



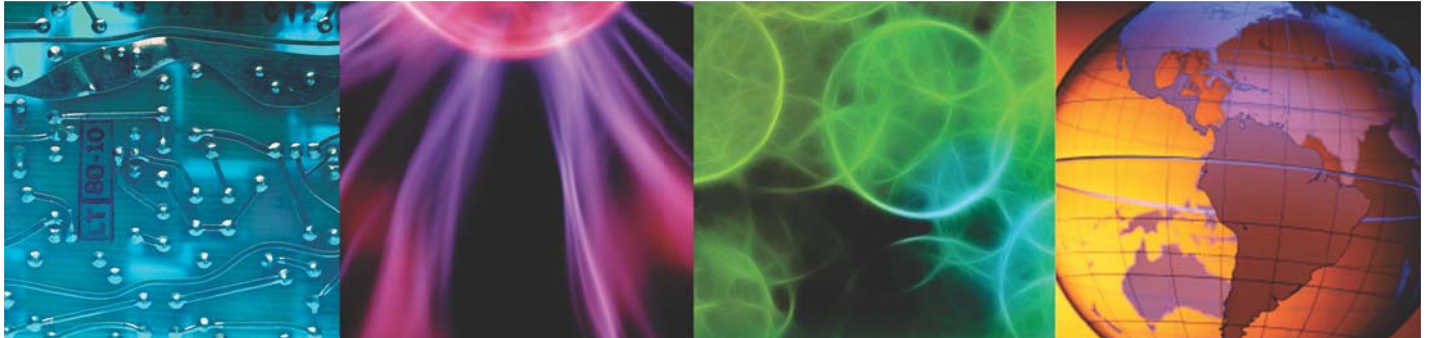
IBM Training

System Automation for z/OS 4.1 Implementation and Administration

Student Exercises

Course code SM937 ERC 1.0

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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 possible, 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 SMVSCH01. 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	SMVSCHnx	B4zzzz4B	n =numeric value of the delivery set that is assigned to the class. x = 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 9 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.

The screenshot shows a z/VM console window titled "Session C - [24 x 80]". The window has a menu bar with "File", "Edit", "View", "Communication", "Actions", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main display area shows the following text:

```

z/VM ONLINE

      ===  ===  ===  ===
      ===  ===  ===  ===
      ==  ==  ==  ===  ===
      ==  ===  ===  ===
      ==  ===  ==  ===
      ==  ==  ==  ===
      ===  ===  ===  ===
      ===  ===  ==  ===

      IBM Training
      Poughkeepsie - New York
      Use of this system is for IBM
      Management approved purposes only
      Use is subject to audit at any time by IBM management

Fill in your USERID and PASSWORD and press ENTER
(Your password will not appear when you type it)
USERID  ==>
PASSWORD ==>

COMMAND ==>  L MVSCH14 BY SMVSCH14
  
```

On the right side of the screen, the text "POKEDVM2" is displayed in orange, followed by "z/VM" and "6.4.0" in green. At the bottom right, the words "RUNNING" and "POKEDVM2" are displayed in green. The bottom status bar shows "MA" on the left, "C" in the center, and "23/017" on the right.

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}

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

B4zzzz4B

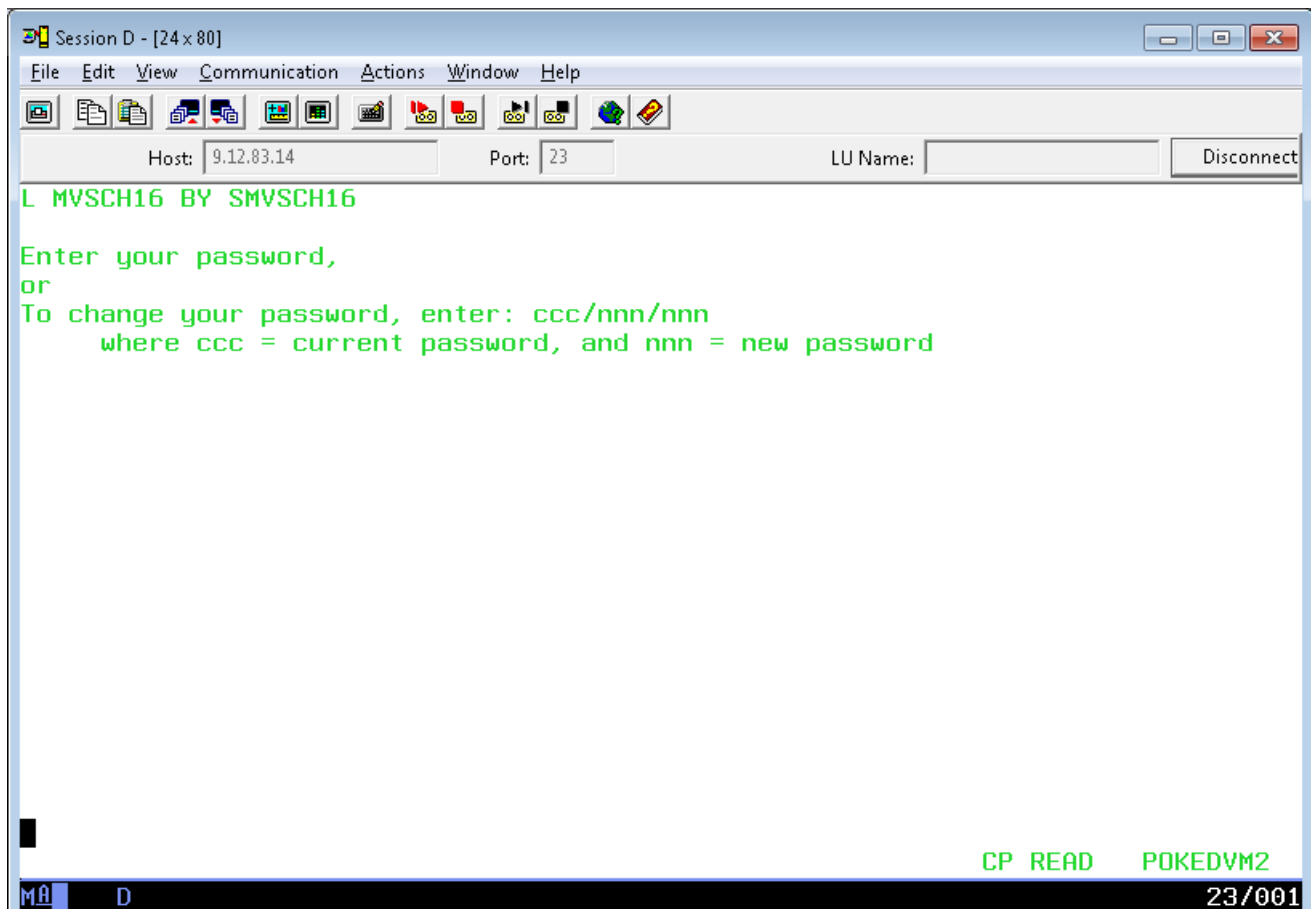
where zzzz is the class number (only for the first IPL of the system)

- 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:



- 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 (instructor system)

- 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 - [24 x 80]
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):
*   MVSABOPS IPL MVSA WITH AUTOMATION
*   MVSABOPS IPL MVSAB 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 MVSAB WITH FULL FUNCTION AUTOMATION
*
*****

Ready;
mvsbops

RUNNING   POKEDVM2
MA  C                                           23/00

```

6. 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. At the bottom, there is a blue bar with the text "IEE163I MODE= R". To the right of the logs is a control panel with buttons for PA1, PA2, Clear, Reset, ErEOF, ErInp, Attn, and SysRq. Below the control panel are radio buttons for "Pad 1" and "Pad 2". The status bar at the very bottom indicates "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

```

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.

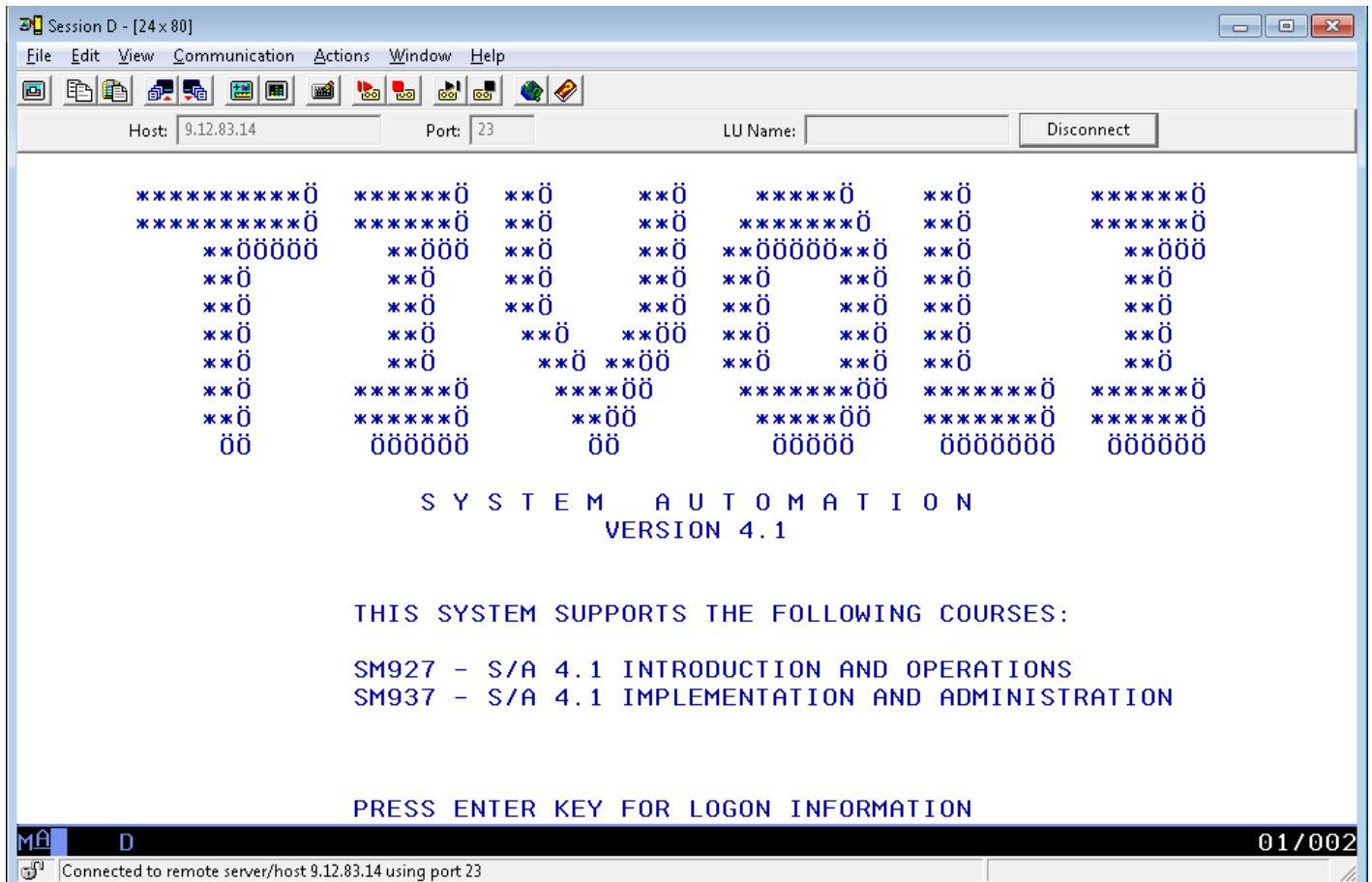
VM DIAL

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.



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 INFO command or 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
```

The result of the pipe is similar to:

```
! AOFDA  
SYSTEM   =MVSA  
SYSPLEX  =PLEX56  
VM GUEST=mvsch25
```

System Automation for z/OS policy data bases

You create your own System Automation for z/OS policy data bases based on the IBM best practices policies. Some resources are imported from the provided policy data base SAZOS.PDB.ADMIN.NORVAPLS as an exercise.

If you are stuck with an exercise you could also import partial solutions from one of the provided policy data bases of the SM927 operations class.

The naming convention used for SM927 policy data bases is

SAZOS.PDB.OPSUXEXn

For a description of the contents please refer to the following section about SM927 System Automation for z/OS configuration files.

System Automation for z/OS SM927 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.

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 INFO command or 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
```

The result of the pipe is similar to:

```
! AOFDA
System   Member   Role   Status   Sysplex   XCF   Group   Release   Comm   E2E   Runmode
-----
MVSA     MVSA$$$$$1 PAM    READY    PLEX56    INGXSGSA V4R1M0   XCF
MVSA     MVSA      AGENT  READY    PLEX56    INGXSGSA V4R1M0   XCF      *ALL
*** End of Display ***
! AOFDA      Config dataset name : SAZOS.ACFS.NORVAPLS
```



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.ACF.S.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.ACF.S.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.ACF.S.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.ACF.S.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.ACF.S.OPSU4EX3 is for:

Exercise 5 Using pacing gates

This exercise uses 6 applications: RV01-RV06. All of the 6 RV resources 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.

Instructor system MVSC

The instructor system normally runs separated in its own sysplex and SAPlex named PLEX01.

Configuration files for the instructor system are named as follows:

- SAZOS.ACFS.OPSUXEXn.INSTR

PDB files for the instructor system are named as follows:

- SAZOS.PDB.OPSUXEXn.INSTR



Important: Only automation control files SAZOS.ACFS.OPSU7EX1, SAZOS.ACFS.OPSU1EX1 and SAZOS.ACFS.OPSUXEXn.INSTR are configured to support the MVSC system. If you specify any other configuration files for the MVSC system, you see error messages.

If you see messages

```
AOF618I NO VALID ACF MEMBER FOUND FOR MVSC - ACF TOKEN MISMATCH
```

Stop the automation manager and restart it cold using command:

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



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.



Note: This is an optional lab and a repeat from SM927. If you know how to use NetView, you might skip it.

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,AUTO*
```

You see these three started tasks:

- ◆ AUTOMGR: 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	PURGE
REXX31	AXR	MVSA	SYSPLEX	NO	PURGE

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 Installation and customization exercises

There are no student exercises for this unit.



3 Customization dialog and Policy Data Base exercises

The exercises in this unit provide a basic introduction to starting and stopping the automation manager, automation agent, and Subsystem Interface address spaces. You will also be introduced to the ISPF customization dialog and policy data base.

Exercise 1 Start automation on MVS and test the installation

In this exercise you learn to start and stop the automation manager, automation agent, and Subsystem Interface address spaces.

Data sets used in this exercise

You use several data sets in this exercise. The data set names might be different on your system. Your instructor can provide changes, if any.

- SAZOS.USER.PARMLIB
-

- SAZOS.ACFS.NORVAPLS
-

All data set names are in ***bold italics*** in these exercises.

Exercise instructions

1. Log on to TSO on MVSA by using the instructions that your instructor provides.
2. Go to ISPF Option **3.4** and edit the **PARMLIB** data set. **PARMLIB** is the data set that is used by the automation manager started task, AUTOMGR, that contains the parameter member HSAPRM00.
3. Select the member HSAPRM00 and verify that the CFGDSN= parameter looks like the following example:

```
CFGDSN=SAZOS.ACFS.NORVAPLS
```

If it does not, correct it and press PF3 to save the change. The CFGDSN statement tells the automation manager to use the **SAZOS.ACFS.NORVAPLS** configuration data set.

4. Log on to your MVSA z/OS system console by following the instructions that your instructor provides.
5. Verify that no automation address spaces are running. If you find any stop them with the next steps:

Issue a D A,AUTO* command. You should see the following message:

```
IEE115I 09.46.05 2010.348 ACTIVITY 637
  JOBS      M/S      TS USERS      SYSAS      INITS      ACTIVE/MAX VTAM      OAS
00000      00013      00001      00031      00009      00001/00025      00005
AUTO* NOT FOUND
```

There are no automation address spaces running. The system IPL did not include start commands for the automation address spaces in COMMNDxx. You start them manually in this exercise.

6. If the AUTOMGR automation address space is running select the z/OS console and enter the following command to stop the automation manager:
7. If the AUTONETV automation address space is running select the z/OS console, enter the following command to stop NetView:
8. If the AUTOSSI automation address space is running you can leave it running and skip the step to start it.
9. Start the automation manager by entering the following command:

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

A COLD start is required the first time that you start the automation manager because the takeover file is empty.

You see the following message:

```
HSAM1308I SA z/OS PRIMARY AUTOMATION MANAGER INITIALIZATION COMPLETE, TYPE=COLD.
```


10. Start the NetView Subsystem interface by entering the following command:

```
S AUTOSSI,SUB=MSTR
```

You see the following message:

```
CNM541I NETVIEW SUBSYSTEM INITIALIZED SUCCESSFULLY
```

11. Start the automation agent NetView by entering the following command:

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

When the automation agent begins initializing, you see messages AOF767I and AOF603D:

```
AOF767I AUTOMATION OPTIONS: 234
```

```
. STOP      - CANCEL AUTOMATION
. PAUSE     - SUSPEND AUTOMATION
. NOSTART   - DO NOT AUTOMATE SUBSYSTEM STARTUP
. ENTER     - CONTINUE
```

```
nn AOF603D ENTER AUTOMATION OPTIONS OR 'R' (RE-DISPLAY) - DOMAIN AOFDA
```

where *nn* is the reply element number.

12. Reply null to the AOF603D (automation options) WTOR to continue initializing the automation agent:

```
R nn
```



Note: If you do not reply, by default, System Automation for z/OS automatically replies after two minutes with the default reply (null).

13. Observe the console messages until you see the following message:

```
AOF540I 16:03:57 : INITIALIZATION RELATED PROCESSING HAS BEEN COMPLETED.
```

If you do not see the AOF540I message, you can issue a %ACF STATUS command from the system console to verify that the automation policy was loaded:

```
%ACF STATUS
```

```
AOF005I MEMBER ACFZ999 CURRENTLY BEING USED FOR THE CONTROL FILE
AOF006I BUILT      BY INGC102  ON 05/24/19 AT 12:52:56
AOF006I REFRESHED BY AUTINIT1  ON 06/14/19 AT 08:21:39
AOF006I CONFIGURATION TOKEN    = 20181217165509FF01F9672827
AOF006I CONFIGURATION DATASET  = SAZOS.ACFS.NORVAPLS
AOF002I END OF MULTI-LINE MESSAGE GROUP
```

At this point, the automation agent is running.

Typically, the three address spaces for automation are started from a **COMMNDxx** member in your PARMLIB concatenation. Automation can start the remaining resources, according to the automation policy.



Hint: Typically, you specify a HOT start. You perform a COLD start only when starting with a newly built ACF or an empty takeover file. You perform a HOT start now.

14. Stop the automation manager started task by entering the following command:

```
P AUTOMGR
```

You see the WTOR message:

```
*nn HSAM1390E REPLY "YES" TO CONFIRM OR "NO" TO CANCEL SA
AUTOMATION MANAGER STOP REQUEST.
```

15. Reply YES to the WTOR by using the correct reply element number.

```
R nn, YES
```

Verify that the AUTOMGR started task ended.

16. Start the AUTOMGR again, but this time specify a HOT start, which is the default unless you code a different START parameter in your HSAPRM member:

```
S AUTOMGR, TYPE=HOT, SUB=MSTR
```

You see messages that are different from the ones displayed with the initial COLD start; for instance, the following one:

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

where xx is the number of seconds that the automation manager waits before it takes over. The interval that the automation manager waits during a takeover is controlled by the TAKEOVERTIMEOUT parameter in HSAPRM00. The default TAKEOVERTIMEOUT is 12 seconds.

You then see the following message:

```
HSAM1309I SA z/OS PRIMARY AUTOMATION MANAGER HOT TAKEOVER COMPLETE.
```

The HOT start causes the automation manager to use the Takeover File.

Exercise 2 Navigate the ISPF customization dialog and populate the policy database

This exercise is an introduction to the System Automation for z/OS ISPF customization dialog. You review the navigational aspects of the dialogs and become familiar with the settings, help facility, and menus. You also review the Policy Data Base (PDB) management aspects of the dialogs. At the end of the exercise, you can perform the following tasks:

- Access the System Automation for z/OS customization dialog and perform basic navigation.
- Identify the help information that is available.
- Identify the data management features that are available.
- Define, add, remove, and delete a policy database.
- Run a policy database import and view the report.
- Rename a policy entry.
- Run and view a Policy Data Base report.

Data sets used in this exercise

You use several data sets in this exercise. The data set names might be different on your system. Your instructor can provide changes, if any.

- SAZOS.PDB.TEST
-

- SAZOS.PDB.TEST.REP
-

- SAZOS.PDB.OPSDemo
-

All data set names are in ***bold italics*** in these exercises.

Access the customization dialog and perform basic navigation

1. Log on to TSO on MVSA by using the instructions that your instructor provides.
2. To access the customization dialog, type **E.C** on the ISPF Primary Option Menu panel.
The SA z/OS Customization Dialog Primary Menu panel is displayed.



Note: This panel is referred to as the **Primary Menu** panel in these exercises.

3. Type the PANELID command on the *option* line and press Enter. Panel names are displayed in the upper left of the panels.

The panel ID, AOFGPRM, is displayed.

At the top of the panel, you see three fields: MENU, OPTIONS, and HELP.

```

      MENU  OPTIONS  HELP
-----
AOFGPRM      SA z/OS 4.1 Customization Dialog Primary Menu
Option ===>

```

You can access the pull-down menus by placing the cursor over a field and pressing the Enter key.

Select the **Help** pull-down menu and look for the following list:

1. Help for help
2. Extended help
3. Keys help
4. Automation Help
5. Changes for this Release
6. About...

You might want to pay close attention to option **5, Changes for this Release**. These notes are useful.

4. Press PF3 to return to the Primary Menu panel (AOFGPRM).
5. Notice that the **Current Policy Data Base** field at the bottom of the Primary Menu panel is blank. The field is blank because you are a new user of the dialogs. Type a question mark (?) in this field and press Enter.

You see the Policy Data Base Selection panel (AOFGPDB). There are no entries on the panel to choose from at this time. You also see the following message:

There are no PolicyDBs available. If you are a new user on this system, use the ADD command to put an existing PolicyDB to the list, or the NEW command to create a PolicyDB.

Create a new policy database

6. Create a new policy database. (You copy several example policies into it later in this exercise.) Enter the NEW command on the command line of the Policy Data Base Selection panel (AOFGPDB).

7. On the Create a New Policy Database panel (AOFGPDBN), fill in the following fields with these values. Enter a question mark (?) in the **Model Policy Database** field.

