFDB**.
14. Ask your instructor to shut down your MVSA system.
15. On your AOFDB session, enter the following command:

```
INGLKUP
```

16. Cancel any RV* applications that are up, and press PF3.
17. Enter the following command to list all resources:

```
INGLIST
```

In the list, you see resources from MVSB and the OBSERVED status for resources from MVSA is SYSGONE.

Why can you see resources from both systems on the MVSB INGLIST panel?

18. Press PF4 (DISPSTAT).

On the DISPSTAT panel, you see resources from MVSB only.

Using focal point Status Display Facility

19. Enter the following command to display the tailored, top Status Display Facility panel:

`SDF`

The panel is tailored for the environment. It shows a high-level view of systems in the enterprise. You can see both of your systems, MVSA and MVSB, and the instructor's system MVSC.

20. Place the cursor over the text **MVSA**, and press PF8 (Zoom).

You see a high-level view for MVSA. On the panel, you see the resource categories.

21. Place the cursor over the text **>APPLS**, and press PF8 (Zoom).

Except for the panel name and title, this panel is empty. MVSA is down, therefore, you see no resource names.

22. Press PF7 twice to return to the enterprise panel.

23. Place the cursor over MVSB and press PF8 (Zoom).

You see the SUMMARY-STATUS panel for MVSB.

The color of the text **>GATEWAY** is red.

24. Place the cursor over the text **>GATEWAY**, and press PF2 (Detail).

You see the first of two "DETAIL STATUS DISPLAY" panels.

25. Press PF8 (Down) to see the second panel and a message that explains the reason for the red color:

```
AOF568I 19:17:09 : STATUS OF MVSB.AOFDAO OUTBOUND GATEWAY TO DOMAIN AOFDA IS  
INACTIVE - TARGET DOMAIN AOFDA IS NOT ACTIVE
```

26. Press PF3 (Return).

27. Place the cursor over the text **>APPLS**, and press PF8 (Zoom).

You see the SUBSYSTEM-STATUS panel for MVSB.

28. Press PF7 to return to the SUMMARY-STATUS panel.

29. Place the cursor over the text **>WTOR**, and press PF8 (Zoom).

You see a list of all outstanding WTORs.

30. Place the cursor over the last WTOR, and press PF2 (Detail).

In the upper-left corner of the panel, you see which WTOR you are reviewing. You can press PF7 (UP) and PF8 (DOWN) to scroll through the WTOR detail panels.

31. Press PF3 until you return to the NCCF screen.
32. Enter the following command to list the systems in your sysplex:

```
MVS D XCF
```

MVSB is the only active system in your sysplex. Ask your instructor to IPL MVSA.

33. When you see the AOF603D WTOR message, enter a null reply.



Note: If you see a WTOR message like the following example, respond with **RETRY**.

```
AOF602D ENTER 'RETRY' OR 'CANCEL' - DOMAIN AOFDA
```

You can monitor the start of MVSA resources from your AOFDB session.

34. Enter the following command to monitor the startup:

```
INGLIST */*/MVSA
```

35. Press PF9 periodically to update the INGLIST display.

As MVSA comes up, you see the status of resources change from SYSGONE to UNKNOWN to SATISFACTORY.

After MVSA initializes: RV02, RV04, and RV06 should be active on MVSB and RV03 and RV05 should be active on MVSA.

RV05 is defined on both MVSA and MVSB. RV05 is active on MVSB until MVSA initializes.

36. Press PF3 to end **INGLIST**.

37. When MVSA is initialized, enter the **SDF** command on your AOFDB session.

From this point in the exercise, you use domain AOFDB to manage the resources in your two-system sysplex.

38. Zoom in on MVSB.

39. Place the cursor over the text **>APPLS**, and press PF8 (Zoom).

The color of RV05 is blue.

Why?

40. Press PF7 twice to return to the enterprise panel, and zoom in on MVSA. Place the cursor over the text **>APPLS** and press PF8 (Zoom).

You see that application RV05 is green.

41. Press PF3 until you return to NCCF, and enter the following command:

```
MVS D XCF
```

You see message IXC334I shows your two systems in a sysplex.

42. Enter the following command:

```
MVS D XCF, GROUP
```

You see the three System Automation for z/OS XCF groups. They are INGPX\$\$\$, INGPX\$00 and INXSGSA.

Why does INGPX\$\$\$ have two members and INXSGSA have four members?

