System Automation for z/OS
Version 4.Release 1

Defining Automation Policy

SC34-2717-01

Note

Before using this information and the product it supports, read the information in Appendix D, “Notices,” on page 387.

Edition Notes

This edition applies to IBM® System Automation for z/OS (Program Number 5698-SA4) Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC34-2717-00.

© Copyright International Business Machines Corporation 1996, 2017.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Figures ..... **ix**

Tables ..... **xxi**

Accessibility ..... **xxiii**
Using assistive technologies xxiii
Keyboard navigation of the user interface xxiii

About this publication ..... **xxv**
Who Should Use This Publication xxv
Notes on Terminology xxv
Where to Find More Information xxv
The System Automation for z/OS Library xxv
Related Product Information xxvi
Summary of Changes for SC34-2717-01 xxvi
New Information xxvi
Changed Information xxvii
Deleted Information xxvii

Chapter 1. Introducing the Customization Dialog **1**
How to Define Automation Policy: An Outline 1
Entry Type Introduction 2
Policy Objects and Policy Items 4
Considerations for Automation 6
Assigning System Automation Symbols (AOCCLONE) 7
Using System Symbols and System Automation Symbols 8
Nested Classes 11
Class Hierarchy 12
Inheritance and Defaulting 12

Chapter 2. Using the Customization Dialog **15**
How to Start the Customization Dialog 15
Getting Help 17
How to Navigate in the Customization Dialog 17
How to Use an Entry Type as a Fast Path 18
How to Use a Policy Item as a Fast Path 18
Concurrent User Access 19
How to Cancel Input on a Panel 19
How to Create New Policy Objects 19
How to Rename a Policy Object 20
How to Delete Policy Objects 21
How to Delete a Single Policy Object 21
How to Delete Several Policy Objects in One Go (Bulk Deletion) 22
How to Browse a Policy Item 23
How to Find Data in a Policy Item 23
How to View Long Input Fields in Full Length 25
Common Policy Items 26
DESCRIPTION Policy Item 26
COPY Policy Item 26

WHERE USED Policy Item ... 28
Select ... 30

Chapter 3. Scenarios on How to Use the Customization Dialog ... 33
How to Work with Resources ... 33
A Grouping Scenario ... 33
Grouping the Resources ... 35
How to Use Schedules (Service Periods) ... 54
Schedule Override ... 54
Early Start ... 55
How to Use Triggers and Events ... 55
Scenario Environment and Behavior ... 55
A Possible Solution ... 55
How to Use User E-T Pairs ... 61
Step 1: Specifying User Data in the Customization Dialog ... 61
Step 2: Access the User Data ... 62
How to Implement Message Processing with User-Defined Data ... 63
Step 1: Specify the User-Defined Data ... 63
Step 2: Specify the Commands ... 64
Step 3: Update the NetView Automation Table ... 64
Step 4: Write the REXX Script ... 66
How to Work with Externally Stopped and Started Resources ... 67
Configuring a resource that is externally started ... 67
External Startup Sequence ... 68
Configuring a Resource that is Externally Stopped ... 68
FORCEDOWN - Configuring a Resource to be Automatically Shutdown ... 69
Working with MONITOR Resources ... 69
Passive and Active Monitors ... 69
Monitor Status ... 70

Chapter 4. Entry Type Reference ... 71
Defining Automation for OPC Components ... 72
Enterprise Entry Type ... 73
Policy Items for an Enterprise ... 73
SEND COMMAND OPERS Policy Item ... 74
INGSEND PARMS Policy Item ... 75
PROCOPS FOCAL POINTS Policy Item ... 76
USER MSG CLASSES Policy Item ... 76
SYMBOL DESCRIPTION Policy Item ... 77
Group Entry Type ... 78
Creating a New Group ... 78
Policy Items for Standard Groups ... 79
Policy Items for Sysplex Groups ... 80
GROUP INFO Policy Item ... 81
SYSPLEX Policy Item ... 82
LOCAL PAGE DATA SET Policy Item ... 83
JOB DEFINITIONS Policy Item ... 84
JOB/ASID DEFINITIONS Policy Item ... 84
COMMAND DEFINITIONS Policy Item ... 85
COMMAND FLOODING Policy Item ... 87
RESOURCE DEFINITIONS Policy Item ... 87
RECOVERY OPTIONS Policy Item ... 88
SubGroup Entry Type ... 89
Creating a New SubGroup ... 89
Policy Items for SubGroups ... 90
System Entry Type ... 91
Creating a New System ... 91

Policy Items for Systems....92
SYSTEM INFO Policy Item....95
AUTOMATION SYMBOLS Policy Item....96
AUTOMATION CONSOLE Policy Item....97
PROCESSOR Policy Item....98
TARGET SYSTEM INFO Policy Item....99
IPL INFO Policy Item....100
ApplicationGroup Entry Type....102
Creating a New ApplicationGroup....102
Policy Items for ApplicationGroups....105
APPLGROUP INFO Policy Item....107
APPLICATIONS Policy Item....109
TRIGGER Policy Item....110
SERVICE PERIOD Policy Item....110
RELATIONSHIPS Policy Item....110
RESOURCES Policy Item....115
GENERATED RESOURCES Policy Item....122
MEMBER OF Policy Item....122
Application Entry Type....123
Creating a New Application....123
Policy Items for Applications....127
UPWARD CLASS Policy Item....130
DOWNWARD CLASS/INST Policy Item....131
APPLICATION INFO Policy Item....132
AUTOMATION FLAGS Policy Item....140
APPLICATION SYMBOLS Policy Item....142
TRIGGER Policy Item....143
SERVICE PERIOD Policy Item....143
RELATIONSHIPS Policy Item....143
MESSAGES/USER DATA Policy Item....144
STARTUP Policy Item....160
SHUTDOWN Policy Item....163
THRESHOLDS Policy Item....169
MINOR RESOURCES Policy Item....170
SYSTEM ASSOCIATION Policy Item....172
GENERATED RESOURCES Policy Item....172
MEMBER OF Policy Item for Applications....173
Policy Items for JES2 Subsystems....173
Policy Items for JES3 Subsystems....177
Policy Items for CICS Subsystems....178
Policy Items for DB2 Subsystems....180
Policy Items for IMS Subsystems....181
Policy Items for OPC Subsystems....182
Policy Items for USS Subsystems....183
Events Entry Type....186
Creating a New Event....186
Policy Items for Events....187
CONDITION Policy Item....188
Service Periods Entry Type....188
Policy Items for Service Periods....188
SERVICE WINDOW Policy Item....189
Triggers Entry Type....191
Policy Items for Triggers....191
CONDITION Policy Item....191
Processor Entry Type....193
Creating a New Processor....193
Policy Items for Mainframe Processors....195
Policy Items for PSM Processors....201

Monitor Resource Entry Type 204
Policy Items for Monitor Resources 205
MONITOR INFO Policy Item 206
MESSAGES/USER DATA Policy Item 208
HEALTHSTATE Policy Item 213
TRIGGER Policy Item 214
zEnterprise Ensembles Entry Type 214
Creating a New zEnterprise Ensemble 214
Policy Items for zEnterprise Ensembles 215
ENSEMBLE INFO Policy Item 215
Pacing Gates Entry Type 217
Policy Items for Pacing Gates 217
PACING GATE INFO Policy item 217
OPC System Detail Entry Type 218
OPCAO ENVIRON Policy Item 218
OPC Controller Details Entry Type 219
OPCA PCS Policy Item 219
OPC Special Resources Entry Type 220
SPECIAL RESOURCE Policy Item 221
OPC Workstation Domains Entry Type 221
Code Processing for OPC Workstation Domains 222
Messages Entry Type 223
Messages Policy Items 223
MESSAGE AUTOMATION Policy Item 224
MPF DEFINITIONS Policy Item 226
AT/MRT INSERTS Policy Item 227
BUILD CONTROL Policy Item 228
Timers Entry Type 229
TIMERS Policy Item 229
Tape Attendance Entry Type 232
ATTEND TIME Policy Item 233
MVS Component Entry Type 234
Policy Items for MVS Component 234
PREDEFINED MESSAGES Policy Item 235
MESSAGES/USER DATA Policy Item 237
MINOR RESOURCES Policy Item 238
MVSCOMP Defaults Entry Type 238
Policy Items for MVSCOMP Defaults 238
System Defaults Entry Type 239
Policy Items for System Defaults 239
AUTOMATION OPTIONS Policy Item 240
Application Defaults Entry Type 241
Policy Items for Application Defaults 241
Automation Operators Entry Type 242
Policy Items for Automation Operators 242
Notify Operators Entry Type 245
Policy Items for Notify Operators 245
NOTIFY OPERATORS Policy Item 246
Network Entry Type 249
Policy Items for Network 250
SDF FOCALPOINT Policy Item 250
FULL SESSIONS Policy Item 251
GATEWAY Policy Item 252
OMEGAMON Policy Item 253
AUTHENTICATION Policy Item 255
SOAP SERVER Policy Item 255
Sysplex Defaults Entry Type 258
Policy Items for Sysplex Defaults 258

RESOURCE INFO Policy Item....258
Resident CLISTs Entry Type....259
Policy Items for Resident CLISTs....259
Status Display Entry Type....260
Policy Items for Status Display....260
SDF DETAILS Policy Item....260
Remote Domains Entry Type....262
Policy Items for Remote Domains....262
DOMAIN INFO Policy Item....263
REFERENCES Policy Item....263
Resource References Entry Type....263
Policy Items for Resource References....264
User E-T Pairs Entry Type....265
Policy Items for User E-T Pairs....265
E-T DATA Policy Item....266

Chapter 5. Policy Database Maintenance....269
Policy Database Selection List....269
Creating a New Policy Database....270
Using SA z/OS Sample Policies....273
Specifying Options for Policy Databases....274
Logging Policy Database Modifications....276

Chapter 6. Creating Reports about Policy Databases....279

Chapter 7. Building and Distributing Configuration Files....287
How to Define Data Sets for Build Processing....287
Building the Configuration Files....287
Configuration Files Build Options....288
Distributing the Configuration Files....292
Generating a Job for Batch Build....293

Chapter 8. Automation Table, Message Revision Table, and MPFLSTxx member...295
The NetView Automation Table....295
The NetView Message Revision Table....295
Enabling AT Updates....296
Setting AT/MRT Scope....296
MPFLSTxx member....296
System and Application Specific Overrides....297
The INGMSGSA Automation Table....298
Predefined SA z/OS Messages....298
The +SA_PREDEFINED_MSGS MVS Component Entry....298
Modifying Predefined Messages....299
How to Apply Service Updates....299

Chapter 9. Data Management....305
Start Panel for Data Management....305
Importing Policy Database Data....305
Batch Import with Data Modification....308
Importing Sample Add-On Policies....309
Making Updates with Text Files....311
Supported Policies....312
Updating Policy Objects Using Text Files....313
Creating New Policy Objects Using Text Files....318
Deleting Policy Objects Using Text Files....320
Generating a Job for Batch Update....321

Chapter 10. Conversion Function....323
Moved and Restructured Data....323
Converting from SA z/OS 3.5....323
Converting from SA z/OS 3.4....323
Initial Policy Database Conversion....324
Selective Policy Database Conversion....324
Generating a Job for Batch Conversion....324
Write Data to File using a Batch Job....324

Appendix A. Concurrent Customization by Multiple Users....325
Concurrent User Access Capabilities....325
Concurrent User Access within the Customization Dialog....325
Policy Definitions Usage....325
Policy Database Selection....326
Entry Type Selection....326
Entry Name Selection....326
Changing Links....326

Appendix B. More about Using the Customization Dialog....327
Changing Your Customization Dialog Environment....327
Enabling and Disabling AT / MRT Syntax Checking....328
Extending Policy Definitions....329
Defining Data Sets for Batch Processing....332
Defining ISPF Temporary Data Sets for Batch Build....334
User-written Functions....334
Alternate and Tertiary Configuration Support....335
How to Define Alternate and Tertiary Configurations for Systems....336
How to Build Alternate and Tertiary Configurations....336
Restrictions....336

Appendix C. Add-on policies....339
*BASE....340
*CICS....346
*DB2....348
*E2E....351
*GDPS....354
*IBMCOMP....356
*IMS....364
*ITM....368
*IWS....374
*PROCOPS....376
*SAPSRV....380
*TBSM....385

Appendix D. Notices....387
Trademarks....388
Terms and conditions for product documentation....388
Glossary....391

Index....423

Figures

1. Entry Type Selection Panel....5
2. Entry Name Selection Panel for Groups.... 5
3. Policy Selection Panel for Sysplex Groups.... 6
4. Nested Class Links.... 12
5. Inheritance from Classes and Defaulting.... 13
6. Customization Dialog Primary Menu....16
7. Define New Entry Panel for an Application....20
8. Sample Generic Define New Entry Panel....20
9. Entry Name Selection Panel: Rename Action....21
10. Entry Name Rename Pop-up Panel.... 21
11. Delete Confirmation Panel for a Single Policy Object.... 22
12. Confirmation Panel for Bulk Deletion with WHERE USED Links.... 22
13. Sample Description Policy Item Panel.... 26
14. Hierarchy of Entry Types....29
15. Policy Selection Panel....30
16. Applications for ApplicationGroup Panel for System Application Groups.... 30
17. Application Groups....34
18. Grouping of Applications into Nested ApplicationGroups.... 35
19. Scenario: Current Configuration with Sysplex Application Group CICSAOR....40
20. Scenario: Current Configuration with Applications CICS1AR1, CPSMCMAS, CPSMWUI....41
21. Scenario: Resources for the CICSAOR Sysplex Application Group.... 41
22. Scenario: Current Configuration with Application Group DB2....42
23. Scenario: Current Configuration with Applications Linked to DB2.... 43

24. Scenario: Select System Panel for DB2 Application group....43
25. Scenario: Select Resources Panel for DB2 Application Group....44
26. Scenario: Grouping Resources....45
27. Scenario: Resources for the CICS Sysplex Application Group....45
28. Scenario: Current Configuration with Applications Linked to DB2....45
29. Scenario: Select Resources Panel for Application Group NET....46
30. Scenario: Select Resources Panel for DWHAPG with valid APG Resources....47
31. Scenario: Select Resources Panel for DWHAPG2....48
32. Scenario: Select Resources Panel for DWHAPG2 after Selection....49
33. Scenario: Select Resources Panel for DWHAPG3....49
34. Scenario: Select Resources Panel for DWHAPG with Valid APG Resources....50
35. Scenario: Setting Preferences with the Select Resources Panel for DWHAPG....50
36. Scenario: Select Resources Panel for DWHAPG with Converted Preferences....51
37. Scenario: Define New Entry Input Panel for WBSRVAPG....53
38. Scenario: Final Select Resources Panel for WBSRVAPG....54
39. Policy Objects in the Solution....56
40. Generated Resources in the Solution....57
41. UET Entry-Type Selection Panel....62
42. UET Keyword-Data Specification Panel....62
43. Scenario: Using the Message Processing Panel....63
44. Scenario: User Data Processing Panel....64
45. Scenario: Command Processing Panel....64
46. Scenario: Message Processing Panel for AT Entry....65
47. Scenario: Message Automation Overview Panel Default Values....65
48. Scenario: Editor with User Values for Automation Table Entry....65

49. Scenario: Message Automation Overview with User Values....66
50. Entry Type Selection Panel....71
51. Entry Type Selections for Product Automation Panel....72
52. Policy Selection Panel for Enterprises....73
53. Operator Profile for Sending Commands Panel....74
54. INGSEND Command Parms Panel....75
55. Processor Operations Focal Point Information Panel....76
56. User Message Classes Panel....77
57. System Automation Symbols (AOCCLONEx) Description Panel....77
58. Define New Entry Panel for a Sysplex Group....78
59. Policy Selection Panel for Standard Groups....79
60. Policy Selection Panel for Sysplex Groups....80
61. Group Information Panel for Standard Groups....81
62. Sysplex Policy Definition Panel for Sysplex Groups....82
63. Local Page Data Set Recovery Panel....83
64. Local Page Data Set Recovery Job Definition Panel....84
65. Long Running ENQ Job/ASID Definitions Panel....85
66. "Hung" Command Definitions Panel....86
67. Command Flooding Definition Panel....87
68. Long Running ENQ Resource Definition Panel....87
69. Recovery Options Panel....88
70. Define New Entry Panel for a Subgroup....90
71. Policy Selection Panel for Subgroups....90
72. Define New Entry Panel for a System....91
73. Policy Selection Panel for Systems....93

74. System Information Panel..... 95

75. Automation Symbols Panel.....97

76. Environment Definition: CONSOLE (Route Codes) Panel.....98

77. Select Target Hardware for System Panel..... 99

78. Target System Information Panel..... 99

79. MVS Target System IPL Information Panel..... 101

80. VM Target System IPL Information Panel..... 102

81. Define New Entry Panel for a Sysplex Application Group.....103

82. Policy Selection Panel for System Application Groups.....106

83. Application Group Information Panel..... 107

84. Applications for ApplicationGroup Panel for System Application Groups..... 109

85. Trigger for ApplicationGroup Panel..... 110

86. Service Period for ApplicationGroup Panel for System Application Groups..... 110

87. Relationship Selection List Panel..... 111

88. Define Relationship Panel.....112

89. Example of Strong Chaining.....115

90. Select Resources for ApplicationGroup Panel..... 116

91. Generated Resources Panel..... 122

92. Member of Panel for ApplicationGroups..... 122

93. Define New Entry Panel for Applications..... 123

94. Policy Selection Panel for Applications.....127

95. Upward Link to Class Panel..... 130

96. Downward Link to Classes or Instances Panel..... 131

97. Application Information Panel..... 133

98. Flag Automation Specification Panel..... 141

99. Application Symbols Panel..... 142
100. Trigger for Application Panel..... 143
101. Service Period for Application Panel..... 143
102. Relationship Selection List Panel..... 144
103. Message Processing Panel..... 144
104. Command Processing Panel for Applications..... 147
105. Reply Processing Panel for Applications..... 148
106. Code Processing Panel..... 149
107. User Data Processing Panel for Applications..... 152
108. Message Automation Overview Panel..... 153
109. Automation Table entry Conditions Panel..... 154
110. AT Status Specification Panel..... 155
111. Editor Panel to Specify an AT Override..... 156
112. Message Revision Table Conditions Panel..... 157
113. Editor Panel to Specify an MRT Override..... 158
114. MPF Specification Panel..... 158
115. AT/MRT/MPF Ignore Specification Panel..... 159
116. Using the STARTUP Policy Item..... 160
117. Subsystem Startup Processing Panel..... 161
118. Command Processing Panel for Startup Commands..... 162
119. Subsystem Shutdown Processing Panel..... 163
120. Command Processing Panel for SHUTINIT or SHUTFINAL..... 165
121. Command Processing Panel for SHUTNORM, SHUTIMMED, or SHUTFORCE..... 166
122. Reply Processing Panel for SHUTINIT..... 167
123. Reply Processing Panel for SHUTNORM, SHUTIMMED and SHUTFORCE..... 168

124. Thresholds Definition Panel..... 169
125. Minor Resource Definitions Panel..... 170
126. System Association Panel..... 172
127. Generated Resources Panel..... 172
128. Member of Panel for Applications..... 173
129. Policy Selection Panel for JES2 Subsystems..... 173
130. SPOOLFULL Specification Panel for JES2..... 174
131. SPOOLFULL Processing Panel for JES2..... 175
132. SPOOLSHORT Specification Panel..... 176
133. SPOOLSHORT Commands Processing Panel for JES2..... 176
134. JES2 DRAIN Specification Panel..... 177
135. Policy Selection Panel for JES3 Subsystems..... 177
136. JES3 SPOOLFULL Processing Panel..... 178
137. JES3 SPOOLSHORT Processing Panel..... 178
138. Policy Selection Panel for CICS Subsystems..... 179
139. CICS Control Specifications Panel..... 179
140. Policy Selection Panel for DB2 Subsystems..... 180
141. DB2 Control Entries Panel..... 180
142. Policy Selection Panel for IMS Subsystems..... 181
143. IMS Control Region Specifications Panel for Subcategory CTL..... 182
144. Policy Selection Panel for OPC Subsystems..... 182
145. OPC control specifications Panel..... 183
146. Policy Selection Panel for USS Subsystems..... 184
147. USS Control Specification Panel for Application Classes..... 184
148. USS Control Specification Panel for Application Instances..... 184

149. Entry Name Selection Panel for Events..... 187
150. Define New Event Panel..... 187
151. Policy Selection Panel for Events..... 187
152. Unset Condition Panel for Events..... 188
153. Policy Selection Panel for Service Periods..... 189
154. Service Windows Panel for Service Periods..... 189
155. Policy Selection Panel for Triggers..... 191
156. Trigger Conditions Panel..... 192
157. STARTUP Condition for Trigger Panel..... 192
158. Defining a New SA z/OS Processor Entry..... 193
159. Policy Selection Panel for Processor..... 196
160. Processor Information Panel..... 197
161. LPAR Definitions Panel..... 201
162. Policy Selection Panel for PSM Processors..... 202
163. ProcOps Service Machine Information Panel..... 202
164. GUEST Definitions Panel..... 204
165. Policy Selection for Monitor Resource..... 205
166. Monitor Resource Information Panel..... 206
167. Message Processing Panel with OMEGAMON Exception..... 209
168. Message Automation Overview Panel..... 209
169. AT Status Specification Panel..... 210
170. CMD Processing Panel for Monitor Resources..... 210
171. Code Processing Panel..... 211
172. User Defined Data Panel..... 211
173. Monitor Resource CMD Processing Panel - Pass Processing..... 212

174. User Defined Data Panel....212
175. Command Processing Panel for the HEALTHSTATE Policy Item....213
176. Trigger for Monitor Resource Panel....214
177. Defining a New zEnterprise Ensemble Panel....214
178. zEnterprise Ensemble Policy Items Panel....215
179. zEnterprise Ensemble Information Panel....216
180. Policy Selection Panel for Pacing Gates....217
181. Pacing Gate Information Panel....217
182. Policy Selection Panel for OPC System Detail....218
183. OPC System Details Panel....218
184. Policy Selection Panel for OPC Controller Details....219
185. OPC Controller Details Panel....220
186. Policy Selection Panel for OPC Special Resources....221
187. OPC Special Resource Definitions Panel....221
188. Policy Selection Panel for OPC Workstation Domain....222
189. Code Processing Panel for OPC Workstation Domain IDs....222
190. Messages Entry Type Policy Selection Panel....223
191. Message Definitions Panel....224
192. Entries linked to Message Panel....225
193. Message Automation Overview Panel....225
194. MPFLSTxx Member Definitions Panel....226
195. User Insert Definition....227
196. Define Build Control Parameter....228
197. Policy Selection Panel for Timers....229
198. Timer Definitions Panel....229

199. Timer Definitions Panel 2 230
200. Policy Selection Panel for Tape Attendance 233
201. Environment Definition: TAPES Panel 233
202. Panel for MVS Component Selection 234
203. Policy Selection Panel for MVS Components 235
204. Component Selection Panel for MVS Components 236
205. Message Processing Panel for MVS Components 237
206. Policy Selection Panel for MVSCOMP Defaults 238
207. Policy Selection Panel for System Defaults 239
208. System Automation Options Panel 240
209. Policy Selection Panel for Application Defaults 242
210. Policy Selection Panel for Automation Operators 243
211. Automation Operator Definition Panel 243
212. Automation Operator Definitions Panel 244
213. Policy Selection Panel for Notify Operators 246
214. Operator Notification Panel 246
215. Notify Operator Message Classes Panel 247
216. Policy Selection Panel for Network 250
217. SDF Focal Point Definition panel 251
218. Fullscreen TAF Application Definition Panel 252
219. GATEWAY Definitions Panel 252
220. OMEGAMON Sessions Definitions Panel 253
221. OMEGAMON Session Attributes Panel 254
222. Authentication Definitions Panel 255
223. SOAP Server Definitions Panel 256

224. SOAP-Server Attributes Panel....256
225. Policy Selection Panel for Sysplex Defaults....258
226. Sysplex Resource Information Defaults Panel....258
227. Policy Selection Panel for Resident CLISTs....259
228. Policy Selection Panel for Status Display....260
229. Status Display Facility Details Panel....261
230. Policy Selection Panel for Remote Domains....262
231. Domain Information Panel....263
232. References Panel....263
233. Policy Selection Panel for REF....264
234. Remote Resource Panel....265
235. Policy Selection Panel for User E-T Pairs....266
236. UET Entry-Type Selection Panel....266
237. UET Keyword-Data Specification Panel....267
238. Policy Database Selection Panel....269
239. Policy Database Selection Panel....271
240. Create a New Policy Database Panel....271
241. New Policy Database Data Set Information Panel....272
242. Options for Policy Database Panel....275
243. Example of an Activity Log....277
244. SA z/OS Report Selection Menu....279
245. Policy Data Base Report Parameters Panel....279
246. Example of Report Output Format FLAT....282
247. List of Generated Resources....283
248. Unreferenced Member Report....284

249. Example Status Messages Report (Excerpt)....284
250. Example Symbols Report (Excerpt)....285
251. Configuration Build Panel....288
252. Message and Logging Functions Panel....292
253. SA z/OS Automation Configuration....293
254. APAR Apply Options panel....300
255. Data Management Menu Panel....305
256. Policy Data Base Import Panel....306
257. Entry Name Selection Panel for Import Policy Data....307
258. Selected Entry Names For Import Panel....307
259. Modify Data Pop-Up Window....308
260. Import Add-On Policies Panel....309
261. Entries of Selected Add-on Policies Panel....310
262. SA z/OS Customization Dialog Settings Menu....327
263. Automation Table Override Checking....328
264. Sample of Edit Policy Selections Panel....329
265. Define Policy Selection Panel....330
266. SA z/OS Data Set Customization Details Panel....333
267. ISPF Temporary Data Sets Preallocation for Batch Panel....334
268. Send Automation Configuration Data Sets Panel....335

Tables

1. System Automation for z/OS library..... xxv

2. System Symbols and System Automation Symbols..... 8

3. System Symbols..... 10

4. System Automation Symbols..... 11

5. Entry Details for Applications in the Scenario..... 38

6. Preference Value Scenarios..... 119

7. SA z/OS Message Classes..... 248

8. Policy Selection Filter Attributes..... 331

Accessibility

Accessibility features help users with physical disabilities, such as restricted mobility or limited vision, to use software products successfully. System Automation for z/OS supports several user interfaces. Product functionality and accessibility features vary according to the interface.

The major accessibility features in this product enable users in the following ways:

- Use assistive technologies such as screen reader software and digital speech synthesizer, to hear what is displayed on screen. Consult the product documentation of the assistive technology for details on using those technologies with this product and screen magnifier software
- Operate specific or equivalent features using only the keyboard
- Magnify what is displayed on screen.

The product documentation includes the following features to aid accessibility:

- All documentation is available to both HTML and convertible PDF formats to give the maximum opportunity for users to apply screen-reader software
- All images in the documentation are provided with alternative text so that users with vision impairments can understand the contents of the images.

Using assistive technologies

Assistive technology products, such as screen readers, function with the user interfaces found in z/OS®. Consult the assistive technology documentation for specific information when using such products to access z/OS interfaces.

Keyboard navigation of the user interface

Users can access z/OS user interfaces using TSO/E or ISPF. Refer to *z/OS TSO/E Primer*, *z/OS TSO/E User's Guide*, and *z/OS ISPF User's Guide Vol 1* for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

© Copyright IBM Corp. 1996, 2017

About this publication

This publication describes System Automation for z/OS (SA z/OS). This product plays a key role in supplying high-end automation solutions whereas Tivoli® Systems (Tivoli Management Environment, Tivoli) delivers integrated cross-platform management functions. This publication contains information about how to enable SA z/OS automation.

Who Should Use This Publication

This publication is primarily intended for automation administrators who are responsible for defining and maintaining the automation policy.

Notes on Terminology

MVS

References in this book to *MVS™* refer either to the MVS/ESA product or to the MVS element of z/OS.

OPC

References in this book to *OPC* refer to IBM Workload Scheduler (IWS) that is formally called Tivoli Workload Scheduler (TWS).

Resources, Applications, and Subsystems

These three terms are used in the SA z/OS library to designate automated entities. The correct term to be used depends on the context. See "Understanding Terms" in *IBM System Automation for z/OS Operator's Commands* for the definition of these terms.

Where to Find More Information

The System Automation for z/OS Library

Table 1 on page xxv shows the information units in the System Automation for z/OS library. These manuals can be downloaded from IBM Documentation.

Table 1. System Automation for z/OS library

Title	Form Number	Description
Get Started Guide	SC27-9532	This book is intended for SA z/OS beginners. It contains the information about early planning, configuring the product, making it secure, customizing your automation environment, and the basic operational tasks that you perform on a daily basis.
Planning and Installation	SC34-2716	Describes SA z/OS new capabilities and how to plan, install, configure, and migrate SA z/OS.
Customizing and Programming	SC34-2715	Describes how to adapt the standard installation, add new applications to automation, write your own automation procedures, and add new messages for automated applications.

© Copyright IBM Corp. 1996, 2017

Table 1. System Automation for z/OS library (continued)		
Title	**Form Number**	**Description**
Defining Automation Policy	SC34-2717	Describes how to define and maintain the automation policy.
User's Guide	SC34-2718	Describes SA z/OS functions and how to use SA z/OS to monitor and control systems.
Messages and Codes	SC34-2719	Describes the problem determination information of SA z/OS, including messages, return codes, reason codes, and status codes.
Operator's Commands	SC34-2720	Describes the operator commands available with SA z/OS, including their purpose, format, and specifics of how to use them.
Programmer's Reference	SC34-2748	Describes the programming interfaces of SA z/OS and the definitions for the status display facility (SDF).
End-to-End Automation	SC34-2750	Describes the end-to-end automation adapter for z/OS and how it enables end-to-end automation and how it connects to Service Management Unite Automation.
Service Management Unite Automation Installation and Configuration Guide	SC27-8747	Describes how to plan, install, set up, configure, and troubleshoot Service Management Unite Automation.
Product Automation Programmer's Reference and Operator's Guide	SC34-2714	Describes how to customize and operate product automation components (CICS, Db2, and IMS automation) with SA z/OS to provide a simple and consistent way to monitor and control all of the CICS, Db2, and IMS regions, both local and remote, within your organization.
TWS Automation Programmer's and Operator's Reference Guide	SC34-2749	Describes how to customize and operate TWS Automation.

Related Product Information

For information that supports System Automation for z/OS, visit the z/OS library in IBM Documentation (https://www.ibm.com/docs/en/zos).

Summary of Changes for SC34-2717-01

This document contains information previously presented in System Automation for z/OS V3R5.0 Defining Automation Policy, SC34-2717-00.

The following sections provide details of significant or major changes in this edition.

New Information

The following information is new in this edition:

Support for end-to-end automation

- With the help of the new entry types DMN (Remote Domains) and REF (Resource References), you are able to define references to resources running in domains outside the SAplex.

- New value E2E in 'Inform List' to control whether or not the resource is shown on the End-to-End domain view. Note that this is currently only for future use.

  Inform List is available for:

  - Applications (APL)
  - Applications Groups (APG)
  - Monitor Resources (MTR)
  - Resource References (REF)
  - System Defaults (SDF)
  - MVSCOMP Defaults (MDF)
  - Sysplex Defaults (XDF)
- New IBM-supplied category E2EAGT to indicate that the application represents the end-to-end agent.

Support for IMS-MQ and CICS-MQ connection monitoring

- IMS-MQ connection monitoring defined in *IMS add-on policy
- CICS-MQ connection monitoring defined in *CICS add-on policy

Changed Information

The following information has been changed in this edition:

- With the definition of the 'Connection Scope' in the PROCESSOR INFO policy, it is possible to group processors to a logically composite. With this definition you may restrict the established and monitored connections.
- List and delete unused members in the build output dataset directly from the 'Build Parameters' panel. See “Configuration Files Build Options” on page 288.
- *BASE add-on policy is restructured.
  - z/OS Healthchecker definitions moved from *IBMCOMP add-on policy
  - SDSF and SDFSAUX included
  - New component for VIPA included
- *ITM add-on policy is restructured.
- *TWS add-on policy is renamed to *IWS.
- The pictures of SA z/OS Best Practice policies have been moved from the USS directory to Add-on policies.

Deleted Information

The following information has been deleted:

- SA z/OS Graphical Interface (NMC)
- *USS add-on policy (integrated in *BASE)
- *NMC add-on policy
- *WEBSPHERE add-on policy (integrated in *IBMCOMP)
- Component IO-Operations removed from *IBMCOMP add-on policy

You may notice changes in the style and structure of some content in this document—for example, headings that use uppercase for the first letter of initial words only, and procedures that have a different look and format. The changes are ongoing improvements to the consistency and retrievability of information in our documents.

This document contains terminology, maintenance, and editorial changes.

Chapter 1. Introducing the Customization Dialog

Before you can use SA z/OS to automate, monitor, and control the resources in your enterprise, you must define your enterprise's *automation policy*. You use the SA z/OS customization dialog to provide information for SA z/OS, such as:

- Which resources (such as systems or applications) you want to automate, monitor and control
- How resources are to be associated (that is, grouped) with each other for automation
- The dependencies between resources and groups of resources
- What sort of automation, such as automatic startup or shutdown, is to be applied to these resources and how
- The conditions that automated actions should occur under, and what actions should be performed
- When automation is to be active, and how it handles certain tasks and events during system operation

The customization dialog leads the SA z/OS policy administrator through the process of defining resources and automation for the enterprise. SA z/OS automatically extracts the required information from this to display resources graphically.

Before you begin to use the customization dialog to define your enterprise automation policy, you need to determine how you want SA z/OS to work within your enterprise. This is part of the process of planning to use SA z/OS. There are many considerations for planning to use SA z/OS that you should be aware of. For more information, see the planning instructions given in *IBM System Automation for z/OS Planning and Installation*.

Note: Do not use the customization dialogs on a Kanji terminal because they will not work. If you have your terminal defined as a 3278KN terminal, you can circumvent the Kanji restriction by going into ISPF option 0.1 (panel ID ISPOPT1) and redefining the TERMINAL TYPE to 3278.

How to Define Automation Policy: An Outline

Automation policy is needed if you want to use system operations or processor operations automation functions.

Procedure

The process of defining automation policy comprises the following steps:

1. At the configuration focal point where you have the customization dialog installed, create the information in the policy database using the ISPF input panels of the customization dialog.
2. Use the BUILD function of the customization dialog to produce the required output, that is, the configuration files: automation control file (ACF), automation manager configuration file (AMC), NetView automation table (AT), the message revision table (MRT), and the MPFLSTxx file.
3. Distribute the generated output to each system in the SA z/OS enterprise where SA z/OS system operations functions are to run. In general, this is all of the z/OS systems in the SA z/OS enterprise. In a sysplex, the data set name of the automation control file must be the same on all systems in the sysplex. However, it is highly recommended that you use a shared data set in a sysplex, and if possible, to use a shared data set for the whole enterprise.

Results

See Chapter 7, “Building and Distributing Configuration Files,” on page 287 and Figure 253 on page 293 for more information on building and distributing the generated configuration files.

© Copyright IBM Corp. 1996, 2017

Entry Type Introduction

All resources in your enterprise, such as systems or applications, or other objects that you use to automate your enterprise data processing, such as components of your z/OS operating system, are called *entry types*.

A complete list of SA z/OS entry types is given on the Entry Type Selection panel (see Figure 1 on page 5), which is the first panel you see after you have decided which enterprise or policy database you are going to work with.

For each entry type you can invoke a series of panels to create, modify, or delete entries of a certain entry type. A single instance of a particular entry type is called a *policy object*. These entries are referred to by their *entry name*.

When you select an object via its name, you get a list of *policy items* specific for the entry type that you are working with. For example, the *Timers* entry type may consist of several named sets of timer definitions, each containing a number of timers. These named sets are selected and linked to a particular system as required. Each set can be linked to an arbitrary number of systems and any number of sets can be linked to any particular system.

The letters and numbers in the following list indicate the entry type index on the Entry Type Selection panel. You can use either numbers or letters to select the appropriate entry type. The alphanumeric index is used on other panels of the customization dialog to identify a certain entry type.

Detailed information and scenarios on how to automate the resources (applications and application groups) and make them available on certain systems is given in Chapter 3, “Scenarios on How to Use the Customization Dialog,” on page 33.

1/ENT Enterprise

An Enterprise is the top level of your SA z/OS structure. It comprises enterprise wide data for the complete policy database.

2/GRP Group

A group is the largest subdivision of an SA z/OS enterprise. An SA z/OS enterprise may have several groups, each consisting of systems or subgroups, or both.

A sysplex group can be used to represent a logical sysplex (systems within the same XCF group ID, also named SAplex). A standard group can be used to represent a physical sysplex (systems in different XCF group IDs). The definition of groups is a prerequisite for sysplex-wide automation.

3/SBG Subgroup

Like groups, subgroups are collections of systems. You define a subgroup by selecting the member systems and assigning a name to the subgroup. Subgroups can be collected into groups. They offer a finer level of structuring groups.

4/SYS System

A system is an image of an operating system running on a host processor monitored by SA z/OS. The system may be MVS, VM, VSE, LINUX, or CF (coupling facility). A system definition includes for example:

- Links to other objects associated with the system, for example, links to application groups
- Application defaults
- System defaults
- System automation symbols

5/APG ApplicationGroup

An application group is a set of applications that you assign a name to. You can define two types of application groups: System Application Groups and Sysplex Application Groups. You assign System Application Groups to one or more systems and Sysplex Application Groups to one or more SAplexes (GRP of type sysplex).

6/APL Application
An application is a z/OS subsystem or job that runs on a system in the SA z/OS enterprise. SA z/OS monitors applications through the messages they issue to the system, MVS commands, and SA z/OS-provided services. An application can belong to more than one application group. An application definition includes:

- Subsystem name and the name of the procedure that runs the job
- Warning and alert thresholds
- Start and Stop specifications
- Individual automation flags

7/EVT Events
Events are used for external dependencies where they represent a process that the automation cannot handle. For example, an operator needs to manually edit a file before the application can continue. SA z/OS remembers which events are SET (have occurred) and can be told when to forget them (by defining an UNSET condition).

8/SVP Service Periods
Define the availability of applications. A service period is a set of time intervals (service windows) during which a resource (APL, APG, or MTR) should be active or inactive.

9/TRG Triggers
In combination with events, triggers are used to control the starting and stopping of resources (APL, APG, or MTR).

10/PRO Processor
A processor is the physical or physically-partitioned hardware that a system runs on. A "logical" processor, called the *ProcOps Service Machine* (PSM) monitors VM guest systems.

All processors of the IBM mainframe family are supported, which includes all IBM z10, IBM eServer™ zSeries, IBM S/390®, and IBM z196.

11/MTR Monitor Resource
The Monitor Resource entry type enables you to monitor the performance and health of an application. That is, a separate status informs you about the application's health. This health status can be used by the automation manager to make decisions and, if necessary, trigger automation for the subject application.

12/ENS zEnterprise® Ensembles
The zEnterprise Ensembles entry type (ENS) enables you to use zEnterprise z/BX Compute power.

13/PAC Pacing Gates
The Pacing Gates entry type enables you to create a limit for the number of applications that may start and stop in parallel on the same system.

20/PRD Product Automation
With this entry type, you can define automation policy for IBM Workload Scheduler.

21/MSG Messages
This entry type displays a list of all the messages that are defined in the policy database together with the messages from the MVC entry, +SA_PREDEFINED_MSGS. It also provides all additional specifications for the generation of automation table (AT), message revision table (MRT) and the MPFLSTxx member.

30/TMR Timers
Automation timer definitions. This object is used to schedule automation tasks which are periodic, or which must run at a particular time.

32/TPA Tape Attendance
Specifies the time during which tape drives are either attended or unattended. This entry type also allows you to specify whether you want to monitor tape mounts on this system. If you do want to monitor tape mounts, you must enter warning and alert thresholds (in minutes and seconds) indicating how long a wait is allowed in mounting a tape before the response is considered unsatisfactory.

33/MVC MVS Component
This entry type allows you to apply automation to various z/OS data sets, resources and facilities.

34/MDF MVSCOMP Defaults
Sets defaults for z/OS component (entry type MVS Component) automation.

35/SDF System Defaults
This entry type allows you to set various defaults that are used throughout the system. The values set here may be overridden by other entry types, such as Application, Application Defaults, or MVSCOMP Defaults, or by setting appropriate values in individual applications or MVS Component objects.

36/ADF Application Defaults
This entry type specifies default values for automation flags and error threshold settings. These values are used as the default for any Application object on the system that the Application Defaults set is attached to.

37/AOP Automation Operators
This entry type maps automation functions to automation operators. *Automation operators* are automated operator tasks, or *autotasks*, that can respond to operating system, application, and network messages without requiring a human operator. Sets of automation operators can be linked to a system. Each automation operator takes actions similar to those of a human operator, such as monitoring the system and handling and coordinating recovery and shutdown operations.

Automation operators are assigned specific messages to act on.

38/NFY Notify Operators
Defines NetView operators who receive notification messages.

39/NTW Network
Contains definitions for Gateway, SDF focal points, OMEGAMON sessions, TAF sessions, authentication, and SOAP servers.

40/XDF Sysplex Defaults
This entry type specifies default values for sysplex application groups.

41/RES Resident CLISTs
Automation CLISTs (that is, REXX scripts) that must be preloaded to improve performance.

42/SCR Status Display
Defines NetView Status Display facility (SDF) settings.

50/DMN Remote Domains
This entry type defines a remote domain (for example a z/OS sysplex) where resources are running which are in the scope of end-to-end automation.

51/REF Resource References
This entry type defines a reference to a resource running on a remote domain (for example a z/OS sysplex).

99/UET User E-T Pairs
User-defined entry/type data for the automation control file. Used for user-defined extensions to automation policy.

Policy Objects and Policy Items

A policy object is represented by an entry name for a particular entry type, for example, an application or timer.

Each policy object has a number of policy items associated with it. To define your policy, you enter data for the policy items of each policy object in the SA z/OS enterprise. For example, if you choose option 2 on the Entry Type Selection panel (Figure 1 on page 5) to specify Group policy, Figure 2 on page 5 is displayed.

```
  MENU  HELP
-------------------------------------------------------------------------------
AOFGETYP                      Entry Type Selection
Option ===> ____________________________________________________________________

 Enter number or entry type or use "BR <entry type>" for browse

  1 ENT      Enterprise                      30 TMR      Timers
  2 GRP      Groups                          32 TPA      Tape Attendance
  3 SBG      SubGroups                       33 MVC      MVC Components
  4 SYS      Systems                         34 MDF      MVSCOMP Defaults
  5 APG      ApplicationGroups               34 SDF      System Defaults
  6 APL      Applications                    36 ADF      Application Defaults
  7 EVT      Events                          37 AOP      Automation Operators
  8 SVP      Service Periods                 38 NFY      Notify Operators
  9 TRG      Triggers                        39 NTW      Networks
 10 PRO      Processors                      40 XDF      Sysplex Defaults
 11 MTR      Monitor Resources               41 RES      Resident CLISTs
 12 ENS      zEnterprise Ensembles           42 SCR      Status Display
 13 PAC      Pacing Gates                    50 DMN      Remote Domains
                                             51 REF      Resource References

 20 PRD      Product Automation              99 UET      User E-T Pairs
 21 MSG      Messages
```

Figure 1. Entry Type Selection Panel

A label for each panel (for example, AOFGETYP, AOFGENAM) is shown to the left of the panel title. This is the panel ID. You can toggle its display by entering the command PANELID at the command line.

Figure 2 on page 5 shows the Group policy objects SYSPLEX1 and SYSPLEX2.

```
  COMMANDS  ACTIONS  VIEW  HELP
-------------------------------------------------------------------------------
AOFGENAM                      Entry Name Selection                 Row 1 of 2
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type : Group                PolicyDB Name   : USER_PDB
                                  Enterprise Name : USER_ENTERPRISE

Action      Entry Name            C  Short Description
S           SYSPLEX1                 Sysplex with SYSTEM1, SYSTEM2, SYSTEM3
            SYS1SYS2                 Sysplex with SYS1 and SYS2
```

Figure 2. Entry Name Selection Panel for Groups

If you select a group, the Policy Selection panel for this group is displayed, as shown in Figure 3 on page 6. This panel gives you a list of the policy items for a group. You can enter S (for SELECT) in the **Action** field next to any policy item to display the associated policy input panel. Figure 3 on page 6 shows the Policy Selection panel for groups, listing the policy items for the selected policy object SYSPLEX1.

```
  ACTIONS  HELP
 ------------------------------------------------------------------------------
 AOFGEPOL                        Policy Selection                  Row 1 of 19
 Command ===> _____________________________________________  SCROLL===> PAGE

 Entry Type : Group                PolicyDB Name   : USER_PDB
 Entry Name : SYSPLEX1             Enterprise Name : USER_ENTERPRISE

 Action      Policy Name          Policy Description
 __________  DESCRIPTION          Enter description
 __________  GROUP INFO           Define group information
 __________  SUBGROUPS           Select subgroups for group
 __________  SYSTEMS             Select systems for group
 __________  -------------------- -----SYSPLEX SPECIFIC POLICY----------------
 __________  SYSPLEX              Define sysplex
policy
 __________  APPLICATION GROUPS   Select application groups for sysplex
 __________  SYSPLEX DEFAULTS     Select sysplex resource defaults for group
 __________  -------------------- -----LOCAL PAGE DATA SET POLICY-------------
 __________  LOCAL PAGE DATA SET  Define local page data set recovery
 __________  JOB DEFINITIONS      Define handling of jobs
 __________  -------------------- -----LONG RUNNING ENQUEUE POLICY------------
 __________  JOB/ASID DEFINITIONS Define handling of long running jobs and ASID
 __________  COMMAND  DEFINITIONS Define "hung" commands
 __________  COMMAND  FLOODING    Define check intervals for command flooding
 __________  RESOURCE DEFINITIONS Define long running enqueue resources
 __________  RECOVERY OPTIONS     Define dump and miscellaneous options
 __________  -------------------- ------------------------------------------
 __________  COPY                 Copy data from an existing entry
```

Figure 3. Policy Selection Panel for Sysplex Groups

Considerations for Automation

While information for monitoring of resources is defined at the enterprise level, automation of resources and applications is defined at the system level. Each system in an SA z/OS enterprise uses SA z/OS routines to automate operator functions for its own applications and z/OS components.

The programs that automate these functions are called *SA z/OS automation procedures*. SA z/OS automation procedures invoke *common routines* and *generic routines* that are provided by SA z/OS. You can customize your automation by writing your own automation procedures that can also invoke the routines that are provided by SA z/OS.

SA z/OS provides automation procedures that are internally invoked according to the NetView automation table and that manage, for example, the following:

- TCP/IP
- HTTP Server
- Job Entry Subsystem/2 (JES2)
- Job Entry Subsystem/3 (JES3)
- Time Sharing Option/Extensions (TSO/E)
- APPC
- ASCH
- Resource Measurement Facility (RMF)
- Virtual Telecommunication Access Method (VTAM®)
- NetView
- Transient jobs
- USS processes
- Non-z/OS resources
- Any other applications

SA z/OS manages and integrates with:

- CICS®
- IMS
- DB2®
- IBM Workload Scheduler
- SAP
- Websphere
- TBSM
- GDPS® and others.

SA z/OS provides automation procedures that enable recovery of the following z/OS components and data sets:

- SYSLOG data sets
- LOGREC data sets
- System Management Facility (SMF) data sets
- Write-to-operator (WTO) buffers
- JES spools
- z/OS dump data sets
- Action Message Retention Facility (AMRF) buffers
- Sysplex resources, for example, coupling facility

With SA z/OS you can also define policies for the automated startup and shutdown of processors and for the automated IPL and shutdown of operating systems.

The above lists represent applications and z/OS components that SA z/OS provides automation for, but you are not limited to these. You can extend automation by adding new applications, and you can create your own automation procedures.

The SA z/OS policy administrator uses the customization dialog to set the way that enterprise resources are to be handled by SA z/OS when predefined conditions are met. In addition to invoking provided automation procedures, SA z/OS can be used to trigger user-written automation procedures.

Note: In order to avoid problems with automation procedures and customization dialogs, do not use the following terms for entry names or application subsystem names: RC, RETURN, or SIGL.

Assigning System Automation Symbols (AOCCLONE)

You can assign up to 36 system automation symbols to each system (for example, &AOCCLONE., ~, &AOCCLONE1. through &AOCCLONE9., and &AOCCLONEA. through &AOCCLONEZ.). When you use a system automation symbol in a job name, each system can run with a unique job name while the application or subsystem shares a single automation policy across systems.

The substitution can occur anywhere within the job name. Any of the 36 available system automation symbols can be used. You may specify more than one system automation symbol.

Note: Be careful when cloning applications that are controlled by the Automatic Restart Manager. In most cases, the applications should be defined to Automatic Restart Manager as restart-in-place only. If you allow cross-system restarts for cloned applications, they may be restarted more than once on the same system.

The usage of system automation symbols is not limited to job names. In addition to qualifying the job name, you can use system automation symbols for substitution anywhere within a defined literal, such as a shutdown command. The value of system automation symbols is also available for your automation through the NetView AOFAOCCLONE common global variables (1 to 9, and A to Z). The AOFAOCCLONE and each AOFAOCCLONEn variable contains the value of the corresponding AOCCLONE variable.

Using System Symbols and System Automation Symbols

You can specify system symbols as well as system automation symbols (AOCCLONE variables) in the fields in the customization dialog that are given in Table 2 on page 8.

Table 2. System Symbols and System Automation Symbols

Entry Type	Policy Item	Field Name
APG	MESSAGES/USER DATA	Message ID
	MESSAGES/USER DATA (type CMD)	Command text [1] [3]
	MESSAGES/USER DATA (type CODE)	Code1/2/3 Value Returned[1]
	MESSAGES/USER DATA (type REPLY)	Reply text[1]
	MESSAGES/USER DATA (type USER)	Data [1] [3]

Table 2. System Symbols and System Automation Symbols (continued)

Entry Type	Policy Item	Field Name
APL	APPLICATION INFO	ARM element name Command prefix JCL procedure name Job name Startup parameter[1] WLM resource name
	APPLICATION SYMBOLS	SYMBOL1–SYMBOL9[1]
	DB2 CONTROL	DB2 Active Log Dataset Name DB2 Subsystem ID
	IMS CONTROL	IMS Control Region Name IMS Subsystem ID
	JES2/JES3 SPOOLFULL CMDS	Command text[1]
	JES2/JES3 SPOOLSHORT CMDS	Command text[1]
	JES2 DRAIN CMDS	Force drain lines Force drain VTAM interface Force drain spool offloaders Force drain printers Force drain readers Force drain punches
	MESSAGES/USER DATA	Message ID
	MESSAGES/USER DATA (type CMD)	Command text[1 3]
	MESSAGES/USER DATA (type CODE)	Code1/2/3 Value Returned[1]
	MESSAGES/USER DATA (type REPLY)	Reply text[1]
	MESSAGES/USER DATA (type USER)	Data[1 3]
	MINOR RESOURCES	Minor resource names[2]
	OPC CONTROL	OPC Subsystem ID
	STARTUP	Command text[1 3] Startup parameter[1]
	SHUTDOWN	Command text[1 3] Reply text[1]
	USS CONTROL	Command/Path[1] File Name[1] Filter[1] Monitoring Command[1] User ID
ENS	ENSEMBLE INFO	TCPIP stack
GRP	SYSPLEX	Temporary Data Set HLQ

Table 2. System Symbols and System Automation Symbols (continued)		
Entry Type	**Policy Item**	**Field Name**
MVC	MESSAGES/USER DATA	Message ID
	MESSAGES/USER DATA (type CMD)	Command text[1] [3]
	MESSAGES/USER DATA (type CODE)	Code1/2/3 Value Returned[1]
	MESSAGES/USER DATA (type REPLY)	Reply text[1]
	MESSAGES/USER DATA (type USER)	Data [1] [3]
	MINOR RESOURCES	Minor resource names[2]
MTR	MESSAGES/USER DATA	Message ID
	MESSAGES/USER DATA (type CMD)	Command text[1] [3]
	MESSAGES/USER DATA (type CODE)	Code1/2/3 Value Returned[1]
	MESSAGES/USER DATA (type REPLY)	Reply text[1]
	MESSAGES/USER DATA (type USER)	Data[1] [3]
	MONITOR INFO	Activate command[1] Deactivate command[1] Monitor command[1] Monitored Object[1]
	HEALTHSTATE	Command text[1]
NTW	SOAP SERVER	Host name[1] IP stack User ID[1] Password[1] Absolute path[1]
SYS	AUTOMATION CONSOLE	Console Name
	SYSTEM INFO	UNIX Installation Path[1]
TMR	TIMERS	Command text[1]
UET	E-T DATA	Data[1] [3]

1. If you are using system automation symbols in fields that are not automatically translated to uppercase, these variables must be entered in uppercase.
2. The ending period of a system automation symbol for minor resource names must be followed by at least one character, for example, `DAT&AOCCLONE2.A`
3. The tilde (~) symbol is not substituted when used in the Command Text and Data fields. You must use &AOCCLONE. system automation symbol instead in order to achieve the equivalent substitution.

Table 3 on page 10 lists the fields in the customization dialog where you can only specify system symbols.

Table 3. System Symbols	
Field Name	**Policy Name**
Primary Operator	Policy OPERATORS of entry type AOP

Table 3. System Symbols (continued)	
Field Name	**Policy Name**
Backup Operator	Policy OPERATORS of entry type AOP
NetView Operators	Policy OPERATORS of entry type AOP
Console Name	Policy OPERATORS of entry type AOP

Table 4 on page 11 lists the field in the customization dialog where you can only specify system automation symbols (AOCCLONE variables).

Table 4. System Automation Symbols	
Field Name	**Policy Name**
Supporting Resource Name	Policy RELATIONSHIPS of entry type APL, APG and MTR

Nested Classes

Nested class support allows you to link one application class to another, thus enabling the specification of a class hierarchy. Links from a class can be made in two directions:

- *Downward* to multiple classes or instances, where the policy that is defined in the upper-level class is inherited by the classes or instances
- *Upward* to a single class, so that the lower-level application inherits the policy that is defined in the upper-level class

These classes can carry data on various levels, be nested, and an application can inherit data from a class chain. This can be particularly useful for policy databases with lots of applications of the same category, for example, large IMS installations with lots of IMS subsystems. You might define a top-level class with basic definitions for all IMS applications, and nested classes with more specific definitions for the various IMS subcategories, so that applications can inherit policy values from the top-level class and specific nested classes.

Class policies are inherited down to the instance level where any changes to the policy on that level override the inherited policy. Inherited policy data is displayed in a different color that you can change in the customization dialog Settings Menu (see “Changing Your Customization Dialog Environment” on page 327). Inherited data is displayed for linked instances for the following policies:

- “APPLICATION INFO Policy Item” on page 132
- “AUTOMATION FLAGS Policy Item” on page 140
- “APPLICATION SYMBOLS Policy Item” on page 142
- “RELATIONSHIPS Policy Item” on page 110
- “MESSAGES/USER DATA Policy Item” on page 237
- “STARTUP Policy Item” on page 160
- “SHUTDOWN Policy Item” on page 163
- “THRESHOLDS Policy Item” on page 169
- “MINOR RESOURCES Policy Item” on page 238
- “DB2 CONTROL Policy Item” on page 180
- “IMS CONTROL Policy Item” on page 182
- “USS CONTROL Policy Item” on page 184
- “JES2 SPOOLFULL CNTL Policy Item” on page 174
- “JES2 SPOOLFULL CMDS Policy Item” on page 175
- “JES2 SPOOLSHORT CNTL Policy Item” on page 175

- "JES2 SPOOLSHORT CMDS Policy Item" on page 176
- "JES2 DRAIN CMDS Policy Item" on page 176
- "JES3 SPOOLFULL CMDS Policy Item" on page 178
- "JES3 SPOOLSHORT CMDS Policy Item" on page 178

Note that you can overwrite inherited data for an instance with the *same* value for the following policy items:

- APPLICATION INFO
- THRESHOLDS
- DB2 CONTROL
- IMS CONTROL
- USS CONTROL

Example:

If an application instance is linked to a class with a job type of TRANSIENT and you change the Transient Rerun value, you also need to specify the Job Type TRANSIENT on the instance even though it has already been inherited from the class.

Class Hierarchy

Classes can be linked to each other and to instances according to the following rules:

- An application class can have one or more downward links to other classes or instances
- There can be only one upward link from an application class to any particular class
- There is no limit for the number of supported class levels

Figure 4 on page 12 shows example links that are allowed or forbidden between classes and instances.

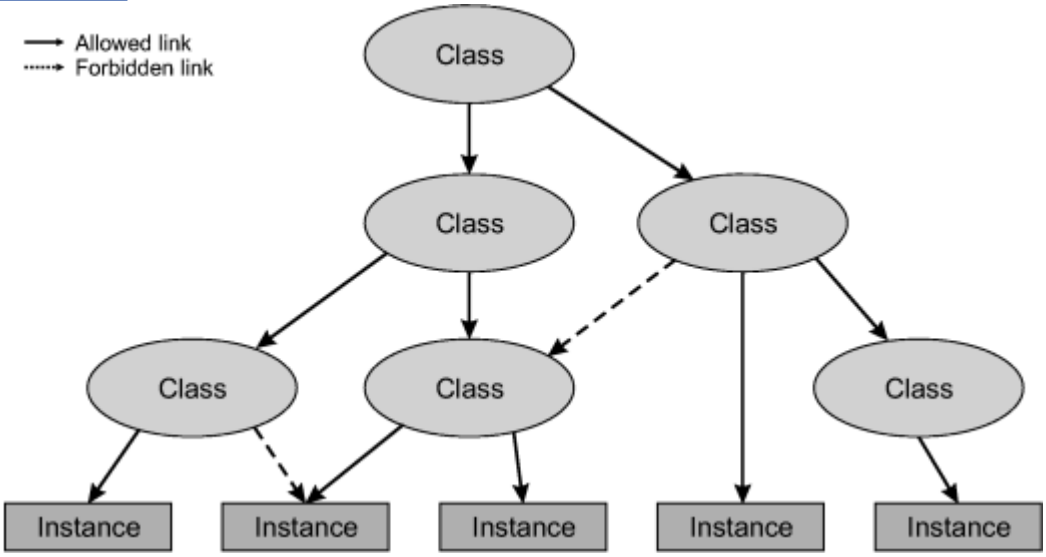


Figure 4. Nested Class Links

Inheritance and Defaulting

Figure 5 on page 13 shows how inheritance from application classes relates to defaulting from the defaults policy items.

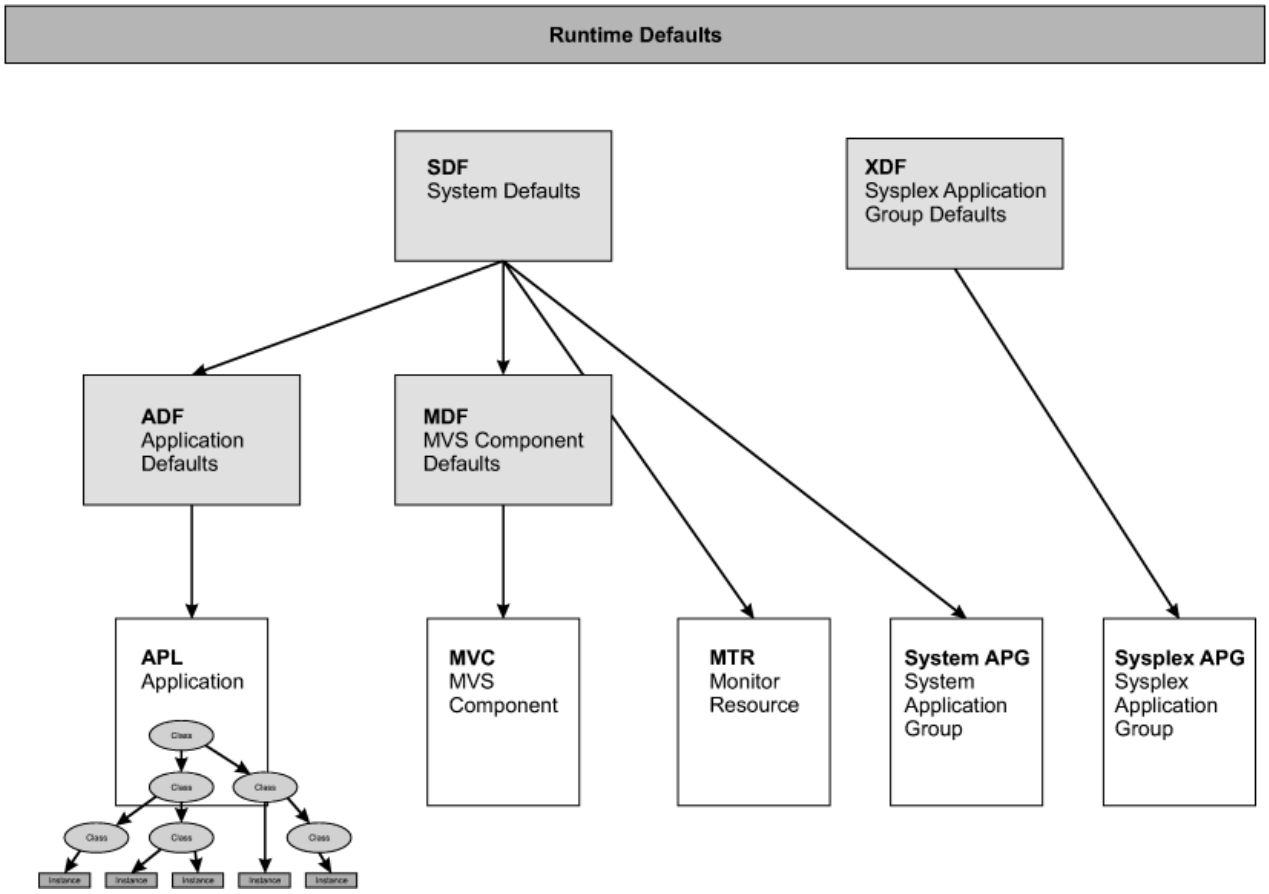


Figure 5. Inheritance from Classes and Defaulting

The data that is defined in Defaults policies and for application classes is handled differently. If class data is modified and built, a configuration refresh updates the applications that are linked to the modified classes. However, if defaults are modified and built, a configuration refresh updates only the global variables for the modified entries but not for the affected objects, for example, applications.

Class/Instance Link Considerations

You should be aware of the following when making links between classes and instances:

- Only applications with either the same category or no category specification can be in a link chain
- Category-specific policies are *only* available if the category is specified explicitly rather than inherited

For example, the IMS CONTROL policy item is available for an application of category IMS. It is not available, however, for an application that does not have a category specification but is linked to a class of category IMS.

Thus, if an application without a category is linked to a class with a category specification, you should be aware that you can only specify category-specific data for the class, but it will be inherited by the instance.

Furthermore, if you need to specify category-specific data at the application level, you must specify the category for the application.

Chapter 2. Using the Customization Dialog

The SA z/OS customization dialog runs under Interactive System Productivity Facility (ISPF) Dialog Manager, which operates under Time Sharing Option/Extended (TSO/E). For information on installing the customization dialog and sample policy databases on the focal point system, see *IBM System Automation for z/OS Planning and Installation*.

The customization dialog provides panels to create and work with SA z/OS automation policy definitions. The task of defining and building automation policy is performed on the SA z/OS configuration focal point system from where it is distributed to the systems and sysplexes that you want to automate (see also Figure 253 on page 293).

The combined definition of all the resources is called an *enterprise definition* or also an *automation configuration*. SA z/OS enterprise definition data entered in the customization dialog is stored in an z/OS data set called a *policy database*. You can define more than one enterprise, each with its own policy database, or you can store the automation policy of an enterprise in more than one policy database, however, the policy for all systems of a sysplex must be in the same policy database.

Your first step in defining automation policy will be to create a new policy database, using one of the sample databases as a model. SA z/OS provides sample policy databases containing sample enterprise definitions. These are described in “Using SA z/OS Sample Policies” on page 273.

To do this, you should create an empty policy database using the *EMPTY sample database, and then use the IMPORT function to import policy definitions from either the other sample databases that are supplied with SA z/OS, or from your own policy databases. For more details about importing policy databases, see “Importing Policy Database Data” on page 305. You should note that this is now the preferred method for creating new policy databases.

You can create many different SA z/OS enterprise definitions. However, SA z/OS uses only one enterprise definition at a time. Each SA z/OS enterprise definition is stored in a different policy database. The customization dialog enables you to edit, copy, delete, and build SA z/OS enterprise definitions after you create them.

You select entry types from the list shown on the Entry Type Selection panel (Figure 1 on page 5) and certain objects from these entry types to specify the way enterprise resources are to be handled by SA z/OS when predefined conditions are met. You can link automation policies to individual systems as required to meet your automation needs.

How to Start the Customization Dialog

Procedure

To start the customization dialog:

1. Log on to TSO/E using a logon procedure that makes the customization dialog available to you. See "Allocate Libraries for the Dialogs" in *IBM System Automation for z/OS Planning and Installation* for instructions on how to create an appropriate logon procedure.
2. Select the customization dialog from the ISPF menu that it has been installed on. SA z/OS displays the Customization Dialog Primary Menu as shown in Figure 6 on page 16.

© Copyright IBM Corp. 1996, 2017

```
  MENU  OPTIONS  HELP
------------------------------------------------------------------------------
AOFGPRM     System Automation for z/OS 4.1 Customization Dialog
Option ===> ____________________________________________________________________

  0 Settings        User parameters

  BR Browse         Browse the Policy Database
  1 Edit            Edit the Policy Database
  2 Build           Build functions for Policy Database
  3 Report          Generate reports from Policy Database
  4 Policies        Maintain Policy Database list
  5 Data Management Import policies into a Policy Database
  U User            User-defined selections

  X Exit            Terminate Customization Dialog

  To switch to another Policy Database, specify the Policy Database name
  in the following field, or specify a ? to get a selection list.
  Current Policy Database . . . USER_PDB_____________

                    Licensed Materials - Property of IBM
                      © Copyright IBM Corp. 1990, 2014
```

Figure 6. Customization Dialog Primary Menu

What to do next

To start the customization dialog for a policy database of your choice, you can:

- Type the name of your desired policy database into the **Current Policy Data Base** field (if not filled in from a previous invocation) and enter option 1 (you can also enter `Edit`) at the Option line. This leads you directly to the Entry Type Selection panel shown in Figure 1 on page 5.
- Type ? in the **Current Policy Data Base** field and press Enter to get a list of available policy databases in the Policy Database Selection panel as shown in Figure 239 on page 271. Select the desired policy database from this panel. (You can also reach the Policy Database Selection panel by entering option 4, or `Policies`, at the Option line.)

If no policy databases are displayed on the Policy Database Selection panel when you start the customization dialog, you must either create a policy database (see "Creating a New Policy Database" on page 270) or add an existing policy database to the list.

If other users want to view the policy database that you have just created, they must add it to their policy database list on the Policy Database Selection panel using the ADD command.

You can also select the following options:

0 Settings
This option displays the Customization Dialog Settings Menu, see "Changing Your Customization Dialog Environment" on page 327.

BR Browse
This option displays the Entry Type Selection panel shown in Figure 1 on page 5 from where you advance to the data panels via entry type and entry name selections. With these selections, all data panels can be invoked but no data in the policy database can be modified. See "How to Browse a Policy Item" on page 23.

1 Edit
This option displays Figure 1 on page 5.

2 Build
This option displays the Build Functions Menu, see Chapter 7, "Building and Distributing Configuration Files," on page 287.

3 Report
This option displays the Report Selection Menu, see Chapter 6, "Creating Reports about Policy Databases," on page 279.

4 Policies
This option displays the Policy Database Selection panel with the list of existing policy databases, see “Creating a New Policy Database” on page 270.

5 Data Management
This option displays the Data Management Menu panel, see “Start Panel for Data Management” on page 305.

U User
This option invokes the User-written Functions Selection Menu. This menu allows you to add installation-specific functions to the customization dialog. For more information see “User-written Functions” on page 334.

X Exit
Use this option to exit the customization dialog

Getting Help

Online help is available for the customization dialog. You can display online help by entering the HELP command (or press the PF key associated with the HELP command) while on a particular dialog panel.

When selecting HELP from the action bar, the pull-down lists the following selections:

Automation Help
This help provides online information about important functions of the customization dialog. It combines the help panels of the functional panels within the customization dialog. This combination allows you to view the help panels sequentially, or you can choose selected topics from lists that are displayed on many of the help pages.

Changes for this Release
This panel provides a list of the changes and enhancements that have been added to the customization dialog for different releases.

How to Navigate in the Customization Dialog

Many characteristics of the customization dialog are ISPF facilities.

See *ISPF User's Guide* for details. You need to know the following characteristics of the customization dialog:

- For panels that display a list that you are required to select one or more entries from and specify an action against that entry, you can:
  - Enter "*action entry name*" on the command line, for example, `EDIT entry name`
  - Enter the action in the **Action** column next to the appropriate entry, for example, enter EDIT in the **Action** column next to entry name.
  - Select the entry by entering S or SELECT in the **Action** column next to the entry. Move the cursor to the ACTIONS menu bar entry, press Enter, and enter the number corresponding to the action you want to take. For example, place an S in the **Action** column next to "entry name" and select 1 (EDIT) from the Action menu.

    The action most likely to be used on a certain panel is always the first action listed in the ACTIONS pull-down menu. When you enter S or SELECT in the **Action** column and press Enter, this default action is used. For example, entering S under **Action** for "MY_ENTERPRISE" in the Policy Database Selection panel opens the MY_ENTERPRISE database.

  Some panels display a list that you can select only one entry from. If you attempt to select more than one entry from such a list, only one selection is accepted. If one entry is already selected and you select another one, this new selection becomes active and the previous selection is removed.

  From a list of policy items, you can select multiple items. Then they are processed sequentially. Pressing the END (PF3) key takes you to the next selected item to be processed without returning to the selection panel.

- The COMMANDS pull-down menu lists all commands that can be entered at the command line.
- The ACTIONS pull-down menu lists all actions that can be entered in the **Action** column for panels displaying entry lists.
- The VIEW pull-down menu lists the different levels of detail that can be displayed for the entries in an entry list. For example, in many entry lists you can display just the entry name and short description, or you can also display a detailed description for each entry.

  Sample panels shown in this documentation may look different on your system depending on the selected view.
- On data entry panels, the END (PF3) key verifies input, saves the data, and exits the current panel.
- Pressing the Enter key verifies input and redisplays the current panel.
- In certain cases a long message is displayed in a pop-up window on the panel. If this pop-up window covers required input areas you can move it. For more information, see the section Movable Pop-Ups in *z/OS ISPF Dialog Developer's Guide and Reference*.

How to Use an Entry Type as a Fast Path

If the policy database that you want to work with is already displayed in the **Current Policy Data Base** field of the Customization Dialog Primary Menu, you can use the entry type abbreviation as a fast path at the **Option** line:

- You can directly type the code for the entry type that you want to work with. For example, to reach the Entry Name Selection panel for Applications, enter:

  ```
  APL
  ```
- If you want to start with defining a new application group, for example, enter:

  ```
  APG; NEW application group_name
  ```
- If you want to reach a certain entry type and you already know the name of the object that you want to edit, you can enter a fast path from every panel within the customization dialog. For example, to reach the APPC application, enter:

  ```
  =APL; S APPC
  ```

  To reach the application group CICS_APG, enter:

  ```
  =APG; S CICS_APG
  ```

  To reach the Entry Name Selection panel for Applications, enter:

  ```
  =APL
  ```

How to Use a Policy Item as a Fast Path

The Entry Name Selection panel has a special feature that allows you to jump directly to a particular policy item for an entry (skipping the Policy Selection panel for that entry).

If you enter an abbreviation for a policy item in the Action column of an entry, SA z/OS immediately takes you to the policy item that best matches what you have typed. For example, if you are in entry type APL, entering I takes you to the Application Information policy item, and entering LC takes you to the Link Instance to Class policy item.

There are no predefined abbreviations for policy items; SA z/OS finds the best match for any input, for example, the beginning of policies or of words, and significant letters. This also ensures that abbreviations work for user-defined policy items.

Note the following special cases:

- Characters reserved for actions will not be matched with policy items. For example, S is reserved for action "select". Thus it will not be matched with policy items (such as "SERVICE PERIOD").
- If there is no best match, you will be taken to the Policy Selection panel, with an error message.

Concurrent User Access

Because you may have separate administrators for different areas (for example, JES or VTAM) who should be able to do their updates independently, the customization dialog allows concurrent update within the policy database.

See also Appendix A, “Concurrent Customization by Multiple Users,” on page 325 for further information.

How to Cancel Input on a Panel

To cancel your input on the current panel, type CANCEL or C at the Command prompt. CANCEL can be used to discard data entered on the panel, whether you have pressed the Enter key.

However, once the message

```
POLICY SAVED
```

is displayed when leaving a panel, the data entered has been saved and cannot be canceled. To delete input after this message is displayed, you must go back to that panel and type over existing values.

How to Create New Policy Objects

The process of creating a new policy object is the same for all types of policy objects, as follows:

Procedure

1. From the Entry Type Selection panel, you select the desired policy object's entry type. For example, if you want to create a new Application object, enter option 6 or APL at the command line.
2. SA z/OS displays the Entry Name Selection panel for the selected entry type. You can either select action NEW from the COMMANDS pull-down or enter the command new *entry_type_name* at the panel's command line. The entry type name is optional for this command.
3. SA z/OS displays Define New Entry panel (an example for defining a new Application is shown in Figure 7 on page 20) for the selected entry type, where you now specify the required information. See Chapter 4, “Entry Type Reference,” on page 71 for more information about how to create new policy objects.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN3                           Define New Entry
Command ===> ____________________________________________________________

Define new entry of type Application

  Entry Name . . . . . . . ____________________

  Subsystem Name . . . . . ____________
  Object Type  . . . . . . INSTANCE     (CLASS INSTANCE)
  Category . . . . . . . . ________     (IBM-defined, user-defined or blank,
                                         see help)
  Subcategory  . . . . . . ___________  (IBM-defined, user-defined or blank,
                                         see help)
  Job Type . . . . . . . . __________   (MVS NONMVS TRANSIENT)
  Job Name . . . . . . . . ____________________________
  Transient Rerun  . . . . ___          (YES NO)
  Scheduling Subsystem . . _________    (MSTR, JES Subsystem)
  JCL Procedure Name . . . ____________________________

  Short description  . . . ____________________________________________
  Long description 1 . . . ____________________________________________________
  Long description 2 . . . ____________________________________________________
  Long description 3 . . . ____________________________________________________
  Long description 4 . . . ____________________________________________________
  Long description 5 . . . ____________________________________________________
```

Figure 7. Define New Entry Panel for an Application

4. If you specify an entry name and press Enter, the subsystem name and job name are defaulted to the entry name, if possible. This is also true for all other entry types where the entry name can be used as a default for further qualifications.

What to do next

Throughout Chapter 4, “Entry Type Reference,” on page 71, if there is no extra information given about creating a particular policy object, it is created using a generic panel, as shown in Figure 8 on page 20.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN2                           Define New Entry
Command ===> ____________________________________________________________

Define new entry of type Timers

  Entry Name . . . . . . . ____________

  Short description  . . . ____________________________________________
  Long description 1 . . . ____________________________________________________
  Long description 2 . . . ____________________________________________________
  Long description 3 . . . ____________________________________________________
  Long description 4 . . . ____________________________________________________
  Long description 5 . . . ____________________________________________________
```

Figure 8. Sample Generic Define New Entry Panel

For more details about the description fields, see “DESCRIPTION Policy Item” on page 26.

How to Rename a Policy Object

The process of renaming an existing policy object is the same for all types of policy object. From the Entry Name Selection panel, type `r` or `rename` in the **Action** field in front of the entry you want to rename, as shown in Figure 9 on page 21.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGENAM                      Entry Name Selection                 Row 1 of 5
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
                                   Enterprise Name : USER_ENTERPRISE

Action      Entry Name             C  Short Description
__________  APPC                      APPC/MVS automation policy
r_________  ASCH                      ASCH automation policy
__________  CICS_SA_PPI_RCV           CICS SA PPI Receiver
__________  CICSK1H                   CICS TS V1.3 FOC1 with TCP/IP
__________  CICSK1H_PPI               CICSK1H PPI Receiver
```

Figure 9. Entry Name Selection Panel: Rename Action

The sample screen shows a list of applications with command `r` in the action field of entry name ASCH. Pressing the Enter key will display a rename pop-up panel where you can enter the new entry name, as shown in Figure 10 on page 21.

```
┌──────────────────────────────────────────────┐
│ AOFGPREN              Entry Rename           │
│                                              │
│ Description : ASCH automation policy         │
│ Old Name    : ASCH                           │
│                                              │
│ New Name  . . _____________________          │
│                                              │
│ Press ENTER to rename member.                │
│ Press CANCEL to cancel rename.               │
└──────────────────────────────────────────────┘
```

Figure 10. Entry Name Rename Pop-up Panel

Pressing Enter will start the renaming process; if the name you entered already exists or is invalid you will be required to enter a different name. After completion, the newly sorted Entry Name Selection panel will be displayed with the renamed entry as the top row. If there are multiple rename requests, the last renamed entry is shown as the top row.

You can leave the rename pop-up panel using END or CANCEL without renaming the policy object.

The Enterprise Name can be modified on the Options panel for the policy database. You get this panel by selecting OPTIONS on the Policy Database Selection panel, edit the policy database and then simply overtype the name, see “Specifying Options for Policy Databases” on page 274.

How to Delete Policy Objects

There are two ways to delete policy objects; you can:

- Delete a single policy object
- Delete any number of policy objects in one go (bulk deletion)

Note that if a *class* is selected for deletion and there are objects linked to it that inherit data, the confirmation panel is displayed. If a class is deleted that has only upward links, no confirmation panel is shown. These links are removed without further notification because there is no object left that loses data.

How to Delete a Single Policy Object

To delete a single policy object use action d against the policy object that you want to delete.

This displays a confirmation panel; the example shown in Figure 11 on page 22 lists any links that exist to the policy object.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGMS05                         Confirm Delete                    Row 1 of 1
Command ===> ____________________________________________________________

Name              : APL_OBJ
Short description :

Press ENTER to confirm delete of this entry.
Press CANCEL or END to cancel delete.

The following links exist in the WHERE USED policy:

Name                  Type    Short Description
APL_OBJ               APL
```

Figure 11. Delete Confirmation Panel for a Single Policy Object

If the policy object to be deleted has any policy objects selected in its WHERE USED policy item (as reported in the confirmation panel), deleting it will automatically remove it from the corresponding policy items in those other policy objects (see Figure 14 on page 29 for the corresponding policy items).

Links between APL policy objects of object type CLASS and object type INSTANCE are treated analogously.

If a class is selected for deletion and there are objects linked to it that inherit data, a confirmation panel is displayed. However, if a class is deleted that has only upward links, a confirmation panel is not displayed. These upward links are removed without further notification because there are no objects left that lose the data.

How to Delete Several Policy Objects in One Go (Bulk Deletion)

To delete several policy objects in one go, type d in the action column against each of the policy objects that you want to delete and press Enter.

This displays the confirmation panel shown in Figure 12 on page 22. Note that only policy objects of the same entry type can be deleted in one go.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGMM05                         Confirm Delete                    Row 1 of 1
Command ===> ____________________________________________________________

Name              : APL_OBJ
Short description :

Show confirmation for . . . . ALL___  (ALL LINKED NONE)

Press ENTER to confirm delete of this entry.
Press CANCEL or END to cancel delete.

The following links exist in the WHERE USED policy:

Name                  Type    Short Description
APL_OBJ               APL
```

Figure 12. Confirmation Panel for Bulk Deletion with WHERE USED Links

You can use the **Show confirmation for** field to set how confirmation of the bulk deletion is handled:

ALL
: Only the policy object that is named on the confirmation panel will be deleted. The confirmation panel will then be redisplayed with the name and links of the next policy object that you marked with d.

  This will continue until you change the value in the **Show confirmation for** field or all the policy objects that you marked with d have been deleted.

LINKED
The policy object that is named on the confirmation panel will be deleted. SA z/OS then processes the rest of the policy objects that you marked with d in the following way:

- Any policy object that is *not* involved in links will be deleted without further confirmation.
- As soon as a policy object with links is encountered the confirmation panel is redisplayed with that policy object name and links on it.

NONE
All the policy objects that you marked with d will be deleted at once, without further confirmation.

Note that when a policy object with links is deleted, the links are treated exactly as in "How to Delete a Single Policy Object" on page 21.

How to Browse a Policy Item

To read a Policy Database without the risk of changing something by accident, the data can be browsed, using selection BROWSE.

A selection BROWSE exists for a complete Policy Database, for an entry type or for a single entry name.

- **Complete PDB**: If a complete Policy Database is selected with BROWSE, then within the PDB all data panels can be accessed and all data fields are displayed with their current values. But it is ensured that no modifications are written to the PDB if they occur by accident.
- **Entry Type**: On the Entry Type Selection panel, an entry type can be selected with BROWSE, for example, BROWSE APL. Then all selected entries are opened for browse only which means all panels can be accessed, but it is ensured that nothing is changed inadvertently.
- **Single policy object**: If neither the Policy Database nor the entry type is selected with BROWSE, then it is possible to select a single entry on the Entry Type Selection panel with BROWSE. Then no changes are possible for this entry.

When a policy object is browsed the data panels are displayed in the same way as for Edit. For entry type APL this has the advantage that you can still see which are inherited data just by color because not all colors are the same. When a data panel is invoked the message Policy in Browse model is displayed as a reminder, and likewise a message is displayed when a data panel is left.

If a user with READ access to a PDB data set tries to open the PDB for Edit, this is automatically switched to an open with Browse.

How to Find Data in a Policy Item

You can use the FIND/RFIND command for the following policy items:

- AUTOMATION FLAGS of entry types APL, ADF, SDF, and MDF (on EXIT and DISABLE TIME panel)
- MINOR RESOURCES of entry types APL and MVC
- MESSAGES/USER DATA of entry types APL, APG, MTR, and MVC
- STARTUP of entry types APL
- SHUTDOWN of entry types APL
- HEALTHSTATE of entry type MTR
- OPCA DOMAINID of entry type ODM
- E-T DATA of entry type UET

The FIND command is used to find and display the next occurrence of a character string in the data that is being edited. You can abbreviate it to F.

For every FIND command, you must specify the string of characters that is to be located. In most cases, you simply enter FIND, or its abbreviation F, followed by the character string. For example, to find the character string demo, enter the following:

```
find demo
```

The cursor is placed at the beginning of the string. Automatic scrolling is performed, if necessary, to bring the string into view. You can use left or right scrolling (by default, the PF10 and PF11 keys) to bring other fields into view.

For the following two fields the length of the input area can be modified, so it can occur that the content is not displayed in full length. In this case only the data that is *visible* is searched through:

- The **Message ID** column on the Message Processing panel for entry types APL, APG, MTR, and MVC
- The **Keyword** column on the UET Keyword-Data Specification panel

You should therefore consider expanding the column width so that all data is visible before performing a search.

You can limit the columns that are searched through by the FIND command by specifying a column name or a non-ambiguous abbreviation for it. The string is found if it is completely contained within the designated column. For example, to find the character string demo in the **Data** column on the UET Keyword-Data Specification panel, enter:

```
find demo data
```

To use the same string that was used in the previous FIND command, you can replace it with a * (asterisk). For example, to find the character string demo again in the **Data** column, enter:

```
find * data
```

If you want to find data strings that contain spaces or special characters, you can enclose the string in quotation marks. For example, to find the expression A = B, enter:

```
find 'a = b'
```

Normally the FIND command searches for the next occurrence of the specified character string, starting at the top of the displayed page or at the cursor position (if the cursor is within the data portion of the display). You can control the scope of the search by entering the optional parameter ALL. For example, to perform a search for all of the occurrences of the character string demo, starting at the beginning of the first line of data and continuing to the bottom, enter:

```
find demo all
```

If the string is found one or more times, the cursor is placed at the beginning of the first occurrence and the string is highlighted. You can use the RESET command to remove the highlighting.

A message is displayed indicating the number of times that the string was found. If you press the RFIND PF key (the default is PF5 or PF17), the second occurrence is found, then the third, and so forth until the bottom of the data is reached.

If the string is not found within the data, a message is displayed indicating that the characters cannot be found.

The RFIND (repeat find) command can be used to repeat the last FIND command that was entered. Because this command is sensitive to the current position of the cursor, it is normally entered via a PF key. By pressing the RFIND PF key repeatedly, you can find successive occurrences of the specified character string. After the first occurrence of a character string has been found using the FIND command, the RFIND key will find the next occurrence. After the last occurrence of a character string has been found, you can use the RFIND key to continue the search, wrapping around from the bottom line to the top line of the data.

If you enter the optional ALL parameter or a column name as part of the FIND command, you can specify them in any order. Although normally not required, you can avoid ambiguity with the optional parameters

by using quotation marks or apostrophes to enclose the character string that is to be found. For example, the following command is ambiguous:

```
find all k
```

It could mean either scan for the string `all` in the **Keyword** column, or scan for all occurrences of the string k. In such cases the message `Put string in quotes` is displayed. You should reenter the command with the search string in quotation marks.

If the FIND command cannot be interpreted, the message `Parameter not recognized` is displayed. Reenter the command with appropriate parameters.

If you exit a panel, the search string is not retained, so you need to enter a new FIND command if you return to the panel.

How to View Long Input Fields in Full Length

There are policies which show data in a tabular form and have input fields which are longer than the standard screen width of 80 characters.

A typical example is the 'Command Processing' panel in the MESSAGES/USER DATA policy for Applications (see Figure 104 on page 147). Any number of commands can be defined with each command specification in one line. The command input field has a length of 159 characters, so to see it in full length it is necessary to scroll to the right.

However when editing long commands scrolling right and left may be cumbersome and a separate panel with all input fields of one data line on one screen can be invoked with S (select) or E (edit) line commands. Here is an example for one line of the 'Command Processing' panel in the MESSAGES/USER DATA policy:

```
                Command Processing  :  line  1
 Command ===> ____________________________________________ Scroll ===> CSR_

 This panel displays the complete input fields of a single data line.

 Pass/Selection . . . . . ____________
 AutoFn/* . . . . . . . . ____________
 Command Text . . . . . .
 INGUSS JOBNAME=&SUBSJOB,/bin/tcsh -c '&SUBSSYMBOL2/sapctrl_em SAP &SUBSSYMBOL5
&SUBSSYMBOL8 0 ERS START >& &SUBSSYMBOL2/start_&SUBSSYMBOL6_ERS.&SYSNAME..log'__
_____________________________________________________________________________
```

This is available for all policies with "long" input fields:

- MESSAGES/USER DATA for entry types APL, APG, MTR, and MVC
- STARTUP for entry type APL
- SHUTDOWN for entry type APL
- HEALTHSTATE for entry type MTR
- E-T DATA for entry type UET
- OPCA DOMAINID for entry type ODM.

Furthermore, these policies have a **Cmd** column which allows you to insert, delete and move lines.

You can use the following line commands in the **Cmd** field to manipulate the entries on this panel:

I*nn*
: Insert one or *nn*, if you specify a number, new lines after the selected line

R*nn*
: Repeat the selected line one or *nn* times if you specify a number

D*nn*
: Delete the selected line, and the following *nn* lines if you specify a number

M*nn*
Move the selected line and the following *nn* lines if you specify a number

A
Move lines after the selected line

B
Move lines before the selected line.

For these policies, you can use the FIND/RFIND command on this panel to locate data. See "How to Find Data in a Policy Item" on page 23 for more details.

Common Policy Items

The following policy items are found on many policy definitions:

- DESCRIPTION
- COPY
- WHERE USED

DESCRIPTION Policy Item

Figure 13 on page 26 shows an example of a Description policy item panel (in this case for the SYSTEM entry type)

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGXDSC                          Description
Command ===> ____________________________________________________________________

Entry Type : System               PolicyDB Name   : USER_PDB
Entry Name : SYS1                 Enterprise Name : USER_ENTERPRISE

Enter or update the entry description:

  Short Description. . . . Focal Point system_____________________
  Long Description 1 . . . ________________________________________________
  Long Description 2 . . . ________________________________________________
  Long Description 3 . . . ________________________________________________
  Long Description 4 . . . ________________________________________________
  Long Description 5 . . . ________________________________________________
```

Figure 13. Sample Description Policy Item Panel

Both types of description (short and long) can be displayed in the customization dialog, depending on the VIEW option that you choose.

Short Description
This is optional and can be up to forty characters in length. The short description is shown at several places, for example in DISPSTAT and INGLIST.

Long Description
This is optional and can consist of up to five lines of up to fifty characters in length. The extended description is part of the DISPINFO display for applications.

COPY Policy Item

When creating a new policy object, you can use the COPY policy item to copy policy information from an existing object to the created object.

This function displays a list of all the other entries of the same entry type in the SA z/OS enterprise that are eligible to be used as the source of the copy function.

Copy Process

The following outlines the process of using an object's COPY policy item when creating a new object.

Procedure

1. Select an entry type from the Entry Type Selection panel. The Entry Name Selection panel is displayed.
2. Enter new (N) at the command line to create a new object. SA z/OS displays the Define New Entry panel for the policy object that you want create.
3. Enter information for the new object as prompted by its Define New Entry panel. Exit the panel (using the PF3 key or END command).
4. The Policy Selection panel for the new object is displayed. Select its COPY policy item.
5. A panel listing all the objects that are currently defined with the same entry type is displayed. Select the policy object that you want to copy policy information from.

   Take note of the following:

   - Groups of type SYSPLEX can only be copied from groups of type SYSPLEX, and groups of type STANDARD can only be copied of type STANDARD (see "Creating a New Group" on page 78).
   - For entry type SYS, copying is only possible for those entries that have the same operating system.
   - For entry type APL, copying is only possible for those entries that have the same category.
   - Sysplex Application Groups can only be copied from Sysplex Application Groups, and System Application Groups can only be copied from System Application Groups (see "ApplicationGroup Entry Type" on page 102).
6. When the copy is complete, you return to the Policy Selection panel for the new object. A `Copy complete` message in the top right corner shows the copy was successful.

   If you copy groups, processors, or zEnterprise ensembles, you may receive the message `Partial copy complete`, which means that it has not been possible to copy all entries. The help function gives details about the data that was not copied.
7. Complete the new definition by performing any necessary modifications to the information that has been copied.

Information that Is Copied

The following indicates what information is or is not copied by the COPY policy item:

1. All source object data is copied to the target object for all entry types with two exceptions:
   - Any data that has to be entered during the creation process on the associated Define New Entry panel for the target object is not copied from the source object.
   - The short and extended description on the Define New Entry panel is copied from the source object whenever this is not already specified for the target object.
2. All the links to other objects that are lower down in the hierarchy of objects are copied from the source to the target. For example, if you copy an application group with linked applications, the links of the source application group are copied to the target application group.
3. None of the links to other objects that are higher up in the hierarchy of objects are copied from the source to the target. For example, if you copy an application that is linked to an application group, the copied target application is *not* linked to that application group.
4. If you copy a class or instance with "upward" links (that is, links to a class), these links are copied. However, if you copy a class that has "downward" links, they are *not* copied.
5. Links to members of sysplex groups (that is, links to subgroups, systems, or Sysplex Application Groups) are *not* copied. This is to avoid conflicts such as having the same system defined in more than one sysplex.
6. Links from systems to processors are not copied to avoid conflicts such as having the same system defined for more than one processor.