```
Policy Database Name . . TEST
Enterprise Name. . . . . TEST
Data Set Name. . . . . 'SAZOS.PDB.TEST'
Model Policy Database. . ?
```

Press Enter.

The Select Model Policy Data Base panel (AOFGPDBM) is displayed.

8. Select entry *EMPTY by typing **S** in the Action column beside it. Press Enter.
You return to the Create a New Policy Database panel. Do *not* select any of the add-on policies. Press Enter.

The New Policy Database Dataset Information panel (AOFGPDBO) is displayed so that you can customize the data set allocation.

9. Fill in the Data Set Name type field as follows:

```
Data Set Name type . . PDS          LIBRARY  PDS
```

Use the default values for all other fields. Press Enter to continue.

You see the Command Progress Display pop-up dialog box (AOFGZIPS) while your database is created. At the end of the process, the Entry Type Selection panel (AOFGETYP) is displayed.

10. Type **4** (SYS) on the option line and press Enter to see the systems defined in this PDB.

The Entry Name Selection panel (AOFGENAM) is displayed. You see an empty list and the following message:

No entries currently exist. Use the NEW command to create an entry.

This message verifies that there are no systems defined in the PDB.

11. Press PF3 until you return to the Policy Data Base Selection panel (AOFGPDB).

The TEST PDB is empty. You populate it by importing policy definitions from an existing PDB called PROD. First, you add PROD to the PDB selection list and look at some of its policy definitions.

12. Type **ADD** on the command line and press Enter.

The Add a Policy Data Base Entry panel (AOFGPDBA) is displayed.

13. Enter the following values for the PDB and data set names and press PF3.

```
Policy Database Name . PROD
Data Set Name. . . . . 'SAZOS.PDB.OPSDemo'
```

The PROD PDB is added to your list.

14. Open the PROD PDB by typing an **S** in the Action column beside the PROD entry and pressing Enter.

The Entry Type Selection panel (AOFGETYP) is displayed.

15. Select the SYS entries (option **4**) for this PDB.

How many systems are defined?

What are their names?

16. Press PF3 and select the APL entries (option **6**) for this PDB.

17. Select the JES2 application by placing an **S** in the Action column and pressing Enter.

The Policy Selection panel (AOFGEPOL) is displayed.

18. Press PF8 to scroll down to the WHERE USED policy, select it, and press Enter.

What resource entry name and type is listed?

19. Press PF3 until you return to the Entry Type Selection panel (AOFGETYP).

20. Select option **5** (APG, Application Group).

The Entry Name Selection panel (AOFGENAM) is displayed.

21. Select the BASE_SYS application group.

The Policy Selection panel (AOFGEPOL) is displayed.

22. Select the WHERE USED policy and press Enter.

What systems is this application group linked to?

JES2 is a member of the BASE_SYS Application Group. BASE_SYS can run on MVSA and MVSB. Therefore, JES2 can run on MVSA and MVSB.

23. Press PF3 until you return to the Primary Menu panel (AOFGPRM).

24. Change the Current Policy Database field to TEST:

Current Policy Database . . . TEST

The TEST PDB is empty. You import policy data from the PROD PDB into the TEST PDB.

25. Select option **5** (Data Management).

The Data Management Menu panel (AOFGIMP0) is displayed.

26. Select option **1** (Import from PDB) and press Enter.

27. On the Import entries from other Policy Database panel (AOFGIMPP), edit the following panel fields:

Source Policy Database. . . . PROD

Entry type ?

Import linked entries YES

28. Type a **1** on the option line and press Enter.

Because you entered a question mark (?) for the Entry type field, you see a list of available policies to select from on the Entry Type Selection panel (AOFGRPTX).

29. **Select** the APG type and press Enter.

The Import entries from a Policy Database panel (AOFGIMPP) is displayed.

30. Select option **1** (Import Policy Data) and press Enter.

The Entry Name Selection panel (AOFGIMPS) is displayed, where you can select the Application Groups to import.

31. Select the BASE_SYS APG and press Enter to change its status to **SELECTED**. Press Enter a second time.

You see the Selected Entry Names for Import panel (AOFGIMP3) with several entries in addition to BASE_SYS.

Why are other entries displayed?

32. Select option **3** (Run import) and press Enter.

The Command Progress Display panel (AOFGZIPS) is displayed while the policies are imported.

When the import completes, you automatically return to the Import entries from Policy panel (AOFGIMPP). You see the message, **Import successful**, in the upper right.

33. Type a **2** on the option line and press Enter to view the import report. Press PF3 when you finish the review.

34. Repeat the import process for the APL and SYS types, selecting all entries when they are presented. Review the import report each time.

Specify LINKED=YES for the APL (application) policies and LINKED=NO for the SYS (system) policies.



Hint: You can select all policies by entering the SELECT * command on the Entry Name Selection panel (AOFGIMPS).

The TEST PDB is not a functional PDB yet. You create a functional PDB in a later exercise. However, you can now start working with the imported policy objects to gain some experience with the customization dialog.

35. Press PF3 until you return to the Primary Menu panel.

36. Type option **1** and press Enter to open the TEST PDB.

The Entry Type Selection panel (AOFGETYP) is displayed.

37. Select option **4** (SYS) and press Enter.

38. On the Entry Name Selection panel (AOFGENAM), type **R** in the Action column next to MVSA and press Enter to rename it.

39. In the Entry Rename pop-up window (AOFGPREN), type the new system name, **TSTA**, and press Enter.

New Name . . TSTA

This action only renames the entry.

The Command Progress panel (AOFGZIPS) is displayed temporarily. Then, the Entry Name Selection panel is displayed with MVSA renamed to TSTA.

40. Press PF3 until you return to the Primary Menu panel.

41. Select option **3** (Report) and press Enter.

42. On the Report Selection Menu panel (AOFGREPK), type **1** (Create Policy Data Base Report) and press Enter.

The Policy Data Base Report Parameters panel (AOFGRPTP) is displayed.

43. Type the required information on the Policy Data Base Report Parameters panel (AOFGRPTP). Request a complete enterprise report (**option 1**) to run ONLINE and put the output in FLAT format into partition data set **SAZOS.PDB.TEST.REP**. Ensure that you enclose the data set name in quotation marks. Press Enter.

The Command Progress Display panel (AOFGZIPS) is displayed temporarily. When the report is generated, you see a **Report Successful** message in the upper right of the panel.

44. Press PF1 to see the complete text for the Report Successful message:

The report function completed successfully

45. Press PF1 and read the help to determine what the member name of the report output will be.

What is the member name?

46. Press PF3 to exit the help. Press PF2 to split the screen, and go to ISPF option **3.4** to view the report. Browse member \$RPTFLAT of the **SAZOS.PDB.TEST.REP** dataset.
47. Press PF3 until you exit split-screen mode. Press PF3 until you return to the Primary Menu panel.
48. Type option **4** and press Enter.
The Policy Data Base Selection panel (AOFGPDB) is displayed.
49. Delete the TEST PDB by typing **D** in the Action column and pressing Enter. The Confirm Delete pop-up window is displayed. Read the panel.
What is the difference between delete and remove?
-

50. Press Enter to confirm the deletion.
The Policy Data Base Selection panel (AOFGPDB) is displayed. You see the message, **PolicyDB deleted**, in the upper right.
51. Remove the PROD PDB. Type **M** next to the PROD PDB entry and press Enter.
The Confirm Remove pop-up window (AOFGM002) is displayed.



Important: Use option **M** (remove). Do not delete the PROD PDB.

52. Press Enter to confirm the remove.
You see the message, **PolicyDB entry removed**, in the upper right.
53. Press P3 until you return to the Primary Menu panel.



Note: The answers to the questions in this exercise start on the next page.

Answers to Unit 3 Exercise 2 Questions

Step 15

Two systems are defined: MVSA and MVSB.

Step 18

Name = BASE_SYS and type = APG.

Step 22

BASE_SYS is linked to MVSA and MVSB. All resources that are linked to BASE_SYS are linked to systems MVSA and MVSB.

Step 31

BASE_SYS has other entries linked to it. When you specify YES for the **Import linked entries** field, all of its linked entries are also imported.

Step 45

The report member name is \$RPTFLAT.

Step 49

Delete removes the PDB from the list and deletes the data set.

Remove removes the PDB from the list. Other users can use the PDB because the data set was not deleted.



4 Defining applications and building automation configuration files exercises

Exercise 1 Use the customization dialog to automate a single system

This exercise is about the creation of a new Policy Data Base, the copying of existing entries, and the specifications of Applications and their dependencies.

At the end of the exercise, you can perform the following tasks:

- Create a new Policy Data Base by using the *BASE sample.
- Create new entries in the Policy Data Base.
- Define several Applications, including their startup and shutdown policy and relationships to other Applications.
- Build automation configuration files.
- Restart your system by using System Automation for z/OS to start your subsystems and test your automation definitions.

Exercise instructions

In this exercise, you create a Policy Data Base and set up the definitions for a single system. You then build automation configuration files and test the definition.

You use the PDB and ACFs that you create in this exercise as a base for the remaining exercises. In general, each exercise starts with the PDB from the end of the previous exercise.

At this point, you can navigate the customization dialog. The instructions assume that you know how to change the status of an entry to be SELECTED. The instructions now use terminology

similar to **Select the xxxx Application** where the character **S** is bold. The bold **S** is a reminder that you type **S** on the panel to select the item.

Data sets in this exercise

You use several data sets in this exercise. The data set names might be different on your system. Your instructor can provide changes, if any.

- SAZOS.PDB.NEW
-

- SAZOS.ACFS.PLEXA
-

- SAZOS.PDB.NEW.REP
-

- SAZOS.PDB.ADMIN.NORVAPLS
-

- SAZOS.USER.PARMLIB
-

- SYS2.PARMLIB
-

All data set names are in ***bold italics*** in these exercises.

Create a new Policy Data Base

In this part of the exercise, you create a new policy Data Base and copy one of the product provided samples into it.

1. Log on to TSO on MVSA by using the instructions in the exercise introduction.
2. Access the System Automation for z/OS customization dialog by using the instructions provided by your instructor.
3. From the command line on the panel, enter the PANELID command so that panel IDs are displayed in the upper left of the screen.
4. **Select option 4 (Policies)** to access the Policy Data Base Selection panel (AOFGPDB).

If you have done the previous exercise and removed the PROD PDB a message is displayed on the panel: **No Policy Data Bases are available.**

You create a new PDB by using the policies that are available with System Automation for z/OS.

5. Type the NEW command on the command line of the Policy Data Base Selection panel (AOFGPDB).
6. On the Create a New Policy Database panel (AOFGPDBN), type the following information into these fields:

```
Policy Database Name . . NEWPDB
Enterprise Name. . . . . NORVAPLS
Data Set Name. . . . . 'SAZOS.PDB.NEW'
```

```
Model Policy Database. . *BASE
```

This information creates a new PDB and imports all automation policies from the *BASE PDB.

Do not select any add-on policies.

7. Press Enter.

The New Policy Database Dataset Information panel (AOFGPDBO) is displayed.

8. Type **PDS** in the Data Set Name type field:

```
Data Set Name type . . PDS
```

Do not change any of the remaining fields.

9. Press Enter.

The Command Progress Display panel (AOFGZIPS) is displayed. When the PDB creation completes, the Entry Type Selection panel (AOFGETYP) is displayed.

10. Select option **4 (SYS)** and press Enter to display the systems that are now defined.

The Entry Name Selection panel (AOFGENAM) is displayed with three systems defined.

11. Select **SYS1** and press Enter.

The Policy Selection panel (AOFGEPOL) is displayed.

Next, you modify the policy definitions that are imported from the *BASE PDB for the class systems.

12. Select the DESCRIPTION policy item and press Enter.

The Description panel (AOFGXDSC) is displayed.

13. Modify the following description fields:

```
Short Description. . . . MVSA
Long Description . . . . MVSA System
```

Press PF3 to save the changes.

The Policy Selection panel (AOFGEPOL) is displayed with the Policy Saved message in the upper right.

14. Select the SYSTEM INFO policy item and press Enter.

The System Information panel (AOFGSPD0) is displayed.

15. Modify the following fields:

```
Image/System name. . . . MVSA
Primary JES. . . . . JES2
System Monitor Time. . . 00:59
Gateway Monitor Time . . 00:15
Automation Table(s). . . INGMMSG01
SDF Root Name. . . . . [leave null]
SA NetView Domain. . . . AOFDA
```

Do not enter a value for the SDF Root Name field.

You might have to press PF8 to access several fields.

Press PF3 to save the changes.

16. Select the AUTOMATION SYMBOLS policy item. Modify the value of AOCCLONE1 from A to 0A.



Note: AOCCLONE1 is specified in the VTAM start parameters and must be two characters.

17. Press PF3 to return to the Entry Name Selection panel (AOFGENAM). Type an **R** in the Action column for SYS1 to rename the entry.

The Entry Rename pop-up window (AOFGPREN) opens.

18. Change the name to MVSA and press Enter.

The Command Progress Display panel is displayed temporarily.

19. Return to the Entry Name Selection panel after the entry is renamed.

20. Change the SYS2 entry to MVSB using the following lettered steps.

- a. Modify the following description fields:

```
Short Description. . . . MVSB
Long Description . . . . MVSB System
```

Press PF3 to save your changes.

b. Modify the SYSTEM INFO policy item fields:

Image/System name. . . . MVSB
 Primary JES. JES2
 System Monitor Time. . . 00:59
 Gateway Monitor Time . . 00:15
 Automation Table(s). . . INGMMSG01
 SDF Root Name. [leave null]
 SA NetView Domain. . . . AOFDB

Press PF3 to save your changes.

c. Rename SYS2 to MVSB.

d. Press PF3 to return to the Entry Name Selection panel (AOFGENAM).

MVSB is not needed until later exercises. It is linked to the SYSPLEX1 group.

21. Use the following steps to unlink MVSB:

- a. Type **W** as the action for MVSB and press Enter. The Where Used panel (AOFGXWHU) is displayed.
- b. Type **M** beside SYSPLEX1 and press Enter to clear the resource. This action removes MVSB from SYSPLEX1. However, a single, different SAPlex policy will still be built for MVSB.
- c. Press PF3 to return to the Entry Name Selection panel (AOFGENAM).

22. Use these steps to unlink SYS3 from the sysplex group and unlink all Application Groups from the system. SYS3 is not used in the exercises.

- a. **S**elect system SYS3. Use the WHERE USED policy item to remove SYS3 from the SYSPLEX1 group. Press PF3 after you finish.
- b. **S**elect the APPLICATION GROUPS policy item. Remove (command **M**) all Application Groups from SYS3.
- c. Press PF3 until you return to the Entry Type Selection panel (AOFGETYP).

23. Select option **6** (APL).

The Entry Name Selection panel (AOFGENAM) is displayed.

24. Delete (action **D** for each) the AM, AM2, SYSVAPPL, and SYSVSSI Applications. You import their policy definitions from another PDB.

The Confirm Delete panel (AOFGMM05) is displayed.

25. Change the confirmation from ALL to NONE.

Show confirmation for NONE

Press Enter to continue.

The Entry Name Selection panel is displayed again with a message in the upper right, indicating that the four entries are deleted.

26. Press PF3 until you return to the Primary Menu panel (AOFGPRM).

Import resources into the Policy Data Base

Import policy definitions for the automation manager, automation agent, and NetView SSI into your PDB.

27. Select option **4** (Policies) to add the NORVAPLS PDB to your list of PDB files.

The Policy Database Selection panel (AOFGPDB) is displayed.

28. Type ADD on the command line and press Enter.

The Add a Policy Database Entry panel (AOFGPDBA) is displayed.

29. Type the following information into these fields to add the PDB, and press PF3.

Policy Database Name . NORVAPLS

Data Set Name. 'SAZOS.PDB.ADMIN.NORVAPLS'

You see the message, **PolicyDB entry added**, in the upper right.

Press PF3 until you see the Primary Menu panel.

30. Change the Current Policy Database field to NEWPDB and select option **5** (Data Management) to import policy definitions.

The Data Management Menu panel (AOFGIMP0) is displayed.

31. Select option **1** to import a policy from another PDB.

The Import entries from other Policy Database panel (AOFGIMPP) is displayed.

32. Type the following information into these fields:

Source Policy Database. . . . NORVAPLS

Entry type APL

Import linked entries YES

Select option **1** (Import Policy Data) and press Enter.

The Entry Name Selection panel (AOFGIMPS) is displayed.

33. Select the AM, SYSVAPPL, SYSVSSI, and TN3270 applications and press Enter. The status for each entry changes to SELECTED. Press Enter.

The Selected Entry Names for Import panel (AOFGIMP3) is displayed, listing the three SA applications and three application classes, C_AM, C_APPL and C_RUNMODE, and application TN3270.

34. Select option **3** (Run import) and press Enter.

When the import completes, you see the **Import Successful** message in the upper right of the Import entries from other Policy panel (AOFGIMPP).

Define system default policy

35. Press PF3 until you reach the Primary Menu panel (AOFGPRM). Open the NEWPDB PDB.
By default, no status notifications are issued. You must customize the policy to enable status notifications.
36. Select option **35** (SDF, System Defaults).
The Entry Name Selection panel (AOFGENAM) is displayed with the SYSTEM_DEFAULTS listed.
37. Select the SYSTEM_DEFAULTS entry.
The Policy Selection panel (AOFGEPOL) is displayed.
38. **Select** the AUTOMATION OPTIONS policy item.
The System Automation Options panel (AOFGSDFO) is displayed. Verify the following information in these following fields:

Desired Available.	
Inform List.	SDF

You are setting the system-level defaults. In this case, set the default Desired Status implicitly to AVAILABLE and send status notifications to SDF. All systems that are linked to this System Defaults entry inherit these values by default.
39. Press PF3 to save your changes.
40. **Select** the WHERE USED policy item.
The Where Used panel (AOFGXWHU) is displayed.
41. Select systems MVSA and MVSB, remove SYS3, and press Enter.
42. Press PF3 to save your changes.

Define output and log data sets

43. Press PF3 to return to the Primary Menu panel (AOFGPRM). Select option **4** (Policies) to display the list of PDBs.
44. Press the Tab key to move to the VIEW pull-down menu.
45. Select option **2** (Name and data set name) and press Enter.
You see the data set name information for your PDBs.
46. Under the Action column next to the NEWPDB database, type **OPTIONS** and press Enter.

Action	Policy Database	Enterprise Name/Data Set Name
OPTIONS	NEWPDB	NORVAPLS
		'SAZOS.PDB.NEW'

The Settings for Policy Database NEWPDB panel (AOFGPDBE) is displayed. You can define data sets to use for report entries, build output, and log activity.

47. Define the build and report output data sets as follows:

Enterprise and data set names:

Build output data set . . 'SAZOS.ACF.S.NEW'

Report output data set. . 'SAZOS.PDB.NEW.REP'

PolicyDB activity log options:

Write log entries ON (ON OFF)

Log data set name 1 . . . 'SAZOS.PDB.NEW.LOG1'

Log data set name 2 . . . 'SAZOS.PDB.NEW.LOG2'

The data sets are not on your systems. The build output data set must be created by you. The report data set will be dynamically allocated by System Automation for z/OS.

48. Press Enter.

The **Log data set** name fields, **SAZOS.PDB.NEW.LOG1** and **SAZOS.PDB.NEW.LOG2**, are automatically filled in. **SAZOS.PDB.NEW.LOG1** is automatically allocated when you save your work.

49. Press PF3 to save your changes.

The Policy Database Selection panel (AOFGPDB) is displayed with the **PolicyDB options saved** message in the upper right.

50. Select the NEWPDB and press Enter.

The Entry Type Selection panel (AOFGETYP) is displayed.

Edit the Policy Data Base

You are now familiar with navigating and editing policy definitions. The exercise instructions are less detailed. To save your changes, press PF3. In some cases, you do not change any policy.

51. Select option 11 (MTR).

The Entry Name Selection panel (AOFGENAM) is displayed, with three monitor resources listed.

52. Press the Tab key to move to the JES3SPOOL monitor resource, enter a **D** in the Action column, and press Enter to delete the entry.



Important: Do not delete the JES2MON or JES2SPOOL monitor resource.

53. Press Enter on the Confirm Delete panel (AOFGMS03) to confirm the delete request.

The Entry Name Selection panel (AOFGENAM) is displayed.

54. Press PF3 to return to the Entry Type Selection panel (AOFGETYP).

55. Select option 39 (NTW).

The Entry Name Selection panel (AOFGENAM) is displayed.

56. Select the BASE_NETWORK entry.

The Policy Selection panel (AOFGEPOL) is displayed.

57. **Select** the GATEWAY policy item.

The GATEWAY Definitions panel (AOFpine4) is displayed with entries for ING01, ING02, and ING03. Because this implementation is a single-system implementation, you do not have to define the gateways.

58. Remove each entry by overtyping it with spaces. Press PF3 after you finish.



Note: Removing the gateway definitions eliminates error messages that are issued when the automation agent attempts to start the sessions.

59. **Select** the SDF FOCALPOINT policy item.

The SDF Focal Point Definition panel (AOFpine2) is displayed.

60. Define the primary and backup focal point by using the &DOMAIN. symbol. &DOMAIN. will default to AOFDA.

Primary Domain. . . &DOMAIN.

Backup Domain . . . &DOMAIN.

61. Press PF3 until you return to the Entry Type Selection panel (AOFGETYP).

62. Edit the policies for these Applications: AM, SYSVAPPL, SYSVSSI, TN3270, JES2, LLA, , RMF, TSO, VTAM, and TELNET.

Select each application resource in this step and make the appropriate changes. Press PF3 after each policy item change to save your changes. The steps for each application resource policy item change are lettered and restart with the letter **a** for each application resource.

Automation manager (AM) application policy

APPLICATION INFO policy item (panel AOFGDYNA)

The automation manager is never started by automation.

a. Define the following items:

JCL Procedure Name AUTOMGR

External Startup ALWAYS

Modify the parameters:

Startup Parameters ,TYPE=HOT,SUB=MSTR

RELATIONSHIPS policy item (panel AOFGXREL)

The automation manager is started from COMMNDxx in PARMLIB. No new MakeAvailable relationship is necessary. The automation manager is shut down during an INGREQ STOP ALL, when the automation agent (NetView) address space begins to close.

- b. Delete the relationship with the sample AM2 application, if it exists (Action **D**). The AM2 application was deleted earlier.

AUTOMGR has no relationships defined.

SHUTDOWN policy item (AOFGASHT panel)

- c. Define a NORMAL shutdown command for AUTOMGR. Type a **C** in the Action column next to NORM and press Enter. The Command Processing : SHUTNORM panel (AOFGDYN9) is displayed.

Two SHUTNORM commands are inherited from an application class.

Keep the MVS MODIFY (F) command for pass **1** and delete any other commands:

Cmd	Ps	AutoFn/*	Command	Text
1			MVS F	&SUBSJOB,STOP,DEFER



Hint: Enter **D** in the Cmd column to delete a pass and its command.

When you modify the inherited commands, the new command definitions are stored under AUTOMGR.

- d. Press PF3 to return to the Entry Name Selection panel (AOFGENAM).

JES2 application policy

APPLICATION INFO policy item (panel AOFGDYNA)

- a. Verify that a dollar sign (\$) is coded for the command prefix.

Command Prefix \$



Hint: You might have to press PF8 to see additional data.

RELATIONSHIPS policy item (panel AOFGXREL)

JES2 is started as soon as possible. No MakeAvailable relationships are necessary. During a SHUTSYS ALL, JES2 can be stopped when both RMF and VTAM are down. Create the relationships with VTAM and RMF.

- b. Create a new relationship by entering NEW on the command line and pressing Enter. The Define Relationship panel (AOFGXRE0) is displayed.

Type the following information into these fields:

```
Relationship Type. . MAKEUNAVAILABLE
Supporting Resource. RMF/APL/=
Condition . . . . . WhenDown
```

Accept all other default values. Save your changes with PF3.

- c. Repeat the previous step, step (b), to create a MakeUnavailable/WhenDown relationship with VTAM.

Accept all other default values. Save your changes with PF3.

Keep any other relationships that are defined. JES2 has a total of five relationships defined. Press PF3 to save the changes and return to the Policy Selection panel (AOFGEPOL).

STARTUP policy item (panel AOFGASTT)

Because the default start command is **MVS S JES2**, you specify only the Startup parameters.

The Subsystem Startup Processing panel (AOFGASTT) is displayed.

- d. Specify PARM=(NOREQ) for the Startup Parameters field:

```
Startup Parameters. . .
, PARM= (NOREQ)
```

The comma is required in the first character.

One POSTSTART command is defined.

Press PF3 to save your change.

SHUTDOWN policy item (panel AOFGASHT)

- e. Edit the existing shutdown phases by typing **C** in the Action column next to the phase and pressing Enter.

NORM: Review the existing SHUTNORM commands. Change PASS 4 to PASS 1. Ensure that the result looks like the following example:

Cmd	Ps	AutoFn/*	Command Text
1			MVS &SUBSCMDPFXP&SUBSJOB

An MVS \$PJES2 command is issued.

IMMED: Modify the SHUTIMMED phase to have one command. Edit the PASS 1 entry to look like the following example:

Cmd	Ps	AutoFn/*	Command	Text
1			MVS	&SUBSCMDPFXP&SUBSJOB,TERM

Delete all other passes. Type **D** in the Cmd column to delete a PASS and its command.

FORCE: No change is needed.

Press PF3 to return to the Entry Name Selection panel (AOFGENAM).

LLA application policy

APPLICATION INFO policy item (panel AOFGDYNA)

- Verify that the scheduling subsystem is MSTR:

Scheduling Subsystem . . . MSTR

RELATIONSHIPS policy item (panel AOFGXREL)

LLA is started as soon as VLF is up. You can shut it down during an INGREQ STOP ALL as soon as JES2 is shut down. If an operator asks to stop LLA outside of an INGREQ STOP ALL, it must wait for JES2 to shut down.

- Delete the existing HasParent relationship with VLF.

Create a MakeAvailable relationship with VLF as follows:

Relationship Type. . MAKEAVAILABLE
 Supporting Resource. VLF/APL/=

Condition WhenAvailable

Create a MakeUnavailable relationship with JES2 as follows:

Relationship Type. . MAKEUNAVAILABLE
 Supporting Resource. JES2/APL/=

Condition WhenDown



Hint: You can abbreviate some relationship types to save typing. For example, type MAKEU and press Enter. The field is filled in with MAKEUNAVAILABLE.

Press PF3 to return to the Entry Name Selection panel (AOFGENAM).

Automation agent (SYSVAPPL) application policy

APPLICATION INFO policy item (panel AOFGDYNA)

- a. Verify that these fields are set correctly:

```
Subsystem Name . . . . . AUTONETV
Job Name . . . . . AUTONETV
Scheduling Subsystem . . . MSTR
External Startup . . . . . ALWAYS
```

RELATIONSHIPS policy item (panel AOFGXREL)

NetView is started from COMMNDxx in **PARMLIB**. No MakeAvailable relationship is necessary. You can shut down NetView during a SHUTSYS ALL when AUTOSSI and VLF are shut down.

- b. Create a new MakeUnavailable relationship with VLF as follows:

```
Relationship Type. . MAKEUNAVAILABLE
Supporting Resource. VLF/APL/=
Condition . . . . . WhenDown
```

Verify that there is a MakeUnavailable relationship with AUTOSSI with a condition of WhenDown.

AUTONETV has several other relationships defined for it, and you must not change them.

MESSAGES/USER DATA policy item (panel AOFGDYNM)

- c. Verify that are WTOR values are defined. Type **K** (code) for the WTORS entry and press Enter. The effect of this entry is to make the normal WTORS that NetView issues display in green on the SDF panel. You see this effect in Exercise 1, "Status Display Facility" on page 7-73.

Code 1	Code 2	Code 3	Value Returned
DSI802A	*	_____	NORMAL PRI
DSI803A	*	_____	NORMAL PRI
*	*	_____	IMPORTANT SEC

SHUTDOWN policy item (panel AOFGASHT)

- d. Enter an action of **C** to modify the NORMal shutdown commands. On the Command Processing : SHUTNORM panel (AOFGDYN9) fill in the following information:

```
Cmd Ps AutoFn/* Command Text
  1          AFTER 00:00:30,CLOSE IMMED
```

You must wait 30 seconds before NetView shuts down so that it has time to issue the shutdown for the automation manager.

Press PF3 to return to the Entry Name Selection panel (AOFGENAM).

NetView SSI (SYSVSSI) application policy

APPLICATION INFO policy item (panel AOFGDYNA)

- a. Verify that the following fields are set correctly:

```
Subsystem Name . . . . . AUTOSSI
Job Name . . . . . AUTOSSI
Scheduling Subsystem . . . MSTR
External Startup . . . . . ALWAYS
```

RELATIONSHIPS policy item (panel AOFGXREL)

The NetView SSI address space is started from COMMNDxx in **PARMLIB**. No MakeAvailable relationship is necessary. The NetView SSI can be shut down during a SHUTSYS ALL as soon as JES2 is down.

- b. Create a new MakeUnavailable relationship with JES2 as follows:

```
Relationship Type. . MAKEUNAVAILABLE
Supporting Resource. JES2/APL/=
```

Type a question mark (?) in the Condition field and press Enter to display a list of available conditions.

The Relationship Condition Selection panel (AOFGXREC) is displayed.

Select the **WhenDownOrStopping** condition. Press Enter to return to the Define Relationship panel (AOFGXRE0).

The Condition field is filled in as follows:

```
Condition . . . . . WhenDownOrStopping
```

Ensure that this relationship is the only one defined for AUTOSSI.

Press PF3 to return to the Policy Selection panel.

SHUTDOWN policy item (panel AOFGASHT)

- c. Modify the inherited SHUTNORM commands for AUTOSSI. Keep the command for PASS 1 and delete all others:

```
Cmd Ps AutoFn/* Command Text
1          MVS P &SUBSJOB
```

Press PF3 to return to the Entry Name Selection panel (AOFGENAM).

RMF application policy

RELATIONSHIPS panel (AOFGXREL)

RMF can be started as soon as JES2 is running. During a SHUTSYS ALL, RMF can be stopped immediately. Therefore, the current HasParent relationship can suffice. You can select the RELATIONSHIPS policy item to review the HasParent definition.

TSO application policy

RELATIONSHIPS policy item (panel AOFGXREL)

Verify that there is an existing HasParent relationship with VTAM. TSO can be started as soon as VTAM is available. During an INGREQ STOP ALL, TSO can be stopped immediately. The HasParent relationship is adequate for this.

VTAM application policy

APPLICATION INFO policy item (panel AOFGDYNA)

- a. Change the job name field:

```
Subsystem Name . . . . . VTAM
Job Name . . . . . NET
```

RELATIONSHIPS policy item (panel AOFGXREL)

VTAM can be started when JES2 is started. During an INGREQ STOP ALL, VTAM can come down when all its children are down.

- b. Define a new HasParent relationship to JES2 as follows:

```
Relationship Type. . HASPARENT
Supporting Resource. JES2/APL/=
```

Ensure that this relationship is the only one that is defined for VTAM. Press PF3 to return to the Policy Selection panel.

STARTUP policy item (panel AOFGASTT)

- c. Modify the Startup Parameters field and save your changes with PF3. Ensure that the three commas start in the first position of the entry. Also, ensure that you include the period after &AOCCLONE1.

```
Startup Parameters. . .
,,, (LIST=&AOCCLONE1.)
```

TELNET application policy

RELATIONSHIPS policy item (panel AOFGXREL)

- a. Verify that there is a HasParent relationship with TCP/IP. TELNET is started and stopped when TCP/IP is started and stopped.

COREAPPL Application Group

Create a nonautomated Application Group to include several Applications on your system.

63. Press PF3 until you return to the Entry Type Selection panel (AOFGETYP). Select option **5**, Application Groups.



Hint: Use the **=1.5** command to go to the Application Groups directly.

64. To create a new Application Group, type NEW on the command line and press Enter.
65. On the Define New Entry panel (AOFGDYN3), type the following information into these fields:


```
Entry name . . . . . COREAPPL
Type . . . . . SYSTEM
Nature . . . . . BASIC
Short description . . . Core Applications
```

This group is not intended to be an automated group. Leave the Automation Name field blank. Press PF3 to save your changes.
66. On the Policy Selection panel (AOFGEPOL), type **S** in the Action column next to APPLICATIONS and press Enter.
67. On the Applications for Application Group panel (AOFGXC4E), type **S** in the Action column for AM, SYSVAPPL, SYSVSSI, TN3270, JES2, RMF, RMFGAT, TCPIP, TELNET, TSO, and VTAM. Press Enter. Ensure that the status of each application changes to SELECTED.
68. Press PF3 to save your work and return to the Policy Selection panel (AOFGEPOL). Type **S** in the Action column beside WHERE USED and press Enter.
69. On the Where Used panel (AOFGXWHU), type **S** beside MVSA and MVSB and press Enter. Make sure that both systems are selected.
70. Press PF3.

The Command Progress Display pop-up window opens briefly, showing resources for your system being created.

The Policy Selection panel (AOFGEPOL) is displayed.
71. Press PF3 until you return to the Entry Type Selection panel (AOFGETYP).

Applications and Application Groups not used

Several Applications and Application Groups are not automated and managed by System Automation for z/OS for this exercise.

72. Remove links to any application classes and Application Groups. Do not delete any resources.
 - a. For Option **6** (APL), remove (action **M**) the links in each of the following Applications for the UPWARD CLASS and WHERE USED policy items:
BLSJPRMI, FFST, HSM, IRRDPTAB, OAM, OMPROUTE, RACF, RRS, SYSVIPLC, and ZFS
 - b. For Option **5** (APG), remove (action **M**) the links for the WHERE USED policy item in each of the following Application Groups:
BASE_USS, CMD_RECEIVER, FTP_DAEMON, MYSERV1, NFS_CLNT, and SSH_DAEMON

Reports

73. Press PF3 until you return to the Primary Menu panel (AOFGPRM).
74. Select option **3** (Report) to go to the Report Selection Menu panel (AOFGREPK).
75. Select option **2** (Unlinked) and press Enter. The Command Progress Display pop-up window opens and you see the report being created. After the report is created, press Enter.
76. From the Report Selection Menu, select option **3** (ViewUnlinked).
Look for the following text:

The following objects are not connected with a system:

In the report, you see the Applications and Application Groups that you unlinked in the previous step plus JES3. If any other unlinked objects or unreferenced relationships are listed, edit the PDB and correct the problem.
77. Run the Resources report (option **4**) and examine it (option **5**). Ensure that your system includes all of the Applications defined in the Policy Data Base and that your system name is correct.

The build process

You are now ready to build control files for the automation manager and the automation agent.

78. The partitioned data set used to contain the members that are the output of build process must be allocated prior to running the build. This data set is sometimes referred to as the automation control file. Use PF2 to enter split screen mode and access ISPF option =3.2. Use the same attributes as those of the existing data set SAZOS.ACFS.NORVAPLS as a template and allocate a new data set called SAZOS.ACFS.PLEXA. You will use this new data set called SAZOS.ACFS.PLEXA as the output target of the build process.

79. Return to the System Automation for z/OS Primary Menu panel and select option **2** (Build).
The Build Parameters panel (AOFGBLDP) is displayed.

80. Type the following information into the Build Options fields:

```
Output Data Set . . . . 'SAZOS.ACFS.PLEXA'
Mode . . . . . ONLINE
Type . . . . . ALL
Configuration . . . . . NORMAL
```

81. Select option **1** to build a complete enterprise and press Enter to begin the build.

In the Command Progress Display pop-up window (AOFGZIPS), you can see the build progress.

When the build finishes, you see a **Build Successful** message in the upper right of the Build Parameters panel (AOFGBLDP). If you do not see this message, ask your instructor for assistance.

82. Select option **4** to view the build report and the messages logged.

83. Exit the dialogs by using PF3 or ISPF split-screen mode (PF2) so that you can browse the build output data set, **SAZOS.ACFS.PLEXA**.

84. Select the mapping member AOFACFMP. Verify that there is an entry for the MVSA system; for example:

```
* SYSNAME  ACFNAME  CONFNAME SYSTEM NAME
*-----
   MVSA      ACFZ999  HSAZ999  MVSA
```

85. Edit member HSAPRM00 of the automation manager **SAZOS.USER.PARMLIB** data set. Find the CFGDSN= entry and change it to read as follows:

```
CFGDSN=SAZOS.ACFS.PLEXA
```

Test your policy

86. Edit VAPPLS2O in **SYS2.PARMLIB**. Verify that AUTOMGR, AUTOSSI, and AUTONETV are started from VAPPLS2O:

```
S AUTOMGR,TYPE=HOT,SUB=MSTR
PAUSE 1
S AUTOSSI,SUB=MSTR
PAUSE 1
S AUTONETV,SUB=MSTR
PAUSE 1
```

87. Log off from TSO.

88. Ask the instructor to shut down your system and restart it again.

The IPL automatically starts the automation manager address space AUTOMGR, the NetView SSI address space AUTOSSI, and the automation agent NetView agent address space AUTONETV, along with VLF and LLA.

89. Respond **null** to the agent AOF603D automation option message to continue agent initialization.

If JES2, VTAM, or TSO do not start, ask your instructor for assistance.

After VTAM is started, and you see the NetView DSI802A WTOR message showing that NetView is ready for logons, access your system.

90. Log on to NetView following the instructions provided by the instructor during the lab introduction.

If you cannot log on to NetView, ask your instructor for assistance.

91. Issue an ACF STATUS command and verify that the correct ACF file is in use.

You see messages like the following example:

```

AOF005I MEMBER ACFZ999 CURRENTLY BEING USED FOR THE CONTROL FILE
AOF006I BUILT      BY INGC102  ON 03/20/19 AT 14:41:27
AOF006I REFRESHED BY AUTINIT1 ON 03/28/19 AT 13:31:33
AOF006I CONFIGURATION TOKEN    = 20181217165509FF01F9672827
AOF006I CONFIGURATION DATASET = SAZOS.ACFS.PLEXA
AOF002I END OF MULTI-LINE MESSAGE GROUP

```

92. Issue an INGLIST command and verify that all of the Applications in your PDB started correctly.

All resources have a Compound status of SATISFACTORY. If they do not, log on to TSO and check your definitions. Fix any problems, rebuild, reload your control files, and test again.

93. After all Applications are correctly started, issue an INGREQ STOP against MVSA/SYG/MVSA to shut down your system. Accept all defaults on the INGREQ STOP.

The system shutdown takes several minutes. MVSA is shut down when the automation agent (AUTONETV) ends. You see an IEF404I message when AUTONETV ends.

If the shutdown does not complete, ask your instructor for assistance.

94. Remind your instructor to start the system again to prepare for the next exercise.



5 Additional customization exercises

Exercise 1 Additional customization

In this unit, you learn to create several new Applications, an application class, a service period, and a trigger with one event. You create the first application and write the application policy to a flat file. You use the flat file to create the remaining Applications.

At the end of the unit, you can perform the following tasks:

- Analyze an application and establish its automation policy.
- Use the customization dialog of System Automation for z/OS to enter the automation policy.
- Use a dynamic automation table build (also known as *Easy Message Management*) to generate NetView automation table statements.
- Review and interpret the NetView automation table statements that are dynamically generated.
- Use the Data Management functions to write an application policy to a flat file, edit the file, and then read the policy into the PDB.

Data sets used in this exercise

You use several data sets in this exercise. The data set names might be different on your system. Your instructor provides changes, if any.

- SAZOS.PDB.NEW

- SAZOS.ACFS.PLEXA

- SAZOS.PDB.NEW.UPD

All data set names are in ***bold italics*** in these exercises.

Automation requirements

During this exercise, you create Applications by using the customization dialog and enter policy for them. You also create NetView automation table entries to implement status changes for the Applications.

You automate four Applications that share some common characteristics. They have subsystem names of RV01, RV02, RV03, and RV04.

Application requirements

The application requirements include common policy requirements and unique policy requirements.

Common policy requirements

- All four Applications are started by using a procedure name of RUNVAPL.
- All four Applications have a HasParent relationship with VTAM.
- If an operator stops any of the four Applications, System Automation for z/OS automatically restarts it.
- Each application is stopped by responding END to its outstanding WTOR, VAPLnn999A REPLY END TO STOP, where:
 - nn is 21 for RV01
 - nn is 22 for RV02
 - nn is 23 for RV23
 - nn is 24 for RV04

This message is displayed in green on the SDF panel. If the application does not stop within one minute, you cancel it.

- The UP message for each application is VAPLnn010I, where:
 - nn is 21 for RV01
 - nn is 22 for RV02
 - nn is 23 for RV03
 - nn is 24 for RV04
- All four Applications are connected to a service period called RVSVP, which specifies that the Applications have these characteristics:
 - Up from 08:00 to 18:00 Monday through Friday.
 - Down the rest of the day Monday through Friday.

- Down all day on Saturday and Sunday.
- The service period specifies a HIGH priority for its requests.
- All four Applications can be controlled through the use of a runmode called RVRM by using a runtoken called RVTOK1.

Unique policy requirements

- The job names for the Applications are RV01, RV02, RV03, and RV04.
- The full start command for each application is:

MVS S RUNVAPL,JOBNAME=RV nn ,NAME=VAPL zz where:

- nn is 01 for RV01, 02 for RV02, 03 for RV03, 04 for RV04
- zz is 21 for RV01, 22 for RV02, 23 for RV03, 24 for RV04

This command is specified as the start command for a NORM, WARM, or COLD start.

- During the start, each application issues message VAPL nn 000A.
- nn is 21 for RV01, 22 for RV02, 23 for RV03, 24 for RV04

The VAPL nn 000A message prompts for whether to use a WARM or COLD start. Use the following table to respond to the WTOR for each application. Notice that RV01 and RV03 have the same reply data and that RV02 and RV04 have the same reply data.

Application	NORMAL Start reply	WARM Start reply	COLD Start reply
RV01	WARM	WARM	COLD
RV02	COLD	WARM	COLD
RV03	WARM	WARM	COLD
RV04	COLD	WARM	COLD

If the processing of this message is turned off for any reason, this message is displayed in red on the SDF panel.

- RV01 is not started until batch job RV01BKUP has run.

Getting started

1. Verify that your system is running. If it is not, have your instructor begin an IPL.
2. Access your system and log on to TSO by following the instructions in the exercise introduction.
3. Access the customization dialog. Open your Policy Data Base, NEWPDB.

Define application classes

4. From the Entry Type Selection panel (AOFGETYP), select option **6** (APL).

In steps 5 and 6, you create two application classes: RV_MSTR_CLASS and RVCLASS. RVCLASS is linked to RV_MSTR_CLASS.

5. Enter NEW on the command line to create a new application class called RV_MSTR_CLASS.
 - a. Enter the following common automation policy:

```
Entry name . . . . . RV_MSTR_CLASS
Subsystem Name . . . . . RV_MSTR_CLS
Object Type . . . . . CLASS
JCL Procedure Name . . . RUNVAPL
Short Description . . . Master class for RV applications
```

Do not fill in the Job Name field at the class level.

Press PF3 to save the class policy.

- b. **Select the APPLICATION INFO policy item. Edit the following fields:**

```
Desired Available . . . . ALWAYS
Inform List . . . . . SDF NMC
Runtokens . . . . .
RVTOK1
```

You might have to press PF8 to scroll down in APPLICATION INFO to see the Runtokens field. More information about runmodes is in [Exercise 1, “Runmodes,”](#) on page 67. Press PF3 until you return to the Entry Name Selection panel (AOFGENAM).

6. Enter NEW on the command line to create a new application class called RVCLASS.
 - a. Enter the following common automation policy:

```
Entry name . . . . . RVCLASS
Subsystem Name . . . . . RVCLASS
Object Type . . . . . CLASS
Short description . . . Class Definition for RV applications
```

Do not fill in the Job Name field at the class level.

Press PF3 to save the class policy.

- b. **Select the APPLICATION INFO policy item. Edit the following fields and press PF3 to save:**

```
Restart Option . . . . . ALWAYS
Shutdown Pass Interval . . 00:01:00
```

- c. **Select the RELATIONSHIPS policy item to define a new HasParent relationship with VTAM:**

```
Relationship Type. . HASPARENT
Supporting Resource. VTAM/APL/=
```

Press PF3 until you see the Policy Selection panel.

- d. **Select the SHUTDOWN policy item.**

Define a REP for the NORM shutdown phase and press PF3 to save:

```
Cmd Ps Ct Reply Text
```

```
___ 1 ___ END
```

Define a CMD for the NORM shutdown phase and press PF3 to save:

```
Cmd Ps AutoFn/* Command Text
```

```
___ 2 _____ MVS C &SUBSJOB
```

- e. Define the same command as defined in the previous step (d) for the IMMED and FORCE shutdown phases but define it for PASS1.



Hint: You now have a command defined for each phase (NORM, IMMED, and FORCE) and a reply for only the SHUTNORM phase.

- f. Press PF3 until you see the Policy Selection panel.
- g. **Select the UPWARD CLASS policy item to link RVCLASS to RV_MSTR_CLASS.** The Upward Link to Class panel (AOFGX12C) is displayed.
- h. **Select the RV_MSTR_CLASS and press Enter.**
- You are finished with the class definitions.
7. Press PF3 until you see the Entry Name Selection panel (AOFGENAM). RV_MSTR_CLASS and RVCLASS have an asterisk (*) in the **C** column, denoting that they are application classes.

Define application RV01

8. Create a new application instance for RV01 as follows:

```
Entry name . . . . . RV01
Subsystem Name . . . . . RV01
Object Type . . . . . INSTANCE
Category . . . . .
Subcategory . . . . .
Job Type . . . . .
Job Name . . . . . RV01
Short description . . . RV01
```

Press PF3 to create RV01.

9. **Select the MESSAGES/USER DATA policy item and define a reply (R) for message VAPL21000A.**

```
Cmd Message id      Description
rep VAPL21000A    _____
```

10. On the Reply Processing panel (AOFGDYN9), enter the following values:

Cmd	Ps/Select	Ct	Reply	Text
___	NORM	___	WARM	
___	WARM	___	WARM	
___	COLD	___	COLD	

For example, the reply is *WARM* to the VAPL21000A WTOR when a warm start is requested.

Press PF3 to save the reply data.

11. Create a message ID of WTORS and enter **K** (cod) in the Cmd column to define codes for the WTOR messages issued by RV01:

Cmd	Message id	Description	Cmd	Rep	Cod	Usr	A	M
	VAPL21000A				3			
k	WTORS							

12. On the Code Processing panel, enter the following values:

Code 1	Code 2	Code 3	value Returned
VAPL21000A	*		IMPORTANT
VAPL21999A	*		NORMAL

Press PF3 to save.

Important messages (VAL21000A) are red on SDF. Normal messages (VAPL21999A) are green.

13. Define VAPL21010I as the *UP* message for RV01 by entering A (AT) in the Cmd column for message VAPL21010I:

Cmd	Message id	Description	Cmd	Rep	Cod	Usr	A	M
	VAPL21000A	_____			3			
	WTORS	_____			2		P	P
a	VAPL21010I	_____						

You see the Message Automation Overview panel (AOFGMADV) with messages identifying that no automation table or message revision table entries are generated.

14. Enter **AS** (AT status) on the command line to define VAPL21010I as the UP message.

15. On the AT Status Specification panel (AOFGMAT1), select the UP status for message VAPL21010I.

Enter "S" to make a selection for: VAPL21010I