43. Enter the following command to list the managers and agents in your sysplex:

```
INGAMS
```

Why is a primary automation manager running on MVSB and a secondary automation manager on MVSA?

Display gateways

44. On the command line of the INGAMS panel, enter the following command:

```
DISPGW
```

The IN/OUTBOUND STATUS column shows that the status of the gateway to domain AOFDA domain on MVSA is ACTIVE. The statuses are for the inbound and outbound gateways on MVSB.

The COMM column shows *XCF* as the communication method between the domains.

45. Press PF11 to scroll right and review the other columns.

The contents of the In/Outbound Status column: ACTIVE ACTIVE -

46. Press PF3 to return to the INGAMS panel.

Moving the location of the primary automation manager

Assume that MVSB is scheduled for an IPL, and you must move the primary automation manager to MVSA before the IPL. Follow these steps to complete the move:

47. Enter row-command **A** next to the secondary automation manager.

You see INGAMS panel INGKYAM1.

48. On panel INGKYAM1, type **1** in the ACTION field, and press Enter to initiate the move.

You see the following message:

```
ING004I REQUEST TO CHANGE OPERATION MODE SUBMITTED.
```

49. Press PF3 to return the main INGAMS panel, and press PF9 to refresh the panel.

The automation manager on MVSA is now the primary, and the automation manager on MVSB is not shown on the panel.

50. Press PF9 (Refresh) until the primary automation manager is READY (takes approximately 12 seconds).

It takes the new primary approximately 12 seconds to be READY because a takeover delay of 12 seconds is defined in the automation manager initialization member.

Why is the automation manager on MVSB not on the list?

51. Enter the following command to browse the NetView log:

```
BR NETLOGA
```

You see the following messages near the end of the log:

```
AOF571I 15:53:12 : AUTOMGR SUBSYSTEM STATUS FOR JOB AM IS STOPPING - SUBSYSTEM  
SHUTDOWN OUTSIDE OF AUTOMATION
```

```
HSAM1010I AUTOMATION MANAGER TERMINATION COMPLETE, REASON CODE=1
```

```
IXC804I JOBNAME AM, ELEMENT HSAAM_MVSB$$$$1 WAS NOT RESTARTED.  
ARM RESTARTS ARE NOT ENABLED.
```

52. On the z/OS console for MVSA, you see the following message:

```
HSAM1309I SA z/OS PRIMARY AUTOMATION MANAGER HOT TAKEOVER COMPLETE.
```

53. On the command line of your AOFPDB session, enter the following command:

```
INGLIST AUTOMGR
```

The COMPOUND status of the automation manager on MVSB is PROBLEM.

54. Press PF4 to display the DISPSTAT panel, and enter row-command **F** (INFO) next to application AUTOMGR on MVSB.

55. Scroll forward to the RESTART OPTION FIELD.

The value in the field is ABENDONLY.

System automation for z/OS tries to restart the automation manager only when it fails.

Assume that the IPL of MVSB is complete, and you want to manually start the automation manager on MVSB.

56. Enter the following command on the command line of your AOFPDB session:

```
MVS S AUTOMGR, SUB=MSTR, SLQ=AM2, JOBNAME=AM
```

57. Press PF3 until you return to the INGLIST panel, and press PF9 to refresh the panel.

The OBSERVED status of AUTOMGR application on MVSB is of AVAILABLE.

58. Press PF3 to return to the INGAMS panel, and press PF9 to refresh the panel.

The automation manager on MVSB is now listed as a secondary automation manager.

Automatic restart of an automation manager

The next steps show how System Automation for z/OS handles the loss of a primary automation manager. You cancel the primary automation manager address space to simulate an abnormal termination.

59. On the command line of your AOFDB session, enter the following command to route the cancel command to MVSA:

AOFDA: MVS C AM

(Do not omit the space between AODFA: and MVS.)

60. When the INGAMS panel is redisplayed, press PF9 to refresh the panel until all the listed members are READY.

- a. What happens when the primary automation manager on MVSA ends?

- b. Did the automation manager on MVSA restart?

- c. Why?

61. Press PF3 to end INGAMS.

Managing sysplex application move groups

This section of the exercise demonstrates sysplex, application, move groups and how you manage them. Application group RVXMOVE has two members that are instances of application RV05. RVXMOVE is a sysplex group with a MOVE nature. Its members run on MVSA and MVSB; however, only one instance is AVAILABLE when the group is AVAILABLE.