7. Resource links of application groups are not copied.

WHERE USED Policy Item

The WHERE USED policy item is effectively a container for *references to* existing policy objects. The container may be empty. To put a reference to a policy object in the container, *select* that policy object from within WHERE USED.

SA z/OS automatically ensures that each reference in WHERE USED is matched by a reverse reference in an appropriate policy item of the other policy object (details further on in this section). Thus, WHERE USED actually contains one direction of *mutual* references. These mutual references are called "WHERE USED links" or "links", for short.

What Policy Objects Can Be Linked?

Whether it is possible to have a link between two policy objects depends on their entry types.

The entry types that SA z/OS supports are arranged in the hierarchy as shown in Figure 14 on page 29. The figure shows the various counterparts of WHERE USED. By following the arrows backwards, you can tell what information you will find in WHERE USED. That is, the entry type where a given policy object may be used.

Key to figure: Gray boxes in Figure 14 on page 29 represent entry types, and arrows represent policy items. When an arrow is attached to a white box inside a gray box (rather than to the gray box itself), the policy item that the arrow represents is only present on policy objects with the specific property named in the white box. An arrow named *z* from an entry type named *X* to an entry type named *Y* means:

- Every policy object in entry type *X* has a policy item named *z*. This policy item contains zero, one or more references to policy objects in entry type *Y*.
- Conversely, every policy object in entry type *Y* has the WHERE USED policy item. Any references in its WHERE USED policy item are to policy objects in entry type *X*.

With a few exceptions, the name of an arrow matches the name of the entry type that it points to (that is: the one that is *lower* in the hierarchy).

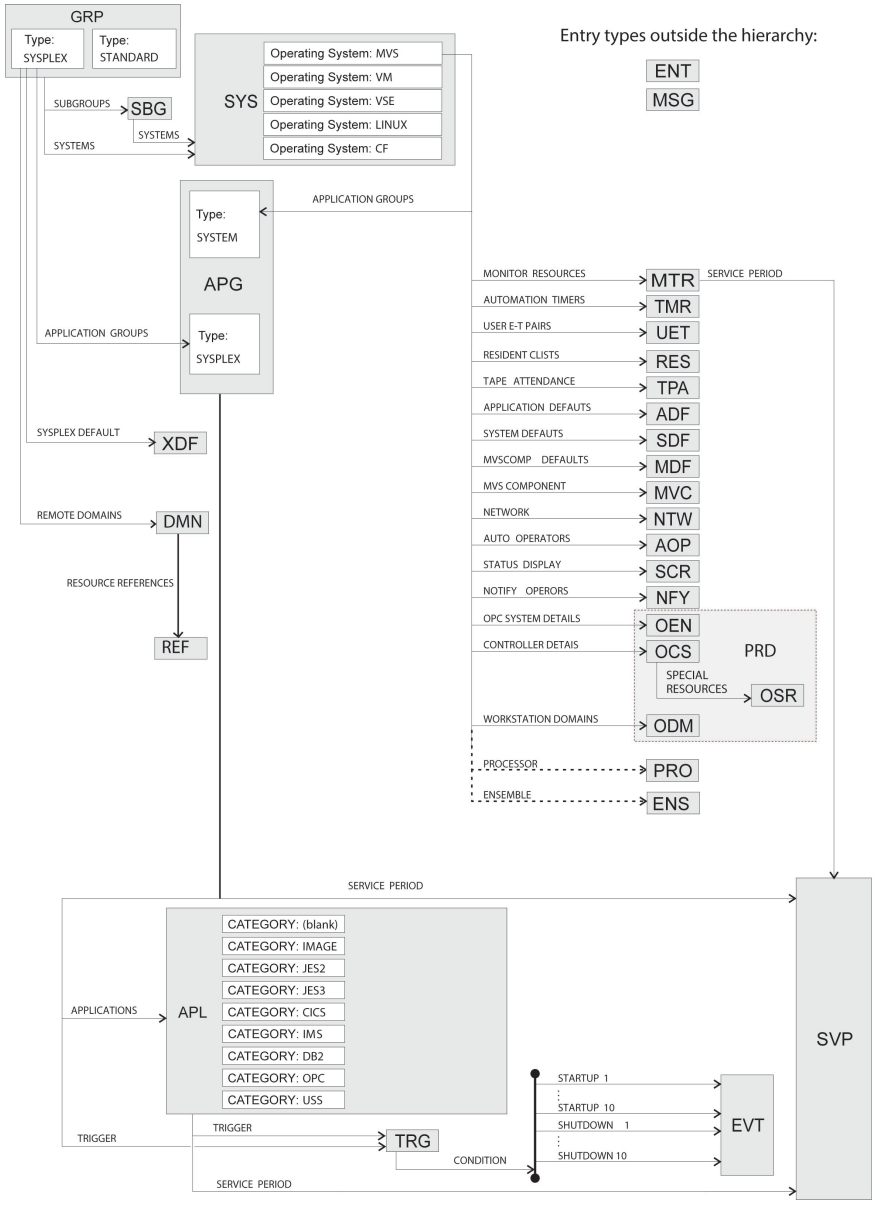


Figure 14. Hierarchy of Entry Types

How to Create, View or Remove Links

Because links are *mutual* references, there are two alternative approaches to create, view or remove them.

Bottom-Up Approach

Procedure

1. In the lower policy object (regarding the hierarchy in Figure 14 on page 29), open the WHERE USED policy item.

   This displays a list of all the policy objects where the current one *may* be used. Those that have a status of SELECTED are the ones where the current one *is* actually used at present.
2. To create a link, apply action "s" to the policy object in question.
3. To remove a link, apply action "m" to the policy object in question.

Top-Down Approach

Procedure

1. In the upper object (regarding the hierarchy in Figure 14 on page 29), open the policy item that takes you to the intended lower type, as shown in Figure 14 on page 29.

   This displays a list of all the policy objects that the current one *may* use. Those that have a status of SELECTED are the ones that the current one *does* actually use at present.
2. To create a link, apply action "s" to the policy object in question.
3. To remove a link, apply action "m" to the policy object in question.

Select ...

For almost every entry type there are policies to link 'child' entry types

These link panels are just the reverse of the WHERE USED policies of the child entry types. Here is an example for Application Groups with the policies to link Applications (APL) , Trigger (TRG) and Service Periods (SVP).

```
  ACTIONS  HELP
------------------------------------------------------------------------------
                              Policy Selection             Row 1 to 13 of 14
Command ===> _____________________________________________ SCROLL===> PAGE

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : BASE_APPL             Enterprise Name : USER_ ENTERPRISE

Action      Policy Name          Policy Description
______      ...
______      ...
______      APPLICATIONS         Select applications for system APG
______      TRIGGER              Select trigger
______      SERVICE PERIOD       Select service period
______      ...
```

Figure 15. Policy Selection Panel

When you select one of these policy items, a list of entry names is shown as in Figure 16 on page 30.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXC4E             Applications for ApplicationGroup      Row 1 to 13 of 106
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : NET                   Enterprise Name : USER_ENTERPRISE

Action      Status            Application
__________  SELECTED          CICSAR1
__________                    CPSMCMAS
__________                    CPSMWUI
__________                    CICS1FOR
__________                    CICSMAIN
__________                    CICS1TOR
__________                    DB21IRLM
__________                    DB21MSTR
__________                    DWH
__________  SELECTED          TCPIP
__________  SELECTED          VTAM
__________                    WBSRV
```

Figure 16. Applications for ApplicationGroup Panel for System Application Groups

Entries which are already linked are shown with Status 'SELECTED'.

With action SELECT or ADD (or abbreviations S and A) the entries can be selected while with action REMOVE (or M) any selection can be reverted. It is also possible to make a single selection without

scrolling via the command by entering the command SELECT or REMOVE with an entry name as parameter.

Usually multiple entries can be selected, but there are a few policies where only one linked entry is allowed, for example, the policy SERVICE PERIOD. For those policies always the last selection is taken. That means if an entry is already selected, and then another selection via the Action column is specified, then the indication 'SELECTED' for the already selected entry is removed automatically. And if multiple selections are specified in the Action column then the bottom selection is used.

Initially the displayed list is sorted alphabetically, but you can use the SORT command to get all selected entries to the top. The SORT command has the column name as parameter, so in the example above the command 'SORT STATUS' would move all selected applications to the top of the screen. The column can be abbreviated, so 'SORT S' would also move all selected names to the top, while 'SORT A' would show the applications again sorted alphabetically by name.

The SORT command is also available on the WHERE USED panels. On some of those panels, entries from different types are shown, for example, WHERE USED for Trigger shows Applications and ApplicationGroups. On these panels the command 'SORT T' would show the names sorted by Type and for each type sorted by name.

Chapter 3. Scenarios on How to Use the Customization Dialog

This information provides a series of scenarios on how to use the customization dialog to implement the appropriate automation policy:

This section discusses the following scenarios:

- "How to Work with Resources" on page 33
- "How to Use Schedules (Service Periods)" on page 54
- "How to Use Triggers and Events" on page 55
- "How to Use User E-T Pairs" on page 61
- "How to Implement Message Processing with User-Defined Data" on page 63
- "How to Work with Externally Stopped and Started Resources" on page 67
- "FORCEDOWN - Configuring a Resource to be Automatically Shutdown" on page 69
- "Working with MONITOR Resources" on page 69

How to Work with Resources

This section contains a scenario on how to group resources for applications in a complex configuration.

A Grouping Scenario

The following scenario shows how grouping is performed on the conceptual level.

For information on how to enter such a grouping policy into the customization dialog, see "Grouping the Resources" on page 35.

Grouping applications and nesting application groups is a process that can be logically divided into multiple steps:

- "Step 1: Identify Resources" on page 33
- "Step 2: Group the Resources" on page 34
- "Step 3: Nest the Groups" on page 34
- "Step 4: Match Resources to Systems" on page 35

Note: Applications and application groups are also referred to with the general term *resources*.

Step 1: Identify Resources

Imagine a scenario with two application groups that represent a data warehouse and a Web server:

- The data warehouse requires the following resources:
  - VTAM
  - TCP/IP
  - DB2 (consisting of components DB21MSTR, DB21IRLM)
  - CICS (consisting of components CICSMAIN, CICS1AR1, CPSMCMAS, CPSMWUI, CICS1TOR, CICS1FOR)
  - DWH
- The Web server requires the following resources:
  - VTAM
  - TCP/IP

© Copyright IBM Corp. 1996, 2017

- DB2 (consisting of components DB21MSTR, DB21IRLM, DB21DIST, DB21DBM1)
- WBSRV

Step 2: Group the Resources

Some of the required resources that were identified in the previous step are candidates for aggregation:

- Resources that are made of multiple components. In our example, these are:
  - CICS1AR1, CPSMCMAS, and CPSMWUI, which could be aggregated into a group called CICSAOR, so that they can be automated as a unit.
  - The group CICS, which will contain resources CICSMAIN, CICS1TOR, CICS1FOR and the aggregated CICSAOR group.
  - The group DB2, which will contain resources DB21MSTR, DB21IRLM, DB21DIST, and DB21DBM1.
- Resources that are used by multiple exploiters. In our example, these are:
  - VTAM and TCP/IP, which are used by the data warehouse and the Web server. We will aggregate them into a group called NET.
  - DB21MSTR, DB21IRLM, DB21DIST, and DB21DBM1, which are used by the data warehouse and the Web server. We will aggregate them into a group called DB2.
- Finally we implement the data warehouse as the group DWHAPG and the Web server as the group WBSRVAPG to allow nesting the other groups into them as required later (see “Step 3: Nest the Groups” on page 34).

Figure 17 on page 34 shows a possible aggregation of all components into groups.

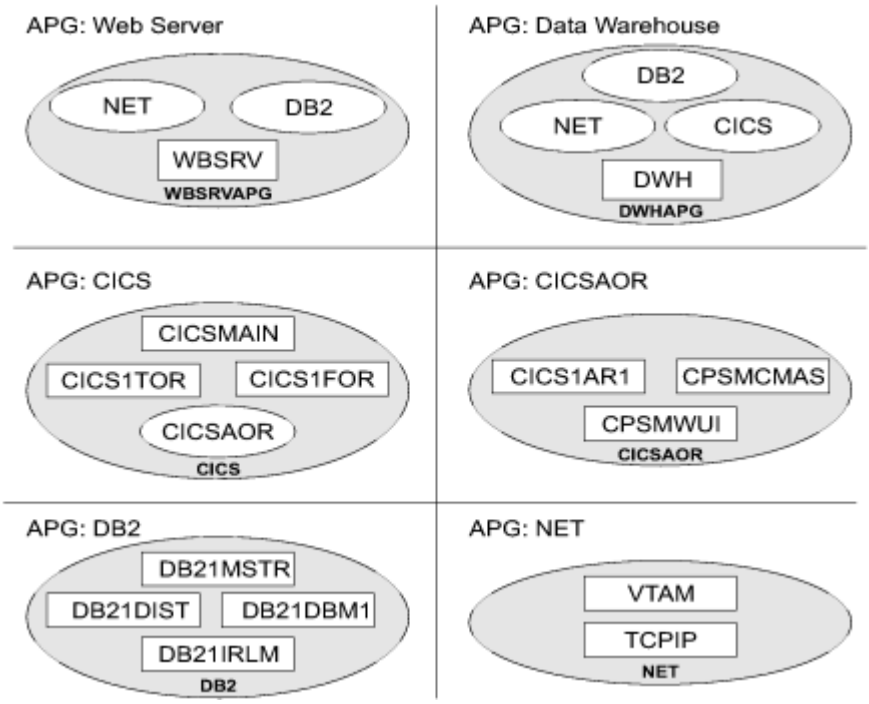


Figure 17. Application Groups

In Figure 17 on page 34, oval labels represent application groups and rectangular labels represent applications. For example, application group CICS contains applications CICSMAIN, CICS1TOR, CICS1FOR and the nested application group CICSAOR.

Step 3: Nest the Groups

Figure 18 on page 35 shows how the application groups are nested in this environment. From an operator's point of view, a start request against WBSRVAPG should start all imbedded components in a

reasonable order. The same is true for requests against all other groups such as, for example, NET and DB2.

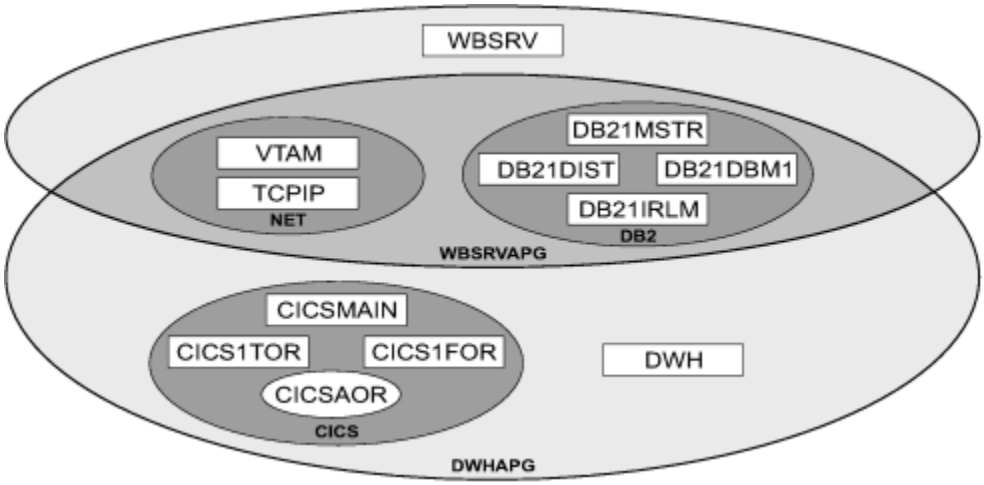


Figure 18. Grouping of Applications into Nested ApplicationGroups

Step 4: Match Resources to Systems

System administrators must next decide what systems and sysplexes these groups and applications should run on. Assume that in our scenario we have an environment of three z/OS systems SYSTEM1, SYSTEM2, SYSTEM3 that are members in sysplex SYSPLEX1.

In our example, a possible decision could be:

- The Web server group WBSRVAPG should run on SYSTEM1.
- The data warehouse group DWHAPG should run on SYSTEM2 and (if SYSTEM2 is not available) on SYSTEM3.
- The DB2 group, containing applications DB21MSTR, DB21IRLM, DB21DIST, and DB21DBM1, should run on SYSTEM2 and on SYSTEM3.
- The NET group, containing applications VTAM AND TCPIP, should run in the entire sysplex.
- The CICS group, containing applications CICSMAIN, CICS1FOR, CICS1TOR and the application group CICSAOR should run on SYSTEM2 and on SYSTEM3.

See “How to Work with Resources” on page 33 for detailed information on how to implement this scenario using the customization dialog.

Grouping the Resources

The complete process of grouping resources is divided into three steps:

- “Step 1: Creating the Policy Objects that Make Up the Sysplex” on page 35
- “Step 2: Creating the Applications” on page 38
- “Step 3: Creating the Application Groups” on page 39

Step 1: Creating the Policy Objects that Make Up the Sysplex

You start on the Entry Type Selection panel. It is assumed that the policy database is empty.

Creating a sysplex consists of:

- Creating the systems
- Creating the sysplex group
- Linking the systems to the sysplex group

Step 1a: Creating the Systems

In this substep, you create the systems SYSTEM1, SYSTEM2 and SYSTEM3.

Before you begin

You may want to read the information in "Creating a New System" on page 91 to see some sample customization dialog panels before you continue this scenario.

Procedure

1. On the Entry Type Selection panel enter option 4 or SYS to get to the Entry Name Selection panel for systems, which currently displays an empty list.
2. Enter `NEW SYSTEM1` at the command line.

   The Define New Entry panel for systems is displayed. The **Entry name** field is already filled with SYSTEM1. The default operating system is MVS.
3. Press Enter to have the **Image/System name** field default to the same as the **Entry name** field. This also enters default values in the **Heartbeat Interval** and **Missing Heartbeat Dealy** fields. Press PF3.

   The Policy Selection panel for systems is displayed, showing a message indicating that the system has been created.

   Background:

   - The Image/System name is part of the resource names that have a system scope. This name usually consists of three parts:
     - An 11-character identifier
     - The entry type that it was derived from
     - The System that it runs on (that is, the Image/System name that is specified for the system)
   - For sysplex-wide resources (for example, Sysplex Application Groups), the system identifier is omitted.
   - Resources of type APL, APG, or MTR are automatically generated when applications, application groups, or monitor resources are linked to systems. Resources of other types are generated dynamically when the system operations configuration files are built.
   - Within the customization dialog, resources of type APL, APG, or MTR can be viewed and they can be linked via special policy items.
4. Press PF3 or enter END to return to the Entry Name Selection panel showing SYSTEM1 in the list.
5. Repeat the previous steps to create SYSTEM2 and SYSTEM3. Now you have three systems in the list on the Entry Name Selection panel. Press PF3 to return to the Entry Type Selection panel.

Step 1b: Creating the Sysplex

Before you begin

You may want to read the information in "Creating a New Group" on page 78 to see some sample customization dialog panels before you continue with the scenario.

Procedure

1. On the Entry Type Selection panel, enter option 2 or GRP to go to the Entry Name Selection panel for groups, which displays an empty list.
2. Enter `NEW SYSPLEX1` at the command line.

   The Define New Entry panel for groups is displayed; the **Entry name** field is already filled with SYSPLEX1.
3. The **Group Type** field defaults to SYSPLEX which is correct here because you want to create a sysplex group. Press PF3 to exit this panel.

The Policy Selection panel for Groups is displayed, showing a message that the group has been created.

4. Consider specifying *default definitions* for all your sysplex resources (that is, Sysplex Application Groups) using the Sysplex Defaults (XDF) and linking it to your sysplex group, as follows:
   a) Return to the Entry Type Selection panel and select the Sysplex Defaults entry type by entering XDF or 40. This displays the Entry Name Selection panel for Sysplex Defaults.
   b) To create a new entry called, for example, XDF1, enter `new xdf1` at the command line.
      This displays the Define New Entry panel with XDF1 in the **Entry name** field. Press PF3 to exit this panel. The Policy Selection panel for Sysplex Defaults is displayed, showing a message that the entry has been created.
   c) Select the RESOURCE INFO policy item to display the Sysplex Resource Information Defaults panel and specify the needed data. Press PF3 to save the changes and return to the Policy Selection panel.
   d) Select the WHERE USED policy item to display the Where Used panel. Select the SYSPLEX1 sysplex by typing an S in the **Action** column and pressing Enter. Press PF3 to save the changes and return to the Policy Selection panel.
5. On the Policy Selection panel for the SYSPLEX Group entry type (which you can reach via the Entry Type Selection panel), select the SYSTEMS policy item. The Systems for Group panel is displayed showing the three systems defined in "Step 1a: Creating the Systems" on page 36.
6. Select all three systems with an S and press PF3 until you return to the Entry Type Selection panel.
   Now your environment contains a sysplex with three z/OS systems.

Ways to Link Systems to a Sysplex

A sysplex for SA z/OS consists of z/OS systems within an XCF group with the same group ID. In the customization dialog such a sysplex *must* be built by creating a sysplex group and linking its systems.

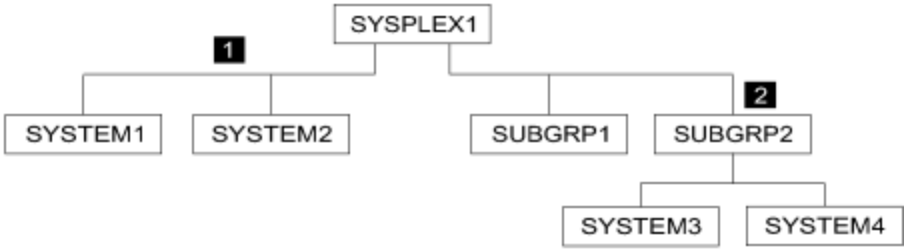
This happens either *bottom-up* (from a system to a group, with the system's WHERE USED policy item) or *top-down* (from a group to a system, with the group's SYSTEM policy item).

For the bottom-up approach you must go into the SYS entry type, select all systems you want in the Sysplex, select each system's WHERE USED policy item where you get a list of sysplex groups and subgroups that you can link the system to.

You can also link groups with systems indirectly. This happens if you create SubGroup objects (SBG entry type) and link these subgroups bottom-up to groups *and* top-down to systems.

Sysplex groups usually consist of several systems, but systems can only be linked to one sysplex group (either directly or indirectly).

The following figure shows how you can create a sysplex:



1
SYSTEM1 and SYSTEM2 are linked directly to sysplex SYSPLEX1.

2
SYSTEM3 and SYSTEM4 are linked to subgroup SUBGRP2 and this subgroup is linked to SYSPLEX1.

Step 2: Creating the Applications

In this step, you create all required application subsystems.

Before you begin

You may want to read the information in “Creating a New Application” on page 123 to see some sample panels of the customization dialog before you continue with the scenario.

Procedure

1. On the Entry Type Selection panel enter option 6 or APL to get to the Entry Name Selection panel for applications, which is displayed with an empty list.
2. Enter `NEW VTAM` at the command line.

   The Define New Entry panel for applications is displayed and the **Entry name** field is already filled with VTAM.
3. Press Enter to have the **Subsystem Name** and **Job Name** fields filled with their default value. These fields are mandatory.

   Both of them default to the application's **Entry name** (see Subsystem Name and Job Name in “Creating a New Application” on page 123 for more information on this defaulting mechanism). So, in this case, they default to VTAM.

   The Subsystem Name is used as the first part of the application's resource name. It is recommended to use the same name for the application entry name and subsystem name for better identification of applications and resources that will be derived from applications.
4. Press PF3 to leave this panel. The Policy Selection panel is displayed, showing a message that the application has been created.
5. On the Policy Selection panel for applications press PF3 again to return to the Entry Name Selection panel. It now shows VTAM in the list.
6. Repeat the previous steps for the rest of the applications using the values from Table 5 on page 38.

Table 5. Entry Details for Applications in the Scenario

Entry Name	Application Category	Subcategory
WBSRV (Web Server)	blank	–
DWH (Data Warehouse)	blank	–
CICSMAIN	CICS	TOR
CICS1TOR	CICS	TOR
CICS1FOR	CICS	FOR
CICS1AR1	CICS	AOR
CPSMCMAS	CICS	CPSM
CPSMWUI	CICS	WUI
DB21MSTR	DB2	MSTR
DB21IRLM	DB2	IRLM
DB21DIST	DB2	DIST
DB21DBM1	DB2	DBM1
TCPIP	blank	–

Now all subsystems (applications) are defined to your environment.

Step 3: Creating the Application Groups

In this step, you create all the required application groups and define the behavior of their members.

According to the example from "A Grouping Scenario" on page 33, the groups should run on the following systems:

- WBSRVAPG should run on SYSTEM1.
- DWHAPG should run on SYSTEM2 and alternatively on SYSTEM3.
- DB2 should run on SYSTEM2 and SYSTEM3.
- NET should run in the entire sysplex.
- CICS should run on SYSTEM2 and on SYSTEM3.

The application group type (SYSTEM or SYSPLEX) sets the boundaries for the automation of the application group and its members.

- Sysplex Application Groups can be located on multiple systems in one or more sysplexes.
- System Application Groups are located on single systems.

Use Sysplex Application Groups for DWHAPG, NET, and CICS. System Application Groups will be used for WBSRVAPG and DB2.

Step 3a: Create Sysplex Application Group CICSAOR

You start with the creation of the sysplex application group CICSAOR because CICSAOR contains only applications that have already been defined (CICS1AR1, CPSMCMAS, CPSMWUI).

Before you begin

You may want to read the information in "Creating a New ApplicationGroup" on page 102 to see some sample customization dialog panels before you continue this scenario.

Procedure

1. On the Entry Type Selection panel enter option 5 or APG. The Entry Name Selection panel is displayed with an empty list.
2. On the Entry Name Selection panel enter `NEW CICSAOR` at the command line. The Define New Entry panel for application groups is displayed. The **Entry name** field has already been filled with `CICSAOR`.
3. Check that the **Application Group Type** field contains SYSPLEX and the **Nature** field contains `BASIC`.

   Application groups can have one of three natures, depending on how many components must be available:

   BASIC
   In a BASIC application group *all* of its components must be available before the group is considered to be available.

   MOVE
   In a MOVE application group exactly *one* of its components must be available before the group is considered to be available. In MOVE groups you can specify alternative components to start if their primary component fail to start.

   SERVER
   In a SERVER application group *any* number of components can be specified that must be available before the group is considered to be available. In SERVER groups you can specify what should happen if their components fail to start.

   The nature of an application group can be changed later on. However be careful with such a change, because the role of the application group will change too (and definitions made for a MOVE group, for example, may not be appropriate for a SERVER group).

   In this scenario, the application group consists of three applications (CICS1AR1, CPSMCMAS, and CPSMWUI) that should all be available. You should therefore make it a BASIC Group.

4. Type CICSAOR in the **Automation Name** field.

   The Automation Name is used as the first part of this application group resource name. It is recommended that you use the same name as the application group Entry name and Automation Name for better identification of application groups and resources that will be derived from them.

   Note: If you do not specify an Automation Name, no resource is generated for the application group. Nevertheless, the application resources for all applications that are linked to this application group are created and become available for automation.
5. Press PF3 to exit the panel. The Policy Selection panel for Groups is displayed showing a message that the application group has been created.
6. On the Policy Selection panel select the WHERE USED policy item. The Where Used panel is displayed with sysplex group SYSPLEX1.
7. Select the sysplex group and press PF3. You briefly see the Command Progress Display pop-up window, showing that the resource has been created, before it disappears automatically.

   You can see the generated resources in the GENERATED RESOURCES policy item of the application group. Return to the Policy Selection panel for CICSAOR.

   Background:

   - A Sysplex Application Group resource is created automatically if there is an Automation Name for the application group, and there is a link to a sysplex group.
   - Only one resource is created (rather than one resource per system) and the resource name does not have a system identifier.

   CICSAOR has an Automation Name; therefore a resource for this application group is generated.

   The current configuration with application group CICSAOR is shown in Figure 19 on page 40.

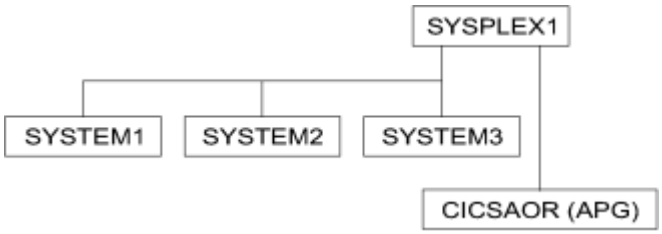


   Figure 19. Scenario: Current Configuration with Sysplex Application Group CICSAOR
8. On the Policy Selection panel for CICSAOR select the APPLICATIONS policy item. This displays the Applications for ApplicationGroup panel with all of the applications.
9. Select CICS1AR1, CPSMCMAS, and CPSMWUI and press PF3 (END) to return to the Policy Selection panel for CICSAOR.

   Application resources are generated when applications are linked to systems. This is the case for CICS1AR1, CPSMCMAS, and CPSMWUI, which are now linked to systems SYSTEM1, SYSTEM2, and SYSTEM3 via sysplex application group CICSAOR.

   So for each application three resources are generated and linked to the application group resource: one application resource for each linked system.

   Again, you see the Command Progress Display pop-up window telling you that the resources are being created. For example, for CICS1AR1, the following resources are generated:

```
CICS1AR1/APL/SYSTEM1
CICS1AR1/APL/SYSTEM2
CICS1AR1/APL/SYSTEM3
```

   Note: These application resources are deleted if one of the following happens:

   - The application is deleted.
   - The application group CICSAOR is deleted.

- Other parts of the link chain APL-APG-GRP-SYS are deleted or delinked (that is, if SYSPLEX1 or any of the systems SYSTEM1, SYSTEM2, or SYSTEM3, or the links between them are deleted).

The current links are shown in Figure 20 on page 41.

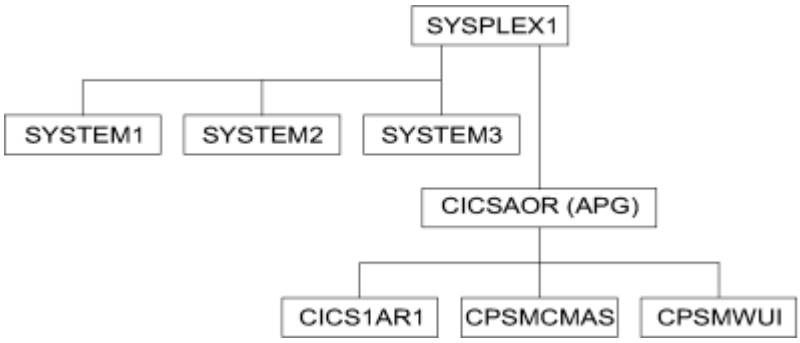


Figure 20. Scenario: Current Configuration with Applications CICS1AR1, CPSMCMAS, CPSMWUI

10. On the Policy Selection panel for CICSAOR select the RESOURCES policy item. This displays the Select Resources panel with 9 application resources selected, as shown in Figure 21 on page 41.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS3                        Select Resources               Row 1 to 9 of 9
Command ===> ____________________________________________  SCROLL===> CSR

Entry Type  : ApplicationGroup       Entry Name : CICSAOR
Sysplex     : SYSPLEX1

  Number of selected Resources . . : 9
  Show all Resources . . . . . . . . NO       YES NO
  Show only Resources with String. . ____________________________________

Action    Status      Resource Name             Entry Name
__________ SELECTED    CICS1AR1/APL/SYSTEM1      CICS1AR1
__________ SELECTED    CICS1AR1/APL/SYSTEM2      CICS1AR1
__________ SELECTED    CICS1AR1/APL/SYSTEM3      CICS1AR1
__________ SELECTED    CPSMCMAS/APL/SYSTEM1      CPSMCMAS
__________ SELECTED    CPSMCMAS/APL/SYSTEM2      CPSMCMAS
__________ SELECTED    CPSMCMAS/APL/SYSTEM3      CPSMCMAS
__________ SELECTED    CPSMWUI/APL/SYSTEM1       CPSMWUI
__________ SELECTED    CPSMWUI/APL/SYSTEM2       CPSMWUI
__________ SELECTED    CPSMWUI/APL/SYSTEM3       CPSMWUI
```

Figure 21. Scenario: Resources for the CICSAOR Sysplex Application Group

11. On the Select Resources panel for CICSAOR, deselect the three resources on SYSTEM1, because CICS should not run on SYSTEM1. Type an M (the action code for REMOVE) in the **Action** column in front of each resource that you want to remove from the group.

    When you press Enter, the **Number of selected Resources** field is now 6.
12. Press PF3 (END) to return to the Policy Selection panel for CICSAOR.
13. Select the APPLGROUP INFO policy item to display the Application Group Information panel for CICSAOR.
14. Press PF8 to scroll to the bottom of the input field section and change the **Automatically link Application-Resources** field to NO.

    You need to do this because the application group definitions are now complete. Further modifications within the sysplex should not affect the completed resource selections on the Select Resources panel.

    Background:

    - You should set this input field to NO if the definition of an application group resource (with its linked applications, its nature and its behavior and so on) is complete. This prevents any possible changes in the automation policy, such as changed system links or application links, from having an influence on this application group resource.

- If this field is set to YES, the application group resource will be changed if system links or application links occur. That is, the number of generated application resources or linked application resources, and possibly the behavior of the application group resource will change. For example, if you link another system to SYSPLEX1, this produces three more resources in the CICSAOR application group, one for each linked application.
- Later on, you will specify preference values for application resources, where automatically generated resources with their default preferences could adversely affect your completed application group definition.

15. Press PF3 until you return to the Entry Name Selection panel.

    The CICSAOR application group is now complete. If a start request is issued against CICSAOR, start requests for CICS1AR1, CPSMCMAS, and CPSMWUI are also automatically issued on SYSTEM2 and SYSTEM3.

Step 3b: Create System Application Group DB2

The DB2 application group runs on two specific systems, so you define it as a *system* application group.

Procedure

1. Enter `NEW DB2` at the command line on the Entry Name Selection panel for application groups. This displays the Define New Entry panel for application groups and the **Entry name** field already filled with DB2.
2. Enter the required values on this panel:
   a) In this scenario DB2 runs permanently on only two of the three systems of SYSPLEX1 (SYSTEM2 and SYSTEM3), so type SYSTEM in the **Application Group Type** field.
   b) You want DB2 be started with all of its components but without specific backup considerations, so leave the **Nature** field as BASIC.
   c) To generate resources you need an automation name, so type DB2 in the **Automation Name** field.

   Press PF3. The Policy Selection panel is displayed indicating that the application group has been created.

   A resource is not created for the APG at this point because the application group is not yet linked to any systems.
3. Select the WHERE USED policy item. This displays the Where Used panel with the three systems that you created in “Step 1a: Creating the Systems” on page 36.
4. DB2 should only run on SYSTEM2 and SYSTEM3. Select SYSTEM2 and SYSTEM3 and press PF3 (END).

   You will see the Command Progress Display pop-up window telling you that the following two resources have been created:

```
DB2/APG/SYSTEM2
DB2/APG/SYSTEM3
```

   Background: A System Application Group resource is automatically generated if there is an Automation Name for the application group and a link to a system. One resource is generated for each linked system.

   The current configuration is shown in Figure 22 on page 42.

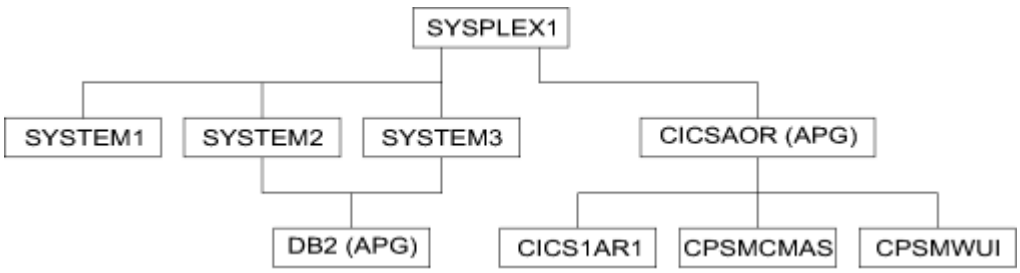


Figure 22. Scenario: Current Configuration with Application Group DB2

5. On the Policy Selection panel for DB2, select the APPLICATIONS policy item to link the required applications. This displays the Applications for ApplicationGroup panel with all 12 applications.
6. Select DB21MSTR, DB21IRLM, DB21DIST, and DB21DBM1, and press PF3 (END) to return to the Policy Selection panel.

   Now DB21MSTR, DB21IRLM, DB21DIST, and DB21DBM1 are linked to two systems via the application group DB2. For the application group, the field **Automatically link Application-Resources into APG** is set to YES, which is the default.

   One resource is generated for each system link of each application. The Command Progress Display pop-up window indicates that the following resources are generated:

```
DB21IRLM/APL/SYSTEM2
DB21IRLM/APL/SYSTEM3
DB21DBM1/APL/SYSTEM2
DB21DBM1/APL/SYSTEM3
DB21DIST/APL/SYSTEM2
DB21DIST/APL/SYSTEM3
DB21MSTR/APL/SYSTEM2
DB21MSTR/APL/SYSTEM3
```

   The current configuration is shown in Figure 23 on page 43.

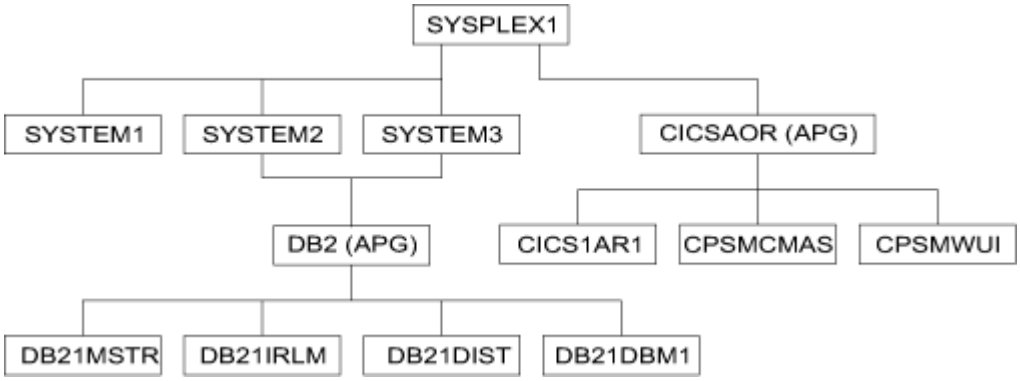


Figure 23. Scenario: Current Configuration with Applications Linked to DB2

7. On the Policy Selection panel for application group DB2, select the RESOURCES policy item.

   This displays the Select System panel, showing the number of resources that have been selected for each of the two systems. You can compare the resulting panel on your system with Figure 24 on page 43.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS1                          Select System               Row 1 to 2 of 2
Command ===> _____________________________________________    SCROLL===> PAGE

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : DB2                   Enterprise Name : USER_ENTERPRISE

Action       System                          Selected Resources
_____________ SYSTEM2                        4
_____________ SYSTEM3                        4
```

Figure 24. Scenario: Select System Panel for DB2 Application group

8. A System Application Group can be linked to several systems. This generates application resources for those systems. So to work with the resource links, you first have to specify which system you want to get the resources for. This is done on the Select System panel by selecting one of the systems. On the Select System panel, select either SYSTEM2 or SYSTEM3 and press Enter.

   This displays the Select Resources panel with, for example, the two APL Resources for SYSTEM2. You can compare the resulting panel on your system with Figure 25 on page 44.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS3                        Select Resources               Row 1 to 2 of 2
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup       Entry Name : DB2
System      : SYSTEM2

  Number of selected Resources     : 4
  Show all Resources . . . . . . . . NO_       YES NO
  Show only Resources with String. . _____________________________________

Action    Status      Resource Name              Entry Name
__________ SELECTED    DB21DBM1/APL/SYSTEM2      DB21DBM1
__________ SELECTED    DB21DIST/APL/SYSTEM2      DB2DIST
__________ SELECTED    DB21IRLM/APL/SYSTEM2      DB21IRLM
__________ SELECTED    DB21MSTR/APL/SYSTEM2      DB21MSTR
```

Figure 25. Scenario: Select Resources Panel for DB2 Application Group

Both applications should be started, so no change is required on this panel.

9. On the Select Resources panel, press PF3 (END) or CANCEL. This returns you to the Select System panel, where you can also view the Select Resources panel for the APL resources in SYSTEM3 to check the created links for SYSTEM3.
10. Press PF3 (END) twice to return to the Policy Selection panel for the DB2 application group.
11. Select the APPLGROUP INFO policy item to display the Application Group Information panel. Press PF8 to scroll down the input field section and change the **Automatically link Application-Resources into APG** field to NO.

    The DB2 application group is now complete.
12. Press PF3 to return to the Entry Name Selection panel for application groups.
13. The application group DB2 is now complete. If a start request is issued against DB2 on SYSTEM2, start requests to the application resources DB21MSTR, DB21IRLM, DB21DIST, and DB21DBM1 are also automatically issued for SYSTEM2. A start request against application group DB2 on SYSTEM3 does the same for SYSTEM3.

Step 3c: Create System Application Group CICS

About this task

You create the CICS application group with a nature of BASIC and with links to three applications (CICSMAIN, CICS1TOR, CICS1FOR) that you defined in “Step 2: Creating the Applications” on page 38.

Procedure

1. To create a System Application Group called CICS, repeat steps “2” on page 42–“8” on page 43 of “Step 3b: Create System Application Group DB2” on page 42 accordingly. In the equivalent of step “8” on page 43, select the applications CICSMAIN, CICS1TOR, and CICS1FOR on the Applications for ApplicationGroup panel.
2. On the Policy Selection panel for application group CICS, select the RESOURCES policy item.

   The Select System panel is displayed as shown in Figure 26 on page 45.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS1                          Select System                Row 1 to 2 of 2
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : CICS                  Enterprise Name : USER_ENTERPRISE

Action       System                           Selected Resources
_____________ SYSTEM2                         3
_____________ SYSTEM3                         3
```

Figure 26. Scenario: Grouping Resources

3. Select SYSTEM2. A panel is displayed similar to the one shown in Figure 27 on page 45.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS3                        Select Resources               Row 1 to 3 of 3
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup       Entry Name : CICS
System      : SYSTEM2

  Number of selected Resources     : 3
  Show all Resources . . . . . . . . NO_       YES NO
  Show only Resources with String. . ____________________________________

Action    Status      Resource Name             Entry Name
_________ SELECTED    CICS1FOR/APL/SYSTEM2      CICS1FOR
_________ SELECTED    CICSMAIN/APL/SYSTEM2      CICSMAIN
_________ SELECTED    CICS1TOR/APL/SYSTEM2      CICS1TOR
```

Figure 27. Scenario: Resources for the CICS Sysplex Application Group

Check the created links for SYSTEM3 too. The selected links should be the same.

4. Press PF3 to return to the Policy Selection panel and select the APPLGROUP INFO policy item. Once again, change the **Automatically link Application-Resources** field to NO.
5. Press PF3 to return to the Entry Name Selection panel for application groups.

Results

The CICS application group is now complete. If a start request is issued against CICS, start requests are also issued for the application resources CICS1FOR, CICSMAIN, and CICS1TOR (on SYSTEM2 and SYSTEM3).

The current configuration is shown in Figure 28 on page 45.

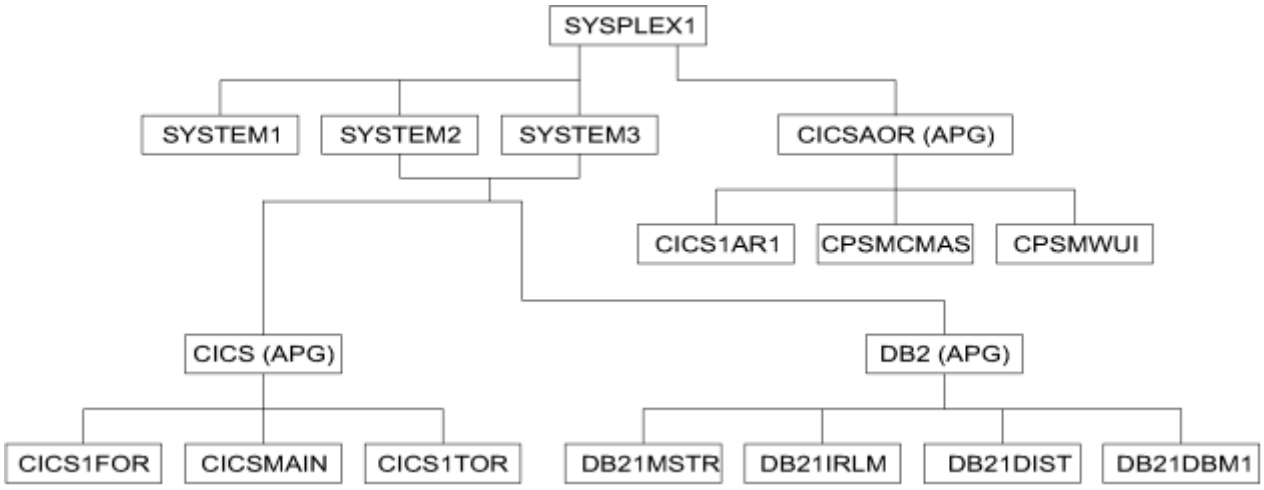


Figure 28. Scenario: Current Configuration with Applications Linked to DB2

Step 3d: Create Sysplex Application Group NET

The creation of Sysplex Application Group NET follows the previous examples, therefore, no detailed description of the required steps is contained here.

The Sysplex Application Group NET should run in the entire SYSPLEX1, and the applications VTAM and TCP/IP should be linked to it.

After your definitions are complete, the Select Resources panel for the NET application group should look like Figure 29 on page 46.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS3                        Select Resources              Row 1 to 6 of 6
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup       Entry Name : NET
Sysplex     : SYSPLEX1

  Number of selected Resources     : 6
  Show all Resources . . . . . . . . NO       YES NO
  Show only Resources with String. . ____________________________________

Action    Status      Resource Name             Entry Name
__________ SELECTED    TCPIP/APL/SYSTEM1         TCPIP
__________ SELECTED    TCPIP/APL/SYSTEM2         TCPIP
__________ SELECTED    TCPIP/APL/SYSTEM3         TCPIP
__________ SELECTED    VTAM/APL/SYSTEM1          VTAM
__________ SELECTED    VTAM/APL/SYSTEM2          VTAM
__________ SELECTED    VTAM/APL/SYSTEM3          VTAM
```

Figure 29. Scenario: Select Resources Panel for Application Group NET

Step 3e: Create MOVE Group DWHAPG

About this task

The Data Warehouse Group DWHAPG should run on one system (SYSTEM2) and, if something goes wrong on SYSTEM2, on SYSTEM3. This application group is created with the nature MOVE.

Background: For an application group of nature BASIC all components are equivalent and all of them need to be available before the application group is considered to be available.

In contrast, an application group of nature MOVE is designed for backup solutions. A MOVE Group can have many components, but exactly one is expected to be active. All other components are for backup only. Thus MOVE Groups usually contain members of one kind (where one application can replace the others).

The applications needed for the DWHAPG application group are available, but additional preparation is needed.

Procedure

1. From the Entry Type Selection panel, enter option 5 or APG. The Entry Name Selection panel is displayed with four application groups: CICS, CICSAOR, DB2, and NET.
2. Enter `NEW DWHAPG` at the command line. The Define New Entry panel is displayed with the **Name** field already filled with `DWHAPG`.
3. Enter the required values on this panel:
   a) The application group DWHAPG should run alternatively on two of the three systems, so leave the **Application Group Type** field as SYSPLEX.
   b) You want to start the components of DWHAPG exactly once, but with backups. Change **Nature** to `MOVE`.
   c) To generate resources you need an automation name, so type `DWHAPG` in the **Automation Name** field.

4. Press PF3 to exit the panel. The Policy Selection panel for Groups is displayed showing a message that the application group has been created.
5. Select the WHERE USED policy item to display the Where Used panel with sysplex group SYSPLEX1.
6. Select the sysplex group and press PF3. The Command Progress Display panel informs you that the DWHAPG/APG resource has been created.
7. Select the RESOURCES policy item.

   The Select Resources panel shows an empty list of resources. The reason is that you did not link any applications to the application group and so no application resources were generated.

   Note that the **Availability Target** is 1 (exactly 1 resource is expected to be up in a MOVE Group). You cannot change this value.
8. Change the **Show all Resources** field to YES and press Enter.

   The Select Resources panel is displayed, as shown in Figure 30 on page 47, with all valid application group resources:

   - Sysplex Application Group resources in the same sysplex: CICSAOR/APG and NET/APG
   - System Application Group resources on one of the systems in the sysplex: CICS/APG/SYSTEM2, CICS/APG/SYSTEM3, DB2/APG/SYSTEM2, and DB2/APG/SYSTEM3

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS5                        Select Resources                    Row 1 of 6
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup      Entry Name : DWHAPG
Sysplex     : SYSPLEX1

  Number of selected Resources   : 0
  Availability Target            : 1        (Move Application Group)
  Show all Resources . . . . . . : YES      (YES NO)
  Show only Resources with String. ____________________________________

Action    Preference  Resource Name             Entry Name
_________ ____        CICS/APG/SYSTEM2          CICS
_________ ____        CICS/APG/SYSTEM3          CICS
_________ ____        CICSAOR/APG               CICSAOR
_________ ____        DB2/APG/SYSTEM2           DB2
_________ ____        DB2/APG/SYSTEM3           DB2
_________ ____        NET/APG                   NET
```

Figure 30. Scenario: Select Resources Panel for DWHAPG with valid APG Resources

   However, this is not yet what you want. The purpose of your group is to start all of these components and the DWH application on either SYSTEM2 or SYSTEM3.

   You need to define two additional application groups with the same contents, one for SYSTEM2 and one for SYSTEM3. Their names will be DWHAPG2 and DWHAPG3. DWHAPG will have these two APGs as members and start them alternatively.

   You must define these groups as System Application Groups because they must contain the System Application Group CICS on SYSTEM2 and SYSTEM3.
9. Press PF3 until you return to the Entry Name Selection panel and enter `NEW DWHAPG2` at the command line (you could also use the *fast path* `=APG;NEW DWHAPG2`).

   The Define New Entry panel is displayed, with DWHAPG2 already in the **Name** field.
10. Enter the required values on this panel:
    a) DWHAPG2 should run on a single system, so change the **Type** to SYSTEM.
    b) Because you want to start all of the components of DWHAPG2, the **Nature** must be BASIC.
    c) To generate resources you need an automation name, so type DWHAPG2 in the **Automation Name** field.
    d) Press PF3 to exit the panel.

11. On the Policy Selection panel select the WHERE USED policy item, and then select SYSTEM2 sysplex group on the Where Used panel.
12. Press PF3 to exit the panel. The Command Progress Display panel is displayed, showing that the resource DWHAPG2/APG/SYSTEM2 has been generated.
13. Select the APPLICATIONS policy item. From the displayed list, select the application DWH. Press PF3 to exit the panel. The application resource DWH/APL/SYSTEM2 is generated and linked to the application group resource DWHAPG2.
14. Select the RESOURCES policy item. The Select Resources panel with the APL Resource DWH/APL/SYSTEM2 is displayed. Select this APL Resource, if it is not already selected.
15. Change the **Show all Resources** field to YES and press Enter.

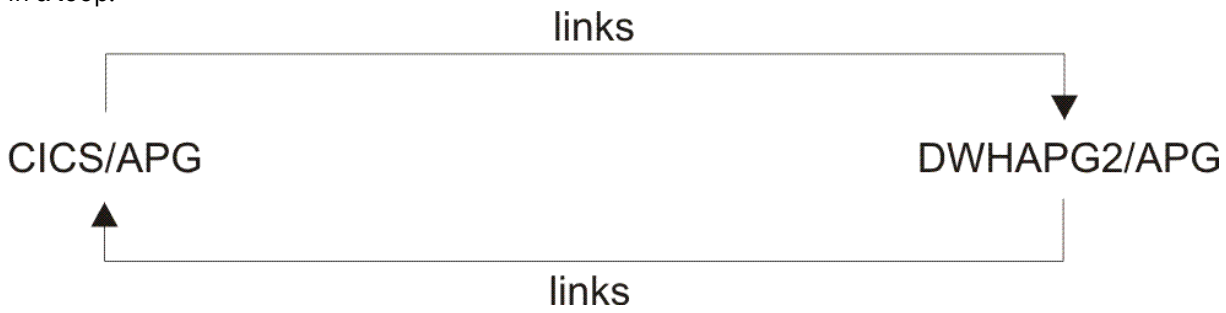
    As a result, two application group resources are displayed together with the one application resource, as shown in Figure 31 on page 48.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS3                        Select Resources              Row 1 to 3 of 3
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup       Entry Name : DWHAPG2
System      : SYSTEM2

  Number of selected Resources     : 1
  Show all Resources . . . . . . . . . YES       YES NO
  Show only Resources with String. . ____________________________________

Action    Status      Resource Name             Entry Name
_________             CICS/APG/SYSTEM2          CICS
_________             DB2/APG/SYSTEM2           DB2
_________ SELECTED    DWH/APL/SYSTEM2           DWH
```

Figure 31. Scenario: Select Resources Panel for DWHAPG2

16. You want to use DWHAPG2 to start the application groups CICS and DB2 on SYSTEM2. Select CICS on SYSTEM2 (the resource CICS/APG/SYSTEM2), DB2 on SYSTEM2 (the resource DB2/APG/SYSTEM2) and DWH on SYSTEM2 (the resource DWH/APL/SYSTEM2).

    Note: The application group CICS is now linked to DWHAPG2. However, when you are using the resource selection panel for CICS, be careful not to link DWHAPG2 to CICS, because this would result in a loop.



17. The Select Resources panel with one application resource and two application group resources selected should now be as shown in Figure 32 on page 49.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS3                        Select Resources              Row 1 to 3 of 3
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup       Entry Name : DWHAPG2
System      : SYSTEM2

  Number of selected Resources     : 3
  Show all Resources . . . . . . . . YES       YES NO
  Show only Resources with String. . ____________________________________

Action    Status      Resource Name             Entry Name
_________ SELECTED    CICS/APG/SYSTEM2          CICS
_________ SELECTED    DB2/APG/SYSTEM2           DB2
_________ SELECTED    DWH/APL/SYSTEM2           DWH
```

Figure 32. Scenario: Select Resources Panel for DWHAPG2 after Selection

18. Press PF3 until you return to the Entry Name Selection panel.
19. Now create the DWHAPG3 system application group in the same way as for the DWHAPG2 application group, as described in steps “9” on page 47 through “12” on page 48, and link it to system SYSTEM3.
20. You want the same application members for the DWHAPG3 system application group as you already defined for DWHAPG2, but with their focus on SYSTEM3.

    You can do this by *copying* DWHAPG2. Select the COPY policy item and then select DWHAPG2 in the Select Entry for Copy panel. The Command Progress Display pop-up window shows the resource being created.

    After the copy process you are at the Policy Selection panel for DWHAPG3.
21. Select the RESOURCES policy item and link the resources that you need for SYSTEM3. The result should look like the panel shown in Figure 33 on page 49.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS5                        Select Resources              Row 1 to 3 of 3
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup       Entry Name : DWHAPG3
System      : SYSTEM3

  Number of selected Resources     : 3
  Show all Resources . . . . . . . . NO        YES NO
  Show only Resources with String. . ____________________________________

Action    Status      Resource Name             Entry Name
_________ SELECTED    CICS/APG/SYSTEM3          CICS
_________ SELECTED    DB2/APG/SYSTEM3           DB2
_________ SELECTED    DWH/APL/SYSTEM3           DWH
```

Figure 33. Scenario: Select Resources Panel for DWHAPG3

Press PF3 until you return to the Entry Name Selection panel.

22. Now you have all the components for the DWHAPG move group. Select DWHAPG on the Entry Name Selection panel, and then select the RESOURCES policy item (alternatively, you can enter `res` in the **Action** field for DWHAPG).
23. The Select Resources panel for DWHAPG is displayed. Change the **Show all Resources** field to YES and press Enter.

    The Select Resources panel with eight APG resources is displayed, as shown in Figure 34 on page 50.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS5                        Select Resources              Row 1 to 8 of 8
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup      Entry Name : DWHAPG
Sysplex     : SYSPLEX1

  Number of selected Resources   : 0
  Availability Target            : 1        (Move Application Group)
  Show all Resources . . . . . . . YES      (YES NO)
  Show only Resources with String. ____________________________________

Action    Preference  Resource Name             Entry Name
_________ ____        CICS/APG/SYSTEM2          CICS
_________ ____        CICS/APG/SYSTEM3          CICS
_________ ____        CICSAOR/APG               CICS
_________ ____        DB2/APG/SYSTEM2           DB2
_________ ____        DB2/APG/SYSTEM3           DB2
_________ ____        DWHAPG2/APG/SYSTEM2       DWHAPG2
_________ ____        DWHAPG3/APG/SYSTEM3       DWHAPG3
_________ ____        NET/APG                   NET
```

Figure 34. Scenario: Select Resources Panel for DWHAPG with Valid APG Resources

24. To set the preferences, define:

    a. The DWHAPG2 group on SYSTEM2 (DWHAPG2/APG/SYSTEM2) as primary by typing p in its **Action** field

    b. The DWHAPG3 group on SYSTEM3 (DWHAPG3/APG/SYSTEM3) as secondary by typing 500 in its **Preference** field

    This is shown in Figure 35 on page 50.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS5                        Select Resources              Row 1 to 8 of 8
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup      Entry Name : DWHAPG
Sysplex     : SYSPLEX1

  Number of selected Resources   : 0
  Availability Target            : 1        (Move Application Group)
  Show all Resources . . . . . . . YES      (YES NO)
  Show only Resources with String. ____________________________________

Action    Preference  Resource Name             Entry Name
_________ ____        CICS/APG/SYSTEM2          CICS
_________ ____        CICS/APG/SYSTEM3          CICS
_________ ____        CICSAOR/APG               CICSAOR
_________ ____        DB2/APG/SYSTEM2           DB2
_________ ____        DB2/APG/SYSTEM3           DB2
p________ ____        DWHAPG2/APG/SYSTEM2       DWHAPG2
_________ 500         DWHAPG3/APG/SYSTEM3       DWHAPG3
_________ ____        NET/APG                   NET
```

Figure 35. Scenario: Setting Preferences with the Select Resources Panel for DWHAPG

Press Enter. Figure 36 on page 51 shows the Select Resources panel after pressing Enter, with the P action converted to the corresponding value of 700.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS5                        Select Resources               Row 1 to 8 of 8
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup      Entry Name : DWHAPG
Sysplex     : SYSPLEX1

  Number of selected Resources   : 2
  Availability Target            : 1        (Move Application Group)
  Show all Resources . . . . . . . YES      (YES NO)
  Show only Resources with String. _____________________________

Action    Preference  Resource Name             Entry Name
__________ ____       CICS/APG/SYSTEM2          CICS
__________ ____       CICS/APG/SYSTEM3          CICS
__________ ____       CICSAOR/APG               CICSAOR
__________ ____       DB2/APG/SYSTEM2           DB2
__________ ____       DB2/APG/SYSTEM3           DB2
__________ 700        DWHAPG2/APG/SYSTEM2       DWHAPG2
__________ 500        DWHAPG3/APG/SYSTEM3       DWHAPG3
__________ ____       NET/APG                   NET
```

Figure 36. Scenario: Select Resources Panel for DWHAPG with Converted Preferences

You can either set preferences directly in the **Preference** column or use the **Action** column:

- (P)RIMARY sets a primary preference of 700.
- SECON(D)ARY sets a secondary preference of *400*.

Press PF3 to return to the Policy Selection panel for DWHAPG. A pop-up window indicated that the preference values have been saved.

25. Select the APPLGROUP INFO policy item and change the **Automatically link Application-Resources** field to N0.
26. Press PF3 to return to the Entry Name Selection panel for application groups.

Results

Application group DWHAPG is now complete. If a start request is issued against DWHAPG, its primary resource DWHAPG2 is started. If DWHAPG2 fails, a start vote is issued against DWHAPG3.

Background: Using Preferences to Define Specific Roles:

- The Resources panel for MOVE groups looks slightly different to the panel for BASIC groups. It has an additional field (**Availability Target**) that cannot be modified, and the second column in the scrollable part of the panel is called **Preferences**. Preferences are used to define specific roles for the resources that are linked to a group.
- You want DWHAPG2 on SYSTEM2 to be started and, if this fails, you want to start DWHAPG3 on SYSTEM3. To define this, start with preference values 700 for DWHAPG2 and 500 for DWHAPG3. They have the following meaning:

  700
  The resource is started when the group is started. The resource is not stopped unless a very high preference (greater than 950) alternative becomes available. (Use for the resource that normally runs).

  500
  The resource is started when the higher preference alternative becomes unavailable. It continues running when normal preference alternatives (that is, with a value of 700) become available again. It stops at the next (scheduled) outage. (Use for a backup resource).

- For more details about preference values, see “RESOURCES Policy Item” on page 115.
- The SECON(D)ARY command sets a preference of 400, which has the following meaning:

400
Resource is started when the higher preference alternative becomes unavailable. The difference to preference 500 is that the resource is stopped when the normal Preference (700) alternative becomes available again.

Step 3f: Create Sysplex Application Group WBSRVAPG

About this task

In this step you create the Sysplex Application Group WBSRVAPG as a SERVER group.

Background:

- SERVER groups are created when only a certain number of linked resources need to be available to consider the application group as being available.
- A SERVER group with an **Availability Target** of 1 and appropriate preference values can behave like a MOVE group.
- A SERVER group with an **Availability Target** of *ALL and all the preferences of its members set to 700 acts like a BASIC group.

The Web server group WBSRVAPG should run only on SYSTEM1. The WBSRV application and the NET application group are essential parts that must be up, but the DB2 application group is not necessarily needed.

Procedure

1. Enter `NEW WBSRVAPG` at the command line. The Define New Entry panel is displayed with the **Entry name** field already as `WBSRVAPG`.
2. Enter the required values on this panel:
   a. The WBSRVAPG application group runs mainly on SYSTEM1. However, WBSRVAPG will have some members that run on other systems in the sysplex, so leave the **Application Group Type** field as SYSPLEX.
   b. WBSRVAPG should start with all of its components, but it is acceptable if DB2 cannot be started. So change the **Nature** of the WBSRVAPG group to SERVER.
   c. Change the default preference in the **Default Preference** field to 444. This is the initial value for all resources that will be linked automatically.
   d. For resource generation you need an automation name; so enter `WBSRVAPG` in the **Automation Name** field.

   The input in the Define New Entry panel should now look similar to Figure 37 on page 53.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN3                          Define New Entry
Command ===> ____________________________________________________________________
                                                                        More:     +
Define new entry of type ApplicationGroup

  Entry Name . . . . . . . WBSRVAPG_____________

  Type . . . . . . . . . . SYSPLEX   (SYSTEM SYSPLEX)
  Nature . . . . . . . . . SERVER    (BASIC MOVE SERVER)
  Default Preference . . . 444       (0 to 3200, *DEF)
  Automation Name  . . . . WBSRVAPG__
  Automatically link . . . YES       (for Application-Resources)
  Behavior . . . . . . . . ACTIVE_   (ACTIVE PASSIVE)
  Prepare Move . . . . . . ___       (YES NO)
  Move Mode  . . . . . . . ________  (PARALLEL SERIAL)

  Short description  . . . ____________________________________________
  Long description 1 . . . ____________________________________________________
  Long description 2 . . . ____________________________________________________
  Long description 3 . . . ____________________________________________________
  Long description 4 . . . ____________________________________________________
  Long description 5 . . . ____________________________________________________
```

Figure 37. Scenario: Define New Entry Input Panel for WBSRVAPG

3. Press PF3 to create WBSRVAPG. The Policy Selection panel for WBSRVAPG is displayed with a message indicating that the application group has been created.
4. On the Policy Selection panel select the WHERE USED policy item. The Where Used panel is displayed with sysplex group SYSPLEX1.
5. Select the sysplex group and press PF3. The Command Progress Display pop-up window shows that the resource WBSRVAPG/APG has been created.
6. Select the APPLICATIONS policy item and select the application WBSRV. Press PF3 to return to the Policy Selection panel for WBSRVAPG.

   You will be notified that the following resources have been generated:

   ```
   WBSRV/APL/SYSTEM1
   WBSRV/APL/SYSTEM2
   WBSRV/APL/SYSTEM3
   ```

7. Select the RESOURCES policy item of WBSRVAPG to get to the Select Resources panel for WBSRVAPG.

   You can see that the preference for the linked resources is the value that you entered when you created the WBSRVAPG application group.

   You can use the **Preference** field to fine-tune the automatic linking of application resources to an application group.

   a. Change the **Show all Resources** field to YES and press Enter to see the complete list of selectable resources.

   b. Now you need to change the preferences so that the WBSRVAPG application group is started on SYSTEM1 with WBSRV and NET as mandatory components and DB2 as optional. To achieve this:

      i) Set the **Availability Target** to 2.

      ii) Enter `1000` in the **Preference** field for the mandatory components (WBSRV/APL/SYSTEM1 and NET/APG).

      iii) Enter `m` in the **Action** field for WBSRV/APL/SYSTEM2 and WBSRV/APL/SYSTEM3 to deselect them.

      iv) Enter a value between 501 and 999 in the **Preference** field for DB2/APG/SYSTEM2 and DB2/APG/SYSTEM3.

   When the application group is started, all selected members with at least Preference 600 will also be started, but members with Preference 1000 are mandatory.

   If you change the **Show all Resources** field to NO, your definitions should look like Figure 38 on page 54.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS2                        Select Resources              Row 1 to 4 of 4
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup      Entry Name : WBSRVAPG
Sysplex     : SYSPLEX1

  Number of selected Resources   : 4
  Availability Target. . . . . . . 2___     (-3 to 4 , *ALL)
  Satisfactory Target. . . . . . . ____     (Level at which group is available)
  Show all Resources . . . . . . . NO_      (YES NO)
  Show only Resources with String. ____________________________________

Action    Preference  Resource Name            Entry Name
_________ 700         DB2/APG/SYSTEM2          DB2
_________ 700         DB2/APG/SYSTEM3          DB2
_________ 1000        NET/APG                  NET
_________ 1000        WBSRV/APL/SYSTEM1        WBSRV
```

Figure 38. Scenario: Final Select Resources Panel for WBSRVAPG

8. Press PF3, select the APPLGROUP INFO policy item in the Policy Selection panel and change the **Automatically link Application-Resources into APG** field to N0 on the Application Group Information panel.

Results

The WBSRVAPG application group is complete. If a start request is issued against WBSRVAPG, both WBSRV and NET must be successfully started for WBSRVAPG to be available.

How to Use Schedules (Service Periods)

You can extend the scenario described in “A Grouping Scenario” on page 33 using service periods that automatically control the startup and shutdown of resources. Service periods can be linked to APLs, APGs, and MTRs.

You will extend the scenario so that:

- The data warehouse application is available from 9a.m. to 10p.m.
- The Web server is available from 4a.m. through 11p.m.

Three service periods are needed:

- SWBSRV linked to the WBSRVAPG (Web server) application group
- SDWH linked to the DWHAPG (data warehouse) application group
- SDB2DWN linked to the DB2 application group

The SDB2DWN service period should be for the resource to be down 24 hours a day, seven days a week. This will serve to shut down DB2 and CICS when they are not needed to support an application (WBSRV or DWH or anything else that is dependent upon them).

Schedule Override

The Web server needs to be available until midnight. So the operator just needs to override the SWBSRV service period (changing 11 p.m. to 12 a.m.). An appropriate action would be the only one required to reverse the override.

If you do not want to use service periods, you could just issue a high priority request for WBSRVAPG to be available sometime before 11 p.m.. To remove this request at midnight, you could either use INGREQ command with the expiration time parameter, which will automatically remove the request. Or, at 12 a.m., you could use the INGVOTE command to remove this request.

Early Start

At 3 a.m. the Web server application needs to be started.

The operator simply creates an override for SWBSRV that says to start the Web server at 3 a.m. and keep it up until 11 p.m.. Everything will then happen automatically. This can be done several hours (or even days) in advance.

If the operator does not want to use service periods to achieve this, he or she just needs to issue a start command against the WBSRVAPG application group and all the required resources will be made available (and kept available) until the operator removes their request (if this is after 4 a.m., the resources will not be stopped because the desired status of the resource will not change. The requested AVAILABLE from the operator will be replaced with a requested AVAILABLE from the schedule).

How to Use Triggers and Events

This section describes a scenario on how to define automatic starts and stops that are based either on fixed time intervals (service periods) or on special conditions (events).

This scenario is based on the environment that you created in "How to Work with Resources" on page 33 and describes:

- What environment you need and when it should be available, see "Scenario Environment and Behavior" on page 55
- What policy objects and links you need and why you need them, see "A Possible Solution" on page 55
- How to enter these in the customization dialog ("Implementing the Solution" on page 58)

Note that, like service periods, triggers can be linked to APLs, APGs, and MTRs

Scenario Environment and Behavior

Assume that you are in the environment that you created in "How to Work with Resources" on page 33 and that you want to set up the following CICS applications:

- One terminal-owning region (TOR) on system SYSTEM3
- One application-owning region (AOR) on SYSPLEX1 to support this TOR

They should meet these requirements:

1. Between 7a.m. and 6p.m. on weekdays, and 8a.m. and 2p.m. on Saturdays:
   a. The TOR should be available.
   b. The AOR should be available on one of the systems in SYSPLEX1.
2. Before any of the CICS applications are started, certain related data sets need to be backed up.
3. A TOR does not make sense without an AOR, so you need relationships that ensure that:
   a. The TOR should not be started until the AOR is available on one of the systems.
   b. If the AOR has to be shut down (for example, in an emergency) so that it is no longer available on *any* of the systems in the sysplex, the TOR must be shut down *first*.

It does not matter which system the AOR is available on and it need not be the same system throughout the specified periods. Thus it is enough to start the AOR on one of the systems and switch to another system when the AOR cannot or does not continue to run on its current system.

A Possible Solution

Figure 39 on page 56 shows the policy objects and connections that you need to define in the customization dialog.

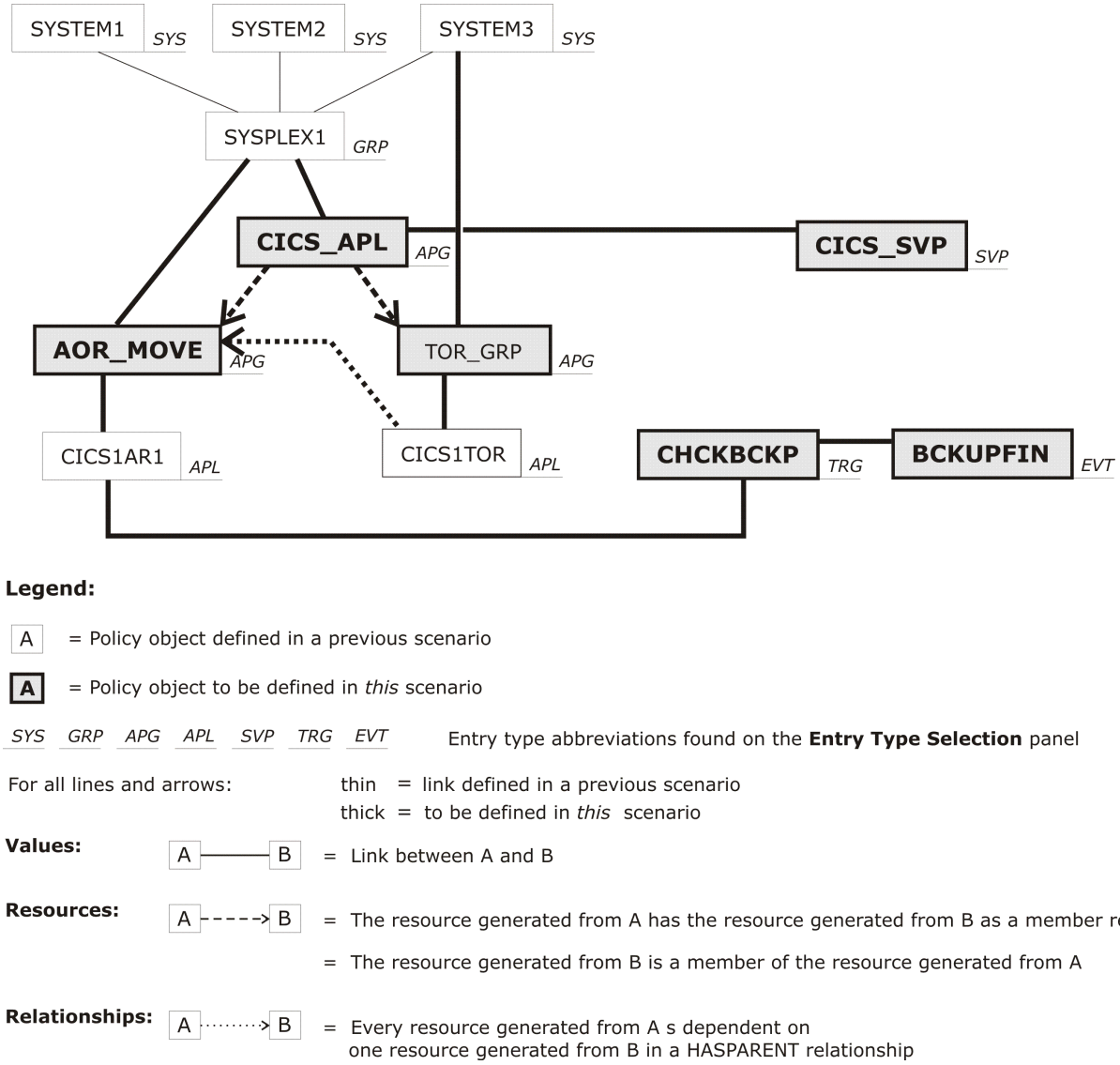


Figure 39. Policy Objects in the Solution

Note: Some of the policy objects that you need here were already created in "How to Work with Resources" on page 33. So you can start from that existing policy database. If you do, you will have more entries and links in your policy database than are present in Figure 39 on page 56, but the additional ones will not affect the solution of the current task.

Figure 40 on page 57 shows the resources that will be generated from your policy objects.

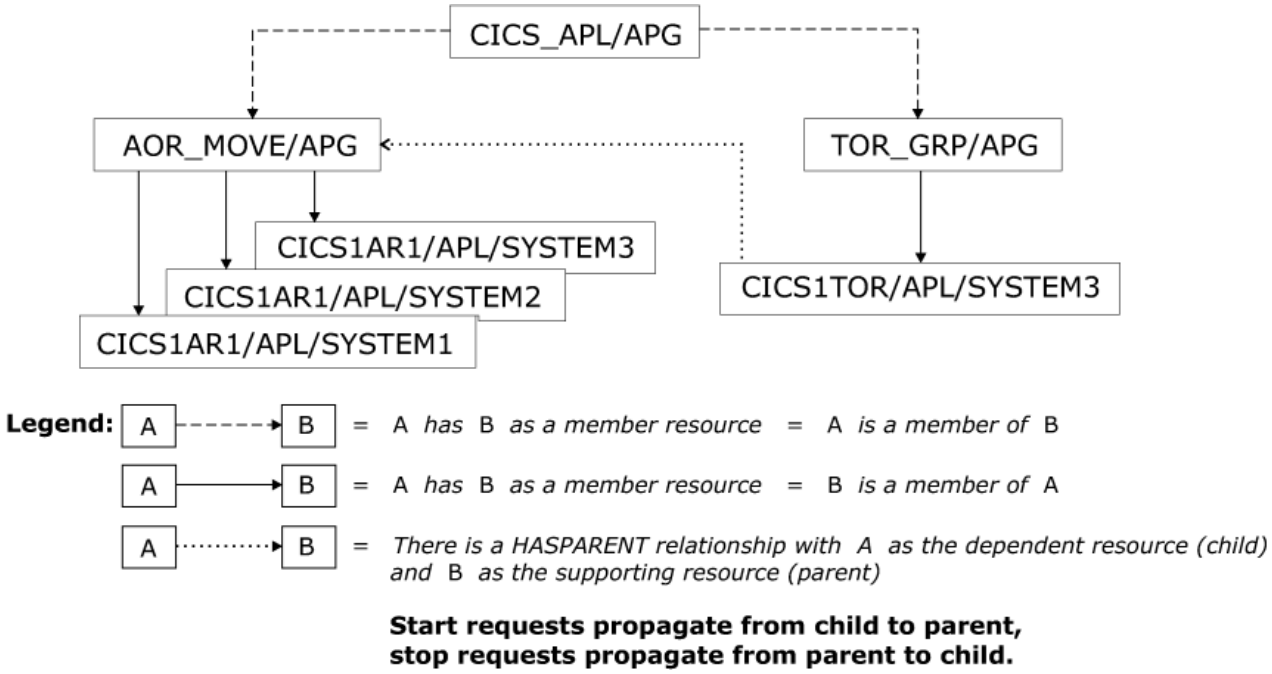


Figure 40. Generated Resources in the Solution

The AOR can run on different systems in the sysplex. This means you create *one* policy object of type APL to represent the AOR, but SA z/OS generates *three* resources from this policy object (one resource per system in the sysplex).

You can use the application CICS1AR1 as the AOR, and CICS1TOR for the TOR. You defined both of these in "How to Work with Resources" on page 33.

Resources will only be generated from a policy object if it is linked to a system or sysplex. For entry type APL, the customization dialog does *not* allow you to create a *direct* link. What you need to do is link both the application and the system or sysplex to the same application *group*. In the plan shown in Figure 39 on page 56, this is done as follows:

- Application group AOR_MOVE provides indirect linking between application CICS1AR1 and sysplex SYSPLEX1
- Application group TOR_GRP provides indirect linking between application CICS1TOR and system SYSTEM3.

To have the CICS applications available when required, you need to define a service period (a policy object of type SVP). This is CICS_SVP in Figure 39 on page 56. There are two ways that you can use the service period:

1. Link the service period to both application groups AOR_MOVE and TOR_GRP.
2. Put AOR_MOVE and TOR_GRP together in another application group and link the service period to it.

The plan in Figure 39 on page 56 uses the second method. The application group that groups AOR_MOVE and TOR_GRP is CICS_APL.

To back up the data sets, you need to define an event (a policy object of type EVT) and combine it with a trigger (a policy object of type TRG). In Figure 39 on page 56 the event is BCKUPFIN and the trigger is CHCKBCKP.

To start and stop the resources in the correct order, you need to define a HASPARENT relationship with a suitable supporting resource. This is an additional move group (policy object of type APG and nature MOVE), which is AOR_MOVE in Figure 39 on page 56.

Implementing the Solution

Procedure

1. On the Customization Dialog Primary Menu panel, open the policy database that you created in the scenario described in “How to Work with Resources” on page 33.
2. Create a new application group called AOR_MOVE with these values:
   - **Application Group Type**: SYSPLEX
   - **Nature**: MOVE
   - **Automation Name**: AOR_MOVE
3. Use the WHERE USED policy item to link the application group AOR_MOVE to SYSPLEX1.

   SA z/OS generates the APG resource: AOR_MOVE/APG
4. Link application CICS1AR1 to application group AOR_MOVE.

   SA z/OS generates the following APL resources:

   ```
   CICS1AR1/APL/SYSTEM1
   CICS1AR1/APL/SYSTEM2
   CICS1AR1/APL/SYSTEM3
   ```
5. In application group AOR_MOVE, select policy item RESOURCES and set the following preferences for the new APL resources:
   - 900 for CICS1AR1/APL/SYSTEM1, so that starting AOR_MOVE/APG starts CICS1AR1/APL/SYSTEM1
   - 600 for CICS1AR1/APL/SYSTEM2, so that it starts if CICS1AR1/APL/SYSTEM1 fails
   - 500 for CICS1AR1/APL/SYSTEM3, so that it starts if CICS1AR1/APL/SYSTEM2 also fails
6. Create a new application group called TOR_GRP with these values:
   - **Application Group Type**: SYSTEM
   - **Nature**: BASIC
   - **Automation Name**: TOR_GRP
7. Use the WHERE USED policy item to link the application group TOR_GRP to system SYSTEM3.

   SA z/OS generates the APG resource: TOR_GRP/APG/SYSTEM3
8. Link application CICS1TOR to application group TOR_GRP. SA z/OS generates the APL resource: CICS1TOR/APL/SYSTEM3
9. Define a HASPARENT relationship between CICS1TOR/APL/SYSTEM3 as the child (dependent resource) and AOR_MOVE/APG as the parent (supporting resource) as follows:
   a) For application CICS1TOR, select policy item RELATIONSHIPS.
   b) On the Relationship Selection List panel, enter `new hasparent` at the command line.
   c) On the Define Relationship panel, enter resource AOR_MOVE/APG in the **Supporting Resource** field.
10. Create a new application group called CICS_APL with these values:
    - **Application Group Type**: SYSPLEX
    - **Nature**: BASIC
    - **Automation Name**: CICS_APL
11. Use the WHERE USED policy item to link application group CICS_APL to group SYSPLEX1.

    SA z/OS generates the APG resource: CICS_APL/APG
12. Make TOR_GRP/APG/SYSTEM3 and AOR_MOVE/APG members of CICS_APL/APG as follows:
    a) In application group CICS_APL, select policy item RESOURCES.
    b) Overtype NO in the **Show all Resources** field with YES and press Enter.

This displays the resources that have been generated so far.

c) Use action s to select the following resources:

- AOR_MOVE/APG
- TOR_GRP/APG/SYSTEM3

13. Create a new event called BCKUPFIN.

    This event is set whenever the backup process that is required is completed.

    Note: SA z/OS can automatically set this event by trapping message IEF404I from the backup process. Use the INGEVENT command to set events.

14. Select policy item CONDITION and, on the Unset Condition panel that appears, enter the option that suits your needs in the **Unset Condition** field, for example UP.

    Background:

    - The condition for unsetting an event will be checked on the *observed* status. There are eleven possible values for the observed status: six that indicate availability and five that indicate unavailability (see "Observed Status" in *IBM System Automation for z/OS User's Guide* for details). Among those values that indicate availability, there is one named STARTING. The "UP" condition, for example, means: the observed status has a value that indicates availability, but is *not* the value STARTING.
    - The observed status belongs to generated resources, not to policy objects. In other words: a policy object does not have an observed status. Only the resources that are *generated from* the policy object have an observed status. So there is an observed status for each of the boxes in Figure 40 on page 57, but not for the boxes in Figure 39 on page 56.
    - As a result of all this, the condition for unsetting an event only has an effect when the event is related to a generated resource because only then is there an observed status that the condition can be checked on.
    - The only way that an event can be related to generated resources is via a *trigger*, as follows: when the event is linked to a trigger and the trigger is linked to an APL, APG, or MTR policy object, the event will be *indirectly* related to every resource that is generated from that APL, APG, or MTR policy object.
    - The key to understanding the effect of the unset condition is that SA z/OS maintains a *separate* event value for each generated resource that an event is indirectly related to. So an event may be set for one generated resource, but unset for another at the same time.
    - The effect of UP, for example, is that the event will be unset *for a particular generated resource* as soon as the observed status of *that* particular generated resource is given a value that indicates availability, but is different from the value STARTING.

15. Create a new trigger called CHCKBCKP, then enter trigger details as follows to make the trigger check backup completion before startups:

    a) On the Policy Selection panel for the new trigger, select policy item CONDITION.

    b) On the Trigger Conditions panel, select condition STARTUP 1.

    c) On the STARTUP Condition for Trigger panel that follows, use action s to change the status of event BCKUPFIN to SELECTED.

16. Link trigger CHCKBCKP to application CICS1AR1 as follows:

    a. Select policy item WHERE USED for trigger CHCKBCKP.

    b. On the Where Used panel, select the application CICS1AR1.

    As a result of linking trigger CHCKBCKP to both application CICS1AR1 and event BCKUPFIN, SA z/OS maintains a separate BCKUPFIN value for each of the three resources that were generated from application CICS1AR1 (that is, CICS1AR1/APL/SYSTEM1, CICS1AR1/APL/SYSTEM2, and CICS1AR1/APL/SYSTEM3).When you use INGEVENT to set the event, you can supply the name of one of these resources so that the event is only set for that particular resource, but remains unset for the others. If you do not supply a resource parameter with INGEVENT, the event will be set for

all three resources. They will, however, still be independent of each other, so they might be unset at different times.

17. Create a service period called CICS_SVP, then enter schedule details as follows:
    a. On the Policy Selection panel for the new service period, select policy item SERVICE WINDOW.
    b. On the Service Windows panel, scroll down to SATURDAY and WEEKDAY and fill in the following values:

```
Saturday U _  08:00 14:00  _____ _____  _____ _____  _____ _____  _____ _____
         D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____
```

```
 Weekday U _  07:00 18:00  _____ _____  _____ _____  _____ _____  _____ _____
         D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____
```

18. Link service period CICS_SVP to application group CICS_APL as follows:
    a) For service period CICS_SVP, select policy item WHERE USED.
    b) On the Where Used panel, select the application group CICS_APL.

How the Solution Works

The key to understanding how this works is the distinction in SA z/OS between starting a resource and setting a resource's desired status to AVAILABLE (see "Desired Status" in *IBM System Automation for z/OS User's Guide* for more information on the concept of desired status).

A desired status of AVAILABLE is a prerequisite for starting a resource, but it may not be enough. Further startup prerequisites may be attached to individual resources, for example, conditions that are implicit in a HASPARENT relationship.

You also need to be aware of what it means to start a resource. For an APL resource, this is obvious: it means that a start order is sent to the appropriate automation agent. For an APG resource, however, it means something different: the start request is propagated to some or all (depending on the APG resource's nature) of its member resources. Provided that the propagated start request wins over any other request that might be simultaneously sent to the same member resource, its desired status is set to AVAILABLE.

The resources in our scenario and the special prerequisites attached to them can be seen in Figure 40 on page 57. This is what happens:

1. Whenever the time of day enters the time window defined for availability in service period CICS_SVP, SA z/OS generates a start request to resource CICS_APL/APG.
2. If this start request wins over any concurrent requests to CICS_APL/APG from elsewhere, SA z/OS sets the desired status of CICS_APL/APG to AVAILABLE.
3. Resource CICS_APL/APG has no further start prerequisites attached to it, so it is started immediately.
4. CICS_APL/APG has a nature of BASIC, so starting CICS_APL/APG means that the start request is propagated to every resource that is a member of it. In this scenario, these are AOR_MOVE/APG and TOR_GRP/APG.
5. If the start request that is propagated to AOR_MOVE/APG and TOR_GRP/APG wins, SA z/OS sets the desired status of both application groups to AVAILABLE.
6. Neither AOR_MOVE/APG nor TOR_GRP/APG has any further start prerequisites attached to it, so they are started immediately.
7. Starting TOR_GRP/APG means that the start request is propagated to its only member, CICS1TOR/APL/SYSTEM3.
8. If the start request that is propagated to CICS1TOR/APL/SYSTEM3 wins, SA z/OS sets its desired status to AVAILABLE.
9. Because of the HASPARENT relationship that is attached to CICS1TOR/APL/SYSTEM3, a desired status of AVAILABLE is not yet enough to start CICS1TOR/APL/SYSTEM3. So nothing happens as long as its supporting resource, AOR_MOVE/APG, has not started up.

10. AOR_MOVE/APG is a *move* group, so starting AOR_MOVE/APG means that the start request is only propagated to *one* of its member resources. This is the one with the highest preference (referred to as its *primary member*). In this scenario, it is CICS1AR1/APL/SYSTEM1.
11. If the start request that is propagated to CICS1AR1/APL/SYSTEM1 wins, SA z/OS sets its desired status to AVAILABLE.
12. Because of the trigger, a desired status of AVAILABLE is not yet enough to start CICS1AR1/APL/SYSTEM1. So nothing happens before its backup event is set. As soon as the event is set for resource CICS1AR1/APL/SYSTEM1, it starts up.
13. Starting CICS1AR1/APL/SYSTEM1 means that the automation manager sends a start order for CICS1AR1/APL/SYSTEM1 to the automation agent on SYSTEM1.
14. When CICS1AR1/APL/SYSTEM1 is fully up and running, the automation agent on SYSTEM1 reports the fact to the automation manager, which sets the *observed* status of CICS1AR1/APL/SYSTEM1 to an observed status value that indicates availability, but is different from STARTING.
15. The new observed status passes up from CICS1AR1/APL/SYSTEM1 to AOR_MOVE/APG. So AOR_MOVE/APG, too, now has an observed status value that indicates availability, but is different from STARTING.
16. This supplies the second startup prerequisite for CICS1TOR/APL/SYSTEM3 that is implicit in its HASPARENT relationship, so CICS1TOR/APL/SYSTEM3 is now started, too.
17. Starting CICS1TOR/APL/SYSTEM3 means that the automation manager sends a start order for CICS1TOR/APL/SYSTEM3 to the automation agent on SYSTEM3.
18. When CICS1TOR/APL/SYSTEM3 is fully up and running, the automation agent on SYSTEM3 report the fact to the automation manager, which sets the *observed* status of CICS1TOR/APL/SYSTEM3 to an observed status value that indicates availability, but is different from STARTING.
19. For the reasons given in step “14” on page 59 and step “16” on page 59, the observed status of CICS1TOR/APL/SYSTEM3 is checked to determine when the BCKUPFIN event for CICS1TOR/APL/SYSTEM3 will be unset.

How to Use User E-T Pairs

This section describes how user-specified data that does not fit into one of the standard entry types (for example, APL, APG, or SYS) can be entered into a policy database and retrieved later on by the automation.

In this example, the data for a job card is modified.

Step 1: Specifying User Data in the Customization Dialog

Select entry type User E-T Pairs (99) from the Entry Type Selection panel.

In this example, assume that an entry JOBCARDS for a set of jobcards has already been created. Select this entry.

If you select the E-T DATA policy item from the Policy Selection panel for the JOBCARDS User E-T Pairs, the UET Entry-Type Selection panel similar to Figure 41 on page 62 is displayed.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGUET                    UET Entry-Type Selection              Row 8 of 13
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : User E-T Pairs        PolicyDB Name   : USER_PDB
Entry Name : JOBCARDS              Enterprise Name : USER_ENTERPRISE

Action   Entry Name                          Type
s_______ JOBCARD                             DEFAULTS
_______  JOBCARD                             ICKDSF
_______  JOBCARD                             IDCAMS
_______  JOBCARD                             IMSFUND
_______  JOBCARD                             SENDMAIL
```

Figure 41. UET Entry-Type Selection Panel

Enter S for Select in the **Action** column for the User E-T Pairs pair that you want to process. In this example, you want to process the JOBCARD of type DEFAULTS. SA z/OS displays the UET Keyword-Data Specification panel, where you can enter the keywords and user data for each Entry-Type pair data, as shown in Figure 42 on page 62. For more details about this panel, see "E-T DATA Policy Item" on page 266.

A keyword is an identifier for the data that follows it. The set of keyword/data pairs may be null, and each keyword does not have to be unique; that is, each keyword may have multiple sets of data assigned to it.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNU   UET Keyword-Data Specification          Line 00000001 Col 001 075
Command ===> ____________________________________________ Scroll ===> PAGE

Entry: JOBCARD                          Type: DEFAULTS
Mixed case . . . NO_  (YES NO)          Keyword length. . . 20  (1-64)

Cmd Keyword              Data
___ JOBNAME______________ HAIAOC3*_____________________________________________
___ CLASS________________ A____________________________________________________
___ MSGCLASS_____________ N____________________________________________________
___ MSGLEVEL_____________ (1,1)________________________________________________
___ REGION_______________ 4096K__________________________________________________
```

Figure 42. UET Keyword-Data Specification Panel

Step 2: Access the User Data

In a NetView session, you can use the command DISPACF to retrieve the data from the automation control file.