```

application / MVC Component Status
_ ACTIVE      Starting
S UP         Available
_ HALTED      Degraded
_ Terminating Received STOP command
_ Terminated Terminated normally
_ ABENDING    Going to end abnormally
_ Abended     Ended abnormally
_ BREAKING    Non-recoverable abending
_ BROKEN      Non-recoverable abend
_ Capture     Capture Message

```

Press PF3 to save.

You see an AT entry on the Message Automation Overview panel (AOFGMADV):

Generated AT entry :

```

IF MSGID = 'VAPL21010I' THEN
  EXEC (CMD('ACTIVMSG UP=YES')) ROUTE(ONE %AOFOPGSSOPER%));

```

16. Press PF3 to return to the Message Processing panel.

In this part of the exercise, you use the automation table override to set an event (RV01EVT) when the backup job, RV01BKUP, runs for application RV01. You also define RV01EVT.

17. Define an automation table override for message IEF404I using the **a** row command:

Cmd	Message id	Description	Cmd	Rep	Cod	Usr	A	M
<u>a</u>	IEF404I	Job ended						*
	VAPL21000A			3				

You see the Message Automation Overview panel (AOFGMADV) for message IEF404I. Enter **AO** (AT override) on the command line to define an automation table override for IEF404I.

You are now in ISPF edit mode.

18. Modify the IEF404I automation table entry. Replace the following statements:

```

* The variable SVJOB is set by the BEGIN statement for IEF4
IF MSGID = 'IEF404I' & VALUE(SVJOB) ^= 'LLA' THEN BEGIN;

```

With the following statements for IEF404I:

```
IF MSGID = 'IEF404I' THEN BEGIN;
*
* Handle RV01BKUP
*
  IF TOKEN(2) = 'RV01BKUP' THEN
    EXEC(CMD('INGEVENT RV01EVT REQ=SET'))
    ROUTE(ONE %AOFOPGSSOPER%);
```

Press PF3 once to save your change.



Hint: You can also define the automation override under the MVS_COMPONENTS policy.

On the Message Automation Overview panel, you see the message **Syntax check not run** in the upper right.

19. Press PF1 to get more detailed help about this message.

You see a longer message at the bottom of the panel:

The syntax check for the AT or MRT override was not performed due to a communication error with NetView. Press HELP to see the specific error messages.

20. Press PF1 to get more details about the message.

You see the following information:

A command or function terminated with an unexpected return code.

The following error messages were issued:

INGPC010I INGICRPC is unable to perform function SEND, PPI_id=INGRCRCV

INGPC011I PPI request failed, PPI Reason: the receiver program is not defined.



Note: For the message override syntax checking to work, the command receiver must be implemented. Command receiver implementation includes implementing the INGTXFPG REXX function package for TSO and installing the command receiver add-on policy in System Automation for z/OS. The INGTXFPG REXX TSO function package is installed, but the command receiver add-on policy is not. You investigate this and correct it in a later lab exercise of this unit.

21. Press PF3 until you return to the Message Processing panel.

Your Message Processing panel looks like the following example. If it does not, correct your work in this step.

Message ID	Description	C	R	K	U	A	M	F
IEF404I BEFORE						*		
VAPL21000A			2					
VAPL21010I						*		
WTORS				2		P	P	P

22. Press PF3 to return to the Policy Selection panel (AOFGEPOL).
23. Select the STARTUP policy item to define commands for start phases. On the Subsystem Startup Processing panel (AOFGASTT), type **C** in the **CMD** column for the STARTUP phase and press Enter.

Define NORM, WARM, and COLD start commands as follows:

Cmd Type	AutoFn/*	Command Text
NORM		MVS S runvap1,jobname=&SUBSJOB,NAME=VAPL21
COLD		MVS S runvap1,jobname=&SUBSJOB,NAME=VAPL21
WARM		MVS S runvap1,jobname=&SUBSJOB,NAME=VAPL21

Press PF3 to save your work and return to the Policy Selection panel (AOFGEPOL).

24. Select the UPWARD CLASS policy item and press Enter. On the Upward Link to Class panel (AOFGX12C), type **S** in the Action column beside RVCLASS and press Enter.

The status changes to SELECTED.



Hint: The Upward Class Link for RVCLASS is RV_MSTR_CLASS indicates that RV01 inherits policy from RVCLASS and RV_MSTR_CLASS.

25. Press PF3 to save the link.
26. Select the WHERE USED policy item and press Enter. On the Where Used panel (AOFGXWHU), type **S** in the Action column beside COREAPPL and press Enter.
- The status changes to SELECTED.
27. Press PF3 to save the link.
- Application RV01 is now defined.

Define service period, event, and trigger

28. Press PF3 until you return to the Entry Type Selection panel (AOFGETYP).
29. Select option **8** (Service Period) and press Enter.
30. On the Entry Name Selection panel (AOFGENAM), create a new service period by typing NEW on the command line and pressing Enter.

The Define New Entry panel (AOFGDYN2) is displayed.

31. Fill in the following fields and save them with PF3.

Name. RVSVP

Short Description . . . Service Period For RV applications

32. On the Policy Selection panel (AOFGEPOL), select the SERVICE WINDOW policy item and press Enter to display the Service Windows panel. Scroll down with PF8 if necessary to get to the Weekday specification. Define the Weekday and Weekend windows:

	P	From	To	From	To
Weekday	U H	08:00	18:00		
	D H	00:00	08:00	18:00	24:00

Weekend U

D H 00:00 24:00

Press PF3 to save the service window definitions.

33. Select the WHERE USED policy item and press Enter. On the Where Used panel (AOFGXWHU), select RVCLASS and press Enter.

The status changes to SELECTED. All Applications that are linked to the RVCLASS are now linked to the RVSVP service period.

34. Press PF3 to return to the Entry Type Selection panel.

35. Select option 7 (Events). On the Entry Name Selection panel (AOFGENAM), create a new event by typing NEW on the command line and pressing Enter.

36. On the next panel (AOFGDYN2), enter the following values:

Entry name RV01EVT

Unset Condition UP

Short description . . . Event for RV01BKUP

Press PF3 until you return to the Entry Type Selection panel (AOFGETYP).

37. Select option 9 (Triggers) and press Enter. On the Entry Name Selection panel (AOGFENAM), create a new trigger by typing NEW on the command line and pressing Enter.

38. On the Define New Entry panel (AOFGDYN2), enter the following values:

Name. RV01TRIG

Short Description . . . Start trigger for RV01

Press PF3 to save.

39. Select the CONDITION policy item and press Enter. On the Trigger Conditions panel (AOFGAPT0), select STARTUP 1 and press Enter.

40. Select the RV01EVT on the STARTUP Condition for trigger panel (AOFGAPT1).

The Status changes to SELECTED.

41. Press PF3 until you return to the Policy Selection panel (AOFGEPOL). This step links the event (RV01EVT) to the startup trigger.
42. **Select** the WHERE USED policy item. **Select** RV01 to link the trigger to application RV01. RV01EVT is now linked to RV01TRIG, and RV01TRIG is linked to RV01.
Press PF3 until you see the System Automation for z/OS Primary Menu panel.

Use a flat file to create Applications RV02, RV03, and RV04

You defined the RV01 application, the RVSVP service period, RV01TRIG trigger, and RV01EVT event. Next, you copy the RV01 policy to a flat file to create the remaining RV Applications for this exercise.



Note: Edit the flat file carefully. Check your work.

43. Select option **5** (Data Management).
44. On the Data Management Menu panel (AOFGIMP0), select option **3** (Update via File). Select APL for the Entry Type and choose option **1** (Write selected data from Policy Data Base to file). Press Enter.
Entry Type APL
Output File Name . .



Important: Do not fill in the Output File Name field. Use the default entry, **SAZOS.PDB.NEW.UPD.**

The list of Applications is displayed.

45. **Select** RV01 and press Enter.
The status of RV01 is **SELECTED**.
46. Press Enter to display the Policy Selection panel (AOFGFPOL).

47. Select the bold policy items as shown in the following list and press Enter.

```

DESCRIPTION
UPWARD CLASS
APPLICATION INFO
AUTOMATION FLAGS
APPLICATION SYMBOLS
RELATIONSHIPS
MESSAGES/USER DATA
STARTUP
SHUTDOWN
THRESHOLDS
MINOR RESOURCES
CICS CONTROL
DB2 CONTROL
OPC CONTROL
IMS CONTROL
USS CONTROL
JES2 SPOOLFULL CNTL
JES2 SPOOLFULL CMDS
JES2 SPOOLSHORT CNTL
JES2 SPOOLSHORT CMDS
JES2 DRAIN CMDS
JES3 SPOOLFULL CMDS
JES3 SPOOLSHORT CMDS
WHERE USED

```

The status is **SELECTED** for the selected policy items.

48. Press Enter.

The Write to File Confirmation panel (AOFGFCNF) is displayed, with RV01 listed on the panel.

49. Press Enter to confirm.

The Command Progress Display panel is displayed. When the write is complete, the Policy Database Update Selection panel (AOFGFSEL) is displayed with the message **Data written to file** in the upper right.

50. Select option **5** (Edit output file) to edit the output file.

51. Add the following statements before the UPD APL RV01 line in the file:

```

NEW APL          : RV02
WHERE_USED       : COREAPPL
LINK_TO_CLASS    : RVCLASS

```

These statements create RV02 as a copy of RV01.

52. Starting with the UPD APL line, change the file as follows:

- Change all occurrences of RV01 to RV02, *except* for message IEF404I. You delete the IEF404I policy in the next step. You have five of these name changes.

- Modify the MESSAGES/USER DATA policy item:
 - IEF404I: There are 14 lines to process IEF404I for the RV01 start trigger. The start trigger is needed only for RV01. Delete all 31 lines in the flat file.

Delete the following line:

```
Message id                : IEF404I
```

Delete all lines up to, but not including this one:

```
Message id                : VAPL21000A
```

- VAPL2x messages: Change all occurrences of VAPL21 to VAPL22 *for the messages only*. You have four changes. There are other VAPL21 occurrences. You work with those occurrences in the next step.
- Change the NORM reply text for RV02 from a type of WARM to COLD.



Hint: Look for the VAPL22000A **message id** field, not the **Code 1** field.

- Modify the STARTUP policy item:
 - Locate the three S RUNVAPL statements and ensure that they have NAME=VAPL22 coded on them. Do not change the STARTUP type field. Use PF11 to scroll right for this change.

Because you are editing the PDB in this manner for the first time, be careful when you update the flat file. You might want to create RV02 and verify that the policy definitions are correct before creating RV03 and RV04.

53. Press PF3 to save the output file. Return to the Policy Database Update Selection panel (AOFGFSEL).

54. Select option 2 (Perform syntax check for data in file).

You screen looks like the following example:

```
AOFGZIPS                Command Progress Display
```

```
Reading data set 'SAZOS.PDB.NEW.UPD'.
```

```
Start syntax checking.
```

```
Checking syntax of function NEW for APL RV02.
```

```
Checking syntax of function UPD for APL RV02.
```

```
SUMMARY                : Check completed. 0 syntax error(s) and 0 altered
.....cont. object(s) detected.
```

```
Press ENTER to continue
```

Ensure that you do not see any messages related to RV01. If there are no errors, press Enter. If there are any errors, edit the policy definitions in the file. Repeat this step until there are no errors.

55. Select option **3** (Update Policy Database with data from file), and specify the following input file name:

```
Input File Name. . . . . 'SAZOS.PDB.NEW.UPD'
Mode . . . . . ONLINE
```

56. Press Enter to begin the read process.

The Command Progress Display panel is displayed. You see messages like the following example:

```
Checking syntax of function NEW for application RV02.
Checking syntax of function UPD for application RV02.
No syntax errors detected. Start writing to policy Database.
Writing data to policy Database from application RV02.
```

When the update completes, you see the message **Data written to PDB** in the upper right.

57. Select option **4** to view the update report. View the report.
58. Repeat Step 45 - Step 57 for RV03 and RV04. Remember that RV02 and RV04 use a NORM reply text of COLD for their VAPL2x000A messages. RV03 uses a NORM reply test of WARM.
59. Press PF3 until you return to the Primary Menu panel.
60. Open NEWPDB and select the application policies for RV02, RV03, and RV04.
Carefully review the UPWARD CLASS, APPLICATION INFO, STARTUP, MESSAGES/USER DATA, and WHERE USED policy items.
61. Press PF3 until you see the Entry Name Selection panel for the Applications. **Select RVCLASS.**
Select the DOWNWARD CLASS/INST policy item.
You see all four RV Applications linked to RVCLASS.
62. Press PF3 until you see the Entry Type Selection panel.
63. Select option **9** (Triggers). **Select the RV01TRIG trigger definition.** The trigger is for RV01 only.
Select the WHERE USED policy item.
You see only the RV01 application linked to this trigger.
64. Press PF3 until you return to the Primary Menu panel.

Implement the command receiver add-on policy

Earlier in the Unit 4 exercises you discovered that the command receiver add-on policy was not implemented and the automatic message override syntax checking function did not work. You correct those issues in this section and review the other steps that are required to implement the command receiver. The required steps are as follows:

- Modify the TSO/MVS REXX function package assembler code in SYS1.SAMPLIB(IRXREXX2) to include the System Automation for z/OS 3.4 module name INGTXFPG, which is in SA410A.SINGMOD1. This step is already done on your student exercise system.

- Assemble and link-edit the modified SYS1.SAMPLIB(IRXREXX2) TSO/MVS REXX function package code into a link-listed data set or LPA data set. This step is already done on your student exercise system. The IRXRESS2 member was copied from the SYS1.SAMPLIB data set to another data set before it was modified.
- Include the NetView load library NETV621B.SCNMLNKN in the link list and APF authorize it. This step is required because the command receiver requires the DSIPHONE NetView module. SYS1.NETVIEW is the high-level qualifier on your student exercise system. This step is already done on your student exercise system.
- Import the command receiver add-on policy from *IBMCOMP into your Policy Data Base. You import this policy in this section of the student exercises.
- Build the automation control file and refresh the runtime environment.

Perform the following steps:

1. Select option **5** Data Management and press Enter.
You see the Data Management Menu panel.
2. Select option **2** Import from Add-on and press Enter.
You see the Import Add-on Policies panel.
3. Use the **C**row command to customize *IBMCOMP and press Enter.
4. On the Select Add-on Policy Components panel, use the **M** row command to remove everything but Automation Command Receiver and press PF3
5. Type a **1** for Import selected add-on policies on the option line and press Enter.
The Command Progress window opens.
6. Review the Entries of selected Add-on Policies panel, you should see the resources below and and some duplicate ones that will not be imported anyway. CMD_RECEIVER (APG)
 - CMDRCVR (APL)
 - CMD_RECEIVER_AUTOOPS (AOP)
7. Type a **3** for Run import on the option line and Press Enter:
8. Press Enter.
The Command Progress Display panel is displayed. When the import completes, you see the Import Add-on Policies panel with the message **Import Successful** in the upper right.
9. Type a **2** for View import report on the option line and press Enter. Review the import report and verify that the three command receiver policies were imported.
10. Press PF3 until you see the Primary Menu panel again.

You now have the command receiver policy add-ons imported into your Policy Data Base. However, you must customize the policy to implement the add-ons into automation control.

11. Type a **1** and press Enter to open the NEWPDB Policy Data Base.

12. On the Entry Type Selection panel, type a **5** for Application Groups and press Enter.
13. Select the CMD_RECEIVER APG, and then update the **Where Used** by selecting MVSA.
14. Update the **Application Group Information** for the CMD_RECEIVER APG and define and automation name of CMDRGRP. Press PF3 to save your change and return to the Entry Type Selection panel.
15. Type a **6** for Applications and press Enter.
16. Select the CMDRCVR application and ensure that the CMD_RECEIVER APG is selected in the Where Used policy item. Press PF3 to save the change.
17. On the Entry Type Selection panel, type a **37** for Automation Operators and press Enter.
18. Select CMD_RECEIVER_AUTOOPS and press Enter.
19. Under the Where Used policy item, select MVSA and press PF3 to save the change.
20. Press PF3 until you return to the Primary Menu panel.

MVS system setup requirements for the command receiver



Note: Please skip this part as it is usually done by your MVS sysprog

21. Press PF2 to split your screen.

You now look at the assembler job and MVS parmlib entries that are required to support the command receiver.

22. Go to ISPF option **=3.4**.
23. Browse the partitioned data set SAZOS.REXX.SAMPLES.
24. Select the member IRXREXX2 and do a find on the text string INGTXFPG.

You see how the system automation rexx function package is defined in the member. This member was copied from SYS1.SAMPLIB.

25. Press PF3 to exit the IRXREXX2 member, and select the IRXRASM member.

This member assembles and link-edits the **IRXTSPRM** member into a partitioned data set load library called SYS2.SAZ34.LPALIB. This library is defined in fixed LPA on this system. LPA is not required for this member, and the member can be link-listed instead. However, you use LPA on the student exercise system.

26. Press PF3 to exit browsing SAZOS.REXX.SAMPLES, and then browse the data set SYS2.PARMLIB.
27. Review the member IEAFIX00. You see that your rexx function package from SYS2.SAZ34.LPALIB(IRXTSPRM) is listed in fixed LPA.

The command receiver also requires that the NetView module DSIPHONE be available in the link list.

28. Review the PROGA0 member and do a find on NETV621B.SCNMLNKN. This data set is on the student exercise system that contains the DSIPHONE executable member.

To complete the implementation of the command receiver, you must build a new automation control file and activate it by using INGAMS REFRESH. You will do this in the next section.

29. Press PF3 until you exit split-screen mode.

Build the ACFs

30. From the Primary Menu panel, select option **3** for reports.
31. Run the Unlinked and Resource reports to verify that all of your definitions are included on your system.
32. Press PF3 until you see the Primary Menu panel again. Select option **2** and press Enter to build the PDB configuration files.
33. Select option **1** to build a complete enterprise into the data set **SAZOS.ACFs.PLEXA**. The Command Progress Display window opens. The build creates the automation table (AT) entries that you will review and test.
34. After the build completes, use option **4** to view the build report. Review the command receiver fragments.
35. Press PF3 until you return to the Primary Menu panel.

Review the automation table

36. Use ISPF split-screen. Review the AT member ACFMZ999 in the build output data set **SAZOS.ACFs.PLEXA**.
37. Review the entries that were created for the VAPL messages VAPL`nn`000A and VAPL`nn`010I. These entries are the result of the actions that you defined in this exercise.
The `nn` is **21** for RV01, **22** for RV02, **23** for RV03, and **24** for RV04.

You see several entries like the ones in the following examples. You can find the entries that were created for the RV Applications at the end of the member. Look for a message like this

example for each application to set the status to UP based on the AUTO action that you entered in the dialog.

```
*
IF
MSGID = 'VAPL21010I'
THEN
EXEC(CMD('ACTIVMSG UP=YES')ROUTE(ONE %AOFOPGSSOPER%));
*
```

You see a message like this one for each application to reply to the WTOR at the start of the application, based on the REP action that you entered in the dialog.

```
*
IF
MSGID = 'VAPL21000A'
THEN
EXEC(CMD('ISSUEACT ')ROUTE(ONE %AOFOPGSSOPER%));
*
```

Locate the statement to process IEF404I messages. You see the automation table override action that you defined for RV01:

```
IF MSGID = 'IEF404I' THEN BEGIN;
*
* Handle RV01BKUP
*
IF TOKEN(2) = 'RV01BKUP' THEN
EXEC(CMD('INGEVENT RV01EVT REQ=SET'))
ROUTE(ONE %AOFOPGSSOPER%);
```

38. Press PF3 until you exit split screen mode and are back at the System Automation Primary Menu panel.

Test the automation policy for RV Applications

39. Log on to NetView.
40. From NCCF, load your new configuration with the following command:

```
INGAMS REFRESH,CFG=*
```

You see the following message in response to the INGAMS REFRESH:

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

You also see message HSAM1339I in the NetView log:

```
HSAM1339I CONFIGURATION REFRESH REQUEST COMPLETED SUCCESSFULLY.
```


Continue when you see the AOF540I message:

```
AOF540I 15:36:08 : INITIALIZATION RELATED PROCESSING HAS BEEN COMPLETED.
```

41. Verify that all of the RV Applications *except* RV01 are started. If they are not, stop and debug your work. Use INGLIST RV* to display only the RV resources on MVSA. Your display looks like the following example:

```

INGKYST0          SA z/OS - Command dialogs          Line 1      of 4
Domain ID   = AOFDA          ----- INGLIST -----   Date = 06/19/08
Operator ID = NETOP1          Sysplex = SYSPLEX1       Time = 14:49:10
CMD: A Update   B Start   C Stop   D INGRELS   E INGVOTE   F INGINFO
      G Members   H DISPTRG   I INGSCHED   J INGGROUP   M DISPMTR   / scroll
CMD Name          Type System    Compound      Desired      Observed      Nature
-----
RV01              APL  TIVED1     AWAITING      AVAILABLE     SOFTDOWN
RV02              APL  TIVED1     SATISFACTORY  AVAILABLE     AVAILABLE
RV03              APL  TIVED1     SATISFACTORY  AVAILABLE     AVAILABLE
RV04              APL  TIVED1     SATISFACTORY  AVAILABLE     AVAILABLE

```

The INGLIST command shows RV01 in a Compound status of AWAITING because its start trigger is not satisfied. If you do not see this status, stop and debug your coding.

42. Enter a command of X for RV01 to display panel INGKYL2, which describes the condition of RV01:

```

Name          Type System  Cat  Problem
-----
RV01          APL  MVSA     Def  STARTUP trigger is unsatisfied
RV01          APL  MVSA     Def  AM Observed status is SOFTDOWN

```

Press PF3 to end INGLKUP.

43. Submit job RV01BKUP by entering the command SUBMIT (RV01BKUP) from NCCF. When job RV01BKUP ends, RV01 is started. If it is not started, stop and debug your coding. Press PF3 to end INGLIST.

44. Enter SDF from the NCCF command line to go to the SDF screen. Press the Tab key to system MVSA and press PF8 (Next). All four RV Applications are displayed in green.

The outstanding WTOR for each application is also displayed on the panel in green because of the CODE definitions.

If you have any problems, stop and debug your coding.

Press PF3 to end SDF.

45. Issue the INGSCHED command and verify that service period RVSVS is displayed. Use CMD C (Show Resources) to verify that all four RV Applications are using it.

Press PF3 to end INGSCHED.

46. From your MVS console, stop RV04 by responding END to its outstanding WTOR, VAPL24999A. The application automatically restarts. If it does not, stop and debug your coding.
47. Issue the INGAUTO command for RV01. Set the START automation flag to NO to disable some of the automation for RV01. Press Enter to save the change.

You see message AOF510I: RV01 START FLAG HAS BEEN SET TO OFF BY OPERATOR
NETOP1

Press PF3 to end INGAUTO.

48. Issue INGREQ STOP with a FORCE priority and RESTART YES against RV01.
Use INGLIST RV* to verify that RV01 has a Compound status of AWAITING because its start trigger is not satisfied. This process can take a minute. RV01 might be in a PROBLEM state for a short time.

49. Invoke the DISPTRG command (CMD H) against RV01 and use the panels to set Event RV01EVT. The start command for RV01 is issued.

50. Go to the SDF panel. RV01 now has an ACTIVE status, and its WTOR is pink because automation is disabled for RV01. If this is not the case, stop and debug your work.

You see the following message on the system console:

AOF580I 11:43:42 : START AUTOMATION FOR SUBSYSTEM RV01 (JOB RV01) IS SET OFF -
AUTOMATION NOT ATTEMPTED FOR MSG "VAPL21000A"

51. Press PF3 to end SDF. From INGLIST, press PF4 to invoke DISPSTAT.

Notice the automation flags. There is an N under the Start flag (S) column.

CMD	RESOURCE	STATUS	SYSTEM	JOB NAME	A	I	S	R	T	R	S	TYPE	Activity
---	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	RV01	ACTIVE	MVSA	RV01	-	-	N	-	-	-	-	MVS	STARTING

After two minutes, which is the default Start Timeout value, the status of RV01 changes to STARTED2 on the DISPSTAT display.

52. Respond WARM to the WTOR to bring the application to the UP status.
53. Invoke an INGREQ STOP with priority FORCE against RV02. RV02 changes to an AUTODOWN status on the DISPSTAT display. If it does not, stop and debug your work.
54. Press PF3 to end DISPSTAT and return to INGLIST. Press PF9 to refresh the INGLIST status.
55. Invoke the INGSET command (CMD A, Update, on the INGLIST panel) against RV02. Use option **1** to change the next *start type* to WARM. Press Enter to set the start type.
You see ING009I UPDATE OF START TYPE COMPLETED; SET TO WARM.
Press PF3 to end INGSET.

56. Invoke an INGREQ START with type COLD against RV02. Press Enter. The start type is WARM on the INGREQ verification panel. Press PF10 to start RV02.

57. Restart RV02 with a WARM start rather than a COLD start. Verify this action by looking at the start processing in the NetView log.

You see the following message for a WARM start:

```
VAPL22010I VAPL22 WARM START COMPLETE
```

If a COLD start occurred, stop and debug your work.

58. Invoke an INGREQ STOP with priority FORCE against RV03. RV03 ends. Its Compound status is SATISFACTORY. If it is not, stop and debug your work.

59. Invoke the INGSET command (CMD A, Update, on INGLIST panel) against RV03. Use option 1 to change the next *start type* to COLD. Press Enter to change the start type followed by PF3 to end INGSET.

60. Invoke an INGREQ START with type WARM against RV03. Press Enter. Notice that the start type is COLD on the INGREQ verification panel. Press PF10 to start RV03.

Restart RV03 with a COLD start rather than a WARM start. Verify that this action happened by looking at the Start processing in the NetView log.

You see the following message:

```
VAPL23010I VAPL23 COLD START COMPLETE
```

If a WARM start occurred, stop and debug your work.

61. Press PF3 to end INGLIST.

62. Return to the customization dialog and open NEWPDB.

63. Select option **8** for Service Periods and select the RVSVP Service Period that you defined earlier.

64. Select the SERVICE WINDOW policy item. Set the schedule for the *current day* so that the Applications are down all day.

Example for *Monday*:

```

      P      From To
Monday U
      D H  00:00 24:00

```

This setting inserts a high-priority MakeUnavailable request against all resources linked to the RVSVP service period.

65. Press PF3 to save the change. Then, perform a build of the *modified* policies.



Hint: You can enter **=2.1** to *fast path* to the build panel.

```
Output Data Set . . . . 'SAZOS.ACFS.PLEXA'
Mode . . . . . ONLINE      (ONLINE BATCH)
Type . . . . . MODIFIED    (MODIFIED ALL)
Configuration . . . . . NORMAL (NORMAL ALTERNATE)
```

66. After a successful build, refresh the ACF in AOFDA:

```
INGAMS REFRESH,CFG=*
```

67. Use INGLIST RV* to verify that all four RV Applications are down. Their Observed Status is SOFTDOWN.

68. Issue an INGVOTE command (option **E** from INGLIST panel) to see what votes are currently active for the RV Applications.

What is the source of the votes?

Press PF3 to end INGVOTE.

69. Return to the customization dialog and open NEWPDB.

70. Select option **8** for Service Periods and select the service period that you defined, RVSVP.

71. Remove the changes that you made to the current day and save the schedule with PF3.

72. Run the build, option **2.1**.

73. After a successful build, refresh the ACF:

```
INGAMS REFRESH,CFG=*
```

74. Issue INGLIST RV*.

You see the RV02, RV03, and RV04 Applications start. RV01 has a Compound status of AWAITING because its trigger is not satisfied.

75. Run an INGAUTO command for RV01. Set the START automation flag to YES to enable automation for RV01. Press PF3 to return to the INGLIST panel.

76. Submit RV01BKUP to set the trigger. You can submit it from the INGLIST command line by using SUBMIT (RV01BKUP).

RV01 is up. If it is not, debug your definitions.

Test the command receiver implementation

77. From the NetView command line, enter the command INGLIST CMD*.

The command receiver group and application are both listed with an observed status of AVAILABLE as follows:

CMD Name	Type	System	Compound	Desired	Observed
CMDRCVR	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
CMDRGRP	APG	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE

78. From the NetView command line, enter the command DISPAUTO.

You see the DISPAUTO panel.

79. Type a **10** for AUTOOPS on the command line and press Enter.

You see the five auto operators for the command receiver, which verifies that the command receiver is implemented.

80. Press PF3 to exit.

Automated			
System	Function	Primary	Status
MVSA	AOFCMD01	AUTCMD01	ACTIV
MVSA	AOFCMD02	AUTCMD02	ACTIV
MVSA	AOFCMD03	AUTCMD03	ACTIV
MVSA	AOFCMD04	AUTCMD04	ACTIV
MVSA	AOFCMD05	AUTCMD05	ACTIV



Note: Please skip the rest of the exercise

81. Return to the TSO ISPF System Automation for z/OS customization panels and open the Policy Data Base NEWPDB.

82. On the Entry Type Selection panel, type a **6** for Applications and press Enter.

83. Select the **RV01** application, and select the MESSAGE/USER DATA policy item.

84. Type an **A** in the CMD column for the message IEF404I and press Enter.

Next, override the message syntax and invoke the automatic message syntax checking feature to test the command receiver.

85. On the Message Automation Overview panel, type an AO on the command line and press Enter. You are now in edit mode. If you press F3 to exit edit mode, the command receiver is invoked automatically. Do not make any changes and press PF3 to exit.

You see the following window.

```
AT Syntax Check Result

-
CNM592E VARIABLE "SVJOB" NOT DEFINED WITHIN THE SCOPE OF THIS ENTRY
DSI417I #0000023 : IF ATF('ING$QRY APPL,,JOB='VALUE(SVJOB)) 7= '' THEN
EXEC(CMD('TERMMSG FINAL=YES,JOBNAME=' SVJOB) ROUTE(ONE * AUTGSS AUTSYS
AUTBASE AUTO1));

DW0525I TEST OF NETVIEW AUTOMATION FILE WAS UNSUCCESSFUL

Press ENTER to keep override as is.
Press END or CANCEL to continue editing.
```

86. Ignore the CNM592E error message, and press Enter to keep the override.

You have now successfully implemented and tested the command interface by using the automatic message override syntax checking feature.



Note: The answer to the question in this exercise is on the next page.

Answer to Unit 4 Exercise 1 Question

Step 68

All RV Applications are down because of the down schedule. The source (originator) is SCHEDULE.

i.



6 Initialization and runmodes exercises

Exercise 1 Runmodes

In this exercise, you define, implement, and test System Automation for z/OS runmodes. Runmodes provide an alternate method of initializing the Applications in your environment.

You define two runmodes: one for the required basic system Applications and a second for the RV Applications that you already defined. You then implement and test them.

Data sets used in this exercise

You use several data sets in this exercise. The data set names might be different on your system. Your instructor provides changes, if any.

- SAZOS.PDB.NEW

-
- SAZOS.ACFS.PLEXA
-

Define runmodes and runtokens

1. Log on to TSO/ISPF in system MVSA by using the instructions provided by the instructor.
2. Access the System Automation for z/OS customization dialog by using **=E.C.**
3. Open the NEWPDB Policy Data Base.
4. On the Entry Type Selection panel, type option **99** (UET) and press Enter. Runmodes are defined as User E-T pairs.
5. On the Entry Name Selection panel, type NEW and press Enter.
6. Define a new entry called MVSARUNMODES. Provide a brief description. Press PF3 to save it. You should now be at the Policy Selection panel that looks like this example.

A0FGEPOL		Policy Selection	Entry created
Command ===> _____		SCROLL===> <u>PAGE</u>	
Entry Type : User E-T Pairs		PolicyDB Name : NEWPDB	
Entry Name : MVSARUNMODES		Enterprise Name : SA34ADMIN	
Action	Policy Name	Policy Description	
_____	DESCRIPTION	Enter description	
_____	E-T DATA	Define user entry-type pairs	

_____	WHERE USED	List systems linked to this entry	
_____	COPY	Copy data from an existing entry	
***** Bottom of data *****			

7. Select the E-T DATA policy item and press Enter.
8. On the UET Entry-Type Selection panel, type NEW on the command line and press Enter.
9. On the Define UET Entry-Type panel, specify the following information:

To define a new entry-type pair, specify the following:

Entry. INGRUN
 Type MODE
 Short Description. . . . MVSA runmode definitions

10. Press PF3 to save your definition.

Next, you see the UET Keyword-Data Specification panel. Here, you define individual runmodes and their associated runtokens.

11. Define two runmodes with their respective runtokens as follows:

Cmd Keyword	Data
BASIC	(BTOK1 BTOK2)
RVAPPS	RVTOK1

You define two runmodes: one for all basic Applications that are required to run the system and one for the RV Applications. You defined a runtoken of RVTOK1 for the RVCLASS in the Unit 4 exercises.

12. Press PF3 twice.

You return to the Policy Selection panel, and see the **Entry Created** message in the upper right.

13. Select the **Where Used** policy and press Enter.
14. Select MVSA on the Where Used panel, and press Enter.
15. Press F3 until you return to the Entry Type Selection panel.
16. Type option 6 for Applications and press Enter.

You now define runtokens for all the basic Applications that run under the BASIC runmode.

17. For each of the following Applications, select the **Application Info** policy item and define the runtoken BTOK1 and RVTOK1. Use PF8 to scroll down in the Application Info policy item.

APPC
 ASCH
 AUTOMGR
 AUTONETV
 AUTOSSI
 CMDRCVR
 DLF
 JES2
 LLA
 OMVS
 RESOLVER
 RMF
 RMFGAT
 TCPIP
 TELNET
 TSO
 VLF
 VTAM



Note: The basic Applications must also participate in the RVAPPLS runmode, and therefore they require the RVTOK1 runtoken.

18. Press PF3 until you return to the SA z/OS 3.4 Customization Dialog Primary Menu panel.
19. Run a complete enterprise build.
 The build completes successfully.

Test the runmodes

20. Return to AOFDA NetView.
21. From the command line, run the following command to refresh the configuration:

```
INGAMS REFRESH,CFG=*
```



Note: Wait for the refresh to complete and then run the ACF STATUS command to verify that the REFRESHED BY date and time are correct.

After the configuration is refreshed, the new runmodes are available.

22. Run the following command:

INGRUN

You see the INGRUN screen.

23. Type in the Request, System, and Runmode values as shown in the following screen capture. Use the ? in the **Runmode** field to see the runmodes that are available.

INGKYRMO		SA z/OS - Command Dialogs	
Domain ID	= AOFDA	----- INGRUN -----	Date = 02/09/13
Operator ID	= SASTUD1		Time = 12:37:03
Request	=> <u>set</u>	Request type (SET, ADD or DEL)	
Target	=> _____	System name, domain ID or sysplex name	
--- Parameters for SET request -----			
System	=> <u>mvsa</u>	System name	
Runmode	=> <u>?</u>	Runmode name (mode or ?)	
Persistent	=> _____	Keep request across IPL (YES/NO)	
Type	=> _____	Type of processing (NORM/IMMED/FORCE)	
Priority	=> _____	Priority of request (FORCE/HIGH/LOW)	
Override	=> _____	(ALL/NO/TRG/FLG/DPY/STS/UOW/INIT)	
Verify	=> _____	Check affected resources (YES/NO/WTOR)	
Comment	=> _____		
--- Parameters for ADD or DEL requests -----			
Resource	=> _____	format: name/type/system	
AOF710A VERIFY/REVISE INPUT AND THEN PRESS ENTER			
Command ==> _____			
PF1=Help	PF2=End	PF3=Return	PF6=Roll
			PF12=Retrieve

24. Press Enter.

You see a list of runmodes like the ones in the following screen capture. Note that the *ALL runmode is the currently active runmode.

```

AOFKSEL5                      SA z/OS - Command Dialogs      Line 1 of 3
Domain ID = AOFDA             ----- INGRUN -----      Date = 02/09/13
Operator ID = SASTUD1                                     Time = 12:41:16

Select one item, then press ENTER.

Sel  Item
---  -----
-    *ALL                      (CURRENTLY ACTIVE)
-    BASIC
-    RVAPPS

```

25. Select the BASIC runmode and press Enter.
26. Press Enter again on the INGRUN request screen.
You now see the INGREQ verification screen.
27. Press PF10 to run the request.
28. After the request completes, run the following commands and review the current runmode values for these three Applications:

```

INGINFO APPC
INGINFO RMF
INGINFO RV02

```

Which of these Applications qualify for the runmode?

29. Run the INGVOTE command for these three Applications: APPC, RMF, and RV02.
Which Applications show that they qualify for the runmode?
-

30. Run the INGLIST command. Verify that the Applications are in the correct state.
31. Repeat [Step 22](#) - [Step 30](#) by using the runmode RVAPPS.
32. Repeat [Step 22](#) - [Step 30](#) by using the runmode *ALL.

a.



7 Status Display Facility and Centralized operations exercises

Exercise 1 Status Display Facility

This exercise provides a basic introduction to the components, function, and customization of the Status Display Facility (SDF). In this exercise, you create an SDF panel for your MVS system by using the samples provided by IBM.

At the end of the exercise, you can perform the following tasks:

- Upgrade existing SDF panels to the latest samples
- Customize the sample SDF panels.
- Dynamically load and test SDF panel definitions.

Data sets used in this exercise

You use several data sets in this exercise. The data set names might be different on your system. Your instructor can provide changes, if any.

- SA410A.SINGNPRM

- SYS2.PROCLIB

- SAZOS.AOFDA.DSIPARM

- SAZOS.AOFDA.DSIPARM.SAVE

- SAZOS.PDB.NEW
-

- SAZOS.ACFS.PLEXA
-

All data set names are in ***bold italics*** in this exercise.

SDF and Inform List policy

To receive status updates in SDF, you must create the code for an Inform List policy. The Inform List policy can be defined at several levels:

- Instance level; for example, application
- System defaults (SDF) level
- MVS component defaults (MDF) level
- Sysplex defaults (XDF) level for sysplex Application Groups

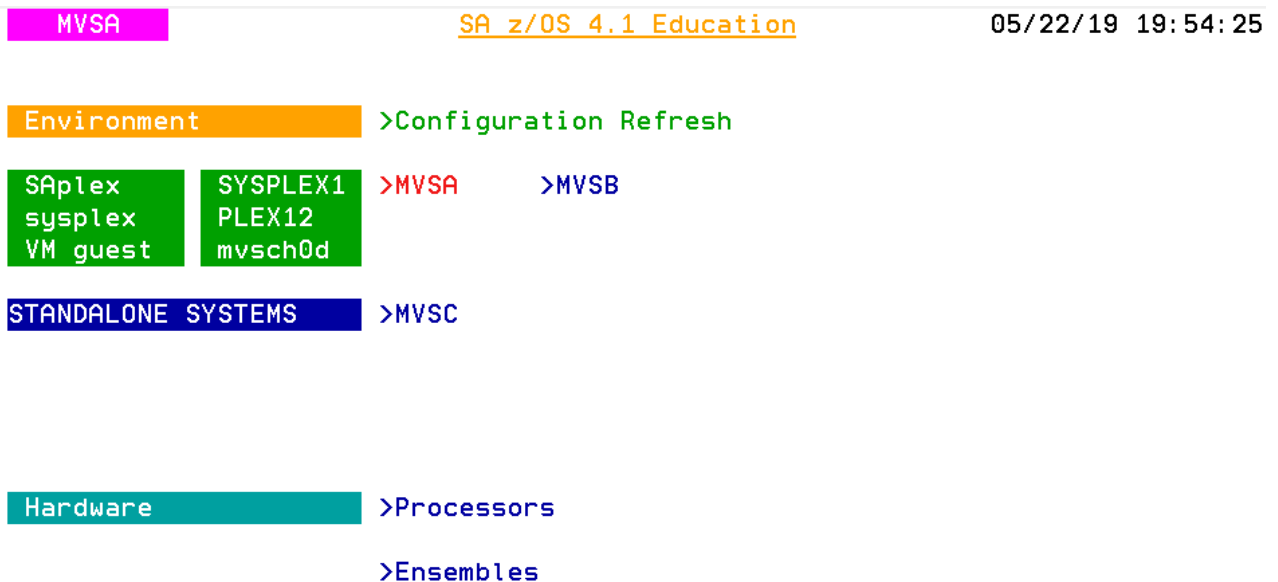
If you do not define an Inform List policy, no SDF updates occur.

You defined the default Inform List policy at the system defaults (SDF) level in the Unit 4 exercises. You use that policy in this exercise.

Review the current SDF panels

1. Log on to the MVSA system NetView AOFDA by using the instructions provided by the instructor.
2. From the NetView command line, run the SDF command with no parameters.

You see results like the following example of a customized enterprise panel. This set of panels uses all the provided samples.



==>

1=Help 2=Detail 3=Return 6=Roll 8=Zoom

3. Navigate these current SDF panels by using the status fields and PF keys: PF2 and PF8.
4. Log on to TSO/ISPF in system MVSA by using the instructions provided by the instructor.
5. Using ISPF option **=3.4**, browse the AUTONETV member in the procedure library **SYS2.PROCLIB**. Find the DSIPARM DD statement concatenation, which looks like the following example:

```
//DSIPARM DD DSN=&Q1..&DOMAIN..DSIPARM,DISP=SHR USER TARGET
// DD DSN=&Q1..DSIPARM,DISP=SHR USER TARGET
// DD DSN=&SQ2..SINGNPRM,DISP=SHR SA TARGET
// DD DSN=&SQ1..SAQNPARM,DISP=SHR NETVIEW TARGET
// DD DSN=&SQ1..DSIPARM,DISP=SHR NETVIEW TARGET
```

Alternatively enter the LISTA DSIPARM command in NetView:

```
DSIPARM SAZOS.USER.AOFDA.DSIPARM
        SAZOS.USER.DSIPARM
        SA410A.SINGNPRM
        NETV621B.SAQNPARM
        NETV621B.DSIPARM
```

The first data set is SAZOS.USER.DSIPARM and contains the SDF members that are used to create the current SDF panels.

The second data set is SAZOS.USER.AOFDB.DSIPARM and is currently empty and does not contain any SDF members.

6. Press PF3 to exit the AUTONETV member. Use ISPF option **=3.4**, and browse the SAZOS.USER.AOFDB.DSIPARM data set.

Eight members are used to produce the current SDF panels: AOFINIT, AOFTREE, AOFPNLS, SYSTEM, MVSATREE, MVSBTREE, MVSACOMP, and MVSBCOMP.

7. Review these members to understand their relationship with each other and the SDF panels that they generate in NetView.

In the next section of this student exercise, you dynamically replace this ad hoc SDF panel customization by using the provided SDF samples.

Copy selected supplied samples

Copy the samples so that you can edit them later.

8. Use ISPF option **3.3** and **copy and replace** this list of sample members from **SA410A.SINGNPRM** to **SAZOS.USER.AOFDA.DSIPARM**:
 - INGPMAIN
 - INGPTOP



Note: You modify only a these two members. The other panels all use the provided samples. Use the **SAZOS.USER.AOFDA.DSIPARM** data set for the remaining steps in this exercise. Note that **SAZOS.USER.AOFDA.DSIPARM** is ahead of **SAZOS.USER.DSIPARM** in the DSIPARM DD statement concatenation.

Review the sample SDF members

Review the SDF tree structure for your system, MVSA.

9. Browse member AOFTREE. It contains the following Include statement:

```
%INCLUDE (INGTALL)      DYNAMIC
```

10. Browse the INGTALL member that is included in AOFTREE.

What is the SDF tree root name? Why?

Do not make any changes.

The SDF root name defaults to the current system.

11. To verify this setting, press PF2 to split screens and use the customization dialog **=E.C** to open the NEWPDB.
 - a. Select option **4 (SYS)** and then select your system, MVSA.
 - b. Select the SYSTEM INFO policy item. The System Information panel (AOFGSPD0) is displayed. Look for the SDF Root Name field. It is null.
 SDF Root Name.
 - c. Press PF1 for help. Read the explanation for the SDF Root Name field. You see that the default root name is the system name.
 - d. Exit the customization dialog.

Dynamically implement the sample SDF members

Examine a sample of the default SDF top-level panel. Because you copied them into your DSIPARM DD statement concatenation before the other SDF panel members, you can dynamically implement them.

12. From your NetView 3270 session, enter the SDF command with no parameters.
 You see the customized main SDF panel. This panel was customized and modified to provide an example. Notice that the sample definitions that you copied did not have an effect.
13. Run the following command from the NetView command line:

```
RESYNC SDFDEFS
```

 A REQUEST "RESYNC" WAS SUCCESSFUL FOR SDFDEFS message panel is displayed.
14. Press PF3 to return to the NetView command line and run the SDF command again.
 You can now see the sample SDF top panel, which is very similar to the old one and looks like the following one.

MVSA		Enterprise				06/14/19 21:41:01
Environment		>Configuration Refresh				
Sysplexes	SYSPLEX1	>SYS1 >SYS6	>SYS2 >SYS7	>SYS3 >SYS8	>SYS4 >SYS9	>SYS5 >SYS0
	SYSPLEX2	>SYS11 >SYS15	>SYS12 >SYS16	>SYS13 >SYS17	>SYS14 >SYS18	
Standalone Systems		>SYSA >SYSF	>SYSB >SYSG	>SYSC >SYSH	>SYSD >SYSI	>SYSE
Hardware		>Processors				
		>Ensembles				

==> 
 .=Help 2=Detail 3=Return 6=Roll 8=Zoom

You must customize the sample member to accommodate the student exercise systems environment. You customize them in the next section.

15. Return to your TSO/ISPF session.

Customize the enterprise-level SDF panel

In this section of the exercise, you Modify the enterprise-level SDF panel for your systems, MVSA and MVSF.

16. Under TSO/ISPF, type **=S** and press Enter to go to SDSF.

You are in split-screen mode.

17. From the SDSF command line, issue an /D XCF command. Or run the INFO command in NetView.

What is your sysplex ID?

18. Press PF3 until you exit split screen mode.

19. Edit member INGPTOP in SAZOS.USER.AOFDA.DSIPARM. This member is the enterprise-level SDF panel.

a. Locate the following line and change SYSPLEX1 to your sysplex ID:

```
TT( SYSPLEX1)
```

- b. Locate the following lines and change all occurrences of SYS1 to MVSA:

```
SF(SYS1.SYS1,07,25,30,N, ,SYS1MAIN)
ST(>SYS1)
```

- c. Locate the following lines and change all occurrences of SYS2 to MVSB:

```
SF(SYS2.SYS2,08,25,30,N, ,SYS2MAIN)
ST(>SYS2)
```

Define system MVSB:

- d. Locate the following line:

```
TT( Enterprise)
```

Change the panel title to this one:

```
TT( My Enterprise Status )
```

If you want more text you have to extend the field in the TF statement above.

- e. Save your work.

The SDF panels can display status for both systems MVSA and MVSB.

Test your SDF customization

20. Return to your AOFDA NetView session, and resynchronize the SDF task as follows:

```
RESYNC SDFDEFS
```

A REQUEST "RESYNC" WAS SUCCESSFUL FOR SDFDEFS message panel is displayed.

21. Press PF3 and then enter the SDF command to display the enterprise-level panel that you modified.

If nothing happens when you enter the SDF command, there is an error.

22. Check the values that you coded, and RESYNC SDFDEFS again to get any changes.

The enterprise-level panel (SA Enterprise Status) is displayed with all systems. MVSA is green. All other systems, except MVSB, are white.

MVSA		My Enterprise Status					06/14/19 21:52:00	
Environment		>Configuration Refresh						
Sysplexes	PLEX12	>MVSA	>MVSB	>SYS3	>SYS4	>SYS5		
		>SYS6	>SYS7	>SYS8	>SYS9	>SYS0		
	SYSplex2	>MVSA1	>MVSA2	>MVSA3	>MVSA4			
		>MVSA5	>MVSA6	>MVSA7	>MVSA8			
Standalone Systems		>SYSA	>SYSB	>SYSC	>SYSD	>SYSE		
		>SYSF	>SYSG	>SYSH	>SYSI			
Hardware		>Processors						
		>Ensembles						

===>

1=Help 2=Detail 3=Return 6=Roll 8=Zoom

23. Press the Tab key to move to the MVSA field and press PF8 (Zoom) to display the SUMMARY-STATUS panel for system MVSA.

A panel like the following one is displayed.