62. On the AOFDB session command line, enter the following command:

INGLIST RV*

You see the list of all RV resources, one of which is RVXMOVE. RVXMOVE has a COMPOUND status of SATISFACTORY, and OBSERVED status of AVAILABLE.

You see also the status values for RV05 on MVSA and MVSB. The following table shows the values.

RV05 status	MVSA	MVSB
Compound status	SATISFACTORY	SATISFACTORY
Desired status	AVAILABLE	UNAVAILABLE
Observed status	AVAILABLE	SOFTDOWN

Why is the COMPOUND status for RV05 on MVSB SATISFACTORY?

63. Press PF4 (DISPSTAT).

You can see RV applications for both systems in your sysplex.

Why is RVXMOVE not listed?

64. Press PF3 to return to the INGLIST panel, and enter row-command **G** to list the members of RVXMOVE.

You see that application RV05 runs on both systems.

65. Press PF3 to return to the INGLIST panel, and enter the following command:

INGMOVE RVXMOVE

You see panel INGKYMV0. In the SYSTEMS column, you see the names of your two systems. The color of MVSA is green and the system name is underlined. The underline or underscore of a system name indicates that the system is a *home system* for the application. Of all the systems that can host the application, a home system has the highest base preference value.

The color of MVSB is turquoise. MVSB is considered a *viable* system.

In the context of the INGMOVE command, why is MVSB known as a viable system?

66. Enter row-command **F** (INGINFO) next to RVXMOVE.

67. Scroll forward to the GROUP DETAILS... section and find the MOVE MODE field.

a. What is the MOVE MODE value?

b. What does this value mean?

68. Press PF3 to return to the INGMOVE panel.

Targeted moves

In the next steps, you move application RV05 from MVSA to MVSB and back to its home system MVSA.

69. Type row-command **M** (Move) next to RVXMOVE, type **MVSB** in the MOVE TO column, if the field is blank, and press Enter.

You see confirmation panel, INGKYMV1. The ACTION column contains the text, **now**. (The move is immediate- disruptive)

70. Press PF10 to continue.

The INGMOVE panel, INGKYMV0, is redisplayed.

71. Press PF9 to refresh the panel.

The OBS STATUS (OBSERVED status) column shows that the resource is still AVAILABLE.

However, the colors of the systems in the SYSTEMS column changed. MVSB is now reverse video green and MVSA is turquoise.

MVSB is shown in reverse video because it is not the home system; but it now has the highest actual preference value.

You performed a targeted move of RV05 from system A to system B. You did the move without manually changing preference values for any member in the group.

72. Follow these steps to move RV05 back to its home system:

- a. Type row-command **M** next to RVXMOVE.
- b. Type * (asterisk) in the MOVE TO column.
- c. Press ENTER.
- d. Press PF10 to continue. The INGMOVE panel, INGKYMV0, is redisplayed.
- e. Press PF9 to refresh the panel. RV05 is moved back to MVSA.

Failover scenario

This section of the exercise uses a failover scenario to demonstrate System Automation for z/OS move-group actions. You cancel RV05 on its home system to simulate the situation.

73. On the command line of panel INGKYMV0 on your AOFDB session, enter the following command:

```
AOFDA: MVS C RV05
```

74. When the INGMOVE panel is redisplayed, press PF9 to refresh the panel.

The system name MVSB is now green, and system name MVSA is yellow. Green indicates that RV05 moved MVSB. Yellow indicates that RV05 cannot be started on MVSA, the application needs operator intervention. You can restart RV05 externally or use SETSTATE to change its status. The SETSTATE request triggers the restart RV05 on its home system, MVSA.

75. On the command line, enter the following command:

SETSTATE

You see panel AOFKSAST.

76. Follow these instructions to submit the SETSTATE request:

- a. In the SUBSYSTEM field, type **RV05**.
- b. In the TARGET field, type **MVSA**.
- c. In the STATE field, type **AUTODOWN**, and press Enter.

77. When the INGMOVE panel is redisplayed, press PF9 (Refresh) until the move is complete.

Boxing a group

In this section of the exercise, you use the BOX GROUP function to lock RV05 to system MVSA.

78. Enter row-command **X** (BOX GROUP) next to RVXMOVE.

You see confirmation panel, INGKYMV1. The ACTION column contains the text **box group**. The RUNS ON column contains MVSA.