You can also retrieve the data using ACFFQRY from within a REXX script as shown in the following example:

```
Get_keyword:   /* name of a subroutine in the REXX ecec */
   Arg keyword .
   len = Length(keyword)
   /* get the data within a pipe */
  'PIPE NetView ACFFQRY JOBCARD DEFAULTS | STEM ALL_DATA.',
     '| SEPARATE | LOCATE 1.'||len' /'||keyword||'/',
     '| STEM KEY.'
   If all_data.0 < 1 Then
     Call Terminal_Error 'PIPE 1 Failed'
   If all_data.1 <> 'ACFFQRY:0' Then
     Return
   If key.0 = 0 Then
     Say 'No Match for 'keyword
   Else Do i = 1 to key.0
     Say 'Match! 'key.i
   End

 Return
```

This method returns the following data in the pipe:

```
| IPSNO
ACFFQRY:0
JOBCARD DEFAULTS
JOBNAME=HAIAOC3*
CLASS=A
MSGCLASS=N
MSGLEVEL=(1,1)
REGION=4096K
```

After this processing, the data is available in the `key.` stem variable and you can use it for further processing.

How to Implement Message Processing with User-Defined Data

This section describes how user-defined data is used to automatically execute commands if an application issues a certain message.

Consider the following scenario:

- The HSM application issues the ARC0909E message that indicates the utilization percentage of the journal data set. You want to automate recovery of the HSM journal data set if it is more than 97% full. You therefore want SA z/OS to automatically issue two commands to HSM that will perform the recovery:
  - **HOLD ALL**: To stop all further activities for HSM.
  - **BACKVOL CDS**: To create a backup of the full journal data set and allocate a new one.

To implement this scenario, perform the steps described in the following sections.

Step 1: Specify the User-Defined Data

Select the application that you want to automate the recovery for and then select its MESSAGES/USER DATA policy item.

This leads you to the Message Processing panel where you enter the message ID ARC0909E as shown in Figure 43 on page 63.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNM                 Message Processing          Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : HSM                   Enterprise Name : USER_ENTERPRISE

Line Commands: S/C (Cmd), R (Rep), K (Cod), U (Usr), A,M (AT, MRT, MPF)
               I, D (insert or delete lines), CN (Class Name)
Message ID field length. . 16   (1 - 32)

Cmd Message ID       Description                              C  R  K  U A M F
___ ARC0909E         HSM journal data set utilization
___ ________________ ____________________________________
___ ________________ ____________________________________
___ ________________ ____________________________________
___ ________________ ____________________________________
```

Figure 43. Scenario: Using the Message Processing Panel

To specify your data, type U or USR in the **Action** column of the Message Processing panel shown in Figure 43 on page 63. Pressing Enter leads to the User Data Processing panel where you specify your input as shown in Figure 44 on page 64.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGDYN8    User Data Processing : ARC0909E          Line 00000001 Col 001 075
Command ===> ____________________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)           Keyword length. . . 20  (1-64)

Cmd Keyword              Data
___ LIMIT                97%
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
```

Figure 44. Scenario: User Data Processing Panel

In the REXX script that you will write in "Step 4: Write the REXX Script" on page 66, you will compare the percentage value returned from the ARC0909E message with the value specified here, and, if it exceeds your specified value, you will cause SA z/OS to issue the commands specified in "Step 3: Update the NetView Automation Table" on page 64. If you later decide to start recovery if 95% usage is exceeded, you need not edit your REXX script, but only your customization dialog input and then rebuild your system operations configuration files.

Press PF3 to store your input and return to the Message Processing panel.

Step 2: Specify the Commands

On the Message Processing panel (Figure 43 on page 63) enter C or CMD in the **Cmd** column for message ARC0909E. This leads to the Command Processing panel where you specify your input as shown in Figure 45 on page 64.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGDYNC    Command Processing : ARC0909E            Line 00000001 Col 001 075
Command ===> ____________________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)

Cmd Ps/Select  AutoFn/* Command Text
___ __________ ________ MVS F &SUBSJOB, HOLD ALL
___ __________ ________ MVS F &SUBSJOB, BACKVOL CDS
___ __________ ________ ____________________________________________________
___ __________ ________ ____________________________________________________
___ __________ ________ ____________________________________________________
___ __________ ________ ____________________________________________________
___ __________ ________ ____________________________________________________
___ __________ ________ ____________________________________________________
___ __________ ________ ____________________________________________________
___ __________ ________ ____________________________________________________
```

Figure 45. Scenario: Command Processing Panel

Step 3: Update the NetView Automation Table

You need to specify a NetView automation table (AT) entry to trigger a REXX script called YOUR_CLIST, which you will create in "Step 4: Write the REXX Script" on page 66.

You can specify the AT entry with the Automation Processing panel to override the predefined AT entry. To do this, enter A or AT in the **Action** column for message ARC0909E in the Message Processing panel, as shown in Figure 46 on page 65.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNM                 Message Processing          Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : HSM                   Enterprise Name : USER_ENTERPRISE

Line Commands: S/C (Cmd), R (Rep), K (Cod), U (Usr), A,M (AT, MRT, MPF)
               I, D (insert or delete lines), CN (Class Name)
Message ID field length. . 16   (1 - 32)

Cmd Message ID       Description                                C  R  K  U A M F
a   ARC0909E         HSM journal data set utilization           2        1
___ ________________ ___________________________________________
___ ________________ ___________________________________________
___ ________________ ___________________________________________
___ ________________ ___________________________________________
```

Figure 46. Scenario: Message Processing Panel for AT Entry

This leads to the Message Automation Overview panel, as shown in Figure 47 on page 65. This shows the default values for the message.

```
AOFGMADV                 Message Automation Overview
 Command ===> ____________________________________________________________

  AC AT condition     MS MRT action selection     MF MPFLSTxx specifications
  AS AT status        MO MRT override             IG Ignore for AT, MRT, MPF
  AO AT override

 Message ID : ARC0909E

 Generated AT entry :
 IF MSGID = 'ARC0909E' THEN
 EXEC(CMD('ISSUEACT') ROUTE(ONE %AOFOPGSSOPER%));

 Generated MRT entry :
 UPON ( OTHERMSG )
 SELECT
 WHEN (WORD 1 RIGHT 7 = 'ARC0909E')
 REVISE('CR' COLOR)

 Generated MPF entry :
 ARC0909E
```

Figure 47. Scenario: Message Automation Overview Panel Default Values

You need to change the action so enter AO at the command line to open the AT entry in an editor and update the entry, as shown in Figure 48 on page 65.

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
------------------------------------------------------------------------------
ISREDDE2   OPER1.USER.PDB(OPER0001) - 01.00               Columns 00001 00072
Command ===> _____________________________________________ Scroll ===> PAGE
****** ***************************** Top of Data ******************************
000001 IF MSGID = 'ARC0909E' THEN
000002 EXEC(CMD('YOUR_CLIST') ROUTE(ONE *));
```

Figure 48. Scenario: Editor with User Values for Automation Table Entry

Saving the entry and pressing PF3 returns you to the Message Automation Overview panel, where you can see that the entry has been updated with your override, as shown in Figure 49 on page 66

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGMADV                 Message Automation Overview
Command ===> _____________________________________________ Scroll ===> PAGE

 AC AT condition     MS MRT action selection     MF MPFLSTxx specifications
 AS AT status        MO MRT override             IG Ignore for AT, MRT, MPF
 AO AT override

Message ID : ARC0909E

Generated AT entry :
IF MSGID = 'ARC0909E' THEN
EXEC(CMD('YOUR_CLIST')  ROUTE(ONE *));
```

Figure 49. Scenario: Message Automation Overview with User Values

Alternatively, you can manually specify this automation table entry either in INGMSGU1 (which is empty, but already included in INGMSG01), or in your own automation table, which then needs to be specified in the SYSTEM INFO policy for entry type SYS. This entry should be as follows:

```
IF MSGID = 'ARC0909E'
THEN EXEC(CMD('YOUR_CLIST')  ROUTE(ONE *));
```

Step 4: Write the REXX Script

The value specified on the User Data Processing panel (Figure 44 on page 64) is accessed in the PIPE statement using the ACFFQRY command and stored in the variable `limit` (1).

To issue the commands specified on the Command Processing panel (Figure 45 on page 64), the ACFCMD command is used (2).

```
/* REXX */

/* debugging … */
…..

lrc = 0

/* Get the message from the safe */
"GETMLINE txt 1"

svmsgid = msgid()
svjobname = jobname()
Parse Var txt . type . ' IS ABOUT ' usage '% ' .

/* This sample recovers just type JRNL */
If type \= 'JRNL' Then Exit 0

/* Check the RECOVERY automation flag */
"AOCQRY "svjobname"."svmsgid" RECOVERY"
lrc = rc

Select
  /* Automation allowed */
  When lrc = 0 Then Do
    /* Get TGlobal variable from AOCQRY */
    "GLOBALV GETT SUBSAPPL"

    /* Get the user-data from the ACF */
    "PIPE (STAGESEP | NAME GETUDATA)" ,
      "NETV ACFFQRY "subsappl","svmsgid ,  1
      "| SEPARATE" ,
      "| LOCATE 1.6 /LIMIT=/" ,
      "| EDIT 7.2 1" ,
      "| VAR limit"

    /* If no limit was defined use default */
    If symbol('limit') = 'LIT' Then limit = '95'

    /* Check if limit is exeeded. If so, issue commands */
    If usage >= limit Then Do
      "ACFCMD MSGTYP="svmsgid              2
      lrc = rc
```

```
      /* Error occured ? */
      If lrc \= 0 Then Do
        …
      End
  End
  /* Automation not allowed */
  When lrc < 3 Then Do
    …
  End
  /* Resource not known to SA */
  When lrc = 3 Then Nop
  /* Error occured */
  Otherwise Do
    …
  End
End

Exit lrc
```

How to Work with Externally Stopped and Started Resources

There are times when you start one address space, it will start one or more additional address spaces as a part of its initialization sequence. There are times when stopping one address space will cause it to stop a number of additional address spaces as a part of its shutdown sequence. These are examples of address spaces being externally started or stopped.

Address spaces that abend as a result of you stopping another address space are not considered to be externally stopped by that address space and should be defined using the normal dependency relationships so that automation can gracefully stop them before the address space that they depend on is stopped.

Configuring a resource that is externally started

There are two extra things you need to set up for an externally started address space:

1. You need to tell the automation that it is externally started. This is done by changing the Externally Started setting in the "APPLICATION INFO policy item" from NEVER to either INITIAL or ALWAYS.
2. You need to tell the automation the address space that initiates its external start. This is done by adding a StartsMe condition to a relationship going from the externally started resource to the resource representing the address space that initiates the external start.
   - The relationship does not have to have any particular sequence number.
   - This can be an existing HasParent or HasPassiveParent relationship or you may need to create a new Externally relationship.

System Automation does not currently support applications that are externally started by something other than another application that is under SA's control. Resources initially started out of COMMNDxx should not be defined as being externally started. SA will see that they are active when it starts after the IPL and will set their initial status to UP.

The difference between the INITIAL and ALWAYS actions comes into play if the externally started resource abends. Some applications will capture the failure and restart the failed address space without automation having to do anything. This is the ALWAYS setting and under these circumstances automation will simply monitor the recovery of the failed resource.

However, if the application will only start the externally started resource as a part of their initialization sequence, but takes no further responsibility for monitoring and operating it, you need to use the INITIAL setting. This permits System Automation to restart the application if it fails, but the application that externally started it keeps running. INITIAL in this case means if it is being started at the same time as the application responsible for externally starting it. In the case that both the externally started address space and the parent address space fail at the same time, automation will not restart the externally started address space, but will expect it to be restarted by the address space that externally starts it when that address space is restarted.

If an address space is ALWAYS externally started, there is no point in specifying any start commands for it, as automation will never issue them. The start commands for a resource with External Start INITIAL specified should be those needed to start it assuming that the address space that normally externally starts it is up and running.

External Startup Sequence

When automation wants to start a resource that is about to be externally started, it sends an order down to the automation agent that tells it to expect the external start to occur. To send this order:

- The automation manager must recognize that the application is ready to be started – desired state, observed state, automation flag, triggers, and so on, must be set accordingly.
- The application responsible for externally starting it must be up (only for External Start ALWAYS) or be starting itself.

The 'external start expected' order is sent in place of the 'application start' order that the AM would usually send to the agent.

If an application starts without the agent having received such an order, the agent treats it as an unexpected external startup. The startup will be tracked as normal but, when it is complete, automation may shut it down again if its desired state doesn't indicate that it should be up.

When it receives the order, the automation agent activates the startup monitor for the address space – if the resource isn't Active within its Start Delay, it'll be set to INACTIVE; if it is Active but not UP within twice its Start Delay, it'll be set to STARTED2.

In addition, automation will issue status change and POSTSTART commands.

The automation manager expects an externally started resource to be started if the resource that starts it has a desired status of available and is SoftDown, Starting, or Problem (mapping to agent statuses DOWN, AUTODOWN, RESTART, INACTIVE, STARTING, ACTIVE, or STARTED2). Its start dependency must also be satisfied.

- In the unlikely event that the responsible resource is not in the correct state, but the externally started application's start dependencies are satisfied, and the application has External Start INITIAL specified, the automation will instruct the agent to perform an automated start of the application.
- If it has External Start ALWAYS specified, the automation can do nothing other than wait for the resource that externally starts it to sort itself out.

Configuring a Resource that is Externally Stopped

Sometimes you will get an address space that, when you tell it to shut down, tells the address spaces that depend on it to close down as well. In System Automation terms, the dependent address spaces are externally stopped by the supporting address space.

To define an externally stopped address space, you need to set up three things:

1. You need to tell the automation that the address space is externally stopped by changing the External Stop setting on the "APPLICATION INFO policy" from NEVER to ALWAYS or FINAL.
2. You need to tell automation the address space that initiates the external stop by specifying a /StopsMe condition on the HasParent or HasPassiveParent link from the dependent resource to the supporting resource. If you don't have one of those relationships, you need to add an Externally/StopsMe relationship from the dependent resource to the supporting resource.
3. You need to ensure you have an /AndStoppable condition on any stop or prestop dependency relationships from the supporting resource to the dependent resource. This has the effect of adding the dependent resources stop dependencies to the supporting resource and removing the requirement that the dependent resource be shut down itself. This is automatically handled if you just have HasParent/StopsMe or HasPassiveParent/StopsMe relationships. Relationships where you have to add it manually are MakeUnavailable and PrepareUnavailable.

If the application can tolerate having the dependent resource shutdown while the application is running, you can use External Stop FINAL. This tells automation that it should only expect the resource to be externally stopped if the supporting resource is also being shut down. If it is not included in the shutdown, then automation may use the specified set of shutdown commands to stop the dependent resource while the supporting resource is still running. If the application cannot tolerate this, then you should use External Stop ALWAYS, which means that automation will be unable to stop just the dependent resource.

There are some special behaviors for resources with External Stop FINAL: If the supporting resource abends, SA will expect the dependent resources to stop or abend as well. If they fail to do so by the time the supporting resource leaves the machine, SA will use the stop commands it has to bring the dependent resources down. This is to clean up for the eventual restart of the supporting resource.

During a shutdown, System Automation expects the dependent resources to enter AUTOTERM before the supporting resource leaves the machine. If this does not happen, it will assume the external shutdown by the supporting resource has failed and use its shutdown commands to stop the resource.

FORCEDOWN - Configuring a Resource to be Automatically Shutdown

You can configure automation so that under certain circumstances, it will shut down a resource. This is done by creating ForceDown relationships from the resource to be stopped to the resource that will trigger the shutdown. The condition on the ForceDown relationship defines the circumstances when the shutdown is triggered. For example, ForceDown/WhenAssumedDownOrStopping will activate the forced shutdown if the target resource abends, is shut down, or is being shut down.

The shutdown request is injected at FORCE priority and overrides ANY operator request – including a FORCE start. This stop request is propagated normally over the dependency relationships and can end up affecting a large number of resources. It does not override any of the normal shutdown processing, so the resources involved will be shut down in an orderly sequence.

The ForceDown relationship does not contribute to a resource's stop or start dependencies. If you want automation to ensure that the resource is shut down before the one it has a ForceDown relationship to, you need to add an explicit automation sequence relationship, such as HasParent or MakeUnavailable/WhenAssumedDown between the two resources.

Once the forced shutdown is complete, the injected request will be removed. However, the resource will not be allowed to restart until the circumstances that triggered the forcedown have been resolved. So, if the forcedown was triggered by a WhenAssumedDown condition, the resources that were stopped as a result of it would not be allowed to restart until the resource that triggered the shutdown was in, at least, a Starting state.

The above is applicable when the resources have a start dependency with the resource that triggered the shutdown. If there is no start dependency, then the dependent resources will be able to restart immediately.

Working with MONITOR Resources

MTR resources are designed to let you introduce the status of resources that can be monitored but not automated into System Automation. Their monitoring is achieved through their health status. The Observed and Desired states of the MTR resource refer to the state of the monitor, not the entity that it is monitoring. Thus the monitor resources can be started and stopped by automation along with the resources that they are monitoring.

Passive and Active Monitors

Passive monitors are simply set up so that various messages get caught in the automation table and drive a monitor routine to change their health status. The initial health status of a passive monitor is Unknown, until the first passive monitor event is captured.

Active monitors require a monitoring routine to be written for them. They have a monitoring cycle time defined and every time this cycle comes around they drive the monitoring routine and interpret its result to derive their new health status. While there is more overhead involved in driving an active monitor, they can be used to monitor complex situations and to check that an application is actually working rather than merely running on the machine.

Monitor Status

Monitors have the normal Desired and Observed statuses, which refer to the statuses of the monitor itself, not the entity being monitored. When an Active Monitor is Available, it means that the monitor is being run on a regular basis. The result of the monitoring is fed back through the MTR resource's Health Status.

The only Health Status that SA will react to is Fatal, to which its reaction is to shut down the resource and not allow it to be restarted for 15 minutes. This is to ensure that a Move or Server group will move an APL that got a Fatal Health Status away from the system that it failed on. Note that refers to the APL, not MTR. MTRs are linked to the APL they monitor via a HasMonitoring relationship. This relationship propagates start and stop requests from the APL to the MTR. It also propagates Health Status from the MTR back to the APL. If an APL is linked to multiple MTRs, its Health Status will be the worst Health Status of all of the linked MTRs.

If you don't want an MTR to trigger such drastic action, it should, at worst, only return a Health Status of Critical.

If you want to use the state of an MTR in a dependency relationship (or to trigger a ForceDown), you need to specify relationship conditions that inspect its Health Status rather than its Observed and Desired Status. For Example, MakeAvailable/WhenHealthNormal (doesn't start the resource until the monitor has returned at least one 'normal' result) or ForceDown/WhenHealthNotNormal (which means, if the monitor returns a Minor, Warning, Critical or Fatal Health Status, stop this resource).

Chapter 4. Entry Type Reference

This information describes how to define SA z/OS entry types. They are described in the following sections in the order they appear on the Entry Type Selection panel shown in Figure 50 on page 71.

```
  MENU  HELP
------------------------------------------------------------------------------
AOFGETYP                      Entry Type Selection
Option ===> ____________________________________________________________

 Enter number or entry type or use "BR <entry type>" for browse

  1 ENT      Enterprise                     30 TMR      Timers
  2 GRP      Groups                         32 TPA      Tape Attendance
  3 SBG      SubGroups                      33 MVC      MVC Components
  4 SYS      Systems                        34 MDF      MVSCOMP Defaults
  5 APG      ApplicationGroups              34 SDF      System Defaults
  6 APL      Applications                   36 ADF      Application Defaults
  7 EVT      Events                         37 AOP      Automation Operators
  8 SVP      Service Periods                38 NFY      Notify Operators
  9 TRG      Triggers                       39 NTW      Networks
 10 PRO      Processors                     40 XDF      Sysplex Defaults
 11 MTR      Monitor Resources              41 RES      Resident CLISTs
 12 ENS      zEnterprise Ensembles          42 SCR      Status Display
 13 PAC      Pacing Gates                   50 DMN      Remote Domains
                                            51 REF      Resource References

 20 PRD      Product Automation             99 UET      User E-T Pairs
 21 MSG      Messages
```

Figure 50. Entry Type Selection Panel

This information discusses the following entry types:

- “Enterprise Entry Type” on page 73
- “Group Entry Type” on page 78
- “SubGroup Entry Type” on page 89
- “System Entry Type” on page 91
- “ApplicationGroup Entry Type” on page 102
- “Application Entry Type” on page 123
- “Events Entry Type” on page 186
- “Service Periods Entry Type” on page 188
- “Triggers Entry Type” on page 191
- “Processor Entry Type” on page 193
- “Monitor Resource Entry Type” on page 204
- “zEnterprise Ensembles Entry Type” on page 214
- “Pacing Gates Entry Type” on page 217
- “Messages Entry Type” on page 223
- “Timers Entry Type” on page 229
- “Tape Attendance Entry Type” on page 232
- “MVS Component Entry Type” on page 234
- “MVSCOMP Defaults Entry Type” on page 238
- “System Defaults Entry Type” on page 239
- “Application Defaults Entry Type” on page 241

© Copyright IBM Corp. 1996, 2017

- “Automation Operators Entry Type” on page 242
- “Notify Operators Entry Type” on page 245
- “Network Entry Type” on page 249
- “Sysplex Defaults Entry Type” on page 258
- “Resident CLISTs Entry Type” on page 259
- “Status Display Entry Type” on page 260
- “Remote Domains Entry Type” on page 262
- “Resource References Entry Type” on page 263
- “User E-T Pairs Entry Type” on page 265
- Product Automation (PRD) from the Entry Type Selection panel with the following Entry Types:
  - “OPC System Detail Entry Type” on page 218
  - “OPC Controller Details Entry Type” on page 219
  - “OPC Special Resources Entry Type” on page 220
  - “OPC Workstation Domains Entry Type” on page 221

Selecting Product Automation (PRD) from the Entry Type Selection panel will bring you to the Entry type selections for Product Automation panel shown in Figure 51 on page 72 where you can select the product that you want to define automation policy for. You can select from the following product(s):

- OPC, see “Defining Automation for OPC Components” on page 72.

```
   MENU  HELP
 ------------------------------------------------------------------------------
 AOFGEPOM         Entry type selection for Product Automation
 Option ===> ____________________________________________________________

Enter number or entry type or use "BR <entry type>" for browse

  IBM Workload Scheduler
components
  30 OEN      OPC System Details
  31 OCS      Controller Details
  32 OSR      Special Resources
  33 ODM      Workstation DomainID
```

Figure 51. Entry Type Selections for Product Automation Panel

Defining Automation for OPC Components

For OPC components, the following entry types are available:

(OEN) OPC System details
With this option, you can define certain system wide defaults. Selecting this entry type brings you to the Entry Name Selection panel for OPC system details where you can create or edit system defaults. You can link an OPC system detail to one or more System policy objects, however, you can link only one OPC system detail to a System. This is described in more detail in “OPC System Detail Entry Type” on page 218.

(OCS) Controller details
With this option, you can link the OPC controller subsystem name with the NetView domain where it is located. Selecting this entry type will bring you to the Entry Name Selection panel for OPC controller details where you can create or edit controller details. You can link an OPC controller detail to one or more System policy objects, however, you can link only one OPC controller detail to a System. This is described in more detail in “OPC Controller Details Entry Type” on page 219.

(OSR) Special resources
Use this option to define special resources that are to be set for a OPC controller. This is described in more detail in “OPC Special Resources Entry Type” on page 220.

(ODM) Workstation domains
Use this option to relate a OPC automatic workstation to a NetView domain ID. This is described in more detail in “OPC Workstation Domains Entry Type” on page 221.

Enterprise Entry Type

You can define one enterprise for each policy database.

An enterprise definition includes:

- Enterprise description
- Operator profile and command parameters for INGSEND
- Processor operations focal point information

Policy Items for an Enterprise

Figure 52 on page 73 shows the policy items that are displayed when Enterprise is selected from the Entry Type Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection              Row 1 to 9 of 9
Command ===> ____________________________________________   SCROLL===> PAGE

Entry Type : Enterprise            PolicyDB Name   : USER_PDB
Entry Name : MY_NEW_ENTERPRISE     Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  SEND COMMAND OPERS   Define Operator Profile for sending commands
__________  INGSEND PARMS        Define INGSEND Command Parms
__________  PROCOPS FOCAL POINTS Define processor operations focal point info
__________  USER MSG CLASSES     Define User Message Classes
__________  SYMBOL DESCRIPTION   Enter system automation symbol description
__________  DOCUMENTATION        Overall Policy Database documentation
******************************* Bottom of data ********************************
```

Figure 52. Policy Selection Panel for Enterprises

The policy items for Enterprises are:

SEND COMMAND OPERS
This policy item allows you to define default RMTCMD autotasks for target domains, so that operators do not have to remember which target operator ID to use for a particular domain. This gives you more flexibility than the RMTCMD default of taking the task ID of the issuing operator.

These definitions are also used for cross domain command routing to systems that are outside the local sysplex. This is valid for all operator commands supporting the TARGET parameter.

For more information, see “SEND COMMAND OPERS Policy Item” on page 74.

INGSEND PARMS
This policy item allows you to define default parameters for the INGSEND command.

For more information see “INGSEND PARMS Policy Item” on page 75.

PROCOPS FOCAL POINTS
This policy item allows you to define focal point domain IDs. For more information, see “PROCOPS FOCAL POINTS Policy Item” on page 76.

USER MSG CLASSES
This policy item allows you to define your own message classes. Message classes that are defined here can be assigned to operators by using policy NOTIFY OPERATORS of the entry type NFY. For more information, see “USER MSG CLASSES Policy Item” on page 76.

SYMBOL DESCRIPTION
This policy item allows you to enter system automation symbol descriptions. For more information, see “SYMBOL DESCRIPTION Policy Item” on page 77.

DOCUMENTATION
This policy item allows you to enter or update any text with the ISPF editor. You can use it to:

- Enter overall policy database descriptions
- View documentation that is shipped together with predefined SA z/OS sample add-on policies

The policy database is locked for updates by other users while you are editing data in this policy item.

SEND COMMAND OPERS Policy Item

Figure 53 on page 74 shows the panel that is displayed when the SEND COMMAND OPERS policy item is selected.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGOPR              Operator Profile for sending commands  Row 1 to 12 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Enterprise            PolicyDB Name   : USER_PDB
Entry Name : USER_ENTERPRISE       Enterprise Name : USER_ENTERPRISE

  ORIGIN     ORIGIN     ORIGIN       TARGET     TARGET    TARGET
  NETID      DOMAIN     OPER         NETID      DOMAIN    OPER
  *          IPSFO      JACKY        *          IPSFM     USERID1
  *          IPSFP      JACKY        *          IPSFM     USERID2
  _________  _____      _________    _________  _____     _________
  _________  _____      _________    _________  _____     _________
  _________  _____      _________    _________  _____     _________
  _________  _____      _________    _________  _____     _________
  _________  _____      _________    _________  _____     _________
  _________  _____      _________    _________  _____     _________
  _________  _____      _________    _________  _____     _________
  _________  _____      _________    _________  _____     _________
  _________  _____      _________    _________  _____     _________
  _________  _____      _________    _________  _____     _________
```

Figure 53. Operator Profile for Sending Commands Panel

This policy item allows you to define default RMTCMD autotasks for target domains, so that operators do not have to remember which target operator ID to use for a particular domain. This gives you more flexibility than the RMTCMD default of taking the task ID of the issuing operator.

These definitions are also used for cross domain command routing to systems that are outside the local sysplex. This is valid for all operator commands supporting the TARGET parameter.

This policy item is intended to help you migrate your cross domain command routing to RMTCMD by allowing you to use any naming scheme for RMTCMD autotasks. By default, RMTCMD uses the operator ID of the invoking task to determine the RMTCMD autotask to issue a command to. Use the Operator Profile for Sending Commands panel to define an association between an origin operator and a target RMTCMD autotask. The INGSEND command uses predefined RMTCMD associations to resolve the OPER keyword (target operator ID to execute the routed command), if it has not been specified on an invocation. If INGSEND does not find an RMTCMD association for the invoking operator to the target domain in the automation control file, the RMTCMD default will be used to resolve the target operator ID. For more information on INGSEND, see *IBM System Automation for z/OS Operator's Commands*. For more information on RMTCMD, see *Tivoli NetView for z/OS Command Reference Volume 1*.

The definitions you enter here apply to all systems in the enterprise. They are included in the automation control file built for each system. At runtime, INGSEND on each origin domain will use only the information intended for that particular origin Netid.Domain.

On the Operator Profile for Sending Commands panel (Figure 53 on page 74), the following fields are defined for both origin and target:

NETID
The Network ID is optional. The maximum length is eight characters. The first character must be alphanumeric. The rest must be either alphanumeric or national characters.

DOMAIN
The NetView Domain ID is optional. The maximum length is five characters. The first character must be alphanumeric. The rest must be either alphanumeric or national characters.

OPER
The Origin Operator ID is required. The maximum length is eight characters.

The Target Operator ID is optional. If entered, it must be eight characters or less. If the field is left blank, it will resolve to the ORIGIN OPER value. This is the NetView default.

The operator ID you define here should have matching OPERATOR statements in the relevant DSIOPF for each origin and target domain.

Note: For TARGET OPER, PPT or target domain concatenated with PPT is not allowed.

A wildcard character, *, can be used for NETID and DOMAIN.

INGSEND PARMS Policy Item

If you select policy item INGSEND PARMS from the Policy Selection panel for enterprises, a panel similar to Figure 54 on page 75 is shown.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGSND                        INGSEND Command Parms          Row 1 to 12 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Enterprise            PolicyDB Name   : USER_PDB
Entry Name : USER_ENTERPRISE       Enterprise Name : USER_ENTERPRISE

  TARGET       TARGET
  NETID        DOMAIN   CORRWAIT
  _________    _____    _________
  _________    _____    _________
  _________    _____    _________
  _________    _____    _________
  _________    _____    _________
  _________    _____    _________
  _________    _____    _________
  _________    _____    _________
  _________    _____    _________
  _________    _____    _________
  _________    _____    _________
  _________    _____    _________
```

Figure 54. INGSEND Command Parms Panel

The System Operations INGSEND command is used to route commands across domains. It exploits the NetView® RMTCMD command.

RMTCMD-based INGSEND invocations can involve usage of the NetView PIPE command. Because RMTCMD produces asynchronous command output, it is necessary to use the CORRWAIT Pipe stage to trap the asynchronous messages. You can customize the CORRWAIT time that INGSEND uses per target domain.

TARGET NETID
The Target Network ID is optional and, if entered, must be eight characters or less. The first character must be alphanumeric. The rest must be either alphanumeric or national characters. If left blank, it defaults to the wildcard value of '*'.

TARGET DOMAIN
The Target Domain is optional and, if entered, must be five characters or less. The first character must be alphanumeric. The rest must be either alphanumeric or national characters. If left blank, it defaults to the wildcard value of '*'.

Wildcard value of '*' is allowed.

CORRWAIT
The corrwait value is optional. This value is used by INGSEND for the NetView PIPE CORRWAIT stage. If left blank, it defaults to 10 seconds.

PROCOPS FOCAL POINTS Policy Item

A panel, as shown in Figure 55 on page 76, is displayed if you select policy item PROCOPS FOCAL POINTS from the Policy Selection panel for enterprises.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
ISQDPD02          Processor Operations Focal Point Information
Command ===>

Entry Type : Enterprise            PolicyDB Name   : USER_PDB
Entry Name : USER_ENTERPRISE       Enterprise Name : USER_ENTERPRISE

Primary focal point name . . . _____
Backup  focal point name . . . _____
```

Figure 55. Processor Operations Focal Point Information Panel

The panel contains the following fields:

Primary/Backup focal point name
Enter the domain name of the primary and backup NetView that is hosting processor operations. The customization dialog does not verify your entry.

This name is shown in the processor operations ISQXDST status display command.

USER MSG CLASSES Policy Item

A panel, as shown in Figure 56 on page 77, is displayed if you select policy item USER MSG CLASSES on the Policy Selection panel for enterprises.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFPIEM0                  User Message Classes              Row 1 to 10 of 20
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type : Enterprise           PolicyDB Name   : USER_PDB
Entry Name : USER_ENTERPRISE      Enterprise Name : USER_ENTERPRISE

Define message classes by entering the class and its description.
Do not use any of the pre-defined SA z/OS message classes.
    Message    Description
    Class
    __         ____________________________________________________________
    __         ____________________________________________________________
    __         ____________________________________________________________
    __         ____________________________________________________________
    __         ____________________________________________________________
    __         ____________________________________________________________
    __         ____________________________________________________________
    __         ____________________________________________________________
    __         ____________________________________________________________
    __         ____________________________________________________________
```

Figure 56. User Message Classes Panel

This panel defines the user message classes available for assignment to notify operators via policy NOTIFY OPERATORS of entry type NFY.

Message classes can consist of one numeric, two numerics, one alpha plus one numeric, or one numeric plus one alpha. You can define you own message classes, except those reserved by IBM. For a list of reserved messages classes, see online help by pressing PF1.

No duplicate message classes are allowed. Message classes used within any Notify Operators cannot be deleted.

SYMBOL DESCRIPTION Policy Item

If you select policy item SYMBOL DESCRIPTION from the Policy Selection panel for enterprises, a panel similar to Figure 57 on page 77 is shown.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGSYMD        System Automation Symbols (AOCCLONEx) Description
Command ===> ____________________________________________________________

Entry Type : Enterprise           PolicyDB Name   : USER_PDB
Entry Name : USER_ENTERPRISE      Enterprise Name : USER_ENTERPRISE
                                                          More:     +
General Use of
AOCCLONE . . . . Used for VTAM startlist suffix_____________________________
AOCCLONE1. . . . ____________________________________________________________
AOCCLONE2. . . . ____________________________________________________________
AOCCLONE3. . . . ____________________________________________________________
AOCCLONE4. . . . ____________________________________________________________
AOCCLONE5. . . . ____________________________________________________________
AOCCLONE6. . . . ____________________________________________________________
AOCCLONE7. . . . ____________________________________________________________
AOCCLONE8. . . . ____________________________________________________________
AOCCLONE9. . . . ____________________________________________________________
AOCCLONEA. . . . ____________________________________________________________
AOCCLONEB. . . . ____________________________________________________________
AOCCLONEC. . . . ____________________________________________________________
```

Figure 57. System Automation Symbols (AOCCLONEx) Description Panel

This panel allows you to enter the description of the general use of each system automation symbol.

AOCCLONE*x*
: This allows you to describe the general use of each system automation symbol. This description is shown in the AUTOMATION SYMBOLS policy of all systems (entry type SYS) in the policy database.

Group Entry Type

A group is the largest subdivision of an SA z/OS enterprise. It is a set of systems or subgroups, or both, that you want to associate with one another for purposes of automation and monitoring or that you want to use with the SA z/OS processor operations functions.

An SA z/OS enterprise may have many groups, each consisting of one or more systems and subgroups. You define a group by assigning a name to it and by selecting the member systems and subgroups.

The status of a group depends on the status of the systems or applications that it is comprised of. You specify the number of systems or applications of a group that must be in an unsatisfactory state to cause SA z/OS to change the color of a group in the graphic display.

Creating a New Group

How to create new policy objects in general, is described in "How to Create New Policy Objects" on page 19.

Groups can be defined as either *standard groups* or *sysplex groups*. A standard group contains any combination of systems and subgroups. A sysplex group contains only systems or subgroups that belong to the same XCF group. For a sysplex group, there are additional policy items to describe certain sysplex-specific resources. A sysplex group may also have Sysplex Application Groups connected to it. Sysplex Application Groups are groups of applications that can be located on more than one system in the sysplex. A group must be defined as either a sysplex group or a standard group when it is created. Figure 58 on page 78 is an example of the Define New Entry panel for groups.

A system may belong to many standard groups, but can belong to only one sysplex group.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN2                          Define New Entry
Command ===> ____________________________________________________________________

Define new entry of type Group

  Entry name . . . . . . . SYSPLEX_1___________


  Group Type . . . . . . . SYSPLEX_   (STANDARD SYSPLEX)
  ProcOps Commands . . . . NO_        (YES NO)

  Short description  . . . ____________________________________________
  Long description 1 . . . ____________________________________________________
  Long description 2 . . . ____________________________________________________
  Long description 3 . . . ____________________________________________________
  Long description 4 . . . ____________________________________________________
  Long description 5 . . . ____________________________________________________
```

Figure 58. Define New Entry Panel for a Sysplex Group

The unique fields are:

Entry name
This is the name of the entry as used by the SA z/OS dialogs. Each group must be assigned a unique, non-blank name. The name must start with an alphabetic character. The name must be unique among the names of all zEnterprise ensembles, groups, subgroups, systems (including both the entry names and the system/image names), and processors (including both the entry names and processor operations Target HW names) in the current policy database.

Note: The entry name of a group with group type SYSPLEX represents the SAplex name and can be used in the TARGET parameter of the SA z/OS commands. If the specified name is longer than 8 characters, a truncation of the name may occur on certain SA z/OS full screen command panels.

If the name is to be used in the Status Display Facility (SDF), it must not be longer than 16 characters.

Group type
Use this field to specify the type of group you want to create. You can create either a Sysplex group if the group is to be associated with a sysplex, or a Standard group. Each type of group has specific policy items and restrictions associated with it. The value you enter here cannot be changed after the group is created.

The available values are:

SYSPLEX
If the Group is being used to represent a logical sysplex (a group of systems within the same XCF group ID).

STANDARD
For all other Groups, for example, to represent a physical sysplex (a group of systems within different XCF group IDs, such as a GDPS site).

ProcOps Commands
Indicates whether processor operations commands issued against this group are to be accepted for processing. The default is NO. See *IBM System Automation for z/OS Operator's Commands* for information about the processor operations commands.

Note: If you specify YES, a processor operations command directed to that group will affect all systems in that group, even if those systems are associated with a subgroup of the group and that subgroup is **not** enabled for processor operations commands.

Policy Items for Standard Groups

Figure 59 on page 79 shows the policy items that are displayed for a standard group.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection                    Row 1 of 6
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Group                 PolicyDB Name   : USER_PDB
Entry Name : STANDARD_GROUP        Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  GROUP INFO           Define group information
__________  SUBGROUPS            Select subgroups for group
__________  SYSTEMS              Select systems for group
__________  -------------------- -------------------------------------------
__________  COPY                 Copy data from an existing entry
```

Figure 59. Policy Selection Panel for Standard Groups

The unique policy items for groups are:

GROUP INFO
This displays the type of group that was specified when the group was created. This can be either standard or sysplex. It also displays and allows you to update the current value of the processor operations commands indicator.

For more information, see "GROUP INFO Policy Item" on page 81.

SUBGROUPS
This policy item displays a list of all Subgroups indicating which subgroups are selected for this group.

For more information, see "SubGroup Entry Type" on page 89.

SYSTEMS
This policy item displays a list of all Systems, indicating which systems are selected for this group.

For more information, see "System Entry Type" on page 91.

Policy Items for Sysplex Groups

You define a sysplex group when creating a new group object by specifying `sysplex` in the **Group Type** field of the Define New Entry panel.

There are certain restrictions for sysplex groups:

- A system can be linked to only one sysplex group. The same system can be linked to other standard groups. This applies if the system is linked directly to the system group, or indirectly through a subgroup.
- A subgroup may be linked to only one sysplex group.

Figure 60 on page 80 is an example of the Policy Selection panel for Sysplex groups.

```
  ACTIONS  HELP
 ------------------------------------------------------------------------------
 AOFGEPOL                        Policy Selection            Row 1 to 20 of 20
 Command ===> ____________________________________________  SCROLL===> PAGE

 Entry Type : Group                PolicyDB Name   : USER_PDB
 Entry Name : SYSPLEX_GROUP_01     Enterprise Name : USER_ENTERPRISE

 Action      Policy Name          Policy Description
 __________  DESCRIPTION          Enter description
 __________  GROUP INFO           Define group information
 __________  SUBGROUPS            Select subgroups for group
 __________  SYSTEMS              Select systems for group
 __________  -------------------- -----SYSPLEX SPECIFIC POLICY-----------------
 __________  SYSPLEX              Define sysplex
policy
 __________  APPLICATION GROUPS   Select application groups for sysplex
 __________  SYSPLEX DEFAULTS     Select sysplex resource defaults for group
 __________  DOMAINS              Select domains for group
 __________  -------------------- -----LOCAL PAGE DATA SET POLICY--------------
 __________  LOCAL PAGE DATA SET  Define local page data set recovery
 __________  JOB DEFINITIONS      Define handling of jobs
 __________  -------------------- -----LONG RUNNING ENQUEUE POLICY-------------
 __________  JOB/ASID DEFINITIONS Define handling of long running jobs and ASID
 __________  COMMAND  DEFINITIONS Define "hung" commands
 __________  COMMAND  FLOODING    Define check intervals for command flooding
 __________  RESOURCE DEFINITIONS Define long running enqueue resources
 __________  RECOVERY OPTIONS     Define dump and miscellaneous options
 __________  -------------------- -----------------------------------------------
 __________  COPY                 Copy data from an existing entry
```

Figure 60. Policy Selection Panel for Sysplex Groups

The policy items for sysplex groups are the same as those for standard groups with the following additions:

SYSPLEX
This policy item allows you to describe certain resources associated with the sysplex. For more information, see “SYSPLEX Policy Item” on page 82.

APPLICATION GROUPS
This policy item displays a list of all Sysplex Application Groups, indicating which application groups are selected for this sysplex. For more information, see “ApplicationGroup Entry Type” on page 102.

SYSPLEX DEFAULTS
This policy item displays a list of all Sysplex Defaults, indicating which sysplex defaults are selected for this sysplex. For more information, see “Sysplex Defaults Entry Type” on page 258.

DOMAINS
This policy item displays a list of all Remote Domains, indicating which remote domains are selected for this sysplex. For more information, see “Remote Domains Entry Type” on page 262.

LOCAL PAGE DATA SET
With this policy item you can predefine local page data sets that are used in recovery situations to prevent auxiliary storage shortage outages. For more information, see “LOCAL PAGE DATA SET Policy Item” on page 83.

JOB DEFINITIONS
With this policy item you can define the jobs that can or cannot be canceled (KEEP/CANCEL), in case the job is responsible for the shortage condition. For more information, see "JOB DEFINITIONS Policy Item" on page 84.

JOB/ASID DEFINITIONS
With this policy item you can define the jobs and address space IDs that can or cannot be canceled. You can specify KEEP if the job must not be canceled, DUMP to dump the job after the wait time has expired, or NODUMP to suppress the dump before the job is canceled.

For more information, see "JOB/ASID DEFINITIONS Policy Item" on page 84.

COMMAND DEFINITIONS
With this policy item you can define which commands you want to monitor and define a maximum time that a command can be blocked by a job or another command before recovery action takes place.

You can also specify an action (KEEP, DUMP or NODUMP) to be taken against this command if it is found to be blocking other commands from executing.

For more information, see "COMMAND DEFINITIONS Policy Item" on page 85.

COMMAND FLOODING
With this policy item you can define individually the interval time for snapshot processing for each command class. When message IEE806A triggers the recovery, the first snapshot is taken after the interval has expired.

For more information, see "COMMAND FLOODING Policy Item" on page 87.

RESOURCE DEFINITIONS
With this policy item you can define DUMP and other miscellaneous recovery options, including the message delay time for message ING920I (issued when option KEEP is specified), and IEADMC*xx* symbols.

For more information, see "RESOURCE DEFINITIONS Policy Item" on page 87.

RECOVERY OPTIONS
With this policy item you can define DUMP and other miscellaneous recovery options including message delay time for message ING920I (issued when option KEEP is specified), and IEADMC*xx* symbols.

For more information, see "RECOVERY OPTIONS Policy Item" on page 88.

GROUP INFO Policy Item

A panel, as shown in Figure 61 on page 81, is displayed if you select policy item GROUP INFO on the Policy Selection panel for groups.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGGPA0                        Group Information
Command ===> ____________________________________________________________

Entry Type : Group                 PolicyDB Name   : USER_PDB
Entry Name : STANDARD_GROUP        Enterprise Name : USER_ENTERPRISE

The following field was specified when the Group was defined
and cannot be modified:
 Group Type : STANDARD

 ProcOps Commands . . . .  NO   (YES NO)
```

Figure 61. Group Information Panel for Standard Groups

This panel displays the following information:

Group Type
This field cannot be changed; it shows the value SYSPLEX or STANDARD as it was specified when this group was created. For more details, see Group Type in "Creating a New Group" on page 78.

ProcOps Commands
For more details, see ProcOps Commands in "Creating a New Group" on page 78.

SYSPLEX Policy Item

A panel, as shown in Figure 62 on page 82, is displayed if you select policy item SYSPLEX on the Policy Selection panel for sysplexes.

```
   COMMANDS  HELP
 ------------------------------------------------------------------------------
 AOFGGPB0                    Sysplex Policy Definition
 Command ===> ____________________________________________________________

 Entry Type : Group                 PolicyDB Name   : USER_PDB
 Entry Name : SYSPLEX_GROUP_01      Enterprise Name : USER_ENTERPRISE

 Sysplex
Name. . . . . . . . . . . . . . ________
 Temporary Data Set HLQ. . . . . . . . _____________________________________
                                                Data set HLQ (max. 17 chars)
 Started Task Job Name . . . . . . . . ________
 Couple Data Set HLQ . . . . . . . . . ________  ________  ________

 CDS type    Alternate volumes

 Sysplex     ______ ______ ______ ______
             ______ ______ ______ ______
 ARM         ______ ______ ______ ______
             ______ ______ ______ ______
 CFRM        ______ ______ ______ ______
             ______ ______ ______ ______
 LOGR        ______ ______ ______ ______
             ______ ______ ______ ______

SFM         ______ ______ ______ ______
```

Figure 62. Sysplex Policy Definition Panel for Sysplex Groups

The fields on the Sysplex Policy Definition panel are as follows:

Sysplex Name
Defines the name of the sysplex.

Temporary Data Set HLQ
Defines the high level qualifier to be used to assemble a data set name for allocating temporary data sets needed by programs running as started tasks. The qualifier can consist of up to 17 characters according to the z/OS data set naming rules (hlq1.hlq2.hlq3). Specify the name without quotes.

If nothing specified, the first qualifier of the automation status file (AOFSTAT) is used.

Started Task Job Name
Defines the job name to be used for programs running as started tasks. The name can consist of up to 8 characters according to the z/OS job naming rules.

Couple Data Set HLQ
Specify the high level qualifier to be used for the allocation of alternate couple data sets (CDS). The qualifier can consist of up to three parts according to the z/OS data set naming rules. When allocating an alternate CDS, this qualifier is appended with the type (for example, SYSPLEX) and S*vvvvvv*, where *vvvvvv* is the volume name from the list of Alternate Volumes.

CDS type Alternate volumes
Specify the types of couple data sets to be used, and the monitoring to be done.

The types of supported couple data sets are:

Sysplex
Contains the policy and status for basic sysplex functions and points to the other couple data sets.

ARM
Contains the policy for automatic restart management.

CFRM
Contains the policy for coupling facility resource management.

LOGR
Contains an inventory for the sysplex logger function.

SFM
Contains the policy for sysplex failure management.

In the **Alternate volumes** column you can enter up to 8 volume names for allocating alternate couple data sets for types Sysplex, ARM, CFRM, LOGR and SFM. The names must be in accordance with the z/OS volume naming rules. When allocating alternate couple data sets, the allocation starts at the first specified volume and continues in the specified order.

LOCAL PAGE DATA SET Policy Item

With the automation of local page data sets, SA z/OS prevents auxiliary storage shortage outages, by dynamically allocating spare local page data sets when needed.

When you select the LOCAL PAGE DATA SET policy item the Local Page Data Set Recovery panel is displayed, as shown in Figure 63 on page 83.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGLCLP                  Local Page Data Set Recovery        Row 1 to 6 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Group                PolicyDB Name   : USER_PDB
Entry Name : SYSPLEX_GROUP_01     Enterprise Name : USER_ENTERPRISE

Page Data Set HLQ . . . . . SPARE.PAGE_____________________________________________
                                 Data set HLQ (max. 23 chars)
Number of Cylinders . . . . 400    100-999

Page Data Set Volumes . .
                      SP1Z61 SP1Z62 SP1Z63_____________________________________

Spare Page Data Sets
SPARE.PAGE.&SYSPLEX..LOCAL.DS1_____________________________________________
SPARE.PAGE.&SYSPLEX..LOCAL.DS2_____________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________
```

Figure 63. Local Page Data Set Recovery Panel

Fill in the following fields:

Page Data Set HLQ
Defines a high level qualifier that is used to assemble a data set name for creating and allocating a page data. The qualifier can consist of up to 23 characters and must follow the naming conventions of MVS data sets (hlq.hlq2.hlq3). The high level qualifier must point to the master catalog and must not be SMS managed.

Number of Cylinders
Defines the maximum number of cylinders (100 to 999) used for the dynamic allocation of a local page data set. The default value is 400. Note that on a 3390 DASD, 100 cylinders is adequate to 70 MB and the formatting process takes approximately 20 seconds for this amount of space.

Page Data Set Volumes
Defines a list of volume IDs which are eligible when the automation is creating and allocating a new page data set. The volumes must be shared by all systems in the sysplex. You can specify a list of 8 volume IDs, separated by commas or blanks.

Spare Page Data Sets
Defines the pre-formatted spare page data set to be used in the recovery situation. Specify the names without quotes. You can include system symbols and system automation symbols (see "Assigning System Automation Symbols (AOCCLONE)" on page 7). The data sets must be allocated on a volume shared by all systems in the sysplex and must be catalogued in the master catalog. In case the systems in the sysplex do not share the master catalog, the page data set must be re-catalogued on each system except the one which created the data set using the following IDCAMS statement:

```
DEF PAGESPACE(NAME(lpdsn) VOLUME(volume) RECATALOG)
```

JOB DEFINITIONS Policy Item

You can use the JOB DEFINITIONS policy item to customize the automation to cancel or keep jobs that are blocking a resource.

When you select the JOB DEFINITIONS policy item the Local Page Data Set Recovery Job Definition panel is displayed, as shown in Figure 64 on page 84.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGLCLJ             Page Data Set Recovery Job Definition    Row 1 to 8 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Group                 PolicyDB Name   : USER_PDB
Entry Name : SYSPLEX_GROUP_01      Enterprise Name : USER_ENTERPRISE

Define the jobs which can or cannot be cancelled (KEEP/CANCEL) in case the job
is one of those jobs responsible for the shortage condition.
A default specification with Job Name=* must exist.

Job Name    Handling
            (KEEP/CANCEL)
_________   ________
_________   ________
_________   ________
_________   ________
_________   ________
_________   ________
_________   ________
```

Figure 64. Local Page Data Set Recovery Job Definition Panel

Fill in the following fields:

Job Name
Defines the jobs that can or cannot be canceled if they are one of the jobs that are responsible for the shortage condition.

Handling
Specify KEEP if the job cannot be canceled. Otherwise specify CANCEL. You can also specify a wildcard character (*). You must define a default with Job Name=* and either KEEP if all jobs not explicitly defined cannot be canceled, or CANCEL if all jobs can be canceled.

JOB/ASID DEFINITIONS Policy Item

Entries specified in the JOB/ASID DEFINITIONS policy item apply to long-running ENQ, hung-command and command-flooding recovery.

Specify the names of Jobs or ASIDs that require special treatment (KEEP, DUMP or NODUMP) when a TCB in the Job or ASID is found to be causing a long-running ENQ lockout, a hung-command situation or command flooding.

When you select the JOB/ASID DEFINITIONS policy item the Long Running ENQ Job/ASID Definitions panel is displayed, as shown in Figure 64 on page 84.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGENQJ              Long Running ENQ Job/ASID Definitions   Row 1 to 7 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Define the jobs and address space IDs which can or cannot be cancelled with or
without dump (KEEP/NODUMP/DUMP) or their dump IDs in case the job/ASID is one
of those responsible for the long running ENQ.
A default specification with Job Name/ASID=* must exist.

Job Name/   Action
ASID        (KEEP/NODUMP/DUMP/dumpids)
*_______    KEEP_____________________________________________________________
SCOT____    NODUMP___________________________________________________________
SCOT1___    NODUMP___________________________________________________________
________    _________________________________________________________________
________    _________________________________________________________________
________    _________________________________________________________________
________    _________________________________________________________________
```

Figure 65. Long Running ENQ Job/ASID Definitions Panel

Fill in the following fields:

Job Name/ASID
Defines the jobs and address space IDs that can or cannot be canceled if they are responsible for a long running ENQ or hung command.

Action
Specify:

- KEEP if the job or ASID cannot be canceled. Message ING920I is issued at user-defined intervals as long as the ENQ or hung command situation persists (see Message Delay field) in “RECOVERY OPTIONS Policy Item” on page 88.
- NODUMP if the job or ASID can be canceled without a dump.
- DUMP if the job or ASID can be canceled with a dump. DUMP options are specified with the RECOVERY OPTIONS policy item (see “RECOVERY OPTIONS Policy Item” on page 88).

You can specify a trailing wildcard (*).

For long-running ENQ recovery you must define a default entry with `Job name/ASID=*` together with the action that will be appropriate for all jobs and ASIDs that are not explicitly defined. For hung-command recovery this default entry is ignored.

COMMAND DEFINITIONS Policy Item

With this policy item you can define which commands you want to monitor and define a maximum time that a command can be blocked by a job or another command before recovery action takes place.

You can also define an action (KEEP, DUMP or NODUMP) to be taken against this command if it is found to be blocking other commands from executing.

When you select the COMMAND DEFINITIONS policy item the "Hung" Command Definition panel is displayed, as shown in Figure 66 on page 86.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGENQC                    "Hung" Command Definition         Row 1 to 6 of 20
Command ===> _____________________________________________  SCROLL===> PAGE
Entry Type : Group                 PolicyDB Name   : USER_PDB
Entry Name : SYSPLEX_GROUP_01      Enterprise Name : USER_ENTERPRISE

Define the commands and its parameter(s) together with the elapsed execution
time (30-999 sec) after that a command is treated as a "hung" command and the
action (KEEP/DUMP/NODUMP) to be taken on the blocker of the command.
If resources are excluded a default specification with Command=* and
Command Parameter(s)=* must exist.

Command   Command Parameter(s)                                 Time/EXCL  Action
                                                             (30-999 s)
*         *                                                     30       KEEP
D         M=CHP(02)                                             30       NODUMP
D         TRACE                                                 60       NODUMP
D         M=CHP(01)                                             EXCL     _______
__________ ___________________________________________________   ____     _______
__________ ___________________________________________________   ____     _______
```

Figure 66. "Hung" Command Definitions Panel

Fill in the following fields:

Command
Specify the name of a z/OS system command that you want to check whether it is a long-running command (for example, the z/OS command SET).

Note: The MODIFY command (F) cannot be processed by hung-command recovery because it does not enqueue on any system resource. There is no need to automate the MODIFY command.

Command Parameter(s)
Specify the parameter (or parameters) of a z/OS command that is to be checked whether it is a long running command (for example, PROG as the parameter of the z/OS command SET).

Time/EXCL
Defines the execution time that elapses before a command is treated as a long-running command. Valid value is 30-999 seconds.

If the command should be excluded from long-running command checking, specify EXCL.

Action
Defines the action to be taken (KEEP, DUMP or NODUMP) when the specified command blocks other commands from executing.

The action specified here will be overridden by the action that is specified in the JOB/ASID DEFINITIONS policy item for the job or ASID that issued the blocking command (often *MASTER* or CONSOLE).

For example, if a TSO user named FRED issued a D TRACE command that hung and blocked other commands from executing, and there is a Hung Command Definition of DISPLAY TRACE,30,NODUMP then, after 30 seconds the following would happen for different Job/ASID Definitions:

Job/ASID Definition	Result
FRED,KEEP	FRED's D TRACE command would not be canceled but message ING920I would be issued because *specific* Job/ASID definitions take precedence over COMMAND DEFINITIONs.
–	The D TRACE command would be canceled without a dump.
*,KEEP	The D TRACE command would be canceled without a dump because COMMAND DEFINITIONs take precedence over *default* Job/ASID definitions.

COMMAND FLOODING Policy Item

You can define individually the interval time for snapshot processing for each command class. When message IEE806A triggers the recovery, the first snapshot is taken after the interval has expired.

When you select the COMMAND FLOODING policy item the Command Flooding Definition panel is displayed, as shown in Figure 67 on page 87.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGENQF                  Command Flooding Definition
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Group                PolicyDB Name   : USER_PDB
Entry Name : SYSPLEX_GROUP_01     Enterprise Name : USER_ENTERPRISE

Define the snapshot time (1-60 sec) after that the commands in this class are
evaluated for command flooding.

Command class M1 . . . __
              M2 . . . __
              M3 . . . __
              C1 . . . __
              C2 . . . __
              C3 . . . __
```

Figure 67. Command Flooding Definition Panel

Fill in the following field with the snapshot time for each command class:

Snapshot time
Defines the time the recovery routine should wait before it takes the next snapshot of the commands that are being executed or waiting in the command class. The time should be long enough to allow a task that issues a set of commands to finish before the first snapshot is taken. Valid value is 1-60 seconds. A default value of 3 seconds is used if nothing is specified.

RESOURCE DEFINITIONS Policy Item

You can specify which resources you want to monitor and define a value for the maximum time that a job can lock a resource while other jobs are waiting for the resource. If the amount of time is exceeded, the recovery takes place.

When you select the RESOURCE DEFINITIONS policy item the Long Running ENQ Resource Definition panel is displayed, as shown in Figure 68 on page 87.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGENQR             Long Running ENQ Resource Definition    Row 1 to 7 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Group                PolicyDB Name   : USER_PDB
Entry Name : SYSPLEX_GROUP_01     Enterprise Name : USER_ENTERPRISE

Define the major and minor resource names together with the elapsed execution
time (30-999 sec) after that an ENQ is treated as a long running ENQ.
If resources are excluded a default specification with Major Resource/Minor
Resources=* must exist.

Major       Minor                                                Time/EXCL
Resource    Resource                                            (30-999 s)
---------   ------------------------------------------------     ----
---------   ------------------------------------------------     ----
---------   ------------------------------------------------     ----
---------   ------------------------------------------------     ----
---------   ------------------------------------------------     ----
---------   ------------------------------------------------     ----
---------   ------------------------------------------------     ----
---------   ------------------------------------------------     ----
```

Figure 68. Long Running ENQ Resource Definition Panel

Fill in the following fields:

Major Resource
Defines the major resource name of the resource to be checked for long-running enqueues.

Minor Resource
Defines the minor resource name of the resource to be checked for long-running enqueues.

Time/EXCL
Defines the execution time that elapses before an enqueue is treated as a long-running ENQ. A valid value is 30-999 seconds. If the resource should be excluded from long-running enqueue checking, specify EXCL.

RECOVERY OPTIONS Policy Item

If you want to automate long-running ENQs, "hung" commands, or command flooding, you can specify dump options, a title for each dump being taken, and job names or address space IDs of the jobs that are kept or canceled.

Note that the dump options do not apply to command flooding because the recovery routine of the job being canceled can suppress the dump.

With this policy item you can define DUMP and other miscellaneous recovery options including message delay time for message ING920I (issued when option KEEP is specified), and IEADMC*xx* symbols.

When you select the RECOVERY OPTIONS policy item the Recovery Options panel is displayed, as shown in Figure 69 on page 88.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGENQS               Long Running ENQ Recovery Options      Row 1 to 3 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Group                PolicyDB Name   : USER_PDB
Entry Name : SYSPL1               Enterprise Name : USER_ENTERPRISE

Message Delay  . . 1_ Time between notification messages (1-60 minutes)

Dump Options . . . ____________________________________________________________
Dump Title . . . . ____________________________________________________________
_______________________________________________________________________________

Define the IEADMCxx symbols together with their substitution value for
selective jobs or address space IDs.

Job Name/   Symbol and Value
ASID        (&symbol.='value')
________    ___________________________________________________________________
________    ___________________________________________________________________
________    ___________________________________________________________________
```

Figure 69. Recovery Options Panel

Fill in the following fields:

Message Delay
Defines the number of minutes that automation waits before it reissues the message indicating that a job or a command is still blocking other jobs or commands but that the blocker must not be canceled.

Leaving the field blank results in a delay of 15 minutes.

Dump Options
Defines the DUMP option that is used for the SDATA parameter on the dump command. The following options are allowed:

- ALLNUC
- LPA
- NOSUM

- SERVERS
- TRT
- COUPLE
- LSQA
- NUC
- SQA
- WLM
- CSA
- NOPSA
- PSA
- SUM
- XESDATA
- GRSQ
- NOSQA
- RGN
- SWA

These options apply only to the jobs or address space IDs that are defined with DUMP in the list at the bottom of the panel.

Dump Title
Defines the title of each dump being taken with the default dump options.

Job Name/ASID
Defines the jobs and address space IDs together with their symbols and substitution value for use with the dump command parmlib members IEADMC*xx*.

Specification of a trailing wildcard (*) is allowed.

Symbol and Value
Defines the symbol names and their substitution value in the format `&symbol='value'`.

Valid characters for the symbol are A – Z, 0 – 9, @, # and $. The value must be enclosed in single quotes and its length must not be longer than the symbol name.

SubGroup Entry Type

A subgroup is an intermediary grouping of the systems within a group. You define a subgroup by selecting the member systems and assigning a name to the subgroup. You do not have to define subgroups, but it may be useful to do so for a large enterprise.

For example, a sysplex defined as a group may have subgroups consisting of systems running on one or more S/390 microprocessors within the sysplex so they can be managed separately from systems running on the other CPC types. Another option is to form subgroups based on system type, for example, all VM systems in one subgroup.

A system in a sysplex can belong to more than one subgroup within the sysplex group.

Creating a New SubGroup

How to create new policy objects in general, is described in “How to Create New Policy Objects” on page 19.

Figure 70 on page 90 is an example of the Define New Entry panel for subgroups.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN2                          Define New Entry
Command ===> ____________________________________________________________________

Define new entry of type SubGroup

  Entry Name . . . . . . . ____________________

  ProcOps Commands . . . . NO_   (YES NO)

  Short description  . . . ____________________________________________
  Long description 1 . . . ____________________________________________
  Long description 2 . . . ____________________________________________
  Long description 3 . . . ____________________________________________
  Long description 4 . . . ____________________________________________
  Long description 5 . . . ____________________________________________
```

Figure 70. Define New Entry Panel for a Subgroup

The unique field on this panel is:

ProcOps Commands
Indicates whether processor operations commands issued against this subgroup are to be accepted for processing. The default is NO.

Note: If a group with which this subgroup is associated is enabled for processor operations commands, a processor operations command directed to that group will affect all systems in the group even if this subgroup is *not* enabled for processor operations commands.

Policy Items for SubGroups

Figure 71 on page 90 shows the policy items that are displayed when a subgroup is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                      Policy Selection                 Row 1 of 6
Command ===> ____________________________________________  SCROLL===> PAGE
Entry Type : SubGroup           PolicyDB Name   : USER_PDB
Entry Name : TARGET_SUBGROUP    Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION         Enter description
__________  SUBGROUP INFO       Display subgroup information
__________  SYSTEMS             Select systems for subgroup
__________  ------------------- ------------------------------------------
__________  WHERE USED          List groups linked to this entry
__________  COPY                Copy data from an existing entry
```

Figure 71. Policy Selection Panel for Subgroups

The unique policy items for subgroups are:

SUBGROUP INFO
When you select this policy item, information about subgroups is displayed for verification and updating.

SYSTEMS
When you select this policy item, a list of all systems in the SA z/OS enterprise is displayed, indicating those systems that are related to this subgroup. You can add systems to the subgroup, or remove systems from the subgroup.

System Entry Type

A system is any host system in the SA z/OS enterprise. The operating systems can be either MVS or non-MVS. For system operations, the system must be MVS.

For processor operations functions, the system can be MVS, VM, VSE, LINUX, or CF (coupling facility). A system definition includes:

- The operating system type
- Processor operations information
- Details about which IBM automation products are operating on the system
- Member application groups
- NetView and z/OS-related information
- Automation policy for the system (optional)

The information you supply here will determine what automation policy set objects are included in your system and how your system is automated.

Creating a New System

How to create new policy objects in general, is described in "How to Create New Policy Objects" on page 19.

Figure 72 on page 91 shows the panel that is displayed when you create a new system from the Entry Name Selection panel for systems.

```
   COMMANDS  HELP
 ------------------------------------------------------------------------------
 AOFGDYN3                          Define New Entry
 Command ===> ____________________________________________________________________

 Define new entry of type System

   Entry name . . . . . . . SYS1_____________

   Operating system . . . . MVS__   (MVS VM VSE LINUX CF ZAPP KVMIBM))
   Image/System name  . . .
SYS1____


   Short description  . . . ____________________________________________
   Long description 1 . . . ____________________________________________________
   Long description 2 . . . ____________________________________________________
   Long description 3 . . . ____________________________________________________
   Long description 4 . . . ____________________________________________________
   Long description 5 . . . ____________________________________________________
```

Figure 72. Define New Entry Panel for a System

The fields that can be filled in are:

Entry name
This required name gives a unique name to the system that you are defining.

Valid characters are any alphanumeric character or any of the at sign (@), number sign (#), dollar sign ($), question mark (?), or underscore (_), with the first character being alphanumeric, or @, #, or $.

The entry name must be unique among the names of all zEnterprise ensembles, groups, subgroups, systems (including both the entry names and the system/image names) and processors (including both the entry names and the ProCops Target HW names) in the current policy database with the exception that the image/system name may match the entry name.

Operating system
Defines the operating system to be run on the system. Valid values are MVS, VM, VSE, LINUX, CF, ZAPP, or KVMIBM.

CF indicates the coupling facility control code for the coupling facility in a Parallel Sysplex.

LINUX identifies a Linux® on z Systems® distribution, and ZAPP identifies a z System appliance.

KVMIBM indicates that KVM for z System distribution runs in a IBM z partition in LINUX mode.

This field is required and its default value is MVS.

Image/System name
Identifies the system. For MVS systems, this value *must match* the system name (SYSNAME) as specified in the IEASYS*xx* member of SYS1.PARMLIB.

Valid characters are any alphanumeric character or any of @, #, or $. The name may start with a numeric character except for systems of type CF.

This name must be unique among the names of all zEnterprise ensembles, groups, subgroups, systems (including both the entry names and the system/image names) and processors (including both the entry names and the ProCops Target HW names) in the current policy database with the exception that the image/system name may match the entry name.

Note:

- To define a system for an alternate or tertiary configuration, it must be marked with a trailing plus sign "+" or minus sign "-", respectively. This trailing character will be removed when the automation files are built and is only valid for operating system type MVS.
- If you are going to enable automation for IXC102A/IXC402D the Image/System name must not start with a numeric character. For more information about XC102A/IXC402D automation, see "Automating IXC102A and IXC402D Messages" in *IBM System Automation for z/OS Customizing and Programming*.

Policy Items for Systems

Figure 73 on page 93 shows the z/OS policy items that are displayed when an MVS system is selected from the Entry Name Selection panel.

Several of the policy items available from this panel allow you to select and manage the links between the system and a variety of entry types. The panels associated with these policy items are all very similar and straightforward to use and are not covered in this section.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection            Row 1 to 29 of 29
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : System                PolicyDB Name   : USER_PDB
Entry Name : SYS1                  Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  SYSTEM INFO          Enter and display system information
__________  AUTOMATION SYMBOLS   Define system automation symbols (AOCCLONEx)
__________  AUTOMATION CONSOLE   Enter MVS route codes for notifications
__________  APPLICATION GROUPS   Select applicationgroups for system
__________  MONITOR RESOURCES    Select monitor resources for system
__________  AUTOMATION TIMERS    Select timers for system
__________  USER E-T PAIRS       Select user entry-type pairs for system
__________  RESIDENT CLISTS      Select resident clists for system
__________  TAPE ATTENDANCE      Select tape attendance for system
__________  APPLICATION DEFAULTS Select application defaults for system
__________  SYSTEM DEFAULTS      Select system defaults for system
__________  MVSCOMP DEFAULTS     Select MVS Component Defaults for system
__________  MVS COMPONENT        Select MVS Components for system
__________  NETWORK              Select network for system
__________  AUTOMATION OPERATORS Select automation operators for system
__________  STATUS DISPLAY       Select screen status definitions
__________  NOTIFY OPERATORS     Select notify operators
__________  OPC SYSTEM DETAILS   Select OPC system details for system
__________  CONTROLLER DETAILS   Select OPC controller details for system
__________  WORKSTATION DOMAINS  Select OPC Workstation domains for system
__________  -------------------- -----PROCESSOR OPERATIONS SPECIFIC POLICY----
__________  PROCESSOR            Select processor or partition
__________  TARGET SYSTEM INFO   Basics, time zones, and interested operators
__________  IPL INFO             Define IPL information
__________  -------------------- ---------------------------------------------
__________  WHERE USED           List groups/subgroups linked to this entry
__________  COPY                 Copy data from existing entry
```

Figure 73. Policy Selection Panel for Systems

The policy items for systems are:

SYSTEM INFO
This displays and allows you to update the following:

- The operating system type for this system definition.
- The heartbeat interval and the missing heartbeat delay times.
- Details required for interacting with NetView. This information is required only if you are using enterprise monitoring.
- Details of your operating environment.

See “SYSTEM INFO Policy Item” on page 95 for more information.

AUTOMATION SYMBOLS
You can enter or update SA z/OS symbols that can be set to various system-specific values. These can then be substituted into several values, such as MVS automatic restart management element names, MVS workload manager resource names, job names, user specified commands and others.
See “AUTOMATION SYMBOLS Policy Item” on page 96 for more information.

AUTOMATION CONSOLE
The automation console definitions are used when SA z/OS notification messages are to be sent as write-to-operator (WTO) messages to the MVS consoles. This policy item defines the route codes and MCSFLAGS necessary for this process. WTO messages are sent to the Automation Console when none of the notification operators defined in the NOTIFY OPERATORS policy item are logged on or when SYSOP is defined as a notification operator.

For more information on this policy item see “AUTOMATION CONSOLE Policy Item” on page 97.

APPLICATION GROUPS
When you select this policy item, a list of all System Application Groups that are linked to this system is displayed. You can add application groups to or remove them from the system.

MONITOR RESOURCES
This policy item allows you to manage links to Monitor Resource entries. See “Monitor Resource Entry Type” on page 204 for more information.

AUTOMATION TIMERS
This policy item displays a list of defined Automation Timer sets and allows you to choose which sets are to be associated with this system object. See “Timers Entry Type” on page 229 for more information.

USER E-T PAIRS
This policy item displays a list of defined User E-T Pairs sets and allows you to choose which sets are to be associated with this system object. See “User E-T Pairs Entry Type” on page 265 for more information.

RESIDENT CLISTS
This policy item displays a list of defined Resident CLIST sets and allows you to choose which sets are to be associated with this system object. See “Resident CLISTs Entry Type” on page 259 for more information.

TAPE ATTENDANCE
This policy item displays a list of defined Tape Attendance sets and allows you to choose which sets are to be associated with this system object. See “Tape Attendance Entry Type” on page 232 for more information.

APPLICATION DEFAULTS
This policy item displays a list of defined Application Defaults sets and allows you to choose a set to be associated with this system object. If an application belongs to an application class, the class inheritance takes precedence. See “Application Defaults Entry Type” on page 241 for more information.

SYSTEM DEFAULTS
This policy item displays a list of defined System Defaults sets and allows you to choose a set to be associated with this system object. If an application belongs to an application class, the class inheritance takes precedence. See “System Defaults Entry Type” on page 239 for more information.

MVSCOMP DEFAULTS
This policy item displays a list of defined MVSCOMP Defaults sets and allows you to choose a set to be associated with this system object. See “MVSCOMP Defaults Entry Type” on page 238 for more information.

MVS COMPONENT
This policy item displays a list of defined MVS Component sets and allows you to choose which sets are to be associated with this system object. See “MVS Component Entry Type” on page 234 for more information.

NETWORK
This policy item displays a list of defined Network sets and allows you to choose which sets are to be associated with this system object. See “Network Entry Type” on page 249 for more information.

AUTOMATION OPERATORS
This policy item displays a list of defined Automation Operator sets and allows you to choose which sets are to be associated with this system object. See “Automation Operators Entry Type” on page 242 for more information.

STATUS DISPLAY
This policy item displays a list Status Display Facility (SDF) Status Definition sets and allows you to choose which sets are to be associated with this system object. See “Status Display Entry Type” on page 260 for more information.

NOTIFY OPERATORS
This policy item displays a list of defined notification operator sets who receive SA z/OS notification messages. See “Notify Operators Entry Type” on page 245 for more information.

OPC SYSTEM DETAILS
This policy item allows you to manage links to OPC System Details. Only one entry should be linked to a system, otherwise multiple entries will be built with SA z/OS only loading the last one that is processed. See “OPC System Detail Entry Type” on page 218 for more information.

CONTROLLER DETAILS
This policy item allows you to manage links to OPC Controller Details. Only one entry should be linked to a system, otherwise multiple entries will be built with SA z/OS only loading the last one that is processed. See “OPC Controller Details Entry Type” on page 219 for more information.

WORKSTATION DOMAINS
This policy item allows you to manage links to workstation domain IDs. Only one entry should be linked to a system, otherwise multiple entries will be built with SA z/OS only loading the last one that is processed. See “OPC Workstation Domains Entry Type” on page 221 for more information.

PROCESSOR
Selection of this policy item displays a panel that lists all processors and partitions defined in the enterprise. You can select one processor or partition that the system should run on. See “PROCESSOR Policy Item” on page 98 for more information.

TARGET SYSTEM INFO
This policy item displays basic information about the target system, for example, time zones, operators receiving messages from the system and operator consoles. See “TARGET SYSTEM INFO Policy Item” on page 99 for more information.

IPL INFO
With this policy item you can define IPL information for the MVS or VM target system. See “IPL INFO Policy Item” on page 100 for more information.

SYSTEM INFO Policy Item

The panel shown in Figure 74 on page 95 is displayed when you select policy item SYSTEM INFO on the Policy Selection panel for Systems (Figure 73 on page 93).

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGSPD0                      System Information
Command ===> ____________________________________________________________

Entry Type : System               PolicyDB Name   : USER_PDB
Entry Name : SYSTEM_01            Enterprise Name : USER_ENTERPRISE
                                                          More:     +
Operating system . . . : MVS__
Image/System name. . . . FOC1_____

The following specifications are for MVS systems only.
Primary JES. . . . . . . JES2____  Primary JES2/JES3 subsystem name
System Monitor Time. . . 00:59     Time between monitor cycles (hh:mm or NONE)
Gateway Monitor Time . . 00:15     Time between monitor cycles (hh:mm or NONE)
Automation Table(s). . . INGMSG01 ____________________________________________
_____________________________________________________________________________
                                   NetView automation table members
SDF Root Name. . . . . . ________   Root of system's SDF tree
Exit name(s) . . . . . . ____________________________________________________
                                   Environment setup user exit names
USS automation path. . .
/usr/lpp/ing/ussauto/lib ____________________________________________________
_____________________________________________________________________________
                                   System Automation UNIX installation
SA NetView Domain. . . . _____     NetView domain ID of SA z/OS
Network NetView Domain . _____     NetView domain ID of network automation
```

Figure 74. System Information Panel

You can enter the following information:

Operating system
Operating system shows the operating system that has been specified when creating this system entry. It cannot be changed.

Image/System name
Identifies the system. See Image/System Name in “Creating a New System” on page 91 for more details.

Primary JES
The name of the primary Job Entry Subsystem as specified for a JES2 or JES3 subsystem. The named subsystem is the default scheduling subsystem.

System Monitor Time
The time between system monitoring cycles. The default is every 59 minutes. Monitoring may be suspended by specifying NONE.

Gateway Monitor Time
The time between gateway monitoring cycles. The default is 15 minutes. Monitoring may be suspended by specifying NONE.

Automation Table(s)
You may specify multiple NetView automation tables that are loaded and used for message automation. The automation tables are activated in the sequence as specified. The sequence of the automation tables is not changed during a configuration refresh (INGAMS REFRESH).

The default is INGMSG01.

Note: If one or more user-defined automation tables are specified, only those will automatically be loaded during initialization. Therefore make sure that SA z/OS-supplied automation tables (for example, INGMSG01 or INGMSGGP) are included in the list if those should also be loaded.

SDF Root Name
Defines the name used by SDF for the system name. This is the root component that is used during initialization. If nothing is entered, the default is the **Image/System name**.

Exit name(s)
An installation exit or exits invoked to perform additional environment setup. This item is optional. See "SA z/OS User Exits" in *IBM System Automation for z/OS Customizing and Programming* for more information.

USS automation path
Defines the path where the SA z/OS USS automation programs (for example, INGCCMD) are installed. The SA z/OS installation default is /usr/lpp/ing/ussauto/lib.

SA NetView Domain
This field is optional. It allows you to enter the domain ID of the NetView on the local system where SA z/OS runs. The field may be used for customer-specific and documentation purposes.

In case this system is used as an SDF focal point and is located in the sysplex but not in the SAplex and no gateway definitions have been specified between the target system and this focal point system (see entry type NTW), this field is required. Otherwise, the SDF connection may not work as expected.

Network NetView Domain
This field is optional. It allows you to enter the domain ID of the NetView on the local system where the network automation runs. The field may be used for customer-specific and documentation purposes.

AUTOMATION SYMBOLS Policy Item

The panel shown in Figure 75 on page 97 is displayed when you select policy item AUTOMATION SYMBOLS from the Policy Selection panel for Systems (Figure 73 on page 93).

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGSSYM              System Automation Symbols (AOCCLONEx)
Command ===> ____________________________________________________________________

Entry Type : System               PolicyDB Name   : USER_PDB
Entry Name : SYS1                 Enterprise Name : USER_ENTERPRISE
                                                              More:     +
AOCCLONE . . . . 01_________
 General Use:    Used for VTAM startlist suffix
 Description . . SYS1 has VTAM startlist 01_____________________________
AOCCLONE1. . . . ___________
 General Use:
 Description 1 . ____________________________________________________________
AOCCLONE2. . . . ___________
 General Use:
 Description 2 . ____________________________________________________________
AOCCLONE3. . . . ___________
 General Use:
 Description 3 . ____________________________________________________________
AOCCLONE4. . . . ___________
 General Use:
```

Figure 75. Automation Symbols Panel

This panel allows you to enter or update system automation symbols that can be set to various system-specific values. These can then be substituted into several values, such as MVS automatic restart management element names, MVS workload manager resource names, job names, user-specified commands and others.

To specify that AOCCLONE value x is to be substituted, enter `&AOCCLONEx.` at the appropriate point in the field. You must specify both the leading ampersand (&) and the trailing period (.).

You may, additionally, specify the tilde (~) to get the 0th (unnumbered) AOCCLONE value substituted. For more details see “Using System Symbols and System Automation Symbols” on page 8.

This panel has the following fields:

General Use
This shows the description of the general use of the system automation symbol. It is defined in the SYMBOL DESCRIPTION policy item of the enterprise definitions (entry type ENT), see “SYMBOL DESCRIPTION Policy Item” on page 77.

AOCCLONE*x*
This allows you to specify the value of the system automation symbol (&AOCCLONE*x* variable).

Valid characters are A–Z, a–z, 0–9, @ (X'7C'), # (X'7B'), $ (X'5B'), ? (X'6F'), _ (X'6D'), ! (X'5A'), and ¢ (X'4A'). The entered data is not automatically translated to upper case.

Description
This allows you to specify a specific description of the automation symbol for this system only.

AUTOMATION CONSOLE Policy Item

The panel shown in Figure 76 on page 98 is displayed when you select policy item AUTOMATION CONSOLE from the Policy Selection panel for Systems (Figure 73 on page 93).

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFPIEC0                        Automation Console
Command ===> ____________________________________________________________

Entry Type : System                PolicyDB Name   : USER_PDB
Entry Name : SYS1                  Enterprise Name : USER_ENTERPRISE

Console Name. . . . . . _________________________

Select the route codes:               Select the MCSFLAGS:

A Code     Definition                 A Flag     Definition
                                                                  More:     +
_  All Display ALL messages
_   1  Master console action          _  1   Send msg conditionally to console
_   2  Master console information              (REG0)
_   3  Tape pool                      _  2   Send msg unconditionally (QREG0)
_   4  Direct access pool             _  3   Immediate command response (RESP)
_   5  Tape library                   _  4   Reply to WTOR (REPLY)
_   6  Disk library                   _  5   Broadcast to all active consoles
_   7  Unit record pool                       (BRDCST)
_   8  Teleprocessing control         _  6   Queue for hard copy only (HDRCPY)
_   9  System security                _  7   Do not append time to the message
_  10  System error, maintenance             (NOTIME)
_  11  Programmer information        _  8   No hard copy if issued from
_  12  Emulators                             supervisor state (NOCPY)
_  13  User
_  14  User
_  15  User
_  16  User
```

Figure 76. Environment Definition: CONSOLE (Route Codes) Panel

In order to define an automation console, you need to specify:

Console Name
This parameter defines the 1-8 alphanumeric console name specified in the CONSOL*nn* member of the z/OS PARMLIB.

Route Codes
The appropriate z/OS route codes can be selected from this panel. These route codes define which kind of messages the automation console is to receive. Each notification message has already been defined as one of these kinds of WTOs. The console can also be defined to receive all of the notification messages regardless of how they have been defined. The last four codes on the panel are reserved for user-defined codes.

The default routing code is 1 (only messages that appear as Master Console Action WTOs are displayed on the console). Further information on the route codes can be found in the MVS System Messages books.

MCSFLAGS
Select the appropriate MVS MCSFLAG from the list. These codes are used to provide additional information for the WTO messages (for example, if flag 7 is set, the time is not included with the WTO).

If flag 1 or 2 is set, the console name is required and the messages are queued to the specified console.

Further information on the MCSFLAG codes can be found in *Tivoli NetView for z/OS Customization: Using REXX and the NetView Command List Language*

PROCESSOR Policy Item

The panel shown in Figure 77 on page 99 is displayed when you select policy item PROCESSOR on the Policy Selection panel for Systems (Figure 73 on page 93).

```
 COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGXWLU               Select Target Hardware for System    Row 1 to 11 of 11
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : System               PolicyDB Name   : USER_PDB
Entry Name : SYS1                 Enterprise Name : USER_ENTERPRISE

Action      Status       Processor    CPC Name    LPAR Name
________                 PROSITE1     CPC1        SYK1
________                 PROSITE1     CPC1        SYS3
________                 PROSITE2     CPC2        SYK2
________    SELECTED     PROSITE2     CPC2        SYS1
________                 PROSITE2     CPC2        SYS2
________                 VCPC         VCPC
MVSTEST1
******************************** Bottom of data ********************************
```

Figure 77. Select Target Hardware for System Panel

This panel allows you to link a system to the target hardware. It displays a list of:

- All processors together with their LPARs
- All processors in basic mode

The panel displays the following information:

Processor
The processor entry name.

CPC Name
The CPC Name/NAU as specified on the Processor Information panel. This field may be blank if data for the Processor Information policy has not yet been specified.

LPAR Name
The name of the logical partition as specified on the LPAR Definitions panel. This field is empty for basic processors.

TARGET SYSTEM INFO Policy Item

The panel shown in Figure 78 on page 99 is displayed when you select the TARGET SYSTEM INFO policy item on the Policy Selection panel for Systems (Figure 73 on page 93).

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGPOTS              Target System Basic Characteristics
Command ===> ____________________________________________________________

Entry Type : System               PolicyDB Name   : USER_PDB
Entry Name : SYS1                 Enterprise Name : USER_ENTERPRISE

Enter basic information:
  Initialize target system. . . YES___           (YES, NO, BYPASS)
  Load Profile Name . . . . . . ________________ (Activate Load Profile)

Enter target system time zones:
  Target time same as host  . . YES             (YES or blank)
  Target time earlier . . . . . __              (1 to 23, or blank)
  Target time later . . . . . . __              (1 to 23, or blank)

Enter operators who are to receive messages from console:
  System Console  . . . . . . . SYSOP1__ SYSOP2__ SYSOP3__ ________ ________
                                ________ ________ ________ ________ ________
  Operator Console  . . . . . . SYSOP4__ ________ ________ ________ ________
                                ________ ________ ________ ________ ________
```

Figure 78. Target System Information Panel

Fill in the following fields:

Initialize target system
Enter YES to indicate that communication to the target system is automatically initialized when SA z/OS processor operations starts.

Enter NO if the target system communication should not be established when processor operations starts and the target status should be set to UNKNOWN. In this status the target system communication will be automatically initialized as soon as another target system that is running on the same LPAR mode hardware is initialized.

Enter BYPASS to set the target system status to CLOSED and to prevent automatic initialization communication to the target system when processor operations starts.

Note: If you choose to initialize the target system automatically, be aware that when you start SA z/OS, the ISQSTART command may be completed before the target system is initialized.

Load Profile Name
Enter the load profile name defined at the support element. The name you choose must correspond with the load profile defined at the support element. Leave this field blank to take the default defined at the support element. The profile name can contain only the characters A to Z and 0 to 9.

Target time same as host
If the target system is in the same time zone as the focal-point system, type YES or Y. If not, leave this field blank. For systems that run as guest systems under VM this field must be set to YES.

Target time earlier
Enter the number of hours that the target system is earlier than the focal point system. (A target system in Los Angeles is three hours earlier than a focal-point system in New York.)

Target time later
Enter the number of hours that the target system is later than the focal point system. (A target system in New York is three hours later than a focal point system in Los Angeles.)

System Console
Enter the user IDs of the operators you want to receive system console messages. The operators listed receive messages only from the system console. You can enter any valid NetView user ID. This field is optional.

Operator Console
Enter the user IDs of the operators you want to receive operator console messages. You can enter any valid NetView user ID. This field is optional.

Notes:

1. For OCF-based systems using only console integration, the operating system messages are forwarded to the system console interested operator list.
2. Operators not on these lists do not see messages from these consoles unless their user IDs are added using the ISQXMON command when SA z/OS is running.

IPL INFO Policy Item

The panels that you can use to define your target system IPL information depend on the operating system that you are running.

MVS Target System IPL Information

The panel shown in Figure 79 on page 101 is displayed when you select the IPL INFO policy item on the Policy Selection panel for Systems (Figure 73 on page 93) for MVS.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGPOMI               MVS Target System IPL Information
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : System               PolicyDB Name   : USER_PDB
Entry Name : SYS1                 Enterprise Name : USER_ENTERPRISE

Enter responses to the following messages for the target system.

IEA101A specify system parameters
-------------------------------------------------------------------------------

 IEA347A specify master catalog parameter
-------------------------------------------------------------------------------


IEA213A or IEA214A DUPLICATE VOLUME
____  ____  ____  ____  ____  ____  ____  ____  ____  ____  ____  ____

____  ____  ____  ____  ____  ____  ____  ____  ____  ____  ____  ____
Provide default response when neither device is specified . . . YES
```

Figure 79. MVS Target System IPL Information Panel

Use this panel to define responses that are used during the MVS or z/OS target IPL process.

During the start process, the target system requests information from the operator. By providing the responses at this panel, the operator enables SA z/OS to respond to these messages. Target systems using VSE, LINUX, or CF do not request information from the operator during startup.

IEA101A specify system parameters
Enter the desired response to the IEA101A message. All IEA101A message responses begin with the characters R 0. You do not have to begin your response with these characters, they are provided by SA z/OS automation. Quotation marks are not necessary. The customization dialog does not verify your entry.

IEA347A specify master catalog parameter
Enter the desired response to the IEA347A message. The customization dialog does not verify your entry.

IEA213A/IEA214A DUPLICATE VOLUME
Specify the device addresses to be kept online if duplicate DASD volumes exist on a z/OS system at IPL time. You have 24 entries to specify real or generic DASD device addresses. Example for a generic device address: `012*`. This indicates that all addresses from 0120 to 012F must remain online.

This entry works in conjunction with the automatic response selection.

Provide default response when neither device is specified. Specify YES or NO to indicate whether a default response is required if neither or both of the devices in the IEA213A/IEA214A message match those identified as required devices. For IEA214A messages, the current IPL (SYSRES) device is considered as being implicitly defined. If YES is selected, an automated response will always be provided. For a SYSRES device, the device shown in the message is dismounted. Otherwise the following applies:

- If neither device is in the reply list, the first device is demounted.
- If only one device is in the reply list, the remaining device is demounted.
- If both devices are in the reply list, the first device in the list as scanned from left to right remains mounted and the other device is demounted.
- If both devices are in the reply list due to the same generic device mask in the list as scanned from left to right, the second device is demounted.

A selection of NO will result in a response allowing the IPL to continue only if one and only one device is identified as being required. Otherwise, message ISQ1203 will be issued and the IPL process will be suspended. In such a case, the operator needs to react to system message ISQ1203.

A selection of NO and a generic device address of **** will always stop the IPL process if a duplicate volume is detected.

Notes:

1. For valid responses, see *z/OS MVS Messages Vol 6 (GOS-IEA)*.
2. Responses to IEA101A, IEA347A, IEA213A and IEA214A can be changed without generating and loading new configuration files by the use of the host ISQXOPT command before IPLing the target system. However, these changes are not saved if SA z/OS processor is stopped or restarted.
3. All message responses begin with the characters R 0. You do not have to begin your response with these characters; SA z/OS automation provides them. Quotation marks are also not necessary.

VM Target System IPL Information

To define the response to the VM IPL START message, use the panel shown in Figure 80 on page 102. During the start process, the target system requests information from the operator. By providing the responses at this panel, the operator enables SA z/OS to respond to these messages.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGPOVI                VM Target System IPL Information
Command ===> ____________________________________________________________

Entry Type : System                PolicyDB Name   : USER_PDB
Entry Name : VM1                   Enterprise Name : USER_ENTERPRISE

Enter message for the target system.

VM IPL START message response
 ____________________________________________________________________________
```

Figure 80. VM Target System IPL Information Panel

VM IPL START message response
Enter the desired response to the VM IPL START message. The customization dialog does not verify your entry.

Note: The VM IPL START message response field can be changed without generating and loading new configuration files. You can do this by issuing the host ISQXOPT command before you IPL the target system. However, these changes are not saved if processor operations or SA z/OS is stopped or restarted.

ApplicationGroup Entry Type

An application group is a set of applications that you assign a name to.

There are two types of ApplicationGroups:

1. *System Application Groups*: application groups that are associated with particular systems.
2. *Sysplex Application Groups*: application groups that are associated with sysplexes.

A *Sysplex Application Group* is a special type of application group that is associated with one or more sysplexes. Sysplex Application Groups are used to monitor and automate applications and application groups that can run on multiple systems in a sysplex. Using Sysplex Application Groups means you do not need to connect the application group to each system of the sysplex. Instead, all applications of this Sysplex Application Group are known on all systems of the sysplex. You can then monitor the group at the sysplex level, rather than at system level.

Creating a New ApplicationGroup

How to create new policy objects in general, is described in “How to Create New Policy Objects” on page 19.

Figure 81 on page 103 shows the panel that is displayed when you create a new application group with the New command from the Entry Name Selection panel for application groups.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN3                           Define New Entry
Command ===> ____________________________________________________________________

Define new entry of type ApplicationGroup

  Entry Name . . . . . . . ____________________

  Type . . . . . . . . . . SYSPLEX    (SYSTEM SYSPLEX)
  Nature . . . . . . . . . BASIC      (BASIC MOVE SERVER)
  Default Preference . . . *DEF       (0 to 3200, *DEF)
  Automation Name  . . . . ____________
  Automatically link . . . YES        (for Application-Resources)
  Behavior . . . . . . . . ACTIVE     (ACTIVE PASSIVE)
  Prepare Move . . . . . . ___        (YES NO)
  Move Mode  . . . . . . . ________   (PARALLEL SERIAL)

  Short description  . . . ____________________________________________
  Long description 1 . . . ____________________________________________________
  Long description 2 . . . ____________________________________________________
  Long description 3 . . . ____________________________________________________
  Long description 4 . . . ____________________________________________________
  Long description 5 . . . ____________________________________________________
```

Figure 81. Define New Entry Panel for a Sysplex Application Group

The unique fields are:

Entry Name
This is the name of the application group. It must be unique within the policy database. Valid names may contain up to twenty alphanumeric characters.