```

MVSA                                SUMMARY-STATUS                                06/14/19 21:54:16
                                MVSA
                                !----- Resources -----!
                                >APPLS
                                >GROUPS
                                >MONITORS
                                !----- Messages -----!
                                >WTOR                                >MESSAGES
                                !----- Special Items -----!
                                >TWS                                >Tape Devices
                                >GATEWAY

===> █
1=Help 2=Detail                    6=Roll 8=Zoom                                12=Top

```

All MVSA resource categories are displayed in green or blue.

24. Press the Tab key to move to the APPLS field and press PF8 (Zoom).

The MVSA: SUBSYSTEM-STATUS panel is displayed for all Applications. All resources are green or blue.

25. Press PF7 (Up) to return to the SUMMARY-STATUS panel.

26. Press the Tab key to move to the WTOR field and press PF8 (Zoom) to display the MVSA: WTOR-STATUS panel.

The NetView WTOR, DSI802A, is green. If it is not, use the customization dialog to check the MESSAGES/USER DATA policy item for AUTONETV in NEWPDB. Ensure that the CODE values supplied from the previous exercise are entered correctly.

27. Press PF7 (Up) to return to the SUMMARY-STATUS panel.

28. Press the Tab key to move to the APPLS field and press PF8 (Zoom).

29. Press the Tab key to move to RMF and press PF19 (INGREQ).

Issue an INGREQ REQ=STOP command to shut down RMF with RESTART of NO. Accept all other default values.

30. Press PF3 to return to the MVSA: SUBSYSTEM-STATUS panel.

The status of RMF and RMFGAT is automatically updated.

31. Press the Tab key to move to RMF and press PF18 (INGVOTE). **Kill** your request against RMF. If you are quick enough, you can roll back to SDF and monitor the RMF status changes as it is restarted.
32. Put your cursor on the first subsystem in the list and press PF2 to display the Detail Status Display panel for that subsystem. Notice that this is panel 1 of *nn*. Why is that?

Use PF8 to scroll down through the list of subsystem messages.

33. Press PF3 until you return to the NetView command line.
34. Run the following command:

```
SDF MVSATEST
```

MVSATEST is a member in the data set **SAZOS.USER.AOFDA.DSIPARM** . It contains a panel definition for MVSATEST. The panel uses multiple body statements and cell definitions.
35. Review the heading for the first section called **Subsystem Status**. On the left of the heading, you see 20 of 22 subsystems.
36. Use the Tab key to place your cursor on any subsystem name in the first section called **Subsystem Status**.
37. Press PF11 to scroll through the subsystem names.
 You see the other two subsystem names.
38. Press PF10 to scroll back.
39. Return to TSO/ISPF and review the member MVSATEST in the SAZOS.USER.AOFDA.DSIPARM data set.
40. From TSO/ISPF, edit the member **SAZOS.USER.AOFDA.DSIPARM(INGPTOP)**. When you edit this member, you comment out or delete the unused systems SYSx (where x is 3 - 8 and A - G) and the unused category called **Hardware** from the main SDF panel.
 Comment out or delete the lines starting with

```
SF(SYS3.SYS3,09,25,30,N, ,SYS3MAIN)
```

 and ending with the %>end statement after

```
ST(>Ensembles)
```
41. Save your changes with PF3.
42. Return to NetView and test your changes by using the RESYNC SDFDEFS and the SDF commands.

Review your new SDF screen layout, which looks like the following example.

```
 MVSA                               My Enterprise Status          06/14/19 21:57:43

Environment >Configuration Refresh

Sysplexes  PLEX12 >MVSA      >MVSB
```

```
===>
1=Help 2=Detail 3=Return      6=Roll 8=Zoom
```



Note: The answers to the questions in this exercise start on the next page.

Answers to Unit 7 Exercise 1 Questions

Step 11

The SDF tree root name is **&SDFROOT**. This tree root name defaults to the name of the current z/OS system, such as, MVSA or MVSF. You do not have to define different tree structures or panels for each local system.

Step 33

Because you pressed the Tab key to the first entry in the subsystem column, this record is the first detailed status record. As you press PF8, you scroll downward through the list of subsystems.

Exercise 2 Centralized operations

This exercise is more advanced because you manage multiple systems in an enterprise. You learn the components, function, and customization of SDF, gateway sessions, and use several functions across domains. You create SDF panels for your z/OS systems, customize SDF focal points by using the samples provided by IBM, and operate System Automation for z/OS in a multisystem environment.

At the end of the exercise, you can perform the following tasks:

- Customize SDF for a multisystem environment.
- Define an SDF focal point with the required gateway sessions.
- Set up NetView RMTCMD over TCP/IP between two NetView domains.
- Use several System Automation for z/OS functions in a multisystem environment.

Data sets used in this exercise

You use several data sets in this exercise. The data set names might be different on your lab system. Your instructor can provide changes, if any.

- SAZOS.USER.DSIPARM
-

- SAZOS.PDB.NEW
-

- SAZOS.ACFS.PLEXA
-

All data set names are in ***bold italics*** in this exercise.

Define gateways, focal points, and operators

In this section of the exercise, you customize System Automation for z/OS to support gateway sessions between AOFDA and AOFDB, with AOFDB defined as the focal point. This process involves using the customization dialog. You perform these steps on both systems.

43. Log on to TSO in MVSA, if you are not already logged on, by using the instructions provided by the instructor.
44. Access the customization dialog and open the NEWPDB Policy Data Base.
45. Select option **39** (NTW) for Networks policy. **Select** the BASE_NETWORK.
The Policy Selection panel (AOFGEPOL) is displayed.
46. **Select** the GATEWAY policy item.
The GATEWAY Definitions panel (AOFPINE4) is displayed. No domains are defined.
47. Create definitions for both AOFDA and AOFDB. Fill in the following fields:

Domain	Description
AOFDA	Backup FP
AOFDB	Primary FP

 Press PF3 to save the GATEWAY policy definitions.
48. **Select** the SDF FOCALPOINT policy item.
The SDF Focal Point Definition panel (AOFPINE2) is displayed.
49. Define AOFDB as the primary focal point and AOFDA as the backup focal point.


```
Primary Domain. . . AOFDB
Backup Domain . . . AOFDA
```

 Press PF3 to save the focal point definitions.
50. **Select** the WHERE USED policy item.
The Where Used panel (AOFGXWHU) is displayed.
51. In the list of systems, **select** MVSA and MVSB. Press PF3 to save, and press it until you return to the Entry Type Selection panel (AOFGETYP).
52. Select option **37** (AOP) for the Automation Operators policy object. **Select** GATEWAY_AUTOOPS policy.
The Policy Selection panel (AOFGEPOL) is displayed.
53. **Select** the OPERATORS policy item.
The Automation Operator Definitions panel (AOFPIAO0) is displayed. The Automated Function column contains GATOPER.
54. **Select** GATOPER.
The Automation Operator Definitions panel (AOFPIAO1) is displayed.
55. Verify that the Primary Automation Operator is GAT&DOMAIN. Do not make any changes. Press PF3 until you return to the Policy Selection panel (AOFGEPOL) for the GATEWAY_AUTOOPS policy.

56. **Select** the WHERE USED policy item and ensure that only MVSA and MVSB have a status of **SELECTED**. Remove any other systems. Press PF3 until you return to the Entry Type Selection panel (AOFGETYP).

57. Press PF2 to split your ISPF screen. **Browse** member AOFOPFGW in **SAZOS.USER.DSIPARM**.

You see operator definitions for both the inbound and outbound gateway sessions between the two domains: GATAOFDA and GATAOFDB.

GATAOFDA	OPERATOR	PASSWORD=GATAOFDA
	PROFILEN	AOFPRFAO
GATAOFDB	OPERATOR	PASSWORD=GATAOFDB
	PROFILEN	AOFPRFAO

Press PF3 to end the member *browse*.

58. End the ISPF split-screen mode.

Add MVSB to the SASplex

59. Select option **2** (GRP, Groups).

The Entry Name Selection panel (AOFGENAM) is displayed.

60. **Select** the SYSPLEX1 entry.

The Policy Selection panel (AOFGEPOL) is displayed.

61. **Select** the SYSTEMS policy item.

The Systems for Group panel (AOFGXC4E) is displayed.

62. **Select** MVSB and press Enter. MVSB is now selected as part of the SASplex. Press PF3 until you return to the Entry Type Selection panel (AOFGETYP).

Update MVSB system policy

63. Select option **4** (Systems). **Select** the MVSB system.

64. **Select** the AUTOMATION SYMBOLS policy item. Modify the value of AOCCLONE1 from B to 0B.



Note: AOCCLONE1 is specified in the VTAM start parameters and must be two characters in length.

65. Press PF3 until you return to the Primary Menu panel.

Build the PDB

66. Run a full build with the new gateway and focal point definitions. Remember that the output data set is **SAZOS.ACF.S.PLEXA**.
67. Exit the customization dialog.

Verify RMTCMD over TCP/IP for NetView

In this section of the exercise, you browse the NetView definitions to support RMTCMD sessions over TCP/IP between domains AOFDA and AOFDB. You issue several commands by using the RMTCMD sessions.

68. From AOFDA, issue a BROWSE CNMSTGEN command.
69. Verify that these statements are defined to support RMTCMD over TCP/IP for domain AOFDA:

```
NETID=USIBMES
RMTINIT.IP = YES
RMTSYN.USIBMES.AOFDB = 10.31.____.____
RMTSYN.USIBMES.AOFDA = 10.31.____.____
```

Fill in the blanks for the IP addresses for AOFDA and AOFDB.

These RMTSYN definitions use the default port of 4022.



Note: CNMSTGEN is shared by both AOFDA and AOFDB.

Verify gateway connectivity

In this section of the exercise, you verify the gateway connectivity between AOFDA and AOFDB.

70. From AOFDA, refresh the ACF to get your changes:

```
INGAMS REFRESH CFG=*
```

Proceed to the next step when the refresh is completed.

71. Ask your instructor to restart the MVSB system.

MVSB initializes with the new automation policy as the SDF focal point.

AOFDB initializes as the secondary automation manager (SAM).

Reply (null) to the AOF603D WTOR.

Wait until AOFDB is fully initialized before continuing. For example, look for the AOF540I message indicating that the automation policy is loaded.

Because your changes involved the gateway sessions, you must recycle NetView on MVSA (AOFDA) to get those changes.

72. From the system console for MVSA, shut down and restart NetView:

F AUTONETV,CLOSE STOP to stop AOFDA. Wait for message IEF404I for each NetView before continuing.

S AUTONETV,SUB=MSTR to restart AOFDA. Reply (null) to the AOF603D WTOR.

As the agent initializes, you see AOF660I messages like the following ones:

```
AOF660I CURRENT FOCAL POINT IS AOFDB , WAS AOFDA , FOR SYSTEM MVSA
```

You use AOFDB only at this point.

73. Log on to AOFDB.

74. Browse member CNMSTGEN. Scroll to bottom and verify that the SDFROOT_LIST AAO is defined for both systems MVSA and MVSB:

```
COMMON.AOF_AAO_SDFROOT.1=MVSA MVSB MVSC
```

Press PF3 to end browse of CNMSTGEN.

75. Issue a DISPGW command and verify that the gateway session to AOFDA is active. The session uses XCF. Press PF11 to scroll to the right. Both inbound and outbound sessions are active.

Press PF3 to end DISPGW.

76. Issue a NetView PING command to ping system MVSA from MVSB. The PING command verifies TCP/IP connectivity between your systems.

```
PING ip_addr_of_mvsa
```

Verify SDF panels

In this section of the exercise, you verify that you correctly set up your SDF and focal point on both systems.

77. Access SDF in AOFDB.

The SYSTEM panel is displayed with summary status for both systems MVSA and MVSB.

78. Press the Tab key to move to MVSB and press PF8 to display status for resources in MVSB. All resources are green.

Press PF7 to return to the SYSTEM panel.

79. Press the Tab key to move to MVSA and press PF8 to display status for resources in MVSA. The panel looks exactly the same as if it was invoked from SDF in AOFDA.

80. Press the Tab key to move to APPLS and press PF8 (Zoom) to display the Applications on MVSA.

You see the SUBSYSTEM-STATUS panel with all resources in a satisfactory state.



Hint: You are viewing status of resources for the MVSA system from the MVSB system.

81. Press PF3 to end SDF.

Verify multisystem operation

In this section of the exercise, you use System Automation for z/OS on MVSB to display and control resources on MVSA. You use System Automation for z/OS commands, such as INGLIST, DISPSTAT, INGREQ, INGINFO, and SETSTATE, on AOFDB, the focal point, against resources on AOFDA, the target domain.

82. From AOFDB, the focal point, access INGLIST. Verify that the Compound status for all resources in MVSA is SATISFACTORY with the exception of the RVBASIC Application Group.



Hint: You can set a filter to see only the resources from MVSA, or use INGLIST */*/MVSA as your command.

83. Press PF4 to access the DISPSTAT display. Select option **C** to perform an INGREQ STOP against RMF in MVSA. On the INGREQ panel, INGKYRU0, specify **Scope=ALL**. Add a comment so that you can clearly identify your request later.

84. Press Enter after defining the INGREQ STOP parameters.

The INGREQ confirmation panel is displayed.

85. Press PF10 to submit the request.

You see an AOF302I message stating that the INGREQ request is issued.

86. Press PF3 to return to the DISPSTAT panel and then press PF9 to refresh the DISPSTAT panel.

The status of RMF and RMFGAT is AUTODOWN.

87. Press the Tab key to move to RMF on MVSA and enter **E** for an explanation of the AUTODOWN status.

88. Press PF3 to return to INGLIST.

89. Press PF9 to refresh.

The Observed status for RMF is SOFTDOWN. The Desired status for RMF is UNAVAILABLE.

90. Access INGINFO (CMD F) for RMF. Find the last vote.

You see vote information like the following example. Notice the comment.

Winning Vote...

```

Originator      : OPERATOR    OPERID=NETOP2
Request         : MakeUnAvailable
Request Status  : Winning/Satisfied
Command Type    : NORM
Agent Parms     : STATE=AUTODOWN APPLPARMS=*
Restart        : No
Override        : No
Comment         : Stop RMF for Admin Lab 9

```

91. Press PF3 to return to INGLIST. Remove the STOP vote against RMF on MVSA by using INGVOTE (E) to **kill** the request. Removing the stop vote causes RMF and RMFGAT to restart on MVSA.
92. Press PF9 to refresh the INGLIST panel. RMF and RMFGAT restart.
93. Use PF3 to end INGLIST.
94. From NCCF, enter a command to cancel RV02 on MVSA. Use one of the following RMTCMD formats to cancel it:

- Use a labeled RMTCMD syntax:

```
AOFDA: MVS C RV02
```

- Use the full RMTCMD syntax:

```
RMTCMD SEND DOMAIN=AOFDA MVS C RV02
```

You see the following message:

```
IEE301I RV02                CANCEL COMMAND ACCEPTED
```

95. Invoke INGLIST for RV02.
You see RV02 on MVSA in a PROBLEM state. You might have to wait to see the results.
96. Enter SDF on the command line of INGLIST panel.
You see your enterprise panel with status for MVSA and MVS. You see MVSA displayed in red on the SA Enterprise Status panel.
97. Press the Tab key to move to MVSA and press PF8 (Zoom).
98. Press the Tab key to move to APPLS and press PF8 (Zoom).
99. Press the Tab key to move to RV02 and press PF2 to view the detailed status descriptor record:

```

AOF571I 16:31:31 : RV02 SUBSYSTEM STATUS FOR JOB RV02 IS STOPPED - SHUTDOWN
OUTSIDE OF AUTOMATION, RESTARTOPT IS NOT ALWAYS

```
100. Press PF3 until you return to the INGLIST panel.
101. Press PF4 to issue DISPSTAT RV02 to display RV02 on both systems.

102. Set the Agent status to AUTODOWN for RV02 in MVSA using the SETSTATE command (CMD B). RV02 restarts.

You restarted an application on a target system.

Press PF3 to end all panels.

103. Issue an INGLIST MVSA command. Issue an INREQ STOP (CMD C) priority **high** against MVSA/SYG/MVSA. Take all other stop defaults.



Hint: This step shuts down a target system from a focal point system.

104. Use SDF from AOFDB to monitor the MVSA system shutdown. Press the Tab key to move to the MVSA field and press PF8 to display the SUMMARY-STATUS panel for MVSA.

Notice what happens when VTAM terminates on MVSA. SDF functions after VTAM ends on MVSA because gateway connectivity uses XCF, not SNA. The gateway session ends when AUTONETV on MVSA ends.

When MVSA is down, all fields on the MVSA SUMMARY-STATUS panel are blue.

Press the Tab key to move to APPLS and press PF8 (Zoom). The SUBSYSTEM-STATUS panel is blank.

Press PF3 multiple times to end SDF.

105. Issue INGLIST */*/MVSA to display all resources on MVSA.

You see that each resource has a Compound status of INHIBITED and Observed status of SYSGONE.



Note: If you do not see an Observed Status of SYSGONE, ask your instructor to vary MVSA out of the sysplex to complete the shutdown. When MVSA leaves the sysplex, press PF9 to refresh the INGLIST panel.



8 Defining Application Groups exercises

In this unit, you learn to use basic and server Application Groups.

At the end of Exercise 1: Basic Application Group, you can perform the following tasks:

- Create a basic group by using the customization dialog
- Monitor a basic group
- Start and stop a basic group

At the end of Exercise 2: Server Application Group, you can perform the following tasks:

- Create a server group by using the customization dialog
- Monitor a server group
- Start and stop a server group

Data sets used in these exercises

You use several data sets in these exercises. The data set names might be different on your system. Your instructor can provide changes, if any.

- SAZOS.PDB.NEW
-

- SAZOS.ACFS.PLEXA
-

- SAZOS.ACFS.NORVAPLS
-

All data set names are in ***bold italics*** in these exercises.

If you were not able to complete [Exercise 1, “Additional customization,”](#) on page 41 you could load a similar configuration data set SAZOS.ACFS.OPSU4EX2 which is for SM927 and covers service periods and triggers and uses 4 applications: RV01, RV02, RV05, RV06:

- RV05 and RV06 have service period RV56SVP with low down from 0100 to 2100. You can create an override if you want to match the exercise.
- RV01 has start trigger RV01TRIG.

Exercise 1 Basic Application Group

In this exercise, you manage several Applications that are part of a Basic group. During the exercises, you must explain why certain situations occur. Explanations are provided at the end of the lab if you want to verify your findings. If the instructions refer to a panel ID, you can find it in the upper left of the panel.

Basic group overview

A basic group is available when all of its resource members are available.

A basic group does not propagate any votes to its members unless there is a start or stop request against the group. When a basic group is started, each of its members receives a MakeAvailable vote from the group resource. If successful, the desired status of each member is set to AVAILABLE and orders can be sent to the automation agent to start the members.

When a basic group is stopped, each of its members receives a MakeUnavailable vote from the group. If successful, the desired status of each member is set to UNAVAILABLE and orders can be sent to the automation agent to stop the members. All requests are subject to dependencies defined for the individual members of the group.

By default, basic groups are always active unless there is an action to stop the group, for example:

- An INGREQ stop command is issued
- A desired available policy of **ondemand**
- The group is linked to a schedule with service windows of downtime

For basic groups, the implied MakeAvailable vote is not propagated to its members. The members have their own implied request. The build process in the customization dialogs builds a system group resource for each system. For example, MVSA/SYG/MVSA is a basic system application group.

Create a basic group

In this exercise, you create a basic group by using the RV Applications that you created in [Chapter 5, "Additional customization exercises,"](#) on page 41.

1. Log on to TSO by using the instructions in the exercise introduction.
2. Invoke the customization dialog by using the ISPF option provided by your instructor. Open your NEWPDB Policy Data Base.
3. Select option **5** (Application Groups).

4. On the Entry Type Selection panel (AOFGENAM), create a new Application Group by entering NEW on the command line and pressing Enter.
5. On the Define New Entry panel (AOFGDYN3), fill in the following fields:


```

Entry name . . . . . RVBASIC
Type . . . . . SYSTEM
Nature . . . . . BASIC
Default preference . . . *DEF
Automation Name . . . . RVBASIC
Automatically link . . . YES
Behaviour . . . . . ACTIVE
Short Description . . . Basic group for RV01 RV02 RV03 RV04
      