79. Press PF10 to continue.

The RVXMOVE group is now boxed, and application RV05 is never moved from MVSA while the box is in effect.

Why?

Boxing the system has no effect on the status of the application or the application group.

In the next steps, you exclude system MVSA to simulate a failure and observe the effect of a Box Group action.

80. From your AOFDB session, enter the following command:

INGGROUP RVXMOVE/APG ACTION=EXCLUDE SYSTEMS=MVSA

You see INGGROUP panel, INGKYGRA. The following example shows what the listed fields should contain:

```
Action    =>  EXCLUDE
Group(s)  =>  RVXMOVE/APG
System(s) =>  MVSA
```

81. Press F10 to exclude system MVSA from counting toward the group availability.

You see message AOF099I FUNCTION COMPLETED.

82. Press PF3 to return to the INGMOVE panel; INGKYMV0. Press PF9 to refresh the panel.

The OBSERVED status of RVXMOVE is SOFTDOWN. MVSA is pink, and MVSB is still turquoise.

a. Why was RV05 not started on MVSB?

b. Why is MVSA pink?

83. Enter row-command **R** (Reset) next to RVXMOVE to reset the preference values to the values defined in the automation policy.

84. On confirmation panel INGKVMV1, press PF10 to continue, and press PF9 to refresh panel INGKYMV0.

The Reset action removes the Box Group action. RV05 can now start on MVSB.

Why did RV05 not start on MVSA?

85. Press PF3 to end INGMOVE and return to the INGLIST panel for all RV* resources.

Displaying all overrides to the policy of a group

86. Enter row-command **J** (INGGROUP) next to RVXMOVE.

You see INGGROUP panel INGKYGRA.

87. In the action field, type **OVERRIDES** and press PF10.

You see panel INGKYGRC on which is a list of the policy overrides for the group.

INGGROUP OVERRIDES panel, INGKYGRC, displays the group policies that were modified. For example, if an operator changes preference values, this panel displays the adjusted preference value for the resource.

The values for this scenario look like the following example:

RVXMOVE	APG	Sysplex move group	
		Nature	: MOVE
		Exclude	: MVSA

88. Press PF3 until you return to NCCF.

Answers to Unit 7 Exercise 1 questions

Step 18

You see resources from both systems because the INGLIST command lists all resources that are known to the primary automation manager.

Step 40

The color of RV05 on MVSB is blue because the application is down.

Step 43

The automation managers use XCF group INGPX\$\$\$\$. This group is for automation managers only. In your sysplex, there is a primary and a secondary automation manager.

Automation managers and automation agents use XCF group INGXSG. Therefore, the XCF group has four members: two managers and two agents.

To verify the answer, enter the following commands:

```
MVS D XCF, GROUP, INGPX$$$  
MVS D XCF, GROUP, INGXSGSA
```

Step 44

The primary automation manager is on MVSB because MVSA was shut down and restarted. When MVSA was shut down, the automation manager on MVSB assumed the role of primary. When MVSA was restarted, its automation manager assumed the role of a secondary because a primary was active on MVSB.

Step 51

For the takeover to occur, the primary automation manager on MVSB is stopped. The start of the automation manager application is defined in automation policy as External Start: ALWAYS, Restart: NO. Therefore, the automation manager on MVSB was not restarted.

Step 61

- a. The automation manager on MVSB assumed the role of the primary automation manager.
- b. Yes. The automation manager on MVSA restarted.
- c. The automation manager on MVSA restarted because it ended abnormally (ABEND). Therefore, based on the Restart Option policy of ABENDONLY, System Automation for z/OS restarted the application.

Step 63

RVXMOVE is a move group, which means that only one member of the group can be UP when the group is AVAILABLE. Because RV05 is UP on MVSA, RV05 on MVSB must be DOWN. Therefore, its COMPOUND status on MVSB is SATISFACTORY.

Step 64

RVXMOVE is not listed on the DISPSTAT panel because only the automation manager owns and manages application groups.

Step 66

MVSB is called a *viable* system because application RV05 can be moved to the system.

Step 68

- a. The move mode for RVXMOVE is SERIAL.
- b. When the application is moved, the UP instance is stopped before the replacement instance is started.

You can look for the stop and start messages to verify the sequence.

The default move mode is parallel: the start and stop are issued at the same time.