Application Group Type
This indicates whether the Application Group will be used for Systems or for a Sysplex. This attribute sets the boundaries for the selection of Resource members of the Application Group, and should be set as follows:

SYSPLEX
Use this type if the Application Group is being used to define sets of Applications and Resources that may be on multiple systems within a sysplex or sysplexes.

SYSTEM
Use this type if the Application Group is being used to define sets of Applications and Resources that be on single systems.

Application Group Types cannot be changed after this panel has been left.

Nature
In this field you can define the availability behavior of application groups and applications. You can specify one of the following attributes:

BASIC
The group is available when all of its resource members are available.

MOVE
The group is available when one of its resource members is available.

All members should be instances of the same application.

To avoid the following conflict, you should not define an application to be a member in two MOVE groups: Assume that resource RES1 is a member in two MOVE groups. One of the MOVE groups starts a member that is not shared by the other MOVE group. This implies that RES1 should be down for this MOVE group, because only one member should be available. The second MOVE group now starts the shared member RES1. This causes the first MOVE group to run with two applications. The move group will ensure that only one member of the group will be active at any point in time.

SERVER
This is like a move group. Additionally, you need to define an *availability target* that determines how many of its members should be available to define the server group as being available, as

well as a *satisfactory target* that specifies the number of members in the group that must be active before the automation manager treats the group as being in a satisfactory state.

All members should be instances of the same application.

If you do no make a specification, the default is BASIC.

Depending on your selection in the **Nature** field, the process of entering resources into a group is different, as described in "How to Work with Resources" on page 33. This section also provides examples of how to use the different natures appropriately.

Default Preference

This field specifies what preference should be used for application resources when automatically linking applications to ApplicationGroups (note that the **Automatically link** field below must be set to YES for automatic linking and that preference values are only used for SERVER and MOVE ApplicationGroups). The *DEF preference corresponds to default preference 700. This is the default for this field. For information about preference values and their meanings, see "RESOURCES Policy Item" on page 115 and Using Preferences to Define Specific Roles. For more details about how an operator can override preference values, see "Controlling Application Move with Preference Values" in *IBM System Automation for z/OS User's Guide*.

Automation Name

If you want to automate and monitor the current application group an automation name is required. If possible, the specified entry name is used as a default and automatically inserted into the field but can be removed again.

At the time an application group is created, it is not yet known which systems you want to link it to. So you need to use its *WHERE USED* policy item to connect it to the systems you want. Suppose you created a System Application Group called SYST_APG and linked it to systems SYSTEM1 (with the same MVS SYSNAME) and SYSTEM2 (with the same MVS SYSNAME). After pressing the END key, SA z/OS generates the following resources:

```
SYST_APG/APG/SYSTEM1
SYST_APG/APG/SYSTEM2
```

If you do not provide an automation name, an ACF fragment is not built for the APG and thus the APG is not included in the ACF main include member (ACFZ*xxx*). If you change the automation name of an APG to or from blank (that is, no name is specified), you need to rebuild the main include member to reflect this change.

Automatically link

This entry field specifies whether applications that will later be linked to the current ApplicationGroup should also be automatically linked as resources. This field should be changed to NO if no more resources should automatically be added if the group is linked to another system or sysplex. Otherwise the automation behavior might not be as expected for complex group definitions (that is, groups with manually adapted preference values or availability targets other than *ALL).

Note: This field is only relevant for application groups that have a specified automation name. If no automation name is specified the value cannot be set to NO. In this case the resources are always linked and cannot be handled individually.

Behavior

With this field you can define whether requests to the application group should be propagated to the group members or not. With this option you can avoid having a resource unintentionally stopped if it is required for some other process outside the group.

ACTIVE

Propagates requests to all members of the application group according to the nature of the application group, for example, a start request to a BASIC group is propagated to all members, as a BASIC group is considered to be available when all members are available. A start request to a MOVE group is forwarded to the member with the highest preference, as a MOVE group is considered to be available when exactly one member is available.

ACTIVE is the default.

PASSIVE
Does not propagate the requests to the group members. This enables monitoring and disables the automation of the application group.

Prepare Move
Specifies whether the downtime during the move or switch of a resource should be kept as short as possible.

For an application group of nature MOVE this means that the group member that is currently running will not be stopped until the replacement member is ready to be started, for example, all parents are available.

For an application group of nature SERVER this means that a group member will not be stopped until the replacement member that has just started is available.

To have the highest possible availability, it is recommended that you set this value to YES unless the application cannot support this.

If you leave this the field blank the value can be inherited from the system or sysplex defaults definition. If nothing is specified or inherited the default value is YES.

Note: This field is only relevant for application groups with a nature of MOVE or SERVER.

Move Mode
Specifies how a move is made from an old member to a new one:

PARALLEL
The new member is started at the same time as the old member is being stopped. This is the default.

SERIAL
The new member is started after the old member has been stopped completely.

Note: This field is only relevant for groups of type MOVE. For groups of any other type it is forced to blank.

Policy Items for ApplicationGroups

As described in “Creating a New ApplicationGroup” on page 102, there are two types of application groups:

- System Application Groups
- Sysplex Application Groups

Figure 82 on page 106 shows the policy items that are displayed when a System Application Group is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection             Row 1 to 14 of 14
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : APPL_GROUP_NAME       Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  APPLGROUP INFO       Define applicationgroup information
__________  APPLICATIONS         Select applications for sysplex APG
__________  TRIGGER              Select trigger
__________  SERVICE PERIOD       Select service period
__________  RELATIONSHIPS        Define relationships
__________  MESSAGES/USER DATA   Define messages and user data
__________  -------------------- -----RESOURCES--------------------------------
__________  RESOURCES            Select resources and set preferences
__________  GENERATED RESOURCES  List resources generated for this entry
__________  MEMBER OF            List resources where this entry is a member
__________  -------------------- ----------------------------------------------
__________  WHERE USED           List sysplex groups linked to this entry
__________  COPY                 Copy data from existing entry
```

Figure 82. Policy Selection Panel for System Application Groups

The unique policy items for application groups are:

APPLGROUP INFO
This policy item displays information about the Application Group, as specified when creating the application group. The panel is very similar to the one used for creating the application group. You may update indicated values in this panel. See "APPLGROUP INFO Policy Item" on page 107 for more information.

APPLICATIONS
When you select this policy item, a list of all applications in the SA z/OS enterprise is displayed, indicating which, if any, are associated with this application group. You can add applications to the application group or remove applications from the application group. If the current application group has a resource name, the appropriate APL resources are generated. According to the application group settings, the application resources (APL resources) are linked as members into the application group resource (APG resource). See "APPLICATIONS Policy Item" on page 109 for more information on this policy item.

TRIGGER
Each application group may be linked to one trigger. With this policy item, you can use the Trigger for ApplicationGroup panel to link the application group to a trigger so that all of its applications will be started or stopped depending on the defined trigger conditions.

SERVICE PERIOD
With this policy item, you can use the Service Period for ApplicationGroup panel to link a service period to the application group. Its resources are then automatically started up or shut down in the time frame specified by the service period.

RELATIONSHIPS
This policy item has the same functionality for entry types Application, ApplicationGroup, and *Monitor Resource*. For each application, application group, or monitor resource you may specify several relationships. They will be used to automate the startup or stopping of those applications, application groups, and monitor resources. If you select this policy item, in the Relationship Selection List panel, you can view existing relationships or define new relationships for the current application, application group, or monitor resource.

You define relationships between dependent resources and supporting resources. In the customization dialog you define relationships always from the point of view of the dependent resource. So the resource that you have currently selected will become the dependent resource, when you define a new relationship.

See “RELATIONSHIPS Policy Item” on page 110 for more information on viewing existing or defining new dependency relationships.

MESSAGES/USER DATA
This policy item has the same functionality as for applications and MVS components. It allows you to specify automated actions, such as the issuing of a command or reply, to be taken in response to a message. However, because application groups do not produce 'real' messages, this policy behaves differently. Currently only the special message ID, INGALERT, together with the command definitions assigned to it are honored by SA z/OS.

How to proceed in specifying this policy item is described in “MESSAGES/USER DATA Policy Item” on page 237, where the policy is described for applications.

RESOURCES
This policy item allows you to select resources for current ApplicationGroup and set their preferences or name.

The panels displayed look different depending on the nature of the current application group. See Chapter 3, “Scenarios on How to Use the Customization Dialog,” on page 33 and “RESOURCES Policy Item” on page 115 for information on how to work with these different panels.

GENERATED RESOURCES
This policy item displays a list of all resources that have been generated for the current application group and for the applications that are linked to this application group. See “GENERATED RESOURCES Policy Item” on page 122 for a description of the Generated Resources panel.

MEMBER OF
As resources derived from application groups can be members of other APG resources, this policy item lets you see those resources that the current application group resource is a member of. See the Member of panel in “MEMBER OF Policy Item” on page 122 for more details.

APPLGROUP INFO Policy Item

A panel like Figure 83 on page 107 is displayed if you select policy item APPLGROUP INFO from the Policy Selection Panel for Application Groups.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGAPA0                 Application Group Information
Command ===> ____________________________________________________________________

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : APPL_GROUP_NAME       Enterprise Name : USER_ENTERPRISE

The following field was specified when the Application Group was
defined and cannot be modified:
  Application Group Type : SYSPLEX

Nature . . . . . BASIC_           (BASIC MOVE SERVER)
Default Preference . . . . *DEF           (0 to 3200, *DEF)
Automation Name  . . . . . _________
Behavior . . . . . ACTIVE_        (ACTIVE PASSIVE)
Desired Available. . . . . ________       (ALWAYS ONDEMAND ASIS)
Monitor for IPL complete . ___            (YES NO)

Prepare Move . . . . . ___            (YES NO)
Move Mode. . . . . ________       (PARALLEL SERIAL)
Status Determination . . . ______         (CSONLY)
Inform List. . . . . ____________________
                                          (SDF EIF E2E IOM ITM SMF TTT USR NONE)
Owner. . . . . ____________________________________________________
Info Link. . . . . ____________________________________________________

Automatically link Application-Resources
  into APG . . . . . YES              (YES NO)
```

Figure 83. Application Group Information Panel

You can update the following values that are shown in the lower part of the panel:

Nature
See Nature in "Creating a New ApplicationGroup" on page 102 for more details.

Default Preference
See Default Preference in "Creating a New ApplicationGroup" on page 102 for more details.

Automation Name
See Automation Name in "Creating a New ApplicationGroup" on page 102 for more details.

Behavior
See Behavior in "Creating a New ApplicationGroup" on page 102 for more details.

Desired Available
Lets you specify the default desired status of the resource. The desired state of each resource is either Available or Unavailable, which is the goal that automation tries to achieve.

You can specify the following values:

ALWAYS
The desired state of the resource is set to Available, unless it is dependent on a resource that has a Desired Available setting of ONDEMAND. In this case the resource behaves as if it had a Desired Available setting of ONDEMAND itself.

This is the same behavior as in earlier releases of SA z/OS.

ONDEMAND
If there is *demand* for the resource to be available, its desired status is set to Available, otherwise its desired status is set to Unavailable.

Demand arises either from propagated MakeAvailable votes or implicitly through membership of a non-passive basic application group (APG) that has a desired status of Available. Demand does not arise from dependent resources with a Desired Available setting of ALWAYS.

A MakeAvailable vote that is propagated to the resource overrides any demand considerations.

An active ONDEMAND member of a move or server group is always sent a vote that sets its desired status, thus overriding any demand considerations.

ASIS
The desired status is always set to the observed status. The resource remains in the status that it currently has and no action is taken by SA z/OS at any time, as long as there is no request placed for or propagated to the resource.

If you leave the field blank the value can be inherited from the system or sysplex defaults definition. If nothing is specified or inherited the default value is ALWAYS.

Monitor for IPL complete
Specifies whether the application group has to be in an AVAILABLE status before IPL is considered to be completed.

YES
indicates that it has to be in an AVAILABLE status

NO
indicates that this is not the case.

If nothing is specified, the default value is NO.

Prepare Move
See Prepare Move in "Creating a New ApplicationGroup" on page 102 for more details.

Move Mode
See Move Mode in "Creating a New ApplicationGroup" on page 102 for more details.

Status Determination
Specifies how the compound status of the application is going to be determined:

CSONLY
The worst compound status of any of the group members is used to define the compound status of the application group.

Leave this field blank if the application group's compound status should be determined from several statuses, like observed status, desired status, automation status, startability status and others.

Inform List
This field allows you to specify:

- Where the application is registered to
- Where all status changes are propagated to
- Whether SMF records are written

Valid receivers are SDF, EIF, E2E, IOM, ITM, SMF, TTT and USR. You can specify more than one receiver. The list of values can be blank or comma separated. Neither system automation symbols (AOCCLONEs) nor system symbols are allowed.

If you leave the field blank, the value from the system defaults (SDF) or sysplex defaults (XDF) will be used if specified there.

Specify NONE to prevent the default being used from the system defaults definition (for application groups of type SYSTEM, see "System Defaults Entry Type" on page 239) or the sysplex defaults definition (for application groups of type SYSPLEX, see "Sysplex Defaults Entry Type" on page 258).

If nothing is specified, no status changes are propagated. If E2E is specified, the application group will be shown on the e2e domain view. This applies only to application groups that are directly attached to a system or sysplex. For others, the specification will be ignored.

Owner
Specifies who the operator should contact if there is an error.

Info Link
This field can be used to specify a location (for example, a URL) where additional information about the application can be found.

Automatically link Application-Resources
Specifies whether linked applications should also be automatically linked as resources. See also Automatically link in "Creating a New ApplicationGroup" on page 102.

APPLICATIONS Policy Item

If you select an application group policy item APPLICATIONS, you reach the Applications for ApplicationGroup panel.

Figure 84 on page 109 shows an example.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXC4E             Applications for ApplicationGroup      Row 1 to 13 of 106
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : NET                   Enterprise Name : USER_ENTERPRISE

Action      Status            Application
__________  SELECTED          CICSAR1
__________                    CPSMCMAS
__________                    CPSMWUI
__________                    CICS1FOR
__________                    CICSMAIN
__________                    CICS1TOR
__________                    DB21IRLM
__________                    DB21MSTR
__________                    DWH
__________  SELECTED          TCPIP
__________  SELECTED          VTAM
__________                    WBSRV
```

Figure 84. Applications for ApplicationGroup Panel for System Application Groups

Here you can add or remove applications from an application group. If you add an application to an application group that is already linked to a system, SA z/OS will generate a resource for this application.

If you previously set the option **Automatically link Application-Resources** to YES when creating the application group, SA z/OS will also add the new resource into this application group. Otherwise, you simply have an independent application resource that you can start, stop, or automate as required.

TRIGGER Policy Item

If you select the TRIGGER policy item of an application group, you reach the Trigger for ApplicationGroup panel if triggers have been defined for the application group.

Figure 85 on page 110 shows an example. Use the panel to add triggers to or remove them from an application group. For more details about triggers, see the section "Event and Trigger Support" in *IBM System Automation for z/OS User's Guide*.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXC4E             Trigger for ApplicationGroup             Row 1 to 4 of 4
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : APPL_GROUP_NAME       Enterprise Name : USER_ENTERPRISE

Action      Status            Trigger
__________                    CICSK34
__________                    CICSK42
__________                    TRIGGER1
__________                    XRFTRIG
```

Figure 85. Trigger for ApplicationGroup Panel

SERVICE PERIOD Policy Item

If you select the SERVICE PERIOD policy item of an application group, you reach the Service Period for ApplicationGroup panel if service periods have been defined for the application group.

Figure 86 on page 110 shows an example. Use the panel to add service periods to or remove them from an application group.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXC4E             Service Period for ApplicationGroup       Row 1 to 6 of 6
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : APPL_GROUP_NAME       Enterprise Name : USER_ENTERPRISE

Action      Status            Service Period
__________  SELECTED          CICSK42
__________                    IMS711C4
__________                    IMS712CX
__________                    IMS722CX
__________                    IM631C4
__________                    SERVP1
```

Figure 86. Service Period for ApplicationGroup Panel for System Application Groups

RELATIONSHIPS Policy Item

The Relationship Selection List panel (Figure 87 on page 111) is displayed if you select policy item RELATIONSHIPS from the Policy Selection panel for applications. It shows information about existing relationships and allows you to define new relationships.

The ACTION pull-down choice offers actions to edit and delete selected relationships. The **D**elete command immediately deletes the relationship. The **E**dit command leads to the Define Relationship panel (as shown in Figure 87 on page 111).

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXREL                  Relationship Selection List
Command ===> ____________________________________________________________________

Entry Type : Application          PolicyDB Name   : USER_PDB
Entry Name : APPL1                Enterprise Name : USER_ENTERPRISE

External Startup . . . . . ________      (INITIAL ALWAYS NEVER blank)
External Shutdown. . . . . _______       (FINAL ALWAYS NEVER blank)

Action  #   Type             Supporting Resource               Auto    Chain
_______ 1_  HASPARENT        VTAM/APL/=
_______ __  MAKEAVAILABLE    S/APG/=                           ACTIVE  WEAK
```

Figure 87. Relationship Selection List Panel

This panel displays information about existing relationships. In all of the relationships for the current resource, this resource is the dependent resource. The columns have the same meaning as described in “Defining Relationships” on page 111.

If the application is linked to a class, the **External Startup** and **External Shutdown** fields in the subheader area show inherited data individually, however the relationships are inherited only as a whole if no relationships are defined for the child object.

You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line, moving the cursor to the field of interest and pressing Enter.

If the application has inherited relationships from a class, only these are displayed in a different color. If you change one of these relationships, all the inherited relationships become specific to that particular class or instance (and thus change color to reflect this).

Entering the NEW command from this panel to define new relationships takes you to the Define Relationship panel described in “Defining Relationships” on page 111.

The External Startup and External Shutdown fields are the ones from “APPLICATION INFO Policy Item” on page 132 (see Startup Parameters and External Shutdown for details).

Defining Relationships

You define relationships between dependent resources and supporting resources. In the customization dialog you always define relationships from the point of view of the dependent resource. So the resource that you are currently editing becomes the dependent resource for the relationship dependency that is being defined.

If you select this policy item, the Define Relationship panel is displayed, as shown in Figure 88 on page 112. You specify the name of the supporting resource in the **Supporting Resource** field.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGXRE0                       Define Relationship
Command ===> ____________________________________________________________________

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : APPL_GROUP_NAME       Enterprise Name : USER_ENTERPRISE

                                                                    More:     +
Automation Name    :  APPL_GRP_01
Description. . . . . ____________________________________________

Relationship Type. . HASPARENT_______          MAKEAVAILABLE MAKEUNAVAILABLE
                                               PREPAVAILABLE PREPUNAVAILABLE
                                               HASPARENT HASPASSIVEPARENT
                                               HASMONITOR PEEROF
                                               FORCEDOWN EXTERNALLY
Supporting Resource. VTAM/APG/=_____________________________
                                               Resource Name
Sequence Number. . . 1_                        Sequence Number  (1-99,blank)

Automation . . . . . _______                   ACTIVE PASSIVE
Chaining . . . . . . ______                    STRONG WEAK
Condition  . . . . . ____________________________________________
                                               Satisfy condition
                                               (? for list of possible values)
```

Figure 88. Define Relationship Panel

This panel shows either the automation name (**Autoname**) for ApplicationGroups, or the subsystem name (**Subsystem**) for Applications.

This panel contains the following fields:

Description
You can enter text up to 40 characters describe the relationship. It is stored only in the policy database and is not created in the automation configuration files.

Relationship Type

Define the relationship between the application group, referred to as the *dependent resource*, with any other resource, referred to as the *supporting resource*. The supporting resource can be an application, application group, monitor resources, or resource references.

Relationships and conditions are only observed by automation if the requested goal of the resources that are involved allow them. Dependencies are only checked if they are of importance to the existing desired goal.

Enter one of the following values:

MAKEAVAILABLE
The dependent resource cannot be started until the specified **Condition** has been fulfilled for the supporting resource. For example, if you specify WhenAvailable as the relationship condition, SA z/OS starts the dependent resource as soon as the supporting resource itself is available, if no request or goal contradicts this.

If a goal is not explicitly specified, the default goal is to make the resource available.

MAKEUNAVAILABLE
The dependent resource cannot be stopped until the specified **Condition** has been fulfilled for the supporting resource.

PREPAVAILABLE
If the desired goal of the resource is *MAKEAVAILABLE*, the PRESTART commands for the dependent resource are issued as soon as the specified **Condition** has been satisfied for the supporting resource.

PREPUNAVAILABLE
If the desired goal of the resource is *MAKEAUNVAILABLE*, the SHUTINIT commands for the dependent resource are issued as soon as the specified **Condition** has been satisfied for the supporting resource.

FORCEDOWN
This forces a shutdown of the dependent resource if the supporting resource has reached its specified satisfactory condition.

EXTERNALLY
At certain times the supporting resource performs various automated actions for the dependent resource. These actions are specified through the relationship condition (see Condition). For example, with this selection you specify that an external resource is responsible for starting or stopping the current (dependent) resource.

HASMONITOR
Use this for relationships that define connections between application or application group resources and monitor resources.

HASPARENT
With this selection you specify that the current application or application group has a *parent*. The parent is the supporting resource that you specify in the **Supporting Resource** field (see Supporting Resource).

The dependent resource cannot be started until the supporting resource is available.

The supporting resource cannot be stopped before the dependent resource is unavailable.

At certain times the supporting resource performs various automated actions for the dependent resource. These actions are specified through the relationship condition (see Condition). For example, if you specify StartsMe as the relationship condition, the supporting resource starts the dependent resource whenever the supporting resource is started.

A request to start the dependent resource results in issuing a start request against the supporting resource if the supporting resource is down.

HASPASSIVEPARENT
The only difference between the HasPassiveParent and HasParent relationship is that a request to start the dependent resource does not result in the issuing of a start request against the supporting resource if the supporting resource is down. A start request must be issued against the supporting resource before the start request for the dependent resource is processed.

PEEROF
The PEEROF relationship means that any MakeAvailable votes that arrive at the supporting resource are propagated to the dependent resource.

Any MakeUnavailable votes that arrive at the supporting resource are *not* propagated to the dependent resource unless SCOPE=ALL has been specified.

Supporting Resource
Here you enter the name of the resource that the dependent resource has the previously defined relationship with. This name consists of two or three parts, separated by slashes, where the last part shows the system name. You can use the equal sign (=) which then stands for the local system of the dependent resource. The syntax for valid formats is similar to the syntax for generated resources:

```
APG-AutomationName/APG              (for sysplex APG)
APG-AutomationName/APG/MVSSysname   (for system  APG)
APG-AutomationName/APG/=            (for system  APG)
SubSystemName/APL/MVSSysname        (for APL)
SubSystemName/APL/=                 (for APL)
MonitorName/MTR/MVSSysname          (for MTR)
MonitorName/MTR/=                   (for MTR)
```

If the supporting resource is an APL resource, an MTR resource, or a system APG resource, one system automation symbol (&AOCCLONE., ~ or &AOCCLONE*x*. with *x*=1 through 9, A through Z) can be specified in the name. System symbols cannot be specified.

For *MVSSysname*, the special notation with a trailing plus sign for an alternate system and the special notation with a trailing minus sign for a tertiary system are allowed.

Sequence Number
This number is used when the ACF is built. Each relationship that has a number assigned to it is put in the ACF PARENT=(...) field. The first subsystem name in the list where the subsystem is defined in the current sysplex is used for AOCQRY. The position in the list is given by this number. Relationships with the same number are sorted within their sequence number. Valid values are 1 - 99 and blank.

Specifying this number is only valid for APL resources with a local system specification, that is, `subsysname/APL/=`. The number is forced to blank for relationships where the supporting resource is an APG , an MTR or an APL without a local system specification.

Automation
Defines the processing of SA z/OS to satisfy the specified relationship as follows:

ACTIVE
Specifies that SA z/OS attempts to bring the resource to the desired condition to satisfy the dependency. This is the default for MAKEAVAILABLE and MAKEUNAVAILABLE.

PASSIVE
Specifies that SA z/OS waits until the resource is in the desired condition to satisfy the dependency. That is, the request to bring the resource into the desired condition needs to come from outside, such as an operator command.

This field is forced to `blank` for the following relationships:

- HASMONITOR
- HASPARENT
- HASPASSIVEPARENT
- EXTERNALLY
- FORCEDOWN
- PEEROF

It is forced to `PASSIVE` for the following conditions:

- WhenGroupHasNotFailed
- WhenHardDown
- Any WhenObserved... condition.

Chaining
Defines whether the status of the supporting resource or attached subtree is to be considered:

STRONG
SA z/OS considers the status of the attached subtree.

WEAK
SA z/OS considers only the status of the supporting resource (this is the default for MAKEAVAILABLE and MAKEUNAVAILABLE).

This field is forced to `blank` for the following relationships:

- HASMONITOR
- HASPARENT
- HASPASSIVEPARENT
- EXTERNALLY
- FORCEDOWN
- PEEROF

It is forced to `WEAK` for PREPAVAILABLE and MAKEAVAILABLE relationships with a WhenGroupHasNotFailed condition.

Strong chaining causes SA z/OS to check all the relationships of the resources along the attached subtree. Weak chaining simply requires that the action is allowed on the dependent resource.

In the example shown in Figure 89 on page 115 for strong chaining, SA z/OS also considers the dependencies between resources B and C, and B and D: A is only started if B, C, and D are up, or C is only stopped if A and B are down.

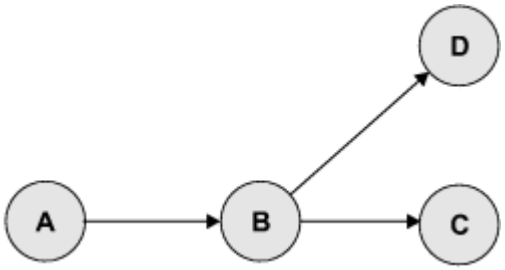


Figure 89. Example of Strong Chaining

Condition

Defines the condition that the supporting resource must have to satisfy the relationship. Enter ? to go to the Relationship Condition Selection panel from where you can select an appropriate value.

See "Relationship Conditions" on page 115 for more information on available condition values and the context that they may be used in.

If no value is entered for this field the following default values are set:

Relationship	Default Condition
FORCEDOWN	`WhenObservedDown`
HASMONITOR	Forced to `blank`
MAKEAVAILABLE	`WhenAvailable`
MAKEUNAVAILABLE	`WhenDown`
PREPAVAILABLE	`WhenAvailable`
PREPUNAVAILABLE	`WhenDown`
HASPARENT	`blank`
HASPASSIVEPARENT	`blank`
PEEROF	Forced to `blank`
EXTERNALLY	`StartsMe`

Relationship Conditions

The relationship conditions that are available depend on the relationship.

See the online help for details of available relationship conditions.

RESOURCES Policy Item

When you select the RESOURCES policy item, you are first presented with a selection panel if the application group is linked to more than one system or sysplex.

There are three different panels depending on whether the application group is of type Server, Move, or Basic. The panel shown in Figure 90 on page 116 is for an application group of type Server.

If you want to add resource members to an application group of nature MOVE or SERVER, you can attach preference values to those resources (using the **Preference** column in Figure 90 on page 116).

With this policy, you can add the following resources to the application group:

- Application groups

- Applications
- Monitor resources
- Resource references

To get a list of all selectable resources, set 'Show all Resources' to YES.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGARS2                        Select Resources              Row 1 to 4 of 4
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type  : ApplicationGroup       Entry Name : SYSPLEX_APPLGROUP
Sysplex     : SYSPLEX_GROUP_01

  Number of selected Resources   : 4
  Availability Target. . . . . . . *ALL     (-3 to 4 , *ALL)
  Satisfactory Target. . . . . . . *ALL     (Level at which group is available)
  Show all Resources . . . . . . . NO        YES NO
  Show only Resources with String. ____________________________________

Action    Preference  Resource Name           Entry Name
_________ 700         SYSPLEX_JOB/APL/FOCB    SYSPLEX_JOB
_________ 700         SYSPLEX_JOB/APL/FOC1    SYSPLEX_JOB
_________ 700         SYSPLEX_JOB/APL/TGT1    SYSPLEX_JOB
_________ 700         SYSPLEX_JOB/APL/TGT2    SYSPLEX_JOB
```

Figure 90. Select Resources for ApplicationGroup Panel

This panel has the following fields (unless stated, the fields apply to all application group types):

Number of selected Resources
This shows the current number of selected Resources.

Availability Target
This Availability Target is different depending on the type of application group:

Server
Valid values for server application groups are:

***ALL**
This means that all selected resources must be *available* before the current application group-derived resource is considered as *available*.

number
This (positive) *number* is the number of selected resources that must be *available* before the current application group-derived resource is considered as *available*. This number must be less than or equal to the value in the **Number of selected Resources** field.

If you enter a value that is greater than e value in the **Number of selected Resources** field, it is changed to the maximum allowed when you leave the panel.

-number
This (negative) *number* is the number of selected resources *less than* the total that must be *available* before the current application group-derived Resource is considered as *available*. This number must be less than the value in the **Number of selected Resources** field.

If the value entered is less than or equal to the minimum value that is allowed, it will be changed to the minimum when you leave the panel.

Move
The Availability Target is always 1. This field cannot be modified for move application groups.

Basic
The Availability Target is not applicable and is not displayed for basic application groups.

Satisfactory Target
The Satisfactory Target is only applicable to server application groups. It specifies the number of members in the group that must be active before the automation manager treats the group as being in a satisfactory state.

Valid values for server application groups are the same as for the Availability Target.

The Satisfactory Target may be less than, or equal to the Availability Target, but cannot be higher.

If the Satisfactory Target is of type *-number* then it is treated relative to the adjusted Availability Target.

Show all Resources
This can be:

YES
Shows all selectable resources of type APL, APG, and REF.

NO
Only shows *selected* resources.

Show only Resources with String
If you enter a string in this field, only matching resources are listed. Wildcards are not supported.

Action
The following actions are valid from the ACTIONS menu and Action prompt:

Action	Result
(P)RIMARY	Sets the preference value to 700.
SECON(D)ARY	Sets the preference value to 400.
(A)DD	Sets the preference value to 700.
RE(M)OVE	Removes the preference value.
(S)ELECT	Sets the preference value to 700.

Preference
A resource becomes SELECTED when a positive number is entered to this field. The preference value says what "role" the selected resource has. The maximum valid value is 3200. Any value greater than 3200 will be changed to that valid maximum.

The following roles are related to the preference values given:

>2600
The resource always selected regardless of its state. Use this value if the APL or APG resource must run.

≥2000
The resource always selected unless the observed status of the resource is SYSGONE or HARDDOWN. It is only selected when no other viable member exists. A viable member is a resource that can be started and that is allowed to be started. In principle, the observed status is one of the following: SoftDown, Starting, Degraded, Available or WasAvailable.

1000
The resource always started, other resources stopped. (Use if you really want the APL or APG resource to run).

700
The resource is selected for startup after an IPL and after recovery situations. Members with preference 300 will be stopped in favour of this group. It is not stopped unless a very high preference alternative becomes available. This value is the default. Use it in a MOVE group for a resource that normally runs.

<600
Used as a threshold. A resource with a preference of 599 and lower will not be selected at group startup.

500
This resource is not selected for startup after IPL but it is started as a backup after failure and continues running even though normal preference (700) alternatives become available. It is stopped at the next (scheduled) outage. Use this value in a MOVE group for the backup resource.

400
This resource is not selected for startup after IPL but it is started as a backup after failure. The difference to preference 500 is that the resource is stopped when normal preference (700) alternatives become available again.

300
Like 200, but a move to an alternate backup (Preference 500) would only occur at a (scheduled) outage.

200
Resource started as backup, stopped as soon as better alternative (Preference 450 and greater) becomes available. (Use where you can have a backup, but you don't really want one).

1
This means that the member will always be deselected and will always have a MakeUnavailable vote propagated to it. This can be useful if you want complete manual control of the move process.

0
This means that the member is a passive member and will never get a vote propagated to it by the group. If a member has its preference changed so it becomes passive, any votes that have been propagated to it from the group will be withdrawn.

Note: SA z/OS offers the possibility to consider the *workload* in its decision making via resource aware application move. This only takes place if the applications in a system or sysplex have the *same* effective preference values. It also does not affect any preference values that you have defined for your resources. For more details, see "Resource Aware Application Move" in *IBM System Automation for z/OS User's Guide*.

Preferences other than those listed are accepted. You can find more information on the meaning of preferences in "Controlling Application Move with Preference Values" in *IBM System Automation for z/OS User's Guide*.

The effective preference of each group member is calculated to determine which group members get picked to be activated by the group. The primary inputs into this are the base preference (as specified through the customization dialogs) and the preference adjustment (specified indirectly through the INGGROUP interface). These are added together to produce the resource's adjusted preference (this is the same as the preference value you actually enter the INGGROUP panels).

The following modifiers are then applied to the resource's adjusted preference if it is >1.

Bonus	Reason
25	The member is currently selected and has an adjusted preference ≤1000.
175	The member is currently selected and has an adjusted preference >1000.
220	The member has an observed status of Starting, Stopping or Degraded and the system is not being stopped.
225	The member has an observed status of Available and the system is not being stopped.
–400	The member has an adjusted preference >1500 and either the system is being stopped or the system has already been stopped and the member thus has observed status of SysGone.

The working value for the preference may then be set to an absolute value if any of the following conditions are satisfied:

Value	Condition
3600	• The member has an adjusted preference of 0 (indicating a passive member) and it has an observed status of Starting, Degraded, Available, or WasAvailable. • The member at startup is of a Move group. This preference is assigned temporarily and makes sure that no other member is selected.
100	The member has a working preference between 2–2599 and requires a resource on an Avoided system.
1	The member has: • An adjusted preference of 0 (indicating a passive member) and its observed status is none of Starting, Degraded, Available or WasAvailable. • A working preference of 2000–2599, there is a viable alternative resource and the member either has an observed status of HardDown or SysGone or the system that it is on is being stopped. • A working preference <2000 and has observed status of HardDown or SysGone. • A working preference <2600 and has observed status of StandBy, Unknown or Problem. • A working preference <2600, has observed status of Stopping or SoftDown and its automation flag is turned off. • A working preference <2600 and requires a member on an excluded system.

After all of these adjustments have been made, this produces the member's effective preference. Normally a Move or Server group will pick the members with the highest effective preferences to be available, however there are three special rules to take into consideration:

1. A member with an effective preference of 1 may never be picked. SA z/OS sends a MakeUnavailable vote.
2. A member with an effective preference <600 may only be picked if the group is in recovery mode (that is, it is recovering from a failure).
3. A member requiring a resource on an excluded system must be sent a MakeUnavailable vote, even if it has been picked. This can occur with resources that have adjusted preferences >2600.

Various scenarios are described in Table 6 on page 119.

Table 6. Preference Value Scenarios

Scenario	Description
Absolute manual control	Member to be activated gets preference 3200, all others get preference 1. The member with the 3200 preference will be selected. All others will always have a MakeUnavailable vote propagated to them. This does not change even if the system with the selected member leaves the sysplex. A shutdown of the primary system will not initiate a move of the application, as the 400 point penalty is not sufficient to drop its preference below 2600.

Table 6. Preference Value Scenarios (continued)

Scenario	Description
Move only after system failure	Primary member defined preference 2800, backups preference 500. As long as the primary is not SYSGONE it will be selected. If the primary is SYSGONE, its preference drops to 2575 (2800 – 400 + 175), allowing an alternative viable member to be selected. The backups will only be viable if the resource was previously active because of the groups recovery mode. A shutdown of the primary system will not initiate a move of the application. Although the primary systems preference will be below 2600, there will be no viable alternatives as the backups may only be used if the group is in recovery mode.
Move only if system down or stopping	Primary member defined preference 2800, backups preference 700. As long as the primary member is not SYSGONE and its system is not being stopped it will be selected. If the primary member is SYSGONE or its system is being stopped, its preference drops to 2575 (2800 – 400 + 175), allowing an alternative viable resource to be selected. The backups are always viable. A shutdown of the primary system will initiate a move of the application during the shutdown.
Sticky move only after system down or stopping	Primary member defined preference 2801, backups preference 2800. As long as the primary member is not SYSGONE and its system is not being stopped, it will be selected. If the primary becomes SYSGONE or its system is being stopped, its preference drops to 2576 (2801 – 400 + 175), allowing one of the backups to be selected. The sticky bonus raises its preference to 2975 (2800 + 175), meaning that even when the primary returns the selected backup system will remain selected. It will only be deselected if it goes to SYSGONE or its system is being stopped, in which case the primary will be re-selected if it is available otherwise another backup would be picked. A shutdown of the primary system will initiate a move of the application during the shutdown.
Move only after system or application failure	Primary member defined with preference 2400, backups preference 500. As long as the primary member does not fail to SYSGONE or HARDDOWN it remains selected. If it gets to HARDDOWN or SYSGONE without failing, there are no viable alternatives, so it will not be moved. If it does fail, its preference is between 2600 and 2000 and the backups are viable, so one of them can be picked. The backups are only viable if the group is in recovery mode (that is, the member was active when the failure occurred).

Table 6. Preference Value Scenarios (continued)

Scenario	Description
Move only if system down, being stopped or application failure	Primary member defined with preference 2400, backups preference 700. As long as the primary member is not SYSGONE or HARDDOWN and its system is not being stopped it remains selected. If it is HARDDOWN or SYSGONE or its system is being stopped its preference is between 2600 and 2000, so a viable alternative can be selected. A shutdown of the primary system will initiate a move of the application, as it will have lost its 225 point bonus for being available and have incurred a 400 point penalty, bringing its preference down to well below 2600, allowing the selection of an alternative resource if there is a viable one.
Sticky move if system down or being stopped, move after application failure	Primary member defined with preference 2401, backups preference 2400. As long as the primary is not SYSGONE or HARDDOWN and its system is not being stopped it remains selected. If it is SYSGONE or HARDDOWN or its system is being stopped its preference is between 2000–2600, so a viable alternative may be chosen. The sticky bonus raises the preference of the selected member to 2575 (2400 + 175), so it will remain selected until it gets to a state of SYSGONE or HARDDOWN or its system is being stopped, at which point another viable alternative will be selected, with the primary member having preference. The individual shutdown of the active member will not trigger a move. A shutdown of the primary system will result in a move of the application. It will have a 400 point penalty, dropping its preference to between 2600 and 2000, permitting the selection of a viable alternative.
Sticky move group, unless member stopped	Primary member defined with preference 701, backups preference 700. As long as the primary member is startable, it remains selected. If it becomes non-startable, another member is selected and that remains selected as long as it is startable. Individually stopping the active member will trigger a move. If the members were defined with preferences >1500, the bonus would be 175 points rather than 25 points.
Sticky move group, until told otherwise	Primary member defined with preference 3200, backups with preference 1600. With base preferences of 3200, you get it picking a member when the sysplex is IPLd and retaining that one until an operator uses INGGROUP to make it pick another one. Beware of timing problems as the first system with a member to register will probably get it.

GENERATED RESOURCES Policy Item

The Generated Resources panel appears if you select the GENERATED RESOURCES policy item from the Policy Selection panel for ApplicationGroups. This panel shows all resources that are generated by SA z/OS for the application group itself and all the resources for the applications that are members of this application group.

This panel is for information only. No actions are allowed.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGXRSG                      Generated Resources            Row 1 to 8 of 8
Command ===> _____________________________________________  SCROLL===> PAGE


Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : NET                   Enterprise Name : USER_ENTERPRISE

 Resource Name                  Generated by link to
 _  Resources for THIS entry:
 NET/APG/SYSTEM1                SYSTEM1
 NET/APG/SYSTEM2                SYSTEM2
 _  Resources for APPLICATIONS  (generated by links to this entry):
 TCPIP/APL/SYSTEM1              NET
 TCPIP/APL/SYSTEM2              NET
 VTAM/APL/SYSTEM1               NET
 VTAM/APL/SYSTEM2               NET
```

Figure 91. Generated Resources Panel

This panel displays the following information:

Resources for THIS entry
Shows the resources generated for the application group. The display is different for application groups of type SYSPLEX or SYSTEM: No system information is shown for Sysplex Application Groups, as several systems can be part of the sysplex.

Resources for APPLICATIONS (generated by links to this entry)
Shows the resources generated for applications that are linked to the application group.

MEMBER OF Policy Item

The Member of panel appears if you select the MEMBER OF policy item from the Policy Selection panel for application groups.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGXMOF                        Member of
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type : ApplicationGroup      PolicyDB Name   : USER_PDB
Entry Name : APPL_GROUP_NAME       Enterprise Name : USER_ENTERPRISE

 Own Resource...           ...is a member of         Preference  Nature
 NET/APG/SYSTEM1           WBSRVAPG/APG              700         MOVE/SERVER
 NET/APG/SYSTEM2           WBSRVAPG/APG              700         MOVE/SERVER
```

Figure 92. Member of Panel for ApplicationGroups

This panel lists all resources, where this ApplicationGroup is a member "resource-wise", that is, it lists all relations from resources that have been derived from the current ApplicationGroup to other resources. This panel is for information only. No data can be changed.

A Member of relation can be added or removed in the RESOURCES policy item of the entry that is given in the **...is a member of** column (that is, in the RESOURCES policy of the APG Entry Name that the "member of" resource was derived from).

If the owning APG resource (given **...is a member of**) is of nature SERVER or MOVE, the **Preference** column shows the preference value that was set for the current resource in the RESOURCES policy item of the owning resource. If the owning resource's nature is BASIC, the **Preference** column shows "SELECTED". For more details about available preference values see “Creating a New ApplicationGroup” on page 102.

In the example in Figure 92 on page 122, the resource NET/APG/SYSTEM1 is a member of resource WBSRVAPG/APG.

Application Entry Type

An *application* is a z/OS subsystem, started task, application, batch job, or non-MVS resource that runs on a system in the SA z/OS enterprise. SA z/OS monitors applications through the messages they issue to the operator. The term application is also used to refer to a subsystem or process on an SNMP-capable machine.

Note that SA z/OS does not provide automation for applications on non-MVS systems.

An application cannot be linked to a system directly. It must be defined as part of an application group, and it may belong to more than one application group. If a system is assigned multiple application groups containing the same application, SA z/OS ensures that the application is defined only once in the automation control file.

Creating a New Application

How to create new policy objects in general is described in “How to Create New Policy Objects” on page 19.

Figure 93 on page 123 shows the panel that is displayed when you create a new application from the Entry Name Selection panel for applications.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN3                            Define New Entry
Command ===> ____________________________________________________________________

Define new entry of type Application

  Entry name . . . . . . . ____________________

  Subsystem Name . . . . . ____________
  Object Type  . . . . . . INSTANCE     (CLASS INSTANCE)
  Category . . . . . . . . _________    (IBM-defined, user-defined or blank,
                                         see help)
  Subcategory  . . . . . . __________   (IBM-defined, user-defined or blank,
                                         see help)
  Job Type . . . . . . . . _________    (MVS NONMVS TRANSIENT)
  Job Name . . . . . . . . ____________________
  Transient Rerun  . . . . ___          (YES NO)
  Scheduling Subsystem . . _________    (MSTR, JES Subsystem)
  JCL Procedure Name . . . ____________________

  Short description  . . . ________________________________________________
  Long description 1 . . . ________________________________________________
  Long description 2 . . . ________________________________________________
  Long description 3 . . . ________________________________________________
  Long description 4 . . . ________________________________________________
  Long description 5 . . . ________________________________________________
```

Figure 93. Define New Entry Panel for Applications

When you define a new application, you provide the following information:

Entry Name
This field is required. It assigns a unique twenty-character name to the application you are defining. It is often convenient to use the same name for both the subsystem name and the application name. In some cases, however, it may be useful to have multiple applications with the same subsystem name.

This enables you to have a standard "tree" of subsystems but to assign the right characteristics of an application to a specific system. The first character of the application name must not be numeric.

Subsystem Name
The subsystem name is required. It defaults to the application's entry name if the entry name complies with the restrictions for subsystem names (see below). Press Enter to have the default displayed in the field.

The subsystem name provides a unique, eleven-character name for the Application that you are defining. This name is used by SA z/OS automation. You can have multiple application instances with the same subsystem name, however, you should take care to ensure that only one of them is linked to any given system. The subsystem name of an application class must be unique across the whole policy database, that is, it cannot be the same as the subsystem name of any other application instance or class.

Note that the subsystem name of an existing application can be modified by overtyping the **Subsystem Name** field in the Application Information policy panel.

The restrictions on the subsystem name are:

- The length is limited to eleven characters.
- Valid characters are any alphanumeric character or any of @, #, $, ? or _ (underscore), with the first character being alphanumeric or one of @, #, $ or ?.
- See the online help for a list of values that are reserved for SA z/OS and cannot be used.

For applications of category IMAGE, the same value is required for the subsystem and the job name. Therefore the subsystem name must comply with the restrictions for job names (see Job Name).

Object Type

CLASS
If the entry represents common policy that is to be inherited by one or more other application entries that are defined as INSTANCEs, select this object type. CLASSes are used only for inheriting; they do not represent actual applications that are managed by SA z/OS.

INSTANCE
If the entry represents an application that is to be managed by SA z/OS, select this object type. If you link an INSTANCE to a CLASS you can omit policy items from the INSTANCE, which permits that policy data can be inherited from the specified CLASS.

Use of the CLASS object type allows you to define a common policy for multiple applications. This is advisable if these applications share common characteristics and functions. It decreases effort during:

- Initial definition
- Administrative changes (using the customization dialog)
- Runtime changes (using the SA z/OS automation engine)

An application instance can be linked to a class using the UPWARD CLASS policy item. If a policy item is not specified for the instance, it is inherited from the class. Conversely, a policy item that is specified for an instance overrides any class specification.

Flag definitions for classes or defaults cannot be merged with specific resource definitions. For example, specifying a RESTART flag with an exit at class level and a RESTART flag with a NOAUTO period at resource level will not result in a resource definition with both. The presence of any definition at resource level takes precedence over those at class and default level. Likewise a class definition takes precedence over a default. The definitions for a specific flag type are not merged.

The inheritance of policy items from an application class occurs during SA z/OS initialization. If an application policy item is not specified in either the application instance or the class, defaults are used from the application defaults, system defaults, and environment setup objects. Some policy items are required to be specified for an application instance. Except for job name, these same items need to be specified for an application class, but note they will never be inherited.

Category
Identifies IBM-defined or user-defined applications. For IBM-defined applications, specify one of the following: CICS, DB2, IMAGE, IMS, INFOSPHERE, ITM, JES2, JES3, LIFELINE, MQ, OPC, USS or TCPIP.

Specifying one of those categories may cause additional policy options, specific to the automation of those applications, to be displayed on the Policy Selection panel. These additional policy options are not displayed if the category is inherited from an application class.

Once specified, IBM-defined categories cannot be changed anymore. User-defined categories can be any alphanumeric text string and can be changed later at any time.

Subcategory
Specifies any IBM-defined or user-defined subcategory of the application for which a category was specified. An IBM-defined subcategory specifies the region type for CICS, DB2, and IMS, the subcategory for ITM, the component for LIFELINE, or the controller type for OPC.

The following IBM-defined values may be specified:

- **CICS**: AOR TOR FOR DOR QOR CMAS WUI
- **DB2**: MSTR SPAS IRLM DBM1 DIST WLMS ADMT
- **IMS**: CTL TP DBRC DLS FP BMP FDR
- **ITM**: KAHAGENT TEMS
- **LIFELINE**: ADVISOR AGENT
- **OPC**: CONTROLLER TRACKER SERVER DATASERVER

For applications of category IMAGE, INFOSPHERE, JES2, JES3, MQ, TCPIP or USS there are no IBM-defined subcategories available.

For user-defined subcategories, any alphanumeric text string can be specified.

Job Type
This can be one of:

MVS
This is the standard MVS job type that SA z/OS normally handles. It is typically monitored using the ASCB checker. This job type can be specified explicitly with JOBTYPE=MVS for an application, however, it is the assumed default if the Job Type entry is omitted from the definition of the application.

NONMVS
This is a type of resource that may be started by SA z/OS but which cannot be monitored using an ASCB check or the **MVS D A** method.

If the AOFATMON routine cannot be used to monitor this type of resource, either a user-provided application monitor routine is required or the message automation table must be correctly set up to maintain the job status accurately. This status is the only way of monitoring this class of job. NONMVS jobs must have STARTUP and SHUTDOWN commands defined.

TRANSIENT
This is a type of job that may be started by SA z/OS but terminates without the intervention of SA z/OS. It is a short running job that will generally, but not necessarily, terminate before SA z/OS does. It can be monitored using an ASCB check.

As far as monitoring is concerned, a TRANSIENT job is treated as a z/OS job, but it has special properties: transient jobs must START and END before their dependent applications are started.

You can specify shutdown passes for transient jobs if there is a possibility that they may need to be shut down by SA z/OS. These passes are optional.

Job Name
The job name is required. It defaults to the subsystem name if this complies with the restrictions on job names. Press Enter to have the default displayed in the field. For applications of category IMAGE, the job name is *forced* to the subsystem name. Thus, for applications of category IMAGE, the subsystem name *must* comply with the restrictions on job names.

The job name gives a unique name to the application to be run. There is a one-to-one mapping between the MVS job name and the subsystem name. SA z/OS automation interprets messages from MVS by taking the MVS job name and mapping it to the subsystem name.

You can have multiple applications with the same job name but you must ensure that only one of them is linked to a particular system. Duplicates are ignored by the BUILD function.

The restrictions on the job name are:

- It can be up to eight alphanumeric and national characters, including @, #, and $, after clone resolution, provided the first character is not numeric.
- If the job type is NONMVS, you can also use _ and ?.
- You can include system symbols and system automation symbols.
- The special value *MASTER* is allowed for applications without a category. If the object type is CLASS, a job name is not allowed.

For details about creating the start command, see JCL Procedure Name.

Transient Rerun
This field specifies whether a TRANSIENT application may be rerun within the lifetime of z/OS. The Transient Rerun option involves the concept of a *one-shot transient job*.

YES
This indicates that the job will be rerun as appropriate. SETSTATE can be used to set it to RESTART status, and it can be part of a shutdown request with the RESTART option set to YES.

NO
This indicates that the job will only be run once in the lifecycle of a particular z/OS. A value of NO affects the processing of the SETSTATE command. NO is the default value for transient jobs.

Note:

- On an initial automation policy load, such as at IPL, a one-shot transient will run, terminate and go to ENDED status. If a SETSTATE or INGREQ with restart is attempted it will be rejected because a one-shot transient is only allowed to run once in the lifecycle of a particular z/OS.
- A one-shot job remains in an ENDED state across a SA z/OS recycle.
- There are some situations when even one-shot transient jobs will be rerun:
  - If the automation status file is deleted and NetView is recycled, a one-shot transient job will be restarted.
  - If a job is deleted from the automation policy, status information for that job is deleted during a refresh of the policy. If a later refresh is used to redefine the application to automation, the application status is set to DOWN. This may also result in the restart of a one-shot transient job.

Scheduling Subsystem
This is optional. It is the name of the subsystem that is to schedule this application, as follows:

MSTR
The application is scheduled directly by the master scheduler subsystem.

other
The application is scheduled by another scheduling subsystem. The value entered is the name of that subsystem. The subsystem that is specified must be defined as category JES2 or JES3.

If you leave this field blank, it indicates that the application is scheduled by the primary JES.

For applications of category IMAGE the value is forced to blank.

JCL Procedure Name
The JCL Procedure Name is optional. It specifies the name of the JCL procedure that is used to create this instance of the application. If specified, the default start command for the application is:

```
MVS S procname,JOBNAME=jobname
```

Where *procname* is the JCL Procedure Name and *jobname* is the Job Name. If you do not specify a JCL procedure name, the default start command is:

```
MVS S jobname
```

You can include system symbols and system automation symbols (see "Assigning System Automation Symbols (AOCCLONE)" on page 7).

For applications of category IMAGE the value is forced to blank.

Policy Items for Applications

Figure 94 on page 127 shows the policy items that are displayed when an Application is selected from the Entry Name Selection panel.

Some of the policy items may be set for all application automation on a certain system via the application or system defaults. For example, Thresholds can be set to a default value for all applications. If the definition of an application has no value specified for Thresholds, the value specified in the Application Defaults is used. If no value is specified in the Application Defaults any value specified in System Defaults is used. See also "Application Defaults Entry Type" on page 241 and "System Defaults Entry Type" on page 239.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection             Row 1 to 20 of 20
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : APPL1                 Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  UPWARD CLASS         Select a class to inherit data from
__________  APPLICATION INFO     Define application information
__________  AUTOMATION FLAGS     Define application automation flags
__________  APPLICATION SYMBOLS  Define application symbols
__________  TRIGGER              Select trigger
__________  SERVICE PERIOD       Select service period
__________  PACING GATE          Select pacing gate
__________  RELATIONSHIPS        Define relationships
__________  MESSAGES/USER DATA   Define application messages and user data
__________  STARTUP              Define startup procedures
__________  SHUTDOWN             Define shutdown procedures
__________  THRESHOLDS           Define error thresholds
__________  MINOR RESOURCES      Define application minor flags and thresholds
__________  SYSTEM ASSOCIATION   Define primary and secondary associations
__________  -------------------- -----RESOURCES------------------------------
__________  GENERATED RESOURCES  List resources generated for this entry
__________  MEMBER OF            List resources where this entry is a member
__________  -------------------- ----------------------------------------------
__________  WHERE USED           List application groups linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 94. Policy Selection Panel for Applications

The unique policy items for Applications are:

UPWARD CLASS
This field is displayed if the application was defined as an INSTANCE or CLASS (see "Creating a New Application" on page 123). It lists all entries that have been defined as resource classes and allows you to select one class that this application should be linked to so that it inherits the policy values of that class or class chain.

See "UPWARD CLASS Policy Item" on page 130 for more information.

DOWNWARD CLASS/INST
This policy item is displayed if the application was defined as a CLASS (see "Creating a New Application" on page 123) and it lists all class or instance entries. You can add or remove classes or instances linked to this class.

See “DOWNWARD CLASS/INST Policy Item” on page 131 for more information.

APPLICATION INFO
This policy item displays the Application Information panel that shows the policy for the current application as entered when it was created. It is also used to define the application to SA z/OS automation. You can edit part of the policy information on this panel. The fields that contain policy information that you must not modify are read-only. To change read-only information, you must delete and recreate the application.

See “APPLICATION INFO Policy Item” on page 132 for more information.

AUTOMATION FLAGS
Automation flags allow you to enable and disable automation. You can disable automation for specific time periods or turn it off entirely. You can also enable or disable automation for specific automation phases, such as Initstart, Start, Recovery, Shutdown, and Restart, and for responses to specific messages and status changes within these phases.

Determine whether the automation flags currently set for your system at the system wide defaults and application levels are appropriate for this application. If they are not, define one or more application automation flags in either the application instance or class policy object.

For more information, see “AUTOMATION FLAGS Policy Item” on page 140 and the section "Automation Flags" in *IBM System Automation for z/OS User's Guide*.

APPLICATION SYMBOLS
Application symbols allow you to enter or update application symbols that can be set to various application-specific values. These can then be substituted using the runtime variables SUBSSYMBOL1 through SUBSSYMBOL9. Those variables can be used in a similar fashion to runtime variables like SUBSSPARM, SUBSSCHEDSS, SUBSJOB, etc.

For more information, see “APPLICATION SYMBOLS Policy Item” on page 142.

TRIGGER
Each application may be linked to one trigger. This policy item allows you to link the current application to a trigger. Only one trigger can be selected.

Triggers are used to control the starting and stopping of applications in a single system or a Parallel Sysplex. They determine the behavior of the requested action. For an application to be started, its desired status must be AVAILABLE and its startup trigger must be satisfied.

For an application to be stopped, its desired status must be UNAVAILABLE and its shutdown trigger must be satisfied.

For more information on how to use triggers, see “TRIGGER Policy Item” on page 214 and the section "Event and Trigger Support" in *IBM System Automation for z/OS User's Guide*.

SERVICE PERIOD
Service periods allow users to schedule the availability of applications, application groups, or monitor resources. With this policy item you can link a service period to the application so that it is automatically started up or shut down in the time frame specified with the service period.

For more information, see “SERVICE PERIOD Policy Item” on page 143.

PACING GATE
Each application may be linked to one pacing gate. Pacing gates are used to define a number of applications that may be started or stopped in parallel on one system. You can select a defined pacing gate from this panel or confirm its status. Only one pacing gate may be selected.

For more information, see “PACING GATE INFO Policy item” on page 217.

RELATIONSHIPS
Relationships are used to define dependencies between resources that are used to perform in a controlled way startup or shutdown actions of dependent and supporting applications, application groups, monitor resources, and resource references.

This policy item has the same functionality for entry types Application, ApplicationGroup, Monitor Resource, and Resource Reference. For each application, application group, monitor resource, or resource reference, you may specify several relationships. If you select this policy item, in the upcoming Relationship Selection List panel, you can view existing or define new relationships for the current application, application group, monitor resources, or resource references.

You define relationships between dependent resources and supporting resources. In the customization dialog you define relationships always from the point of view of the dependent resource. So the resource that you have currently selected will become the dependent resource, when you define a new relationship.

See “RELATIONSHIPS Policy Item” on page 110 for more information on viewing or defining dependency relationships.

MESSAGES/USER DATA

This policy item allows you to specify automated actions, such as the issuing of a command or reply, to be taken in response to a message issued by the application.

You can also specify some of the application statuses as messages to trigger the command of your choice.

How to proceed in specifying this policy item is described in “MESSAGES/USER DATA Policy Item” on page 144.

STARTUP

This policy item allows you to add, remove or modify startup procedures for the current application.

See “STARTUP Policy Item” on page 160 for more information how to specify the startup automation policy.

SHUTDOWN

You must specify NORMAL shutdown commands for any application that you want to automate with SA z/OS. You may also specify INIT, IMMED, FORCE, and FINAL shutdown commands.

Specifying shutdown commands or replies for the application allows the automation to perform application shutdowns. You can specify different shutdown commands or replies to be issued for the different types of shutdown situations.

How to achieve this is described in “SHUTDOWN Policy Item” on page 163.

THRESHOLDS

Error threshold definitions for an application define how many abend errors can occur before a message is logged or restart processing is stopped. If no error thresholds are set here, the application uses the thresholds that are defined in the Application Defaults entry type.

Determine whether existing default threshold values are appropriate for this application. If they are not appropriate, create a unique threshold entry for the application.

For more information on thresholds, see the section "How SA z/OS Uses Error Thresholds" in *IBM System Automation for z/OS User's Guide* and “THRESHOLDS Policy Item” on page 169.

MINOR RESOURCES

This policy item allows you to define flags and thresholds for minor resources for the application. Minor resources are any resources specified to be subsidiary to this application, for example, messages and statuses.

The main purposes in defining minor resources are to let you:

- Trigger automation for minor resources
- Override the automation settings of major resources for a single minor resource, or a select number of minor resources

See the description of the MINOR RESOURCES policy item in “MVS Component Entry Type” on page 234 for information on how to manage minor resources and “MINOR RESOURCES Policy Item” on page 238.

The automation flags that are associated with minor resources are sometimes called extended automation flags. See "Automation Agent Flags and Minor Resource Flags" in *IBM System Automation for z/OS User's Guide* for information about them.

See also the section "Thresholds for Minor Resources" in *IBM System Automation for z/OS User's Guide*.

SYSTEM ASSOCIATION
This policy item allows you to define primary and secondary systems for the application. Primary and secondary categorizations help SA z/OS determine whether an application should be started by SA z/OS when SA z/OS is initialized on a system. These categories allow SA z/OS to perform automation, such as monitoring or shut down, on applications that can be moved by an external agent.

For a detailed description on how to define system categories with this option see “SYSTEM ASSOCIATION Policy Item” on page 172.

GENERATED RESOURCES
This policy item lists all resources that were generated for the current application. Application resources are generated when a link between an application and a system occurs. Applications can never be linked directly to systems. This link happens indirectly by linking an application to an application group (either in an application WHERE USED policy item or in an application group APPLICATIONS policy item.)

The GENERATED RESOURCES panel is displayed, which looks similar to the one shown in Figure 127 on page 172, except that the section, **Resources for THIS entry**, showing the application group resource is missing.

MEMBER OF
This policy item lets you see the APG Resources that the current application is a member of.

See “MEMBER OF Policy Item” on page 122 for more details.

UPWARD CLASS Policy Item

If you select the UPWARD CLASS policy item from the Policy Selection panel for Applications, the Upward Link to Class panel is displayed, as shown in Figure 95 on page 130.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXI2C                      Upward Link to Class           Row 1 to 13 of 23
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : AM                    Enterprise Name : USER_ENTERPRISE

Action      Status     Entry Name            Category        Upward Class Link
__________  SELECTED   C_AM
__________             C_AMK
__________             C_APPL
__________             C_CICS_GENERIC        CICS
__________             C_CICS_NV_PPI                         C_CICS_GENERIC
__________             C_CICS_PPI                            C_CICS_GENERIC
__________             C_CICS_SHAREDSERVERS
__________             C_CICS_TG
__________             C_CICS_XACTIONSERVER  CICS
__________             C_DB2_DEPENDENTS
__________             C_DB2_MSTR            DB2
__________             C_GEO
__________             C_IMS_APPLICATIONS    IMS
```

Figure 95. Upward Link to Class Panel

This panel allows you to manage the upward link from an application class or instance to a class of the same category. This link allows the instances or classes to inherit any policy data that has been defined in the selected class or other classes further up in the class chain.

- Use the **Action** field to manage the link by entering:

  - Add (A) or Select (S) to link the class or instance to this class
  - Remove (M) to unlink the class or instance from this class
- The **Status** column indicates whether this class or instance has been linked up to the class in the list.
- The **Category** column indicates what category the class in the list was defined as.
- The **Upward Class Link** column indicates the class, if any, that the entry in the list is currently upwardly linked to.

To avoid circular links, a check is made to ensure that the class you select is not already linked in the downward tree of the current class.

See "Nested Classes" on page 11 for more details about nested class support.

DOWNWARD CLASS/INST Policy Item

If you select the DOWNWARD CLASS/INST policy item from the Policy Selection panel for Applications, the Downward Link to Classes or Instances panel is displayed, as shown in Figure 96 on page 131.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXC2I            Downward Link to Classes or Instances  Row 1 to 13 of 125
Command ===>                                                 SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : C_AM                  Enterprise Name : USER_ENTERPRISE

Action      Status     Entry Name            C  Category     Upward Class Link
__________  SELECTED   AM                                    C_AM
__________  SELECTED   AM2                                   C_AM
__________             APPC
__________             ASCH                                  C_APPL
__________             BLSJPRMI
__________             C_APPL                *
__________             C_CICS_NV_PPI         *
__________             C_CICS_PPI            *
__________             C_CICS_SHAREDSERVERS  *
__________             C_CICS_TG             *
__________             C_CICS_XACTIONSERVER  *  CICS
__________             C_DB2_DEPENDENTS      *
__________             C_DB2_MSTR            *  DB2
```

Figure 96. Downward Link to Classes or Instances Panel

This panel allows you to manage the downward links from an application class to classes or instances of the same category. These links allow the instances or classes to inherit any policy data that has been defined in this class or other classes further up in the class chain.

- Use the **Action** field to manage the links by entering:
  - Add (A) or Select (S) to link the class or instance to this class
  - Remove (M) to unlink the class or instance from this class
- The **Status** column indicates whether the entry in the list has been linked down to by this class.
- The **C** column indicates with an asterisk (*) that the entry is a class because this may not be obvious from the entry name.
- The **Category** column indicates what application category the entry was defined as. Note that an application class that you are working with can only be linked to entries of the same category as itself.
- The **Upward Class Link** column indicates the class, if any, that the entry in the list is currently upwardly linked to. If you select such an entry, you would change its class chain, so be careful not to break its data inheritance

To avoid circular links, a check is made to ensure that the class you select is not already linked in the upward tree of the current class.

Both link panels show the category because class-instance links are only allowed if there is no category mismatch in the class hierarchy, that is, either the specified categories must be the same or no category is specified.

To avoid category mismatches, the categories of the link partner or the inherited categories are checked. A link is invalid if the resulting class chain includes category specifications that do not match (for example, a class or instance of category IMS and another class or instance of category CICS). Thus, if both link partners (the current entry and the linked class or instance) have a category specified it is checked that they are identical. If either link partner has no category specified, the class hierarchy that leads to this entry is scanned to check whether an inherited category may cause a mismatch. If this is the case, a detailed link error message that includes the names of the conflicting entries is displayed.

See “Nested Classes” on page 11 for more details about nested class support.

APPLICATION INFO Policy Item

If you select the APPLICATION INFO policy item from the Policy Selection panel for Applications, the Application Information panel is displayed, as shown in Figure 97 on page 133.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNA                  Application Information
Command ===> ____________________________________________________________

Entry Type : Application          PolicyDB Name   : USER_PDB
Entry Name : APPL1                Enterprise Name : USER_ENTERPRISE
                                                          More:     +
Category . . . . . . . . _________     (IBM-defined, user-defined or blank,
                                        see help)
Subcategory  . . . . . . ___________   (IBM-defined, user-defined or blank,
                                        see help)
Subsystem Name . . . . . APPL1
Job Type . . . . . . . . _________     (MVS NONMVS TRANSIENT)
Job Name . . . . . . . . APPL1_____________________
Transient Rerun. . . . . ___           (YES NO)
Scheduling Subsystem . . _________     (MSTR, JES Subsystem)
JCL Procedure Name . . . _____________________
Job Log Monitor Interval . ______      (mm:ss NONE)
Captured Messages Limit. . ___         (0 to 999)

Desired Available. . . . _________     (ALWAYS ONDEMAND ASIS)
Restart after IPL. . . . _________     (START NOSTART NONE)
Monitor for IPL complete . ___         (YES NO)

Start Delay. . . . . .   _________     (time for "UP" status checks, hh:mm:ss)
Start Cycles . . . . . . __            (start timeout checks, 0 to 99)
UP Status Delay  . . . . _________     (time to delay "UP" status, hh:mm:ss)
Restart Option . . . . . __________    (ALWAYS ABENDONLY NEVER)
External Startup . . . . _________     (INITIAL ALWAYS NEVER)
Skip ACTIVE status . . . ___           (YES NO)
Startup Parameters . . . .
                  ____________________________________________________________

External Shutdown. . . . ______        (FINAL ALWAYS NEVER blank)
Shutdown Pass Interval . _________     (hh:mm:ss)
Cleanup Delay  . . . . . _________     (hh:mm:ss)

Command Prefix . . . . . ____________________________
Message Prefix . . . . . ____________________________________________________
Sysname  . . . . . . . . _________     (System name)
Monitor Routine. . . . . _________     (name NONE)
Monitor Interval . . . . _____         (hh:mm NONE)
Inform List  . . . . . . ____________________
                         (SDF EIF E2E IOM ITM SMF TTT USR NONE)
ARM Element Name . . . . ____________________________________________
WLM Resource Name 1  . . ____________________________________________
WLM Resource Name 2  . . ____________________________________________
WLM Resource Name 3  . . ____________________________________________
Owner. . . . . . . . . . ____________________________________________________
Info Link. . . . . . . . ____________________________________________________

Runtokens. . . . . .

 ____________________________________________________________________________
____________________________________________________________________________
```

Figure 97. Application Information Panel

Any policy values that have been inherited from linked classes are displayed in a different color. You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line, moving the cursor to the field of interest and pressing Enter. You can override any inherited values by overtyping them. If you override any values for a class, they are individually applied to the current application and change color to turquoise to indicate this.

This panel displays the following information:

Category
Identifies IBM-defined or user-defined applications. See Category in “Creating a New Application” on page 123.

Subcategory
Specifies any IBM-defined or user-defined subcategory of the application for which a category was specified. See Subcategory in “Creating a New Application” on page 123.

Subsystem Name
This gives a unique, eleven-character name to the application that you are defining. This name is used by SA z/OS automation. You can have multiple application instances with the same subsystem name, however, only one of them can be linked to a system. The subsystem name of an application class must be unique across the whole policy database, that is, it cannot be the same as the subsystem name of any other application instance or class.

You can change the subsystem name by overwriting the existing name. If the application instance is linked, the name is checked to be unique across all subsystem names in the policy database. If you want to change the subsystem name to a name that already exists, you first need to unlink the application instance from all application groups.

If no subsystem name is specified, the default is the value of the Entry name (if this name is not longer than 8 characters for applications of category IMAGE, and not longer than 11 characters for all other categories).

For applications of category IMAGE the subsystem name can only be an 8-character name.

Certain values are reserved for SA z/OS and cannot be used. See the online help for a complete list.

Job Type
See Job Type in "Creating a New Application" on page 123 for more details.

Job Name
See Job Name in "Creating a New Application" on page 123 for more details.

Transient Rerun
See Transient Rerun in "Creating a New Application" on page 123 for more details.

Scheduling Subsystem
See Scheduling Subsystem in "Creating a New Application" on page 123 for more details.

JCL Procedure Name
See JCL Procedure Name in "Creating a New Application" on page 123 for more details.

Job Log Monitor Interval
Specifies how frequently the Job Log should be monitored. The frequency must be specified using format mm:ss. The allowed minimum is 1 second (00:01), maximum is 60 minutes (60:00). If the field is left blank the value can be inherited from a class definition. If monitoring is not required, specify NONE, to prevent inheritance.

If nothing is specified or inherited no monitoring will be done. If scheduling subsystem is MSTR, the specification is ignored.

Captured Messages Limit
Specifies the maximum number of *captured messages* that will be saved for the SA z/OS command DISPINFO.

If the field is left blank the value can be inherited from a class, the application defaults (ADF), or the system's default definition (SDF). If neither of these are specified a default value of 0 is used.

Desired Available
Lets you specify the default desired status of the resource. The desired state of each resource is either Available or Unavailable, which is the goal that automation tries to achieve.

You can specify the following values:

ALWAYS
The resource's desired status is set to Available, unless it is dependent on a resource that has a Desired Available setting of ONDEMAND. In this case the resource behaves as if it had a Desired Available setting of ONDEMAND itself.

ONDEMAND
If there is *demand* for the resource to be available, its desired status is set to Available, otherwise its desired status is set to Unavailable.

Demand arises either from propagated MakeAvailable votes or implicitly through membership of a non-passive basic application group (APG) that has a desired status of Available. Demand does not arise from dependent resources with a Desired Available setting of ALWAYS.

A MakeAvailable vote that is propagated to the resource overrides any demand considerations.

An active ONDEMAND member of a move or server group is always sent a vote that sets its desired status, thus overriding any demand considerations.

ASIS
The desired status is always set to the observed status. The resource remains in the status that it currently has and no action is taken by SA z/OS at any time, as long as there is no request placed for or propagated to the resource.

If you leave the field blank the value can be inherited from a class or the system defaults definition.

If nothing is specified or inherited the default value is ALWAYS.

Restart after IPL
Specifies how SA z/OS determines the initial status of the application on the first occasion that SA z/OS is started after a z/OS IPL or an automation status file reallocation.

Reallocating the automation status file has the same effect as a z/OS IPL because SA z/OS stores the last IPL date and time in the automation status file. When the automation status file is deleted, SA z/OS assumes that the next startup is the first startup following a z/OS IPL.

You can specify four values for Restart after IPL:

START
The application is always startable when the start dependency is fulfilled. The application status is set to DOWN during initialization. It is recommended that you specify START for critical applications such as JES, VTAM, and TSO. Replying NOSTART to message AOF603D (specify initialization options) overrides this setting.

NOSTART
This enforces a STOP request with priority FORCE to be injected during SA z/OS initialization. This results in a desired status of UNAVAILABLE and an observed status of SOFTDOWN, which produces a compound status of SATISFACTORY. If the observed status before IPL was HARDDOWN this status remains in HARDDOWN, which produces a compound status of PROBLEM.

NONE
This value is the same as leaving the field blank, except that if the application is an instance, it does not inherit the value from its related application class.

If you leave this field blank, it indicates that the application is startable, depending on its status. If the status is STOPPED, BROKEN or CTLDOWN, it is not changed and the application is not started. Any transient status (for example, BREAKING) is changed to the corresponding final status (for example, BROKEN). Any other status is changed to DOWN during initialization and, if the INITSTART flag is set to YES, the application is started when all its relationships are fulfilled.

Note: If the field is left blank then the DISPINFO panel AOFKINFO will display the value of MAYBE for field **Restart after IPL**.

Monitor for IPL complete
Specifies whether the application has to be in an AVAILABLE status before IPL is considered to be completed.

YES
indicates that it has to be in an AVAILABLE status.

NO
indicates that this is not the case.

If the field is left blank the value can be inherited from a class definition. If nothing specified nor inherited the default is NO.

Start Delay
Specifies an interval which begins when a start command for the application is issued by SA z/OS. After the expiration of this interval, a check occurs to determine whether the application recorded a status of STARTED and/or ACTIVE depending on the MVS active/inactive state at that time. Message AOF 571I is issued.

If nothing is specified the default supplied by the automation agent is used, which is 2 minutes.

Start Cycles
Specifies the number of times to cycle the start timeout period before posting the subsystem as a problem which means the application is given a STARTED2 or INACTIVE status.

If nothing is specified the default value is 1.

UP Status Delay
Specifies an interval which begins when the UP message is received and ACTIVMSG UP=MSG is triggered. The application will not be set to an UP status before the specified time has expired. If the field is left blank the value can be inherited from a class definition.

If nothing is specified or inherited the default value is 00:00:00 which means that there is no delay between receiving the UP message and setting the application to an UP status.

Restart Option
Specifies the circumstances that the application should be restarted under. The options are:

ALWAYS
The application is restarted if it was terminated without using the INGREQ command. Note that, if the advanced automation option AOFRESTARTALWAYS is set to 0, the application restart thresholds are checked. The application is restarted only if it has not exceeded the critical threshold. By default the application is restarted every time it is stopped outside the control of SA z/OS.

ABENDONLY
The application is eligible for restart only if it abnormally ends. The application is restarted only if its critical error threshold has not been exceeded.

NEVER
The application is never eligible for restart by SA z/OS.

You can use this option to force a specific application state. For example, if an application is defined with the restart option set to ALWAYS and an operator tries to shut down the application without using the INGREQ command, the application will be restarted when it has completed its shutdown. The AOFRESTARTALWAYS advanced automation option can be used to modify this behavior.

External Startup
Specifies whether the application is started externally or via a specified startup procedure.

INITIAL
The application will only initially be started externally.

ALWAYS
The application will always be started externally.

NEVER
The application will never be started externally.

If you leave this field blank, the value can be inherited from a class definition.

For applications of category IMAGE where the monitor routine is INGMTSYS the value is forced to ALWAYS.

If nothing is specified or inherited the default supplied by the automation agent is used, which is NEVER.

Skip ACTIVE status
Specifies whether the application has a specific indication for the UP status.

YES
Sets the status to UP for standard applications if message IEF403I is trapped. For transient applications the status is changed from ACTIVE to RUNNING.

For USS applications with a job type of NONMVS it also sets the status to UP if the USS process exists.

NO or blank
It does not automatically set the status.

Startup Parameters
Specifies the desired subsystem startup parameters. These values are added to the MVS START command for the subsystem. For example, suppose the desired start command for VTAM is:

```
S VTAM,,,(LIST=00)
```

If this command is to be submitted from SA z/OS, the **Startup Parameters** field should contain:

```
,,,(LIST=00)
```

Whatever you enter in this field is appended directly to the MVS START command for the subsystem, therefore, the commas preceding (LIST=00) are necessary.

You can include system symbols and system automation symbols. See "Assigning System Automation Symbols (AOCCLONE)" on page 7 for details on using system automation symbols.

You may also include runtime variables, such as SUBSAPPL, SUBSJOB, SUBSPROC, SUBSSHUTDLY and others. For a complete list of runtime variables, see table "AOCQRY Subsystem Task Global Variables" in *IBM System Automaton for z/OS Programmers Reference*.

External Shutdown
Specifies whether the application is stopped externally or via a specified shutdown procedure.

FINAL
The application will be stopped externally if the external supporting resource (parent) is also being stopped.

Restriction: A parent is only considered being stopped if any existing PREPUNAVAILABLE relationships are fulfilled and the SHUTINIT commands have been run.

ALWAYS
The application will always be stopped externally.

NEVER
The application will never be stopped externally.

If you this field is left blank, the value can be inherited from a class definition. For applications of category IMAGE where the monitor routine is INGMTSYS, the value is forced to ALWAYS.

If nothing is specified or inherited, the default supplied by the automation agent is used, which is NEVER.

Shutdown Pass Interval
Used to tell SA z/OS how long to wait for attempts to shutdown the subsystem. These attempts are defined in the SHUTDOWN policy. If the field is left blank, the value can be inherited from a class or the application defaults definition.

If nothing is specified or inherited, the default supplied by the automation agent is used, which is 2 minutes.

Cleanup Delay
Used to specify an interval which begins when the final termination message (TERMMSG FINAL=YES) for the subsystem is processed. The purpose of this delay is to allow for additional processing performed by or on behalf of the subsystem to the message being issued. If the field is left blank the value can be inherited from a class or the application defaults definition.

If nothing is specified or inherited the default supplied by the automation agent is used, which is 12 seconds.

The delay time takes effect only if the Monitor Routine field is specified with NONE.

Command Prefix
This is the console prefix character for the application. Many applications, such as JES2, JES3, and NetView support the use of a command prefix character which identifies a command as belonging to that application. If such support is available for this application, enter the corresponding command character.

Any command that would normally be issued at a z/OS console should be prefixed with MVS. NetView commands to control NetView automation do not require the MVS prefix.

You can include system symbols and system automation symbols, see "Assigning System Automation Symbols (AOCCLONE)" on page 7.

The single quotation character (') is reserved for SA z/OS and should not be used.

Message Prefix
Specifies one or more prefixes of messages to ensure that they are processed on the work operator dedicated to this application. This overrules the "assign by jobname" established by SA z/OS. So for most applications this field can be blank. It is recommended to make a specification only if:

- There is no jobname associated to the message (in the control block called WQE).
- The message prefix is unique for this application.

For more details, see the description of the automation flow in "Adding a Message to Automation" of *IBM System Automation for z/OS Customizing and Programming*.

Sysname
The system name for the subsystem. This is only required for JES subsystems where the Sysname for the subsystem is not the same as the MVS Sysname. If Sysname is not specified, it will default to the name specified in the SYSTEM INFO policy item of the System entry type.

Monitor Routine
The name of the application monitor routine that is used to monitor the application's status.

The following specifications are valid:

INGPJMON
Monitors status via ASCB checking.

INGPSMON
Monitors status via IEFSSI service.

INGVMON
Monitors status of a VOST via LIST STATUS=VOST.

AOFADMON
Monitors status via **MVS DA** commands.

AOFATMON
Monitors status of a task in the NetView environment.

AOFUXMON
Routine used to monitor USS applications.

AOFAPMON
Routine used to monitor a PPI receiver.

AOFCPSM
Dedicated routine used to monitor SA z/OS Proc-Ops.

INGMTSYS
Dedicated routine used to monitor IMAGE applications for BCPii usage.

INGROMON
Dedicated routine used to monitor OMVS which should not be used for any other application.

INGDBMON
Monitors status via ASCB checking plus additional check whether application is registered to SSI (**MVS D OPDATA** command). Especially to be used for DB2 applications.

INGDVMON
Dedicated routine used to monitor a Dynamic Virtual IP address (DVIPA) application.

ISQMTSYS
Dedicated routine used to monitor SA z/OS Proc-Ops target system resources.

NONE
No monitor routine is to be used.

username
A monitor routine that is defined and created by the user.

If a user-defined routine is not found by automation, the SA z/OS routine INGPJMON is used except for applications of category IMAGE, when INGMTSYS is the default. For non-MVS applications, make sure that either a user-defined monitoring routine or NONE is specified.

Monitor Interval
This is the amount of time between application subsystem monitoring cycles. If you specify NONE, no monitoring takes place.

This will also prevent inheritance.

Note: If the monitor routine is NONE, any value specified here is not honored. It is forced to NONE.

Inform List
This field allows you to specify:

- Where the application is registered to
- Where all status changes are propagated to
- Whether SMF records are written

Valid receivers are SDF, EIF, E2E, IOM, ITM, SMF, TTT and USR. You can specify more than one receiver. The list of values can be blank or comma separated. Neither system automation symbols (AOCCLONEs) nor system symbols are allowed.

If the field is left blank the value is obtained from the systems default definition (see "System Defaults Entry Type" on page 239).

Specify NONE to prevent the default from the systems default definition. This prevents inheritance from the system's default definitions (SDF).

If nothing is specified or inherited, no status changes are propagated. If E2E is specified, the application will be shown on the e2e domain view. T his applies only to applications that are members of an application group without an automation name specified. For others, the specification will be ignored.

ARM Element Name
An application defined to MVS Automatic Restart Manager must have an element name that is unique within each sysplex where the application runs. Each element name consists of up to 16 alphanumeric and national characters including @,#,$ and _ (underscore) after clone resolution, provided the first character is not numeric. Clone resolution occurs at automation control file load.

You can include system symbols and system automation symbols. For more details, see "Assigning System Automation Symbols (AOCCLONE)" on page 7.

The element name can be:

Constant
The element name is the same, regardless of which system the application is running on. This is required for applications that are restartable on multiple systems in the sysplex. An application with a constant Automatic Restart Manager element name may at the same time have a cloned job name.

An application with a cloned job name and a constant Automatic Restart Manager element name can be started on only one system within a sysplex.

For applications of category IMAGE the value is forced to blank.

Cloned
The application has a different element name on each system. The element name is derived from some attribute that is unique to the system that the application runs on. Applications with cloned element names must be defined to MVS Automatic Restart Manager in such a way that MVS will only attempt to restart them on the same system and not move them to other systems in the sysplex.

Applications with cloned element names may have constant job names. This can be useful if you want to have the same application running on multiple systems with Automatic Restart Manager recovery enabled.

For example, you have a USERPROC that runs on all your systems and you want Automatic Restart Manager recovery for it. Automatic restart management requires that USERPROC have a different element name on each system. Defining USERPROC to SA z/OS with a constant job name, but with a cloned element name (and perhaps some parameters to define the element name) allows you to define a single SA z/OS application with a different element name on each system.

WLM Resource Name 1–3
These are the names of the WLM Resources that are associated with the application.

The *same* WLM resource name can be used for *multiple* applications. If any of these applications are in the UP or ENDED automation status, the WLM resource status is set to ON. When all the applications that are associated with the same WLM resource name are in any other status, the resource is set to OFF.

You can include system symbols and system automation symbols, see “Assigning System Automation Symbols (AOCCLONE)” on page 7.

You can specify up to three different WLM resource names, but only one per field.

No WLM resource names are accepted for applications of category IMAGE.

All three WLM resource names are inherited together. Thus if you specify one for an instance and another for a class, this is not inherited.

Owner
This specifies information for the operator about who to contact in case of error.

Info Link
This field can be used to specify a location (for example, a URL) where additional information about the application can be found.

Runtokens
This field can be used to specify one or more blank delimited tokens (each up to 20 characters long) to define a runmode qualification for the application.

AUTOMATION FLAGS Policy Item

The Flag Automation Specification panel (Figure 98 on page 141) is displayed if you select policy item AUTOMATION FLAGS from the Policy Selection panel for applications. For more details about automation flags, see the section "SA z/OS Automation Flags" in *IBM System Automation for z/OS User's Guide*.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGFAS1                 Automation Flag Specification
Command ===> ____________________________________________________________

Entry Type : Application          PolicyDB Name   : USER_PDB
Entry Name : APPL1                Enterprise Name : USER_ENTERPRISE

Resource:  APPL1

Line Commands: Exi (Exits), Dis (Disable Times), CN (Class Name)
Level of automation: YES, NO, LOG, EXITS

 Cmd  Flag           Auto   Exits
DisableTimes
 ___  Automation (A) _____
 ___  Inistart   (I) _____
 ___  Start      (S) _____
 ___  Recovery   (R) EXITS    1       1
 ___  Terminate  (T) _____
 ___  Restart   (RS) NO___
```

Figure 98. Flag Automation Specification Panel

This panel allows you to specify:

- whether automation should not occur in certain states
- whether automated operator functions will operate in log assist mode
- whether user-provided exit routines are to be called to determine whether automation is to continue
- whether automation should be disabled during certain time intervals

There are six types of automation flags supported by SA z/OS:

Automation
Is the global automation flag that must be YES for the remaining flags to be used. If it is NO, there is no automation for the resource.

Recovery
Indicates whether recovery of the resource (actions on messages that are neither for the initialization nor the ending of the resource) is allowed.

Start
Indicates whether the start command and actions or responses to initialization for the resource are allowed.

Terminate
Indicates whether the shutdown command and actions on or responses to ending messages are allowed.

InitStart
Indicates whether a resource can be started when its state is DOWN (that is, it controls initial starting of the resource).

Restart
Indicates whether the restarting of a resource that abnormally ended or was automatically shut down is allowed.

For each flag you may specify:

Cmd
Select one of the following values:

EXI(E)
permits specification of automation flag exit names and descriptions.

DIS(D)
permits specification of automation disable times.

CN
the name of the class where data are inherited from (Application Entry Type only).

Auto
Use this field to control what particular automated responses are allowed:

YES
Automation is active.

NO
Automation is not active.

LOG
LOG assist mode is active. Actions that should be taken under the chosen type of automation do not occur, but messages describing what would have happened are written to the NetView log.

EXITS
One or more user-provided exit routines have been defined.

The **Exits** and **DisableTimes** fields display the number of exit routines and disable time intervals which have been specified for the particular automation flag. If the data is defined on a linked class then the numbers are shown in the color of the inherited data.

For all flags, if EXITS is specified as a value, the defined exits are called to determine if automation is active.

APPLICATION SYMBOLS Policy Item

If you select the APPLICATION SYMBOLS policy item from the Policy Selection panel for Applications, the Application Symbols panel is displayed, as shown in Figure 99 on page 142.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNA                    Application Symbols                Line 00000001
Command ===> _____________________________________________ Scroll ===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : APPL1                 Enterprise Name : USER_ENTERPRISE

SYMBOL1  . . . . _____________
 Description 1 . ____________________________________________________________
SYMBOL2  . . . . _____________
 Description 2 . ____________________________________________________________
SYMBOL3  . . . . _____________
 Description 3 . ____________________________________________________________
SYMBOL4  . . . . _____________
 Description 4 . ____________________________________________________________
SYMBOL5  . . . . _____________
 Description 5 . ____________________________________________________________
SYMBOL6  . . . . _____________
 Description 6 . ____________________________________________________________
SYMBOL7  . . . . _____________
 Description 7 . ____________________________________________________________
```

Figure 99. Application Symbols Panel

This panel allows you to enter or update application symbols that can be set to various application-specific values. These can then be substituted using the runtime variables SUBSSYMBOL1 through SUBSSYMBOL9. Those variables can be used in a similar fashion to runtime variables like SUBSSPARM, SUBSSCHEDSS, SUBSJOB, etc.

To specify that SUBSSYMBOL value x is to be substituted, enter &SUBSSYMBOLx at the appropriate point in the field. You must specify only the leading ampersand (&).

SYMBOL*x*
Allows you to specify the value of the application symbol. You can enter any character but you should avoid using any SA z/OS reserved runtime variables, such as &SUBSJOB or others. The entered data is not automatically translated to upper case.

Description
Allows you to specify a description of the application symbol.

TRIGGER Policy Item

The Trigger for Application panel (Figure 100 on page 143) is displayed if you select policy item TRIGGER from the Policy Selection panel for applications. For more details about triggers, see the section "Event and Trigger Support" in *IBM System Automation for z/OS User's Guide*.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXC4E                 Trigger for Application                  Row 1 of 4
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Application          PolicyDB Name   : USER_PDB
Entry Name : APPL1                Enterprise Name : USER_ENTERPRISE

Action      Status            Trigger
__________                    CICSK34
__________                    CICSK42
__________                    TRIGGER1
__________                    XRFTRIG
```

Figure 100. Trigger for Application Panel

This panel allows you to add triggers to or remove them from an application.

SERVICE PERIOD Policy Item

If you select an application's SERVICE PERIOD policy item, you reach the Service Period for Application panel. Figure 101 on page 143 shows an example.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXC4E             Service Period for Application               Row 1 of 6
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Application          PolicyDB Name   : USER_PDB
Entry Name : APPL1                Enterprise Name : USER_ENTERPRISE

Action      Status            Service Period
__________  SELECTED          CICSK42
__________                    IMS711C4
__________                    IMS712CX
__________                    IMS722CX
__________                    IM631C4
__________                    SERVP1
```

Figure 101. Service Period for Application Panel

This panel allows you to add service periods to or remove them from an application.

RELATIONSHIPS Policy Item

The Relationship Selection List panel (Figure 102 on page 144) is displayed if you select policy item RELATIONSHIPS from the Policy Selection panel for applications. It shows information about existing relationships and allows you to define new relationships.

The ACTION pull-down choice offers actions to edit and delete selected relationships. The **D**elete command immediately deletes the relationship. The **E**dit command leads to the Define Relationship panel (as shown in Figure 102 on page 144).