```
6. Save your entries by pressing PF3.
On the Policy Selection panel (AOFGEPOL), you see an **Entry created** message in the upper right.
7. **Select** the APPLICATIONS policy item and press Enter.
8. On the Applications for Application Group panel (AOFGXC4E), **select** RV01, RV02, RV03, and RV04 and press Enter.
The status of each application changes to SELECTED. This action links each application to the RVBASIC Application Group.
9. Press PF3 to return to the Policy Selection panel (AOFGEPOL). **Select** the WHERE USED policy item and press Enter.
10. On the Where Used panel (AOFGXWHU), **select** MVSA and press Enter.
The Status changes to SELECTED. When you press PF3, a pop-up window is displayed, indicating that your group resources are being created. RVBASIC is now defined to run on system MVSA.
11. Press PF3 until you return to the Primary Menu panel.
12. Select option **3** (Report). Select option **4** (Resources report). When the report completes, select option **5** to view the report.
Verify that the Application Group RVBASIC is part of your system. Correct any errors that the report might identify.
13. Go to the Build Parameters panel (use **=2.1**). Build the complete enterprise (option **1**) for MODIFIED entries into data set **SAZOS.ACFS.PLEXA**.
When the build is finished, you see a **Build Successful** message in the upper right of the panel.

Work with basic Application Groups

14. Log on to your AOFDA NetView by following the instructions in the lab introduction.
15. Issue the INGVOTE command to verify that no votes remain from the previous exercise, except for the RVSWP Service Period vote. If there are any existing votes besides RVSWP votes, **kill** their requests.
16. Use INGLIST to monitor the status of resources. Wait until all resources have a Compound status of SATISFACTORY.
17. Temporarily load a configuration file to prepare for the testing of your definitions. Issue the following INGAMS command to load a configuration file with none of the RV Applications defined:

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

Look for the AOF540I message on your MVS console or in your NetView log.

18. Issue the ACF STATUS command and verify that the configuration file **SAZOS.ACFS.NORVAPLS** is currently being used.

You see the following message as part of the response:

```
AOF006I CONFIGURATION DATA SET = SAZOS.ACFS.NORVAPLS
```

If you do not see this message, ask your instructor for assistance.

You refreshed the automation policy, but the RV Applications are still active.

19. From AOFDA, issue the INGLKUP command.

You see the four RV Applications active. **Cancel** each RV application.

Press PF3 to end INGLKUP.

20. Ensure that no RV Applications are running on your system by entering an MVS DISPLAY command from NCCF:

```
MVS D J,RV*
```

If no RV Applications are running, you see a response like the following one:

```
IEE115I 11.48.53 2011.003 ACTIVITY 729
  JOBS      M/S      TS USERS      SYSAS      INITS      ACTIVE/MAX VTAM      OAS
00000      00016      00001      00031      00009      00001/00025      00007
RV* NOT FOUND
```

21. Issue the following INGAMS command to load your configuration file with RVBASIC defined:
INGAMS REFRESH CFG=SAZOS.ACFS.PLEXA
22. Look for message AOF540I on your MVS or NetView console or NetView log to verify that the INGAMS REFRESH command completed. Verify the result by issuing the ACF STATUS command.

You see the following message as part of the response:

AOF006I CONFIGURATION DATA SET = **SAZOS.ACFS.PLEXA**

If you do not see this message, ask your instructor for assistance.

23. Issue an INGLIST RV* command from AOFDA.

Your INGLIST panel looks like the following example:

SA z/OS - Command Dialogs							
INGKYST0				Line 1 of 5			
Domain Id : AOFDA				Date : 06/17/19			
Operator Id : INGC102				Time : 13:36:02			
Sysplex = SYSPLEX1							
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 INGWY	/ scroll		
CMD	Name	Type	System	Sus	Compound	Desired	Observed
---	RVBASIC	APG	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE
---	RV01	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE
---	RV02	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE
---	RV05	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE
---	RV06	APL	MVSA		SATISFACTORY	AVAILABLE	AVAILABLE
							Nature

The Compound status of RVBASIC and all RV Applications is SATISFACTORY. Notice that the group nature is BASIC.

If RV01 is not running, submit the RV01BKUP job.

24. Press PF4 to invoke the DISPSTAT command. All RV Applications have a status of UP. Why is RVBASIC not shown on the DISPSTAT screen?

25. Return to the INGLIST display by pressing PF3.

26. Invoke the INGGROUP (CMD J) command against RVBASIC. On the next panel (INGKYGRA), press PF4 to see the members of the group.

You see INGGROUP panel INKYGRRB.

Because this group is a basic one with four members, the SAT and AVT are also four. You cannot change those values. A request to start a basic group attempts to start all members of the group.

Also, each member has a base preference value of 700.

A status of *Sel* means that the application is currently counting towards the availability target of the group. A status of *Uns* means that it is not.

27. Press PF3 until you return to the INGLIST panel.
28. On the command line of the INGLIST panel, enter the SDF command to go to the Status Display Facility.
29. Navigate to the Application Groups (GROUPS). RVBASIC is displayed in green on the SDF panel.
30. Press PF3 until you return to the INGLIST panel.

31. From the command line of the INGLIST panel, issue the following command to cancel RV02:
 AFTER 00:00:05 MVS C RV02

In this case, you are scheduling the cancellation of RV02 after five seconds from the current time. Five seconds is enough time to return to the INGLIST panel.

32. Quickly press PF9 to refresh the screen.

You see RV02 and RVBASIC go into an Observed status of STOPPING and a Compound status of DEGRADED.

Why?

Work quickly because this status is temporary.

33. Press PF9 to refresh the INGLIST panel until RV02 and RVBASIC have a SATISFACTORY status. They have this status because RV02 is automatically restarted. Find the AOF571I message in the NetView log for the reason.

```
AOF571I 14:50:30 : RV02 SUBSYSTEM STATUS FOR JOB RV02 IS RESTART - RESTARTING
AFTER EXTERNAL SHUTDOWN AS RESTARTOPT=ALWAYS SPECIFIED
```

Why is RV02 automatically restarted?

34. Select option **E** (INGVOTE) to look at the votes for RVBASIC, RV01, RV02, RV03, and RV04. RVBASIC does not have any votes.

The RV Applications have votes. Why?

35. Press PF3 to return to INGLIST.

36. Issue an INGREQ STOP (CMD C) against RVBASIC, taking all the STOP defaults.

a. Does RVBASIC come down?

b. Why are the RV01, RV02, RV03 and RV04 Applications still active?

c. Look at the votes (CMD E) on the INGLIST panel for the RV resources. What votes do all the RV resources now have? What are the winning votes?

37. Use INGVOTE (CMD E) to **kill** the stop vote for RVBASIC.

38. Press PF9 on the INGLIST panel to verify that the Compound status of RVBASIC is SATISFACTORY.



Note: The answers to the questions in this exercise start on the next page.

Answers to Unit 8 Exercise 1 Questions

Step 24: *Why is RVBASIC not shown on the DISPSTAT screen?*

DISPSTAT shows statuses that are known by the automation agent. Groups are only known to the automation manager.

Step 32: *You see RV02 and RVBASIC go into an Observed status of STOPPING and a Compound status of DEGRADED. Why?*

While RV02 is in the process of an abnormal termination, its status goes to STOPPING. The group goes to DEGRADED because one of its members is not up.

Step 33: *Why is RV02 automatically restarted?*

The RVCLASS has a policy of RESTART=ALWAYS. The final Compound status of RV02 is SATISFACTORY because RV02 is restarted automatically.

Step 34 *The RV Applications have votes. Why?*

Basic groups, unlike Applications, have no default MakeAvailable vote. The RV Applications all have votes because of the RVSVP schedule.

Step 36a *Does RVBASIC come down?*

No.

Step 36b *Why are the RV01, RV02, RV03 and RV04 Applications still active?*

There is a MakeUnavailable vote against RVBASIC and each of the RV Applications. However, the Applications stay up because the winning vote is from the RVSVP schedule.

Step 36c *What votes do all the RV resources now have? What are the winning votes??*

Look closely at the **Priority** of the vote from the service period. Its value is 02140000. Notice the **Priority** of the stop request. Its value is 01720000. The Service Period request has a higher priority. As a result, it remains the winning vote. If you change the stop priority to be FORCE, you can stop the APG and its members.

Exercise 2 Server Application Group

In this exercise, you manage several Applications that are part of a server group. You must explain why certain situations occur. Explanations are provided at the end of the exercise, if you want to verify your results. If the instructions refer to a panel ID, you can find it in the upper left of the panel. To see the panel IDs, you must enter the PANELID command from the command line when you enter the dialogs.

If you were not able to complete [Exercise 1, “Additional customization,”](#) on page 41 you could load a similar configuration data set SAZOS.ACFS.OPSU5EX2 which is for SM927 and covers 4 APLs: RV01 RV02 RV03 RV04 as members of server group RVSERVER. You can modify the preference values if you want to match the exercise. However it does not have basic group RVBASIC.

Server groups

For a group with a server nature to be available; it can require, all or some of its members to be available. This requirement is based on an availability target which is specified when the group is defined.

Availability target (AVT) defines the optimum number of group members that must be active for the started status of the group to be SATISFACTORY. In this example, the AVT is three.

Satisfactory target defines the minimum number of group members that must be active for the started status of the group to be SATISFACTORY. In this example, the satisfactory target is two

An explicit INGREQ command is not required to start and stop each member; the group propagates the votes. Availability target, and preference values determine which members get votes. Stopping a server group is exactly like stopping a basic group. All members receive a MakeUnavailable vote.

Create a server group

1. Log on to TSO by following the instructions in the introduction.
2. Start the customization dialog by using the ISPF option provided by your instructor and open the NEWPDB Policy Data Base.
3. Select option **8** (Service Periods). Delete the RVSVP Service Period definition.
You see a Confirm Delete panel (AOFGMS05) showing that the Service Period is linked to RVCLASS.
4. Press Enter.

The Entry Name Selection panel is displayed with the message **1 entry deleted** in the upper right of the panel. No service periods are defined.

5. Press PF3 to return to the Entry Type Selection panel (AOFGETYP).
6. Select option **6** (Applications) and then select the class RVCLASS.
7. Select the APPLICATION INFO policy item. Change the Restart Option field to NEVER and press PF3 to save.
8. Using PF3, return to the Entry Type Selection panel (AOFGETYP). Select option **5** (Application Groups). Create a new Application Group by entering NEW on the command line and pressing Enter.
9. On the Define New Entry panel (AOFGDYN3), enter these values:

```
Entry name . . . . . RVSERVER
Type . . . . . SYSTEM
Nature . . . . . SERVER
Default preference . . . *DEF
Automation Name . . . . RVSERVER
Automatically link . . . YES
Behaviour . . . . . ACTIVE
Short description . . . Server group for RV01 RV02 RV03 RV04
```

10. Press PF3 to save your entries.
On the Policy Selection panel (AOFGEPOL), you see an **Entry created** message in the upper right of the panel.
11. Select the WHERE USED policy item. On the Where Used panel (AOFGXWHU), type **S** in the Action column next to MVSA and press Enter. The Status changes to SELECTED. Press PF3.
A temporary pop-up window shows a group resource being created.
12. On the Policy Selection panel (AOFGEPOL), select the APPLICATIONS policy item and press Enter.
13. On the Applications for the Application Group panel (AOFGXC4E), select RV01, RV02, RV03, and RV04. The status of each application changes to SELECTED. Press PF3.
A temporary pop-up window opens. The application resources are created.
14. On the Policy Selection panel (AOFGEPOL), select the RESOURCES policy item.
On the Select Resources panel (AOFGARS2), you see that all four RV Applications are part of the RVSERVER group. All of the RV Applications are assigned the default preference value of 700. The Availability Target has the default setting of *ALL.
15. Change the Availability Target to **2**, the preference value of RV01 to **100**, and the preference value of RV02 to **500**. Press PF3 to save.
You see a temporary pop-up progress panel.
What effect do these changes have on the operation of the group?

16. On the command line, type **=3.4** and press Enter. The Resources report (option **4**) is run. When the report is completed, press Enter.
The Report Selection Menu panel (AOFGREPK) is displayed.
17. Select option **5** to view the report. Verify that the RVSERVER Application Group is part of your system. Correct any errors that the report might identify.
18. Perform a build of the complete enterprise (option **1**) for all MODIFIED entries and use an output data set of **SAZOS.ACFS.PLEXA**.
When the build is finished, you see a **Build Successful** message in the upper right of the panel.

Work with server groups

19. Log on to your AOFDA NetView.
20. Issue the INGVOTE command. **Kill** all votes other than from RVSWP. Press PF3 when you finish.
21. Load a temporary configuration file to prepare for the testing of your definitions. Issue the following command to load a configuration file with none of the RV Applications defined:

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


Look for the AOF540I message on your MVS console or in your NetView log.
22. Issue the ACF STATUS command and verify that the configuration file **SAZOS.ACFS.NORVAPLS** is currently being used.
You refreshed the automation policy, but the RV Applications are still active.
23. From AOFDA, issue the INGLKUP command.
You see four RV Applications active. **Cancel** each RV application.
24. Press PF3 to end INGLKUP.
25. Ensure that no RV Applications are running on your system by entering an MVS DISPLAY command:

```
MVS D J,RV*
```


If no RV Applications are running, you see a response like this one:

```
IEE115I 11.48.53 2011.003 ACTIVITY 729
JOBS      M/S      TS USERS      SYSAS      INITS      ACTIVE/MAX VTAM      OAS
00000      00016      00001      00031      00009      00001/00025      00007
RV* NOT FOUND
```
26. Issue the following INGAMS command to load your configuration file:

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

27. Look for message AOF540I on your MVS console or NetView log to verify that the INGAMS REFRESH command has completed. Verify the result by entering the following command:

```
ACF STATUS
```

You see this message as part of the response:

```
AOF006I CONFIGURATION DATA SET = SAZOS.ACFS.PLEXA
```

If you do not, ask your instructor for assistance.

The configuration file that you loaded contains definitions for Applications RV01, RV02, RV03, and RV04. These Applications are defined to be part of a server group called RVSERVER.

28. Issue an INGLIST RV* command to see these resources.

You see the RV resources and their statuses, like the following example.

```

INGKYST0          SA z/OS - Command Dialogs          Line 1      of 5
Domain Id . : AOFDA          INGLIST          Date . . : 06/17/19
Operator Id : INGC102        Sysplex = SYSPLEX1    Time . . : 14:07:37
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
-----
RVSERVER    APG  MVSA          SATISFACTORY AVAILABLE  AVAILABLE  SERVER
RV01         APL  MVSA          SATISFACTORY UNAVAILABLE SOFTDOWN
RV02         APL  MVSA          SATISFACTORY AVAILABLE  AVAILABLE
RV03         APL  MVSA          SATISFACTORY AVAILABLE  AVAILABLE
RV04         APL  MVSA          SATISFACTORY UNAVAILABLE SOFTDOWN

```

Notice that RVSERVER has a group nature of SERVER. The RVBASIC group is defined also.

29. Look at the votes (CMD E) for RV01, RV02, RV03, and RV04.

You see stop votes against RV01 and RV02 from RVSERVER and start votes for RV03 and RV04 from RVSERVER.

- a. Why does the group RVBASIC have an Observed status of STARTING?

- b. Why does the group RVSERVER have an Observed status of AVAILABLE?

30. Invoke an INGGROUP (CMD J) command against RVSERVER. On the next panel (INGKYGRA), press PF4 to see the members of the group.

You see INGGROUP panel INGKYGRB.

A status of *SeI* means that the application is currently counting toward the availability target of the group. A status of *Rcv* means that it can count only toward the availability target 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 is the effective preference value for RV03 and RV04 higher than the value that you specified in the customization dialog (700)?
-

See what happens if RV03 terminates abnormally.

31. From the command line of the INGROUUP panel (INGKYGRB), issue the command
MVS C RV03 to stop RV03.

You are at NCCF temporarily to run the command, and then you return to the INGGROUP panel.

32. When you return, press PF9 to refresh the panel. You might have to press PF9 several times until RV03 has a status of Uns (unselected).

RV03 is not restarted because you changed the Restart option to NEVER for RVCLASS.

- a. Why is the group in recovery mode?
-

- b. Why is RV03 not selected with an effective preference value of zero (0)?
-

- c. Why is RV02 started?
-

- d. Why is its effective preference value higher than the value that you specified in the customization dialog (500)?
-

Suppose the problem with RV03 is fixed.

33. Use PF3 to return to the INGLIST panel. Refresh the panel by pressing PF9.

Type **A** (UPDATE) next to RV03 in the CMD column and press Enter.

Type **8** in the Action to be performed field and AUTODOWN on line 8. Press Enter. This agent status is set to AUTODOWN.

34. Press PF3 to return to the INGLIST panel. Press PF9 to refresh the display. Notice that RV03 remains down.

The Compound status of RV03 changes from PROBLEM to SATISFACTORY.

35. Invoke the INGGROUP (CMD J) against RVSERVER and then press PF4 to see the members of the group.

a. Why was RV03 not started in preference to RV02?

b. Why is the group still in recovery mode?

36. For RV03, enter an adjusted preference value of 800 by typing over the 700 in the Result column with **800**. Press Enter. RV03 is restarted.

Why does the Action column show an MU for RV02 and an MA for RV03?

37. Press PF10 to activate your changes and then press PF9 to refresh the panel. RV03 is started. Notice that the group is not in recovery mode.

a. Why is a value of 100 under the Adj column for RV03?

b. Why is the effective preference value for RV03 higher than 800?

38. Set the availability target for RVSERVER to **3** by changing the Result field and pressing Enter. Why does RV02 not have an MA in the Action column?

39. Press PF10 to activate your change. Return to the INGLIST panel by using PF3 and refresh it with PF9.

Why does RVSERVER have an Observed Status of DEGRADED?

40. Return to the INGGROUP panel (CMD J and then PF4) and set the Availability Target back to **2**. Activate your change with PF10.

41. Return to the INGLIST panel by using PF3. Press PF9 to refresh.

Why is the Observed status of RVSERVER now AVAILABLE?

Press PF3 to end INGLIST.

42. Return to the customization dialog. Open NEWPDB. Select option **5** (Application Groups) on the Entry Type Selection panel (AOFGETYP).

43. **Select the RVSERVER APG. Select the RESOURCES policy item. The Select Resources panel (AOFGARS2) is displayed.**

Change the base preference value for RV03 from 700 to **800**.

Press PF3 to save your change.

44. Enter **=2.1** on the command line and rebuild your PDB.

45. Use the INGAMS command to reload your configuration file:

```
INGAMS REFRESH,CFG=*
```

Wait for message AOF540I before continuing.

46. Issue an INGLIST RV* command. Issue the INGGROUP command against RVSERVER and then press PF4 to see the members of the group. RV03 and RV04 are active.

47. Cause RV03 to terminate abnormally by issuing an MVS C RV03 command. Press PF9 to refresh the INGGROUP display.

Why does RV02 eventually start?

48. Press PF3 until you return to the INGLIST panel. Press PF9 to refresh status.

RV03 is down (Observed Status=HARDDOWN).

49. Change the Agent status of RV03 to AUTODOWN by using the INGLIST UPDATE (CMD A) command. Press PF3 when done.

You return to the INGLIST panel.

50. Press PF9 to refresh INGLIST until you see that RV02 is down and RV03 is up.

51. Invoke INGGROUP (CMD J) against RVSERVER and then press PF4 to see the members of the group. Notice that the group is back in *normal mode*.

Why?

52. Adjust the preference value for RV02. Type over the result value for RV02 to increase it from 500 to **601**. Press PF10 to activate your change.

RV02 remains down because it has a lower preference value than RV03 and RV04.

53. Change the availability target for RVSERVER to **3** by changing the Result field and pressing Enter.

You see an MA in the action column for RV02, which indicates that RV02 is started when you activate the change.

54. Press PF10 to activate your change. Refresh the data by pressing PF9 until RV02 starts.

Why does RV02 start this time?

55. Press PF3 to end all panels.
56. Return to the customization dialog. Enter **1.5** on the command line for the Primary Menu panel to open the APG policies in the NEWPDB.
57. **Select** the RVSERVER Server APG.
58. **Select** the RESOURCES policy item.
59. Change the availability target to three (3) by specifying **-1**, and the satisfactory target to **3**. Press PF3 to save your changes.
60. Run a full build (TYPE=ALL).
61. In AOFDA, use the INGAMS command to load the changes:

INGAMS REFRESH,CFG=*

62. Issue an INGLIST RV* command to see these resources. You see the RV resources and their statuses.

The Compound status of RVSERVER is SATISFACTORY because three group members (RV02, RV03, and RV04) are active. The satisfactory target (SAT) of three resources is met.

63. Run the command INGGROUP against RVSERVER and then press PF4. Verify that the Availability Target is now 3, Result is 3, and the Satisfactory Target is 3.
64. Press PF3 until you return to INGLIST. Issue an INGREQ START against the Basic group RVBASIC. Take all of the start defaults.
Press PF9 to refresh INGLIST.

Why does RV01 start?

65. Issue an INGREQ STOP against the Basic group RVBASIC. Accept all of the stop defaults. Press PF9 to refresh INGLIST. All RV Applications stop.

Why does the Server group RVSERVER have a Compound status of INHIBITED?

66. Use INGVOTE to **kill** the stop request against RVBASIC. Press PF9 to refresh INGLIST. RVSERVER returns to a Compound status of SATISFACTORY.

Why?



Note: The answers to the questions in this exercise start on the next page.

Answers to Unit 8 Exercise 2 Questions

Step 29a Why does the group RVBASIC have an Observed status of STARTING?

RVBASIC is STARTING because not all of its members are AVAILABLE.

Step 29b Why does the group RVSERVER have an Observed status of AVAILABLE?

RVSERVER is AVAILABLE because it has an availability target of two, and two of its members are AVAILABLE.

Step 30a Why were RV03 and RV04 chosen to meet the availability target?

RV03 and RV04 were chosen because they had preference values greater than 600.

Step 30b Why are RV01 and RV02 eligible only if the group is in recovery mode?

Applications with preference values less than 601 are eligible to be started by the group only when it is in recovery mode. RV01 and RV02 are eligible to be selected only if the group is in recovery mode because their preference values are less than 601.

Step 30b Why is the effective preference value for RV03 and RV04 higher than the value that you specified in the customization dialog (700)?

RV03 and RV04 received *bonus points* from the automation manager when they were selected to meet the availability target of the group. If the group goes into recovery mode, RV02 with a higher preference values of 500 is preferred over RV01.

Step 32a Why are RV01 and RV02 eligible only if the group is in recovery mode?

The group is now in recovery mode because it was available, and one of its regular members became unavailable.

Step 32b Why is RV03 not selected with an effective preference value of zero (0)?

RV03 is unselected and has an effective preference value of zero because it is in a PROBLEM state.

Step 32c Why is RV02 started?

RV02 was started because the group is in recovery mode and it had the highest preference value (500).

Step 32d Why is its effective preference value higher than the value that you specified in the customization dialog (500)?

It then received the *bonus points* from the automation manager for helping the group to meet its availability target.

35a Why was RV03 not started in preference to RV02?

Even though RV03 is out of the PROBLEM status, it has a preference value of 700. This value is less than that of RV02, which received the *bonus points* from the automation manager.

35b Why is the group still in recovery mode?

The group remains in recovery mode because the availability target is met with a member other than a regular member.

36 Why does the Action column show an MU for RV02 and an MA for RV03?

With the INGGROUP command, you can see what happens when you press PF10 to activate the change. RV03 has a higher preference value than RV02. Consequently, an MU vote is generated for RV02 and an MA vote is generated for RV03.

37a Why is a value of 100 under the Adj column for RV03?

The automation manager remembers by how much you adjusted the preference value, not the final result.

37b Why is the effective preference value for RV03 higher than 800?

RV03 receives the *bonus points* from the automation manager for helping the group to reach its availability target.

38 Why does RV02 not have an MA in the Action column?

Even though the availability target increased to 3, RV02 is not eligible to help meet that target because the group is in normal mode. Only Applications with a preference value greater than 600 can be selected in normal mode.

39 Why does RVSERVER have an Observed Status of DEGRADED?

The group becomes DEGRADED because it cannot meet the availability target.

41 Why is the Observed status of RVSERVER now AVAILABLE?

After the availability target is back to 2, the target is met.

47 Why does RV02 eventually start?

The cancellation of RV03 puts the group in recovery mode. Now, RV02 is eligible to be started.

51 Why is the group back in normal mode?

The effective preference value for RV03 (800) is higher than the effective preference value for RV02. Therefore, an MU (MakeUnavailable) vote is generated for RV02, an MA (MakeAvailable) vote is generated for RV03, and the group returns to normal mode.

54 Why does RV02 start this time?

RV02 now has a preference value that is high enough (601, which is greater than 600) to allow it to participate in normal mode. Because the availability target was increased by 1, RV02 was started to meet the target.

64 Why does RV01 start?

RV01 starts to meet the availability target of RVBASIC. The RVBASIC MA vote takes precedence over the RVSERVER MU vote.

65 Why does the Server group RVSERVER have a Compound status of INHIBITED?

The stop vote for RVBASIC propagates to all members of the group. RVSERVER becomes INHIBITED because its start votes for RV03 and RV04 are at a lower priority than the stop votes from RVBASIC.

66 Why does RVSERVER return to a Compound status of SATISFACTORY?

After the stop votes for RVBASIC are removed, the start votes for RV02, RV03, and RV04 become the winning votes and the Applications are started. The stop vote for RV01 from RVSERVER is now the winning vote; it comes down.



9 End-to-end automation exercises

There are no student exercises for this unit.



10 Performance-based automation with OMEGAMON exercises

Exercise 1 OMEGAMON integration and exception-based automation

This exercise provides an introduction to using System Automation for z/OS with OMEGAMON for MVS to monitor resources in an enterprise.

At the end of the exercise, you can perform the following tasks:

- Import policy definitions for the OMEGAMON Applications and manage the Application Groups.
- Define sessions and proxy operators to connect System Automation for z/OS with OMEGAMON for MVS and manage the sessions.
- Issue several OMEGAMON commands from NetView.
- Define a monitor resource to monitor for OMEGAMON XREP exceptions and set the Health status of the system based on the exception.



Note: This exercise is optional

Data sets used in this exercise

You use several data sets in this exercise. The data set names might be different on your system. Your instructor can provide changes, if any.

- SAZOS.PDB.NEW

- SAZOS.ACFS.PLEXA
-

- SAZOS.PDB.ADMIN
-

All data set names are in ***bold italics*** in these exercises.

System setup overview

In these exercises, you import policy for the OMEGAMON Applications from an existing PDB that is customized for the class systems. You continue working with the NEWPDB PDB.



Note: Typically, if this is a new installation, you import the policies from the *ITM add-on and customize them.

Restart MVSA

1. Restart MVSA if it still down from the previous Unit's student exercises. Take the default IPL options. You use MVSA for the exercises in this Unit.

Remove RV01 event and trigger

2. Log on to TSO in MVSA, if you are not already logged on, by using the instructions provided by the instructor.
3. Access the customization dialog and open the NEWPDB PDB.
4. Select option **7** (EVT, events).
The Entry Name Selection panel (AOFGENAM) is displayed.
5. **Delete** RV01EVT. Press PF3 when you are done.
6. Select option **9** (TRG, triggers).
The Entry Name Selection panel (AOFGENAM) is displayed.
7. **Delete** RV01TRG.
8. Press PF3 to return to the Primary Menu panel.

Import the OMEGAMON policy

In this section of the exercise, you use the customization dialog to import a subset of policy definitions for the OMEGAMON II Applications and the System Automation for z/OS monitoring agent. You use the policies for the System Automation for z/OS monitoring agent later in this exercise.

9. Select option **4** (Policies). Add the PROD PDB to the list by entering the ADD command.

The Add a Policy Database Entry panel (AOFGPDBA) is displayed.

10. Fill in the following fields:

```
Policy Database Name . PROD
Data Set Name. . . . . 'SAZOS.PDB.ADMIN'
```

Press PF3 until you return to the Primary Menu panel.

11. Change the Current Policy Database field from PROD to NEWPDB. Select option **5** (Data Management).

12. Select option **1** (Import from PDB).

The Import entries from other Policy Database panel (AOFGIMPP) is displayed.

13. Fill in the following fields:

```
1 Import Policy Data
    Source policy Database. . . . PROD
    Entry type . . . . . APG
    Import linked entries . . . . YES
```

Select option **1** and press Enter.

The Entry Name Selection panel (AOFGIMPS) is displayed.

14. Select the following policies to import and press Enter:

Entry Name	Short Description
OMII_GROUP	APG used to link APLs to SYSs
OMII_MVS	OMII MVS application group
SA_TEMA	Tivoli Enterprise Monitoring Agent group

Press Enter to continue.

The Selected Entry Names for Import panel (AOFGIMP3) is displayed. You see a list of several Applications, Application classes, and Application Groups. In this step, you import policies for the OMEGAMON II for MVS Applications and the System Automation for z/OS monitoring agent.

Select option **3** (Run import) to continue.

In the Command Progress Display window, you see status messages for the import. When the import is complete, the Import entries from other policy panel (AOFGIMPP) is displayed, with the message, **Import successful**, in the upper right of the panel.

15. Change the Entry type field to AOP and select option **1** again. This time, you import operator definitions.

The Entry Name Selection panel (AOFGIMPS) is displayed.

16. **Select** KAH_AUTOOPS and SESS_AUTOOPS. Press Enter twice to select the policies. Select option **3** (Run import).

When the import completes, press PF3 until you return to the Primary Menu panel.

You must link the Application Groups to system MVSA.

17. Open NEWPDB. Select option **5** (APG). For each Application Group that was imported, enter an action of W to select the WHERE USED policy item:

- OMII_GROUP
- OMII_MVS
- SA_TEMA

Select system MVSA for each Application Group.

When you finish, press PF3 to return to the Entry Type Selection panel (AOFGETYP).

18. Use option **37** (AOP). Link the KAH_AUTOOPS and SESS_AUTOOPS automated operators to MVSA by using the same steps that you used for the APGs. Select MVSA for each automated operator policy.

You imported a working set of policies for use with OMEGAMON II for MVS and the System Automation for z/OS monitoring agent.

19. Press PF3 until you return to the Entry Type Selection panel.

Define OMEGAMON sessions and operators

In this section of the exercise, you use the customization dialog to define sessions between System Automation for z/OS in AOFDA with the OMEGAMON for MVS monitor running in MVSA.

20. Select option **39** (NTW) for Network policy. **Select** the BASE_NETWORK entry.

The Policy Selection panel (AOFGEPOL) is displayed.

21. **Select** the OMEGAMON SESSIONS policy item.

The OMEGAMON Sessions Definitions panel (AOFGOSON) is displayed, with no sessions defined.

22. Define a session with the OMEGAMON for MVS monitor on MVSA by entering the following information:

Session Name	Description
OMIIMVSA	OMEGAMON II for MVS on MVSA

Select the session and press Enter.

The OMEGAMON Session Attributes panel (AOFGOSOA) is displayed.

23. Define a session to the OMEGAMON II for MVS data collector (type is OMIIMVS) on MVSA. The VTAM APPLID is A01M2RC.

VTAM Applid. . . A01M2RC

Type OMIIMVS

You do not need a user ID or password. Press PF3 until you return to the Policy Selection panel (AOFGEPOL).

24. **Select** the WHERE USED policy item. Only MVSA has a status of SELECTED. Remove any other systems from the list.
25. Press PF3 until you return to the Entry Type Selection panel (AOFGETYP). Select option **37** (AOP, Auto Operators).
26. On the Entry Name Selection panel (AOFGENAM), **select** SESS_AUTOOPS.
27. **Select** the OPERATORS policy item.

The Automation Operator Definitions panel (AOFPIAO0) is displayed with three Automated Function definitions listed: AOFSES01, AOFSES02, and AOFSES03.

28. **Select** AOFSES01.

The Automation Operator Definitions panel (AOFPIAO1) is displayed. The primary automation operator is AUTSES01. AUTSES01 is the name of the NetView autotask that will be logged on. These autotasks are also the *proxy operators* used for the sessions with the OMEGAMON monitors.

Do not change the automation operator.

29. Press PF3 until you return to the Policy Selection panel for SESS_AUTOOPS.
30. **Select** the WHERE USED policy item. Verify that MVSA has a status of SELECTED.
31. Press PF3 until you return to the Primary Menu panel.



Note: Please skip the rest of the exercise for this unit

Build the ACF

You defined several OMEGAMON Applications, Application Groups, Application classes, a session to the OMEGAMON II for MVS monitor, three proxy operators, and the System Automation for z/OS monitoring agent.

32. Build the PDB, specifying the complete enterprise (option **1**), into data set **SAZOS.ACFS.PLEXA**:

Build options:

```
Output Data Set . . . . 'SAZOS.ACFS.PLEXA'
Mode. . . . . ONLINE      (ONLINE BATCH)
Type. . . . . ALL          (MODIFIED ALL)
Configuration . . . . . NORMAL (NORMAL ALTERNATE)
```

When the build is finished, you see a **Build Successful** message in the upper right of the panel.

33. Press PF3 until you return to the Primary Menu panel.

Verify OMEGAMON Application policy

In this section of the exercise, you verify the policy definitions that were imported from the PROD PDB for the OMEGAMON Applications.

34. On AOFDA, issue an INGAMS REFRESH CFG=* command to load the ACF with your policy definition changes.
35. Issue an INGLIST OMII* command to see the status of the OMEGAMON II for MVS Application Group, OMII_MVS.

The Compound status is SATISFACTORY with a Desired status of UNAVAILABLE.

Why do you think the Application Group is down?

36. Issue a start request (option **B**) for the OMII_MVS group. Accept all of the default values on the INGREQ panel (INGKYRU0).
37. Monitor the status of OMII_MVS from the INGLIST panel. Press PF9 (you might have to do this several times) to refresh the data.
- Wait until the Compound status of OMII_MVS is SATISFACTORY.
38. Issue INGLIST option G for OMII_MVS to display the group members.

The INGLIST panel displays the OMEGAMON Applications that are members of OMII_MVS. All but one Applications has a SATISFACTORY Compound status:

Name	Type	System	Compound	Desired	Observed
CANSETE	APL	MVSA	PROBLEM	AVAILABLE	HARDDOWN
CANSM2	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
CANSM2CS	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
CANSM2EZ	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
CANSM2HD	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
CANSM2HI	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE
CANSM2RC	APL	MVSA	SATISFACTORY	AVAILABLE	AVAILABLE



Note: CANSETE does not start. You can ignore this issue because it is not used in the student exercises.

39. Press PF4 to issue a DISPSTAT command.

DISPSTAT shows each Application with a status of UP.

40. Press PF3 multiple times to end DISPSTAT and INGLIST.

Verify OMEGAMON session connectivity

In this section of the exercise, you verify the session connectivity between AOFDA and the OMEGAMON for MVS monitor Application.

41. Issue an INGSESS command and verify that the session you defined is listed.

You see the INGESS panel (INGKYSS0) with the following information:

Session	System	Type	status	Appl-id	User id	SessOper
OMIIMVSA	MVSA	OMIIMVS	INACTIVE	A01M2RC		AOFSES01

42. Use option B to start the session.

The session status changes to ACTIVE.

43. Use option D to display details for the OMIIMVSA session. Use PF8 to scroll down to the session statistics section.

The session statistics are zero because the session was just started. Because there are no monitor resources defined, the statistics display only operator commands.

44. Press PF6 to ROLL to NCCF. Use INGOMX to issue an OMEGAMON CSAA command to OMEGAMON for MVS monitor (OMIIMVSA):

```
INGOMX EXECUTE,NAME=OMIIMVSA,CMD=CSAA
```


45. Press PF12 to retrieve the INGOMX command. While it is displayed on the NetView command line, press PF10 to issue the INGOMX command and display the output with the NetView WINDOW function. The output of the CSAA command is more readable now. Press PF3 to end the WINDOW panel.
46. Press PF6 to ROLL back to INGSESS. Press PF9 to refresh the INGSESS details data. In the Users field, you see your operator ID. The **Total # Commands** field is 2, as shown in the following example:

```
Users                : INGC200
```

```
Statistics...
```

```
Total # Commands      :          2
Total # exception analysis :          0
Total # exceptions tripped :          0
```

47. Issue an INGOMX command to retrieve XREP exceptions from the OMEGAMON for MVS monitor (OMIIMVSA):

```
INGOMX TRAP,NAME=OMIIMVSA,XTYPE=XREP
```

Press PF9 to refresh the INGSESS details. The Total # exception analysis is **1** because of the INGOMX TRAP command. The Total # exceptions tripped is **0** if there are no XREP exceptions. The Total # exceptions tripped is **1** if there is an XREP exception.

48. Issue an INGOMX command to retrieve SWPC (Swap Page Count) exceptions from the OMEGAMON for MVS monitor (OMIIMVSA):

```
INGOMX TRAP,NAME=OMIIMVSA,XTYPE=SWPC
```

Refresh the INGSESS details for the session again.

The Total # exception analysis field was increased by one because you entered the INGOMX TRAP command.

What does the Total # exceptions tripped field display now?

-
49. Press PF3 to end the INGSESS details. Stop (cmd **C**) and start (cmd **B**) the OMIIMVSA session. Look at the session details (cmd **D**) again.

The statistics are zero again. Why?

-
50. Press PF3 to end INGSESS.

Define a monitor resource for OMEGAMON exceptions

In this section of the exercise, you use the customization dialog to create a monitor resource (MTR) for exception-based automation of OMEGAMON for MVS XREP exceptions.

51. Return to your TSO session and open the NEWPDB. Select option **11** (Monitor Resources).

The Entry Name Selection panel (AOFGENAM) is displayed.

Type NEW on the command line and press Enter to define a new monitor resource definition.

The Define New Entry panel (AOFGDYN2) is displayed.

52. Fill in the following fields:

Entry name XREPMONA

Short description . . . Monitor res for OM XREP exceptions

Press PF3 to save.

53. Select the MONITOR INFO policy item.

The Monitor Resource Information panel (AOFGMTR) is displayed.

54. Define a monitor to retrieve OMEGAMON XREP exceptions every two minutes (XREP = Exception for outstanding replies):

Monitor command . . .

INGMTRAP NAME=OMIIMVSA XTYPE=XREP

Monitoring Interval. . . . 00:02

Captured Messages Limit. . 25

Do not define an activate or deactivate command. The INGMTRAP command is also known as the *monitor routine*. The schedule is based on the defined monitoring interval.

What happens if you do not code a monitoring interval?

Press PF3 to save your definition.

55. Select the MESSAGES/USER DATA policy item. Set the Health status of the monitor resource to WARNING when an XREP exception is detected.

Define + XREP as the *Message ID* and type an **A** (AT) in its Cmd column.

Notice that there is a **blank** after the plus sign (+). The message ID is six characters.

Press Enter.

The Message Automation Overview panel (AOFGMADV) is displayed. There are no AT or MRT entries.

56. Enter option **AS** (AT status) to display the AT Status Specification panel (AOFGMAT1) and press Enter.

57. **Select WARNING for the Monitor status and press Enter.** This step sets the Health status of the monitor resource to WARNING every time an XREP exception is detected.

Press PF3.

You now see an AT entry on the Message Automation Overview panel:

Message ID : + XREP

Generated AT entry :

```
IF TOKEN(5) = 'XREP' THEN
  EXEC (CMD ('INGMON 'MTRNM', STATUS=WARNING'))
  ROUTE (ONE %AOFOPGSSOPER%) ;
```

Press PF3 until you return to the Message Processing panel.

58. Enter CMD in the Action column for the +XREP message.

The CMD Processing panel (AOFGDYN9) is displayed.

59. Define the following command to be run every time an XREP exception is detected and press PF3 to save:

```
Cmd Ps/Select  AutoFn/* Command Text
                                MSG ALL XREPMONA DETECTED AN EXCEPTION
```

Do not define any command PASSes.

Press PF3 until you see the Policy Selection panel.

60. **Select the RELATIONSHIPS policy item.** No relationships are defined. Enter NEW on the command line to define a relationship between the monitor resource and the OMEGAMON for MVS Application.

61. Define a HasParent relationship:

```
Monitorname:      XREPMONA
Relationship Type. . HASPARENT
Supporting Resource. CANSM2RC/APL/MVSA
```

Press PF3 until you see the Policy Selection panel.

Why is the relationship needed?

62. **Select the WHERE USED policy item.** **Select the MVSA system and press PF3 to save your choice.**

Why did you only select MVSA?

You now have a monitor resource defined to query XREP exceptions from the OMEGAMON for MVS monitor Application. The monitor resource runs on MVSA (AOFDA) by using the OMEGAMON session (OMIIMVSA).

63. Build the ACF for your complete enterprise into **SAZOS.ACF.S.PLEXA**.

64. When the build completes, refresh the ACF in AO FDA:

```
INGAMS REFRESH CFG=*
```

Verify your XREP monitor resource definitions

In this section of the exercise, you verify your policy definitions for the XREPMONA monitor resource. Remember, XREPMONA is performing exception-based automation.



Note: The OMIIMVSA session and OMII_MVS Application Group are active from the previous exercise. If they are not, start them before you continue.

65. Issue the DISPMTR XREP* command in AO FDA.

You see the monitor resource running (status is ACTIVE). The Health Status field indicates whether an XREP exception is detected. If the Health status is NORMAL, then no exception is detected. If the Health status is WARNING, then an XREP exception was detected by the monitor routine, INGMTRAP.

66. Select **D** (details) for the monitor resource.

You see data like the following example:

```
Monitor status   : ACTIVE   at 2010-12-15 15:12:22
Health status    : WARNING
ING080I XREPMONA/MTR/MVSA OMIIMVSA OMIIMVS XREP Number of
                Outstanding Replies = 5
```

The exception generated an ING080I message that contains the monitor name (XREPMONA), session name (OMIIMVSA), session type (OMIIMVS), and the text of the OMEGAMON exception message.

67. Press PF6 to ROLL to NCCF.

You see one or more DSI039I messages based on your CMD definition in the monitor resource policy:

```
DSI039I MSG FROM AUTWRK07 : XREPMONA DETECTED AN EXCEPTION
```

The name of the autotask, AUTWRK07, might be different on your system. The DSI039I is the result of the command (MSG ALL) that you defined for the XREP exception.

68. Issue the INGSESS command. Look at the session details (**D**) for the OMIIIMVSA session. You see statistics like the following example:

Statistics...

```
Total # Commands           :           0
Total # exception analysis :           2
Total # exceptions tripped :           2
```

What do those statistics mean?

69. Let the monitor resource run for several minutes.

70. Issue the NetView TIMER command.

You see the TIMER MANAGEMENT panel (EZLK6000) with a timer entry like the following example:

Timer ID	Scheduled	Type	Interval	Task	Save
AOFI005E	01/13/11 11:31:53	AFTER		PPT	
AOFRASCD AOFWRK13 AOFRSMTR MONITOR,XREPMONA/MTR/MVSA					

The monitor routine (INGMTRAP) is scheduled every two minutes, based on the policy for the XREPMONA monitor resource.

Suppose someone asks you to reset the XREPMONA monitor. List the ways in which you can reset a monitor resource.

71. Use DISPMTR to stop the XREPMONA monitor. The status is INACTIVE.



Note: Answers to the questions in this exercise start on the next page.

Answers to Unit 10 Exercise 1 Questions

Step 33

The OMII_MVS Application Group is down because of a Desired Available policy of ONDEMAND.

Step 46

The **Total # exceptions tripped** field value equals the number of lines in the response to your INGOMX TRAP XTYPE=SWPC command. Each line in the response drives System Automation for z/OS exception processing. For example, this response generates six exceptions:

SWPC STC INETD4	Excessive Swap counts = 7
SWPC STC BPXOINIT	Excessive Swap counts = 1998
SWPC STC FTPD1	Excessive Swap counts = 6
SWPC STC RXSERVE	Excessive Swap counts = 6
SWPC STC OSNMPD	Excessive Swap counts = 13
SWPC STC SNMPQE	Excessive Swap counts = 21

You must know the expected output when you define monitor resources. One request might generate multiple exceptions.

Step 47

Every time you stop the session, all statistics are reset to zero (0).

Step 50

If you do not define the monitoring interval and a monitor routine is defined, then the routine is run once, when the monitor resource is started.

Step 56

The HasParent relationship is *extremely* important. It ensures that the OMEGAMON for MVS Application is running before the System Automation for z/OS monitor resource is started. This relationship prevents errors that can be caused by attempting to use the session before the OMEGAMON Application is active.

HasParent also stops the System Automation for z/OS monitor resource when the OMEGAMON Application stops, eliminating wasteful processing, which can also place the session in an error state.

Step 57

By selecting MVSA, you activate the XREPMONA on MVSA only. The monitor does not need to run on all systems, because it is retrieving XREP exceptions from the OMEGAMON for MVS on MVSA.

Step 62

The statistics field values have the following meanings:

- *Total # Commands = 0*: No commands (INGOMX EXECUTE CMD=) were issued.
- *Total # exception analysis = 2*: The monitor routine was run two times.
- *Total # exceptions tripped = 2*: Two exceptions were generated from the monitor routine, which might mean that each time the monitor routine was run, an exception was detected. Alternatively, it might mean that one time, two exceptions were detected.

There is no guarantee that you can correlate the **Total # exception analysis** field with the **Total # exceptions tripped** field. For XREP exceptions, you can make a correlation between the two fields because XREP returns only one message. Remember from the SPWC exception example that SWPC can generate one or more messages each time it is used.

Step 65

Although you can use **DISPMTR** option **A** to reset a monitor resource, the best way to reset the monitor is to use the **INGMON** command, like the following one:

```
INGMON XREPMONA MSGTYPE=XREP CLEARING=YES STATUS=NORMAL MSG='RESET XREPMONA
DONE BY OPER1'
```

Afterward, you issue DISPMTR and select option D (details) for XREMONA. You see data like the following example:

```
Monitor status : ACTIVE at 2006-01-16 17:05:40
Health status  : NORMAL
                RESET XREPMONA DONE BY OPER1
```

Before the INGMON command was issued, the Health status was WARNING. It is now temporarily cleared, with a message to indicate that status.



11 Migration and coexistence exercises

There are no student exercises for this unit.



APPENDIX A **Appendix**