Step 80

Boxing a group adjusts the preference for the selected system to 3200 (maximum). Therefore, the application is locked to the system. Because RV05 is also active on MVSA, the automation manager adds a bonus. You can use the INGGROUP command to display and verify the preference value.

Step 83

- a. RV05 was not started on MVSB because the Box Group action locked it to MVSA; therefore, it cannot be started on any other system.
- b. MVSA is pink because it is excluded from the application group.

Step 85

RV05 did not start on MVSA because it is still excluded from the group. Resetting the preference values does not remove the exclusion. To remove the exclusion, you use the INGGROUP INCLUDE action.



8 Troubleshooting exercises

Exercise 1 Troubleshooting

At the end of the exercise, you can perform the following tasks:

- Suspend and resume resources.
- Understand the behavior of suspended resources.
- Analyze the automation states of resources, that are managed by SA z/OS.
- Take actions based on recommendations.
- Define your own action resulting from the analysis

In this exercise, you work with IBM System Automation for z/OS V4.1 to analyze your automation environment if a resource cannot reach its desired status and how you can perform repair action without unnecessarily alerting your operations team.

1. Log on to your NetView session.
2. On the NCCF command line, enter the following command to load a new automation configuration file:
`INGAMS REFRESH CFG=SAZOS.ACFS.OPSU8EX1`
3. Check whether the configuration file loaded successfully by searching for message AOF540I. If it did not and you see error messages related to system MVSB, you have to terminate NetView in system MVSB.
4. On the NCCF command line, enter the following command to prepare the exercise
`PREPLAB5 INIT`
Wait until the command finishes with:
`>>>> PREPLAB5 INIT FINISHED <<<<`
5. Enter the following command:
`INGLIST`
Scroll down to resource A01B and resource F01B. Each of these applications is represented by an address space that was started through a procedure named AAASSEM. This kind of set up allows us to simulate of a small automation environment. Or, you may filter (F5) for 'a0* b0* c0* d0* e0*' to only see those resources, that are relevant for this part of the lab.

You should see the following resources:

SA z/OS - Command Dialogs										Line 1 of 26
INGKYST0		Domain Id : ING01		----- INGLIST -----		Date : 05/04/17				
Operator Id : THIE		Sysplex = SHARPLEX				Time : 15:28:53				
A Update	B Start	C Stop	D INGRELS	E INGVOTE	F INGINFO	G Members				
H DISPTRG	I INGSCHED	J INGGROUP	K INGCICS	L INGIMS	M DISPMTR	P INGPAC				
R Resume	S Suspend	T INGTWS	U User	X INGWHY	/ scroll					
CMD	Name	Type	System	Sus	Compound	Desired	Observed	Nature		
---	A01B	APL	S1		PROBLEM	AVAILABLE	HARDDOWN			
---	A02G	APL	S1		INHIBITED	AVAILABLE	SOFTDOWN			
---	A03B	APL	S1	DIR	SATISFACTORY	AVAILABLE	SOFTDOWN			
---	A04G	APG	S1		INHIBITED	AVAILABLE	SOFTDOWN	BASIC		
---	A05B	APL	S1		SATISFACTORY	AVAILABLE	AVAILABLE			
---	A06B	APL	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN			
---	B01B	APL	S1		INHIBITED	AVAILABLE	SOFTDOWN			
---	B02B	APG	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN	BASIC		
---	B03B	APL	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN			
---	C01B	APL	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN			
---	C02G	APL	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN			
---	C03G	APG	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN	BASIC		
---	C04B	APG	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN	SERVER		
---	C05B	APL	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN			
---	C06G	APL	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN			
---	D01B	APL	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN			
---	D02G	APL	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN			
---	D03B	MTR	S1		DEGRADED	AVAILABLE	AVAILABLE			
---	D04G	APL	S1		AWAITING	AVAILABLE	SOFTDOWN			
---	E00G	APG	S1		DEGRADED	AVAILABLE	DEGRADED	SERVER		
---	E01G	APL	S1		SATISFACTORY	AVAILABLE	AVAILABLE			
---	E02G	APL	S1		PROBLEM	UNAVAILABLE	HARDDOWN			
---	E03G	APL	S1		SATISFACTORY	AVAILABLE	AVAILABLE			
---	E04G	APL	S1		SATISFACTORY	AVAILABLE	AVAILABLE			
---	E05G	APL	S1		SATISFACTORY	UNAVAILABLE	SOFTDOWN			
---	E06G	APL	S1		AWAITING	AVAILABLE	SOFTDOWN			

This environment seems to be in a bad shape. You probably don't have any clue about why these resources are not up and running. And you probably don't know how all these resources are related to each other. You are on your own and you need to get everything up and running immediately.