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXREL                  Relationship Selection List
Command ===> ____________________________________________________________________

Entry Type : Application          PolicyDB Name   : USER_PDB
Entry Name : APPL1                Enterprise Name : USER_ENTERPRISE

External Startup . . . . . ________      (INITIAL ALWAYS NEVER blank)
External Shutdown. . . . . _______       (FINAL ALWAYS NEVER blank)

Action  #   Type             Supporting Resource               Auto    Chain
_______ 1_  HASPARENT        VTAM/APL/=
_______ __  MAKEAVAILABLE    S/APG/=                           ACTIVE  WEAK
```

Figure 102. Relationship Selection List Panel

This panel displays information about existing relationships. In all of the relationships for the current resource, this resource is the dependent resource. The columns have the same meaning as described in “Defining Relationships” on page 111.

If the application is linked to a class, the **External Startup** and **External Shutdown** fields in the subheader area show inherited data individually, however the relationships are inherited only as a whole if no relationships are defined for the child object.

You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line, moving the cursor to the field of interest and pressing Enter.

If the application has inherited relationships from a class, only these are displayed in a different color. If you change one of these relationships, all the inherited relationships become specific to that particular class or instance (and thus change color to reflect this).

Entering the NEW command from this panel to define new relationships takes you to the Define Relationship panel described in “Defining Relationships” on page 111.

The External Startup and External Shutdown fields are the ones from “APPLICATION INFO Policy Item” on page 132 (see Startup Parameters and External Shutdown for details).

MESSAGES/USER DATA Policy Item

If you select policy item MESSAGES/USER DATA from the Policy Selection panel for Applications (“Policy Items for Applications” on page 127), the Message Processing panel shown in Figure 103 on page 144 is displayed.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNM                Message Processing          Line 00000001 Col 001 075
Command ===> ____________________________________________ Scroll ===> PAGE

Entry Type : Application          PolicyDB Name   : USER_PDB
Entry Name : DB21MSTR             Enterprise Name : USER_ENTERPRISE

Line Commands: S/C (Cmd), R (Rep), K (Cod), U (Usr), A,M (AT, MRT, MPF)
               I, D (insert or delete lines), CN (Class Name)
Message ID field length. . 16   (1 - 32)

Cmd Message ID       Description                          C  R  K  U A M F
___ CAPMSGS          Severity definition for Captured Msgs.      1    P P P
___ DATABASE         Specifications for DATABASE                 3    P P P
___ DSNB250E         Start tablespaces                    1
___ DSNP007I         Data set extend failed               1      5    *
___ DSNT500I         Resource unavailable                 1      5    *
```

Figure 103. Message Processing Panel

On the Message Processing panel you specify how SA z/OS should react if the application issues the specified message. If the application is linked to a class, the panel shows both instance and class data sorted alphabetically, with the inherited data shown in a different color. For more details see “Nested

Class Details" on page 159. You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line, moving the cursor to the field of interest and pressing Enter.

Use the CANCEL command (abbreviated to C) to exit the panel without saving any changes to the data.

You can define message responses for each message ID. By default, the first 16 characters of the message ID is shown. The length of the description that is displayed depends on your screen width (for a 24x80 screen, it is 40 characters).

You can change the length of the message ID field with the **Message ID field length** field. Note that this value is saved across sessions. If you increase the message ID field length, you can view any information on the right of the panel that is no longer displayed by scrolling right with the PF11 key.

You can enter different line commands in the **Cmd** column. Depending on what you type here, SA z/OS displays a follow-on panel where you further specify SA z/OS automated reaction to the message. Note that the message ID must not end with an asterisk and cannot have any commas in it.

Generally, SA z/OS requires an entry in the NetView automation table that specifies which routine SA z/OS should use to process your specified action. SA z/OS is able automatically to build the NetView AT entries for all CMD, REP, and AT actions as well as for certain USR and COD actions.

Information about how to manage the NetView automation table is given in *IBM System Automation for z/OS Customizing and Programming*.

The following line commands are available:

CMD
To issue commands as a response to a message, see "Command Processing" on page 146.

REP
To issue replies, see "Reply Processing" on page 148.

COD
To check for certain codes within a message. For different sets of code values, you can define a corresponding value that is returned to the calling REXX script that checks for a matching code definition. See "Code Processing" on page 149.

USR
You can specify your own data that is needed when SA z/OS runs user-specified actions if the current message requires more specific automation than provided by the generic routines (see "User Data Processing" on page 152).

Using the ACFFQRY common routine from within a REXX exec, you can retrieve the keywords entered into this panel and process them as needed. Syntax rules for specifying user data are available in the online help. For information on how to use ACFFQRY in a REXX exec, see ACFFQRY in *IBM System Automation for z/OS Programmer's Reference*.

A or M (short for AT, MRT, MPF)
Use the associated panels to customize the AT, MRT, and MPF entry that is built for the message ID. See "Message Automation Definitions" on page 152.

Columns **C**, **R**, **K**, and **U** display the number of commands, replies, codes, and user definitions for the particular message.

Columns **A**, **M**, and **F** indicate whether there are any specifications that are related to entries for the NetView automation table, message revision table or MPFLSTxx member as follows:

*****
User data has been defined for the message ID. The * is always turquoise because the data cannot be associated with a class because there may be other instances with entries for the same message ID.

P
There is a predefined entry for this message ID, shown in the color for inherited data.

blank
If none of the above.

You can enter the LOCATE (abbreviated to L) command to position to a specific message ID.

You can enter FIND (abbreviated to F) at the command line on the Message Processing panel to search the displayed data for a specific string, for example, `f abc`. All occurrences of the string are highlighted and the cursor is positioned at the start of the first one. You can use the RESET command to remove the highlighting.

Note that only the data that is *visible* is searched through in the **Message ID** column. You should therefore consider expanding the column width so that the complete message ID is visible before performing a search.

You can use the RFIND function key (PF5) to move to the next occurrence of the string. If you enter the RFIND command at the command line it repeats the last find.

For more details, see "How to Find Data in a Policy Item" on page 23.

Working with Message IDs

If you add a new message ID that already exists elsewhere in the policy database and it has AT or MRT data specifications, pressing Enter causes the AT or MRT data indicators to appear in the corresponding columns.

Furthermore, if you do not specify a message description for a message that already exists in policy database, the description is filled in from either a user-specification or a predefined entry in +SA_PREDEFINED_MSGS.

If you change a message ID, not only are the commands, replies, etc. kept, but also any AT or MRT data. If you change the message ID to one that already exists, there may be a conflict. For example, if message ID ABC123 is changed to DEF456:

- If ABC123 has AT data, but DEF456 does not, the AT data from ABC123 is copied to DEF456.
- If ABC123 does not have any AT data, but DEF456 does, the AT data from DEF456 are kept.
- If ABC123 and DEF456 both have AT data that differs, the message ID change is not possible and the message `Conflicting AT data` is issued.

You should also bear in mind that if the message ABC123 has also been defined for another application, it keeps any AT or MRT data that has already been defined.

If you delete a message ID that has been specified in the MESSAGES/USER DATA policy item of just one application or MVS component, this deletes all related data. The message ID no longer exists in the policy database, and is no longer displayed in MESSAGE AUTOMATION policy item of entry type ENT, and any AT or MRT specifications are removed from the policy database.

If you delete a message ID that has been specified in the MESSAGES/USER DATA policy item for multiple objects, and AT or MRT data exists, this does not delete the AT or MRT data. Any AT or MRT data is deleted only if the message is deleted from the last remaining object in the policy database, or the object itself is deleted.

Command Processing

SA z/OS displays the Command Processing panel (Figure 104 on page 147) if you enter the action code CMD in the **Cmd** column on the Message Processing panel.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGDYNC           Message: HSAM1390E                Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)

Cmd Ps/Select  AutoFn/* Command Text
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
```

Figure 104. Command Processing Panel for Applications

Use this panel to enter commands that are executed when the application issues the specified message. If you specify one of the automation commands that are provided by SA z/OS (see *IBM System Automation for z/OS Operator's Commands*), they should be queued using the NetView CMD LOW command. This ensures that task global variables that are in use by the calling automation procedure are not changed by the calling command.

For a list of runtime variables that can be substituted into each command prior to execution, see ACFCMD in *IBM System Automation for z/OS Programmer's Reference*.

For a full description of using line commands, refer to Line Commands on Message Processing Panels in "How to View Long Input Fields in Full Length" on page 25.

The value that you enter in the **Ps/Select** field defines when the command or reply should be issued, as follows:

Mixed case
Specify whether the value entered in the **Command Text** field remains unchanged (YES) or is translated to upper case characters automatically (NO).

Ps/Select
Enter a number from 1 through 99 or an asterisk (*) in this field to specify a pass value. During the automation control file build, this value is prefixed with PASS to create the selection criterion for the command and reply entry.

For more information about pass processing see the description of the PASSES parameter for the ISSUEACT generic routine in *IBM System Automation for z/OS Programmer's Reference*.

An expression other than a pass value is considered a selection value and is not altered during the build process. A selection value can be a blank or any name that does not begin with a number or contain imbedded blanks, commas, quotes, or parentheses.

Note: For commands issued by SA z/OS during startup or shutdown, an attempt is made to issue only the commands that are relevant to the particular start or stop type. SA z/OS looks for command definitions with a selection field that matches the start or stop type. Commands that are defined without a selection value are issued or selected for each start or stop type. Where appropriate, the AAO AOFSTATUSCMDSEL is taken into consideration.

AutoFn/*
Enter the name of the automated function that the command is to run under. The AT entry that is generated does not reflect the automated function that you enter, however the execution of the command is routed internally to the automated function that you specify. If you leave the field blank, the function defaults to the one currently running the command list. SA z/OS automated functions are mapped to NetView automation operators.

Entering * enables return-code checking for the specified command. This means that processing continues if the command returns a return code of 0. In all other cases processing is stopped

immediately. If you are running in LOG assist mode, return code checking has no effect because the commands are not executed.

Command Text
Enter the command or command list to be issued. You must preface a system command with MVS.

Pass or selection values can be repeated for several text entries. Each set of entries with the same pass or selection value forms a command group.

To process this message, an entry in the NetView automation table is generated that uses the ISSUEACT generic routine. For more details, see ISSUEACT in *IBM System Automation for z/OS Programmer's Reference*.

Note: If a command is added to a message and this message has an existing AT override that is NOT using the ISSUEACT generic routine, then the ISSUEACT generic routine is not added to the AT override automatically. You have to manually add it to the AT override. For example, here is an AT override of CICS message DFHAC2236:

```
IF (GROUP:INGCICS) MSGID = 'DFHAC2236'
& ATF('ING$QRY APPL') ¬= '' THEN
EXEC(CMD('EVEERTRN') ROUTE(ONE %AOFOPGSSOPER%));
```

To add a command to this message, you need to update the AT override manually as follows:

```
IF (GROUP:INGCICS) MSGID = 'DFHAC2236'
& ATF('ING$QRY APPL') ¬= '' THEN
EXEC(CMD('EVEERTRN') ROUTE(ONE %AOFOPGSSOPER%))
EXEC(CMD('ISSUEACT') ROUTE(ONE %AOFOPGSSOPER%));
```

Reply Processing

SA z/OS displays the Reply Processing panel if you enter the action code REP in the **Cmd** column on the Message Processing panel.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN9           Message: ARC0055A                Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Cmd Ps/Select  Ct Reply Text
___ __________ __ ____________________________________________________________
___ __________ __ ____________________________________________________________
___ __________ __ ____________________________________________________________
___ __________ __ ____________________________________________________________
___ __________ __ ____________________________________________________________
___ __________ __ ____________________________________________________________
___ __________ __ ____________________________________________________________
___ __________ __ ____________________________________________________________
___ __________ __ ____________________________________________________________
___ __________ __ ____________________________________________________________
___ __________ __ ____________________________________________________________
```

Figure 105. Reply Processing Panel for Applications

Use this panel to enter the replies that are to be issued when this resource issues the specified message. For a list of runtime variables that can be substituted into each reply prior to execution, see ACFREP in *IBM System Automation for z/OS Programmer's Reference*.

You can use line commands in the **Cmd** field to manipulate the entries on this panel as described in Line Commands on Message Processing Panels in “How to View Long Input Fields in Full Length” on page 25.

The use of the **Ps/Select** field is similar to that described in The Ps/Select Field in “Command Processing” on page 146. Pass or selection values can be repeated for several text entries. Each set of entries with the same pass or selection forms a reply group.

To process this message an entry in the NetView automation table is generated that uses the ISSUEACT generic routine. For more details, see ISSUEACT in *IBM System Automation for z/OS Programmer's Reference*.

Additionally, there are the following fields:

Ct
This is the **Retry Count** field. Enter a number in the range 1–99 in this field to define the number of retry attempts that are made before the common routine decides that a reply cannot be issued. A retry occurs when the outstanding reply number is not available. For the first retry there is a one second time delay and for all further retries there is a two second time delay. The default retry count is 0.

Reply Text
Code the actual reply to the message in this field. Enter it in the same format as you would do from an MVS console (without the R and the reply number). To specify a null reply, type NULL in this field.

Code Processing

SA z/OS displays the panel shown in Figure 106 on page 149 if you enter the action code COD (K) in the **Cmd** column on the Message Processing panel.

```
AOFGDYN9           Message: WTORS                    Line 00000001 Col 001 075
Command ===> ____________________________________________ Scroll ===> PAGE

Cmd Code 1           Code 2           Code 3           Value Returned
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
```

Figure 106. Code Processing Panel

Use this panel to specify a series of code definitions. Each code definition consists of up to three code values and an associated Value Returned.

The code definitions can be used by automation procedures to check, if a set of up to three given values matches with one of the code definitions in the automation policy. The values to be checked may be extracted variable values from an automated message or any other retrieved values, for which a matching code definition is searched. The associated **Value Returned** of the matching code definition can be used to decide about the further processing in the automation procedure.

Code definitions are used by SA z/OS, for example, to determine the severity of received WTORs. Further on, when processing termination messages of resources, SA z/OS uses code definitions to decide what status to place the resource in. In your own automation routine, you can use the common routine CDEMATCH to compare a set of given values with a series of code definitions in the automation policy and to gather the Value Returned from the matching code definition. For more details about common routine CDEMATCH, see *IBM System Automation for z/OS Programmer's Reference*.

You can use line commands in the **Cmd** field to manipulate the entries on this panel as described in Line Commands on Message Processing Panels in “How to View Long Input Fields in Full Length” on page 25.

The fields on this panel are used by the CDEMATCH routine.

Code 1, 2, 3
Patterns in these fields are compared with a set of up to three given values that are provided by an automation procedure. If one of the defined sets of code patterns matches, the content of the corresponding **Value Returned** field is returned to the automation procedure and no further comparison is made.

If no match is found at all a null string is returned.

If the pattern is a single token, string comparison is performed. Such a pattern can contain wildcard characters in any position and combination. An asterisk (*) matches a string of arbitrary length and a percent sign (%) matches a single character.

Preceding the asterisk or percent sign with a backslash (\) prevents these characters from being considered as wildcard characters.

A pattern can also consist of two tokens. In this case, the first token is a string or numeric comparison operator and the second is the value to be compared to (wildcard characters are not supported).

The following string comparison operators are supported:

$EQ
equal to

$NE
not equal to

$GT
greater than

$GE
greater than or equal to

$LT
less than

$LE
less than or equal to

String comparison is done by character and in binary format after all the values have been translated to uppercase. For strings with different lengths, the shorter string is padded with blank characters at the end of the string to make it the same length as the longer string. Strings that consist of whole numbers with or without leading zeros are not considered as equal.

The following numeric comparison operators are supported:

@EQ
equal to

@NE
not equal to

@GT
greater than

@GE
greater than or equal to

@LT
less than

@LE
less than or equal to

Whole numbers up to an absolute value of $2^{31}-1$ are accepted.

For numeric comparison, whole numbers with or without leading zeros are considered as equal.

Value Returned
If all the specified values in the code fields match the passed values from the automation procedure, the value in this field is returned to the automation procedure to be used for decision making.

The special value *IGNORE* prevents any operation by the command ISSUEACT.

Code match checking is used by SA z/OS in the following situations:

- Processing of messages with ISSUEACT to trigger appropriate commands or replies.

- Processing of messages or OMEGAMON® exceptions with INGMON to update the status of a monitoring resource or to issue appropriate commands or replies.
- Processing of termination messages with TERMMSG to determine which status to place the resource in.
- Processing of WTORs with OUTREP to assign a severity.
- Capturing of messages with AOFCPMSG to assign a severity.
- Sending events with INGALERT to event notification targets such as IOM, EIF, TTT, or USR.
- Processing of CICS or IMS transaction abend recovery using message ID ABCODETRAN.
- Processing of IMS BMP region abends using message ID ABCODEPROG.
- Processing of WTO buffer shortage recovery. For details see *IBM System Automation for z/OS Customizing and Programming*.

Example 1

```
Code 1          Code 2          Code 3          Value Returned
*               IMSTCTL         _               WARNING
*               IMS%CTL         _               CRITICAL
```

When checking two values for a match with the code definitions of this example, the first code definition matches with the given values, if the second value is IMSTCTL. In this case, WARNING is returned as the value.

If the second given value consists of IMS and CTL with any single character other than T between, a match with the second code definition occurs and CRITICAL is returned as the value.

Consider the following examples:

Values checked	Value returned	Reason
DFS2013 and IMSTCTL	WARNING	These values match the first code definition
DFS2013 and IMS1CTL	CRITICAL	These values match the second code definition
DFS2013 and IMS10CTL	null string	These code values do not match any of the code definitions

Example 2

```
Code 1          Code 2          Code 3          Value Returned
*               TEST*           *               WARNING
*               *               @GT 8           CRITICAL
*               *               *               WARNING
```

When checking three values for a match the code definitions of this example, the three values match the first code definition, if the second value begins with the string TEST.

Three given values match the second code definition, if the second value does not begin with string TEST and the third value is a whole number greater than 8.

For example, the three values IEF451I, TESTJOB1 and 4 match the first code definition and WARNING is returned as value.

When checking with the three values IEF451I, IMS1CTL and 12, value CRITICAL is returned from the matching second code definition.

When checking with the values IEF451I, IMS1CTL and 4, value WARNING is returned from the matching last code definition.

More information about this panel is given in the online help.

User Data Processing

SA z/OS displays the User Data Processing panel, as shown in Figure 107 on page 152, if you entered the action code USR in the **Cmd** column on the Message Processing panel.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN8           Message: ARC0909E                Line 00000001 Col 001 075
Command ===> ____________________________________________ Scroll ===> PAGE

Mixed case . . . NO   (YES NO)          Keyword length. . . 20  (1-64)

Cmd Keyword              Data
___ LIMIT                97%
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
___ ____________________ ____________________________________________________
```

Figure 107. User Data Processing Panel for Applications

This panel allows you to manage the list of keyword-data pairs.

You can use this panel to let SA z/OS perform user specified actions in case the current message requires more specific automation than provided by the generic routines. Using the ACFFQRY common routine from within a REXX exec, you can retrieve the keywords entered into this panel and process them as needed. Syntax rules for how to specify user data is available in the online help. For information on how to use ACFFQRY in a REXX exec, see ACFFQRY in *IBM System Automation for z/OS Programmer's Reference*.

The following fields are available:

Mixed case
Specify whether the value entered in the **Data** field remains unchanged (YES) or is translated to upper case characters automatically (NO).

Keyword length
For better readability only the first 20 characters of the **Keyword** value and the first 55 characters of the **Data** value is shown. Enter a value in this field to change how much of each field is visible.

Keyword
A value is required and should represent the keyword that will be assigned to the user data.

Data
A value is required and can contain any characters. There are, however, rules regarding how the data value must be delimited if it contains any special characters. For more information about these rules, see the online help.

You can use line commands in the **Cmd** field to manipulate the entries on this panel as described in Line Commands on Message Processing Panels in “How to View Long Input Fields in Full Length” on page 25.

Message Automation Definitions

SA z/OS supports the automatic generation of NetView automation tables (AT), the message revision table (MRT), and MPF list member MPFLSTxx.

You enable the automatic generation of these members using the **AT/MRT scope** field specified in the BUILD CONTROL policy (see “BUILD CONTROL Policy Item” on page 228, and Chapter 8, “Automation Table, Message Revision Table, and MPFLSTxx member,” on page 295).

If you do not enable the automatic generation of the AT, MRT, and MPFLSTxx you do not need to specify anything on the panels that are described in this section. If you do enable automatic generation, you can use the Message Automation Overview panel to view what SA z/OS will generate for a particular message

in the AT, MRT, and MPFLSTxx. If the entry is not appropriate, you can use the options on the panel to modify it as described in this section.

If you enter AT in the **Cmd** field for a message ID, the Message Automation Overview panel is displayed, as shown in Figure 108 on page 153.

```
AOFGMADV                 Message Automation Overview
 Command ===> ____________________________________________________________

  AC AT condition     MS MRT action selection     MF MPFLSTxx specifications
  AS AT status        MO MRT override             IG Ignore for AT, MRT, MPF
  AO AT override

 Message ID : HASP050

 AT Override :
 IF MSGID = . 'HASP050' & TEXT = . 'TGS'. THEN
 EXEC(CMD('AOFRSD01')ROUTE(ONE %AOFOPJESOPER%));

 Generated MRT entry :
 UPON ( OTHERMSG )
 SELECT
 WHEN (WORD 1 RIGHT 7 = 'HASP050')
 REVISE('CR' COLOR)

 Generated MPF entry :
 HASP050
```

Figure 108. Message Automation Overview Panel

This panel allows you to:

- View the AT, MRT, and MPF entry that SA z/OS will automatically generate for the message ID
- Modify predefined AT entries for a given Entry Name and Message ID
- Modify the default AT and MRT entries via the selections on the detail panels or enter your own specification on the override panels
- Modify the default MPF entry.

You can use the options listed at the top of the panel to display further panels, as follows:

AC
A panel to specify conditions for the AT entry, see “Specifying AT Entry Conditions” on page 154

AS
A panel to select the SA z/OS status that is used to generate the AT action, see “Selecting a Status for the AT Entry” on page 155

AO
A panel to specify the AT override, see “Specifying an AT Override” on page 155

MS
A panel to specify what action is taken with the MRT entry that is generated, see “Specifying an Action for an MRT Entry” on page 156

MO
A panel to specify an MRT override, see “Specifying an MRT Override” on page 157

MF
A panel to specify an MPFLSTxx entry, see “Specifying an MPFLSTxx entry” on page 158.

IG
A panel to specify whether an entry is ignored for the AT, MRT, and MPF processing, see “Specifying that an Entry Is Not Built” on page 158.

The scrollable preview area shows the AT, MRT, and MPF entries that would be generated based on the current specifications. If, for example, you modify the AT conditions on a subsequent panel and return, the AT preview is updated to reflect the new specifications.

If a generated AT entry is based on an SA z/OS definition (that is, it is defined in the MVC entry +SA_PREDEFINED_MSGS), it is shown in the color that has been selected for class data.

Specifying AT Entry Conditions

Enter the line command AC on the Message Automation Overview panel to display the Automation Table entry Conditions panel, as shown in Figure 109 on page 154.

```
  COMMANDS  HELP
 ------------------------------------------------------------------------------
 AOFGMATC               Automation Table entry Conditions
 Command ===> _____________________________________________ Scroll ===> PAGE

View or change specifications for message: IEF451I

 Ignore for AT . . . . . . . . . ___      (YES NO)
 Message placement . . . . . . . _______  (TOP BOTTOM)
 Check for message ID  . . . . . ___      (YES NO)
 Ignore message ID characters. . ________ (LEADING TRAILING BOTH)
 Additional condition  . . . . .
 ____________________________________________________________________________
_____________________________________________________________________________

 Generated AT entry :
 * The variable SVJOB is set by the BEGIN statement for IEF4
 IF MSGID = 'IEF451I' & ATF('ING$QRY APPL,,JOB='VALUE(SVJOB)) ^= ''
 & TEXT = . '- ENDED BY CC' CCODE . THEN
 EXEC(CMD('TERMMSG JOBNAME=' SVJOB ',CODE1=' SVJOB ',CODE2=' CCODE)
 ROUTE(ONE %AOFOPGSSOPER%));
```

Figure 109. Automation Table entry Conditions Panel

The fields on this panel are:

Ignore for AT
Allows you to exclude this message from the generated AT.

Message placement
Allows you to specify whether the generated AT entry should be placed at the beginning or end of the AT. In both cases the generated AT entry is not placed in a BEGIN-END block. If you set **Check for message ID** to YES or blank, the default placement is in a BEGIN-END block, and if you set it to NO the default placement is BOTTOM.

Check for message ID
Allows you to exclude the check `IF MSGID = '...'` from the AT condition. This may be necessary if for example you specify the complete condition in the **Additional condition** field. If checking for message is excluded, the AT entry is not placed in a BEGIN-END block.

Ignore message ID characters
Allows you to use only a portion of a message ID when checking for the message ID. Enter one of the following to control which parts of the message ID are ignored:

LEADING
The beginning of the message ID is ignored, that is, the suffix is used.

TRAILING
The end of the message ID is ignored, that is, the prefix is used.

BOTH
Both the beginning and the end of the message ID are ignored, that is, the string must appear somewhere within the message ID.

This behavior is achieved by adding a leading or trailing period to the AT condition, as shown in the preview in the lower half of the panel

Additional condition
Allows you to specify any text that is added to the AT condition. This field allows mixed case. A syntax check for this field can be turned on via field **AT / MRT syntax check** in Settings, selection "3 Message". For more details, see “Enabling and Disabling AT / MRT Syntax Checking” on page 328.

Pressing Enter updates the preview that is shown in the lower half of the panel.

If a preview is not generated, an explanation is displayed in the preview area, for example, `No AT entry will be generated because there is no Command, Reply, or Status defined.`

Press PF3 to save your changes or enter the CANCEL (C) command to discard them and then return to the Message Automation Overview panel.

Selecting a Status for the AT Entry

Enter the line command AS on the Message Automation Overview panel to display the AT Status Specification panel, as shown in Figure 110 on page 155.

```
  COMMANDS  HELP

------------------------------------------------------------------------------

 AOFGMAT1                    AT Status Specification
 Command ===> ____________________________________________________________________

 View or change specifications for message: IKT007I

 Application / MVC Component status      Monitor health status
 _ ACTIVE      Starting                  _ NORMAL   Resource shows good results
 _ UP          Available                 _ WARNING  Resource shows degradation
 _ HALTED      Degraded                  _ MINOR    More severe than WARNING
 _ Terminating Received STOP command     _ CRITICAL More severe than MINOR
 _ Terminated  Terminated normally       _ FATAL    More severe than CRITICAL
 _ ABENDING    Going to end abnormally   _ UNKNOWN  Health status not available
 _ Abended     Ended abnormally          _ Check    Evaluate health status
 _ BREAKING    Non-recoverable abending  Monitor status
 _ BROKEN      Non-recoverable abend     _ FAILED   Monitor failed
                                         _ BROKEN   Monitor finally failed
 Capture specification
 S Capture     Capture Message
               DOM . . .
IKT008I ____________________________
```

Figure 110. AT Status Specification Panel

You can display and modify the following status selections:

- one selection for Application / MVC Component status
- one selection for Monitor health status or Monitor status
- a capture message specification

Note that the commands which are generated into the AT entry based on the status selection (for example, ACTIVMSG or TERMMSG) capture the message anyway. So it is recommended to avoid excessive capture message selections and use it only if:

- there is no other status selection
- a different message should be deleted and thus the DOM option is required.

For messages that are defined for a monitor resource only but have an application status and a monitor status specification, the AT entry is generated both for the application status and the monitor status.

If you select a monitor status for a message but then remove the message from the MESSAGES/USER DATA policy item of the monitor resource, the monitor status is ignored for the AT build. The monitor status selection is however still shown on this panel until you remove it.

Press PF3 to save your changes or enter the CANCEL (C) command to discard them and then return to the Message Automation Overview panel.

Specifying an AT Override

Enter the line command AO on the Message Automation Overview panel to display the ISPF editor where you can specify an AT override, as shown in Figure 111 on page 156.

```
ISREDDE2   OPER1.USER.PDB(OPER0001) - 01.00               Columns 00001 00072
 Command ===> _____________________________________________ Scroll ===> CSR
 ****** ***************************** Top of Data ******************************
 000001 IF
 000002 MSGID = 'IEF451I' & ATF('ING$QRY APPL,,JOB='VALUE(SVJOB)) ^= ''
 000003 & TEXT = . '- ENDED BY CC' CCODE .
 000004 THEN
 000005 EXEC(CMD('TERMMSG JOBNAME=' SVJOB ',CODE1=' SVJOB ',CODE2=' CCODE)
 000006 ROUTE(ONE %AOFOPGSSOPER%));
 000007
 000008
 000009
 000010
 000011
 000012
 000013
 000014
 000015
```

Figure 111. Editor Panel to Specify an AT Override

If you have defined an AT action or condition, or both, and then invoke the override panel, the AT entry preview is shown on the override editor screen. You can use this as a model for your own AT definition. You can use system symbols and SA z/OS symbols in your specification.

Use the END command (PF3 key) to leave the editor panel and save any changes as an AT override.

Use the CANCEL command to leave the editor panel and discard any changes that you have made.

Notes:

1. You can only define one override per message ID and thus this override applies to all applications where the message has been specified. If you define a command against a message ID that already has an override you must ensure that the command is honored via the override.
2. If an AT override is specified when a specific AT action or condition already existed, then this AT action or condition is removed.

Syntax check of an AT or MRT Override

On leaving the override panel, a syntax check is attempted. This check is not performed in the TSO/ISPF environment, but by NetView which must be available on the same system. The prerequisites are described in detail in “Enabling and Disabling AT / MRT Syntax Checking” on page 328. If no syntax error is detected, a message is issued indicating a successful check. If syntax errors are found, the error messages are displayed on a pop-up panel which allows:

- to return to the override EDIT panel to fix the error, or
- to confirm that the error message is accepted (for example, an unresolved variable) and the override EDIT panel is left.

If the syntax check is not run because the prerequisites are not met or there is a communication error with NetView then an error message is issued.

The syntax check is not run if the override panel is left with CANCEL.

The syntax check can be disabled, for example, if the Customization Dialog is running on a system without NetView. There is an option on the 'Message and Logging Functions' panel in '0 Settings', selection '3 Message'.

Specifying an Action for an MRT Entry

Enter the line command MS on the Message Automation Overview panel to display the Message Revision Table Conditions panel, as shown in Figure 112 on page 157.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGMRT1               Message Revision Table Conditions
Command ===> ____________________________________________________________

View or change specifications for message: IKT007I

Ignore for MRT . . . . . ___          (YES NO)
Delete completely  . . . . ___        (YES NO)

Automate . . . . . ___          (YES NO)
Suppress from console  . . ___        (YES NO)
Suppress from system log . ___        (YES NO)
Translate to upper case  . ___        (YES NO)
Append text  . . . . . ____________________________________________________


Color  . . . . . ______       (BLUE RED PINK YELLOW GREEN WHITE TURQ)
Highlighting . . . . . _____________ (UNDERLINED BLINKING REVERSEVIDEO)
Intensity  . . . . . ___          (YES NO)
```

Figure 112. Message Revision Table Conditions Panel

The fields on this panel are:

Ignore for MRT
Allows you to exclude this message from the generated MRT.

Delete completely
Allows you to delete the message completely so that it is not run through any automation processing.

Automate
Allows you to ensure that the message is run through the automation processing. This specification is only needed if the message is not exposed to automation by default or via MPF specification.

Suppress from console
Allows you to run the message through the automation table, but not show it at the console.

Suppress from system log
Allows you to run the message through the automation table, but not write it to the syslog.

Translate to upper case
Allows you to translate the entire message to upper case.

Append text
Allows you to provide a text portion which is appended at the end of the message text.

Color
Allows you to set the color attribute of the message.

Highlighting
Allows you to set the highlighting attribute of the message.

Intensity
Allows you to set the intensity attribute of the message.

If you select **Delete completely**, no other selection is valid.

Any MRT specifications that you make are independent of any AT entry data for the message. Thus if you make a definition for the MRT but not for the AT, any predefined data for AT entry is still in effect.

Specifying an MRT Override

Enter the line command MO on the Message Automation Overview panel to display the ISPF editor where you can specify a NetView message revision table entry override, as shown in Figure 113 on page 158.

```
ISREDDE2   OPER1.USER.PDB(OPER0001) - 01.00               Columns 00001 00072
Command ===> _____________________________________________ Scroll ===> CSR
****** ***************************** Top of Data ******************************
000001 UPON ( MSGID = 'IEF451I' )
000002 REVISE('Y' AUTOMATE)
000003 REVISE('CR HR' COLOR)
000004 _____________________________________________________________________
000005 _____________________________________________________________________
000006 _____________________________________________________________________
000007 _____________________________________________________________________
000008 _____________________________________________________________________
000009 _____________________________________________________________________
000010 _____________________________________________________________________
000011 _____________________________________________________________________
000012 _____________________________________________________________________
000013 _____________________________________________________________________
000014 _____________________________________________________________________
000015 _____________________________________________________________________
```

Figure 113. Editor Panel to Specify an MRT Override

Use the END command (PF3 key) to leave the editor panel and save any changes as an MRT override. Use the CANCEL command to leave the editor panel and discard any changes that you have made.

Specifying an MPFLSTxx entry

Enter the line command MF on the **Message Automation Overview** panel to display the MPF Specification panel, as shown in Figure 114 on page 158.

```
   COMMANDS  HELP
------------------------------------------------------------------------------
AOFGMPF1                        MPF Specification
Command ===> ____________________________________________________________

View or change specifications for message: GEO

MPF default specification from policy MPF DEFINITIONS:
  .DEFAULT,SUP(YES),RETAIN(I,CE),AUTO(YES)

Ignore for MPF member  . . ___        (YES NO)

Alternate message ID . . . GEO*_____
Message parameters . . . . ___________________________________________
```

Figure 114. MPF Specification Panel

On the top of the screen the default specification for the MPF member is shown if it is specified in the policy MPF DEFINITIONS of entry type MSG. If no default specification is found, a corresponding text is shown.

The fields on this panel are:

Ignore for MPF Member
Allows you to exclude this message from the generated MPFLSTxx member.

Alternate message ID
Allows you to specify a variant of the message ID which is put into the MPFLSTxx member if the message ID is not appropriate.

Message parameters
Allows you to specify specific parameters for this message ID if the defaults are not appropriate.

Specifying that an Entry Is Not Built

Enter the line command IG on the Message Automation Overview panel to display the AT/MRT/MPF Ignore Specification panel, as shown in Figure 115 on page 159.

```
 COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGMSGS                   AT/MRT/MPF Ignore Specification
Command ===> ____________________________________________________________________

View or change specifications for message: SYSTEM_SHUTDOWN

  _ Ignore      No AT entry; no MRT entry; no MPFLSTxx entry
```

Figure 115. AT/MRT/MPF Ignore Specification Panel

This panel allows you to specify that an entry is not built for the AT, MRT, and Message Processing Facility (MPF) member MPFLSTxx. There is only one input field:

Ignore
This selection allows you to specify that an entry is not built for AT, MRT, or Message Processing Facility (MPF). It has the same effect as selecting "Ignore for..." on the three panels for the AT, MRT, and MPF definitions. This specification is recommended for user data which are not messages and should not be automated.

Nested Class Details

CMD (Command), REP (Reply), COD (Code), and USR (User Data) policies are inherited per message ID.

Thus if a message ID has a command definition for an instance and the same message ID is defined for a class with reply data, the command and reply data are not merged on the instance, and the class definitions are not inherited at all.

AT and MRT specifications provide instructions for the generation of the NetView automation table and message revision table entry. This data exists only once in the policy database and is not tied to a particular application, monitor resource or MVS Component. It is used to create one AT entry or one MRT entry. Thus the inheritance rules do not apply.

Examples

Consider the following examples that demonstrate how policy values are inherited and AT entries are built:

No overrides
A class has a command and a linked instance has a reply defined for the message ID, ABC123.

Result: The following AT entry is built:

```
IF MSGID = 'ABC123' THEN
 EXEC(CMD('ISSUEACT ')ROUTE(ONE %AOFOPGSSOPER%));
```

However, the command is *not* executed because it is not inherited by the instance and so is not loaded during automation agent initialization.

Two applications and an override
One application has a command defined for a message ID, another application has a reply defined for the same message ID, and an override is defined for the message ID.

Result: One AT entry is generated for the override. This override should deal with any commands or replies that should be executed

Panel Interaction

The Message Processing panel shows message IDs that are defined for the current application and any data that has been inherited from linked classes. Inherited message IDs are displayed in a different color.

AT and MRT specifications are always indicated by a asterisk * for either an instance or a class. If the AT or MRT specifications are for predefined messages, these are indicated with a P in the color that is used for classes.

If a linked class and the current application have definitions for the same message ID, only the definition for the current application is displayed.

Consider the following examples that illustrate inheritance from class message IDs that are modified, and how the panel display reflects this:

Modifying commands for an inherited message ID
Consider an inherited message ID with command and reply definitions and a status definition. If you modify a command definition, this becomes a definition for the current application along with the reply data, however the status data is not affected.

Specifying AT data for an inherited message ID
Again, consider an inherited message ID with command and reply definitions and an AT definition. If you modify the AT data, the message ID does not become a definition for the current application. The display shows the message ID with the counts for Cmd and Rep in the color for inherited data and the * indicator for AT (the A column) in turquoise.

Command and reply for a class and instance
Consider a class definition that has a command defined for message ID, and a linked instance that has a reply defined for the same message ID, and there is also a Status definition, for example BROKEN.

One AT entry is generated using TERMMSG, the reply from the instance is executed, but the command from the class is not inherited (and thus not executed). The following line is displayed all in turquoise:

```
Cmd Message ID     Description                          C R K U A M F
___ ABC123         Descriptive text                       1     *
```

STARTUP Policy Item

The STARTUP policy item is used to specify the scheduling subsystem, JCL procedure name (which are also available on the APPLICATION INFO policy item), the startup parameters and all the commands necessary to start a subsystem.

These commands are issued when SA z/OS is going to start the subsystem.

You can use the STARTUP policy item to define several command sequences that are executed if an application requires certain start types that depend upon particular circumstances, such as a cold start, warm start or recovery start. You can use the INGREQ command to specify which command sequence should be taken.

You can also use this facility for performance improvements. Consider the example in Figure 116 on page 160 if application A depends on application B, and B in turn depends on C, and A also has a PREPAVAILABLE relation to C, after C is started, you can have SA z/OS issue a sequence of prestart commands to A while the supporting resource B is starting.

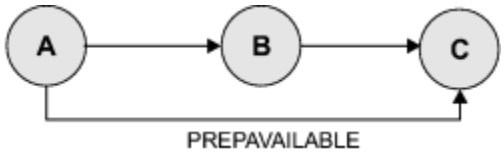


Figure 116. Using the STARTUP Policy Item

If you select the STARTUP policy item from the Policy Selection panel for Applications (Figure 94 on page 127), you come to the Subsystem Startup Processing panel shown in Figure 117 on page 161.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGASTT                  Subsystem Startup Processing
Command ===> ____________________________________________________________________

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : APPL1                 Enterprise Name : USER_ENTERPRISE

 Scheduling Subsystem. . MSTR____   (MSTR, JES Subsystem)
 JCL Procedure Name. . . _________________________
 Startup Parameters. . .
 ____________________________________________________

Line Commands: S (Cmd), C (Cmd)

Cmd  Phase     Description                              Cmd

___  PRESTART     Executed before startup is initiated
___  STARTUP      Executed to initiate the startup
___  POSTSTART    Executed after startup has completed
___  REFRESHSTART Executed after recycle or INGAMS REFRESH
___  ANYSTART     Executed after POSTSTART and REFRESHSTART
```

Figure 117. Subsystem Startup Processing Panel

For each application, you can specify a list of commands (startup procedures) that are used:

- Before the application is started
- To start the application
- After the application has started

All specified commands are processed during the different startup phases of the application. The STARTUP policy item is used to specify all the necessary commands.

The advantage of this is that you can have SA z/OS perform certain actions for the preparation of an application. For example, before starting CICS, you can have the VTAM major node activated.

The fields in the subheader area can be inherited individually from a linked class and if they have been inherited, they are shown in a different color. Any commands that have been inherited for the prestart, start or poststart phases are also shown in this color in the **Cmd** column. You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line, moving the cursor to the field of interest and pressing Enter.

Command definitions are inherited per start phase. For example, if a PRESTART command is defined for the instance and both PRESTART and STARTUP commands have been defined for the class, the instance inherits the STARTUP commands from the class.

You can fill in the following fields:

Scheduling Subsystem
This optional field specifies the name of the subsystem that is to schedule the current application. See Scheduling Subsystem in “Creating a New Application” on page 123 for more details.

JCL Procedure Name
Specifies the name of the JCL procedure that is used to create this instance of the application. See JCL Procedure Name in “Creating a New Application” on page 123 for more details.

Startup Parameters
Specifies the desired subsystem startup parameters. See Startup Parameters in “APPLICATION INFO Policy Item” on page 132 for more details.

Specifying Startup Commands

You can specify commands by entering S or C in the **Cmd** field for the following startup phases:

PRESTART
Commands entered for this type are issued before the application is started. You can use these to perform preparation work, for example, having SA z/OS issue VTAM commands to activate additional connections.

If a PrepAvailable relationship is defined for the resource, the PRESTART commands are executed when the PrepAvailable condition is satisfied, or as soon as the start request becomes a winning one. Therefore, if the PRESTART commands rely on another resource running, you should define a PrepAvailable relationship.

STARTUP
You should enter only one command that is issued to start the application.

If you select this option, you need to specify the complete startup command, otherwise, no automatic startup command is generated from the policy specified in the APPLICATION INFO policy item (in the **Job Name** and **JCL Procedure Name** entry fields).

POSTSTART
Commands entered for this type are issued immediately after the UP message has been received.

REFRESHSTART
Commands entered under this phase are issued after a recycle of SA z/OS or after an INGAMS REFRESH which caused data changes in the subsystem. They are issued whether the subsystem has been started by SA z/OS or not.

ANYSTART
Commands entered under this phase are issued after the POSTSTART and after the REFRESHSTART commands.

The **Cmd** column displays the number of commands that have been entered for a particular startup entry.

For each of these phases (PRESTART, STARTUP, POSTSTART, REFRESHSTART and ANYSTART) a Command Processing panel for that phase is displayed (as shown in Figure 118 on page 162 for the POSTSTART), where you can enter the startup commands that are specific to the current application.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNC    Command Processing : POSTSTART           Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Mixed case . . . NO   (YES NO)

Cmd Type       AutoFn/* Command Text
___ WARM       NETOPER  VARY NET,ACT,ID=APL&SUBSJOB_____________________________
___ WARM       JESOPER  MVS $SI U0-U5___________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
```

Figure 118. Command Processing Panel for Startup Commands

The entries on this panel can be inherited from a class, in which case they are displayed in a different color. Because all of the commands are inherited together, if you edit one of them they all change color to indicate that they are now particular to that instance.

You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line.

You can use line commands in the **Cmd** field to manipulate the entries on this panel as described in Line Commands on Message Processing Panels in “How to View Long Input Fields in Full Length” on page 25.

Use the following fields to enter the commands that are particular to this start phase:

Mixed case
Specify whether the value entered in the **Data** field remains unchanged (YES) or is translated to upper case characters automatically (NO).

Type
Enter the condition (for example, COLD) that the command should be executed for. NORM is a predefined type of SA z/OS.

Leaving this field blank means that the command is executed for any condition.

AutoFn/*

See **AutoFn/*** in "Command Processing" on page 146 for a detailed description.

Command Text
Enter the command or command list that is to be issued. You must preface a system command with MVS.

SHUTDOWN Policy Item

If you select the SHUTDOWN policy item from the Policy Selection panel for Applications, the Subsystem Shutdown Processing panel is displayed, as shown in Figure 119 on page 163.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
                          Subsystem Shutdown Processing
Command ===> ____________________________________________________________________


Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : CANSM2RC              Enterprise Name : USER_ENTERPRISE

Shutdown Pass Interval. . _______ (hh:mm:ss)

Line Commands: S/C (Cmd), R (Rep)

Cmd     Phase    Description                                   Cmd  Rep

___     INIT     Executed when shutdown is initiated
___     NORM     Executed when normal shutdown is invoked       2
___     IMMED    Executed when immediate shutdown is invoked    2
___     FORCE    Executed when force shutdown is invoked        1
___     FINAL    Executed after final termination message
```

Figure 119. Subsystem Shutdown Processing Panel

The SHUTDOWN policy is used to specify the shutdown pass interval (which is also available on policy APPLICATION INFO) and all the commands necessary to shutdown a subsystem and follow-on activities.

Any commands or replies that have been inherited from linked classes for the different shutdown phases are shown in a different color in the **Cmd** and **Rep** columns.

You should bear in mind the following inheritance behavior for shutdown definitions:

- Shutdown specifications are inherited per phase. For example, if you define a SHUTINIT command for an instance that has been linked to a class that has both SHUTINIT and SHUTNORM commands defined for it, the instance inherits only the SHUTNORM commands from the class.
- Command and reply definitions for each phase are inherited together. For example, if you define a command for the SHUTFORCE phase for an instance that is linked to a class that has a reply defined for SHUTFORCE, nothing is inherited by that instance.
- If you modify any inherited data, that definition becomes one for the current application. For example, if command and reply definitions are inherited for a phase and you then modify the commands, both

the reply and command definitions become data for the current application. This is also the case if an instance inherits only command definitions for a phase and you then define a reply for that phase.

You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line, moving the cursor to the field of interest and pressing Enter.

Because shutdown procedures may involve replies to outstanding messages as well as commands, the **Cmd** field is used to indicate whether a command or reply is to be specified for a particular shutdown phase. If you enter either CMD or REP, you go to another panel where the actual commands and replies can be defined.

Shutdown Pass Interval
Specifies how long SA z/OS waits for attempts to shutdown the subsystem. These attempts are defined in the following shutdown phases.

If the field is left blank the value can be inherited from a class or the application defaults definition. If nothing specified nor inherited the automation agent supplied default is 2 minutes.

Similar to the startup processing of applications described in the previous section, the following commands or replies can be chosen from this panel:

INIT
Commands and replies that you enter for this phase are issued when the shutdown process is initiated (that is, before the subsystem is brought down). Possible entries could be commands to send out warning messages to users or quiescing activities.

If you specified a PREPUNAVAILABLE relationship, the commands listed under INIT will be executed if the condition is satisfied.

Initial shutdown commands do any necessary processing for an application when shutdown begins, for example:

- You can use initial shutdown commands to issue a warning to any logged-on users that the application is shutting down.
- For the JES2 subsystem, you may wish to stop users on JES2 NJE lines from starting new transmissions or sessions.

Note: You should not use the initial shutdown commands to actually shut down the application because unpredictable results may occur.

NORM
If the NORM option is selected for the INGREQ STOP command, all the commands and replies that are entered for this phase are issued. These entries should be the commands and replies that perform a normal shutdown of the subsystem.

IMMED
The commands and replies specified here are run if the IMMED option for INGREQ STOP is selected. These entries bring the subsystem down immediately.

FORCE
The entries specified here are run if the FORCE option for INGREQ STOP is selected. The commands and replies would be the typical ones a user would enter to force a subsystem off the system without any delay.

FINAL
The commands specified here are run after the final termination message has been received. Note that shutdown reply processing is not allowed for FINAL phases, that is, you can only specify commands for this shutdown phase.

The **Cmd** and **Rep** columns display the number of commands or replies that have been entered or inherited from a linked class for a particular shutdown entry.

You can use the *multiple pass* feature to issue one or more groups of shutdown commands or replies for all shutdown types except initial shutdown. Commands or replies with 1 in their corresponding pass fields are the entries that are issued during the first attempt at shutting down the subsystem. If, after a specified

amount of time (entered in the **Shutdown Pass Interval** field on this panel) the subsystem is still not down, another attempt (or pass) is made. The next pass runs all entries that have 2 in their pass field. This continues until the subsystem is down. Each pass may consist of zero or more commands and zero or one reply. Note that issuing multiple replies on a single pass is *not* advisable. Either code secondary replies on subsequent passes or chain them through the automation table and ISSUEREP.

All commands for a given pass are processed before any replies for that pass are processed. After each set of commands and replies is issued, SA z/OS waits for the amount of time defined in the **Shutdown Pass Interval** field on this panel. After that time, if a call to the application monitor routine shows that the application has not shut down, the commands or reply, or both, defined for the next pass are issued. If a call to the application monitor routine shows that the application has shut down, any subsequent shutdown passes are not processed. If the final termination message is not received within the time specified in AOFSHUTDELAY, SA z/OS assumes that the application is down.

If SA z/OS processes all the shutdown passes defined for an application and the application monitor routine still shows the application as active, a warning is sent to the operator and the application status is set to STUCK.

The next panel that is displayed depends on the type of shutdown processing that you specify in the **Cmd** field for the shutdown phases on the Subsystem Shutdown Processing panel:

- Specify command processing for all shutdown types by entering CMD, C or S.
- Specify reply processing for all shutdown types except FINAL by entering REP or R.

How to proceed is described in the following sections:

- "Shutdown Command Processing for INIT or FINAL" on page 165
- "Shutdown Command Processing for NORM, IMMED, or FORCE" on page 166
- "Shutdown Reply Processing for INIT" on page 167
- "Shutdown Reply Processing for NORM, IMMED, or FORCE" on page 168

Shutdown Command Processing for INIT or FINAL

To define shutdown commands for INIT or FINAL phases, you enter S or C in the **Cmd** field on the Subsystem Shutdown Processing panel for those phases. This displays a Command Processing panel, as shown in Figure 120 on page 165.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGDYNC    Command Processing : SHUTINIT            Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)

Cmd Type       AutoFn/* Command Text
___ ___________ ________ MVS SEND 'VTAM COMING DOWN SHORTLY'_____________________
___ ___________ ________ ______________________________________________________
___ ___________ ________ ______________________________________________________
___ ___________ ________ ______________________________________________________
___ ___________ ________ ______________________________________________________
___ ___________ ________ ______________________________________________________
___ ___________ ________ ______________________________________________________
___ ___________ ________ ______________________________________________________
___ ___________ ________ ______________________________________________________
___ ___________ ________ ______________________________________________________
```

Figure 120. Command Processing Panel for SHUTINIT or SHUTFINAL

You can use line commands in the **Cmd** field to manipulate the entries on this panel as described in "Specifying Startup Commands" on page 161.

Use the following fields to enter the commands that are particular to the specified shutdown phase:

Mixed case
Specify whether the value entered in the **Data** field remains unchanged (YES) or is translated to upper case characters automatically (NO).

Type
Enter the condition that the command should be executed for. The following values (for the corresponding shutdown phases) are allowed:

Condition	Shutdown phase
NORM	SHUTNORM
IMMED	SHUTIMMED
FORCE	SHUTFORCE

Leaving this field blank means that the command is executed for any condition.

AutoFn/*

See **AutoFn/*** in "Command Processing" on page 146 for a detailed description.

Command Text
Enter the command or command list that is to be issued. You must preface a system command with MVS.

Notes:

1. You cannot issue multiple passes of initial shutdown commands.
2. Do not invoke MDFYSHUT.

The entries on this panel can be inherited from a class, in which case they are displayed in a different color. Because all of the commands are inherited together, if you edit one of them they all change color to indicate that they are now particular to that instance.

You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line.

Shutdown Command Processing for NORM, IMMED, or FORCE

To define shutdown commands for NORM, IMMED, or FORCE phases, you enter S or C in the **Cmd** field on the Subsystem Shutdown Processing panel for those phases. This displays a Command Processing panel, as shown in Figure 121 on page 166.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNC    Command Processing : SHUTNORM            Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)

Cmd Ps AutoFn/* Command Text
___ 1_ ________ MVS Z NET,QUICK_____________________________________________
___ 2_ ________ MVS Z NET,CANCEL____________________________________________
___ __ ________ ____________________________________________________________
___ __ ________ ____________________________________________________________
___ __ ________ ____________________________________________________________
___ __ ________ ____________________________________________________________
___ __ ________ ____________________________________________________________
___ __ ________ ____________________________________________________________
___ __ ________ ____________________________________________________________
___ __ ________ ____________________________________________________________
```

Figure 121. Command Processing Panel for SHUTNORM, SHUTIMMED, or SHUTFORCE

You can use line commands in the **Cmd** field to manipulate the entries on this panel as described in "Specifying Startup Commands" on page 161.

Use the following fields to enter the commands that are particular for the specified shutdown phase:

Mixed case
Specify whether the value entered in the **Data** field remains unchanged (YES) or is translated to upper case characters automatically (NO).

Ps (Pass)
You can enter any number between 1 and 99 in this field. Commands or replies with 1 in their corresponding **Pass** field are the entries that are issued during the first attempt at shutting down the subsystem.

If after a specified amount of time (entered in the **Shut Delay** field on the Subsystem Definition panel) the subsystem is still not down, another attempt (or pass) is made. The next pass runs all entries that have 2 in their **Pass** field. This continues until the subsystem is down. If you do not specify a pass for a command, it is issued on every pass.

For example, Figure 121 on page 166 defines the normal shutdown commands that are issued for the VTAM subsystem. This example defines two passes of shutdown commands. On the first pass, the command `MVS Z NET,QUICK` is issued. On the second pass, the command `MVS Z NET,CANCEL` is issued.

In another example, `MVS P TSO` could be a command for pass 1 and `MVS C TSO` could be the command for pass 2 (which means that if purging TSO fails, it is canceled).

AutoFn/*

See **AutoFn/*** in "Command Processing" on page 146 for a detailed description.

Command Text
Enter the command or command list to be issued. You must preface any system command with MVS.

If you want to use MDFYSHUT to change the shutdown pass processing, you should specify it as a command on one of the passes.

The entries on this panel can be inherited from a class, in which case they are displayed in a different color. Because all of the commands are inherited together, if you edit one of them they all change color to indicate that they are now particular to that instance.

You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line.

Shutdown Reply Processing for INIT

You enter R in the **Cmd** field for the INIT phase on the Subsystem Shutdown Processing panel to define shutdown replies for that phase. This displays a Reply Processing panel, as shown in Figure 122 on page 167.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGDYN9    Reply Processing : SHUTINIT              Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Cmd Type     Ct Reply Text
___ NORM     __ GO_____________________________________________________________
___ _________ __ _____________________________________________________________
___ _________ __ _____________________________________________________________
___ _________ __ _____________________________________________________________
___ _________ __ _____________________________________________________________
___ _________ __ _____________________________________________________________
___ _________ __ _____________________________________________________________
___ _________ __ _____________________________________________________________
___ _________ __ _____________________________________________________________
___ _________ __ _____________________________________________________________
```

Figure 122. Reply Processing Panel for SHUTINIT

You can use line commands in the **Cmd** field to manipulate the entries on this panel as described in "Specifying Startup Commands" on page 161.

Use the following fields to enter the replies that are particular to the specified shutdown phase:

Type
Enter the condition that the command should be executed for. The following values (for the corresponding shutdown phases) are allowed:

Condition	Shutdown Phase
NORM	SHUTNORM
IMMED	SHUTIMMED
FORCE	SHUTFORCE

Ct (Retry Count)
Enter a number in the range 1 to 99 in this field to define the number of retry attempts that are made before the common routine decides that a reply cannot be issued. A retry occurs when the outstanding reply number is not available. For the first retry there is a one-second delay, and for all further retries there is a two-second delay. The default retry count is 0.

Reply Text
Enter the reply that is to be issued when the selected shutdown phase is invoked for this subsystem. For a null reply enter NULL as the reply.

The entries on this panel can be inherited from a class, in which case they are displayed in a different color. Because all of the commands are inherited together, if you edit one of them they all change color to indicate that they are now particular to that instance.

You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line.

Shutdown Reply Processing for NORM, IMMED, or FORCE

To define shutdown replies for NORM, IMMED, or FORCE phases, you enter R in the **Cmd** field on the Subsystem Shutdown Processing panel for those phases. This displays a Reply Processing panel, as shown in Figure 123 on page 168.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN9    Reply Processing : SHUTNORM              Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Cmd Ps Ct Reply Text
___ 1  9  SHUT                                                          
___ 3  9  I TA                                                          
___ 4  9  I TER ACQ                                                     
___ 5  9  END                                                           
___ __ __ ______________________________________________________________
___ __ __ ______________________________________________________________
___ __ __ ______________________________________________________________
___ __ __ ______________________________________________________________
___ __ __ ______________________________________________________________
___ __ __ ______________________________________________________________
```

Figure 123. Reply Processing Panel for SHUTNORM, SHUTIMMED and SHUTFORCE

You can use line commands in the **Cmd** field to manipulate the entries on this panel as described in “Specifying Startup Commands” on page 161.

Use the following fields to enter the replies that are particular to the specified shutdown phase:

Ps (Pass)
Enter a number between 1 and 99 in this field. Commands or replies with 1 in their corresponding **Pass** field are the entries that are issued during the first attempt at shutting down the subsystem.

If, after a specified amount of time (entered in the **Shut Delay** field on the Subsystem Definition panel) the subsystem is still not down, another attempt (or pass) is tried. The next pass runs all

entries that have 2 in their **Pass** field. This continues until the subsystem is down. A pass number is required for each shutdown reply.

For example, `MVS P TSO` could be a command for pass 1 and `MVS C TSO` could be the command for pass 2 (which means that if purging TSO fails, it is canceled).

Ct (Retry Count)
Enter a number in the range 1 through 99 in this field to define the number of retry attempts that are made before the common routine decides that a reply cannot be issued. A retry occurs when the outstanding reply number is not available. For the first retry there is a one-second delay, and for all further retries there is a two-second delay. The default retry count is 0.

Reply Text
Enter the reply to be issued when the selected shutdown phase is invoked for this subsystem. For a null reply enter NULL as the reply.

The entries on this panel can be inherited from a class, in which case they are displayed in a different color. Because all of the commands are inherited together, if you edit one of them they all change color to indicate that they are now particular to that instance.

You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line.

THRESHOLDS Policy Item

The Thresholds Definition panel is displayed if you select policy item THRESHOLDS on the Policy Selection panel for applications, as shown in Figure 124 on page 169.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNA                   Thresholds Definition               Line 00000001
Command ===> _____________________________________________ Scroll ===> CSR

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : APPL1                 Enterprise Name : USER_ENTERPRISE

Resource   : APPL1

Critical Number  . . . . 5          (1 to 50)
Critical Interval  . . . 00:10:00   (hh:mm:ss or hhmmss, 00:00:01 to 24:00:00)

Frequent Number  . . . . 3          (1 to 50)
Frequent Interval  . . . 01:00:00   (hh:mm:ss or hhmmss, 00:00:01 to 24:00:00)

Infrequent Number  . . . 3          (1 to 50)
Infrequent Interval  . . 12:00:00   (hh:mm:ss or hhmmss, 00:00:01 to 24:00:00)
```

Figure 124. Thresholds Definition Panel

The information provided in the THRESHOLDS dialogs is used to determine when an operator should be notified of an error situation. An attempt at recovering an error (such as an abend of a subsystem) is handled by automation, but an operator may want to know if this error is occurring often.

Thresholds can be set that let the operator know if certain errors are occurring infrequently, frequently or have reached a critical stage where the recovery process should be ended (to avoid endless loops). This is done by specifying how many times an error must happen in a certain time period for each error situation.

The entries on this panel can be inherited from a class, in which case they are displayed in a different color. Because all of the thresholds are inherited together, if you edit one of them, all of the thresholds change color to indicate that they are now particular to that instance because they are no longer inherited.

You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line.

You can define three different threshold levels:

Infrequent
Issues a warning message and restart processing is done.

Frequent
Issues a warning message, but restart processing is still done.

Critical
Sets the resource to a status of BROKEN, stops the restart automation and issues a message.

You can enter data in the following fields:

Number
This field is used to define the number of occurrences of an error that creates the particular error level. The range of allowable numbers is 1 to 50.

Interval
The number of errors entered in the **Number** field must occur in a certain time period in order to create a specific error level. You specify this time period in the **Interval** field. You can specify it in the form HH:MM:SS or HHMMSS. Valid values are 00:00:01 to 24:00:00.

The values entered in the **Number** and **Interval** fields should be such that the threshold levels are reached in a logical manner (a critical threshold should not be reached before a frequent threshold).

Not all three threshold levels need be specified, for example, if an application needs only a specification for the critical number and interval, you can leave the frequent and infrequent fields empty.

For more information on setting thresholds, see the section "How SA z/OS Uses Error Thresholds" in *IBM System Automation for z/OS User's Guide*.

MINOR RESOURCES Policy Item

The Minor Resource Definitions panel, as shown in Figure 125 on page 170, is displayed if you select the MINOR RESOURCES policy item on the Policy Selection panel for applications.

The "Minor Resource" panel shows all minor resources which have been defined for the current object. It allows the user to key in particular minor resources to specify specific thresholds or automation flag settings. For applications, also the inherited minor resources are displayed in a different color.

```
   COMMANDS  HELP
 ------------------------------------------------------------------------------
 AOFGMRES                  Minor Resource Definitions         Row 1 to 9 of 20
 Command ===> _____________________________________________  SCROLL===> PAGE

 Entry Type : Application           PolicyDB Name   : USER_PDB
 Entry Name : APPL1                 Enterprise Name : USER_ENTERPRISE


 Line Commands: F (Flg), S (Thr), T (Thr), CN (Class Name)
                I, D (insert or delete lines)

                                                - Automation Flags -
 Cmd  Minor Resource Name            Thres   A   I   S   R   T
RS
 ___  ____________________________________
 ___  ____________________________________
 ___  ____________________________________
 ___  ____________________________________
 ___  ____________________________________
 ___  ____________________________________
 ___  ____________________________________
 ___  ____________________________________
 ___  ____________________________________
```

Figure 125. Minor Resource Definitions Panel

The following fields can be entered on the "Minor Resource" panel:

Cmd
One of the following values can be placed in this field: FLG, THR, F, S, T, I, or D.

FLG (F)
allows to enter automation flag definitions for minor resources.

THR (T, S)
allows to enter threshold definitions for minor resources.

I
allows to insert one or more lines into the data.

I
causes one line to be inserted.

I3
causes 3 lines (or any number of lines) to be inserted.

D
allows to delete one or more minor resources except inherited data lines which cannot be deleted.

D
identifies a single minor resource that is to be deleted.

D5
identifies the first 5 minor resources (or any number of minor resources) to be deleted.

CN
The CN command is available for entry type **Applications**.

It displays the class name for the column where the cursor is positioned. If the cursor is in the "Cmd" column and data are inherited from one class, only then that class name is shown. If data are inherited from multiple classes, then the name of the "lowest-level" class is shown.

Minor resource name
The minor resource name for which specific automation is required. The following rules apply to the minor resource names:

- The name cannot contain any of the following characters: comma, single quotation mark, double quotation mark, left or right parenthesis, equal sign or a blank.
- The name cannot start or end with a period.
- The name cannot contain consecutive periods.
- The length concatenated with the "major name" cannot exceed 32 characters. The "major name" is the subsystem name for **APL** processing or MVSESA for **MVS Component** processing

For **MVS Component** processing, special minor resource names might be used:

MVSDUMP
corresponds to system messages saying that an SVC dump has been taken (IEA611I and IEA911E).

SMFDUMP

corresponds to system messages saying that the smfdump data set is full or has been switched (IEE362A, IEE362I, IEE391A and IEE392I).

LOGREC
corresponds to system messages saying that the logrec data set is full or nearly full (IFB040I, IFB060E, IFB080E, IFB081I and IFC001I).

SYSLOG
corresponds to system messages saying that the syslog has been queued (IEE043I).

LOG
corresponds to system messages saying that the syslog has become inactive (IEE037D -followed by IEE043I, IEE533E or IEE769E- and IEE041I).

The defined automation flags and thresholds for these minor resources together with defined commands to messages of the same name are used by automation routines, which are provided by SA z/OS for recovery actions as described in chapter "Automation Solutions" in *System Automation for z/OS Customizing and Programming*.

The **Thres** and the **- Automation Flags -** fields show an asterisk if there are user data. If the data is defined on a linked class, then the asterisk is shown in the color of inherited data.

For entry types **MVS Components** and **MVSCOMP Defaults**, only the automation flags **Automation (A)** and **Recovery (R)** may show an asterisk because the other flags are not supported.

The **COMMANDS** choices on the action bar show the valid commands and their abbreviations, if available.

SYSTEM ASSOCIATION Policy Item

The System Association panel, as shown in Figure 126 on page 172, is displayed if you select the SYSTEM ASSOCIATION policy item on the Policy Selection panel for applications. Note that the specified definitions are not used for automation by SA z/OS. They are for customer-specific purposes only.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGLPD0                      System Association              Row 1 to 3 of 3
Command ===> ____________________________________________________ SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : APPL1                 Enterprise Name : USER_ENTERPRISE

Action      Association      System
__________  PRIMARY          SYSTEM1
__________  PRIMARY          SYSTEM2
__________  PRIMARY          SYSTEM3
```

Figure 126. System Association Panel

Using MOVED and FALLBACK Status

SA z/OS provides two automation statuses, MOVED and FALLBACK, to handle applications that normally run on one system (the primary) but which can run on an alternative system (the secondary) if the primary is unavailable.

SA z/OS does not provide any logic to actually perform a fallback from a primary to a secondary system. If you want cross-system fallback, you must provide the coordinating logic yourself.

If you want the application moved automatically you will have to write your own code or define a MOVE-group.

GENERATED RESOURCES Policy Item

The Generated Resources panel appears if you select the GENERATED RESOURCES policy item from the Policy Selection panel for Applications.

See Figure 127 on page 172. This panel shows all resources that are generated by SA z/OS for the application. This panel is for information only. No actions are allowed.

Application resources are generated when a link between an application and a system occurs. Applications can never be linked directly to systems. This link happens indirectly by linking an application to an application group (either in an application's WHERE USED policy item or in an application group's APPLICATIONS policy item.)

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGXRSG                     Generated Resources                 Row 1 of 2
Command ===> ____________________________________________  SCROLL===> PAGE


Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : NET                   Enterprise Name : USER_ENTERPRISE

 Resource Name                 Generated by link to
 NET/APL/SYSTEM1               SYSTEM1
 NET/APL/SYSTEM2               SYSTEM2
```

Figure 127. Generated Resources Panel

This panel displays the following information:

Resource Name
Shows the resources that have generated for the application.

Generated by link to
This says who the owner of a resource is. In this case; owners are application groups because the current entry is an APL.

A link to the owner creates the resource, unlinking from the owner (or deletion of the owner) deletes the resource.

MEMBER OF Policy Item for Applications

The Member of panel is displayed if you select policy item *MEMBER OF* on the Policy Selection panel for applications.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGXMOF                            Member of                    Row 1 of 2
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : AOR1                  Enterprise Name : USER_ENTERPRISE

 Own Resource...           ...is a member of         Preference  Nature
 AOR1/APL/SYS1             AOR_G/APG                 700         MOVE/SERVER
 AOR1/APL/SYS2             AOR_G/APG                 700         MOVE/SERVER
```

Figure 128. Member of Panel for Applications

This panel lists all Resources where this Application is a member "resource-wise", that is, it lists all relations from resources that have been derived from the current Application to other resources. This panel is for information only. No data can be changed.

Use the RESOURCES policy of an APG to add or remove it to the list in the **...is a member of** column (that is in the RESOURCES policy of the APG Entry Name that the member of Resource was derived from).

In this example, this panel is invoked for application AOR1, which is a member of a Sysplex Application Group. In such a case, you will see all the resources that are generated for the sysplex.

Policy Items for JES2 Subsystems

Figure 129 on page 173 is an example of a Policy Selection panel for a JES2 subsystem.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection           Row 14 to 26 of 26
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : JES2                  Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
            …
___________ -------------------- -----JES2 SPECIFIC POLICY--------------------
___________ JES2 SPOOLFULL CNTL      Define JES2 spool full procedures
___________ JES2 SPOOLFULL CMDS      Define JES2 spool full commands
___________ JES2 SPOOLSHORT CNTL     Define JES2 spool short procedures
___________ JES2 SPOOLSHORT CMDS     Define JES2 spool short commands
___________ JES2 DRAIN CMDS          Define JES2 drain commands
___________ -------------------- ----------------------------------------------
            …
```

Figure 129. Policy Selection Panel for JES2 Subsystems

See “Policy Items for Applications” on page 127 for descriptions of most policy items on this panel. The additional policy items are:

JES2 SPOOLFULL CNTL
Provides for recovery from a JES spool full condition. Figure 130 on page 174 shows the recovery parameters that can be specified for JES2 when this policy item is selected.

JES2 SPOOLFULL CMDS
Provides for the specification of recovery commands for JES spool full condition. See JES2 SPOOLFULL CMDS Policy Item on page "JES2 SPOOLFULL CMDS Policy Item" on page 175.

JES2 SPOOLSHORT CNTL
Provides for recovery from JES spool shortage condition. The recovery parameters available for JES2 spool shortage recovery are the same as for spool full recovery. See "JES2 SPOOLSHORT CNTL Policy Item" on page 175.

JES2 SPOOLSHORT CMDS
Provides for the specification of recovery commands for JES spool short condition. See "JES2 SPOOLSHORT CMDS Policy Item" on page 176.

JES2 DRAIN CMDS
Allows you to specify which JES resources are to be drained and how they are to be drained in the event that a JES2 shutdown fails. See "JES2 DRAIN CMDS Policy Item" on page 176.

JES2 SPOOLFULL CNTL Policy Item

If you select policy item SPOOLFULL CNTL for a JES2 subsystem, SA z/OS displays the SPOOLFULL Specification panel.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGDYNA                      JES2 SPOOLFULL Specification
Command ===> ____________________________________________________________

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : JES2                  Enterprise Name : USER_ENTERPRISE

Spool Full Retry Time . . . . 00:02:00      (hh:mm:ss)
Spool Full Buffer . . . . . . 5             (0 to 50)
Spool Full Reset Time . . . . ________      (hh:mm:ss)


Enter priority of systems for spool recovery:
Spool Full Recovery SMFID  1 . . SYS1
Spool Full Recovery SMFID  2 . . SYS2
Spool Full Recovery SMFID  3 . . SYS3
Spool Full Recovery SMFID  4 . . ____
Spool Full Recovery SMFID  5 . . ____
Spool Full Recovery SMFID  6 . . ____
Spool Full Recovery SMFID  7 . . ____
Spool Full Recovery SMFID  8 . . ____
Spool Full Recovery SMFID  9 . . ____
Spool Full Recovery SMFID 10 . . ____
Spool Full Recovery SMFID 11 . . ____
Spool Full Recovery SMFID 12 . . ____
Spool Full Recovery SMFID 13 . . ____
Spool Full Recovery SMFID 14 . . ____
Spool Full Recovery SMFID 15 . . ____
Spool Full Recovery SMFID 16 . . ____
Spool Full Recovery SMFID 17 . . ____
Spool Full Recovery SMFID 18 . . ____
```

Figure 130. SPOOLFULL Specification Panel for JES2

The following parameters can be entered:

Retry Time
The time entered in this field defines the time between attempts at spool recovery. If the first set of recovery commands has been issued and the spool is not recovered after this amount of time, the second set of defined commands is issued. Time range 00:00:00 to 23:59:59. The default is 5 minutes.

Buffer
The percentage amount of spool that is to be recovered under the threshold (TGWARN for SPOOLSHORT, 100% for SPOOLFULL). The value must be positive and less than 75% of the threshold value. If invalid or not specified a default of 5 is used. For example, if TGWARN is set to 80 and Buffer is set to 10, SPOOLSHORT recovery will continue until spool utilization is less than 70%.

Reset time
This is the amount of time that must elapse after the spool has been driven below the recovery target before the spool incident is considered to be closed. If the spool exceeds the trigger threshold again before this interval is up, the recovery will begin again with the next pass, rather than restarting from pass 1.

The default is 15 minutes.

SMFID
An ordered list of system IDs belonging to the JES2 subsystems sharing the JES spool in a MAS definition. During the recovery the JES2 command D MEMBER,STATUS=ACTIVE,NAME is issued and the first machine in the list that is active on the display response is assumed to be responsible for handling the recovery.

Note:

- You must keep the SMFID lists for JES subsystems sharing the spool space in synchronization.
- If SA z/OS cannot find an active machine in the SMFID list, it will assume responsibility for the recovery itself. This can lead to multiple machines issuing recovery commands if your lists are incomplete.

JES2 SPOOLFULL CMDS Policy Item

If you select policy item SPOOLFULL CMDS you can specify recovery commands for JES spool full to be issued on each attempt at recovery. Figure 131 on page 175 shows the SPOOLFULL Processing panel where you can enter commands to be issued during SPOOLFULL processing.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNC    Command Processing : SPOOLFULL            Line 00000001 Col 001 075
Command ===> ____________________________________________________ Scroll ===> CSR

Mixed case . . . NO_  (YES NO)

Cmd Ps AutoFn/* Command Text
___ 1_ ________ MVS $D JOBQ,SPOOL=10                                          ___
___ 1_ ________ MVS $O JOBQ,ALL,CANCEL,DA>2                                   ___
___ __ ________ ______________________________________________________________ ___
___ __ ________ ______________________________________________________________ ___
```

Figure 131. SPOOLFULL Processing Panel for JES2

Commands are issued by passes, so a command to be issued on every pass should be specified without pass specification. Two substitution variables (EHKVAR1 and EHKVAR2) are available. EHKVAR1 contains the current spool utilization, and EHKVAR2 contains the recovery target.

JES2 SPOOLSHORT CNTL Policy Item

If you select policy item SPOOLSHORT CNTL for a JES2 subsystem, SA z/OS displays the SPOOLSHORT Specification panel, as shown in Figure 132 on page 176.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNA                     JES2 SPOOLSHORT Specification      Line 00000001
Command ===> ____________________________________________________  SCROLL ===> CSR

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : JES2                  Enterprise Name : USER_ENTERPRISE

Spool Shortage Retry Time . . . . 00:02:00      (hh:mm:ss)
Spool Shortage Buffer . . . . . . 5             (0 to 50)
Spool Shortage Reset Time . . . . ________      (hh:mm:ss)


Enter priority of systems for spool recovery:
Spool Shortage Recovery SMFID  1 . . SYS1
Spool Shortage Recovery SMFID  2 . . SYS2
Spool Shortage Recovery SMFID  3 . . SYS3
Spool Shortage Recovery SMFID  4 . . ____
Spool Shortage Recovery SMFID  5 . . ____
Spool Shortage Recovery SMFID  6 . . ____
Spool Shortage Recovery SMFID  7 . . ____
Spool Shortage Recovery SMFID  8 . . ____
Spool Shortage Recovery SMFID  9 . . ____
Spool Shortage Recovery SMFID 10 . . ____
Spool Shortage Recovery SMFID 11 . . ____
Spool Shortage Recovery SMFID 12 . . ____
Spool Shortage Recovery SMFID 13 . . ____
Spool Shortage Recovery SMFID 14 . . ____
Spool Shortage Recovery SMFID 15 . . ____
Spool Shortage Recovery SMFID 16 . . ____
Spool Shortage Recovery SMFID 17 . . ____
Spool Shortage Recovery SMFID 18 . . ____
```

Figure 132. SPOOLSHORT Specification Panel

The parameters that can be entered on this panel are similar to those described in "JES2 SPOOLFULL CNTL Policy Item" on page 174, and the SPOOLSHORT Specification panel is similar to the SPOOLFULL Specification panel.

JES2 SPOOLSHORT CMDS Policy Item

If you select policy item SPOOLSHORT CMDS you can specify recovery commands for JES spool shortage to be issued on each attempt at recovery. Figure 133 on page 176 shows the SPOOLSHORT Processing panel where you can enter commands to be issued during SPOOLSHORT processing.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNC    Command Processing : SPOOLSHORT            Line 00000001 Col 001 075
Command ===> ____________________________________________ Scroll ===> CSR

Mixed case . . . NO   (YES NO)

Cmd Ps AutoFn/* Command Text
___ 1  ________ MVS $D JOBQ,SPOOL=(%>3)_____________________________________________
___ __ ________ ____________________________________________________________________
___ __ ________ ____________________________________________________________________
___ __ ________ ____________________________________________________________________
```

Figure 133. SPOOLSHORT Commands Processing Panel for JES2

JES2 DRAIN CMDS Policy Item

If you select the DRAIN CMDS policy item for a JES2 subsystem, SA z/OS displays the JES2 DRAIN Specification panel, as shown in Figure 134 on page 177.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGDYNA                    JES2 DRAIN Specification
Command ===> ____________________________________________________________________

Entry Type : Application          PolicyDB Name   : USER_PDB
Entry Name : JES2                 Enterprise Name : USER_ENTERPRISE


Enter YES or NO for initial drain to bring down JES2 facilities:

Drain lines  . . . . . .  YES        (YES NO)
Drain VTAM interface . . .  YES      (YES NO)
Drain spool offloaders . . .  NO     (YES NO)
Drain printers . . . . . .  YES      (YES NO)
Drain readers  . . . . . .  YES      (YES NO)
Drain punches  . . . . . .  YES      (YES NO)

Enter NO or a command for force drain if normal drain fails:
Force drain lines  . . . . .  $E                  (NO, Command)
Force drain VTAM interface . .  $E                (NO, Command)
Force drain spool offloaders .  NO                (NO, Command)
Force drain printers . . . . .  $1                (NO, Command)
Force drain readers  . . . . .  $C                (NO, Command)
Force drain punches  . . . . .  $E                (NO, Command)
```

Figure 134. JES2 DRAIN Specification Panel

This panel is used to identify which JES resources are to be drained and how they are to be drained if a JES shutdown is unsuccessful:

Initial drain
Choose the resources that are to be stopped with a JES $P command. An initial drain occurs either because of a JES shutdown or an operator issued DRAINJES. YES indicates that a stop command should be issued for the resource while a NO (the default) does not drain the resource type.

Force drain
Define the drain command to be entered for each resource if JES has not successfully shut down. Possible JES commands could be Restart ($E), Cancel ($C) or any other appropriate command. If NO is entered (the default), this resource type does not have any commands issued for it.

Policy Items for JES3 Subsystems

Figure 135 on page 177 shows a Policy Selection panel for a JES3 subsystem.

```
  ACTIONS  HELP
-------------------------------------------------------------------------------
AOFGEPOL                      Policy Selection           Row 14 to 24 of 24
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type : Application          PolicyDB Name   : USER_PDB
Entry Name : JES3                 Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
            …
___________ -------------------- -----JES3 SPECIFIC POLICY--------------------
___________ JES3 SPOOLFULL CMDS       Define JES3 spool full commands
___________ JES3 SPOOLSHORT CMDS      Define JES3 spool short commands
___________ -------------------- ----------------------------------------------
            …
```

Figure 135. Policy Selection Panel for JES3 Subsystems

See “Policy Items for Applications” on page 127 for descriptions of most policy items on this panel. The additional policy items are:

JES3 SPOOLFULL CMDS
Allows you to specify recovery from JES spool full condition. For more information see "JES3 SPOOLFULL CMDS Policy Item" on page 178.

JES3 SPOOLSHORT CMDS
Allows you to specify recovery from JES spool short condition. For more information see "JES3 SPOOLSHORT CMDS Policy Item" on page 178.

JES3 SPOOLFULL CMDS Policy Item

If you select policy item SPOOLFULL CMDS for a JES3 subsystem, SA z/OS displays the SPOOLFULL Processing panel, as shown in Figure 136 on page 178.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNC    Command Processing : SPOOLFULL            Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)

Cmd Ps AutoFn/* Command Text
___ __ ________ ____________________________________________________________
___ __ ________ ____________________________________________________________
___ __ ________ ____________________________________________________________
___ __ ________ ____________________________________________________________
```

Figure 136. JES3 SPOOLFULL Processing Panel

Commands are issued by passes, so a command that is to be issued on every pass should be specified with an asterisk * in the **Pass** field. Two substitution variables are available: EHKVAR1 contains the current spool utilization and EHKVAR2 contains the recovery target.

JES3 SPOOLSHORT CMDS Policy Item

If you select policy item SPOOLSHORT CMDS for a JES3 subsystem, SA z/OS displays the SPOOLSHORT Processing panel, as shown in Figure 137 on page 178.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNC    Command Processing : SPOOLSHORT           Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)

Cmd Ps AutoFn/* Command Text
___ 1_ JESOPER_ MVS &SUBSCMDPFXF U,Q=HOLD,AGE=30D, N=ALL, C_____________________
___ 2_ JESOPER_ MVS &SUBSCMDPFXF U,Q=HOLD,AGE=10D, N=ALL, C_____________________
___ 3_ JESOPER_ MVS &SUBSCMDPFXF U,Q=HOLD,AGE=3D, N=ALL, C_____________________
___ 10 JESOPER_ MVS &SUBSCMDPFXF U,Q=HOLD,AGE=1D, N=ALL, C_____________________
```

Figure 137. JES3 SPOOLSHORT Processing Panel

Commands are issued by passes, so a command to be issued on every pass should be specified with an asterisk * in the **Pass** field. Two substitution variables are available: EHKVAR1 contains the current spool utilization and EHKVAR2 contains the recovery target.

Policy Items for CICS Subsystems

Figure 138 on page 179 shows the Policy Selection panel for applications of category CICS (see the **Category** entry field in Figure 93 on page 123). This Policy Selection panel contains additional policy items.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection            Row 19 to 23 of 23
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : CICS                  Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
___________ -------------------- -----CICS SPECIFIC POLICY--------------------
___________ CICS CONTROL        Define CICS subsystem specific data
___________ -------------------- ---------------------------------------------
            …
```

Figure 138. Policy Selection Panel for CICS Subsystems

The CICS specific policy items are:

CICS CONTROL
With this policy item you can define the extended subsystem information required for CICS Automation. For more information, see “CICS CONTROL Policy Item” on page 179.

CICS CONTROL Policy Item

With this policy item you can define the extended subsystem information required for CICS Automation, as shown in Figure 139 on page 179.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNA                CICS control specifications             Line 00000001
Command ===> _____________________________________________ Scroll ===> CSR

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : CPSMCMAS              Enterprise Name : USER_ENTERPRISE

Subsystem  : CPSMCMAS
Subcategory: CMAS        inherited from class  C_CICS_CMAS

ApplID . . . . . .____________________________
```

Figure 139. CICS Control Specifications Panel

Subcategory
This parameter shows the subcategory and can be any value. It can be entered in the **Subcategory** field of the APPLICATION INFO policy item of the application instance or application class. The value shown is either for the application instance or the application class that the application is linked to.

ApplID
The following settings are available:

APPLID
If XRF=NO is coded on the SIT for this CICS subsystem, use this keyword to specify the VTAM application identifier, provided that the name of the VTAM APPL statement and the ACBNAME specified in it are the same.

VTAM-APPL-name VTAM-ACBNAME
If XRF=NO is coded on the SIT for this CICS, but the name of the VTAM APPL statement is different from ACBNAME specified in it, code them both in this entry. The VTAM ACBNAME defined must be the same as that used by the CICS application.

generic-applid specific-applid
If XRF=YES is coded on the SIT for this CICS subsystem, generic-applid is the name given to both the active and alternate subsystem and specific-applid is the specific name for this subsystem. The specific-applid defined must be the same as that used by the CICS application.

The extended CICS subsystem automation that you define here is also described in the CICSCNTL section in *IBM System Automation for z/OS Product Automation Programmer's Reference and Operator's Guide*.

Policy Items for DB2 Subsystems

Figure 140 on page 180 shows the Policy Selection panel for applications that have been created with category DB2 (see the **Category** field in Figure 93 on page 123).

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection                 Row 17 of 21
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : DB2                   Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  -------------------- -----DB2 SPECIFIC POLICY---------------------
__________  DB2 CONTROL          Define DB2 subsystem specific data
__________  -------------------- ---------------------------------------------
            …
```

Figure 140. Policy Selection Panel for DB2 Subsystems

The DB2 specific policy items are:

DB2 CONTROL
With this policy item you can specify additional data for a DB2 subsystem of subcategory MSTR. For more information see “DB2 CONTROL Policy Item” on page 180.

DB2 CONTROL Policy Item

If you select DB2 CONTROL policy item from the Policy Section panel for DB2 subsystems, **and** you have specified the subcategory MSTR, Figure 141 on page 180 is displayed where you describe the DB2 master address space:

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNA                    DB2 Control Entries                Line 00000001
Command ===> _____________________________________________ Scroll ===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : DB2_MSTR              Enterprise Name : USER_ENTERPRISE

Subsystem  : DB2_MSTR
Subcategory: MSTR        defined in policy APPLICATION INFO

Subsystem ID . . . . . . . DB21_____________________
Active Log Dataset . . . .
              DSN1.DB21.LOGCOPY1_____________________________________________
Log Full Threshold . . . . __       (0 to 99 percent)

Process iteration delays:
STOP Tablespace Delay  . . ________ (00:00:00 to 23:59:59)
Active Log Alert . . . . . ________ (00:00:00 to 23:59:59)
Log Alert Threshold  . . . __       (0 to 99)
Log Offload Interval . . . ________ (00:00:00 to 23:59:59)
```

Figure 141. DB2 Control Entries Panel

On this panel, either all the fields are inherited from linked classes all together and displayed in a different color, or none of them are.

You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line.

You can override any inherited values by overtyping them. If you override any values for a class, all the inherited values become specific to that particular class or instance (and thus change color to reflect this).

Subcategory
This parameter shows the subcategory and is always MSTR. It can be entered in the **Subcategory** field of the APPLICATION INFO policy item of the application instance or application class. The value shown is either for the application instance or the application class that the application is linked to.

Subsystem ID
This entry should correspond to the DB2 subsystem ID as defined in the system PARMLIB.

You can include system symbols and system automation symbols. See "Assigning System Automation Symbols (AOCCLONE)" on page 7.

Active Log Dataset
The name of the active log data set to check against before the command to message DSNJ002I is issued. This value is compared with the data set name in the message text. The specified value is implicitly appended with a wildcard character. You can include system symbols and system automation symbols.

Log Full Threshold
How full that the active log data set is allowed to be before the command corresponding to the DSNJ110E message is issued. The default value is 90%.

STOP Tablespace Delay
This is the delay between STOP tablespace request cycles. Up to 3 cycles are performed to ensure that the tablespace is shut down. 2 minutes (00:02:00) is the default.

Active Log Alert
This is the amount of time after which the DSNJ111E alert is reset. The default value is 5 minutes (00:05:00).

Log Alert Threshold
This is the number of DSNJ111E alerts to allow for before issuing any associated commands. 5 alerts is the default.

If 0 is specified, the specified command is issued on the first occurrence of the DSNJ111E message.

Log Offload Interval
This is the amount of time to allow between DSNJ115I messages before issuing an alert plus any associated commands for the DSNJ115I message entry. 30 minutes is the default.

Policy Items for IMS Subsystems

Figure 142 on page 181 shows the Policy Selection panel for applications that have been created with category IMS (see the **Category** entry field in Figure 93 on page 123). This Policy Selection panel contains additional policy items for an IMS subsystem.

Some of these policy items are only applicable to an IMS subsystem defined as an instance. If a subsystem CLASS of category IMS is selected, only the additional policy item IMS CONTROL is available.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection           Row 18 to 23 of 23
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : IMS                   Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  -------------------- -----IMS SPECIFIC POLICY---------------------
__________  IMS CONTROL          Define IMS subsystem specific data
__________  -------------------- ---------------------------------------------
            …
```

Figure 142. Policy Selection Panel for IMS Subsystems

IMS CONTROL
Use this policy item to define additional IMS information for an IMS subsystem of subcategory CTL. This policy item is only defined for an IMS control region. For more information see "IMS CONTROL Policy Item" on page 182.

IMS CONTROL Policy Item

If you select the IMS CONTROL policy item from the Policy Selection panel for IMS subsystems, **and** you have specified the subcategory CTL, Figure 143 on page 182 is displayed where you describe the IMS/DC control region.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNA              IMS Control Region specifications          Line 00000001
Command ===> _____________________________________________ Scroll ===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : IMSCTL                Enterprise Name : USER_ENTERPRISE

Subsystem  : IMSCTL
Subcategory: CTL        defined in policy APPLICATION INFO

Subsystem ID . . . . . _____________________________
IMSplex name . . . . . _____________________________
```

Figure 143. IMS Control Region Specifications Panel for Subcategory CTL

The fields that you enter or update have the following meaning:

Subcategory
This parameter shows the subcategory and is always CTL. It can be entered on the APPLICATION INFO policy item of the application, or the application class in the **Subcategory** field. The value shown is either the one specified for the application or the application class that the application is linked to.

Subsystem ID
Specifies the subsystem ID (IMSID) specified in the IMS control region parameters or SYSGEN. You can include system symbols and system automation symbols, see "Assigning System Automation Symbols (AOCCLONE)" on page 7.

IMSplex name
Specifies the IMSplex name that is defined in the z/OS PROCLIB members. You must not specify an IMSplex name if you do not have the Common Service Layer (CSL) infrastructure in place.

Policy Items for OPC Subsystems

Figure 144 on page 182 shows the Policy Selection panel for applications that have been created with category OPC (see the **Category** entry field in Figure 93 on page 123). This Policy Selection panel contains additional policy items for an OPC subsystem.

These policy items are only applicable to an OPC subsystem defined as an instance. If a subsystem CLASS of category OPC is selected, no additional policy items are available.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                      Policy Selection                 Row 17 of 21
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : OPC                   Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  -------------------  -----OPC SPECIFIC POLICY---------------------
__________  OPC CONTROL          Define OPC Control entries
__________  -------------------- ---------------------------------------------
            …
```

Figure 144. Policy Selection Panel for OPC Subsystems

The OPC specific policy item is:

OPC CONTROL
Use this policy item to specify OPC extensions to subsystem definitions. For more information, see “OPC CONTROL Policy Item” on page 183.

OPC CONTROL Policy Item

If you select the OPC CONTROL policy item on the Policy Selection panel for OPC subsystems, SA z/OS displays the panel in Figure 145 on page 183 where you can describe additional information for OPC subsystems.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNA                 OPC control specifications              Line 00000001
Command ===> _____________________________________________ Scroll ===> CSR

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : OPCCTRL               Enterprise Name : USER_ENTERPRISE

Subsystem  : OPCCTRL
Subcategory: CONTROLLER        defined in policy APPLICATION INFO

Subsystem ID . . . . . _____________________________
Controller ID  . . . . . ____                (Tracker only)
Controller LU Name . . . _________________   (Tracker only)
```

Figure 145. OPC control specifications Panel

Subcategory
This parameter shows the subcategory and can be any value. It can be entered in the **Subcategory** field of the APPLICATION INFO policy item for the application itself or application class that this application is linked to.

Subsystem ID
Enter the OPC subsystem ID.

Controller ID
Enter the OPC subsystem ID of the controller that is controlling this tracker. This field is only used for tracker definitions. It allows for the specification of a remote controller. If the controller is not in the same sysplex as the tracker, specify this field.

Remote controllers with the hot standby function are not supported.

Controller LU Name
Enter the Logical Unit name of the controller that is controlling this tracker. This field is only used for tracker definitions. It allows for the specification of a remote controller. If the controller is not in the same sysplex as the tracker, specify this field.

You do not need to specify the **Controller ID** and **Controller LU Name** fields if the controller is in a remote sysplex or system that can be controlled by SA z/OS with the TARGET= parameter of the commands.

Policy Items for USS Subsystems

Figure 146 on page 184 shows the Policy Selection panel for applications that have been created with category USS (see Category) in “Creating a New Application” on page 123.

USS Applications must be defined with a HASPARENT relationship to JES.

By using the USS CONTROL policy item you can define UNIX System Services-specific data.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection                 Row 17 of 21
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : USSTEST               Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  -------------------- -----USS SPECIFIC POLICY---------------------
__________  USS CONTROL          Define USS specific data
__________  -------------------- ---------------------------------------------
            …
```

Figure 146. Policy Selection Panel for USS Subsystems

USS CONTROL Policy Item

If you select the USS CONTROL policy item on the Policy Selection panel for USS subsystems, SA z/OS displays the panel shown in Figure 147 on page 184 and Figure 148 on page 184 where you can enter additional information for UNIX subsystems.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNA                  USS Control Specification             Line 00000001
Command ===> ____________________________________________________ Scroll ===> CSR

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : C_USS_APPL            Enterprise Name : USER_ENTERPRISE

User ID  . . . . . . . . OMVSKERN_____________________

Monitoring Command . . .
_______________________________________________________________________________
_______________________________________________________________________________

Further definitions have to be done for the instance objects.
******************************** Bottom of data ********************************
```

Figure 147. USS Control Specification Panel for Application Classes

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNA                  USS Control Specification             Line 00000001
Command ===> ____________________________________________________ Scroll ===> CSR

Entry Type : Application           PolicyDB Name   : USER_PDB
Entry Name : SSHD                  Enterprise Name : USER_ENTERPRISE

User ID  . . . . . . . . OMVSKERN_____________________

Monitoring Command . . .
_______________________________________________________________________________
_______________________________________________________________________________

Specify either a USS Process, a USS File or a USS Port:
Process Command/Path . .
/usr/sbin/sshd_________________________________________________________________
_______________________________________________________________________________
with Filter  . . . . . .
USSFILT________________________________________________________________________
_______________________________________________________________________________

File Name  . . . . . .
_______________________________________________________________________________
_______________________________________________________________________________
IP Stack . . . . . . . . _____________________
Port Number  . . . . . . _____
```

Figure 148. USS Control Specification Panel for Application Instances

If either of the values for the **User ID** or **Monitoring Command** has been inherited from linked classes, they are displayed in a different color. You can find out which class a value has been inherited from by typing the command `classname` (or its abbreviation `cn`) on the command line, moving the cursor to the field of interest and pressing Enter. You can override any inherited values by overtyping them. If you override either of the values that have been inherited, they are individually applied to the current application and change color to turquoise to indicate this.

For class objects, only **User ID** and **Monitoring Command** may be specified.

For instance objects, additionally either Process, File, or Port monitoring must be specified.

User ID
Enter the UNIX user ID that this resource belongs to.

Monitoring Command
Enter the UNIX System Services monitoring command that is used to get the status of the resource. This command must be a valid program in the zFS. If the field is left blank, the SA z/OS supplied standard monitoring routine is used. The return codes must be one of the following:

0
The resource is available.

4
The resource is starting.

8
The resource is unavailable.

12
An error occurred.

If the first character is a '/', the specified command is considered to be an absolute path. Otherwise the monitoring routine must be in the same directory as the SA z/OS routines.

For USS Process monitoring specify either one or both of the following fields:

Process Command/Path
Enter the path of the command that is running, as shown by the UNIX command **ps -e**.

Sample output of UNIX **ps -e** command:

```
     PID ... CMD
      16 ... /usr/sbin/inetd
50331665 ... /bin/sh
50331666 ... /usr/sbin/sshd
83886161 ... /SYSTEM/local/WebSphere/V6R1/AP/AppServer/java/bin/java
50331736 ... /local/WebSphere/V6R1/AP/AppServer/java/bin/java
```

Filter
Enter additional filter criteria to uniquely identify the USS process. This field is optional and can only be specified if a **Process Command/Path** specification is available.

As shown in the sample output for the **Process Command/Path** field, the command/path specification, especially for Java™ processes, is not unique. You can use the UNIX command **ps -ef** to obtain the complete definitions.

Sample output of UNIX **ps -ef** command:

```
     PID ... CMD
83886161 ... java -Djava.util.logging.configureByServer=true
50331736 ... java -Dcom.ibm.eez.adapter.debug=true
16398523 ... java -X32m -X256m -Xquick -Dibm=1 -Ds=2 -Dl=1 Da=5 De=7
13259061 ... sh -c sleep 300 ; uss_command parm1
```

Specify `-Djava.util.logging.configureByServer=true` as the filter to identify the first Java process listed above.

There are some cases that you cannot use the **ps -ef** command output directly:

- Quotation marks (example PID 13259061)

If the USS start command does contain quotation marks, for example,

```
sh -c 'sleep 300 ; uss_command parm1'
```

Then the quotation marks are not present any longer when you are checking the running processes within the system. Nevertheless, specify the filter data with single-quotation marks to be able to identify the process within the system:

```
-c 'sleep 300 ; uss_command parm1'
```

- Variable substitution & quoted strings (example PID 16398523)

  A USS shell script may contain variables that are surrounded by double and single quotation marks, for example,

```
...
#variable section
JO='-X32m -X256m'
JP1='-Xquick -Dibm=1'
JP2='-Ds=2 -Dl=1'
#command execution
nohup java "${JO}" "$JP1" $JP2 'Da=5 De=7'
...
```

  When the command is issued, the variables are resolved.

  Specify the filter data with single-quotation marks surrounding the resolved content as detected from the running process:

```
'-X32m -X256m' '-Xquick -Dibm=1' -Ds=2 -Dl=1 'Da=5 De=7'
```

IP Stack
Enter the TCP/IP jobname to indicate the corresponding IP stack. Complete this field only if your system is configured for multiple IP stacks. If nothing is specified, the first active TCP/IP job is used. You may include system symbols and system automation symbols.

Port Number
Enter the TCP port number that this resource is supposed to listen to on the local host.

For USS File monitoring specify the following field:

File Name
Enter the path of a file in the zFS. If the file exists and the user ID that you specified is the owner of the file the resource is available, otherwise the resource is not available.

For USS Port monitoring specify either one or both of the following fields:

IP Stack
Enter the TCP/IP jobname to indicate the corresponding IP stack. Complete this field only if your system is configured for multiple IP stacks. If nothing is specified, the first active TCP/IP job is used. You may include system symbols and system automation symbols.

Port Number
Enter the TCP port number that this resource is supposed to listen to on the local host.

Events Entry Type

Events basically are used for external dependencies where they represent a process that the automation cannot handle. For example, an operator needs to manually edit a file before the application can be started. SA z/OS remembers which events are SET (have occurred) and can be told when to forget them (by defining an UNSET condition).

Creating a New Event

To begin defining a new event, access the Events entry type by entering 7 or EVT for events on the Entry Type Selection panel (Figure 1 on page 5).

This displays a panel similar to the one shown in Figure 149 on page 187. This panel may show a list of existing events.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGENAM                      Entry Name Selection                 Row 1 of 3
Command ===> new                                              SCROLL===> PAGE

Entry Type : Event                PolicyDB Name   : USER_PDB
                                  Enterprise Name : USER_ENTERPRISE

Action      Entry Name            C  Short Description
__________  EVENT1                  Startup event, backup completed
__________  EVENT2A                 Startup event, AOR1 is ready
__________  EVENT2B                 Startup event, AOR2 is ready
```

Figure 149. Entry Name Selection Panel for Events

Enter the command new at the command line. A panel similar to the one shown in Figure 150 on page 187 is displayed. Specify the event name, the UNSET condition, and a description.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN2                          Define New Entry
Command ===> ____________________________________________________________________

Define new entry of type Event

  Entry Name . . . . . . . EVENT1__

  Unset Condition  . . . . NONE   (DOWN NONE START UP)

  Short description  . . . Backup successfully completed_____
  Long description 1 . . . ____________________________________________________
  Long description 2 . . . ____________________________________________________
  Long description 3 . . . ____________________________________________________
  Long description 4 . . . ____________________________________________________
  Long description 5 . . . ____________________________________________________
```

Figure 150. Define New Event Panel

The unset condition is preset to NONE. You can change this input field if desired. For more information on the unset condition, see “CONDITION Policy Item” on page 188.

Policy Items for Events

Figure 151 on page 187 shows the policy items that are displayed when an event is selected from the Entry Name Selection panel for events.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                       Policy Selection                   Row 1 of 5
Command ===> new                                              SCROLL===> PAGE

Entry Type : Event                PolicyDB Name   : USER_PDB
Entry Name : EVENT3               Enterprise Name : USER_ENTERPRISE

Action      Policy Name           Policy Description
__________  DESCRIPTION           Enter description
S_________  CONDITION             Define the unset condition
__________  -------------------- ------------------------------------------
__________  WHERE USED            List triggers linked to this entry
__________  COPY                  Copy data from an existing entry
```

Figure 151. Policy Selection Panel for Events

The unique policy item for Events is:

CONDITION
With this policy item you can specify when SA z/OS should unset (forget) a previously set event. See “CONDITION Policy Item” on page 188.

On the WHERE USED panel for Events, only action "remove" is available. Action "select" is not possible because an Event cannot just be linked to a Trigger, instead it needs to be specified for a single Trigger condition.

CONDITION Policy Item

Selecting the CONDITION policy item will bring up a panel as shown in Figure 152 on page 188 where you can define the *unset condition* of the current event.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGAPEV                  Unset Condition
Command ===> ____________________________________________________________

Entry Type : Event                PolicyDB Name   : USER_PDB
Entry Name : EVENT3               Enterprise Name : USER_ENTERPRISE

Verify the following condition

  Unset condition . . .  NONE   DOWN  NONE  START  UP
```

Figure 152. Unset Condition Panel for Events

The unset condition determines when an event for an application is reset to *not occurred* (that is, unset). You can enter the following values:

NONE
Once set, the event will never be unset.

START
Once set, the event will be unset if the application is already in the respective state or if the observed status of the application turns into STARTING.

UP
Once set, the event will be unset if the application is already in the respective state or if the observed status of the application turns into one of the following:

- AVAILABLE
- DEGRADED

DOWN
Once set, the event will be unset if the application is already in the respective state or if the observed status of the application turns into one of the following:

- SOFTDOWN
- HARDDOWN
- SYSGONE
- STANDBY

Service Periods Entry Type

Service periods define the availability of resources. A service period is a set of time intervals (service windows) during which a resource should be active or inactive.

Policy Items for Service Periods

Figure 153 on page 189 shows the policy items that are displayed when an existing Service Periods entry is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection              Row 1 to 5 of 5
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Service Period        PolicyDB Name   : USER_PDB
Entry Name : SERVP1                Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  SERVICE WINDOW       Define service windows
__________  -------------------- ----------------------------------------
__________  WHERE USED           List APLs, APGs, MTRs linked to this entry
__________  COPY                 Copy from existing entry
```

Figure 153. Policy Selection Panel for Service Periods

The unique policy item for Service Periods is:

SERVICE WINDOW
With this policy item you define the time frame (or frames) when an application, application group or monitor resource should be available or unavailable. You need to link a service period with a defined service window to Applications, Application Groups, or Monitor Resources.

SERVICE WINDOW Policy Item

Selecting the SERVICE WINDOW policy item displays a panel as shown in Figure 154 on page 189 where you can define the time duration of the service period.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGAPSP                        Service Windows
Command ===> ____________________________________________________________

Entry Type : Service Period        PolicyDB Name   : USER_PDB
Entry Name : SERVP1                Enterprise Name : USER_ENTERPRISE

Note: Review help panel for complete description of data entry fields.
      Valid times are 00:00-24:00, valid priorities (P) are L and H.

            P  From  To     From  To     From  To     From  To     From  To
   Monday U _  00:00 24:00  _____ _____  _____ _____  _____ _____  _____ _____
          D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____

  Tuesday U _  00:00 24:00  _____ _____  _____ _____  _____ _____  _____ _____
          D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____

Wednesday U _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____
          D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____

 Thursday U _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____
          D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____

   Friday U _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____
          D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____

 Saturday U _  08:00 14:00  _____ _____  _____ _____  _____ _____  _____ _____
          D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____

   Sunday U _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____
          D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____

  Weekday U _  07:00 18:00  _____ _____  _____ _____  _____ _____  _____ _____
          D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____

  Weekend U _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____
          D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____

    Daily U _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____
          D _  _____ _____  _____ _____  _____ _____  _____ _____  _____ _____
```

Figure 154. Service Windows Panel for Service Periods

A service period is a schedule of times (referred to as service windows) when a resource is expected to be active or inactive. Times that you enter into a line preceded by the letter U will be used as From/To times for the periods when the resource should be available (UP). A line preceded by the letter D will contain From/To times for DOWN periods. Start and Stop times are specified in 24 hour notation, 00:00-24:00, and in any order. For example, to keep an application continuously available from Monday through Tuesday around the clock, specify the times as shown:

```
          P  From  To     From  To     From  To     From  To     From  To
  Monday  U _  00:00 24:00 _____ _____ _____ _____ _____ _____ _____ _____
          D _  _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

 Tuesday  U _  00:00 24:00 _____ _____ _____ _____ _____ _____ _____ _____
          D _  _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
```

The schedule is defined by specifying one or more (up to five) service windows for:

- **Each day of the week:** Monday through Sunday
- **Weekday days:** the weekday schedule (Monday through Friday)
- **Weekend days:** the weekend schedule (Saturday and Sunday)
- **Daily:** all seven days; the daily schedule

For the time between the specified intervals, the automation manager decides what to do with the resources.

For each UP and DOWN schedule, you can specify a priority in the **P** column:

L
For low priority. Orders resulting from a service period with low priority can be overruled by an operator's INGREQ command. This is the default.

H
For high priority. H schedules override L schedules and low priority operator requests.

This priority is checked in case two goals conflict. The hierarchy of requests and priorities is implemented as follows:

Request from	**Wins over request from**
Service period high	Service period low, INGREQ low
INGREQ low	Service period low
INGREQ high	Service period high, service period low, INGREQ low

Note: There are other methods of generating requests within SA z/OS. For a complete description of these methods and the implemented hierarchy of their priorities, see "Desired status requests/goals" in *IBM System Automation for z/OS User's Guide*.

When defining a service period keep in mind that the startup time is the time at which SA z/OS is to begin startup processing. It is not the time at which the resource will be available. The time until availability depends on how long the startup of an application or an application group takes.

According to the goal driven concept, a vote to start a resource is generated from a service period that you enter into an in a UP service window. A vote to stop a resource is generated from each service period that you enter into a DOWN service window. These votes have to compete with other votes that have been probably issued (for example, due to operator request). At the end of the service period, these votes are removed from SA z/OS. An end of an UP service window does not mean implicitly the start of a DOWN service window.

For more information about the hierarchy of service windows or the syntax of FROM and TO times, see the online help for the product.

If you later change a service period that is already active, and the service period is activated again, this may lead to conflicts and mismatches with overrides that have been made previously. So if you want to

change a service period, check your existing NetView overrides that use this service period beforehand, so that no override is outside the new service period (see also the INGSCHED command, described in *IBM System Automation for z/OS Operator's Commands*).

Triggers Entry Type

In combination with events, triggers are used to control the starting and stopping of resources beyond what is done with specified goals. You use events and triggers if external conditions must be fulfilled (such as a tape mount, for example).

Policy Items for Triggers

Figure 155 on page 191 shows the policy items that are displayed when a trigger is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                         Policy Selection               Row 1 to 5 of 5
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : Trigger               PolicyDB Name   : USER_PDB
Entry Name : TRIGGER1              Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  CONDITION            Define the Trigger condition
__________  -------------------- ------------------------------------------
__________  WHERE USED           List APLs, APGs, MTRs linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 155. Policy Selection Panel for Triggers

The unique policy item for a trigger is:

CONDITION
This policy item allows you to define the startup and shutdown conditions for this trigger. You need to link the trigger with its defined conditions to Applications, Application Groups, or Monitor Resources.

CONDITION Policy Item

With the CONDITION policy item you can:

1. Define up to ten startup conditions for the application that you want to connect to the trigger (1), see “Defining STARTUP and SHUTDOWN Conditions for a Trigger” on page 192.
2. Define up to ten shutdown conditions for the application that you want to connect to the trigger (2), see “Defining STARTUP and SHUTDOWN Conditions for a Trigger” on page 192.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGAPT0                      Trigger Conditions                 Row 1 of 20
Command ===> ____________________________________________________ SCROLL===> PAGE

Entry Type : Trigger              PolicyDB Name   : USER_PDB
Entry Name : TRIGGER1             Enterprise Name : USER_ENTERPRISE

Action      Condition       Names
__________ STARTUP 1       EVENT1 EVENT2 1
__________ STARTUP 2
__________ STARTUP 3
__________ STARTUP 4
__________ STARTUP 5
__________ STARTUP 6
__________ STARTUP 7
__________ STARTUP 8
__________ STARTUP 9
__________ STARTUP 10
__________ SHUTDOWN 1      EVENT3 2
__________ SHUTDOWN 2
__________ SHUTDOWN 3
__________ SHUTDOWN 4
__________ SHUTDOWN 5
__________ SHUTDOWN 6
__________ SHUTDOWN 7
__________ SHUTDOWN 8
__________ SHUTDOWN 9
__________ SHUTDOWN 10
```

Figure 156. Trigger Conditions Panel

Initially the Trigger Condition panel shows only the list of STARTUP and SHUTDOWN conditions. The Events in the **Names** column are shown after the Condition has been selected and the Events have been added according to the following rules:

- A maximum number of **20** condition names (service period and events) can be selected for each condition.
- The overall number of different events in a trigger is limited to **28**.
- An event can be specified either in STARTUP conditions or in SHUTDOWN conditions of a particular trigger, however, not in both types of conditions simultaneously.

Defining STARTUP and SHUTDOWN Conditions for a Trigger

If you enter S in front of a STARTUP condition on the panel shown in Figure 156 on page 192 (1), SA z/OS displays another panel similar to Figure 157 on page 192.

```
   COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGAPT1                STARTUP Condition for Trigger              Row 1 of 2
Command ===> ____________________________________________________ SCROLL===> PAGE

Entry Type : Trigger              PolicyDB Name   : USER_PDB
Entry Name : TRIGGER1             Enterprise Name : USER_ENTERPRISE

Description. . . . ____________________________________________

Action      Status     Event          Short Description
__________  SELECTED   EVENT1         Startup event, backup completed
__________  SELECTED   EVENT2         Startup event, AOR1 is ready
__________             EVENT2B        Startup event, AOR2 is ready
__________             EVENT3         Shutdown event in case of emergency
```

Figure 157. STARTUP Condition for Trigger Panel

Figure 157 on page 192 displays a list of events where you can select *one or more* events that should trigger the startup of an application. Entering S in the **Action** field selects an event and sets its status to SELECTED. All selected events are added to the startup condition that is currently selected.

Additionally you can enter a description for the startup condition.

If you enter S in front of a SHUTDOWN condition on the panel shown in Figure 156 on page 192 (2), SA z/OS displays another panel similar to Figure 157 on page 192. The title of the panel is SHUTDOWN Condition for Trigger and the panel contains a list of events that you can add to or remove from the currently selected shutdown condition.

Processor Entry Type

Use the Processor Entry Type to define and control your processor hardware in the sysplex.

Creating a New Processor

How to create new policy objects in general is described in "How to Create New Policy Objects" on page 19.

Figure 158 on page 193 shows the panel for defining a new Processor policy object.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
                                  Define New Entry
Command ===>  ____________________________________________________________

                                                                More:     +
Define new entry of type Processor

  Entry name . . . . . . . ________
  Processor Type . . . . . Mainframe            (Mainframe PSM)
  Mode . . . . . . . . . . LPAR                 (LPAR ESA)
  Connection Protocol  . . ________________      (INTERNAL SNMP TCPIP HTTP)
  HW Resource Name . . . . ________
  Network Name . . . . . . ________

The following specifications depend on the Connection Protocol:
  Auth Token . . . . . . . ________      (for INTERNAL/TCPIP)
  Community Name . . . . . ________      (for SNMP)
  ProcOps Target HW Name . ________      (for SNMP)

  TCP/IP Address or Hostname . . .
_______________________________________________________________________________
                                        (for TCPIP/SNMP)

  Alternate Address or Hostname  .
_______________________________________________________________________________
                                        (for SNMP)

  Short description  . . . ____________________________________________
  Long description 1 . . . ____________________________________________________
  Long description 2 . . . ____________________________________________________
  Long description 3 . . . ____________________________________________________
  Long description 4 . . . ____________________________________________________
  Long description 5 . . . ____________________________________________________
```

Figure 158. Defining a New SA z/OS Processor Entry

Name
The processor name must have 1 to 8 alphanumeric characters and must begin with an alphabetic character, #, $, or @. The name must be different from the names of all groups, subgroups, systems (including the processor operations names), and processors defined in the current policy database.

Processor Type
Specifies the processor machine type of the target hardware. Select a name from the list shown to specify the processor type.

Use the generic type name Mainframe to specify the IBM System z Mainframes supported in SA z/OS.

The actual processor type is determined at SA z/OS processor operations runtime when a target system associated with the target hardware is initialized. The default is Mainframe.

Use the type PSM to specify a ProcOps Service Machine on VM as virtual hardware for VM guest systems. For more details about the PSM, see *IBM System Automation for z/OS Customizing and Programming*.

Mode
Specifies the operating mode of the processor hardware as defined in the Reset Profile that is used for hardware activation. For zSeries, 390-CMOS in logical partition mode, and PSM processors specify LPAR. Note that for processors of type PSM, the mode is forced to LPAR.

Connection Protocol
Indicates the protocol used for communication with the processor:

INTERNAL
Connection via the operating system (BCPII).

SNMP
Connection through TCP/IP network or BCPii redirection.

HTTP
Connection via HTTP and enables management of zEnterprise BladeCenter Extension (zBX) resources attached to the processor using the Unified Resource Manager Web Services API. Do not specify HTTP if the Processor is **not** a member of an Ensemble defined in the policy or if ProcOps is not intended to manage any zBX resources attached to the processor. Specify HTTP if the zBX resources attached to the CPC should be discovered during initialization of the Ensemble connection to manage them later using extended ProcOps commands.

TCPIP
Connection through TCP/IP. It is the only valid connection protocol for processors of type PSM.

You can also specify multiple values:

```
INTERNAL SNMP
INTERNAL HTTP
INTERNAL SNMP HTTP
SNMP HTTP
```

If INTERNAL and SNMP are specified and both connections are active, the "ISQCCMD target_system_name" form for LPAR Management can no longer be used; instead the form "ISQCCMD target_hardware_name.LPAR_name" must be used. For more information, see the description of the ISQCCMD in *IBM System Automation for z/OS Operator's Commands*.

HW Resource Name
Specifies the network addressable unit name (NAU) of the local support element attached to the CPC for processors of type Mainframe. On the HMC/SE this name is shown as the second part of the SNA address when viewing the CPC's network information details. The SNA address is needed to identify uniquely the processor in a CPC LAN. In addition, the CPC name is part of the internally built security resource name for SAF checking purposes.

For processors of type PSM this definition is only used as the security resource name for SAF checking purposes.

Network Name
Specifies the name of the SNA network in which the support element resides for processors of type Mainframe. On the HMC/SE this name shown as the first part of the SNA address when viewing the CPC's network information details. The SNA address is needed to identify uniquely the processor in a CPC LAN. In addition, the network name is part of the internally built security resource name for SAF checking purposes.

For processors of type PSM this definition is only used as the security Network Name for SAF checking purposes.

The following specification is for INTERNAL and TCPIP processors:

Auth Token
Specifies an acronym for the community name setting made in the support element for processors of type Mainframe and connection protocol INTERNAL. The setting is used to validate the connection. For processors of type PSM it is the authorization token for TCPIP connections. (TCPIP is the only possible connection protocol for ProcOps Service Machine.)

The following specifications are for SNMP processors:

Community Name
Specifies the community name of the support element. It is defined at the support element, and is used to validate the connection. It is only used for SNMP Version 2.

Note: If you want to use SNMP Version 3 specify NONE. Be aware that for SNMP Version 3 additional definitions have to be done in policy PROCESSOR INFO.

ProcOps Target HW Name
Specifies the name that the Processor Operations feature of SA z/OS knows the processor by. For processors with only SNMP specified as connection protocol, this name is defaulted to the processor's entry name. If you specify multiple connection protocols this field is required and must be different from the processor's entry name.

The name must be unique among the names of zEnterprise ensembles, groups, subgroups, systems (including both the entry names and system/image names) and processors (including both the entry names and the Processor Operations Target HW names) in the current policy database.

The following specifications are for SNMP and TCPIP processors:

TCP/IP Address or Hostname - Alternate Address or Hostname

Specifies the TCP/IP address or symbolic hostname for communication with the target hardware, for these communication protocols, the ProcOps Service Machine.

At least one address is required for SNMP and TCPIP connections.

For SNMP connections both addresses might be specified. The first address is used for the support element first adapter address and the alternate is used for the second adapter address or HMC. If both are specified, the support element first adapter address has preference and the second adapter address can be used to recover from adapter failures.

Use the ProcOps focal command point ISQIPSWT to perform the switch from the first to the second adapter address. Depending on the Support Element version, a second adapter with an alternate may not be supported.

A HMC address alone may be considered if multiple processors should be controlled via one single connection.

The following specification is for SNMP processor connections only:

ISQET32 for BCPii redirection

A hostname value of ISQET32 causes to use the BCPii connection to the target hardware Support Element, bypassing the IP network. BCPii redirection always targets the SE, even if specified for an HMC. Note that these redirected BCPii connections are part of the ProcOps SNMP protocol implementation.

Policy Items for Mainframe Processors

Figure 159 on page 196 shows the Policy Selection panel for processors.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Processor             PolicyDB Name   : USER_PDB
Entry Name : PROC1                 Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  PROCESSOR INFO       Enter and display processor information
__________  LPARS AND SYSTEMS    Define LPARs and select systems
__________  -------------------- ------------------------------------------
__________  WHERE USED           List ensemble linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 159. Policy Selection Panel for Processor

The unique policy items for the Processor entry type are:

PROCESSOR INFO
Using this policy, you can specify the processor type and mode, the connection protocol and network information. See “PROCESSOR INFO Policy Item” on page 196.

LPARS AND SYSTEMS
This policy is displayed for processors with mode LPAR. See “LPARS AND SYSTEMS Policy Item” on page 200.

SYSTEMS
This policy is displayed for processors with mode ESA. Use this policy to select a system.

PROCESSOR INFO Policy Item

A panel similar to Figure 160 on page 197 is displayed if you select the PROCESSOR INFO policy item from the Policy Selection panel for Processors.

```
   COMMANDS  HELP
------------------------------------------------------------------------------
                            Processor Information               Top of data
 Command ===> ____________________________________________________________________
                                                                    More:     +
 Entry Type     : Processor             PolicyDB Name   : USER_PDB
 Entry Name     : PROC1                 Enterprise Name : USER_ENTERPRISE

 Processor Type : Mainframe             Processor Mode  : LPAR

   Connection Protocol . . . . . . . INTERNAL SNMP      (INTERNAL SNMP HTTP)
   HW Resource Name  . . . . . . . . ________
   Network Name  . . . . . . . . . . NET_____
   Site/Location Name  . . . . . . . SITE1_____________________

   LPAR Scope  . . . . . . . . . . . ALL____            (ALL DEFONLY)

 The following specifications are for INTERNAL processors only:
   Auth Token. . . . . . . . . . . . PUBLIC__
   Connection Monitor Interval . . . 05:00              (mm:ss NONE)

 The following specifications are for SNMP processors only:
   Community Name  . . . . . . . . . COMM____
   ProcOps Target HW Name  . . . . . THW1____
   SNMPv3  . . . . . . . . . . . . . ___                (YES NO)
   SNMPv3 User Name  . . . . . . . . ____________________________________

   SNMPv3 Password . . . . . . . . . ____________________________________

   IP Stack  . . . . . . . . . . . . _________________________________

   Activation Reset Profile .  . . . DEFAULT___________
   Path Poll Option  . . . . . . . . ____               (CPC CONN)
   Path Poll Frequency . . . . . . . 0_                 (0 to 99 minutes)
   Path Poll Retries . . . . . . . . 0_                 (0 to 99)
   Command Retries . . . . . . . . . 10                 (0 to 99)
   Command Retry Wait Time . . . . . 1_                 (0 to 99 seconds)

 At least one address must be specified:
   TCP/IP Address or Hostname or ISQET32 for BCPii
redirection  . . .
 ____________________________________________________________________________

   Alternate Address or Hostname or ISQET32 for BCPii
redirection . .
 ____________________________________________________________________________
```

Figure 160. Processor Information Panel

The fields at the top of this panel show the following information that was defined when the processor was created:

Processor Type
The processor machine type of the target hardware.

Processor Mode
The operating mode of the processor hardware as defined in the Reset Profile used for hardware activation.

Connection Protocol
Indicates the protocol used for communication with the processor:

INTERNAL
Connection via the operating system (BCPII).

SNMP
Connection through TCP/IP network or BCPii redirection.

HTTP
Connection via HTTP and enables management of zEnterprise BladeCenter Extension (zBX) resources attached to the processor using the Unified Resource Manager Web Services API. Do not specify HTTP if the Processor is **not** a member of an Ensemble defined in the policy or if ProcOps is not intended to manage any zBX resources attached to the processor. Specify HTTP if

the zBX resources attached to the CPC should be discovered during initialization of the Ensemble connection to manage them later using extended ProcOps commands.

You can also specify multiple values:

```
INTERNAL SNMP
INTERNAL HTTP
INTERNAL SNMP HTTP
SNMP HTTP
```

If INTERNAL and SNMP are specified and both connections are active, the "ISQCCMD target_system_name" form for LPAR Management can no longer be used; instead the form "ISQCCMD target_hardware_name.LPAR_name" must be used. For more information, see the description of ISQCCMD in *IBM System Automation for z/OS Operator's Commands*.

On the Processor Information panel you can specify the following definitions so that the automation knows where the system is located to send the commands to the appropriate support element.

HW Resource Name
Specifies the network addressable unit name (NAU) of the local support element attached to the CPC for processors. On the HMC/SE this name is shown as the second part of the SNA address when viewing the CPC's network information details. The SNA address is needed to identify uniquely the processor in a CPC LAN. In addition, the CPC name is part of the internally built security resource name for SAF checking purposes.

CPC Name / NAU
Indicates the network addressable unit of the support element within the network. This field is required for all connections that are supported.

Network Name
Specifies the name of the SNA network in which the support element resides. On the HMC/SE this name shown as the first part of the SNA address when viewing the CPC's network information details. The SNA address is needed to identify uniquely the processor in a CPC LAN. In addition, the network name is part of the internally built security resource name for SAF checking purposes.

For SNMP connections, the central processor complex name of the support element consists of the **Network Name** and **CPC Name**.

Site/Location Name
Specify a descriptive name for the processor's location.

LPAR Scope
Defines which partitions are discovered for the SNMP/INTERNAL sessions.

ALL
indicates that all detectable partitions on the CPC are discovered.

DEFONLY
indicates that only the partitions defined in the policy LPARS AND SYSTEMS are discovered and used.

If nothing specified the default value is ALL.

The following specification is for INTERNAL processors:

Auth Token
The authorization token of the support element. It is defined at the support element, and is used to validate command authorization.

Connection Monitor Interval
Indicates how frequently the support element INTERNAL connection status should be monitored. Frequency must be specified using format mm:ss. The allowed minimum is 1 minute (01:00), the maximum is 99 minutes (99:00). If nothing is specified the default value is 5 minutes (05:00). To suspend monitoring specify NONE.

Note: At runtime this connection monitor will not monitor the INTERNAL connections of processors specified in the GDPS GEOPLEX DOMAIN and/or GEOPLEX OPTIONS definitions. These connections are exclusively monitored by the GDPS HMC monitor function.

The following specifications are for SNMP processors:

Community Name
For SNMP Version 2 connections, this field indicates the community name of the support element. Both the community name and authorization token are defined at the support element, and are used to validate command authorization. This field is required.

For SNMP Version 3 connections, this field should be set to NONE.

ProcOps Target HW Name
The name that Processor Operations knows the processor by. For processors with only SNMP specified as connection protocol, this name is defaulted to the processor's entry name. If you specify multiple connection protocols this field is required and must be different from the processor's entry name.

The name must be unique among the names of zEnterprise ensembles, groups, subgroups, systems (including both the entry names and system/image names) and processors (including both the entry names and the Processor Operations Target HW names) in the current policy database.

SNMPv3
Indicates whether SNMP Version 3 protocol can be used to communicate with the HMC or SE. SNMPv3 provides enhanced security via password based authentication or encryption.

If YES is specified, also the SNMPv3 User Name and the Password as defined on the HMC/SE for the SNMP APIs must be provided.

If nothing specified the default value is NO.

SNMPv3 User Name
Identifies the name of the SNMPv3 user to access to the console application on the HMC or SE. It must be defined on the HMC/SE. The minimum length is 8 characters.

SNMPv3 Password
Identifies the password for the SNMPv3 user identified by the **User Name** field. The predefined value SAFPW may be used to allow SA z/OS to maintain the password of the user ID. In this case the **ProcOps Target HW Name** value is used to set up the SAF resource identifier in the VSAM file representing the password data set.

Be aware of this when changing, adding or deleting processor entries. The minimum length (if not SAFPW) is 8 characters. For more information, see "Security and Authorization" in *IBM System Automation for z/OS Planning and Installation*.

IP Stack
The name of the IP stack to be used. If not defined, the default IP stack is used. You may include system symbols and system automation symbols.

Activation Reset Profile
Indicates the reset profile name to use when activating the target hardware. This profile name must match with the reset profile name defined at the target hardware support element. This field is optional. The reset profile name specified here will be used by Processor Operations common command processing if the CNAME keyword is omitted from the ACTIVATE or LOAD command, and use of a reset profile is appropriate.

If you do not specify a reset profile name, and the CNAME keyword is not used on the LOAD or ACTIVATE command, Processor Operations omits the CNAME parameter from the command that is sent to the support element. In this case, the support element uses its default reset profile.

Path Poll Options
Defines how the connection polling result is handled:

CPC
If the connection polling is positive, a CPCDATA request is executed to validate the console application.

CONN
Regardless of the polling result, an ISQXCON status request is issued, returning the available connection details.

If nothing is specified the default value is CPC.

Path Poll Frequency
Enter how often (in minutes) SA z/OS processor operations should poll the support element for status. Valid values are 0 to 99 minutes. Specify 0 to deactivate polling.

Path Poll Retries
Enter the number of attempts to retry path polling that should occur before processor operations notifies the operator that the connection failed. Valid values are 0 to 99 retries.

Command Retries
The number of retry steps for calling the hardware interface. If nothing is specified the default value is 10.

Command Retry Wait Time
The wait time between the retry steps for calling the hardware interface. If nothing is specified the default value is 1 second.

TCP/IP Address or Hostname or ISQET32 for BCPii redirection - Alternate Address or Hostname or ISQET32 for BCPii redirection
Specifies the TCP/IP Address or symbolic hostname for communication with the target hardware.

At least one address is required for SNMP connections. If you specify two addresses, the support element first adapter address has preference and the second adapter address can be used to recover from adapter failures. Use the Processor Operations ISQIPSWT focal point command to perform the switch from the first to the second adapter address. Depending on the Support Element version, a second adapter with an alternate address may not be supported.

You can choose to use an HMC address if multiple processors should be controlled via one single connection.

The following specification is for SNMP processor connections only:

ISQET32 for BCPii redirection

A hostname value of ISQET32 causes to use the BCPii connection to the target hardware Support Element, bypassing the IP network. BCPii redirection always targets the SE, even if specified for an HMC. Note that these redirected BCPii connections are part of the ProcOps SNMP protocol implementation.

LPARS AND SYSTEMS Policy Item

If you have created a Processor policy object with LPAR mode, the policy item LPARS AND SYSTEMS is available, and has the LPAR Definitions panel shown in Figure 161 on page 201 associated with it.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGXC4P                      LPAR Definitions               Row 1 to 13 of 20
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type : Processor             PolicyDB Name   : USER_PDB
Entry Name : PROC1                 Enterprise Name : USER_ENTERPRISE

  Action     LPAR Name   Target Mode   Target System Name
  _________  LPAR1       SSC          SYSZAPP1
  _________  LPAR2       LINUX        SYSKVM1
  _________  LPAR3       LINUX        SYSLNX1
  _________  LPAR4       ESA          SYSMVS1
  _________  LPAR5       ESA          ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
```

Figure 161. LPAR Definitions Panel

You can specify the following:

Action
Action allows you to remove LPAR definitions and to invoke the system selection panel:

- DELETE (D) deletes the current LPAR definition. Confirmation on a separate panel is not required.
- SYSTEM (S) displays a selection list of all defined systems allowing a system to link to the current LPAR.

LPAR Name
Specifies the name of the logical partition. Duplicate LPAR names without Target System Name are wiped out when the panel is left. However, it is possible to link different systems to one LPAR, so duplicate LPAR names are accepted when they have links to different systems. Linking one system to multiple LPARs is not accepted.

Target Mode
Specifies the mode of the system that is supposed to run in this LPAR.

Valid LPAR Target Modes are 370, ESA, CF, LINUX, and SSC.

Valid VM GUEST Target Modes are 370, ESA, and LINUX.

The Target Mode LINUX is used for hardware that supports LPARs for Linux only, where a reduced instruction set is provided and therefore cannot run MVS or VM. For a Linux system, specify LINUX if the processor hardware is configured in 'LINUX Only' mode, otherwise specify ESA.

The Target Mode SSC is used for LPARs that run as a Secure Service Container (SSC).

For compatibility reasons, the specification of former zACI (z Appliance Container Infrastructure) mode is still allowed.

Target System Name
You can specify a system entry name, which establishes a "link" of this system to the partition. Any name is allowed here, it is not required that the system entry has already been defined. During build, such an undefined system is treated as not specified. If the system is already defined as SYS entry, it is checked that it is a valid selection according to the rules described in the following section for entry type SYS. Otherwise, an error message is displayed.

Policy Items for PSM Processors

Figure 162 on page 202 shows the Policy Selection panel for PSM processors.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection                 Entry created
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : Processor             PolicyDB Name   : USER_PDB
Entry Name : PSMPROC1              Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  PSM INFORMATION      Enter and display PSM processor information
__________  GUESTS AND SYSTEMS   Define VM guests and select systems
__________  -------------------- ------------------------------------------
__________  COPY                 Copy data from an existing entry
```

Figure 162. Policy Selection Panel for PSM Processors

The unique policy items for the Processor entry type are:

PSM INFORMATION
Using this policy, you can specify the processor type and mode, and network information. See "PSM INFORMATION Policy Item" on page 202.

GUESTS AND SYSTEMS
This policy allows you to define VM guests and select systems. For more details, see "GUESTS AND SYSTEMS Policy Item" on page 203.

PSM INFORMATION Policy Item

A panel similar to Figure 163 on page 202 is displayed if you select the PSM INFORMATION policy item from the Policy Selection panel for PSM Processors.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGCPD1              ProcOps Service Machine Information
Command ===> ____________________________________________________________

Entry Type     : Processor             PolicyDB Name   : USER_PDB
Entry Name     : PSMPROC1              Enterprise Name : USER_ENTERPRISE

Processor Type : PSM                   Processor Mode  : LPAR

  Connection Protocol           : TCPIP
  HW Resource Name  . . . . . . . ________
  Network Name  . . . . . . . . . ________
  Site/Location Name. . . . . . . ____________________
  Auth Token. . . . . . . . . . . ________
  IP Stack  . . . . . . . . . . . ____________________________
  VM Host Target System Name  . . _________
  Service Machine Name  . . . . . _________
  Enforce IPv4 for Hostname . . . ___       (YES NO)
  Message Server Port . . . . . . _____     (0 - 65535)
  Command Server Port . . . . . . _____     (0 - 65535)
  Path Poll Frequency . . . . . . __        (0 to 99 minutes)
  Path Poll Retries . . . . . . . __        (0 to 99)
  TCP/IP Address or Hostname  . .
_______________________________________________________________________________
```

Figure 163. ProcOps Service Machine Information Panel

The ProcOps Service Machine Information panel shows the Processor Type, Processor Mode and Connection Protocol that were defined when the processor was created. For ProcOps Service Machines the Processor Mode is always LPAR and the Connection Protocol is always TCPIP.

On this panel you can update the following:

HW Resource Name
This field is used only as the security resource name for SAF checking purposes.

Network Name
This field is only used as the security network name for SAF checking purposes.

Site/Location Name
Specify a descriptive name for the processor's location.

Auth Token
The authorization token for TCPIP connections (TCPIP is the only possible connection protocol for ProcOps Service Machines). This field is required.

IP Stack
IP Stack is the jobname of the TCPIP to indicate the corresponding IP stack. Specify this field only if your system is configured for multiple IP stacks. If nothing is specified the first active TCPIP is used.

You may include system symbols and system automation symbols.

VM Host Target System Name
The name of the VM host system if it is also defined in ProcOps. This field is optional. The number of PSMs per hosting VM system is restricted to 12.

The host command ISQXPSM can only be used to operate the PSM via the VM host if this information is provided.

Service Machine Name
The name of the PSM as it is known to the VM host system.

The host command ISQXPSM can only be used to operate the PSM via the VM host if this information is provided.

Enforce IPv4 for Hostname
You should set this to YES to indicate that the connection to the PSM will use IPv4 in an IPv6-enabled environment. In IPv4-only environments the value is ignored.

This specification is used only if the TCP/IP address is used for the communication and not the symbolic hostname.

If nothing is specified the default value is NO.

Message Server Port
The port that the ProcOps Service Machine Message Server uses for communication with the ProcOps receiver task. If nothing is specified, the default value is 2001.

Command Server Port
The port that the ProcOps Service Machine Command Server uses for communication with the ProcOps send program. If nothing is specified, the default value is 2002.

Path Poll Frequency
How frequently the support element should be queried for status. The frequency must be specified in whole minutes in the range 0–99. A frequency of 0 means that polling is deactivated.

Path Poll Retries
The number of times that the status query should be retried before notifying the operator. If nothing is specified the default value is 0.

TCP/IP Address or Hostname
The TCP/IP address or symbolic host name for communication with the ProcOps Service Machine.

GUESTS AND SYSTEMS Policy Item

If you have created a Processor policy object of type PSM, the GUESTS AND SYSTEMS policy item is available, and has the GUEST Definitions panel shown in Figure 164 on page 204 associated with it.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGXC4P                      GUEST Definitions              Row 1 to 13 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Processor             PolicyDB Name   : USER_PDB
Entry Name : PRLPR01               Enterprise Name : USER_ENTERPRISE

  Action     GUEST Name  Target Mode   Target System Name
  _________  LINUX1      LINUX        LINUX1
  _________  LINUX2      LINUX        LINUX2
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
  _________  _________   _________    ____________________
```

Figure 164. GUEST Definitions Panel

This panel allows you to define VM GUESTs and to link systems to them. Within ProcOps, VM guest systems are treated like LPARs.

Action
Action allows you to remove VM GUEST definitions and to invoke the system selection panel:

- DELETE (D) deletes the current VM GUEST definition. Confirmation on a separate panel is not required.
- SYSTEM (S) displays a selection list of all defined systems allowing a system to link to the current VM GUEST

GUEST Name
Specifies the name of the VM GUEST. Duplicate VM GUEST names without Target System Name are wiped out when the panel is left. However, it is possible to link different systems to one VM GUEST, so duplicate VM GUEST names are accepted when they have links to different systems. Linking one system to multiple VM GUESTs is not accepted.

Target Mode
Specifies the mode of the system that is supposed to run on this VM GUEST. The Target Mode LINUX is used for hardware that supports VM GUESTs for Linux only, where a reduced instruction set is provided and therefore cannot run MVS or VM.

For a Linux system specify LINUX if the processor hardware is configured in 'LINUX Only' mode, otherwise specify ESA. Valid VM GUEST Target Modes are 370, ESA, and LINUX.

Target System Name
You can specify the name of the system that runs on this VM GUEST. Any name is allowed here; it is not required that the system entry has already been defined. During build, such an undefined system is treated as not specified.

If the system is already defined as a SYS entry, it is checked that it is a valid selection according to the rules described in the following section for entry type SYS. Otherwise, an error message is displayed.

The number of guest systems per PSM is restricted to 60. When a new guest system is defined, the number of guests that have already been defined for the associated PSM is checked. If there are already 60 defined, any further guest definition is rejected.

Monitor Resource Entry Type

The Monitor Resource (MTR) entry type allows you to obtain the health state of an object in two different ways:

- Actively, by polling, that is, executing a monitoring command periodically

- Passively, by processing events

Monitor resources are connected to application resources (APLs) or application group resources (APGs). The health status of the monitored object is propagated to the APLs or APGs and results in a health status there.

Selecting Monitor Resources (MTR) from the Entry Type Selection panel brings you to the Entry Name Selection panel that lists your current monitor resources, if you have any. From this panel you can either create new monitor resources, or select an entry and action for one of the existing entries.

Policy Items for Monitor Resources

Figure 165 on page 205 shows the policy items that are displayed when an existing Monitor Resources entry is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection                    Row 1 of 9
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Monitor Resource      PolicyDB Name   : USER_PDB
Entry Name : MONITOR1              Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  MONITOR INFO         Define monitor information
__________  RELATIONSHIPS        Define relationships
__________  MESSAGES/USER DATA   Define monitor messages and user data
__________  HEALTHSTATE          Define commands for healthstate processing
__________  TRIGGER              Select trigger
__________  SERVICE PERIOD       Select service period
__________  -------------------- ----------------------------------------
__________  WHERE USED           List systems linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 165. Policy Selection for Monitor Resource

The unique policy items for the Monitor Resource entry type are:

MONITOR INFO
This policy item allows you to make definitions for the monitor resource. See “MONITOR INFO Policy Item” on page 206 for more details.

RELATIONSHIPS
This policy item has the same functionality for entry types Application, ApplicationGroup, Monitor Resource, and Resource Reference. For each application, application group, monitor resource, or resource reference, you may specify several relationships. They will be used to automate the startup or stopping of those applications, application groups, monitor resources, and resource references. If you select this policy item, in the Relationship Selection List panel, you can view existing relationships or define new relationships for the current application, application group, or monitor resource.

You define relationships between dependent resources and supporting resources. In the customization dialog you define relationships always from the point of view of the dependent resource. So the resource that you have currently selected will become the dependent resource, when you define a new relationship.

See “RELATIONSHIPS Policy Item” on page 110 for more information on viewing existing or defining new dependency relationships.

MESSAGES/USER DATA
This policy item allows you to define actions to be taken in response to particular events. Normally, these events are message IDs, but they can also be OMEGAMON exceptions. See “MESSAGES/USER DATA Policy Item” on page 237 for details.

HEALTHSTATE
This policy item allows you to define the processing that takes place when the monitor resource detects a change of the health state of the monitored resource. See “HEALTHSTATE Policy Item” on

page 213 and the section "Event and Trigger Support" in *IBM System Automation for z/OS User's Guide* for more details.

TRIGGER
This policy item allows you to manage the link from the current Monitor Resource entry to the Trigger entry. Each Monitor Resource entry may be linked to one Trigger entry. See "TRIGGER Policy Item" on page 214 and the section "Event and Trigger Support" in *IBM System Automation for z/OS User's Guide* for more details.

SERVICE PERIOD
This policy item allows you to link a service period to the monitor resource. Its resources are then automatically started up or shut down in the time frame specified by the service period.

MONITOR INFO Policy Item

If you select the MONITOR INFO policy item from the Policy Selection panel for monitor resources, the Monitor Resource Information panel is displayed, as shown in Figure 166 on page 206.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGMTR                    Monitor Resource Information
Command ===> ____________________________________________________________________
                                                                  More:     +
Entry Type : Monitor Resource      PolicyDB Name   : USER_PDB
Entry Name : CI2XREP               Enterprise Name : USER_ENTERPRISE

Monitored Object . . . . . JES2MON____________________________________________
Monitored Jobname. . . . . ______________________________
Activate command. . .
_______________________________________________________________________________
_______________________________________________________________________________

Deactivate command. .
_______________________________________________________________________________
_______________________________________________________________________________

Monitor command . . .
INGMTRAP NAME=OMSY4MVS XTYPE=XREP_____________________________________________
_______________________________________________________________________________

Monitoring Interval. . . . 00:05            (hh:mm or blank)
Captured Messages Limit. . 12_              (0 to 999, or blank)
Desired Available. . . . . ________         (ALWAYS ONDEMAND ASIS)
Monitor for IPL complete . ___              (YES NO)
Inform List  . . . . . . . ______________________
                                            (SDF EIF E2E IOM ITM SMF TTT USR NONE)
Owner. . . . . . . . . . . Sysprog____________________________________________
Info Link. . . . . . . . . ___________________________________________________
Runtokens. . . . . . . . . ___________________________________________________
```

Figure 166. Monitor Resource Information Panel

To create a new Monitor Resource entry, provide the following information:

Monitored Object
This is the name of the real object that is being monitored by this monitor resource. It is used to locate the monitor resource that is affected by a real monitor event.

For example, the following values can be used:

OLDS if the monitored object is the IMS Online Log Data Set
RECON if the monitored object is the IMS Recovery Control Data Set

For more details, see the section "Health Monitoring" in the chapter "Monitoring Applications" in *IBM System Automation for z/OS Customizing and Programming*.

You can include system symbols and system automation symbols. See "Assigning System Automation Symbols (AOCCLONE)" on page 7 for more details.

Monitored Jobname
This can be used to specify the name of the job that this monitor resource accepts events from. This ensures that only events that are issued from a specific job trigger automation actions for this monitor resource.

For example, if the monitor routine should only react for the IMS Online Log Data Set of a specific IMS, specify the job name here.

You can include system symbols and system automation symbols. See "Assigning System Automation Symbols (AOCCLONE)" on page 7 for more details.

Activate Command
This can be any NetView command. It is executed when the monitor resource is started.

You can include system symbols and system automation symbols but they must be entered in uppercase letters (for example, &AOCCLONE1.). See "Assigning System Automation Symbols (AOCCLONE)" on page 7 for details on using system automation symbols.

Deactivate Command
This can be any NetView command. It is executed when the monitor resource is stopped.

You can include system symbols and system automation symbols but they must be entered in uppercase letters (for example, &AOCCLONE1.). See "Assigning System Automation Symbols (AOCCLONE)" on page 7 for details on using system automation symbols.

Monitor Command
This can be any NetView command. If a command and an interval is specified, the command will be executed periodically while the monitor is active.

If a command is specified and no interval is specified, the command will be executed once during the startup phase.

If no command is specified the monitor is a passive monitor. In this case, the health status must be set via the INGMON command (see INGMON in *IBM System Automation for z/OS Programmer's Reference* for more details).

You can include system symbols and system automation symbols but they must be entered in uppercase letters (for example &AOCCLONE1). See "Assigning System Automation Symbols (AOCCLONE)" on page 7 for more details.

Monitoring Interval
Specifies an interval time for periodic execution of the monitor command. If you leave the field blank, no periodic monitoring is performed. If you specify an interval, you must also specify a monitor command.

Captured Messages Limit
Specifies the maximum number of history messages that will be saved for the SA z/OS DISPMTR command. If the field is left blank the value can be inherited from the system defaults definition. If it is also not specified there, a default value of 0 will be used.

Desired Available
Lets you specify the default desired status of the resource. The desired state of each resource is either Available or Unavailable, which is the goal that automation tries to achieve.

You can specify the following values:

ALWAYS
The desired state of the resource is set to Available, unless it is dependent on a resource that has a Desired Available setting of ONDEMAND. In this case the resource behaves as if it had a Desired Available setting of ONDEMAND itself.

This is the same behavior as in earlier releases of SA z/OS.

ONDEMAND
If there is *demand* for the resource to be available, its desired status is set to Available, otherwise its desired status is set to Unavailable.

Demand arises either from propagated MakeAvailable votes or implicitly through membership of a non-passive basic application group (APG) that has a desired status of Available. Demand does not arise from dependent resources with a Desired Available setting of ALWAYS.

A MakeAvailable vote that is propagated to the resource overrides any demand considerations.

An active ONDEMAND member of a move or server group is always sent a vote that sets its desired status, thus overriding any demand considerations.

ASIS
The desired status is always set to the observed status. The resource remains in the status that it currently has and no action is taken by SA z/OS at any time, as long as there is no request placed for or propagated to the resource.

If you leave the field blank the value can be inherited from the system defaults definition. Refer to "System Defaults Entry Type" on page 239 for further details.

If nothing is specified or inherited the default value is ALWAYS.

Monitor for IPL complete
Specifies whether the monitor resource has to be in an AVAILABLE status before IPL is considered to be completed.

YES
indicates that it has to be in an AVAILABLE status.

NO
indicates this is not the case.

If nothing is specified, the default value is NO.

Inform List
This field allows you to specify:

- Where the application is registered to
- Where all status changes are propagated to

Valid receivers are SDF, EIF, E2E, IOM, ITM, SMF, TTT and USR. You can specify more than one receiver. The list of values can be blank or comma separated.

If the field is left blank the value is inherited from the systems default definition (see "System Defaults Entry Type" on page 239).

If the resource should not be registered at all, specify NONE. This will prevent inheritance from the systems default definitions.

If E2E is specified, the monitor resource will be shown on the e2e domain view.

Owner
Specifies information for the operator about who to contact in case of error.

Info Link
This field can be used to specify a location (for example, a URL) where additional information about the application can be found.

Runtokens
This field is used to specify one or more blank delimited tokens (each up to 20 characters long) to define the runmode, for which the monitor resources qualifies.

There is no verification process to confirm whether the specified runtokens are in use by a specific runmode.

MESSAGES/USER DATA Policy Item

In entry type MTR, the MESSAGES/USER DATA policy item allows you to specify OMEGAMON exceptions and messages in the **Message ID** field, as shown in Figure 167 on page 209. Note that the '+' sign and the imbedded blank must be specified to distinguish the exception from regular messages.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNM                 Message Processing          Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Entry Type : Monitor Resource      PolicyDB Name   : USER_PDB
Entry Name : ON_MON                Enterprise Name : USER_ENTERPRISE

Line Commands: S/C (Cmd), R (Rep), K (Cod), U (Usr), A,M (AT, MRT, MPF)
               I, D (insert or delete lines), CN (Class Name)
Message ID field length. . 16   (1 - 32)

Cmd Message ID       Description                              C  R  K  U A M F
A   + XCHN          _____________________________________
___ ________________ _____________________________________
___ ________________ _____________________________________
___ ________________ _____________________________________
___ ________________ _____________________________________
```

Figure 167. Message Processing Panel with OMEGAMON Exception

With an OMEGAMON exception in the **Message ID** field, you can use the line command Cmd to specify commands, Cod for codes, Usr for user data, and A for health states. This results in a default automation table entry that is processed whenever message ING080I is issued on behalf of the subject monitor and exception. If the defaults provided by the customization dialog do not meet your installation's needs, you can select an override action to modify the AT entry.

You can use the FIND command on the Message Processing panel to search the displayed data for a specific string. For more details, see "How to Find Data in a Policy Item" on page 23.

On the Command Processing panel (accessed via the Cmd line command), you can specify a set of one or more commands to react to the exception represented by ING080I

You can also define generic key/value pairs (USER DATA) that are available to the called command. SA z/OS provides a predefined key, DISABLETIME, which you can use to determine the time that processing for this particular exception will be disabled. The commands that are specified will be issued, but will only be re-issued if the exception still exists after the time specified with DISABLETIME. This is useful if the recovery for an exception takes a while and no subsequent parallel recovery actions should be taken while the initial recovery is still running.

The A line command allows you to select the health state of the monitor whenever this exception trips and message ING080I is issued. When A is specified, a panel similar to Figure 168 on page 209 is displayed.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGMADV                 Message Automation Overview
Command ===> _____________________________________________ Scroll ===> PAGE

 AC AT condition     MS MRT action selection     MF MPFLSTxx specifications
 AS AT status        MO MRT override             IG Ignore for AT, MRT, MPF
 AO AT override

Message ID : + XCHN

No AT entry will be generated because there is no Command, Reply, or Status
defined

No MRT entry will be generated because there are no specifications for this
message
```

Figure 168. Message Automation Overview Panel

Enter AS on this panel to display the AT Status Specification panel, as shown in Figure 169 on page 210. Select the WARNING monitor status.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGMAT1                     AT Status Specification
Command ===> ____________________________________________________________________

View or change specifications for message:  + XCHN

Application / MVC Component status      Monitor health status
_ ACTIVE      Starting                  _ NORMAL   Resource shows good results
_ UP          Available                 _ WARNING  Resource shows degradation
_ HALTED      Degraded                  _ MINOR    More severe than WARNING
_ Terminating Received STOP command     _ CRITICAL More severe than MINOR
_ Terminated  Terminated normally       _ FATAL    More severe than CRITICAL
_ ABENDING    Going to end abnormally   _ UNKNOWN  Health status not available
_ Abended     Ended abnormally          _ Check    Evaluate health status
_ BREAKING    Non-recoverable abending  Monitor status
_ BROKEN      Non-recoverable abend     _ FAILED   Monitor failed
                                        _ BROKEN   Monitor finally failed
Capture specification
S Capture     Capture Message
              DOM . . . IKT008I_____________________________
```

Figure 169. AT Status Specification Panel

Pressing PF3 returns you to Message Automation Overview panel, where you can now see that the AT entry that will be generated for the + XCHN message is:

```
Generated AT entry:
IF TOKEN(5) = 'XCHN' THEN
EXEC(CMD('INGMON 'MTRNM',STATUS=WARNING') ROUTE(ONE %AOFOPGSSOPER%));
```

The MTRNM variable is available for all exceptions that cause an ING080I message to be created.

The following series of panels shows a sample specification with different sets of commands based on attributes contained within the exception message.

As an example, the XCHN exception is used. A code entry is specified to return the value CONFIG whenever channel path 26 is found to be not available. The appropriate reaction is to issue the command MYCMD to fix it. In addition, and for all other channels that are not available, the administrator should be notified. Figure 170 on page 210 shows the input for the Cmd line command.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNC    Command Processing : + XCHN              Line 00000001 Col 001 075
Command ===> ____________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)

Cmd Ps/Select  AutoFn/* Command Text
___ CONFIG____ ________ MYCMD_____________________________________________________
___ __________ ________ MYALERT ADMIN_____________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
```

Figure 170. CMD Processing Panel for Monitor Resources

Figure 170 on page 210 shows two commands, one with a selection CONFIG and another without a selection value. To execute the command in the CONFIG selection, a code entry must be defined that results in the value CONFIG. No special action is required to execute the commands in the other selection because they will always be issued.

With action COD on the Message Processing panel of Figure 167 on page 209, a table of codes can be specified that will be evaluated by INGMON to select the commands to issue based on the actual setting of one or more codes. Figure 171 on page 211 shows an example where the value CONFIG is returned whenever *code1* has a value of 26. In this case, it is channel path 26 because the XCHN exception is being processed.

A row is matched whenever the conjunction of *code1*, *code2*, and *code3* evaluates to true. Otherwise, the next row is evaluated for a match. If no match is found, the value returned will be ALWAYS.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN9    Code Processing : + XCHN                 Line 00000001 Col 001 075
Command ===> ____________________________________________________ Scroll ===> PAGE

Cmd Code 1           Code 2           Code 3           Value Returned
___ 26               *                ________________ CONFIG___________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
___ ________________ ________________ ________________ ________________________
```

Figure 171. Code Processing Panel

With action USR on the Message Processing panel of Figure 167 on page 209, a key/value pair can be specified that denotes the administrator to be notified, as shown in Figure 172 on page 211. (There must be a REXX exec that performs this function.)

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNC    User Data Processing : + XCHN            Line 00000001 Col 001 075
Command ===> ____________________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)           Keyword length. . . 20  (1-64)

Cmd Keyword              Data
___ ADMIN________________ ADMIN@DOMAIN.NET_____________________________________
___ ________________________ ____________________________________________________
___ ________________________ ____________________________________________________
___ ________________________ ____________________________________________________
___ ________________________ ____________________________________________________
___ ________________________ ____________________________________________________
___ ________________________ ____________________________________________________
___ ________________________ ____________________________________________________
___ ________________________ ____________________________________________________
___ ________________________ ____________________________________________________
```

Figure 172. User Defined Data Panel

You can also use the Command Processing panel to set up Pass Processing to make multiple attempts to recover from or resolve the exception. PASS counts from 1 to 99 and is incremented for each instance of the message or exception, unless recovery is disabled. In the example in Figure 173 on page 212, when the number of outstanding replies exceeds the OMEGAMON threshold:

- The first time, issue MYCMD and pass parameter 'ORANGE'
- The second time, do nothing
- The third time, issue MYCMD and pass parameter 'RED'

Note that a blank pass means that the command is always executed.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNC           Message: + XREP                   Line 00000001 Col 001 075
Command ===> ____________________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)

Cmd Ps/Select  AutoFn/* Command Text
___ 1_________ ________ MYCMD 'ORANGE'_____________________________________________
___ 3_________ ________ MYCMD 'RED'________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
___ __________ ________ ____________________________________________________________
```

Figure 173. Monitor Resource CMD Processing Panel - Pass Processing

The USR action can also be used to disable further processing within INGMON using the DISABLETIME keyword, as in Figure 174 on page 212. The data value is the time, which can be specified in the normal NetView format: hh:mm:ss, mm:ss, :ss, or mm..

A DISABLETIME of 0 means that the message processing for this particular combination of monitor and exception is disabled forever. If message processing should be enabled again or prematurely, an INGMON CLEARING request must be issued. It is best issued from within the command that handles the resolution.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN8           Message: + XCHN                   Line 00000001 Col 001 075
Command ===> ____________________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)          Keyword length. . . 20  (1-64)

Cmd Keyword              Data
___ DISABLETIME_________ 15:00______________________________________________________
___ _____________________ ____________________________________________________________
___ _____________________ ____________________________________________________________
___ _____________________ ____________________________________________________________
___ _____________________ ____________________________________________________________
___ _____________________ ____________________________________________________________
___ _____________________ ____________________________________________________________
___ _____________________ ____________________________________________________________
___ _____________________ ____________________________________________________________
___ _____________________ ____________________________________________________________
```

Figure 174. User Defined Data Panel

Action OVR on the Message Processing panel of Figure 167 on page 209 needs to be used to manually refine the NetView AT-entry in order to exploit the code entry. SA z/OS generates a default condition and action statement that can be modified by the installation. In the example, the condition statement would be modified to set a variable named MISSCHAN:

```
IF TOKEN(2)='MONITORS/MTR/SYS1' &
   TOKEN(5)='XCHN' &
   TOKEN(10)=MISSCHAN
```

The action statement would be modified to say:

```
EXEC(CMD 'INGMON MONITORS/MTR/SYS1 CODE1='MISSCHAN)
```

OVR can also be used to add the NetView THRESHOLD condition item to the condition statement suggested by SA z/OS. The THRESHOLD condition item counts the number of occurrences within a given time interval and returns a value of true (1) only if the count is equal to or higher than the specified threshold.

HEALTHSTATE Policy Item

If you select the HEALTHSTATE policy item from the Policy Selection panel for monitor resources, the Command Processing panel is displayed, as shown in Figure 175 on page 213.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNC    Command Processing : HEALTH_RECOVERY     Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Mixed case . . . NO_  (YES NO)

Cmd State      AutoFn/* Command Text
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
___ ___________ ________ ____________________________________________________
```

Figure 175. Command Processing Panel for the HEALTHSTATE Policy Item

You can use this panel to enter commands to be executed when the monitor resource detects a change in the healthstate of the monitored resource.

The following fields are available:

Mixed case
Specify whether the value entered in the **Data** field remains unchanged (YES) or is translated to upper case characters automatically (NO).

State
Defines the health state that the monitored resource must change to in order to initiate the specified commands. Valid values are :

- NORMAL
- WARNING
- MINOR
- CRITICAL
- FATAL
- blank

Leaving this field blank means that the specified commands will be executed in any health state change.

AutoFn/*
See **AutoFn/*** in “Command Processing” on page 146 for a detailed description.

Command Text
Enter the command or command list to be issued. You must preface a system command with MVS.

You can use line commands in the **Cmd** field to manipulate the entries on this panel as described in Line Commands on Message Processing Panels in “How to View Long Input Fields in Full Length” on page 25.

You can use the FIND command on the Command Processing panel to search the displayed data for a specific string. For more details, see “How to Find Data in a Policy Item” on page 23.

A healthstate can be specified on the call to ACFCMD, which will issue the corresponding command or Command Group defined in the CMD entry.

A healthstate of blank can be specified to ensure that the corresponding command is issued regardless of the SEL= parameter included on the ACFCMD call. Thus, for any given healthstate processing, the blank entries will be issued in addition to the entries coded for that particular healthstate.

TRIGGER Policy Item

The Trigger for Monitor Resource panel Figure 176 on page 214 is displayed if you select policy item TRIGGER from the Policy Selection panel for monitor resources. For more details about triggers, see the section "Event and Trigger Support" in *IBM System Automation for z/OS User's Guide*.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGXC4E             Trigger for Monitor Resource              Row 1 to 1 of 4
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Monitor Resource      PolicyDB Name   : USER_PDB
Entry Name : JES3MON               Enterprise Name : USER_ENTERPRISE

Action      Status            Trigger
__________                    CICSK34
__________                    CICSK42
__________  SELECTED          TRIGGER1
__________                    XRFTRIG
```

Figure 176. Trigger for Monitor Resource Panel

This panel allows you to manage the link (only one is allowed) between the current Monitor Resource entry and a Trigger entry.

zEnterprise Ensembles Entry Type

Use the zEnterprise Ensembles (ENS) Entry Type to define and control your groups of processing power for the zEnterprise zBX compute systems in your enterprise.

Creating a New zEnterprise Ensemble

How to create new policy objects in general is described in “How to Create New Policy Objects” on page 19.

Figure 177 on page 214 shows the panel for defining a new zEnterprise Ensemble policy object.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
                                Define New Entry
Command ===> ____________________________________________________________

Define new entry of type zEnterprise Ensemble

  Entry name . . . . . .             __________

  Ensemble Name  . . . . .           ____________________

  TCP/IP Address or Hostname of primary HMC  .
____________________________________________________________________________

  User ID  . . . . . . . . _____________________________
  Password . . . . . . . .
          ____________________________________________________________________

  Short Description  . . . ____________________________________
  Long Description 1 . . . ____________________________________________
  Long Description 2 . . . ____________________________________________
  Long Description 3 . . . ____________________________________________
```

Figure 177. Defining a New zEnterprise Ensemble Panel

Entry Name
Specifies the name for the Entry Type in the SA z/OS Customization Dialogs. Each ensemble must be assigned a unique, non-blank name. The name must start with an alphabetic character. It must be unique among the names of all zEnterprise ensembles, groups, subgroups, systems (including both the entry names and the ProcOps Target HW names) in the current Policy Database.

Ensemble Name
Specifies the 16 character ensemble name as defined on the ensemble HMC. Any character is valid.

TCP/IP Address or Hostname of Primary HMC
Specifies the TCP/IP address or symbolic hostname of the primary ensemble HMC where the zManager Web Service API is hosted.

User ID
Specifies the name of the HMC user to be associated with the new HMC session. It must be defined on the HMC. It is used to logon and to initialize the connection to the HMC. The minimum length is 4 characters.

Password
Specifies the password used to authenticate the HMC user identified by the User ID field. It is required. The predefined value SAFPW may be used to allow SA z/OS to maintain the password of the user ID. In this case, the Ensembles entry type is used to set up the SAF resource identifier in the VSAM file representing the SA z/OS password data set. Be aware of this when changing, adding or deleting ensemble entries. For more information, refer to the appendix "Security and Authorization" in *IBM System Automation for z/OS Planning and Installation*. The minimum length is 4 characters.

Policy Items for zEnterprise Ensembles

Figure 178 on page 215 shows Policy Selection panel for zEnterprise Ensembles.

```
   ACTIONS  HELP
 ------------------------------------------------------------------------------
                               Policy Selection               Row 1 to 5 of 5
 Command ===> _____________________________________________ SCROLL===> PAGE

 Entry Type : zEnterprise Ensemble  PolicyDB Name   : USER_PDB
 Entry Name : NEWZGRP               Enterprise Name : USER_ENTERPRISE

Action     Policy Name          Policy Description
_________  DESCRIPTION          Enter description
_________  ENSEMBLE INFO        Enter and display ensemble information
_________  PROCESSORS           Select processors
_________  ------------------- ---------------------------------------------
_________  COPY                Copy data from existing entry
```

Figure 178. zEnterprise Ensemble Policy Items Panel

The unique policy items for the zEnterprise Ensemble Entry Type are:

ENSEMBLE INFO
Using this policy, you can specify and display zEnterprise ensemble information. See “ENSEMBLE INFO Policy Item” on page 215.

PROCESSORS
This Policy Item allows you to manage links to Processor entries. See “Processor Entry Type” on page 193 for further information.

ENSEMBLE INFO Policy Item

The panel shown in Figure 179 on page 216 is displayed when you select Policy Item ENSEMBLE INFO on the Policy Item Selection panel for zEnterprise Ensembles.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
                        zEnterprise Ensemble Information
Command ===> ____________________________________________________________
                                                                More:     +
Entry Type : zEnterprise Ensemble      PolicyDB Name   : USER_PDB
Entry Name : NEWZGRP                   Enterprise Name : USER_ENTERPRISE

Ensemble Name . . . . . . . . . ensemble01___

TCP/IP Address or Hostname of primary HMC
123.456.789.000_____________________________________________________________
TCP/IP Address or Hostname of alternate HMC
_____________________________________________________________________________

User ID.. . . . . . . . . . . . OPER1_____________________
Password. . . . . . . . . . . .                                  (Password or
SAFPW)
               ABCDEF_____________________________________________________

IP Stack. . . . . . . . . . . . ____________________________________________

Connection Logon. . . . . . . . ________       (YES NO BYPASS)
Path Poll Frequency . . . . . . _____         (0 to 359 minutes)
Path Poll Retries . . . . . . . __            (0 to 99)
Command Retries . . . . . . . . __            (0 to 99)
Command Retry Wait Time . . . . _____         (0 to 600 seconds)
```

Figure 179. zEnterprise Ensemble Information Panel

IP Stack
Specifies the jobname of the TCPIP (stack) to indicate the corresponding IP stack. Specify this field only if your system is configured for multiple IP stacks. If nothing is specified the first active TCPIP (stack) is used. You may include system symbols and system automation symbols.

Connection Logon
Defines how the Ensemble Connection is handled when processor operations is started.

YES
If set to YES, an automatic logon with the specified user ID and password is completed, and a connection initialization is attempted, when processor operations is started. Polling will retry until the status is ACTIVE.

NO
If set to NO, no logon is done and the connection is not established when processor operations is started. The status is set to UNKNOWN/DORMANT. In this status polling will try to logon and initialize the connection.

BYPASS
If set to BYPASS, the connection status is set to CLOSED and polling will ignore the connection.

Path Poll Frequency
Defines how frequently the ensemble HMC should be queried for status. It must be specified in whole minutes. Valid values are 0 to 359 minutes. If nothing is specified, the default value is 0 which means that polling is deactivated.

Path Poll Retries
Defines the number of query retries before notifying the operator that the connection could not be established. Valid values are 0 to 99 retries. If nothing is specified, the default value is 0, which means no retry is attempted.

Command Retries
Defines the number of retry steps for calling the hardware interface. Valid values are 0 to 99 retries. If nothing is specified the default value is 10.

Command Retry Wait Time
Defines the wait time in whole seconds between the retry steps for calling the hardware interface. Valid values are 1 to 600 seconds. If nothing is specified the default value is 1 second.

Pacing Gates Entry Type

Pacing Gates control the flow of application activity for a system. The Pacing Gate entry type specifies the number of applications which are allowed to be started or stopped concurrently by SA z/OS during system startup or shutdown.

Only one Pacing Gate may be selected for any application.

Policy Items for Pacing Gates

Figure 180 on page 217 displays the policy items that are shown when a Pacing Gate is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
                                Policy Selection              Row 1 to 5 of 5
Command ===> _____________________________________________ SCROLL===> PAGE

Entry Type : Pacing Gate           PolicyDB Name   : USER_PDB
Entry Name : PACING_GATE_NAME      Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
______      DESCRIPTION          Enter description
______      PACING GATE INFO     Enter and display pacing gate information
            -------------------- ---------------------------------------------
______      WHERE USED           List applications linked to this entry
______      COPY                 Copy data from an existing entry
```

Figure 180. Policy Selection Panel for Pacing Gates

The unique policy item for Pacing Gates is:

PACING GATE INFO
Using this policy, you can specify and display Pacing Gate information. See “PACING GATE INFO Policy item” on page 217.

PACING GATE INFO Policy item

Selecting the PACING GATE INFO policy item displays Figure 181 on page 217.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
                           Pacing Gate Information
Command ===> ____________________________________________________________

Entry Type : Pacing Gate           PolicyDB Name   : USER_PDB
Entry Name : PACING_GATE_NAME      Enterprise Name : USER_ENTERPRISE

Start Concurrency Limit . . 14_________  (0-9999 or NOLIMIT)
Stop  Concurrency Limit . . 9__________  (0-9999 or NOLIMIT)
```

Figure 181. Pacing Gate Information Panel

A Pacing Gate consists of the following:

Start Concurrency Limit
Specifies the number of applications which are allowed to start concurrently by SA z/OS during system startup. If an unlimited number of applications is allowed, specify NOLIMIT which is also the default value. Alternatively exactly one system automation symbol may be specified.

Stop Concurrency Limit
Specifies the number of applications which are allowed to be stopped concurrently by SA z/OS during system shutdown. If an unlimited number of applications is allowed, specify NOLIMIT which is also the default value. Alternatively exactly one system automation symbol may be specified.

OPC System Detail Entry Type

Figure 182 on page 218 shows the policy items that are displayed when you select an OPC system detail from the related Entry Name Selection panel or if you want to create a new OPC system detail.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection              Row 1 to 5 of 5
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : OPC System details    PolicyDB Name   : USER_PDB
Entry Name : OPC_SYS_DET1          Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
___________ DESCRIPTION          Enter description
___________ OPCAO ENVIRON        Define OPCAO environ entries
___________ -------------------- ---------------------------------------------
___________ WHERE USED           List Systems linked to this entry
___________ COPY                 Copy data from an existing entry
```

Figure 182. Policy Selection Panel for OPC System Detail

The unique policy item for OPC system details is:

OPCAO ENVIRON
This policy item checks the status on START and STOP requests. If you select this policy item, SA z/OS displays the OPC System details panel, which is described in more detail in “OPCAO ENVIRON Policy Item” on page 218.

OPCAO ENVIRON Policy Item

The OPCAO ENVIRON policy item checks the status on START and STOP requests. If you select this policy item from the Policy Selection panel for OPC System Details, SA z/OS displays the panel shown in Figure 183 on page 218.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFPOEN                        OPC System details
Command ===> ____________________________________________________________

Entry Type : OPC System details    PolicyDB Name   : USER_PDB
Entry Name : OPC_SYS_DET1          Enterprise Name : USER_ENTERPRISE

Status check on requests. . YES       (YES/NO)
Operation reset delay . . . NEVER     (hh:mm/NEVER)
Batch Interface Server. . . EVJCMDRV  (PPI Receiver Name)
```

Figure 183. OPC System Details Panel

The following fields can be filled in:

Status check
This entry controls the checking of subsystem status on OPC Automation START, STOP, and RECYCLE requests. If this is not coded, OPC Automation enforces the rule that START operations are ended in error if the subsystem is already UP, and likewise for STOP operations if the subsystem is down. Code REQUEST=NO if you want to have OPC Automation proceed as normal in this case. The default value is YES.

Operation reset delay
This specifies how long the NetView interface to OPC may be unavailable before OPC Automation will not reset operations that ended in error while it was down.

The NetView interface consists of both the NetView SA z/OS OPC Automation address space and its associated NetView SSI address space, over which requests flow from OPC to OPC Automation. When the interface is down, OPC Automation sets any operations destined for a NetView workstation to an error status with an error code of UNTV. If you do not code a value, no operations are reset when the interface becomes available again.

The default value is NEVER.

Batch Interface Server
This specifies the PPI name of the server that accepts commands from batch jobs and executes them on NetView. The default value is EVJCMDRV.

For more information see *IBM System Automation for z/OS TWS Automation Programmer's Reference and Operator's Guide*.

OPC Controller Details Entry Type

Figure 184 on page 219 shows the policy items that are displayed when you create a new OPC controller detail or when you select an existing OPC controller detail from the related Entry Name Selection panel.

Note that if multiple controllers are running on the same system they must share the same Controller Details (OCS) definitions. If more than one OCS policy object is linked to the same system, the last is used.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Controller details    PolicyDB Name   : USER_PDB
Entry Name : OPC_OCS_1             Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  OPCA PCS             Define OPCA PCS entries
__________  SPECIAL RESOURCES    Select Special Resources for this controller
__________  -------------------- ---------------------------------------------
__________  WHERE USED           List Systems linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 184. Policy Selection Panel for OPC Controller Details

The unique policy items for OPC controller details are:

OPCA PCS
With this policy item you either specify the NetView domain that the OPC controller resides on or specify that the local sysplex is to be searched for the active controller when required. You must also specify the subsystem name for the OPC controller. For more information, see "OPCA PCS Policy Item" on page 219.

SPECIAL RESOURCES
Use this policy item to select one or more special resources as defined with the (OSR) Special Resources entry type for the current controller. These selected special resources for OPC are used on the systems that the current controller details entry is linked to. (You can view the systems that this entry is linked to, and link or unlink this entry to systems using the WHERE USED policy item).

OPCA PCS Policy Item

The panel shown in Figure 185 on page 220 appears if you select the OPCA PCS policy item from the Policy Selection panel for OPC controller details.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFPOCS                      OPC Controller details
Command ===> ____________________________________________________________

Entry Type : Controller details    PolicyDB Name   : USER_PDB
Entry Name : OPC_OCS_1             Enterprise Name : USER_ENTERPRISE

OPC PCS entry name: OPC_OCS_1

Enter or update the following table names:

  Netview domain name. . . SYSPLEX_
  OPC controller subsystem X_________
  OPC Special resources    NO__   (YES NO ALL)
```

Figure 185. OPC Controller Details Panel

The OPCA PCS automation definition defines the NetView domain that the OPC Controller resides on and specifies the MVS subsystem name for the OPC Controller system.

Fill in the following fields:

NetView domain name
Specify the parameter as either a NetView domain ID (up to five characters) or the keyword SYSPLEX. If a domain ID is specified, it indicates that the OPC Controller always runs on the specified domain. The keyword SYSPLEX indicates that the OPC Controller may be run on any one of the systems in the local sysplex.

OPC controller subsystem
The MVS subsystem name of the OPC Controller as defined in the IEFSSN*xx* member.

When defining the OPC Controller as a separate application, the subsystem name and job name must be this OPC controller subsystem name.

OPC Special resources
The following entries are valid:

YES
The OPC special resources will be set for any SA z/OS-monitored subsystem that is specified in the OPC special resource definitions panel (see Figure 187 on page 221). Ensure that OPC Special Resources are defined if using this option.

If YES is specified, but no OPC Special Resources are defined, then it is processed as NO during configuration file build.

NO
No Special Resources will be set. This is the default.

ALL
Special Resources will be set for all SA z/OS Monitored subsystems. No Special Resource entries are required.

OPC Special Resources Entry Type

Figure 186 on page 221 shows the policy items that are displayed when you select an OPC special resource from the related Entry Name Selection panel.

```
 ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Special resources     PolicyDB Name   : USER_PDB
Entry Name : OPC_RES1              Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  SPECIAL RESOURCE     Define OPC special resources
__________  -------------------- ----------------------------------------
__________  WHERE USED           List Controllers linked to this entry
__________  COPY                 Copy data from an existing entry
******************************* Bottom of data ********************************
```

Figure 186. Policy Selection Panel for OPC Special Resources

The unique policy item for an OPC special resource is:

SPECIAL RESOURCE
With this policy item you can specify resources as special resources for OPC. SA z/OS will display the OPC special resource definitions panel. For a detailed description of this panel, see "SPECIAL RESOURCE Policy Item" on page 221.

SPECIAL RESOURCE Policy Item

With this policy item SA z/OS is able to globally control the creation and setting of OPC Special resources based on the status of SA z/OS monitored subsystems. This allows OPC to resolve job scheduling dependencies based on the status of SA z/OS automated resources. A group or groups of special resources can be linked to a controller definition defined with option 31 (see "Defining Automation for OPC Components" on page 72).

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFPOSD                OPC special resource definitions     Row 1 to 12 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Special resources     PolicyDB Name   : USER_PDB
Entry Name : OPC_RES1              Enterprise Name : USER_ENTERPRISE

Enter the Special Resource names or wild cards that are to be used.

   DB2/APG/*
   ASCH/APL/S*
   CICS/APG/SYSTEM2
   APPL1/APL/SYSTEM1
   _________________________
   _________________________
   _________________________
   _________________________
   _________________________
   _________________________
   _________________________
   _________________________
```

Figure 187. OPC Special Resource Definitions Panel

Fill in your special resource names with up to 24 characters. You can enter wildcard characters and patterns.

OPC Workstation Domains Entry Type

Figure 188 on page 222 shows the policy items that are displayed when you select an OPC workstation domain from the related Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type : Workstation domainID  PolicyDB Name   : USER_PDB
Entry Name : OPC_WST_DOM1          Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION         Enter description
__________  OPCA DOMAINID       Define the OPCA Domainid entries
__________  ------------------- ----------------------------------------
__________  WHERE USED          List Systems linked to this entry
__________  COPY                Copy data from an existing entry
```

Figure 188. Policy Selection Panel for OPC Workstation Domain

The unique policy item for an OPC workstation domain is:

OPCA DOMAINID
If you select this policy item, it leads to the Code Processing panel where you specify how SA z/OS should react if OPC issues the specified message.

For a detailed description of this panel and how to define code processing policy with it, see “Code Processing for OPC Workstation Domains” on page 222.

For more information you should also see OPCA DOMAINID in *IBM System Automation for z/OS TWS Automation Programmer's Reference and Operator's Guide*.

Code Processing for OPC Workstation Domains

You can use this policy item to define the system or sysplex that SA z/OS routes the request that is associated with the message to.

See Figure 189 on page 222.

Use the entry in the **Code 1** field , NV*xx*, to specify a NetView automatic general workstation with a NetView domain index of *xx*. This is resolved in the Controller NetView into the target NetView system through the definitions in the **Value Returned** field. These can be:

- The NetView domain ID
- The name of a remote sysplex. SA z/OS determines one of the systems in the remote sysplex that has a Gateway connection with the local system. This system is then used to route the command to.

  A sysplex name should only be used for commands that operate sysplex-wide.
- SYSPLEX. All SA z/OS systems in the local sysplex are queried for the status of the application that is associated with the job name of the request.
- *LOCAL. The request is processed on the same system that the OPC controller runs on.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYN9    Code Processing : DOMAINID              Line 00000001 Col 001 075
Command ===> ____________________________________________ Scroll ===> PAGE

Cmd Code 1          Code 2          Code 3          Value Returned
___ NV01            _______________ _______________ SYSPLEX_____________________
___ _______________ _______________ _______________ _____________________________
___ _______________ _______________ _______________ _____________________________
___ _______________ _______________ _______________ _____________________________
___ _______________ _______________ _______________ _____________________________
___ _______________ _______________ _______________ _____________________________
___ _______________ _______________ _______________ _____________________________
___ _______________ _______________ _______________ _____________________________
___ _______________ _______________ _______________ _____________________________
___ _______________ _______________ _______________ _____________________________
```

Figure 189. Code Processing Panel for OPC Workstation Domain IDs

You can use the FIND command on the Code Processing panel to search the displayed data for a specific string. For more details, see “How to Find Data in a Policy Item” on page 23.

You can use line commands to manipulate the entries. You can also use operators in your code definitions to make comparisons with the values that are provided by the automation procedure. For more details see the online help.

Messages Entry Type

The Messages entry type shows a list of all messages defined in the policy database together with the messages from MVC entry '+SA_PREDEFINED_MSGS'. This list offers alternative access to the messages definitions with the advantage that it is not necessary to know the entry defined for the message.

This policy is the main location for all AT, MRT, and MPF related changes.

Messages Policy Items

Figure 190 on page 223 shows the Policy Items that are displayed when Messages is selected from the entry type Selection panel.

```
  ACTIONS  HELP
 ------------------------------------------------------------------------------
                                Policy Selection               Row 1 to 4 of 4
 Command ===> _____________________________________________________ SCROLL===> PAGE

 Entry Type : Messages                 PolicyDB Name   : USER_PDB
 Entry Name : USER_ENTERPRISE          Enterprise Name : USER_ ENTERPRISE

 Action      Policy Name          Policy Description
 ______      MESSAGE AUTOMATION   Define message specific AT, MRT, MPF
data
 ______      MPF DEFINITIONS      Define MPFLSTxx suffix, header, and trailer
 ______      AT/MRT INSERTS       Specify user inserts for AT and MRT
 ______      BUILD CONTROL        Define AT, MRT, MPF build control parameters
```

Figure 190. Messages Entry Type Policy Selection Panel

The Policy Items for Messages are:

MESSAGE AUTOMATION
This policy shows a list of all messages defined in the Policy Database together with the messages from special MVC entry "+SA_PREDEFINED_MSGS" which contains the predefined messages that are used for AT, MRT, and MPF generation. See “MESSAGE AUTOMATION Policy Item” on page 224 for further information.

MPF DEFINITIONS
This policy allows you to enter or update specifications for MPF header and trailer lines which will be included in the MPFLSTxx member during MPF build. See “MPF DEFINITIONS Policy Item” on page 226 for further information.

AT/MRT INSERTS
This policy allows user specifications for the NetView automation table (AT) and message revision table (MRT). During the configuration file build they are inserted into each generated AT and MRT. See “AT/MRT INSERTS Policy Item” on page 227 for further information.

BUILD CONTROL
This policy contains some basic settings for the generated AT, MRT, and MPF such as the scope of AT and MRT or whether a default entry in the message revision table is generated for all messages. See “BUILD CONTROL Policy Item” on page 228 for further information.

MESSAGE AUTOMATION Policy Item

This policy item shows a panel similar to Figure 191 on page 224 with all messages in the policy database together with the short descriptions, some status data and a line command area. The list is sorted alphabetically by message.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGMSLT                      Message Definitions       Row 277 to 297 of 1,116
Command ===> _____________________________________________  SCROLL===> CSR

PolicyDB Name : USER_PDB               Enterprise Name : USER_ENTERPRISE

Make a selection ( S ) or use shortcuts ( WHU AC AS AO MS MO MF IG ).

Cmd Message ID                Description                                  AT M F
___ DFS629I                   IMS Abend Codes                               O
___ DFS810A                   Specifications for DFS810A
___ DFS989I                   DBCTL Restart commands
___ DFS994I                   IMS CTL region is UP                         CA
___ DOWN                      Subsystem Status                             I  I I
___ DSI001I                   NetView message suppression                   O
___ DSI107I                   NetView received stop command                CA
___ DSI112I                   NetView is available                          A
___ DSI122I                   NetView received stop command                CA
___ DSI135I                   NetView terminated normally                   A
___ DSI166I                   NetView task is available                     O
```

Figure 191. Message Definitions Panel

This policy shows a list of all the messages that are defined in the policy database together with the messages from the special MVC entry, +SA_PREDEFINED_MSGS, which contains predefined messages that are used for the NetView automation table (AT), message revision table (MRT), and MPFLSTxx member build.

The messages are sorted alphabetically and shown together with their short description and status data. The AT, MRT, and MPF status columns show whether there are specifications for the Netview automation table, message revision table, and MPFLSTxx member build:

I
Ignore or Suppress is specified for this message.

C
An AT condition is specified for this message.

A
A definition for this message causes a specific AT or MRT action. For the AT this is a status selection, for the MRT this is a selection resulting in a REVISE statement.

O
An AT or MRT override is specified for this message.

This panel allows you to select one entry from the list displayed or manage its message definitions with the following command codes:

WHU
Shows a list of the Applications, MVS Components, and Monitors where the current message is defined.

If you enter the WHU command for a message ID, this displays the Entries linked to Message panel. It shows you all the entries of type APL, MTR, and MVC where the message has been defined, as shown in Figure 192 on page 225.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGMSL1                    Entries linked to Message          Row 1 to 7 of 7
Command ===> _____________________________________________ SCROLL===> PAGE

Message ID : CAPMSGS

Entry name            Short Description                        Type
+SA_PREDEFINED_MSGS   Messages predefined by SA for AT build   MVC
C_CICS                Class for CICS                           APL
C_DB2_MSTR            DB2 Class - DB2 Master                   APL
C_IMS_CONTROL         Class for IMS Control regions            APL
C_IMS_SUBORDINATES    Class for IMS Subordinate Regions        APL
E2EADPT               E2E Automation Adapter                   APL
IMSCQS                IMS Common Queue Server                  APL
```

Figure 192. Entries linked to Message Panel

AC
Allows you to define the AT entry conditions for the message.

AS
Allows you to define the status specifications for the message action.

AO
Allows you to specify your own AT entry.

MS
Allows you to define the specifications that are used to generate the NetView message revision table.

MO
Allows you to define your own MRT entry.

MF
Allows you to define the specifications that are used to generate the MPFLSTxx member.

IG
Allows you to exclude the message from AT, MRT, and MPF.

You can use the LOCATE (L) command to locate an entry in the list.

Line command (S) leads to the Message Automation Overview panel for that entry, as shown in Figure 193 on page 225.

```
AOFGMADV                 Message Automation Overview
 Command ===> ____________________________________________________________

  AC AT condition     MS MRT action selection     MF MPFLSTxx specifications
  AS AT status        MO MRT override             IG Ignore for AT, MRT, MPF
  AO AT override

 Message ID : HASP050

 AT Override :
 IF MSGID = . 'HASP050' & TEXT = . 'TGS'. THEN
 EXEC(CMD('AOFRSD01') ROUTE(ONE %AOFOPJESOPER%));

 Generated MRT entry :
 UPON ( OTHERMSG )
 SELECT
 WHEN (WORD 1 RIGHT 7 = 'HASP050')
 REVISE('CR' COLOR)

 Generated MPF entry :
 HASP050
```

Figure 193. Message Automation Overview Panel

The scrollable preview area shows the AT, MRT, and MPF entries that would be generated based on the current specifications. If, for example, you modify the AT conditions on a subsequent panel and return, the AT preview is updated to reflect the new specifications.

If a generated AT entry is based on an SA z/OS definition (that is, it is defined in the MVC entry +SA_PREDEFINED_MSGS), it is shown in the color that has been selected for class data.

Note that if a message is only predefined by SA z/OS (that is, it is only provided in MVC entry +SA_PREDEFINED_MSGS), but not specified for any application or MVS component in the policy database, you cannot modify it.

For more details about message automation definitions, see "Message Automation Definitions" on page 152.

For more details about the NetView automation table and message revision table see *IBM NetView for z/OS Automation Guide*.

MPF DEFINITIONS Policy Item

If you select policy item MPF DEFINITIONS from the Policy Selection panel for messages, a panel similar to Figure 194 on page 226 is shown.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGMPF                 MPFLSTxx Member Definitions
Command ===> ____________________________________________________________________

PolicyDB Name   : USER_PDB             Entry Type : USER_ENTERPRISE

MPF Member Name Suffix . . SA

MPF Header Lines . . . . .
.DEFAULT,SUP(YES),RETAIN(I,CE),AUTO(YES)_____________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________

MPF Trailer Lines . . . .
.NO_ENTRY,SUP(NO),RETAIN(I,CE),AUTO(NO)______________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
```

Figure 194. MPFLSTxx Member Definitions Panel

This panel allows you to specify the MPFLSTxx member suffix and enter or update definitions that will be included in the MPFLSTxx member during configuration file build.

The message processing facility (MPF) is a z/OS table that screens all messages that are sent to the z/OS console. The MPF compares these messages with a user-defined list of messages on which to automate, suppress from the z/OS console display, or both, and marks messages to automate or suppress.

MPF Member Name Suffix
Allows you to specify the MPFLSTxx member name suffix which must be two alphanumeric characters. The default suffix is SA.

MPF Header Lines
Specify up to 5 MPF statements that will be included at the top of the MPFLSTxx member, for example:

```
.NO_ENTRY,SUP(NO),RETAIN(I,CE),AUTO(NO)
```

or

```
.DEFAULT,SUP(YES),RETAIN(I,CE),AUTO(YES)
```

You can specify comment lines by including /* as the first 2 characters.

MPF Trailer Lines
Specify up to 3 MPF statements that will be included at the bottom of the MPFLSTxx member.

Changes in MPF header and trailer lines result in a complete rebuild of AT, MRT, and MPF.