Will you make it? ...sure!!! Good luck :

Hint: 'X' might help.

Please note: There's another resource named F01B/APL/S1, that should not be started.

Get it up and running

6. Your task is to identify and execute the actions to make your system look like this:

SA z/OS - Command Dialogs									
Line 1 of 27									
Date . . : 09/01/18									
Time . . : 10:12:59									
Members									
INGPAC									
INGVOTE									
INGRELS									
INGCICS									
INGIMS									
INGWHY									
INGINFO									
DISPMTR									
/ scroll									
CMD	Name	Type	System	Sus	Compound	Desired	Observed	Nature	
---	A01B	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	A02G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	A03B	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	A04G	APG	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE	BASIC	
---	A05B	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	A06B	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	B01B	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	B02B	APG	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE	BASIC	
---	B03B	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	C01B	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	C02G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	C03G	APG	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE	BASIC	
---	C04B	APG	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE	SERVER	
---	C05B	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	C06G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	D01B	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	D02G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	D03B	MTR	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	D04G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	E00G	APG	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE	SERVER	
---	E01G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	E02G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	E03G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	E04G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	E05G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	E06G	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE		
---	F01B	APL	MVSA		PROBLEM	AVAILABLE	HARDDOWN		

- To make it a little bit easier for you, have a look at the picture at the end of the exercise. It shows the policy and operational actions in the yellow boxes, but if you are tough, find it out yourselves.
- If you need to restart the exercise enter:
PREPLAB5 FIX
Wait until the command finishes.
>>>> PREPLAB5 FIX FINISHED <<<<
- Your problems should be fixed, then enter
PREPLAB5 INIT
Wait until the command finishes
>>>> PREPLAB5 INIT FINISHED <<<<

Overriding proposed actions

Recommending the most appropriate action to your operations team is probably not an easy task. There are several aspects to consider. The action recommendation that you give to your operations team may depend on your team's skill level. Or, you are already maintaining a kind of run book, that needs to be considered. Or, you may want to give resource specific recommendations to your team. May be, it is just a hint to open a trouble ticket.

There are two DSIPARM members – INGWHYSA and INGWHYU – that are delivered with SA z/OS V4.1.

- INGWHYSA contains all text for situations, reasons and actions, that are displayed by INGWHY. This member must not be changed by users, but it may serve as a source for copying action text from.
- INGWHYU can be used to put your customized action text. So, this member is intended to be defined by users, mainly, the automation administrators. Please note, that only action text can be customized, but no reason or situation text.

In this exercise, you will define your own action in the DSIPARM member INGWHYU. There is one resource, that is still in a non-SATISFACTORY status (unless you fixed it already ;-). This resource is named F01B.

10. Invoke INGLIST f0* (or filter for f0*).

11. Apply 'X' to this resource, you find as REASON 2 of 2 that this application is set to 'CTLDOWN'. Just using SETSTATE to restart that application might not be a good idea, because there's probably a good reason for the 'CTLDOWN' status. So, you might want to alert your operations team, not to restart that resource, unless they verified that the 'CTLDOWN' state is no longer required.

You can change the action text accordingly.

12. First thing you need to do, is remembering the action identification. This is the blue text:

```
ACTION 2 OF 2:                                     INGWHYSA(A0209800)
Refer to your company's rules in order to take the appropriate action.
Contact the owner that is responsible for F01B/APL/TSA1.
Consider the following commands to apply to F01B/APL/TSA1:
- EXPLAIN
- SETSTATE
```

It tells you, where the action text was read from. It could be INGWHYSA or INGWHYU. And it tells you the identification number of the action text (here: A0209800). You may copy this identification number into the clipboard.

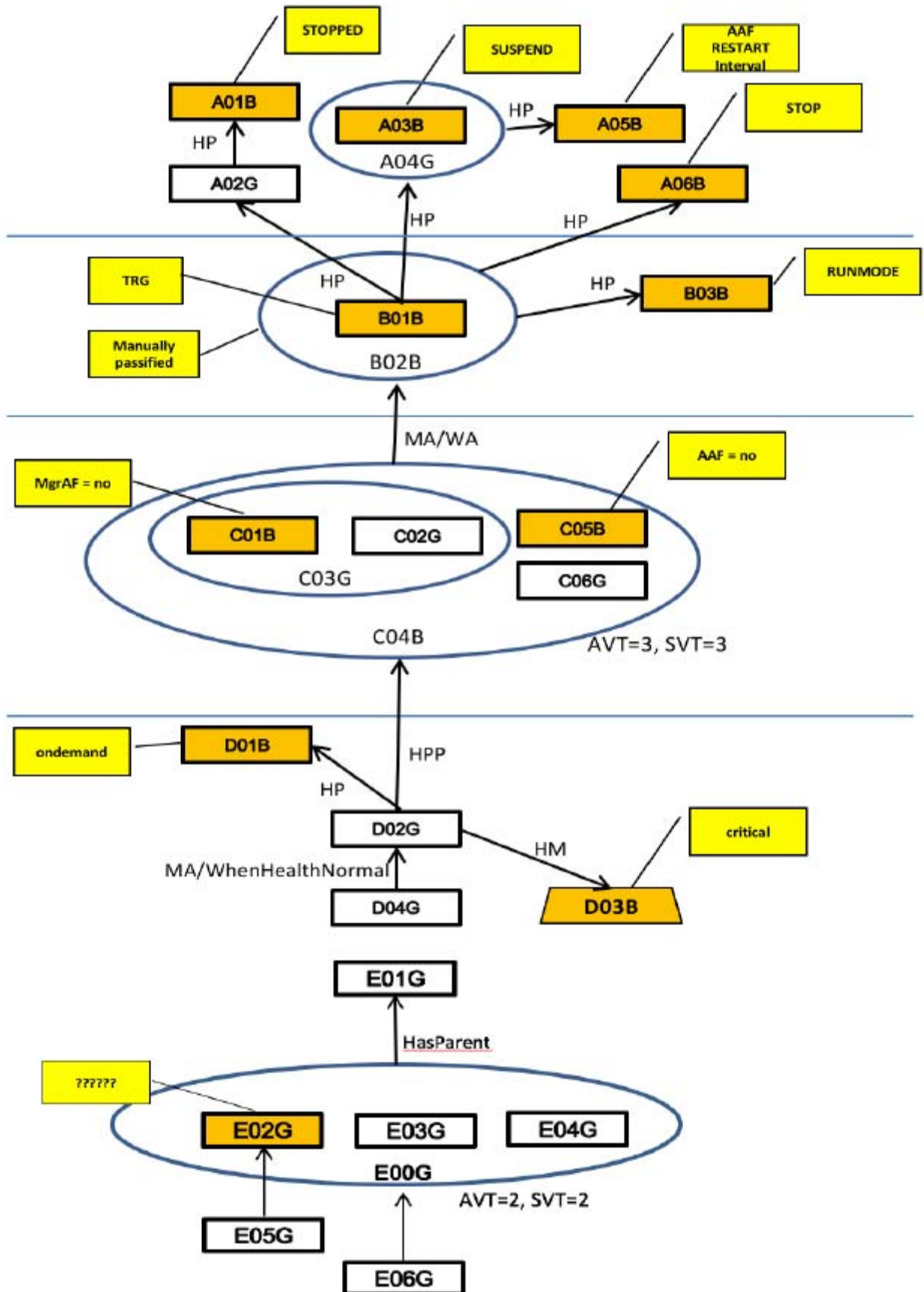
13. Now you need to open a TSO session, if not already done.

14. View member 'SA410.SINGNPRM(INGWHYSA)' and search for the identification number.

15. When found, it is best to copy the complete IF THEN, END construct related to that action identification number into the clipboard, may be, even with its heading prolog.

16. Then, edit member SAZOS.USER.DSIPARM(INGWHYU): paste the SA-delivered action text at the bottom of this member, and apply your changes. Think about a nice action text, that you'd like to present to your operators. Change to the NetView console and press F9=REFRESH on the NetView INGWHY panel to When done, save it. repeat (refresh) the analysis. If you're lucky, you will see your action text. (If not L, you might have gotten a Data REXX syntax error, that needs to be fixed in INGWHYU. Are you able to fix it? Most likely you have an odd number of single quotes. You may check the netlog or just ask the lab instructor to help.)

Policy Overview





APPENDIX A **Appendix**