AT/MRT INSERTS Policy Item

If you select Policy Item AT/MRT INSERTS from the Policy Selection panel for messages, the following panel is shown:

```
   COMMANDS  HELP
-------------------------------------------------------------------------------
                            User Insert Definition
Command ===> ____________________________________________________________

 PolicyDB Name : USER_PDB                Enterprise Name : USER_ENTERPRISE

 Line Command: S (Select)

 Cmd  Description                                          Insert

 ___  AT Definitions at the end of each BEGIN - END block     *
 ___  MRT Definitions at the top of the UPON (OTHERMSG)
 ___  MRT Definitions at the bottom of the UPON (OTHERMSG)
```

Figure 195. User Insert Definition

User Inserts can be specified for the NetView automation table (AT) and the message revision table (MRT). The configuration file build adds these inserts into each generated AT and MRT.

The panel offers the following three choices which can be selected with the line command **S**:

AT Definitions at the end of each BEGIN - END block
The AT generated by SA z/OS puts all messages into BEGIN - END blocks based on the first three characters of the message ID. The AT statements specified here are inserted at the end of each such BEGIN- END block.

MRT Definitions at the top of the UPON (OTHERMSG)
Within NetView, there can be only one MRT with only one UPON(OTHERMSG). And SA z/OS needs to generate this UPON (OTHERMSG) with specifications for certain message IDs. The MRT statements specified here are inserted at the top of the UPON (OTHERMSG) above the statements generated by SA z/OS.

MRT Definitions at the bottom of the UPON (OTHERMSG)
The MRT statements specified here are inserted at the bottom of the UPON (OTHERMSG) below the statements generated by SA z/OS.

Note: If a message matches an UPON (OTHERMSG) statement, subsequent SELECT statements in that UPON group are not bypassed. If you want them bypassed, you need to code an EXIT statement.

Column **Insert** shows an asterisk if there are user specifications.

To specify such an insert, the ISPF EDIT panel is displayed. Any specification is added to the AT and the MRT as it is entered, without any further formatting.

A syntax check can be enabled or disabled through the field **AT/MRT Syntax Check** on the Settings panel for Messages, option 0.3. For the AT syntax check %INCLUDE AOFMSGSY is inserted as the first line so that the synonyms of SA z/OS do not cause error messages. Beyond that, no other variable resolution takes place. For the MRT syntax check, UPON(OTHERMSG) is inserted as the first line.

BUILD CONTROL Policy Item

If you select Policy Item BUILD CONTROL from the Policy Selection panel for messages, the following panel is shown.

```
 COMMANDS  HELP
------------------------------------------------------------------------------
                        Define Build Control Parameter
Command ===> ____________________________________________________________

PolicyDB Name : USER_PDB               Enterprise Name : USER_ENTERPRISE

AT/MRT scope . . . . . . . . SYSTEM____ (NONE ENTERPRISE SYSPLEX SYSTEM)
Generate MPFLSTxx member . . YES        (YES NO)

MRT default AUTOMATE . . . . YES        (YES NO)
Route all WTORs to AT  . . . NO_        (YES NO)
```

Figure 196. Define Build Control Parameter

This panel allows you to specify some basic settings for the generated AT, MRT, and MPF:

AT/MRT Scope
Defines whether automation tables (ATs), message revision tables (MRT), and the MPFLSTxx member should be generated automatically by the configuration file build and what the scope should be. For details, see “Setting AT/MRT Scope” on page 296.

Generate MPFLSTxx member
Defines whether the MPF list member is created during the configuration file build. Note that **AT/MRT Scope** = NONE takes precedence over this field which means that no MPFLSTxx is built even if YES is specified.

MRT Default AUTOMATE
Defines whether a default MRT entry is generated.

- YES means that an MRT entry is generated for a message if:
  - an AT entry is created (independent from **AT/MRT Scope**)
  - there is no further user specification for an MRT entry.

  Furthermore MRT entries are generated for all messages in the special automation table INGMSGSA shipped by SA z/OS.
- NO means that no MRT entry as described above is generated.

The generated MRT entry looks like the following:

```
          UPON ( MSGID = '.........' )
          REVISE('Y' AUTOMATE)
```

Route all WTORs to AT
Defines whether a special MRT entry is generated to ensure that all WTORs which are not defined in the PDB are passed to automation.

The entry is put into the SELECT which System Automation generates within the UPON(OTHERMSG) as the last WHEN-condition.

The generated MRT entry looks like the following:

```
           WHEN (WQE SUBSTR 345.1 ^= '00'X)
           REVISE('Y' AUTOMATE)
```

Timers Entry Type

The Timers entry type allows you to define sets of timers that run commands or automation procedures at scheduled times.

Figure 197 on page 229 shows the policy items that are displayed when a new Timers entry is defined or when an existing Timers entry is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                    Policy Selection
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Timers              PolicyDB Name   : USER_PDB
Entry Name : TIMER_NAME          Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION         Enter description
__________  TIMERS              Define timers for automation
__________  ------------------- ------------------------------------------
__________  WHERE USED          List Systems linked to this entry
__________  COPY                Copy data from an existing entry
```

Figure 197. Policy Selection Panel for Timers

The unique policy item for Timers is:

TIMERS
You define a timer in the Timer specification panel. For more details see "TIMERS Policy Item" on page 229.

TIMERS Policy Item

SA z/OS displays the following panel if you select the TIMERS policy item from the Policy Selection panel for Timers.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFPITI0                      Timer Definitions            Row 1 to 2 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Timers               PolicyDB Name   : USER_PDB
Entry Name : TIMER1               Enterprise Name : USER_ENTERPRISE

Enter information for commands to be executed at scheduled times.

Action  Timer Id  Execution Time                    Task       Clock   Catchup
Command text

______  S1BKUP1   AFTER 10 days and 01:10:00        SYSOPER    LOCAL   NO
S1BKUP1 DAILY
_____________________________________________________________________________

______  ________                                   ________   ______  ___
_____________________________________________________________________________
```

Figure 198. Timer Definitions Panel

You should note that, at runtime, the commands that you define here are converted to the NetView CHRON format.

A timer definition consists of:

Timer ID
When a user timer is defined with the SAVE-option outside the control of SA z/OS, it is recommended that a unique timer ID is specified to avoid duplicate timers being created at automation control file (ACF) reload.

The uniqueness of the timer ID applies to the system that uses this entry and all other timer entries that are used by the same system.

Task
Specify the automated function or NetView task name where the command should run. You can also specify a NetView operator group by using a plus sign (+) as the first character (for example, +OPERGRP). Such an operator group is defined using an ASSIGN statement in NetView CNMSTYLE member or through an ASSIGN command. To run under the primary programmed task (PPT), specify PPT. Be aware that not all commands can run under PPT.

Restriction: If the task in the timer definition is changed, the timers existing under the old task cannot be purged during an INGAMS REFRESH processing. The changed timers are added as new ones and the old timers remain in effect until manually purged.

Clock
Specifies whether the command is to run on a Greenwich Mean Time schedule or the local system time. You can enter either GMT or LOCAL.

Catchup
Specify whether a saved timer should be caught up (that is, it should still be run) after a system outage.

This parameter is ignored for timers which are scheduled at regular intervals with specification EVERY.

Command text
The actual timer-driven command or automation procedure that SA z/OS issues or calls.

The **Execution Time** field cannot be filled in from this panel, but it shows the time at which the timer has been scheduled. This is the result of completing the Timer Definition panel (selected with an S in the **Action** column).

Use the S command code to define when the timer executes. This leads to the second Timer Definitions panel, as shown in Figure 199 on page 230.

```
 COMMANDS  HELP
------------------------------------------------------------------------------
AOFPITI1                         Timer Definitions
Command ===> ____________________________________________________________________

Entry Type : Timers                PolicyDB Name   : USER_PDB
Entry Name : TIMER1                Enterprise Name : USER_ENTERPRISE
Timer Id   : S1BKUP1

Specify one timer definition and optional CHRON parameters.
Time, elapsed time and interval time may be hh:mm:ss, hh:mm or mm.

Number of Days . . After 10_ days (1-365)    and 01:10:00 (elapsed time).
                  Every ___ days (1-365)    and _________ (elapsed time).
Day of Week. . . . On    ___ (Mon-Sun)       at  _________ (time).
                  Every ___ (Mon-Sun)       at  _________ (time).
                  Every Weekday             at  _________ (time).
                  Every Weekend             at  _________ (time).
                  Every Day                 at  _________ (time).
Date . . . . . . . On    _________ (mm/dd/yy) at  _________ (time).
Time Only. . . . . At    _________ (time).
                  After _________ (elapsed time).
                  Every _________ (elapsed time)
                                  from  _________ to  _________ (time).
Notify . . . . . . ____________________________________________________________
Remark . . . . . . ____________________________________________________________
CHRON parameter. . RECOVERY=AUTOLOGN___________________________________________
____________________________________________________________________________
____________________________________________________________________________
```

Figure 199. Timer Definitions Panel 2

You can use only *one* of the available options to define a timer, and additionally any valid NetView CHRON timer parameters. Note that entering the colons is optional for all the time fields (that is, you can enter, for example, `011000`, which is then converted to `01:10:00`).

The time and elapsed time can be entered as:

1. Hours, minutes and seconds
2. Hours and minutes
3. Minutes only (hours then defaults to 00)

Valid values are 00-23 (hours) and 00-59 (minutes and seconds). Specifying 24:00:00 is also valid for elapsed time.

Additionally, you can specify Xs for the time to indicate that the command should run at the next increment of time, for example, XX:00:00. This causes the command to run at the beginning of the next hour.

You can define timers in the various sections of the panel, based on the time interval, as follows:

Time interval	When the timer should expire
Number of Days, based on the elapsed time.	**After** After a certain number of days and specified time interval. **Every** Periodically, after a specified number of days and specified time interval.
Day of Week, based on the day of the week.	**On** Only once at a certain time within the next seven days. **Every** Once a week at a certain time. **Every Weekday** At the same time every weekday (Monday through Friday). **Every Weekend** At the same time every weekend (Saturday or Sunday). **Every Day** At the same time every day.
Date, if the timer is to expire on a particular day.	**On** On a particular day. Only future dates are allowed.
Time Only, based on a specified time.	**At** At a certain time within the next 24 hours. **After** A certain period of time after the timer has been set. **Every** At regular intervals. Optionally you may specify a time frame (using the **from** and **end** fields) where the timer expires at the regular interval.

Notify
The Notify parameter specifies a BNH549I message will be sent as notification when certain events occur in the processing of the CHRON command. It supports four event types: IGNORE, PURGE, REMOVE and RUN. For each event type specify a list of operator IDs on group names. You may specify more than one event, for example, `IGNORE=(OPER1 OPER2) PURGE=(OPER3)`.

Remark
The Remark parameter can be any string specifying informational data.

CHRON parameter
The CHRON parameter can be any combination of NetView CHRON timer parameters, like RECOVERY, INTERNAL, CALENDAR, and so on. The following parameters must *not* be specified as those are automatically created from the definitions that you make on this panel and the preceding panel: AT,

AFTER, EVERY, SAVE/NOSAVE, GMT/LOCAL, ROUTE, ID, COMMAND. If the 'Notify' and/or 'Remark' fields are used also the following parameters must not be specified: NOTIFY, REM.

For more details about the NetView CHRON commands that SA z/OS generates during initialization, see the online help.

Tape Attendance Entry Type

This entry type allows you to specify whether you want to monitor tape mounts on this system.

If you do want to monitor tape mounts, you must enter warning and alert thresholds (in minutes and seconds) indicating how long a wait is allowed in mounting a tape before the response is considered unsatisfactory.

You can customize SA z/OS to respond to the IEF238D message while tape drives are attended by operators. This can be achieved by specifying an entry with code definitions for the IEF238D message in the MESSAGES/USER DATA policy item of the MVS Component entry type.

The codes that are passed when checking for a code match with this entry are one of the following, depending on which of these terms is included in the IEF238D message:

- The job name as the first parameter, and either DEVICE or WAIT as the second parameter
- The job name as the first parameter, and DEVICE and WAIT as the second and third parameters

Therefore the coded entries should be entered as follows:

CODE1
This should contain a pattern match for the job name that needs the response to the IEF238D message.

CODE2
This should contain DEVICE or WAIT or an asterisk (*) to allow for both terms.

CODE3
This should contain WAIT (if CODE2=DEVICE), an asterisk (*), or can be left blank.

Value Returned
This should contain a selection name that has a reply defined for the IEF238D message, depending on the results of the code matching process.

SA z/OS provides a NetView automation table entry that extracts the values from the message that are to be checked for a code match and passes them as CODE*x* parameters to the ISSUEACT generic routine. ISSUEACT searches for a matching code definition and issues a reply, depending on the Value Returned of the matching code definition. For further information about message automation, see "Adding a Message to Automation" in *IBM System Automation for z/OS Customizing and Programming*. For more details on the format of the IEF238D message, see the system message documentation for your particular operating system level and release.

This entry type also allows you to set a schedule for unattended tape drives. If a job requests a tape mount at a time defined as unattended, the job will be canceled. Figure 200 on page 233 shows the policy items that are displayed when a new Tape Attendance entry is defined or when an existing Tape Attendance entry is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                    Policy Selection
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Tape Attendance      PolicyDB Name   : USER_PDB
Entry Name : TAPE_ATTEND_NAME     Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  ATTEND TIME          Define tape drive attend time
__________  -------------------- ----------------------------------------
__________  WHERE USED           List Systems linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 200. Policy Selection Panel for Tape Attendance

The unique policy item for Tape Attendance is:

ATTEND TIME
This policy item allows you to specify when tapes are attended and whether you want to monitor tape mounts on this system. If you do want to monitor tape mounts, you must enter warning and alert thresholds (in minutes and seconds) indicating the maximum tape mount delay that is allowed before the response is considered unsatisfactory. See "ATTEND TIME Policy Item" on page 233 for more details.

ATTEND TIME Policy Item

Figure 201 on page 233 shows the Environment Definition: TAPES panel.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFPIETA                 Environment Definition: TAPES       Row 1 to 5 of 21
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Tape Attendance       PolicyDB Name   : USER_PDB
Entry Name : TAPE_ATTENDANCE       Enterprise Name : USER_ENTERPRISE

Indicate if tapes are attended and if tape mount monitoring via SDF should be done.
If YES, specify the warning and alert delay times in format MM:SS.

Tapes Attended. . . . YES   YES NO    Monitor Tape Mounts. . . YES   YES NO

Warning Delay Time. . 01:00           Alert Delay Time . . . . 02:00

          ------------------------ Unattended Times -------------------------
 Day      Begin   End       Begin   End       Begin   End       Begin   End
 *        18:00   23:59     00:00   07:00     07:00   23:00     _____   _____
 __       _____   _____     _____   _____     _____   _____     _____   _____
 __       _____   _____     _____   _____     _____   _____     _____   _____
 __       _____   _____     _____   _____     _____   _____     _____   _____
 __       _____   _____     _____   _____     _____   _____     _____   _____
```

Figure 201. Environment Definition: TAPES Panel

Fill in the following fields:

Tapes Attended
Specify YES if the tape drives are attended always except those entered in the Unattended Specifications table. The default value is YES.

Specify NO if the tape drives are always unattended. It means that the system has no tape drives attached to it; or the tape drives are used temporarily, such as for testing.

Monitor Tape Mounts
Specify YES to activate the monitoring of tape mounts. YES is valid only if **Tapes Attended** is also YES. The default value is NO.

Warning Delay
The delay period, in minutes and seconds, after which the tape mount icon changes to the warning color of white if the tape mount has not been completed.

Alert Delay
The delay period, in minutes and seconds, between the time that the warning delay is reached and the time that the tape mount icon changes to the alert color of red, if the tape mount has not been completed.

If tapes are attended, enter days and times (24-hour clock) when unattended.
These fields are used to enter days and times when tape drives are unattended. A "*" character can be used in the **Day** field to specify all days of the week.

MVS Component Entry Type

This entry type allows you to apply automation to various z/OS data sets, resources and facilities, which are referred to as MVS components.

You can set error thresholds and automation flags for the following MVS components:

- MVSDUMP (SYS1.DUMP00–*xx*)
- SMFDUMP (SYS1.MAN*x*)
- LOGREC (SYS1.LOGREC)
- SYSLOG (SYS1.SYSLOG.INDX)

In addition, you can customize the recovery procedure that is used for a WTOBUF overflow and automate responses to messages that are issued for MVS components.

Figure 202 on page 234 is displayed when you select MVS Component from the Entry Type Selection menu.

```
  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGENAM                     Entry Name Selection             Row 1 to 2 of 2
Command ===> _____________________________________________ SCROLL===> PAGE

Entry Type : MVS Component         PolicyDB Name   : USER_PDB
                                   Enterprise Name : USER_ENTERPRISE

 Action      Entry Name               Short Description
_______      +SA_PREDEFINED_MSGS      Messages predefined by SA for AT build
_______      MVS_COMPONENTS           MVS Components used in all systems
```

Figure 202. Panel for MVS Component Selection

On top of the list there is a special entry +SA_PREDEFINED_MSGS, followed by the user defined entries. This special entry is described in detail in “Predefined SA z/OS Messages” on page 298 of Chapter 8, “Automation Table, Message Revision Table, and MPFLSTxx member,” on page 295.

Policy Items for MVS Component

Figure 203 on page 235 shows the policy items that are displayed when a new MVS Component entry is selected or when an existing MVS Component entry other than the special entry +SA_PREDEFINED_MSGS is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection                 Entry created
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : MVS Component         PolicyDB Name   : USER_PDB
Entry Name : MVS_COMPONENTS        Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  PREDEFINED MESSAGES  Select SA predefined messages for AT build
__________  MESSAGES/USER DATA   Define MVS messages and user data
__________  MINOR RESOURCES      Define MVSESA minor flags and thresholds
__________  -------------------- ---------------------------------------------
__________  WHERE USED           List systems linked to this entry
__________  COPY                Copy data from an existing entry
```

Figure 203. Policy Selection Panel for MVS Components

The unique policy items for MVS Component entry types are:

PREDEFINED MESSAGES
This policy item allows you to specify a display level for the MESSAGES/USER DATA policy and offers a component selection for the messages in the MVS component +SA_PREDEFINED_MSGS. For more information see “PREDEFINED MESSAGES Policy Item” on page 235.

MESSAGES/USER DATA
This policy item allows you to specify automated actions, such as the issuing of a command or reply, to be taken in response to a message issued by the application. You may specify commands if the application issues messages because something went wrong with the MVSDUMP, SMFDUMP, SYSLOG, or LOGREC data sets. For more information see “MESSAGES/USER DATA Policy Item” on page 237.

MINOR RESOURCES
This policy item allows you to define flags and thresholds for minor resources for the system. Minor resources are any resources, such as messages or statuses, that are specified to be subsidiary to the major resource MVSESA.

Minor resources take, by default, the automation settings of their major resources. The main purposes in defining minor resources are to:

- Enable automation for minor resources
- Override the automation settings of major resources for a single minor resource, or a group of minor resources

For information on this policy item see “MINOR RESOURCES Policy Item” on page 238. See also sections "Automation Flags and Minor Resource Flags" and "Thresholds for Minor Resources" in *IBM System Automation for z/OS User's Guide*.

PREDEFINED MESSAGES Policy Item

This policy is ONLY available for a user defined MVS Component Entry, not for the entry named +SA_PREDEFINED_MSGS.

If you select the PREDEFINED MESSAGES policy item from the Policy Selection panel for MVS Components (Figure 203 on page 235), the Component Selection panel is displayed, as shown in Figure 204 on page 236.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
                              Component Selection          Row 1 to 11 of 37
Command ===> ____________________________________________________________


Taylor amount of messages displayed on the MESSAGES/USER DATA policy:
Display level . . .  0  (0 - display only messages defined for this entry)
                        (1 - add SA predefined messages)

Deselect components for which SA predefined messages should not be used:
Act S Component  Description                                  Message prefixes
___ S zFS        Unix File System for zSeries                          (IOE)
___ S APPC       Advanced Program to Program Communication        (ASB ATB)
___ S BMC        BMC multiple Software Products                   (BMC BBM)
___ S CA         CA multiple Software Products                (CAS ESF PXM)
___ S CICS       CICS transaction server                      (CTG DFH BBM)
___ S DB2        DB2 database server for z/OS                          (DSN)
___ S DFHSM      Hierarchical Storage Manager                          (ARC)
___ S DFRMM      Removable Media Manager                               (EDG)
___ S GDPS       GDPS and z/OS Hyperswap Services                 (GEO IOS)
___ S GMFHS      NetView Graphical Monitor Facility Host Subsystem     (DUI)
___ S InfoSphere DB2 and IMS Queue Replication                    (ASN CAC)
___ S IMS        IMS database and supporting framework      (DFS CQS CSL DSNM)
___ S IWS        IBM Workload Scheduler                                (EQQ)
___ S JES2       Job Entry Subsystem 2                                (HASP)
___ S JES3       Job Entry Subsystem 3                                 (IAT)
___ S Lifeline   Multi-Site Workload Lifeline                          (AQS)
___ S LDAP       Lightweight Directory Access Protocol                 (GLD)
___ S MIM        CA MultiSystem Integrity Manager                      (MIM)
___ S MQ         z/OS WebSphere MQSeries                               (CSQ)
___ S NFS        z/OS Network File System                              (GFS)
___ S OMEGAMON   z/OS Omegamon Perform. Monitors (CND CSA EC ETE KM KN KO OMV)
___ S OMVS/USS   z/OS Unix System Services (Open MVS)                  (BPX)
___ S OSA/SF     zSeries Open Systems Adapter Support Facility         (IOA)
___ S QFETCH     Unicenter CA-QuickFetch                               (QFS)
___ S RACF       Resource Access Control Facility                      (IRR)
___ S RMF        Resource Measurement Facility                         (ERB)
___ S RODM       NetView Resource Object Data Manager                  (EKG)
___ S RRS        Resource Recovery Services                            (ASA)
___ S SDSF       System Display and Search Facility                    (ISF)
___ S SLS        SUN Microsystem Tape System Host Software Component   (SLS)
___ S TBSM       Tivoli Business Service Manager                       (GTM)
___ S TPX        CA Terminal Productivity Executive (VTAM appl)        (TPX)
___ S TSM        Tivoli Storage Manager                                (ANR)
___ S VPS        LRS VTAM Printer Support                              (VPS)
___ S VTAM       z/OS Communication Server                             (IST)
___ S WebServer  z/OS HTTP Server                                      (IMW)
___ S WebSphere  z/OS WebSphere components                             (BBO)
```

Figure 204. Component Selection Panel for MVS Components

This policy item allows you to specify how many messages are displayed in the MESSAGES/USER DATA policy item of this MVC entry, and to control the number of predefined messages that are used for the AT build.

Display level
Specifies whether the messages that have AT specifications predefined by SA z/OS are displayed in the MESSAGES/USER DATA policy of this MVC entry.

0
Displays only messages defined for this entry. This is the default.

1
Displays the messages that are defined for this entry together with the messages predefined by SA z/OS. For better readability, the predefined messages are displayed in the same color as the inherited data in application policies.

Note that this option only controls the messages that are displayed in the MESSAGES/USER DATA policy. It has no effect on the AT build.

The predefined messages can only be shown if the special MVC entry ,+SA_PREDEFINED_MSGS, is linked to the same systems that the current MVC entry is linked to.

Deselect components
Shows a list of those MVS components that predefined messages exist for.

You can select or deselect individual components. Initially all components are selected. If you deselect a component, it is not displayed in the MESSAGES/USER DATA policy item and it is not included in the AT build for the systems that this MVC entry is linked to.

Note that some of the predefined messages do not belong to any of the listed components. These messages that do not have a component relation are always displayed in the policy and used for the AT build. With a display level of 0, deselecting a component has no effect on the messages that are displayed in the MESSAGES/USER DATA policy item, but it does affect the AT build.

You can select or remove single components with the line commands SELECT or REMOVE, or all components with the primary commands SELECT ALL or REMOVE ALL.

The columns in the selection list show the following:

S
shows if a component is selected or not

Component
shows the component name

Description
shows a short description of the component

Message prefixes
the prefixes of the related messages in the special MVC entry "+SA_PREDEFINED_MSGS".

MESSAGES/USER DATA Policy Item

If you select policy item MESSAGES/USER DATA from the Policy Selection panel for MVS Components (Figure 203 on page 235), the Message Processing panel is displayed, as shown in Figure 205 on page 237.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNM                 Message Processing          Line 00000001 Col 001 075
Command ===> _____________________________________________ Scroll ===> PAGE

Entry Type : MVS Component         PolicyDB Name   : USER_PDB
Entry Name : MVS_COMPONENTS        Enterprise Name : USER_ENTERPRISE

Line Commands: S/C (Cmd), R (Rep), K (Cod), U (Usr), A,M (AT, MRT, MPF)
               I, D (insert or delete lines)
Message ID field length. . 16   (1 - 32)

Cmd Message ID     Description                                C  R  K  U A M F
___ IEA793A        No dump datasets available                    1
___ IEC613A        Unable to position a tape                     1
___ IEE767A        Buffer shortage on system log              1
___ IEE768I        Buffer on system log relieved              1
___ IEE824E        Catch WTORs after console failure          1
___ IEF238D        Cannot complete device allocation                 4    *
___ IEF450I        Job abended                                       8    P
___ LOGREC         LOGREC commands                            3           P P P
```

Figure 205. Message Processing Panel for MVS Components

On this panel, you can define how SA z/OS reacts to an issued message. Message processing provided here is the same as provided for Applications. For more information, see "MESSAGES/USER DATA Policy Item" on page 144 and *IBM System Automation for z/OS Customizing and Programming*.

MINOR RESOURCES Policy Item

The Minor Resource Definitions panel is displayed if you select the MINOR RESOURCES policy item in the Policy Selection panel for the MVS Component entry type.

Refer to "MINOR RESOURCES Policy Item" on page 170 for Applications. Only two flags are supported: (A)utomation and (R)ecovery.

You can use special minor resource names for MVS Component processing, such as:

- MVSDUMP for system messages that report that an SVC dump has been made (IEA611E and IEA911E)
- SMFDUMP for system messages that report that the smfdump data set is full or has been switched (IEE362A, IEE362I, IEE391A, and IEE392I)
- LOGREC for system messages that report that the logrec data set is full or nearly full (IFB040I, IFB060E, IFB080E, IFB081I, and IFC001I)
- SYSLOG for system messages that report that the syslog has been queued (IEE043I)
- LOG for system messages that report that the syslog has become inactive (IEE037D—followed by IEE043I, IEE533E or IEE769E—and IEE041I).

MVSCOMP Defaults Entry Type

MVSCOMP Defaults allow you to set default values for MVS Component sets.

Policy Items for MVSCOMP Defaults

Figure 206 on page 238 shows the policy items that are displayed when a new MVSCOMP Defaults entry is defined or when existing MVSCOMP Defaults entry is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection                    Row 1 of 7
Command ===> _____________________________________________ SCROLL===> PAGE

Entry Type : MVSCOMP Defaults      PolicyDB Name   : USER_PDB
Entry Name : MVSCOMP_DFLTS_NAME    Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  MVSESA INFO          Define MVS component information defaults
__________  AUTOMATION FLAGS     Define MVS component automation flags default
__________  THRESHOLDS           Define MVS component thresholds defaults
__________  -------------------- ----------------------------------------
__________  WHERE USED           List systems linked to this entry
__________  COPY                Copy data from an existing entry
```

Figure 206. Policy Selection Panel for MVSCOMP Defaults

The unique policy items for MVSCOMP Defaults are:

MVSESA INFO
This option allows you to specify a captured messages limit as the maximum number of messages that will be captured for each MVSESA resource while SA z/OS is running. These messages will show up in the SA z/OS command DISPSYS. If the field is left blank the value can be inherited from the system defaults definition. If neither of them is specified, a default value of 0 is used.

You can use the **Inform List** field to specify where each MVSESA resource is registered to and who all status changes are propagated to. Valid values are SDF, EIF, E2E, IOM, ITM, TTT and USR. You can specify one or more values. If the field is left blank the value can be inherited from the systems default definition. If the resource should not be registered at all, specify NONE. This will prevent inheritance from systems default definitions. If nothing is specified, no status changes are propagated. If E2E is specified, the resources will be shown on the e2e domain view. This applies only to resources that are directly attached to a system or sysplex. For others, the specification will be ignored.

AUTOMATION FLAGS
This option allows you to specify automation settings that will be used as defaults for MVS Components. The settings specified here will be used if you do not provide specific automation settings for MVS Components. See the section "SA z/OS Automation Flags" in *IBM System Automation for z/OS User's Guide* for more information about setting automation flags.

THRESHOLDS
This policy item is used to set default error thresholds for MVS Components. The settings specified here will be used if you do not provide specific thresholds for MVS components. See the section "How SA z/OS Uses Error Thresholds" in *IBM System Automation for z/OS User's Guide* for more information about error thresholds.

More than one MVSCOMP Default may be attached to a system, but it is recommended that you attach only one to avoid data being overwritten during SA z/OS initialization or an INGAMS REFRESH.

System Defaults Entry Type

This entry type allows you to set various defaults that are used throughout the system.

The values set here may be overridden by other objects, such as application class, application defaults, or MVSCOMP defaults, or by setting appropriate values in individual application or MVS component objects.

Policy Items for System Defaults

Figure 207 on page 239 shows the policy items that are displayed when a new System Defaults entry is defined or when an existing System Defaults entry is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection                    Row 1 of 7
Command ===> ____________________________________________________  SCROLL===> PAGE

Entry Type : System Defaults       PolicyDB Name   : USER_PDB
Entry Name : SYSTEM_DEFAULTS       Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  AUTOMATION OPTIONS   Define system automation options
__________  AUTOMATION FLAGS     Define system automation flag defaults
__________  THRESHOLDS           Define system thresholds defaults
__________  -------------------- ------------------------------------------
__________  WHERE USED           List systems linked to this entry
__________  COPY                Copy data from an existing entry
```

Figure 207. Policy Selection Panel for System Defaults

The unique policy items for System Defaults entry type are:

AUTOMATION OPTIONS
This policy item is used to set system-wide options. See “AUTOMATION OPTIONS Policy Item” on page 240 for more information.

AUTOMATION FLAGS
This policy item allows you to specify automation settings that are used as defaults for the system. The settings specified here are used if you do not provide specific automation settings for those entry types that allow automation. See the section "SA z/OS Automation Flags" in *IBM System Automation for z/OS User's Guide* for more information on setting automation flags.

THRESHOLDS
This policy item is used to set system-wide error thresholds. The settings specified here are used if you do not provide object-specific threshold settings. See the section "How SA z/OS Uses Error Thresholds" in *IBM System Automation for z/OS User's Guide* for more information on error thresholds.

More than one set of System Defaults may be attached to a system, but it is recommended that you attach only one to avoid data being overwritten during SA z/OS initialization or an INGAMS REFRESH.

AUTOMATION OPTIONS Policy Item

The System Automation Options panel, as shown in Figure 208 on page 240, is displayed if you select the AUTOMATION OPTIONS policy item on the Policy Selection panel for the System Defaults entry type.

```
  COMMANDS  HELP
 ------------------------------------------------------------------------------
 AOFGSDFO                   System Automation Options
 Command ===> ____________________________________________________________

 Entry Type : System Defaults       PolicyDB Name   : USER_PDB
 Entry Name : SYSTEM_DEFAULTS       Enterprise Name : USER_ENTERPRISE

 Captured Messages Limit. . . ___            (0 to 999)
 Exceptional Messages Limit . ___            (0 to 1020)
 Desired Available. . . . . . ________       (ALWAYS ONDEMAND ASIS)
 Prepare Move . . . . . . . . ___            (YES NO)
 Move Mode. . . . . . . . . . ________       (PARALLEL SERIAL)
 Inform List. . . . . . . . . ____________________
                                             (SDF EIF E2E IOM ITM SMF TTT
USR)
 IPL Complete Time Limit. . . ________       (00:00:00 to 24:00:00)
 IPL Complete Status. . . . . ____________________
                                             (AVAILABLE SOFTDOWN STANDBY
                                              or SATISFACTORY)
```

Figure 208. System Automation Options Panel

The following parameters can be specified for system-wide defaults. If the corresponding entry is not specified for individual resources, this value will prevail.

Captured Messages Limit
This specifies the maximum number of messages that will be captured for each resource while SA z/OS is running. These messages will show up in the DISPSYS, DISPINFO, or DISPMTR command output, or the SA z/OS Graphic Interface.

Exceptional Messages Limit
This defines the maximum number of exceptional messages (that is, those with a severity of UNUSUAL, IMPORTANT, or CRITICAL) that are captured for the entire system while SA z/OS is running.

These messages are displayed with the SA z/OS INGMSGS command and in SDF and TEP.

If you do not specify a value, the default is 300. The maximum is 1020.

Desired Available
Lets you specify the default desired status of the resource. The desired state of each resource is either Available or Unavailable, which is the goal that automation tries to achieve.

You can specify the following values:

ALWAYS
The desired state of the resource is set to Available, unless it is dependent on a resource that has a Desired Available setting of ONDEMAND. In this case the resource behaves as if it had a Desired Available setting of ONDEMAND itself.

This is the same behavior as in earlier releases of SA z/OS.

ONDEMAND
If there is *demand* for the resource to be available, its desired status is set to Available, otherwise its desired status is set to Unavailable.

Demand arises either from propagated MakeAvailable votes or implicitly through membership of a non-passive basic application group (APG) that has a desired status of Available. Demand does not arise from dependent resources with a Desired Available setting of ALWAYS.

A MakeAvailable vote that is propagated to the resource overrides any demand considerations.

An active ONDEMAND member of a move or server group is always sent a vote that sets its desired status, thus overriding any demand considerations.

ASIS
The desired status is always set to the observed status. The resource remains in the status that it currently has and no action is taken by SA z/OS at any time, as long as there is no request placed for or propagated to the resource.

If nothing is specified or inherited the default value is ALWAYS.

Prepare Move
Specifies whether the downtime during the move or switch of a resource should be kept as short as possible. For more details see Prepare Move in "Creating a New ApplicationGroup" on page 102.

Move Mode
Specifies how a move is made from an old member to a new one. For more details see Move Mode in "Creating a New ApplicationGroup" on page 102.

Inform List
This field allows you to specify:

- Where the application is registered to
- Where all status changes are propagated to
- Whether SMF records are written

Valid values are SDF, EIF, E2E, IOM, ITM, SMF, TTT and USR. You can specify more than one value. The list of values can be blank or comma separated.

If nothing is specified, no status changes are propagated. If E2E is specified, the resources will be shown on the e2e domain view. This applies only to resources that are directly attached to a system or sysplex. For others, the specification will be ignored.

IPL Complete Time Limit
Specifies the maximum time before the IPL can be considered as completed. If all required resources have reached an AVAILABLE status within this timeframe, a message will be issued to indicate that the IPL completed successfully.

If this is not the case a message indicating that the IPL did not complete successfully is issued.

If 00:00:00 is specified all resources must already have reached an AVAILABLE status before the initialization of SA z/OS has started to get the successful message.

If nothing is specified, there are no resource status checks.

IPL Complete Status
Defines a list of observed statuses the resources may have to consider the IPL to be completed. Valid values are AVAILABLE, STANDBY and SOFTDOWN. One or more values are allowed to be specified. Instead of a list of observed statuses the compound status SATISFACTORY may be specified.

Note: If nothing is specified the default value is AVAILABLE.

Application Defaults Entry Type

The Application Defaults entry type specifies default values for automation flags and error threshold settings.

These values will be used as the default for any Application object on the system that the Application Defaults set is attached to. If the application belongs to an application class with automation flags or error thresholds specified, the class policy takes precedence over the defaults.

Policy Items for Application Defaults

Figure 209 on page 242 shows the policy items that are displayed when a new Application Defaults entry is defined or when an existing Application Defaults entry is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection                    Row 1 of 7
Command ===> _____________________________________________ SCROLL===> PAGE

Entry Type : Application Defaults PolicyDB Name   : USER_PDB
Entry Name : APPL_DEFAULTS_NAME   Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  APPLICATION INFO     Define application information defaults
__________  AUTOMATION FLAGS     Define application automation flag defaults
__________  THRESHOLDS           Define application thresholds defaults
__________  -------------------- ----------------------------------------------
__________  WHERE USED           List Systems linked to this entry
__________  COPY                Copy data from an existing entry
```

Figure 209. Policy Selection Panel for Application Defaults

The unique policy items for Application Defaults policy are:

APPLICATION INFO

This policy item allows you to set various defaults for applications that you define to the system. The values entered in the Application Information Defaults panel are used as default values for Application objects that are attached to this system and do not have this information specified. For more details about these parameters, see “Application Entry Type” on page 123.

AUTOMATION FLAGS

This policy item allows you to specify automation flag settings that are used as defaults for all applications on the system. The settings specified here are used if you do not provide application-specific automation settings. See the section "SA z/OS Automation Flags" in *IBM System Automation for z/OS User's Guide* for more information on setting automation flags.

THRESHOLDS

This policy item allows you to specify threshold settings that are used as defaults for all applications on the system. The settings specified here override system default settings and are used if you do not provide application-specific threshold settings. See the section "How SA z/OS Uses Error Thresholds" in *IBM System Automation for z/OS User's Guide* for more information on setting thresholds.

More than one set of Application Defaults may be attached to a system, but it is recommended that you attach only one to avoid data being overwritten during SA z/OS initialization or an INGAMS REFRESH.

Automation Operators Entry Type

Automation operators are automated operator tasks, that can respond to messages from the operating system, applications, and network without requiring a human operator.

Sets of automation operators can be linked to a system. Each automation operator task takes actions similar to those of a human operator, such as monitoring the system and handling and coordinating recovery and shutdown operations.

Automation operators are assigned specific messages to act on. During automated operations, the messages are routed to the appropriate operator using the NetView ASSIGN command.

Policy Items for Automation Operators

Figure 210 on page 243 shows the policy items that are displayed when a new Automation Operators policy object is created or Automation Operators is selected from the Entry Type Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                     Policy Selection
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Automation Operators PolicyDB Name   : USER_PDB
Entry Name : AUTO_OPERATORS_NAME  Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  OPERATORS           Define automation operators
__________  -------------------- ----------------------------------------
__________  WHERE USED          List Systems linked to this entry
__________  COPY                Copy data from an existing entry
```

Figure 210. Policy Selection Panel for Automation Operators

The unique policy item for Automation Operators is:

OPERATORS
This policy item allows you to specify Automation operators. Refer to the section "Automation Operators" in Chapter 2 - Concepts of *IBM System Automation for z/OS User's Guide*.

OPERATORS Policy Item

Figure 211 on page 243 show the Automation Operator panel that you can use to select operators, specify specific messages and link it to console names and NetView operator IDs.

```
   COMMANDS  HELP
------------------------------------------------------------------------------
               Automation Operator Definitions       Line 00000001 Col 001 075
Command ===>  _____________________________________________  Scroll ===> PAGE

Entry Type : Automation Operators  PolicyDB Name   : USER_PDB
Entry Name : BASE_AUTOOPS          Enterprise Name : USER_ENTERPRISE

Line Commands: S (Select), M (Move), B (Before), A (After), R (Repeat)
               I (Insert lines), D (Delete lines)

Cmd AutoFunc Primary Operator  Backup Operator   Messages for this Operator
___ INITOPR1 AUTINIT1          ________________  ________________________
___ INITOPR2 AUTINIT2          ________________  ________________________
___ ALRTOPER AUTALERT          ________________  ________________________
___ BASEOPER AUTBASE           ________________  ________________________
___ GSSOPER  AUTGSS            ________________  ________________________
___ JESOPER  AUTJES            ________________  ________________________
___ LOGOPER  AUTLOG            ________________  *______________________
___ MONOPER  AUTMON            ________________  ________________________
___ MSGOPER  AUTMSG            ________________  AOF*____________________
___ MVSCONS  AUTCON            ________________  ________________________
___ NETOPER  AUTNET1           AUTNET2           ________________________
___ PPIOPER  AOFARCAT          ________________  ________________________
```

Figure 211. Automation Operator Definition Panel

For each Automation Function specification an Automation Operator name is required. This is the name of the corresponding task in NetView. Two automation operator task names can be specified. Primary is the name of NetView operator and is required while Backup is optional and can be used to define a secondary operator.

The field **Messages for this Operator** can be used to specify which messages are handled by the defined automation operators. Please note that specifications in this field change the recommended automation processing and should be used only as an exception.

The order of the automation operators in the list is irrelevant for the execution. NetView ensures that the messages are assigned correctly with the most specific first, followed by the more general. You can use the following action codes:

(M) MOVE, (B) BEFORE, (A) AFTER
to change the order of the automated functions in the list

(R) REPEAT, (I) INSERT
to define new automated functions

(D) DELETE
to remove automated functions

(S) SELECT
to display another panel with all fields of that automated function's specification. Figure 212 on page 244 provides an example.

This panel supports scrolling left / right (PF10 and PF11) to access all fields of an automated function specification. For example to get a field left adjusted on the screen you can place the cursor at the beginning of the field and then scroll right. Furthermore you can use the Select (S) line command to display all fields of one line in full length on one screen without the need to scroll right.

```
   COMMANDS  HELP
------------------------------------------------------------------------------
                  Automation Operator Definitions Processing : line 7
Command ===>  ____________________________________________  Scroll ===> PAGE

This panel displays the complete input fields of a single data line.

Automated Function . . . . . MSGOPER

Primary Operator . . . . . . AUTMSG
Backup Operator  . . . . . . ________


Messages for this Operator .
AOF*
MVS Console Name . . . . . . ________________________________


NetView Operator 1 . . . . . ________________________

NetView Operator 2 . . . . . ________________________

NetView Operator 3 . . . . . ________________________

NetView Operator 4 . . . . . ________________________

NetView Operator 5 . . . . . ________________________

NetView Operator 6 . . . . . ________________________
```

Figure 212. Automation Operator Definitions Panel

The fields are:

Primary Operator / Backup Operator
Each Primary / Backup Operator relates to a specific NetView operator ID. Each message is assigned to a list of operators. This list includes the primary NetView ID, the secondary NetView ID (if specified), the primary NetView ID for SYSOPER, and the primary NetView ID for BASEOPER. The message is processed on the first operator in the list that is logged on when the message is received. If none of the operators are logged on, it will be processed on the task that started the system NetView Subsystem Interface Router task (SIR task), if it was started by a NetView task. In the NetView default initialization sequence, AUTO1 starts the SIR task. If the SIR task was not started by an autotask (that is, it has INIT=Y coded in DSIDMN) or the task that started it is no longer active, the message will not be automated. Similar lists of autotasks are defined in AOFMSGSY and are used to route commands to tasks from the NetView automation table.

If a group is specified (the ID starts with a "+"), all the IDs that are assigned to the group are inserted into the list at that point.

You may also use SYSCLONE variables and the &DOMAIN. variable for the automation operators and NetView operators specification.

Messages for this Operator
Defines messages which are handled by the defined automation operators. Multiple message IDs can be entered, separated by commas or blanks. You can specify:

- A single message, such as IEE115I
- A group of messages, by specifying a message prefix and an asterisk (*), such as AOF* or $HASP*
- All messages, not otherwise assigned, by specifying an asterisk (*) only

The following automated functions should not have messages assigned to them on the Automation Operator Definition panel:

- BASEOPER
- GATOPER
- MVSCONS*i* (where *i* is blank, A-Z, or 0-9)
- SHUTOPER
- AOFWRKxx
- GSSOPER

For these automation operators, you should only specify the automated function name in the Automated Function field, and leave the **Messages for this Operator** field blank.

For more details, see the SA z/OS online help.

MVS Console Name
This is a 1-8 alphanumeric field as defined in the CONSOL*nn* member of the MVS PARMLIB. The system console name *MASTER*, *ANY* or *INTERN* can also be used. Otherwise, the first character of the name must be alphabetic. If console name is specified, the autotask is considered as an attended task. It will be applied to the Primary Automation Operator only.

The name may include any system symbol (for example, `&DOMAIN.`). System automation symbols (`&AOCCLONEx.`) are not allowed.

NetView Operators
Defines NetView IDs to receive copies of the messages assigned to the automation operator. The ID must be logged on to receive the message and either the primary or backup operator must also be logged on. Operator "groups" can be defined by specifying a "+" as the first character.

Notify Operators Entry Type

The Notify Operators entry type allows you to define notification messages for certain operators.

Policy Items for Notify Operators

Figure 213 on page 246 shows the policy items that are displayed when a Notify Operator entry is selected from the **Entry Name Selection** panel.

```
  ACTIONS  HELP
-------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection              Row 1 to 5 of 5
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type : Notify Operators      PolicyDB Name   : USER_PDB
Entry Name : NOTIFY_OPERATORS      Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  NOTIFY OPERATORS     Define forward messages to operators
__________  -------------------- ---------------------------------------------
__________  WHERE USED           List systems linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 213. Policy Selection Panel for Notify Operators

The unique policy item for Notify Operators is:

NOTIFY OPERATORS
Notification operators are human NetView operators who receive SA z/OS notification messages, which are messages about events SA z/OS detects or actions it takes. These notification messages are routed to one or more logged-on human operators, using the message forwarding path you set up in the Network policy object. The messages can optionally be held until the operator clears them. See "NOTIFY OPERATORS Policy Item" on page 246.

NOTIFY OPERATORS Policy Item

Figure 214 on page 246 shows the Operator Notification panel that you can use to select notification operators or define new notification operators that you want to be notified about selected message classes from applications on a system.

```
 COMMANDS  HELP
-------------------------------------------------------------------------------
                              Operator Notification          Row 1 to 9 of 21
Command ===>  ____________________________________________  SCROLL===> PAGE

Entry Type : Notify Operators      PolicyDB Name   : USER_PDB
Entry Name : NOTIFY_OPERATORS      Enterprise Name : USER_ENTERPRISE

Line Commands: S (Select), D (Delete)

Cmd  Operator      Operator                    Notify   --- Message Type ---
       ID         Description                 (Yes/No)   I   E   D   W   A

___  SYSOP     MVS CONSOLE                     NO       _   S   S   S
S
___  NETPRM1   Operating primary               YES      _   S   _   S
S
___  NETBKP1   Operating backup                YES      _   S   _   S
S
___  SAMPLE2   Simon Sample                    YES      S   S   S   S
S
___  JOHNDOE   SysProg primary                 NO       _   S   S   S
S
___  ________  ________________________________  ___      _   _   _   _   _

___  ________  ________________________________  ___      _   _   _   _   _

___  ________  ________________________________  ___      _   _   _   _   _
```

Figure 214. Operator Notification Panel

The fields on this panel are:

Cmd
The line commands S (Select) and D (Delete) can be used to select an operator ID for message class assignment or to delete an operator ID specification.

Operator ID
This is the name of the operator that is to receive notification messages and should be defined in the NetView DSIOPF member of the NetView DSIPARM data set.

Operator Description
This field can be used for a description of the operator (optional).

Notify
This field specifies whether notification messages are to be received by this operator. This is used to turn on and off receiving notification messages temporarily. The default is YES.

Message Type
This field specifies which type of messages are held on the operator's screen. Select the type(s) by placing an S in the correct column:

- I - Informational messages
- E - Eventual Action messages
- D - Immediate Decision messages
- W - System Wait messages
- A - Immediate Action messages

If you selected an operator ID on the previous panel, the Notify Operator Message Classes panel is displayed to set or change the message class assignment for this operator.

```
   COMMANDS  HELP
------------------------------------------------------------------------------
                        Notify Operator Message Classes     Row 1 to 10 of 25
Command ===> _____________________________________________ SCROLL===> PAGE

Entry Type : Notify Operators      PolicyDB Name   : USER_PDB
Entry Name : NOTIFY_OPERATORS      Enterprise Name : USER_ENTERPRISE

OperatorID : SYSOP                 Description : MVS CONSOLE

Cmd   Status     Class   Description

___   SELECTED       0   Errors
___   SELECTED       1   Debug
___                 40   All agent automation messages
___                 41   No longer used
___                 42   No longer used
___                 43   Information
___   SELECTED      44   Action
___                 45   Status
___   SELECTED      46   User intervention
___   SELECTED      50   Critical threshold exceeded
___                 51   Frequent threshold exceeded
___                 52   Infrequent threshold exceeded
___                 55   No longer used
___   SELECTED      60   IMS automation messages
___                 80   All manager automation messages
___   SELECTED      81   Intervention required
___                 82   Automation denied
___                 83   Impacted
___                 84   Awaiting automation
___                 85   In automation
___                 86   Degraded, target resources
___                 87   Degraded, all resources
___                 88   Satisfactory, target resources
___                 89   Satisfactory, all resources
___                 90   SA infrastructure, environment
___   SELECTED      06   User message class 1
___                 U5   User message class 2
```

Figure 215. Notify Operator Message Classes Panel

How to define messages for a message class and where to store them, is described in *IBM System Automation for z/OS Customizing and Programming*.

Use this panel to assign certain message classes to a particular operator. You can select message classes from the list of SA z/OS predefined classes or from user messages classes at the end of the list. The user message classes can be defined in policy USER MSG CLASSES of entry type ENT, see "USER MSG CLASSES Policy Item" on page 76.

To add or remove selections, use the following line commands:

S
Select a message class

M
Remove a message class

Each SA z/OS message can have one or more message classes associated with it. Similarly, each notification operator can have one or more message classes assigned. When messages are processed during automated or manual operations, the class of each message is compared to the classes defined for each notification operator. If a match occurs, the notification operator receives the message.

Table 7 on page 248 shows the message classes defined by SA z/OS. Message classes from 80 to 90 are relevant for monitoring the automation manager.

Table 7. SA z/OS Message Classes

Message Class Description	**Message Class Number**
General Message Classes	
Errors	0
Debug	1
Automation Agent-Related Message Classes	
All automation agent messages	40
No longer used	41
No longer used	42
Information	43
Action	44
Status	45
User intervention	46
Critical threshold setting exceeded	50
Frequent threshold setting exceeded	51
Infrequent threshold exceeded	52
No longer used	55
IMS Automation Messages	60
Automation Manager-Related Message Classes	
All automation manager messages	80
Intervention required	81
Automation denied	82
Impacted	83
Awaiting Automation	84
In Automation	85

Table 7. SA z/OS Message Classes (continued)	
Message Class Description	**Message Class Number**
Degraded — Target resources	86
Degraded — All resources	87
Satisfactory — Target resources	88
Satisfactory — All resources	89
SA z/OS Infrastructure/Environment	90

For example, any operator defined with a notification operator class of all SA z/OS messages (class number 40 and 80) receives all SA z/OS messages. Operators responsible for system operations should receive all SA z/OS messages or a subset of those messages. As another example, you may want to have your lead operator receive all debug messages.

SA z/OS uses the general and console automation message classes only. The SA z/OS customization dialog supports the message classes used by SA z/OS only.

SA z/OS uses notification messages to update the status display facility (SDF).

Network Entry Type

When multiple z/OS systems are interconnected and require consolidated operations at one focal point system, you can use focal point services to monitor and control the systems.

These services allow an operator to view the status of multiple systems from a single system acting as a focal point and to send messages, commands, and responses from a focal point system to other systems. The Network entry type allows you to:

- Define paths for sending messages, commands, or responses from one system to another.
- Define primary and backup focal point systems.
- Define user Terminal Access Facility (TAF) fullscreen sessions and specify whether each of these should be initiated automatically when the operator logs on to the SA z/OS NetView Interface. If a TAF session is not defined to start automatically, you can initialize it using the OPER dialog.
- Define gateway sessions connecting systems.

  A gateway session uses autotasks both inbound to and outbound from a system to send data between systems.

  Communication with the focal point system is performed using the NetView RMTCMD command or XCF. XCF is used when commands are sent to systems within the same sysplex (that is, with the same XCF group ID or PLEX ID). Otherwise, RMTCMD is used. In both cases, you can see the responses on your operator task.
- Define OMEGAMON sessions.

  OMEGAMON sessions can be used to retrieve exception information or general performance and availability data for health monitoring and proactive automation.
- Manage access keys to the NetView password data set, where passwords can be stored that are needed when OMEGAMON sessions have to be established.
- Define Simple Object Access Protocol (SOAP) servers and their attributes to be able to communicate with IBM Tivoli Monitoring (ITM).

The chapter "Automating Networks" in *IBM System Automation for z/OS Customizing and Programming* provides more information on the defining automation networks.

Policy Items for Network

Figure 216 on page 250 shows the policy items that are displayed when a new Network policy object is defined or when an existing Network object is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection            Row 1 to 10 of 10
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Network               PolicyDB Name   : USER_PDB
Entry Name : BASE_NETWORK          Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION         Enter description
__________  SDF FOCALPOINT      Define Status Display Facility focal point
__________  FULL SESSIONS       Define TAF sessions (Applications)
__________  GATEWAY             Define gateways
__________  OMEGAMON SESSIONS   Define OMEGAMON sessions
__________  AUTHENTICATION      Define authentication information (INGPW)
__________  SOAP SERVER         Define ITM SOAP-Servers
__________  ------------------- ---------------------------------------------
__________  WHERE USED          List systems linked to this entry
__________  COPY                Copy data from an existing entry
```

Figure 216. Policy Selection Panel for Network

The unique policy items for Network are:

SDF FOCALPOINT
This policy item is used to define the domain that is to receive the notification messages to be forwarded from the current domain. See “SDF FOCALPOINT Policy Item” on page 250 for more details.

FULL SESSIONS
With this policy item you can define applications that TAF fullscreen sessions can be established to. See “FULL SESSIONS Policy Item” on page 251 for more details.

GATEWAY
Each domain that is to receive commands, replies, or notification messages must have a gateway defined for it. Communication with the focal point system is performed via XCF (within the same sysplex) or the NetView RMTCMD command. See “GATEWAY Policy Item” on page 252 for more details.

OMEGAMON SESSIONS
This policy item is used to define the attributes used to establish and run a communication session with OMEGAMON based on the NetView Terminal Access Facility (TAF). See “OMEGAMON Policy Item” on page 253 for more details.

AUTHENTICATION
This policy item is used to define access keys for particular OMEGAMON application IDs in order to let SA z/OS retain passwords in the SA z/OS password data set. See “AUTHENTICATION Policy Item” on page 255 for more details.

SOAP SERVER
This policy item is used to define SOAP servers and their attributes. See “SOAP SERVER Policy Item” on page 255 for more details.

SDF FOCALPOINT Policy Item

If you select the SDF FOCALPOINT policy item from the **Network Policy Selection** panel, the **SDF Focal Point Definition** panel is displayed.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFPINE2                   SDF Focal Point Definition
Command ===> ____________________________________________________________________

Entry Type : Network               PolicyDB Name   : USER_PDB
Entry Name : BASE_NETWORK          Enterprise Name : USER_ENTERPRISE

Enter the Netview domains for notification forwarding to the Status Display
Facility (SDF).

Primary Domain. . . ING01__        Domain ID of the primary focal point
Backup Domain . . . &DOMAIN.       Domain ID of the backup focal point

Parallel Update . . NO             (YES NO, default NO)
```

Figure 217. SDF Focal Point Definition panel

You can use the **SDF Focal Point Definition** dialog to define the domains that will receive the notification messages forwarded from the current domain.

Primary Domain
This is the domain that serves as the primary focal point for the Status Display Facility (SDF) of SA z/OS.

The name consists of up to five alphanumeric characters or can be &DOMAIN..

If nothing is specified, the default value is &DOMAIN..

Backup Domain
This is the domain that serves as the backup focal point for the SDF of SA z/OS. It's used if the primary domain is not active.

The name consists of up to five alphanumeric characters or can be &DOMAIN..

If nothing is specified, the default value is &DOMAIN..

Parallel Update (APAR OA55386)
This field specifies whether (**Yes** or **No**) all updates should run in parallel on the primary and backup domains.

If nothing is specified, the default value is NO.

If you want to enable SDF Parallel Update, pay attention to any user REXX routine that uses the AOFCFP common global variable. The AOFCFP value will change to the domain IDs of both the primary and backup focal points after SDF Parallel Update is enabled.

FULL SESSIONS Policy Item

If you select the FULL SESSIONS policy item from the Network Policy Selection panel, the panel shown in Figure 218 on page 252 is displayed.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFPINE3             Fullscreen TAF Application Definition  Row 1 to 10 of 20
Command ===> _____________________________________________________  SCROLL===> PAGE

Entry Type : Network               PolicyDB Name   : USER_PDB
Entry Name : ALL_SYSTEMS_NETWORK   Enterprise Name : USER_ENTERPRISE

Enter the applications with which SA z/OS operators can establish TAF
sessions automatically using the operator interface.

Session Name    Application ID    System
  ________        ________        ________
  ________        ________        ________
  ________        ________        ________
  ________        ________        ________
  ________        ________        ________
  ________        ________        ________
  ________        ________        ________
  ________        ________        ________
  ________        ________        ________
  ________        ________        ________
```

Figure 218. Fullscreen TAF Application Definition Panel

With this option you can define applications that TAF fullscreen sessions can be established to. The following fields can be specified:

Session Name
This field acts as a description of the application that is displayed on the interface panel.

Application ID
The application name as specified in VTAMLST.

System
The name of the system that the application runs on. This field also acts as a description field that is displayed on the interface panel.

GATEWAY Policy Item

If you select the GATEWAY policy item from the Network Policy Selection panel, the panel shown in Figure 219 on page 252 is displayed.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFPINE4                      GATEWAY Definitions           Row 1 to 11 of 24
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Network               PolicyDB Name   : USER_PDB
Entry Name : ALL_SYSTEMS_NETWORK   Enterprise Name : USER_ENTERPRISE

Specify each NetView domain that commands or responses are forwarded to.

 Domain    Description
 DOMFB     Gateway to backup focal point
 DOMF1     Gateway to main focal point
 DOMT1     Gateway to target 1
 DOMT2     Gateway to target 2
 _____     ____________________________________________
 _____     ____________________________________________
 _____     ____________________________________________
 _____     ____________________________________________
 _____     ____________________________________________
 _____     ____________________________________________
 _____     ____________________________________________
```

Figure 219. GATEWAY Definitions Panel

Each domain that is to receive commands, replies or notification messages must have a gateway defined for it. This includes the domain name for the outbound gateway autotask. To define the gateway, provide the following information:

Domain
The name of all the domains that should receive anything forwarded from the current domain.

Description
The description of the domain that is to be communicated with through the gateway.

For more details, see the section "Automating Networks" in *IBM System Automation for z/OS Customizing and Programming*.

OMEGAMON Policy Item

If you select the OMEGAMON policy item from the Network Policy Selection panel, the panel shown in Figure 220 on page 253 is displayed.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGOSON                  OMEGAMON Sessions Definitions      Row 1 to 10 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Network               PolicyDB Name   : USER_PDB
Entry Name : ALL_SYSTEMS_NETWORK   Enterprise Name : USER_ENTERPRISE

Enter the OMEGAMON session name and select it to define the attributes.

Action  Session Name  Description

______  SESS1___      Session to OMEGAMON IMS_____________________________
______  SESS2___      Session to OMEGAMON CICS____________________________
______  _________     ____________________________________________________
______  _________     ____________________________________________________
______  _________     ____________________________________________________
______  _________     ____________________________________________________
______  _________     ____________________________________________________
______  _________     ____________________________________________________
______  _________     ____________________________________________________
______  _________     ____________________________________________________
```

Figure 220. OMEGAMON Sessions Definitions Panel

This panel allows you to create, select or delete OMEGAMON sessions.

Action
Can be used to select (S) a session for further processing or delete (D) a session.

Session Name
A unique, eight character name for the session that you are defining. Any alphabetic, numeric, #, @ and $ character can be used. The first character must be alphabetic.

Description
This is optional arbitrary text that describes the purpose of this session.

Selecting a session from the OMEGAMON Session Definitions panel leads to the OMEGAMON Session Attributes panel, as shown in Figure 221 on page 254.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGOSOA                  OMEGAMON Session Attributes
Command ===> ____________________________________________________________

Entry Type : Network               PolicyDB Name   : USER_PDB
Entry Name : ALL_SYSTEMS_NETWORK   Enterprise Name : USER_ENTERPRISE

Session Name   : SESS1

VTAM Applid. . . OMIMS1___________________________
                            Name of OMEGAMON VTAM application
VTAM Logmode . . ________    Logmode for session setup
TAF SRCLU. . . . _________________________
                            Name of TAF source LU or blank
Type . . . . . . OMIIIMS     (OMIICICS OMIIDB2 OMIIIMS OMIIMVS)
User ID. . . . . SAIMS____________________
                            User ID to log on to OMEGAMON
Password . . . . SAFPW___    Password of the logon user or SAFPW
Timeout. . . . . ___         Time to wait for OMEGAMON response (1-999 sec)
Session Data . . ____________________________________________________________
```

Figure 221. OMEGAMON Session Attributes Panel

This panel allows you to define OMEGAMON sessions together with their attributes.

VTAM Applid
This is the name of the OMEGAMON VTAM application as defined by the installation during customization of the OMEGAMON product. The name is 1 to 8 characters long and may contain system and automation symbols.

VTAM Logmode
This is the logon mode name designating the device properties for the session setup to the OMEGAMON application. Because the NetView command BGNSESS is used with the ATTACH option, it must be compatible with a 24x80, non-queryable screen. If you do not specify the logmode, the default BIND image table as defined to VTAM is used.

TAF SRCLU
This is the name of the source LU that is assigned to this session by the installation. Specify this field if the default names that are created and assigned to a TAF session by NetView do not conform with your network naming conventions. If you leave the field blank, NetView assigns a name.

You can include system symbols and system automation symbols (see “Assigning System Automation Symbols (AOCCLONE)” on page 7).

Type
This is the type of OMEGAMON monitor that a session is established with. Valid types are OMIICICS, OMIIDB2, OMIIIMS, and OMIIMVS; they represent the OMEGAMON classic monitor for CICS, Db2, IMS, and MVS, respectively.

User ID
This is the ID of the user that logs on to OMEGAMON when a session is established. To establish such a session, the user ID must be authorized to log on to OMEGAMON either within OMEGAMON itself or using a SAF-product.

To issue OMEGAMON commands, the user ID must also be authorized to issue commands that are protected by OMEGAMON internal command security or by the security profiles that are managed by a SAF product. For more details about user authorization, see "Security and Authorization" in *IBM System Automation for z/OS Planning and Installation*.

The user ID has a maximum length of 8 characters and may contain system and automation symbols. It can be omitted if no OMEGAMON product level security is required.

Password
The password of the user who logs on to OMEGAMON. The password has a maximum length of 8 characters and must be specified if a user ID was specified.

The predefined keyword SAFPW may be used to allow SA z/OS to retain the password in the SA z/OS password data set for the user ID. See also “AUTHENTICATION Policy Item” on page 255.

Timeout
This is the maximum time in seconds that SA z/OS waits for a response from OMEGAMON. If the specified timeout expires, the user is logged off and the session is terminated.

Any value between 1 and 999 seconds can be specified. The default value is derived from the setting of the WAITTIME variable (default: 29 seconds) that can be set in CNMSTYLE.

Session Data
This is an optional 60-character field of data that is passed unchanged to OMEGAMON during logon. The data field must be used to specify the job name of a particular CICS region or the name of a particular Db2 subsystem that should be monitored by automation, for example:

CICS=PRDAOR1
where PRDA0R1 is the job name of the CICS region

DB2=SGG4
where SGG4 denotes the Db2 subsystem

AUTHENTICATION Policy Item

If you select the AUTHENTICATION policy item from the Network Policy Selection panel, the panel shown in Figure 222 on page 255 is displayed.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGSAF                Authentication Definitions (INGPW)     Row 1 to 8 of 21
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Network               PolicyDB Name   : USER_PDB
Entry Name : ALL_SYSTEMS_NETWORK   Enterprise Name : USER_ENTERPRISE

Owner Share
OMOP  SESS1 SESS2 ____________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________

 _____ ________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________

 _____ ________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
```

Figure 222. Authentication Definitions Panel

When SAFPW is specified as the password for a given OMEGAMON session, SA z/OS retrieves the actual password from the SA z/OS password data set using the user ID that is specified for this session and the owner that is specified in this policy item. For more details about the use of the SA z/OS password data set, see the security chapter in *IBM System Automation for z/OS Planning and Installation*.

Owner
Custom value of up to 5 characters that is used by SA z/OS to look up the password in the SA z/OS password data set when an OMEGAMON session with any of the VTAM application IDs listed under **Share** is established.

Share
This is the list of VTAM application IDs representing OMEGAMON monitors that passwords are kept for in the SA z/OS password data set under the same owner. The application IDs may be delimited by blank or comma.

SOAP SERVER Policy Item

If you select the SOAP SERVER policy item from the Network Policy Selection panel, the panel shown in Figure 223 on page 256 is displayed.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGSOAS                    SOAP-Server Definitions         Row 1 to 10 of 20
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Network              PolicyDB Name   : USER_PDB
Entry Name : ALL_SYSTEMS_NETWORK  Enterprise Name : USER_ENTERPRISE

Enter the SOAP-Server name and select it to define the attributes.

Action  Server Name   Description

______  ________      ____________________________________________________
______  ________      ____________________________________________________
______  ________      ____________________________________________________
______  ________      ____________________________________________________
______  ________      ____________________________________________________
______  ________      ____________________________________________________
______  ________      ____________________________________________________
______  ________      ____________________________________________________
______  ________      ____________________________________________________
______  ________      ____________________________________________________
```

Figure 223. SOAP Server Definitions Panel

Use this panel to manage your IBM Tivoli Monitoring (ITM) SOAP-Server definitions.

Action
Use this field to select (S) a server for further processing or to delete (D) a server.

Server Name
Enter a unique 8-character name for the server. Any alphabetic, numeric, #, @ and $ character can be used. The first character must be alphabetic.

Description
Enter descriptive text for the server.

Selecting a server leads to the SOAP-Server Attributes panel, as shown in Figure 224 on page 256.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGSOAA                    SOAP-Server Attributes
Command ===> ____________________________________________________________

Entry Type : Network              PolicyDB Name   : USER_PDB
Entry Name : ALL_SYSTEMS_NETWORK  Enterprise Name : USER_ENTERPRISE

Server Name : KEYATEMS

Host name. . . . .
_____________________________________________________________________________
_____________________________________________________________________________
                            Symbolic host name or IP-address of the SOAP-Server
IP stack . . . . . _____________________________

Port number. . . . 1920     Port number of the SOAP-Server (1-65535)
Protocol . . . . . HTTP     Protocol used for SOAP requests (HTTP or HTTPS)
User ID. . . . . . _____________________________________
                            User ID to log on to SOAP-Server
Password . . . . . _____________________________________
                            Password of the logon user or SAFPW
Absolute path. . .
///cms/soap_________________________________________________________________
_____________________________________________________________________________
                            Absolute path of the SOAP-Server on that host
```

Figure 224. SOAP-Server Attributes Panel

Use this panel to define the SOAP-Server and its attributes. The following fields can be specified:

Host name
This is the required address of the host where the SOAP-Server is running. It can be a symbolic host name (which consists of alphanumeric characters and dots) or an IP address. Both IPv4 and IPv6 address formats are allowed.

An IPv4 address consists of 4 decimal qualifiers, each in the range 0–255, separated by a period. System symbols and system automation symbols are not supported in IPv4 format.

An IPv6 address consists of 8 hexadecimal qualifiers, each in the range 0–FFFF, separated by a colon. You can include system symbols and system automation symbols but you must enter them in uppercase (for example, &AOCCLONE1.). See the note for details on using system automation symbols.

IP stack
This field defines the TCP/IP jobname that indicates the corresponding IP stack. Specify this field only if your system is configured for multiple IP stacks. If nothing is specified, the first active TCP/IP is used.

You can include system symbols and system automation symbols. See the note for details on using system automation symbols.

Port number
This is the port number that the SOAP-Server is listening to. The default for the ITM SOAP-Server is 1920.

Protocol
This field defines how data is exchanged between SA z/OS and the SOAP-Server. SOAP-requests can be issued using the HyperText Transfer Protocol (HTTP) or via HTTPS secured through Secure Socket Layer or Transaction Level Security protocols. The default protocol is HTTP.

User ID
This defines the user who logs on to the SOAP-Server. The user ID is needed to control access to the SOAP-Server. It can be omitted if security is not implemented for the server.

You can include system symbols and system automation symbols but you must enter them in uppercase (for example, &AOCCLONE1.). See the note for details on using system automation symbols.

Password
This defines the password of the logon user. It is required if a user ID is specified. The predefined value SAFPW can be used to allow SA z/OS to maintain the password of the generic user ID.

You can include system symbols and system automation symbols but you must enter them in uppercase (for example, &AOCCLONE1.). See the note for details on using system automation symbols.

Note: For authentication, User ID and Password are used as defined.

Absolute path
This is the absolute path that, together with the host name and the port number, form the complete address of the SOAP-Server. The default path that is used for ITM SOAP-Server is `///cms/soap`. If there is no path, specify a forward slash ('/') to denote the root directory as the SOAP-Server path.

You can include system symbols and system automation symbols but you must enter them in uppercase (for example, &AOCCLONE1.). See the note for details on using system automation symbols.

Note: Using system automation symbols (&AOCCLONEx.)

On the AUTOMATION SYMBOLS policy of the system, you are able to define a number of different values for each system. These values can be substituted into Host name, IP stack, User ID, Password, and Absolute path.

To specify that AOCCLONE value x is to be substituted, enter `&AOCCLONEx.` at the appropriate point in the name. You must specify both the leading ampersand (&) and the trailing period (.).

Additionally, you can specify the tilde (~) to get the 0th (unnumbered) AOCCLONE value substituted. The 0th (unnumbered) AOCCLONE value preserves compatibility with prior releases where only one value was supported and was just named &AOCCLONE. When additional values were supported, they were named starting with &AOCCLONE1.

On the command line, you can enter the following commands:

- CANCEL (C) - Exits the panel without saving any changes.
- ENTER - Validates the data entered and refreshes the screen.
- END - Saves the changes made and exits the panel.

Sysplex Defaults Entry Type

The Sysplex Defaults entry type allows you to define sysplex resource information defaults.

Policy Items for Sysplex Defaults

Figure 225 on page 258 shows the Entry Selection panel to define sysplex resource information defaults.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection              Row 1 to 5 of 5
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type : Sysplex Defaults      PolicyDB Name   : USER_PDB
Entry Name : SYSDEF1               Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  RESOURCE INFO        Define sysplex resource information defaults
__________  -------------------- ------------------------------------------
__________  WHERE USED           List sysplex groups linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 225. Policy Selection Panel for Sysplex Defaults

The unique policy item for the Sysplex Defaults entry type is:

RESOURCE INFO
Use this policy to specify where sysplex resources are registered to and how the desired status of the resource is determined in the absence of any propagated DesiredStatus votes on the resource. See “RESOURCE INFO Policy Item” on page 258.

RESOURCE INFO Policy Item

Figure 226 on page 258 shows the Sysplex Resource Information Defaults panel that you can use to define where sysplex resources are registered.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGXDFI             Sysplex Resource Information Defaults
Command ===> ____________________________________________________________

Entry Type : Sysplex Defaults      PolicyDB Name   : USER_PDB
Entry Name : SYSDEF1               Enterprise Name : USER_ENTERPRISE

Desired Available. . . . . ___________      (ALWAYS ONDEMAND ASIS)
Prepare Move . . . . . . . ___             (YES NO)
Move Mode. . . . . . . . . ________        (PARALLEL SERIAL)
Inform List  . . . . . . . ________________________________
                                           (SDF EIF E2E IOM ITM SMF TTT USR)
```

Figure 226. Sysplex Resource Information Defaults Panel

Fill in the following fields:

Desired Available
Lets you specify the default desired status of the resource. The desired state of each resource is either Available or Unavailable, which is the goal that automation tries to achieve.

For further details, refer to “APPLGROUP INFO Policy Item” on page 107.

Prepare Move
Specifies whether the downtime during the move or switch of a resource should be kept as short as possible. For more details see Prepare Move.

Move Mode
Specifies how a move is made from an old member to a new one. For more details see Move Mode.

Inform List
This field allows you to specify:

- Where the application is registered to
- Where all status changes are propagated to
- Whether SMF records are written

Valid receivers are SDF, EIF, E2E, IOM, ITM, SMF, TTT and USR. You can specify more than one receiver. The list of values can be blank or comma separated.

If nothing is specified, no status changes are propagated. If E2E is specified, the resources will be shown on the e2e domain view. This applies only to resources that are directly attached to a system or sysplex. For others, the specification will be ignored.

Resident CLISTs Entry Type

Because NetView automatically loads frequently used REXX scripts (CLISTs) into storage, you do not need to define your own resident REXX scripts. However, if you want to do this, you can define resident CLISTS that will then be automatically loaded during SA z/OS initialization.

A resident CLIST is a REXX script that is loaded into and kept in NetView storage for the first and all subsequent calls.

Resident CLISTs can improve performance by removing the overhead required to access REXX script that are stored on a direct access storage device (DASD) each time the REXX script is called. Resident CLISTs are automatically loaded into main storage during initialization of the automation environment using NetView's PIPE INSTORE command.

If a new automation control file is loaded after SA z/OS is up and initialized, and that automation control file contains fewer automation procedures in the resident portion than the original automation control file loaded at initialization, even if the procedures are not specified in the new file, they will not be dropped from storage. For example, if the original automation control file contained procedures A, B and C to be loaded resident, and the new automation control file contains procedures A, B, and D to be loaded resident, procedure D will be loaded but procedure C will not be dropped.

Policy Items for Resident CLISTs

Figure 227 on page 259 shows the policy items that are displayed when a new Resident CLISTs entry is defined or when an existing Resident CLISTs entry is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection              Row 1 to 5 of 5
Command ===> _____________________________________________ SCROLL===> PAGE

Entry Type : Resident CLISTs       PolicyDB Name   : USER_PDB
Entry Name : AOF_BASIC             Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  CLISTS               Define command lists to load to main storage
__________  -------------------- ---------------------------------------------
__________  WHERE USED           List systems linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 227. Policy Selection Panel for Resident CLISTs

The unique policy item for Resident CLISTs sets is:

CLISTS
This option allows you to enter the names of the REXX scripts (CLISTs) that you want to be made resident during initialization of SA z/OS.

Status Display Entry Type

The status display facility (SDF) provides a display of automated systems and resources using assigned status colors. An operator monitors the status of automated systems and resources by viewing the SDF main panel.

Typically, for example, an application shown in green on an SDF status panel indicates the application is up, while red indicates the application is stopped or in a problem state. Operators can use the SDF to monitor the system and decide which actions to take when problems occur. This section describes the entries used to define the SDF in the customization dialog. You only need to change these entries if you use values other than the SA z/OS-provided defaults. The entries specified here define statuses and the priorities assigned to those statuses. These entries are used by SA z/OS common routines to gather data for requests to add status descriptors to status components. Additional parameters manage existing status descriptors and eliminate redundancy.

If no definitions exist the SA z/OS defaults are in effect. For more details, see *IBM System Automation for z/OS User's Guide*

Policy Items for Status Display

Figure 228 on page 260 shows the policy items that are displayed when a new Status Display policy object is defined or when an existing Status Display object is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection              Row 1 to 5 of 5
Command ===> _____________________________________________ SCROLL===> PAGE

Entry Type : Status Display        PolicyDB Name   : USER_PDB
Entry Name : STATUS_DETAILS_NAME   Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  SDF DETAILS          Enter status display facility details
__________  -------------------- ------------------------------------------
__________  WHERE USED           List systems linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 228. Policy Selection Panel for Status Display

The unique policy item for Status Display is:

SDF DETAILS
You can use this policy item to define colors and highlights associated with each status.

See “SDF DETAILS Policy Item” on page 260 for more information about this policy item.

SDF DETAILS Policy Item

A panel similar to Figure 229 on page 261 is displayed if you select the SDF DETAILS policy item from the Policy Selection panel for Status Display.

These entries are show as an example but are not required in the definition. Please refer to the table of "Default Subsystem Status Colors and Priorities" in *IBM System Automation for z/OS Programmer's Reference* for a list of SDF default settings.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGSCR                  Status Display Facility Details     Row 1 to  2 of 64
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Status Display        PolicyDB Name   : USER_PDB
Entry Name : STATUS_DEFINITIONS    Enterprise Name : USER_ENTERPRISE

Status   Priority Highlight  Color     Clear      Srv Req(noadd)
STARTED2 230      BLINK      PINK      (Y,RV*)    _   ______
STUCK    240      UNDERSCORE PINK      (Y,RV*)    _   ______
```

Figure 229. Status Display Facility Details Panel

The fields are:

Status
Any required name. The name must start with an alphabetic or numeric character or one of '@, #, or $. All other characters must be alphabetic, numeric, or one of @, #, $, ?, _, !, or . This value can be up to 8 characters long. It is recommended that you use the SA z/OS default statuses.

Priority
The priority number assigned to a particular status type. PRIORITY must be a valid number in the range specified in the AOFINIT member. Normally, priority determines the color displayed for a status. This is the recommended method. If the priority is not defined, the default is 99999999.

Highlight
The type of highlighting used for a particular status type. If this field is not specified, or HL=P is specified, highlighting is determined by the panel definition.

Color
The color used for a particular status type. This is the color override entry. Use this parameter to override the priority and color relationship that is defined in the AOFINIT member. Although the color of the status descriptor is changed, the priority is still determined by the order that the status descriptor is chained in.

There is no default color associated with an SA z/OS status. Any color specifications defined using this parameter override the color defined for the range that the priority is in.

Clear
The CLEAR parameter helps manage redundant status descriptors. With SA z/OS, the reference value on a status descriptor is usually the status component name. This option is only available for statuses defined in the automation control file and accessed by SA z/OS common routines described in *IBM System Automation for z/OS Programmer's Reference*. The following values are allowed:

Y
Deletes any existing status descriptor for this status component with the same reference value as the status descriptor being added. This verifies that, for any given status component, there is only one status descriptor reflecting the true status.

(Y,RV*)
Performs the same function as CLEAR=Y, and also deletes status descriptors with reference values prefixed with the same reference value (followed by anything else). For example, if the existing status descriptor for RMF has a reference value of RMF1, and the status descriptor being added has a reference value of RMF, the RMF1 status descriptor is deleted before the new RMF status descriptor is added.

(Y,RV)
Performs the same function as CLEAR=(Y,RV*) but the reference value must be the same (not a wildcard).

(Y,RV*,DA)
Performs the same function as CLEAR=(Y,RV*), and also deletes all status descriptors with similar data in the data field. (The data field is defined with the DATA keyword on the SDF request that adds the status descriptor to a chain of status descriptors.)

(Y,RV2*,CO)
Performs the same function as CLEAR=(Y,RV*) with the following differences:

- The color of the existing status descriptor must be the same as that specified in the color entry before it is deleted.
- Status descriptors that have reference values prefixed with the new reference value followed by the number 2 are deleted, provided that the color matches the status descriptor that is being added.

N
Indicates that redundant status descriptors are not deleted.

Srv
Determines the format of the reference value that is generated for this entry.

Y
Generates `Status_component/Status`.

N or blank
Generates `Status_component`.

Req (noadd)
Specifies whether the component with this status is to be added to the SDF chain:

blank
The entry is to be added. This is the default value.

NOADD
The entry is not to be added.

Note: Combining NOADD with Clear=Y causes a component to be removed from the SDF display when this status is reached.

Remote Domains Entry Type

This entry type defines a remote domain (for example a z/OS sysplex) where resources are running which are in the scope of end-to-end automation.

Policy Items for Remote Domains

Figure 230 on page 262 shows the policy items that are displayed when a Remote Domain entry is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection              Row 1 to 6 of 6
Command ===> _____________________________________________ SCROLL===> CSR

Entry Type : Remote Domain         PolicyDB Name   : USER_PDB
Entry Name : DOMAIN01              Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  DOMAIN INFO          Define domain information
__________  REFERENCES           Select references to remote resources
__________  -------------------- ---------------------------------------------
__________  WHERE USED           List sysplex group linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 230. Policy Selection Panel for Remote Domains

The unique policy items for Remote Domains are:

DOMAIN INFO
You can use this policy item to define a remote domain (for example a z/OS sysplex) where resources are located which are in the scope for end-to-end automation.

See “DOMAIN INFO Policy Item” on page 263 for more information about this policy item.

REFERENCES
You can use this policy item to select resource references which represent resources that are located on a remote domain.

See “REFERENCES Policy Item” on page 263 for more information about this policy item.

DOMAIN INFO Policy Item

Figure 231 on page 263 shows the Domain Information panel that you can use to define the name of a remote domain.

```
  COMMANDS  HELP
 ------------------------------------------------------------------------------
 AOFGDMN                  Domain Information
 Command ===>

 Entry Type : Remote Domain         PolicyDB Name   : USER_PDB
 Entry Name : DOMAIN01              Enterprise Name : USER_ENTERPRISE

 Domain
Name  . . . . . .
               IBMPLEX INGXSG01_____________________________________________________
```

Figure 231. Domain Information Panel

The following information is displayed:

Domain Name
Specifies the name of the remote domain.

This name must match the name in the E2E adapter configuration. For SA z/OS subplexes, the default is plexname INGXSGid, where "plexname" is the name of the physical sysplex and "id" is the XCF group ID which might be blank.

REFERENCES Policy Item

This policy item displays a list of Resource References (REF) and allows you to select or de-select them from this domain according to your needs.

```
  COMMANDS  HELP
 ------------------------------------------------------------------------------
 Command ===> _____________________________________________  SCROLL===> SCR

 Entry Type : Remote Domain         PolicyDB Name   : USER_PDB
 Entry Name : DOMAIN01              Enterprise Name : USER_ENTERPRISE
 Action            Status            Resource Reference
 __________        SELECTED          REF11
 __________        SELECTED          REF12
 __________        SELECTED          REF13
 __________                          REF21
 __________
REF22
 __________                          REF23
```

Figure 232. References Panel

Resource References Entry Type

This entry type defines a reference to a resource running on a remote domain (for example a z/OS sysplex).

Policy Items for Resource References

A resource reference refers to a remote resource, that is, a resource defined on a remote domain that is different from the domain, where the resource reference itself is defined.

Figure 233 on page 264 shows the policy items that are displayed when a new REF policy object is defined or when an existing REF object is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                        Policy Selection               Row 1 to 6 of 6
Command ===> _____________________________________________ SCROLL===> CSR

Entry Type : Resource Reference         PolicyDB Name   : USER_PDB
Entry Name : REF11                      Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  REMOTE RESOURCE      Define remote resource
__________  RELATIONSHIPS        Define relationships
__________  -------------------- ------------------------------------------
__________  WHERE USED           List domains linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 233. Policy Selection Panel for REF

The unique policy items for Resource References are:

REMOTE RESOURCE
You can use this policy item to define the remote resource, which is the 'real' name of the resource on the remote domain (for example a z/OS sysplex).

See “REMOTE RESOURCE Policy Item” on page 264 for more information about this policy item.

RELATIONSHIPS
This policy item has the same functionality for entry types Application, ApplicationGroup, Monitor Resource, and Resource Reference. For each application, application group, monitor resource, or resource reference you may specify several relationships. They will be used to automate the startup or stopping of those applications, application groups, monitor resources, and resource references. If you select this policy item in the Relationship Selection List panel, you can view existing relationships or define new relationships for the current application, application group, monitor resource, or a resource reference.

You define relationships between dependent resources and supporting resources. In the customization dialog you define relationships always from the point of view of the dependent resource. So the resource that you have currently selected will become the dependent resource, when you define a new relationship.

See “RELATIONSHIPS Policy Item” on page 110 for more information to view existing or define new dependency relationships.

REMOTE RESOURCE Policy Item

Figure 234 on page 265 shows the Remote Resource panel that you can use to define the 'real' name of the resource that is located on a remote domain.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGREF                          Remote Resource
Command ===>

Entry Type : Resource Reference    PolicyDB Name   : USER_PDB
Entry Name : REFHTTPSYS4           Enterprise Name : USER_ENTERPRISE

Informlist . . . . . . . ___                         (E2E)
Owner  . . . . . . . . . ____________________________________________________
Info Link  . . . . . . . ____________________________________________________


Specify the remote resource:
Name . . . . . . . . . . HTTPSRV____
Type . . . . . . . . . . APL
System . . . . . . . . . SYS4___
```

Figure 234. Remote Resource Panel

The following information is displayed:

Inform List
It can be used to indicate that the resource reference will be shown on the e2e domain view. Specify E2E to indicate this.

Owner
It specifies information for the operator whom to contact in case of error.

Info Link
It can be used to specify an URL (for example) where additional information about the resource reference can be found.

Name
It is the name of the remote resource. This is typically the subsystem name of an application (APL), the automation name of an application group (APG), the name of a monitor resource (MTR), or the name of a resource reference (REF).

Type
It is the type of the remote resource. This is typically APL for an application, APG for an application group, MTR for a monitor resource, or REF for a resource reference.

System
It is the name of the system where the remote resource is running. Leave this field blank if the remote resource is a sysplex wide group.

Don't use system symbols or system automation symbols in any of the fields.

User E-T Pairs Entry Type

This entry type allows you to create your own entry-type pairs and associated keywords in the same format as those used by SA z/OS.

You can use User E-T Pairs to store data for your own automation procedures in the automation control file. User E-T Pairs are provided for situations where there is no suitable, predefined SA z/OS entry type. Using the automation control file to store policy-specific information helps keep your automation procedures generic.

Policy Items for User E-T Pairs

Figure 235 on page 266 shows the policy items that are displayed when a new User E-T Pairs policy object is defined or when an existing User E-T Pairs object is selected from the Entry Name Selection panel.

```
  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGEPOL                       Policy Selection              Row 1 to 5 of 5
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type : User E-T Pairs       PolicyDB Name   : USER_PDB
Entry Name : USER_ET_NAME         Enterprise Name : USER_ENTERPRISE

Action      Policy Name          Policy Description
__________  DESCRIPTION          Enter description
__________  E-T DATA             Define User Entry-Type pairs
__________  -------------------- ----------------------------------------
__________  WHERE USED           Lists Systems linked to this entry
__________  COPY                 Copy data from an existing entry
```

Figure 235. Policy Selection Panel for User E-T Pairs

The unique policy item for User E-T Pairs is:

E-T DATA
This policy item enables you to specify entry-type pairs for the set. You can also enter a description for each pair. See "E-T DATA Policy Item" on page 266 for more information on this policy item.

E-T DATA Policy Item

Figure 236 on page 266 shows the UET Entry-Type Selection panel.

```
 COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGUET                    UET Entry-Type Selection           Row 20 from 40
Command ===> ____________________________________________  SCROLL===> PAGE

Entry Type : User E-T Pairs        PolicyDB Name   : USER_PDB
Entry Name : JOBCARDS              Enterprise Name : USER_ENTERPRISE

Action   Entry Name                          Type
_______  JOBCARD                             DEFAULTS
```

Figure 236. UET Entry-Type Selection Panel

The **Entry Name** and **Type** fields define a unique set of key-data pairs. In general, the **Entry Name** field can contain any name except subsystem names that already exist in the policy database. The **Type** field can be used to identify groups of information for the entry name. You can define wildcards and types by appending the asterisk (*) character to the type value.

The following actions are possible:

S(ELECT)
To select the entry-type pair for further processing. Another panel, similar to Figure 237 on page 267, is displayed where the keyword-data pairs can be entered.

E(DIT)
To select the entry-type pair to change the value of any of entry, type, short and long description.

D(ELETE)
To delete the complete entry-type pair with all associated keyword-data pairs.

The following VIEWs are possible:

- Entry-type pairs only
- Entry-type pairs with their short description
- Entry-type pairs with their long description

When you enter an E (for Edit) in the **Action** column, another panel, similar to Figure 237 on page 267, is displayed where you can enter the keywords and user data for each Entry-Type pair.

A keyword is an identifier for the data that follows it. The set of keyword/data pairs may be null, and a keyword does not have to be unique; that is, each keyword may have multiple sets of data assigned to it.

The following rules apply to the user data:

- Data containing the special characters ()'," or imbedded spaces must be enclosed in delimiters. Valid delimiters are single quotation marks, double quotation marks, or parentheses.
- Any imbedded single quotation marks will be automatically doubled by the processing logic of the UET Keyword-Data Specification panel. For example, ABC'DEF'GHI will be changed to ABC"DEF"GHI
- Imbedded single quotation marks must appear in pairs.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGDYNU   UET Keyword-Data Specification
Command ===> _____________________________________________________ Scroll ===> PAGE

Entry: JOBCARD                          Type: DEFAULTS
Mixed case . . . NO   (YES NO)          Keyword length. . . 20  (1-64)

Cmd Keyword              Data
___ JOBNAME              HAIAOC3*
___ CLASS                A
___ MSGCLASS             N
___ MSGLEVEL             (1,1)
___ REGION               4096K
```

Figure 237. UET Keyword-Data Specification Panel

The UET Keyword-Data Specification panel allows you to manage the list of keyword-data pairs for one entry-type pair of one User E-T pair entry.

You can define multiple keyword-data pairs for each entry-type pair. By default, the first 20 characters of the keyword value is shown. The length of the data value that is displayed depends on your screen width (for a 24x80 screen, it is 55 characters).

From this panel you can:

- Specify whether the value entered in the **Data** field remains unchanged (**Mixed case**=YES) or is automatically translated to uppercase characters (**Mixed case**=NO)
- Change the length of the field that the keyword value is displayed in using the **Keyword length** field

If necessary, use F11 to scroll to the right to view more of the data field.

For a description of further commands on this panel, see “How to View Long Input Fields in Full Length” on page 25 .

From within a REXX exec, you can retrieve the data entered in the UET Keyword-Data Specification panels using the ACFFQRY command. An example is provided in “How to Use User E-T Pairs” on page 61

More than one set of User E-T Pairs may be attached to a system, but it is recommended that you attach only one to avoid data being overwritten during initialization of SA z/OS.

Chapter 5. Policy Database Maintenance

Option **4 (Policies)** of the Customization Dialog Primary Menu panel allows you to maintain the list of your policy databases and to access various panels for selected policy databases.

Policy Database Selection List

If you have already created one or more policy databases, they are listed in the Policy Database Selection panel.

See shown in Figure 238 on page 269.

```
  MENU  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGPDB                    Policy Data Base Selection          Row 1 to 2 of 2
Command ===> _____________________________________________  SCROLL===> PAGE

Action     PolicyDB Name        Enterprise Name/Data Set Name
__________ USER_PDB             USER_ENTERPRISE
                                'USER.DOCU.PDB'
__________ RESOURCE_PDB         MY_ENTERPRISE
                                'USER.RESOURCE.PDB'
```

Figure 238. Policy Database Selection Panel

Databases created with the NEW command automatically appear in your policy database list. You can add other databases if you know the name of their data set and have the appropriate authority to update them. You can only work with one policy database from your list at a time.

To select a policy database:

1. Move the cursor to the line containing the database you want to use.
2. Enter s in the **Action** column on that line.

The selected policy database is opened, and the Entry Type Selection panel for that database is displayed. At this point you are ready to start defining your enterprise.

The commands and actions available from the Policy Database Selection panel are:

(B) BROWSE
This option lets you access the policy data for that database. All data can be displayed, but no updates can be saved. The Entry Type Selection panel is displayed. See Figure 1 on page 5.

(E) EDIT
This option lets you access the policy data for that database. The Entry Type Selection panel is displayed. With this option, you can edit the contents of policy database . See Figure 1 on page 5.

(N) NEW
This option lets you create a new policy database as described in “Creating a New Policy Database” on page 270. The Create a New Policy Database panel is displayed. See “Creating a New Policy Database” on page 270 for more details.

(O) OPTIONS
This option lets you change the data set names of your policy database for the build, report, and log output. You can also start and stop the logging of user activity and change the Enterprise name. For more information, see “Specifying Options for Policy Databases” on page 274.

(D) DELETE
This option lets you delete the policy database data set, and all references to the policy database. SA z/OS will display a panel asking you to confirm your request.

© Copyright IBM Corp. 1996, 2017

SA z/OS does not provide any extended security to prevent you from deleting policy database data sets. This must be provided by a System Authorization Facility (SAF) product such as RACF®.

(A) ADD
This option lets you add a policy database to the displayed list. You enter a policy database name, an enterprise name and the name of a policy database data set that already exists.

(M) REMOVE
This option lets you remove the policy database details from the displayed list. The data set itself is not affected.

(B) BUILD
This option displays the Build Functions Menu. You can build various configuration files. This function is explained in Chapter 7, “Building and Distributing Configuration Files,” on page 287.

(G) MANAGE
This option will take you to the Data Management Menu panel shown in Figure 255 on page 305, which allows you to import policies into a policy database of the current release of SA z/OS.

You can find more information about this option in Chapter 9, “Data Management,” on page 305.

(R) REPORT
This option displays the Report Selection Menu for the selected policy database. You can create a report of all automation data in the policy database. The report offers options to report either the full automation policy, or to select a specific entry type and name to be reported.

You can either create an unformatted file to be viewed in a TSO session, or an HTML file to be viewed by an Internet Browser.

The following reports can be created:

- A report for all objects in the policy database, that will not be used for building the system operations configuration files (unlinked entries and relationships).
- A report for all automatically generated resources, which are the resources of type APL, APG, MTR, and REF.
- A report of all members in the system operations build output data set, that are not referenced by the actual configuration.
- A status message report.

For more information, see Chapter 6, “Creating Reports about Policy Databases,” on page 279.

(V) VIEW
This option toggles between two views. The summary view displays the policy database name and enterprise name for each policy database on one line. The extended view displays a second line for each policy database, giving the data set name.

(L) LOCATE
Entering LOCATE lets you position yourself within the displayed list. If the entry is identical, the selected entry is the first in the list. If the entry is not identical, the next higher (alphabetically) entry is the second in the list. This is the same as the ISPF LOCATE function.

Creating a New Policy Database

A policy database is a partitioned data set (PDS) that contains policy data in its members.

Procedure

To create a new policy database, follow these steps:

1. Select option 4 *(Policies)* on the Customization Dialog Primary Menu.

   This takes you to the Policy Database Selection panel, shown in Figure 239 on page 271, which lists all policy databases that are currently available.

   You can toggle the display of the data set and enterprise name in the VIEW pull-down menu.

```
  MENU  COMMANDS  ACTIONS  VIEW  HELP
------------------------------------------------------------------------------
AOFGPDB                    Policy Data Base Selection          Row 1 to 2 of 2
Command ===> ____________________________________________________  SCROLL===> PAGE

Action     PolicyDB Name        Enterprise Name/Data Set Name
__________ USER_PDB             USER_ENTERPRISE
                                'USER.DOCU.PDB'
__________ RESOURCE_PDB         MY_ENTERPRISE
                                'USER.RESOURCE.PDB'
```

Figure 239. Policy Database Selection Panel

2. Enter N or NEW on the command line.

   This takes you to the Create a New Policy Database panel, shown in Figure 240 on page 271.

```
  COMMANDS   ACTIONS   HELP
------------------------------------------------------------------------------
AOFGPDBN                 Create a New Policy Database        Row 1 to 8 of 15
Command ===> ____________________________________________________________________

To define a new Policy Database, specify the following information:
   Policy Database Name . . ____________________
   Enterprise Name. . . . . ____________________
   Data Set Name. . . . . . ____________________________________________

   Model Policy Database. . *EMPTY_____________ Policy Database name or "?"
                                                for list of names
Add-on policies to be added to a standard SA model policy database:
Action     Status      Add-on Policy         Customizable
________               *BASE                 YES
________               *CICS
________               *DB2
________               *E2E                  YES
________               *GDPS
________               *IBMCOMP              YES
________               *IMS
________               *ITM                  YES
```

Figure 240. Create a New Policy Database Panel

3. Fill in the fields on this panel:

   - The **PolicyDB Name** field is mandatory. Enter the name of the new policy database; this can be up to twenty characters in length.
   - The **Enterprise Name** field is mandatory. This can be up to twenty characters in length. You can use the same value as in the **PolicyDB Name** field.
   - The **Data Set Name** field is mandatory. This can be any valid z/OS data set name. Standard rules for quoted and unquoted data set names apply.

     If you enter the name of an existing data set, a warning is issued. If you enter a name that has not been given to an existing data set, a new data set will be created. The policy database that you are creating will be stored in that new data set.
   - The **Model PolicyDB name** field is mandatory. This must be an existing policy database name. The new policy database that you are creating will contain a *copy* of the model policy database.

     You can use either of the SA z/OS sample policy database *EMPTY or a database that is currently in your list of policy databases.

     If you do not want your new policy database to contain data that is copied from an existing policy database, use *EMPTY in this field.

     If you want to see what model databases are available, type "?" in this field and press Enter. This will display the Select Model Policy Database panel that you can select a database from.
   - The sample **Add-on Policies** that are shipped with SA z/OS contain definitions that fully complement those in *BASE.

Selecting one or more of the sample add-on policies from the list on the panel is optional. If you do make a selection, the new policy database that you are creating will contain a copy of each add-on that you have selected. If an add-on policy is marked as customizable, this means that it contains components that can be separately selected (for example, *IBMCOMP contains definitions for z/OS Health Checker, the Automation Command Receiver, the Automation RDS Archiver and others).

If a user PDB is selected (that is, one without a '*' as the first character), no add-on PDBs can be selected.

4. Press Enter to submit your input. This takes you to the New Policy Database Data Set Information panel, shown in Figure 241 on page 272.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGPDBO             New Policy Database Dataset Information
Command ===> ____________________________________________________________

New Policy Data Base :  TEST
Attributes to be used for allocation of the new data set:

   Managed storage. . . . . NO______    YES      NO
   Management class . . . . _________   Blank for default management class   *
   Storage class. . . . . . _________   Blank for default storage class      *
     Volume serial. . . . . ______      Blank for authorized default volume
   Data class . . . . . . . ________    Blank for default data class         *
     Space units. . . . . . CYLINDERS   CYLS TRKS BLKS KB MB
     Primary quantity . . . 1__         1 to 999 - In above units
     Secondary quantity . . 1__         0 to 999 - In above units
     Directory blocks . . . 50_         1 to 999 or blank - Required for PDS
     Record format. . . . : FB
     Record length. . . . : 80
     Block size . . . . . . 32720
     Data Set Name type . . PDS_____    LIBRARY  PDS                         *
     Device Type. . . . . . SYSDA___

   * Used only if Managed storage = YES

Press ENTER to start creation of new PolicyDB.
```

Figure 241. New Policy Database Data Set Information Panel

5. The fields that you must enter data in are listed below. For fields that are not explicitly explained, see the appropriate z/OS literature.

Managed Storage
This indicates whether the data set should be allocated on managed storage. If this field is set to YES, the fields marked with an * are used to allocate the data set. If NO is specified then these fields may be specified but are not used.

Management class
This specifies the management class that should be used to obtain the data management related information for the allocation of the data set.

Storage class
This specifies the storage class that should be used to obtain the storage related information for the allocation of the data set. The following data, related to storage class, can be specified if you are not using managed storage or you have not specified a storage class or if you wish to override the default storage class values.

Volume serial
The volume that the database is to be stored on. If this field is left blank, it defaults to your local system default.

Data class
This specifies the data class that should be used to obtain the data related information for the allocation of the data set. The following data, related to data class, can be specified if you are not using managed storage or you have not specified a data class or if you wish to override the default data class values:

Space Units
Valid allocation units for the data set are:

- CYLINDERS
- TRACKS
- BLOCKS
- MEGABYTES
- KILOBYTES

Primary quantity
This specifies the primary space allocation in space units. Specify a value according to the size of your enterprise.

Secondary quantity
This specifies the secondary space allocation in space units. Specify a value according to the size of your enterprise.

Directory blocks
Number of blocks to allocate for the directory. This field is only used when allocating a PDS. Specify a value according to the size of your enterprise.

Record format
This is FB and cannot be changed.

Record length
This is 80 and cannot be changed.

Block size
This defines the block size for the data set. It must be a multiple of 80. The default is 32720.

Data Set Name type
This indicates whether the data set is to be allocated as a partitioned data set (PDS) or partitioned data set extended (LIBRARY).

Device Type
The type of storage device. This field defaults to SYSDA.

Note: Many installations regularly delete data sets that are created on SYSDA volumes. If you want to create a permanent policy database you should not create it on a SYSDA volume.

6. Press Enter to submit your input.

   This creates the new policy database. SA z/OS displays a Command Progress Display panel. When database creation is finished, the Entry Type Selection panel is displayed for the new database.

Using SA z/OS Sample Policies

SA z/OS provides sample enterprise organizations implemented as SA z/OS policies. The sample policies that are shipped with SA z/OS are installed when the SA z/OS customization dialog is installed.

To see what sample policies there are, navigate to the Create a New Policy Database panel as described in “Creating a New Policy Database” on page 270. The asterisk character (*) at the start of a policy name on that panel indicates that it is a sample.

You can never modify the sample policies themselves. You can only modify *copies* of the samples. To create a copy of a sample policy, follow the steps in “Creating a New Policy Database” on page 270 and select the sample that you want to copy in step “3” on page 271.

For information on how to *import* a sample policy into an existing policy database, see “Importing Sample Add-On Policies” on page 309.

There are two kinds of sample policies: basic and add-on.

The basic policy is:

***EMPTY**
This sample is simply an empty policy database.

The add-on policies are:

- *BASE
- *CICS
- *DB2
- *E2E
- *GDPS
- *IBMCOMP
- *IMS
- *ITM
- *IWS
- *PROCOPS
- *SAPSRV
- *TBSM

The *BASE add-on policy simplifies the exploitation of basic system automation using SA z/OS. This allows users to startup and shutdown a basic z/OS computing environment within a sysplex.

The *BASE policy contains the main z/OS, networking and security components that are required in most client shops:

1. z/OS Link List Look-Aside
2. z/OS Base components
3. z/OS Base applications
4. Networking components
5. Security components
6. SA z/OS components

The computing environment consists of three systems running within a sysplex. This environment is considered to be an appropriate base for high availability solutions, delivered as add-on model policies. Depending on your needs, these models can easily be tailored to less or more than three systems, just by unlinking or removing, or adding or linking systems.

A single system needs to be defined as a sysplex with only one system.

For information on what is in the sample add-on policies, use the view (v) action on the Create a New Policy Database panel (shown in Figure 240 on page 271).

Diagrams of the add-on policies are also provided as PDF files, located in Add-on policies. For more information about the installation settings, refer to the chapter "SMP/E Installation" in *IBM System Automation for z/OS Planning and Installation*.

Specifying Options for Policy Databases

Specifying (O) Options on the Policy Database Selection panel for a policy database leads to the Options for Policy Database panel.

See Figure 242 on page 275.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGPDBE             Options  for Policy Data Base USER_PDB
Command ===> ____________________________________________________________________

Enterprise and data set names:
  Enterprise Name . . . . . . USER_ENTERPRISE_____
  PolicyDB data set name. . . 'USER.PDB'_____________________________________
  Build output data set . . . 'USER.SOCNTL'_____________________________________
  Report output data set. . . 'USER.PDB.REP'_____________________________________
  Report output file system . /u/oper/_____________________________________
  Data set names for update via file:
  Output file name  . . . . . _____________________________________
  Input file name . . . . . . _____________________________________

PolicyDB activity log options:
  Write log entries . . . . . ON_         (ON   OFF)
  Log data set name 1 . . . . 'USER.PDB.LOG1'_____________________________________
  Log data set name 2 . . . . 'USER.PDB.LOG2'_____________________________________
```

Figure 242. Options for Policy Database Panel

The first set of fields on this panel allows you to specify **Enterprise and data set names**, as follows:

Enterprise Name
This allows you to re-specify the enterprise name. If this policy database has also been added to the Policy Data Base Selection list of other users they need to REMOVE or ADD the policy database to get the new name.

PolicyDB data set name
This allows you to re-specify the enterprise data set name.

Build output data set
This allows you to specify where you want the configuration files that are created by the System Operations build to be stored.

Report output data set
This allows you to specify where you want the output, created by the REPORT function, to be stored. It is not recommended that you store the output as a member of the policy database itself due to record length problems.

If you leave the field empty, SA z/OS allocates a data set with a default name (the policy database data set name extended with .REP as the low-level qualifier) and a default size.

If you do specify a data set name, SA z/OS allocates a data set with that name and a default size.

If you preallocate a data set and specify the name here, SA z/OS uses that data set. For the complete policy database report, it is recommended that you use format VB and a record length of 1000 to avoid truncations.

For other reports, a record length of 132 is usually sufficient (see Figure 244 on page 279 for a list of other reports that are available).

Report output file system
This allows you to specify the UNIX system where the report output should be stored. No upper case translation is performed. If a directory is specified that does not exist, it is created.

Output file name
This specifies where you want the output created by the file update function to be stored. It needs to be a sequential file. You can leave the output file name field empty. If you do, SA z/OS will allocate a data set with a default name (policy database data set name extended with a low level qualifier of .UPD) and a default size. If you specify a sequential file name that has not been preallocated, SA z/OS will allocate a data set with that name and a default size. If you preallocate a sequential file and specify the name here, SA z/OS will use that file. It is recommended to use format VB and a record length of 255 to avoid truncations.

Input file name
This specifies where you want the input created by the file update function to be stored, or the input for the policy database update to be read from. It needs to be a sequential file.

The second set of fields allows you to set **PolicyDB activity log options** for this policy database. See "Logging Policy Database Modifications" on page 276 for more details.

Logging Policy Database Modifications

With SA z/OS you can write a log entry whenever a modification has been made for a specific Policy Database by using the policy database activity log option on the Options for Policy Data Base panel (see Figure 242 on page 275). Fill in the following fields:

Write log entries
Turns logging ON or OFF for this Policy Database. The default value is OFF.

Log data set name
This allows you to specify two data sets for the activity log. Whenever a data set runs out of space or cannot be accessed for some reason, the dialog switches automatically to the alternate data set and continues writing the log records there.

The alternate log data set is cleared and exit routine INGEX09 is called to allow user-specific actions, such as backing up the data set.

If you leave this field blank, SA z/OS allocates data sets with a default name (the policy database data set name extended with .LOG1 or .LOG2 as low level qualifier) and a default size.

If you specify a data set name, SA z/OS allocates a data set with this name and a default size.

If you preallocate a data set and specify the name here, SA z/OS uses this data set.

It is recommended that you use format VB and a record length of 400 to avoid truncations.

If the Options for Policy Data Base panel is invoked and the specified policy database data set cannot be accessed, the log option fields are initially empty.

Whenever the policy database data set name is changed, the current log options are read from the policy database and displayed on the panel.

The following information is logged:

- Editing a policy item (for example, changing an automation flag or a command)
- Changing a link, which includes:
  - Entry type links, for example, a link between an application and an application group
  - Links of instances and classes
  - Resource links
- Adding events to a trigger
- Invoking the DATA MANAGEMENT functions (these commands change the policy database content)
- Invoking control file build (it writes build statistics into the policy database)
- Creating and deleting objects
- Copying objects
- Errors (as long as a policy database is open)
- Renaming objects

The following information is *not* logged:

- Option changes (using selection *0 Settings*)
- Data set name changes (OPTIONS)
- REPORT function invocations
- VIEW functions (for example, view build report)

- Initial conversion of the policy database (when invoked the first time with SA z/OS)
- Invocation of batch functions, for example, batch build

A log entry includes the user ID, timestamp, and the policy item that was changed, or the command name and parameters if available. An example of an activity log is shown in Figure 243 on page 277.

```
2012/04/30 16:50:35 OPER1 : Log Data Set Created
2012/04/30 16:51:01 OPER1 : PDB activity logging turned on
2012/04/30 17:05:39 OPER1 : MVC MVS_COMPONENTS       WHEREUSED
2012/04/30 17:05:50 OPER1 :                             delinked from SYS AOC1
2012/04/30 17:05:51 OPER1 :                             linked   to   SYS AOC2
2012/04/30 08:40:45 OPER1 : APL APPL1                EDIT
2012/04/30 08:41:17 OPER1 :                             policy UPWARD CLASS
2012/04/30 08:41:36 OPER1 :                               linked to CLASS APPL_CLS01
2012/04/30 08:41:45 OPER1 : APL APPL1                MSG
2012/04/30 08:41:46 OPER1 :                             policy MESSAGES/USER DATA
2012/04/30 08:41:52 OPER1 :                               modified ANR0991I TSM has ended
2012/04/30 08:41:53 OPER1 :                                  added Application Status:  TERMINATED
2012/04/30 08:42:16 OPER1 : APL APPL2                EDIT
2012/04/30 08:42:26 OPER1 :                             policy APPLICATION INFO
2012/04/30 08:42:27 OPER1 :                               modified Start Delay       old: 00:10:00
2012/04/30 08:42:27 OPER1 :                                                          new: 00:15:00
2012/04/30 08:42:51 OPER1 : ADF APPL_DEFAULTS        EDIT
2012/04/30 08:43:18 OPER1 :                             policy THRESHOLDS
2012/04/30 08:43:30 OPER1 :                                deleted Infrequent Number    : 2
2012/04/30 08:45:13 OPER1 :                                deleted Infrequent Interval  : 24:00:00
2012/04/30 08:45:26 OPER1 : APL APPL3                NEW
2012/04/30 08:45:26 OPER1 :                             policy COPY
2012/04/30 08:45:48 OPER1 :                                copied    from APL APPL1
2012/04/30 08:45:48 OPER1 :                             policy WHERE
USED
2012/04/30 08:45:49 OPER1 :                              linked   to     APG BASE_APPL
2012/04/30 08:45:50 OPER1 : APL TEST004              DELETE
2012/04/30 08:46:05 OPER1 : * * BUILD
2012/04/30 08:46:05 OPER1 : options: 1 USER.SOCNTL ONLINE MODIFIED NORMAL
2012/04/30 08:47:18 OPER1 : terminated: return code 0
```

Figure 243. Example of an Activity Log

Log settings are stored together with the Policy Database data. If a user adds an existing Policy Database to their Policy Database Selection list, the existing options including the activity logs options are kept. For example, user USER1 turns logging on for a PDB and provides specific log data sets, and USER 2 adds this PDB to his selection list. Then for USER2 the options from USER1 are used, and activities from USER2 are logged into the log data sets provided by USER1.

Chapter 6. Creating Reports about Policy Databases

If you select option *3 Report* of the Customization Dialog Primary Menu shown in "How to Start the Customization Dialog" on page 15, the panel shown in Figure 244 on page 279 is displayed, where you can create reports about various SA z/OS objects.

```
  MENU  HELP
------------------------------------------------------------------------------
AOFGREPK                      Report Selection Menu
Option ===> ____________________________________________________________________

  1 Report          Create Policy Database Report

  2 Unlinked        Create List of entries not linked in Policy Database
  3 ViewUnlinked    View List of unlinked entries

  4 Resources       Create List of generated Resources
  5 ViewResources   View List of generated Resources

  6 MemberList      Create List of unused members in configuration data set
  7 ViewMemberList  View List of unused members

  8 StatusMsgs      Create Status Messages Report
  9 ViewStatusMsgs  View Status Messages Report

  A Symbols         Create List of Symbols (AOCCLONEx) in Policy Database
  B ViewSymbols     View List of Symbols
```

Figure 244. SA z/OS Report Selection Menu

1 Report

Use this option to create a report that includes all the automation data of the selected policy database. SA z/OS displays the Policy Data Base Report Parameters panel, as shown in Figure 245 on page 279, where you can choose to create either the full automation policy report, or to create a report about a specific entry type and name. You can also run this function in batch mode.

```
  OPTIONS  HELP
------------------------------------------------------------------------------
AOFGRPTP              Policy Data Base Report Parameters
Option ===> ____________________________________________________________________

  1 Create report for a complete enterprise
  2 Create report for entry type or entry name
           Entry Type. . . . . . . . . ___                    (*, ?, or type)
           Entry Name. . . . . . . . . *_____________________  (*, ?, or name)

Report options:
  Data set type . . . . . PDS         (PDS FS)
  PDS name  . . . . . . . USER.PDB.REP_____________________________________
  File system directory . /u/oper/_________________________________________
  Member / file name  . . HTMLREP4_____________________
  Mode  . . . . . . . . . ONLINE      (ONLINE BATCH)
  Format  . . . . . . . . HTML        (FLAT HTML)
  HTML file split . . . . 1           (1 to 99 or *)

Job statement information:  (used for BATCH report)
//AOFRPT   JOB _____________________________________________________________
//*_____________________________________________________________________
//*_____________________________________________________________________
```

Figure 245. Policy Data Base Report Parameters Panel

Use the **Report options** section of the panel to specify how the report is created and saved.

Data set type

Specify the output type for the report:

© Copyright IBM Corp. 1996, 2017

PDS
The report is stored as a partitioned data set.

FS
The report is written to a UNIX file system (zFS).

The default is PDS.

PDS name
If the data set type is PDS, this field can remain empty. A default data set name is assumed and a default allocation is performed. Any user input is translated to upper case.

File system directory
If the data set type is FS, you need to enter the file system directory. There is no default. No uppercase translation is performed. If you specify a directory that does not exist, it is created.

Member / file name
Specify the member or file name for the report. The default is $RPTHTML or $RPTFLAT. Any name that you specify is saved across sessions.

For a PDS it must be a valid TSO member name. When it is downloaded to a PC, you must add the file extension `.html`. Note also that the file name for FS is *case-sensitive*.

If you choose to split an HTML file that is targeted to a PDS, the last 1 or 2 characters of the file name are replaced with a serial number. This is 1–*n* if you specify a single figure split value, or 01–*nn* for a 2-digit value. Thus, $RPTHTML becomes either $RPTHTM1–$RPTHTM*n* or $RPTHT01–$RPTHT*nn*.

If split files are directed to an FS director, the running number is appended to the specified member name, and a .html suffix is added as the files are written.

If a member with the specified or generated split-file name already exists, you are asked to confirm the report generation before it is overwritten.

Mode
Specify whether the report should be created in the foreground (ONLINE) or background (BATCH). The default is ONLINE.

Format
Specify the format of the report:

- FLAT creates a plain text file to be viewed in a TSO session.
- HTML creates an HTML file that you can view with your Internet browser. This version of the report creates hyperlinks for all entry names and resource names that take you to the start of the data for the selected entry or resource. These links also work if the HTML report has been split into several files. Note however that a hyperlink is not created if the application or application group name is not unique (for example, there are identical subsystem names for different applications) or it does not exist in the policy database.

The default is FLAT.

HTML file split
If you have large policy databases that produce large reports you may find that your Internet browser has difficulties handling a single large file. You can use this field to have the HTML report split into several smaller files, as follows:

1
One file is generated. This is the default.

***nn* (>1)**
The report is split into *nn* files that are all roughly the same size. The files are split between policy entries.

*****
The report output is split with a default size of 10.000 lines per file.

The Command Progress Display panel informs you about the progress of report generation.

You can run a job for batch report creation. The SINGSAMP sample library contains a sample job in member INGEBRPT. The output data set or file system must exist before you run this job.

The example in Figure 246 on page 282 shows a small part of the data listed in the report output format FLAT for the application JES2.

```
⋮
=======================================
JES2
=============Applications==============================
Short description              : JES2 policy definition
Subsystem Name                 : JES2
Category                       : JES2
Job Name                       : JES2
Last changed by                : HUT
Inherit from Class             : C_JES2
Command Prefix                 : $

========== JES2 Drain Specifications ==========
Drain lines                    : YES
Drain VTAM interface           : YES
Drain spool offloaders         : NO
Drain printers                 : YES
Drain readers                  : YES
Drain punches                  : YES
Force drain lines              : $E
Force drain VTAM interface     : $E
Force drain spool offloaders   : NO
Force drain printers           : $I
Force drain readers            : $C
Force drain punches            : $E

========== Messages and User Data ==========
| Message ID   | Description |
-----------------------------------------------------------------
| $HASP095     | JES2 Catastrophic ABEND | Error |
-----------------------------------------------------------------

          | Code 1   | Code 2   | Code 3 | Value Returned |
          ------------------------------------------------
:
:
:
:


| SHUTIMMED  | Executed when immediate shutdown is invoked |
-------------------------------------------------------

         | Ps  | Command Text |
         -------------------------------
         | 1   | MVS &SUBSCMDPFXP&SUBSJOB |
         | 2   | MVS &SUBSCMDPFXP&SUBSJOB,ABEND  |

| SHUTFORCE  | Executed when force shutdown is invoked |
-------------------------------------------------

         | Ps  | Command Text  |
         -------------------------------
         | 1   | MVS &SUBSCMDPFXP&SUBSJOB,ABEND |

| SHUTFINAL  | Executed after final termination message |
-------------------------------------------------

         | AutoFn/* |  Command Text
         ---------------------------------------
         | JESOPER  |  MVS F BPXOINIT,SHUTDOWN=FILESYS
⋮
⋮
```

Figure 246. Example of Report Output Format FLAT

2 Unlinked
Use this option to create a report of all entries within the current policy database that would be ignored during BUILD processing. This includes all:

- Objects in the policy database that are not linked to a system or sysplex
- Relationships that are not used during a build

3 ViewUnlinked
Use this option to view the report of all unreferenced objects created by option **2 Unlinked**.

4 Resources
Use this option to create a list of all generated resources. In the Command Progress Display you will see in which member of the current policy database data set the generated list has been stored.

5 ViewResources
Use this option to view a list that is generated with option **4 Resources** for each existing system.

```
 Monitor resources (MTR) for system: AOC1

   CICS1CON1/MTR/AOC1          CICS1CON1
   CICS1CON2/MTR/AOC1          CICS1CON2
   JES2MON/MTR/A0C1            JES2MON

 Application resources (APL) for system: AOC1

   AM/APL/AOC1          AM               via APG: AM_X
   APPL1/APL/AOC1       APPL1            via APG:
BASE_APPL
   APPL2/APL/AOC1       APPL2            via APG: BASE_APPL
   APPL3/APL/AOC1       APPL3            via APG: BASE_APPL
   DB23LITE/APL/AOC1    DB23LITE         via APG: DB23_LITE_X
```

Figure 247. List of Generated Resources

6 MemberList
Use this option to create a report of all members in the system operations build output data set that are not referenced by the actual configuration anchored in the ACF map member AOFACFMP. This helps to identify members that can be deleted when you perform a data set cleanup. The report is divided in two sections:

1. The first section lists all unreferenced members that have been identified as valid configuration files, together with some additional information such as entry name, or build time.
2. The second section lists all other unreferenced members, where either no build statistics could be found, or which have not been identified as valid configuration files.

Report members created by the customization dialog itself such as build report member $BLDRPT are not included in the report. To run this report, a successful build is required. Otherwise the control file fragments may be damaged and incomplete, and the content of the report is unpredictable.

7 ViewMemberList
Use this option to read the report of all unreferenced members that was created by option **6 MemberList**.

```
************************************************************************
*Members with build statistics
************************************************************************

Member   | Entry Name          | Build Date/Time   | UserId
         |                     | YY/MM/DD  HH:MM   |
---------+---------+-----------+-------------------+---------------------
ACFZ99V  | TEST1               | 03/10/17  14:19   | OPER1
HSAZ996  | LNXTEST1            | 03/10/17  13:21   | OPER1
Z934AAPL | ES#DDC57            | 03/10/17  13:06   | OPER1
Z935AAPL | ES#DDC56            | 03/10/17  13:06   | OPER1
Z943AAPL | INETD               | 03/10/17  13:06   | OPER1
Z95YAAPL | TSO                 | 03/10/17  13:07   | OPER1
Z95ZAAPL | VTAM                | 03/10/17  13:07   | OPER1
Z952AAPL | TCPIP               | 03/10/17  13:06   | OPER1
```

Figure 248. Unreferenced Member Report

8 StatusMsgs
Select this option to create a *Status Messages Report*. This includes status messages that are predefined by SA z/OS as well as user-defined status messages. The report shows the message ID, message description, and resource status indicated by this message and, if it is defined in the policy database, the entry name and the entry type that the message has been defined for. An example of the start of the Status Messages Report is shown in Figure 249 on page 284.

Pressing Enter returns you to the Report Selection panel, where you can view the report by selecting option **9 ViewStatusMsgs**.

9 ViewStatusMsgs
Select this option to view the Status Message Report that was created by using option 8. An example of the start of the Status Messages Report is shown in Figure 249 on page 284.

In the report, user-defined messages are listed with their associated entry name and entry type, whereas those messages listed without these columns are predefined SA z/OS messages.

```
Message ID |Status      |Description                  |Entry Name          | Typ
-----------+------------+-----------------------------+--------------------+---------------
ANR0990I   |ACTIVE      |TSM is coming up             |+SA_PREDEFINED_MSGS | MVC
ANR0991I   |TERMINATED  |TSM has ended                |+SA_PREDEFINED_MSGS | MVC
ANR0993I   |UP          |TSM is available             |+SA_PREDEFINED_MSGS | MVC
ARC0002I   |TERMINATED  |DFHSM has terminated         |+SA_PREDEFINED_MSGS | MVC
ARC0008I   |UP          |DFHSM is available           |+SA_PREDEFINED_MSGS | MVC
ARC0016I   |TERMINATED  |DFHSM is stopping            |+SA_PREDEFINED_MSGS | MVC
ARC0026E   |HALTED      |DFHSM is degraded            |+SA_PREDEFINED_MSGS | MVC
ASA2011I   |UP          |RRS is available             |+SA_PREDEFINED_MSGS | MVC
ASA2013I   |ABENDING    |RRS is abending              |+SA_PREDEFINED_MSGS | MVC
CQS0008W   |CAPTURE     |CRITICAL message captured    |IMSCQS              | APL
CQS0009W   |CAPTURE     |CRITICAL message captured    |IMSCQ               | APL
CQS0020I   |UP          |CQS up message               |+SA_PREDEFINED_MSGS | MVC
TEST001I   |UP          |Test application has started | APPL1              | APL
TEST002I   |TERMINATED  |Test application has ended   | APPL1              | APL
```

Figure 249. Example Status Messages Report (Excerpt)

A Symbols
This option allows you to create a report with information about all the system automation symbols (AOCCLONE*x*) in the policy database.

The report file is written to the report output data set (default name is the policy database data set name with .REP as the low level qualifier). The member name is RTPSYM.

The report includes:

- The Symbolname and Description, as defined in the Enterprise (ENT) SYMBOL DEFINITION policy

- For each Symbolname it shows the System name, Value and Specific Description as defined in the System (SYS) AUTOMATION SYMBOLS policy for each System entry where either the Value or Specific Description have been defined for that Symbolname

B ViewSymbols
Select this option to view the Symbols Report that was created by using option A. An example of the start of the Symbols Report is shown in Figure 250 on page 285.

```
*
-------- Symbolname ----------- |General Description
System              |Value      |Description
*
-------- AOCCLONE  ------------ |
SYS1                |2          |for use by AddOn PDB Entries
*
-------- AOCCLONE1 ------------ |VTAM subarea
AOC1                |16         |VTAM subarea
AOC2                |17         |
```

Figure 250. Example Symbols Report (Excerpt)

You can create the special reports like unlinked, resources, symbols, and so forth with a batch job. The SINGSAMP sample library contains a sample job in member INGEBRP2.

Chapter 7. Building and Distributing Configuration Files

After you have completed the SA z/OS customization process, you can build the configuration files that are needed for automation.

How to Define Data Sets for Build Processing

To use the batch options of the build facility for automation control files, you must first specify the names of the data sets required for the batch processing. These names form the DD name concatenations to be included in the JCL of the batch processing job.

The data set names are saved in an ISPF table in the partitioned data set that is referenced by the AOFTABL DD name, for example, ING.CUSTOM.AOFTABL (allocated during installation of SA z/OS).

On the Customization Dialog Primary Menu panel, select the Settings option. This displays the Customization Dialog Settings Menu (see Figure 262 on page 327). On this panel, choose option 11 , DSNAMES. The Data Set Customization Details panel is displayed (see Figure 266 on page 333).

For more information, see “Defining Data Sets for Batch Processing” on page 332.

Building the Configuration Files

The configuration build is performed with the customization dialog and the configuration files are distributed from there to the locations where needed. You must use the customization dialog to create the configuration files.

Do not edit any of the configuration files manually.

Building the configuration files causes enterprise automation data for SA z/OS to be built. This data consists of:

- The automation control file (ACF) for the automation agent
- The automation manager configuration file (AMC file)
- The NetView automation table (AT)
- The message revision table (MRT)
- The MPFLSTxx member

To build a new enterprise automation configuration you invoke the BUILD process, as follows:

- On the **Customization Dialog Primary Menu** enter option 2 or B.
- From the **Policy Database Selection** panel, enter the action code B in the Action column of the policy database that you want to invoke the BUILD process for.

A Command Progress Display panel shows the progress of the build. If errors are encountered during the build process, the Command Progress Display displays a message. The automation configuration files are placed in the data sets that you defined in the **Output Data Set** field on the Configuration Build panel.

Every new build generates an automation configuration map AOFACFMP that contains:

- For each system, one ACF*xnnn* system include member that is used by the automation agents
- For each sysplex, one HSA*xnnn* sysplex include member that describes the automation manager configuration

The ACF, AMC, AT, MRT, and MPF build is always invoked together. This is because the configuration data always needs to be synchronized so that the automation agents and the automation manager operate on the same data.

© Copyright IBM Corp. 1996, 2017

Configuration Files Build Options

The Configuration Build panel allows you to specify the information required to build the configuration files that are required for automation.

See Figure 251 on page 288.

The very first build after installing a new release must be a full build to produce a complete set of configuration files. Furthermore, if a policy database is new, or the build output data set is empty, a full build is required. This means you need to issue a build with option 1 and Type = ALL. For all subsequent builds, option 1 and Type = MODIFIED can be used. Options 2 and 3 build only part of the configuration and are for special situations only.

```
  MENU  HELP
------------------------------------------------------------------------------
AOFGBLDP                        Configuration Build
Option ===> ____________________________________________________________________

  1 Build a complete enterprise
  2 Build sysplex group or stand alone system
      Sysplex / System name. .  ____________________  (*, ?, or name)
  3 Build entry type or entry name
      Entry Type. . . . . . . . SYS                  (*, ?, or type)
      Entry Name. . . . . . . . *____________________  (*, ?, or name)
  4 View build report
  5 Delete unused build output members

Build options:
  Output Data Set . . . . MULTISYS.SOCNTL_____________________________________
  Mode. . . . . . . . . . ONLINE      (ONLINE BATCH)
  Type. . . . . . . . . . MODIFIED    (MODIFIED ALL)
  Configuration . . . . . NORMAL___   (NORMAL ALTERNATE TERTIARY)

Job statement information:  (used for BATCH build)
//AOFRPT   JOB ___________________________________________________________________
//*_____________________________________________________________________________
//*_____________________________________________________________________________
```

Figure 251. Configuration Build Panel

You can enter one of the following build processes:

1 Build a complete enterprise
Builds all automation configuration files for a complete enterprise.

For the usual configuration file build without special needs it is recommended to use this option together with Type = ALL or Type = MODIFIED.

2 Build sysplex group or stand alone system
Allows the selection of a single sysplex group or a standalone system.

This build option performs a complete build of all objects linked to the selected sysplex or standalone system. For a large policy database, this option helps to reduce build time for small changes.

While this option only updates a single system or sysplex, deleted standalone systems and sysplexes still remain in the configuration files. For example, a deleted sysplex or standalone system is not removed from the ACF map AOFACFMP. So, you may wish to consider issuing a build with option 1 whenever a large number of parts have been deleted, to clean up unnecessary entries from the configuration files.

3 Build entry type or entry name
Allows you to specify an entry type and name to be rebuilt. Only the ACF fragments for that entry will be updated.

If for example, a timer object is modified and linked to another system, a build of this object with option 3 would only build that fragment and update the timestamp in the system include member, but not build the link changes for the system.

The same is true if an object is renamed. A build with option 3 of the new name would not add this new object to the system include member. Instead a build with option 2 is required.

For entry type System, this has the consequence that a selective build is rejected if there is also a link change pending.

However, if this option is used with entries of type Events, Triggers, Service Periods, Application, ApplicationGroup, System, or Group, a check is made as to whether data that affect the automation manager has been changed.

For certain entry types (for example, Service Periods, Events, Triggers) this option cannot be used because they do not have data included that needs to be built into an ACF fragment. In this case, building only the ACF fragment for the requested entry would mean that your previously generated AMC files would no longer be compatible with your current ACF files. To avoid this, a complete build (using build type MOD) will automatically be invoked. Before the build actually starts a confirmation panel is displayed explaining this situation, and allowing you to defer the build.

You will see the same behavior with automation tables if this option is used with entries of type APL or MVC. A check is made as to whether data has been changed that affect the NetView automation table. If so, a confirmation panel is displayed allowing you to defer or to start a complete build (using build option MOD).

If you enter a '?' in this field, SA z/OS displays a list of either entry types or a list of available entry names for the selected entry type, or both.

4 View build report
Allows you to view the build report available on the build output data set. It contains all messages from the In-progress panel of the last build.

5 Delete unused build output members
Allows you to delete members in the build output data set, that are not referenced by the actual configuration. Identified as unused are:

- Members identified as valid configuration files without a reference.
- Members with either no build statistics or which have not been identified, as valid configuration files.

When invoked, all unreferenced members are unlisted and the deletion has to be confirmed.

In the **Build options** section, you can enter values for the following fields:

Output Data Set
Use this field to specify where you want to store the build output. The data set must be an existing partitioned data set.

If the data set is not empty, but already contains a control file, the policy database name and the configuration name within the data set are compared with those of the requested build. If they do not match, and Type = MODIFIED is selected, a message is issued and the build is not started. If they do not match, and Type = ALL is selected, a warning panel is displayed which allows you to either start the build or cancel it.

Mode
Use this field to specify how to process the BUILD request:

ONLINE
Indicates that the BUILD should run in the foreground.

BATCH
Indicates that the BUILD should run in the background.

The default value is ONLINE (if this field is set to blank).

Type
Use this field to specify which entries are to be processed.

MODIFIED
Indicates that only those entries that have been changed since the last BUILD request should be processed.

Depending on the type of change, the affected objects are identified, and only the necessary parts of the configuration file are rebuilt.

For example:

- If a new *timer* is linked to one system, only the system include member for that system is rebuilt. For all other system include members only the header timestamps are updated, and the build of the AMC file, AT, MRT, and MPFLSTxx member is skipped, because timer data does not go to the automation manager configuration file, AT, MRT, or MPFLSTxx member.
- If a new *application* is linked to a Sysplex Application Group, the build determines which systems are linked to that sysplex, and the include members for those systems are rebuilt automatically, together with the AMC, AT, MRT, and MPFLSTxx member for that sysplex.
- If the AT/MRT Scope is changed, only the AT, MRT, and MPFLSTxx member are built.

ALL
Indicates that all entries are to be processed unconditionally, even if there has been no change to those entries since the last BUILD request.

If a build type of ALL is selected together with build option 2, only the configuration files that belong to the selected sysplex or standalone system are rebuilt.

The default value is MODIFIED (if this field is set to blank).

Configuration
This field allows you to select between alternative configurations:

NORMAL
indicates that only those entries linked to the systems of the NORMAL configuration are processed by the current build.

ALTERNATE
indicates that only those entries linked to the systems of the ALTERNATE configuration are processed by the current build. These systems must have been marked with a "+" in their MVS system name.

TERTIARY
Indicates that only those entries linked to the systems of the TERTIARY configuration are processed by the current build. These systems must have been marked with a suffix of "-" in their MVS system name.

NORMAL, ALTERNATE, and TERTIARY configurations must be built into different data sets. The default value is NORMAL (if this field is set to blanks).

In the **Job statement information** section you must enter a valid JOB statement for the batch job, if you specified that the BUILD request should run in BATCH mode.

The information that you specify here is saved in your ISPF profile data set and is used as the initial values the next time you issue the BUILD command.

BUILD Error Messages

The messages in the pop-up panel showing the command progress indicate error and warning situations. In most cases, it should not be necessary to check the build output member for unusual entries or error indications. Furthermore, the message log can be viewed from the panel where the build has been issued.

There are build errors that may stop the build, for example, resources in a loop, and other messages that are tolerated, for example, duplicate MVS job names linked to the same system. Build errors that cause termination are shown with the label ERROR in the message prefix section, while tolerated errors are shown with the label WARNING in the message prefix section.

If an error is shown, no usable set of configuration files was created. It is necessary to correct the cause of the problem and run the build again.

If a warning is shown, the configuration files can be used for automation. However it is recommended that you fix the problem and run the build again.

A possible cause for a warning during ACF fragment build may be that there are policy database objects with missing or conflicting definitions, that are not critical for automation, for example, an application default entry (type ADF) without any definitions. In this case, the build function continues, but issues a warning message. This message is displayed whenever a full enterprise build is issued, and does not require that the application be linked to a system.

There is a summary message at the end of the AT build report, and specific messages that show, for example, the object name somewhere within the build progress messages. The specific message reads:

```
.......WARNING. System MIGR_TEST includes the following entries with
..........cont. an unsatisfactory build status in main member ACFZ995:
.............. -- SYSTEM_DEFAULTS  (NUL)
```

The summary message at the bottom of the build message log reads:

```
.......WARNING. Missing or conflicting definitions found for entry
..........cont. types: SDF. The entry names are listed in the build
..........cont. report.
```

Possible causes for a warning during system main include member build are:

- Applications with duplicate MVS job names linked to the same system. The processing is the same as for duplicate subsystems.
- If missing or conflicting definitions are detected, which are not critical for automation, a warning message is shown and the entry name is listed together with the status NUL. There are only a few situations where this can occur, for example, an application default entry (type ADF) without any definitions.
- If an object is linked and has been previously built, however it does not exist in the build output data set, a warning message is shown and the entry name is listed together with the status DEL. The build function continues, but the object is not included in the control files.

Note that such a warning message may cause a rebuild of the objects in error and the linked systems and sysplexes. So, a build of type MOD may rebuild more systems and sysplexes than you would expect due to the actual changes.

Possible causes for a warning during automation manager configuration file build are:

- The AMC logic member could not be found. The build function searches in the sample PDB data set for the current logic member. If this data set is not allocated, or contains no logic member, it could be added to the Configuration Files by the user.
- A trigger is linked to the current sysplex, but no conditions have been specified. The trigger will not be added to the automation manager configuration file.
- One or more application groups are linked to the current sysplex without an automation name being specified. The build function continues, but no resources will be created for these application groups.
- One or more supporting application resources are not linked to the system. The relationships are not added to the automation manager configuration file.

You can tailor the level of detail of the warning messages. When you invoke the **0 Settings** option, selecting **3 MESSAGE** allows the message level to be set, as shown in Figure 252 on page 292.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGCMSG                  Message and Logging Functions
Command ===> ____________________________________________________________

The message level is used to control the number of messages that are
produced on the "Command Progress Display" panel (AOFGZIPS):

   Message level . . . . . . . 0   0 - Minimum       One message per major
                                                     processing section
                                   1 - Intermediate  One message per primary
                                                     entry type being processed
                                   2 - Maximum       Additional messages for
                                                     other than primary entry

...
```

Figure 252. Message and Logging Functions Panel

With level 1 (the default), in the above situation just one summary message is displayed per manager configuration, whilst level 2 displays all details of the definitions causing the problem.

You can also specify whether SA z/OS should check for Processor Operations-related messages during configuration build and write them to the build report $BLDRPT. The default value is OFF. If you use processor operations you should set this option to ON.

Independent of the message logging switch, error messages are always written to the ISPF LOG. You cannot turn this off.

If the AOFPROF user profile for batch build is not allocated, the default message level is 2 to write all possible messages to the batch report and the ISPF LOG.

Distributing the Configuration Files

The SA z/OS configuration files consists of the following components:

- The automation manager configuration file (AMC) of the automation manager
- The automation control file (ACF) of the automation agent
- The NetView automation table (AT)
- The NetView message revision table (MRT)
- The MPFLSTxx member

SA z/OS runs on a sysplex basis, that is, the same configuration files must be available to all of the automation agents and automation managers in the sysplex.

It is recommended that you perform the build into a fixed partitioned data set, which allows a build with a type of MOD. Do not use this data set for the automation agents and automation managers. Instead you should copy it into a configuration file GDG. This helps to avoid token mismatches due to changes in the configuration data set, for example, a new build into the data set that is used by the automation agent and automation manager. Additionally, there are always backup versions of the configuration file available so that the configuration can fall back to a previous generation if there is a problem.

An automation agent needs to run on every system that is automated by SA z/OS and at least one automation manager needs to run per sysplex and one per standalone system. Automation managers can manage systems sysplex-wide. Figure 253 on page 293 shows a sample automation configuration and presents the build process.

The MPFLSTxx member must be copied to a z/OS parmlib data set.

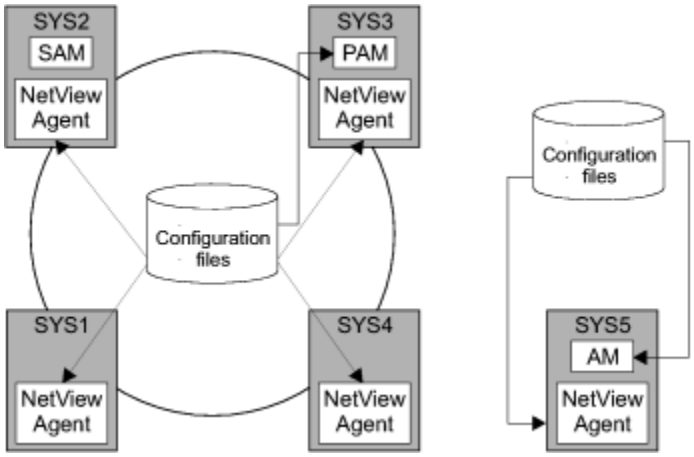


Figure 253. SA z/OS Automation Configuration

Figure 253 on page 293 shows a sample enterprise consisting of one sysplex Sysplex1 and one standalone system SYS5. The sysplex consists of four systems SYS1, SYS2, SYS3, SYS4 and has a primary and a secondary automation manager (PAM and SAM). The sysplex shares a copy of the system operations configuration files and the standalone system has its own copy of the same files.

The sysplex in this example has one primary and optionally one secondary automation manager and one automation agent on each system. The standalone system must have one automation manager (AM) and one automation agent.

You could share one common automation configuration file in your enterprise, or you can copy the automation configuration file to where it is needed as shown in our scenario.

The automation manager AMC file and the automation agent ACF files must match. Therefore the automation manager and an automation agent exchange a token to verify that the automation configuration matches. You can share one common data set containing all automation manager configuration file and all automation control files within a sysplex.

Notes:

1. The automation configuration files must be distributed to each system in the SA z/OS enterprise where SA z/OS system operations functions are to run. In general, this is all of the z/OS systems in the SA z/OS enterprise. In a sysplex, the data set name of the automation configuration file must be equal on all systems in the sysplex.
2. However, it is highly recommended that you use a shared data set in a sysplex, and it is preferable that you use a shared data set for the whole enterprise.

Generating a Job for Batch Build

You can run a job for batch build that performs the same processing as the BUILD function of the customization dialog.

The SINGSAMP sample library contains a sample job for this task in the member INGEBBLD. Before submitting this job, you need to edit the jobcard appropriately as described in the sample itself.

The build can only run if the output data set exists and is allocated. If the data sets are not SMS-managed, allocating the data set within the same job step does not work because the cataloging is done by z/OS at end of the job (or job step). Therefore the allocation and cataloging of the build output data set must be done in a separate job (or job step) prior to the build job (or job step).

The batch build produces the following return codes:

0
Successful.

4
Build complete, however, some warning messages are issued. Also issued if user exit INGEX02 ended with a RC > 0.

8
User exit INGEX01 ended with RC > 0. Build processing not started. No configuration files built.

16
Build not started. The policy database is from a previous version of SA z/OS. The policy database must be converted first before a batch build will be successful.

20
Severe error: build terminated without usable configuration.

SA z/OS provides user exits at invocation and termination of the build function. For more details, see "User Exits for BUILD Processing" in *IBM System Automation for z/OS Customizing and Programming*.

Chapter 8. Automation Table, Message Revision Table, and MPFLSTxx member

This information explains how SA z/OS uses the NetView automation table (AT) and the message revision table (MRT), to process messages. And it describes how you can use the customization dialog to maintain your AT and MRT entries as well as the MPFLSTxx member.

The NetView Automation Table

The NetView automation table (AT) enables you to respond automatically to messages.

It contains statements that define actions that NetView takes when it receives specific messages. For example, you can issue a response in the form of a command, command list, or command processor. You can also set attributes and processing options. For example, you can suppress, log, or route messages.

You can specify any number of actions for SA z/OS to take when an incoming message matches your conditions. Actions can be commands, command lists, and command processors. For simple responses, a single command might be sufficient, such as a NetView command, a VTAM command, or a system or subsystem command. For more complex responses, you can write command lists or command processors. The AT specifies the task that the action is performed under, enabling you to run automation procedures under an autotask.

Actions also include setting message-processing options. For any particular message, you can use message-processing options to specify such things as:

- Suppressing the message (and which operator it should be displayed for)
- Triggering the execution of a command
- Setting the status of a resource
- Setting the health state of a monitor resource
- Running user-specific processing, such as performing alerting by creating a trouble ticket
- Taking a recovery action in case of a failure

For an introduction to NetView and NetView automation tables, see *IBM Tivoli NetView for z/OS Automation Guide* and *IBM Tivoli NetView for z/OS User's Guide*.

The NetView Message Revision Table

The message revision table (MRT) enables user-defined modification of attributes such as color, route code, descriptor code, display and syslog settings, and text of original z/OS messages (rather than copies).

You can make decisions about the message based on its message ID, job name, and many other properties. For example, you can take the following actions:

- Revise messages before they are presented to the system log, console or automation
- Treat a message differently depending on its source
- Suppress messages entirely
- Automate only

The message revision table can override actions taken by the z/OS message processing facility (MPF) and can generally replace the MPF. It can also remain active even while NetView is not, but the subsystem interface (SSI) address space is required. However, loading or querying the MRT, or gathering statistics, depends on the functional NetView address space being active.

For more details, see *IBM Tivoli NetView for z/OS Automation Guide*.

© Copyright IBM Corp. 1996, 2017

Enabling AT Updates

You use the AOFSMARTMAT advanced automation option (AAO) in your CNMSTGEN stylesheet to configure how the SA z/OS automation agent performs refreshes of your ATs.

If AOFSMARTMAT is set to 0, the SA z/OS automation agent is disabled from refreshing ATs and the MRT and any changes that you make to your AT and MRT entries with the customization dialog are not loaded by the automation agent. You therefore need to set AOFSMARTMAT to 2 or 3 to enable the changes that you make to your AT or MRT entries to be propagated to your SA z/OS systems. Note that the default setting for AOFSMARTMAT is 2.

For more details, see the description of AOFSMARTMAT in the table "Global Variables to Enable Advanced Automation (CGLOBALS)" in *IBM System Automation for z/OS Customizing and Programming*.

Setting AT/MRT Scope

The field **AT/MRT Scope** in "BUILD CONTROL Policy Item" on page 228 allows you to define the scope of the NetView automation table and message revision table that are created by the configuration file build. Valid definitions are:

NONE
No NetView automation table, no message revision table, and no MPFLSTxx member is built.

ENTERPRISE
One NetView automation table and one message revision table are built for the entire policy database.

SYSPLEX
One NetView automation table and one message revision table are built per Sysplex Group.

One NetView automation table and one message revision table are built for each system that is not linked to a sysplex group.

SYSTEM
One NetView automation table and one message revision table are built per system (default).

For all values except NONE one MPFLSTxx member is built according to the rules described in the next chapter.

If the AT/MRT scope is changed to any value except NONE, the tables are rebuilt at the next configuration file build.

MPFLSTxx member

The Message Processing Facility (MPF) list member MPFLSTxx contains information that the message processing facility uses to control message suppression, message retention and message processing, or to set attributes like highlighting or the color of the appearance of messages on certain devices.

The customization dialog build creates such a member with a list of all messages that are included in the automation table which is built in the same step. The message entries for the MPF member are generated according to the following rules:

- For applications of type JES2, all defined command prefixes are read from the Policy Database. If there are none then $ is used as the default. Then all messages of that application starting with HASP are combined with all command prefixes (of that application) and the resulting messages are added to the MPF member.
- Messages starting with HASP and not defined for an application JES2, for example, HASP messages defined in +SA_PREDEFINED or defined for an MTR, are all combined with all JES2 command prefixes in the Policy Database, and the resulting messages are added to the MPF member.
- Messages with specification:

```
Ignore message ID character = LEADING
```

or

```
Ignore message ID character = BOTH
```

are added to the MPF member as they have been specified on panel **Message Processing** (AOFGDYNM) except HASP messages, which are also added, but according to the rules described above.

- Messages with specification

```
Ignore message ID character = TRAILING
```

are added to MPF with an asterisk(*) appended.

- Messages which are longer than 10 characters are added with the first 9 characters followed by an asterisk (*).
- Messages with only MRT specifications which are not put into any AT are also not put into the MPF member.
- If there is a specification in MPFLSTxx specifications then that is used as it is specified without any formatting during MPF member build.

System and Application Specific Overrides

Within an override, you can use the keywords *BEGINAPL and *ENDAPL to mark a section for selected applications only. Usually this would be a class, but the specification of instances is also supported. Each marked sequence is contained only in the AT where an instance is linked.

Likewise you use the keywords *BEGINMVC and *ENDMVC to mark a section for selected MVC components only. Furthermore you can use the keywords *BEGINSYS and *ENDSYS to mark a section for selected systems only. Each marked system is contained only in the AT of the corresponding system.

The keywords are accepted in upper case and mixed case. The Begin keywords allow the specification of one or more entry names, separated by blanks or commas. A Begin keyword without a entry name is ignored and the current selection (if any) remains in effect. If you need to specify more entry names than fit onto one line, use a continuation line by adding another line with the Begin keyword. The name specifications in multiple consecutive lines with Begin keywords are evaluated together.

There is no syntax check for the specified names and it is not verified whether the names exist as application or system entries in the policy database. If a Begin keyword is specified with a name that does not exist in the policy database, then that portion of the override is excluded from all ATs being built.

The End keywords indicate the end of the current selection and have the following properties:

- The End keyword cannot be qualified with specific entry names. Any text that follows the End keyword on the same line is ignored.
- An End keyword that does not have a matching Begin keyword is ignored.
- If there is no matching end for a Begin keyword, the current selection remains in effect until either the override ends or another specification of the same Begin keyword is found.

Whenever a *BEGINAPL is found, a full system evaluation is run replacing any selections from a previous *BEGINAPL. The same is true for *BEGINMVC and *BEGINSYS. However, a *BEGINSYS specification remains in effect if a *BEGINAPL or *BEGINMVC specification is found, and vice versa.

If the variable "&*JOBNAME." is used in an override it is resolved for all jobnames across all classes for which the message is specified. This can be limited to a subset of classes or instances with the keyword *BEGINAPL. If no linked instances can be found then the variable "&JOBNAME." is resolved with a placeholder/period(.).

It is recommended to use these keywords as little as possible because the evaluation may increase the build time depending on the specified names (for example, with a lot of instances) and to avoid convoluted overrides. Especially it is recommended to avoid combinations of *BEGINSYS with *BEGINAPL or *BEGINMVC within one override.

If an application, MVS component, or system is deleted, a scan for the corresponding *BEGINAPL, *BEGINMVC, or *BEGINSYS keyword is run across all message overrides. If the deleted entry name is

found within a list of names then it is removed from the list. If there is a Begin keyword where only the deleted name is specified then the complete section of the override is deleted.

If an application, MVS component or system is renamed, a scan for the corresponding *BEGINAPL, *BEGINMVC, or *BEGINSYS keyword is run across all message overrides. Wherever the name is found it is replaced with the new name.

If data are imported into a target policy database, and there is a message with an override among the imported data while the same message exists already in the target policy database with an override, then *BEGINAPL or *BEGINMVC keywords are inserted with the corresponding entry names.

If application or MVS component data are copied, and a message with an override is contained in the copied data, then a check is done to determine whether the "copy-from" application is specified in a *BEGINxxx keyword within the copied override. If this is the case then the "copy-to" application name is added to that *BEGINxxx keyword.

The INGMSGSA Automation Table

SA z/OS provides an automation table, called INGMSGSA, that contains all the statements that are required for SA z/OS to work properly.

You must not modify the INGMSGSA automation table. If you need your own automation for messages that are processed in INGMSGSA, you can achieve that by using a separate AT that runs parallel with INGMSGSA. SA z/OS does not stop any message in INGMSGSA and prevent its processing in other ATs.

INGMSGSA is loaded unconditionally as the first AT ahead of any other ATs that you declare in the customization dialog. It must not be specified in the customization dialog.

Predefined SA z/OS Messages

Messages that are predefined by SA z/OS are provided in:

- A NetView automation table called INGMSGSA
- An MVS component (MVC) entry called +SA_PREDEFINED_MSGS

The +SA_PREDEFINED_MSGS MVS Component Entry

The +SA_PREDEFINED_MSGS MVS component entry contains all the messages that are predefined by SA z/OS except the essential messages that are already provided in the INGMSGSA automation table.

It is copied into a new policy database when it is created or copied into an existing policy database during conversion from a downlevel release.

The +SA_PREDEFINED_MSGS MVS component entry allows you view all that SA z/OS would automatically generate AT entries for. It thus also allows you to check a particular AT entry that is predefined by SA z/OS to verify that it is appropriate for your environment.

You cannot modify, delete or rename the +SA_PREDEFINED_MSGS MVS component entry. It is updated via an automatic APAR application process (see “How to Apply Service Updates” on page 299). You can, however, view the contents of the entry by selecting it from the list of MVS components.

Policy Items

The +SA_PREDEFINED_MSGS MVS component entry has the following policy items:

DESCRIPTION
The non-editable description that explains that the entry contains predefined messages for SA z/OS.

MESSAGES/USER DATA
This displays all the predefined SA z/OS messages. You cannot edit the entries in this policy item.

WHERE USED
This allows you to link the entry to systems, as for other MVC entries.

Modifying Predefined Messages

There are different ways that you can modify predefined messages:

- Unlinking systems from the +SA_PREDEFINED_MSGS MVS component entry with its WHERE USED policy item. The predefined messages are then not used for the AT of that system.
- Deselecting components in a user-defined MVC entry through the PREDEFINED MESSAGES policy item. The MVC entry must be linked to those systems where the deselection should take effect. Note that if multiple MVC entries are linked to a system, all components that are selected in at least one of the MVC members are added to the AT build. That is, only those components that are deselected in all linked MVC members are excluded from the AT build.
- Overwriting individual messages through the MESSAGES/USER DATA policy item of an MVC entry. How you do this depends on the display level that is set in the PREDEFINED MESSAGES policy item:
  - If it is set to 1, all predefined messages that have not been deselected are shown in the MESSAGES/USER DATA policy item. They have the same color as inherited messages for applications.

    If you now add a command or just modify the description of a message, it becomes a message specification for the current MVC entry. You can now modify the AT or MRT specification, or both, according to your own needs. This new specification superimposes the predefined SA z/OS data.
  - If it is set to 0, you can enter a predefined message ID in an empty row in the list. The existence of predefined data for an AT or MRT specification is indicated with a P in the corresponding column. You can now modify this predefined data.
- Overwriting individual messages through the MESSAGES/USER DATA policy item of an APL entry. As with predefined messages of an MVC entry, if the display level in the PREDEFINED MESSAGES policy item is set to 0, you can simply add the message ID and modify the predefined AT or MRT data according to your needs.

AT/MRT specifications are processed by NetView per system. And the system specific AT contains the entries for the messages from all instances linked to that system. So if a message is issued by multiple applications, an AT specification is not required once per application, but only once per AT. That is why an AT specification in SA z/OS applies to the message wherever it is defined across all applications.

If you specify an override for a message with a predefined AT entry then the user override completely replaces the predefined specification. This is indicated in the AT preview section of the corresponding panels where only the AT entry based on the user specifications is shown. The AT is generated as is shown in the preview section, only the user override is used within the AT.

If you want to run with a predefined AT entry on most of your systems, but need a specific override for one application only, then it is recommended you specify the message ID for that single application together with a unique suffix and add that specific override there. This results in different message IDs and so the specific user override will not replace the predefined AT entry.

Note that AT and MRT specifications are independent of each other, so, for example, you can define changes for the MRT entry without affecting a predefined AT entry for the message.

How to Apply Service Updates

Whenever maintenance updates that affect the generation of NetView automation tables via SA z/OS are available, the AT/MRT APAR Apply Options panel is displayed.

An example is shown in Figure 254 on page 300.

```
                          AT/MRT APAR Apply Options
Option ===> ____________________________________________________________

 Select one of the following options and press ENTER to continue.

  1 Apply     Copy message data from APAR(s) to the Policy Database
  2 Show      Show differences between APAR(s) and Policy Database
  3 Skip      Defer APAR processing until next edit of the Policy Database


 The following new APARs affecting AT and/or MRT build are available:
   OA12345
```

Figure 254. APAR Apply Options panel

Choose one of the following options by entering its number:

1 Apply
Copies the changes from the shipped tables in SINGITBL into the +SA_PREDEFINED_MSGS MVC entry. Processing continues with the option that you specified before this panel was displayed (for example, displaying the Entry Type Selection panel or Report Selection Menu). The message APAR `applied successfully` is shown on the next panel.

The changes that were made by applying the APAR are in effect for the next configuration file build and no further action is required. This option is recommended if you have not made any user modifications for the AT build.

This option also creates a detailed report about the differences and writes it to an output data set (see "Service Updates Report" on page 300). The report member name is SRV*yyddd* where *yy* is the year and *ddd* is the day, for example, SRV09327.

2 Show
Creates a detailed report as for option 1 (see "Service Updates Report" on page 300).

No data is copied to the +SA_PREDEFINED_MSGS MVC entry.

3 Skip
Does not copy any data and continues with the option that you specified before this panel was displayed. The message APAR `apply deferred` is shown on the next panel. The APAR Apply Options panel is displayed again when you next edit a policy database. This option is recommended if you want to check the changes before they are applied to the policy database.

The END, RETURN, and CANCEL commands have the same effect as this option.

Note: The APAR application process is sufficient only if you use a NetView automation table that is generated by SA z/OS. If you maintain your own AT manually you need to make the necessary changes yourself.

The panel shows the APAR that caused the panel to be displayed. It is possible that multiple APARs are shown if more than one APAR with AT-related changes has been installed, or a policy database has not been edited for a long time and several APARs with AT changes have been installed in the meantime.

Service Updates Report

The service updates report provides details of:

- New messages together with the generated AT entry.
- Deleted messages together with the generated AT entry.
- Messages that have a modified AT entry. It includes the old and new generated AT entry.

Furthermore for all messages the user-defined AT entry is shown, if it exists in the policy database. The following shows an example of the report.

```
*******************************************************************************
***
*
```

```
* Function                          Service Updates for AT
build
* Policy Database name
USER_PDB
* Policy Database data set name
'OPER1.USER.PDB'
* Version                           SA
4.1
*

* UserId
OPER1
* Creation Date                     Monday, 13 Mar
2017
* Creation Time
16:12
*

********************************************************************************
***


********************************************************************************
***
*

* This report includes the following APAR(s). For details see
the
* APAR
description(s):
*

********************************************************************************
***
OA11111 OA22222
OA33333


********************************************************************************
***
*

* New
message(s)
*

********************************************************************************
***


SLS0451I             - SLS No matching
HOSTid


  New predefined Automation Table
entry :


    IF MSGID = . 'SLS0451I'
THEN
    EXEC(CMD('TERMMSG FINAL=NO,BREAK=YES') ROUTE(ONE
%AOFOPGSSOPER%));

  User defined Automation Table entry :
```

```
   NONE


SLS0452I             - SLS Attach failed for
module


  New predefined Automation Table
entry :


    IF MSGID = . 'SLS0452I'
THEN
    EXEC(CMD('TERMMSG FINAL=NO,BREAK=YES') ROUTE(ONE
%AOFOPGSSOPER%));

  User defined Automation Table entry :

   NONE


*******************************************************************************
***
*

* Deleted
message(s)
*

*******************************************************************************
***


OMV999I              - VPS Subsystem request failure


  Old predefined Automation Table
entry :


    IF MSGID = 'OMV999I' THEN EXEC(CMD('TERMMSG
    FINAL=YES')ROUTE(ONE * AUTGSS AUTSYS AUTBASE AUTINIT1));

  User defined Automation Table entry :

   NONE


OMV999I              - OMII component has ended


  Old predefined Automation Table
entry :


    IF MSGID = 'OMV999I' THEN EXEC(CMD('TERMMSG
    FINAL=YES')ROUTE(ONE * AUTGSS AUTSYS AUTBASE AUTINIT1));

  User defined Automation Table entry :

   NONE


*******************************************************************************
```

```
***
*

* Modified
message(s)
*

********************************************************************************
***


HSAL1108I            - Refresh of the takeover file
completed


  Old predefined Automation Table
entry :


    IF MSGID = 'HSAL1108I'
THEN
    EXEC(CMD('ACTIVMSG UP=YES') ROUTE(ONE
%AOFOPGSSOPER%));


  New predefined Automation Table
entry :


    IF MSGID = 'HSAL1108I' & ATF('ING$QRY STAT') = 'HALTED'
THEN
    EXEC(CMD('ACTIVMSG UP=YES') ROUTE(ONE %AOFOPGSSOPER%));

  User defined Automation Table
entry :

    IF MSGID = 'HSAL1108I' THEN
    EXEC(CMD('USEREXEC PARM1,PARM2') ROUTE(ONE %AOFOPGSSOPER%));

IEF238D              - Allocation error

  Old predefined Automation Table entry :

    IF MSGID = 'IEF238D' & JOBNAME = SVJOB
    & ACQUIRE('PAD /''/ /CODE2=/ 1 W 6.1 STRIP N /,CODE3=/ N
    SKIPTO /,/ SKIPTO /''/ 2.4 N') = CODES THEN
    EXEC(CMD('ISSUEACT CODE1=' SVJOB ',' CODES ',SYSTEMMSG=YES')
    ROUTE(ONE %AOFOPGSSOPER%));

  New predefined Automation Table entry :

    IF MSGID = 'IEF238D' & JOBNAME = SVJOB
    & ACQUIRE('PAD /''/ /CODE2=/ 1 W 6.1 STRIP N /,CODE3=/ N
    SKIPTO /,/ 3.6 STRIP N') = CODES THEN
    EXEC(CMD('ISSUEACT CODE1=' SVJOB ',' CODES ',SYSTEMMSG=YES')
    ROUTE(ONE %AOFOPGSSOPER%));

  User defined Automation Table entry :

    NONE
```

Chapter 9. Data Management

This chapter provides information about SA z/OS functions for:

- Importing selected entries from another policy database
- Importing sample add-on policies
- Making bulk policy updates via flat files

Start Panel for Data Management

Option5 (Data Management) on the Customization Dialog Primary Menu takes you to the Data Management Menu panel, shown in Figure 255 on page 305.

```
  MENU  HELP
------------------------------------------------------------------------------
AOFGIMP0                      Data Management Menu
Option ===> ____________________________________________________________

  1 Import from PDB    Import from another Policy Database

  2 Import from Add-on Import from predefined add-on policies

  3 Update via File    Write selected data to file or read data from file
```

Figure 255. Data Management Menu Panel

Your options on this panel are:

1 Import from PDB
This option enables you to select entries in a policy database and add them to the current policy database. See "Importing Policy Database Data" on page 305 for details.

2 Import from Add-on
This option enables you to select sample add-on policies and add all or part of their entries to the current policy database. See "Importing Sample Add-On Policies" on page 309 for details.

3 Update via File
This option enables you to export the policy database data of a selected entry type to a flat file. After you have modified this data or added new entries, the flat file can be read in again. All the modified or newly added entries will be updated in the policy database or added to it without any further panel interaction. See "Making Updates with Text Files" on page 311 for details.

Importing Policy Database Data

Selecting option 1 (Import from PDB) on the Data Management Menu panel leads to the panel shown in Figure 256 on page 306.

© Copyright IBM Corp. 1996, 2017

```
   MENU  HELP
------------------------------------------------------------------------------
AOFGIMPP             Import entries from a Policy Database
Option ===> ____________________________________________________________________

  Current Policy Database             : BASE
  Enterprise Name                     : BASE

  1 Import Policy Data
          Source Policy Database. . . . IMPORT_DATABASE_____      (? or name)
          Entry type  . . . . . . . . . APL                       (? or type)
          Import linked entries . . . . NO_                       (YES or NO)
                                        (applies to ENS, GRP, SYS, APG, APL,
                                        TRG and DMN only)
  2 View import report
```

Figure 256. Policy Data Base Import Panel

This panel enables you to select entries in a policy database and add them to your current one, and view the import report for the target policy database. It has the following options:

1 Import Policy Data
This option allows you to define the following:

- An existing policy database that data will be imported from.

  Entering a question mark (?) in this field and pressing Enter displays the Policy Database Selection panel where you can select one of the existing policy databases.
- The particular entry type that selected entries will be imported for.

  Entering a question mark (?) in this field and pressing Enter displays the Entry Type Selection panel where you can select one of the existing entry types.
- Whether you want to import entries that are linked to the entry type that you selected in the **Entry type** field.

  The following rules determine which linked entries are also imported, depending on the entry type that is imported:

  GRP
  Linked entry types SBG or SYS are also imported. For sysplex groups, any linked APG entry type of type SYSPLEX is imported.

  The links between resources where the group is involved are imported.

  SYS
  All entry types that are linked to the selected systems are imported along with the resources that belong to those systems and the links between the resources in the systems.

  APG
  Linked entry types APL, SVP, or TRG are also imported.

  APL
  If the application has an object type of CLASS, its instances and their service periods and triggers are imported.

  If the application has an object type of INSTANCE, the class application that it is linked to and its service periods and triggers are imported.

  TRG
  The entries of entry type EVT that are selected in its startup or shutdown conditions are imported along with it.

  DMN
  Linked entry types REF are also imported.

Importing entry type ENT (Enterprise) and MSG (Messages) is not supported.

2 View import report
This allows you to view the import report that is available in the target policy database. It invokes the ISPF VIEW function. If there is no import report, an empty screen is displayed.

The information that you specify here is saved in your ISPF profile data set and used as the initial values the next time you issue the import function.

Selecting **1 Import Policy Data** on this panel takes you to a list of existing entries for the specified type (see Figure 257 on page 307 for an example).

```
  COMMANDS  ACTIONS   HELP
 ------------------------------------------------------------------------------
 AOFGIMPS                    Entry Name Selection               Row 24 to 32 of 32
 Command ===> _____________________________________________________ SCROLL===> CSR

 Action     Status      Entry Name             Short Description
 _________  SELECTED    RRS                    Resource Recovery
Services
 _________              SYSVAPPL               Automation
Application
 _________              SYSVIPLC               IPL Data
Gatherer
 _________              SYSVSSI                Automation Subsystem
Interface
 _________              TCPIP                  TCP/IP
 _________              TSO                    Time Sharing Option
 s________              VLF                    Virtual Lookaside
Facility
 _________              VTAM                   Virtual Telecommunication Access
Method
 _________              ZFS                    z/OS File System
```

Figure 257. Entry Name Selection Panel for Import Policy Data

Here you can select entries that you want to:

- Copy to your current policy database
- Get a *modified* copy of for your current policy database

Making selections and pressing Enter takes you to the panel shown in Figure 258 on page 307.

```
   OPTIONS  ACTIONS  HELP
 ------------------------------------------------------------------------------
 AOFGIMP3             Selected Entry Names for Import         Row 1 to 3 of 3
 Option ===> _____________________________________________ SCROLL===> CSR

 1 Modify data        2 Check data         3 Run Import       4 View report

 Action Entry Name           Type C D Short Description
 ______ C_APPL               APL  * Y Class for general APL definitions
 ______ RRS                  APL    Y Resource Recovery Services
 ______ VLF                  APL    Y Virtual Lookaside Facility
```

Figure 258. Selected Entry Names For Import Panel

The panel displays the entries that you selected with Entry Name, Entry Type and Short Description. For an application class, column C contains a *. If there is already an entry with the same name and type in the current policy database, it is marked as duplicate with a Y in column D.

This panel allows you to modify the selected entries before you import them. You can:

- Rename entries in the list by:
  - Overtyping their names
  - Entering RENAME (R) in the **Action** field
- Overtype an entry's **Short Description** field (this only affects non-duplicate entries).
- Remove entries from the list by:
  - Blanking their names

  - Entering REMOVE (M) in the **Action** field
- Locate an entry by entering LOCATE (L) at the command line.
- Modify data using character string replacement by entering 1 or MODIFY (M) at the command line. This opens a Modify data pop-up window, as shown in Figure 259 on page 308.

```
AOFGPMOD  Modify data


Old string. . . . . ____________

New string. . . . . ____________

Press ENTER to modify import data.
Press CANCEL to cancel modify.
```

Figure 259. Modify Data Pop-Up Window

Type data in the **Old string** and **New string** fields.

Replacement happens in a predefined set of fields in the import data. This set of fields supports the cloning of complete systems, for example, IMS, CICS, or SAP solutions.

You can update all relevant fields at once with a single modify action. This only works if the naming of a solution was done systematically (for example, consistently using an IMS subsystem ID of IMS1).

The modification for certain fields is case-sensitive. For a complete list of modifiable fields (including whether data modification is case-sensitive) see the online help.

Note: No checks are made to prevent &AOCCLONE variables that are used in fields being modified.

- Check the data that is to be imported by entering 2 or CHECK (K) at the command line.

  This executes an integrity check of the data and links to be imported so that there are no conflicts with definitions in the current policy database. Error messages for any conflicting data properties that are detected are listed in the import report. An import is not carried out.
- Start the import process by entering 3 or RUN (R) at the command line.

  This executes the same data integrity check as with option 2 and, if no conflicts are found, imports the data into the current policy database.
- View the import report by entering 4 or VIEW (V) at the command line.

  This allows you to view the most recent import or data check report that is available in the current policy database. It invokes the ISPF VIEW function. If there is no import report, an empty screen is displayed.
- Return to the Entry Name Selection panel by pressing the END or PF3 key.
- Go to the Data Management panel by entering CANCEL (C) at the command line.

Batch Import with Data Modification

SA z/OS provides a batch interface that can be invoked from a separate JCL.

The SINGSAMP sample library contains a sample job for this task in the member INGEBIMP. Before submitting this job, you need to edit the jobcard appropriately as described in the sample itself.

The batch job needs the following input parameters:

- Target policy database name
- Target policy database data set name
- Source policy database name
- Source policy database data set name
- Entry name (to be imported)

- Entry type (to be imported)
- Whether entries linked to the selected entries as well as the links themselves should be imported
- List of strings to be modified, separated by blanks
- List of replacement strings, which must have as many words as the list of strings to be modified

The batch import produces the following return codes:

0
Successful.

8
Import did not run due to incomplete or conflicting specifications

20
Severe error: no data imported.

Importing Sample Add-On Policies

SA z/OS comes with a number of sample add-on policies that you can import into an existing policy database to speed up database development.
Importing add-on policies into a policy database means adding a copy of the sample to that policy database. The add-on policies themselves are not modified.

Procedure

To import sample add-on policies:

1. Specify the *target* policy database that you want to import the sample *into* in the **Current Policy Data Base** field of the Customization Dialog Primary Menu and select option **5 Data Management**.
2. On the Data Management Menu panel, select option **2 Import from Add-on**.

   This takes you to the Import Add-On Policies panel, shown in Figure 260 on page 309, which displays a list of the add-on sample policies that SA z/OS provides.

```
   ACTIONS   HELP
------------------------------------------------------------------------------
AOFGPIMA                     Import Add-on Policies               Row 1 of 15
Command ===> ____________________________________________________

1 Import selected add-on policies
2 View import report

Current Policy Database: USER_PDB
Add-on policies to be added to the current policy database:
Action     Status      Add-on Policy         Customizable
_________  SELECTED    *BASE                  YES
_________              *CICS
_________              *DB2
_________              *E2E                  YES
_________              *GDPS
_________              *IBMCOMP               YES
_________              *IMS
_________              *ITM                   YES
_________              *IWS
_________              *PROCOPS
_________              *SAPSRV
_________
*TBSM
```

Figure 260. Import Add-On Policies Panel

YES in the **Customizable** column indicates that a policy has several components. If you enter C in the **Action** field for a customizable add-on policy, this displays the Select Add-on Policy Components panel. From the list of the components you can select or deselect the components that you want to include in the import.

3. Select the add-on samples that you want to import and invoke option **1 Import selected add-on policies**.

   This performs a check of the selected policies (a pop-up window shows the progress of the checks). A panel similar to Figure 261 on page 310 is then displayed.

```
   COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGIMP3             Entries of selected Add-on Policies     Row 1 to 14 of 28
Command ===> _____________________________________________  SCROLL===> PAGE

1 Modify data        2 Check data         3 Run Import       4 View report

Action Entry Name           Type C D Short Description
______ SYSPLEX1             GRP      Placeholder. Original in *BASE
______ SYS1                 SYS      Placeholder. Original defined in *BASE
______ SYS2                 SYS      Placeholder. Original defined in *BASE
______ SYS3                 SYS      Placeholder. Original defined in *BASE
______ CICS_                APG    Y All CICS Components.
______ CICS_SHARED          APG      CICS Shared Servers for CF Structures
______ CICS1                APG    Y CICS Instance #1 (System Server APG)
______ CICS1_X              APG    Y CICS Instance #1 (Sysplex Move APG)
______ CICS1TG              APG      CICS Transaction Gateway APG
______ CPSM                 APG    Y CICSPlex SM
______ C_CICS               APL  * Y Class for CICS
______ C_CICS_CMAS          APL  * Y Class for CICS CPSMCMAS
______ C_CICS_SHAREDSERVERS APL  *   Class for CICS Shared Servers
______ C_CICS_TG            APL  *   Class for CICS Transaction Gateway
______ C_CICS_WUI           APL  * Y Class for CICS CPSMWUI
______ C_CICS_XACTIONSERVER APL  * Y Class for CICS Transaction Server
______ CICSDT               APL      CICS Shared Data Tables CF Support
______ CICSNC               APL      CICS Shared Named Counter CF Support
______ CICSTS               APL      CICS Shared Temp. Storage CF Support
______ CICS1AR1             APL    Y CICS1 Application Owning Region #1
```

Figure 261. Entries of Selected Add-on Policies Panel

4. This panel allows you to modify the selected entries before you import them. If the entry is a class, column **C** is set to "*".

   If there is already an entry with the same name and type in the current policy database, it is marked as a duplicate (column **D** is set to Y).

   You can:

   - Rename entries in the list by:
     - Overtyping their names
     - Entering RENAME (R) in the **Action** field
   - Overtype an entry's **Short Description** field (this only effects non-duplicate entries).
   - Remove entries from the list by:
     - Blanking their names
     - Entering REMOVE (M) in the **Action** field
   - Locate an entry by entering LOCATE (L) on the command line.
   - Modify data using character string replacement by entering 1 or MODIFY (M) at the command line. See the online help for details of which entry types and fields you can use character string replacement with.

     Note that the modify action is supported only for a single selected add-on policy, rather than several simultaneously.

     A Modify data pop-up window opens, similar to Figure 259 on page 308. For details about using this window, see Modifying Data in “Importing Policy Database Data” on page 305.
   - Check the data that is to be imported by entering 2 or CHECK (K) at the command line.

This executes an integrity check of the data and links to be imported so that there are no conflicts with definitions in the current policy database. Error messages for any conflicting data properties that are detected are listed in the import report. An import is not carried out.

- Start the import process by entering 3 or RUN (R) at the command line.

  This executes the same data integrity check as with option 2 and, if no conflicts are found, imports the data into the current policy database.
- View the import report by entering 4 or VIEW (V) at the command line.

  This allows you to view the most recent import or data check report that is available in the current policy database. It invokes the ISPF VIEW function. If there is no import report, an empty screen is displayed.
- Return to the Import Add-On Policies panel by pressing the END or PF3 key.
- Go to the Data Management panel by entering CANCEL (C) at the command line.

What to do next

Warning - Consistent Naming: Importing an add-on policy includes importing all relationships and links between policy objects in that database. You therefore need to make sure that naming is consistent across your current policy database and the sample that you want to add if you start from one of the following:

- A copy of the *BASE sample policy database, but you modify it before importing an add-on policy
- A policy database that you have created yourself on the basis of the *EMPTY sample policy database

This is so that relationships and links can be resolved during the import operation. When there are relationships or links that cannot be resolved, an "unresolved link" message is displayed in the progress indication panel.

Making Updates with Text Files

You can carry out bulk updates of policy objects using a flat text file. You can select one or more policy objects and their associated policy items and have their data written to a text file.

You can then edit the text file to update the policies and then import the updated file into your policy database.

This update method can be quicker than using the customization dialog if you want to update several entries, but you must take care that the syntax is correct.

Currently, only policy objects of type APG, APL, MTR, MVC, PRO, and UET are supported, as well as certain policies of entry types GRP and SYS.

Note that the file update facility does not allow concurrent user access.

For example, to update APL policy objects via a text file, follow these steps:

1. **Edit the text file:**

   Use option 5 (Edit output file) on the Policy Data Base Update Selection panel to edit the data set where you put your text policy data.
2. **Check syntax (optional):**

   Although a syntax check is performed when you import a text file, you can use option 2 (Perform syntax check) to check whether the syntax of the file data complies with the data in the policy database before you import the file. This can save you time because it allows you to check the syntax without invoking the complete import process.
3. **Import the updated text file:**

   On the Data Management Menu panel, make sure that the **Input File Name** field specifies the data set with your updated policy data. If you do not provide a name in this field, SA z/OS will put in the name of the data set previously used for output.

Type 3 on the option line and press Enter.

Further update processing is controlled by the **Mode** setting:

ONLINE
This is the default value. It indicates that the update should run in the foreground. It displays a command progress display. Processing is as follows:

a. A syntax check of the whole text file is performed. Only when the syntax check has finished successfully does the actual policy database update take place.
b. If there is a timestamp in the text file and it is more recent than the last modification of entries in the policy database, the policy database is modified.

   Otherwise a confirmation panel with the names of the most recently modified entries is displayed, where you can either confirm or cancel the update processing.

Messages from the update are written to a report data set that can be viewed with option 4 in the Policy Database Update Selection panel.

The data set with the text policy data is not affected by the import. In particular it is not deleted.

BATCH
This indicates that the update should run in the background. Processing is as follows:

a. A batch job is started, executing the policy database update as soon as it obtains exclusive access to the database. This requires you to specify valid JOB statement information in the panel.
b. A syntax check of the whole text file is performed. Only when the syntax check has finished successfully, does the actual policy database update take place.
c. If there is a timestamp in the text file and it is more recent than the last modification of entries the policy database, the policy database is modified.

   Otherwise the update process ends with messages in the report data set giving the reasons for ending without updating the policy database.

The settings in the **Mode** field and **Job statement information** are saved in your ISPF profile data set and are used as the initial values the next time you issue the UPDATE command.

Hint: If you run the policy update via batch overnight, it is recommended to check the syntax first, to ensure the overnight update does not fail due to syntax errors.

Supported Policies

Apart from the policies that are available for applications, the following policies are supported for other entry types:

Groups

- DESCRIPTION
- SYSPLEX
  - Sysplex Name
  - Sysplex Timer Monitoring
  - Number Monitored Sysplex Timer
  - Temporary Data Set HLQ
  - Started Task Job Name

Systems

- DESCRIPTION
- SYSTEM INFO (Read-only)

  Operating System (Read-only)

Image/System name (Read-only)

- AUTOMATION SYMBOLS
- WHERE USED

Application Groups

DESCRIPTION
APPLGROUP INFO
RELATIONSHIPS
MESSAGES/USER DATA
WHERE USED

Processors

DESCRIPTION
PROCESSOR INFO
PSM INFORMATION
LPARS AND SYSTEMS

Monitor Resources

DESCRIPTION
MONITOR INFO
RELATIONSHIPS
MESSAGES/USER DATA
HEALTHSTATE
WHERE USED

MVS Components

DESCRIPTION
MESSAGES/USER DATA
MINOR RESOURCES
WHERE USED

User E-T Pairs

DESCRIPTION
E-T DATA
WHERE USED

Updating Policy Objects Using Text Files

Each policy object in the text file is represented by the following structure:

```
UPD <Entry Type>       - <Entry Name>
  <Policy Item>         ( field|block|policy replacement )
    <Field>             : <Value>
    <Field>             : <Value>
    ...
  <Policy Item>         ( field|block|policy replacement )
    <Field>             : <Value>
    <Field>             : <Value>
    ...
  ...
```

The actual values for the Entry Type, Entry Name, Policy Item, and Field variables depend on the selections that you made when the file was created and what data is in your policy database, for example:

```
UPD APL                         - AM
  RELATIONSHIPS                 ( policy replacement )
    Relationship Type           : MAKEUNAVAILABLE
    Supporting Resource         : AM2/APL/=
    Description                 : Prevents takeover at system shutdown
    Sequence Number             :
```

```
    Automation                : PASSIVE
    Chaining                  : WEAK
    Condition                 : WhenDown
* MESSAGES/USER DATA            no data available
WHERE_USED APG                : AM_X
```

The *<Policy Item>* lines must be indented by 1 or 2 characters, and the *<Field>* lines must be indented by 3 or more characters.

Do not modify the *<Policy Item>* or *<Field>* segments because the syntax of the file will be invalid and the file will fail syntax checking.

If the file does fail the syntax check, you can view the update report and fix any errors that are reported before trying the update again.

The text after each policy item indicates which type of data replacement is possible:

- Field replacement: the data that you specify in the text file replaces only the corresponding data in the policy database.
- Block replacement: the row and all data that is nested underneath it is treated as one block of data, and each such block replaces the corresponding data in the policy database.
- Policy replacement: the policy definition in the text file replaces the whole policy definition in the policy database.

Field Replacement

With *field replacement* the specified data in the file replaces only the corresponding data in the policy database.

A blank value for a field in the file discards a value that may be in the policy database or resets it to a default in the same way as for the input field on the panel. The data in any other fields that belong to a policy but are not specified in the text file remains unchanged.

Block Replacement

With *block replacement* a data row marked with a dash indicates a data block that consists of that row and all data that is nested underneath it. Each such block replaces the corresponding data in the policy database.

Other blocks for the same policy item remain unchanged. A data block where you have edited all the fields to blank would delete all the corresponding data from the policy database. For example, the following would delete the reply definitions from a message:

```
Action                    - REPLY
        Pass/Selection          :
        Retry Count             :
        Reply Text              :
```

You can also specify just the block header line to delete all the data in that block. Thus, the equivalent for previous example would be:

```
Action                    - REPLY
```

You can also delete data by specifying:

```
Message ID : ABC123I
```

or

```
Minor Resource Name : aMinResName
```

If no related detail lines follow, then all related details are deleted. In this case, all actions for message ABC123I as well as the message description will be deleted, but the message ID will not be deleted. Correspondingly, all definitions made for a minor resource will be deleted, but the minor resource itself will not be deleted.

Example 1: Create or Delete Messages for application TSO in a Policy Database

All of these changes are made in one file.

1. The data in the text file is initially:

```
UPD APL                         - TSO
  MESSAGES/USER DATA            ( block replacement )
    Message ID                  : IKT001D
      Description               : Active users during TCAS start
      Action                    - REPLY
        Pass/Selection          :
        Retry Count             :
        Reply Text              : U
```

   Change Message ID IKT001D to TEBULK and add some REPLY data. This will result in a new message definition in the Policy Database:

```
UPD APL                         - TSO
  MESSAGES/USER DATA            ( block replacement )
    Message ID                  : TEBULK
      Description               : Active users during TCAS start
      Action                    - REPLY
        Pass/Selection          :
        Retry Count             :
        Reply Text              : U
        Pass/Selection          : *
        Retry Count             : 1
        Reply Text              : dump
```

2. Create a new Message ID TEST for the application TSO:

```
UPD APL                         - TSO
  MESSAGES/USER DATA            ( block replacement )
...
    Message ID                  : TEST
      Description               : test bulk
      Action                    - code
        Code 1                  : 9999
        Code 2                  :
        Code 3                  :
        Value Returned          : TERM
```

3. Delete description and all actions of Message ID 'ABC123' for application TSO:

```
UPD APL                         - TSO
  MESSAGES/USER DATA           ( block replacement)
...
   Message ID                   : ABC123
```

Example 2: Change or Insert SHUTDOWN for the application class C_IWS in a Policy Database

1. Delete pass 4 for PHASE NORM, change the pass from 2 to 4 for PHASE IMMED, and insert a reply for PHASE INIT:

```
UPD APL                         - C_IWS
  SHUTDOWN                      ( block replacement )
    Phase                       : NORM
      Action                    - CMD
        Pass                    : 1
        Automated Function/'*' :
        Command Text            : MVS P &SUBSJOB
        Pass                    : 4
        Automated Function/'*' :
        Command Text            : MVS C &SUBSJOB
    Phase                       : IMMED
      Action                    - CMD
        Pass                    : 1
        Automated Function/'*' :
        Command Text            : MVS P &SUBSJOB
        Pass                    : 4
        Automated Function/'*' :
        Command Text            : MVS C &SUBSJOB
```

```
    Phase                      : FORCE
      Action                   - CMD
        Pass                   : 1
        Automated Function/'*' :
        Command Text           : MVS C &SUBSJOB
    Phase                      : INIT
      Action                   - REPLY
        Reply Text             : TEST BULKUPDATE
```

Policy Replacement

With *policy replacement* the data in the text file replaces the whole policy item definition in the policy database.

For example:

- An application has two relationships defined for it in the policy database and one relationship in the text file. After the file update has been completed the application has only the one relationship from the text file.
- An application has some USS data defined in the policy database, while all USS fields in the text file for the application are blank. After the file update has been completed the application no longer has any USS data.

Empty lines are allowed anywhere in the file. They are ignored when the file update is performed. Comment lines are also allowed anywhere in the file. They have an asterisk in the first column and are skipped during file import.

If a field is specified several times, the last definition wins, even if it is an empty field. The following sequence in the APPLICATION INFO policy would remove any Owner data from the policy database for the corresponding application:

```
Owner               : OPERATOR
    Owner               :
```

Example: Create, Change or Delete Policy Relationships for applications in a Policy Database

All of these changes are made in one file.

1. The data in the text file is initially:

```
UPD APL                    - JES2
  RELATIONSHIPS            ( policy replacement )
    Relationship Type      : HASMONITOR
    Supporting Resource    : JES2MON/MTR/=
    Description            : Relationship to JES2 Monitor
    Sequence Number        :
    Automation             :
    Chaining               :
    Condition              :
*
    Relationship Type      : PREPUNAVAILABLE
    Supporting Resource    : VTAM/APL/=
    Description            : Delay DRAINJES until VTAM is down
    Sequence Number        :
    Automation             : PASSIVE
    Chaining               : WEAK
    Condition              : WhenDown
```

   Change the second relationship for JES2:

```
UPD APL                    - JES2
  RELATIONSHIPS            ( policy replacement )
    Relationship Type      : HASMONITOR
    Supporting Resource    : JES2MON/MTR/=
    Description            : Relationship to JES2 Monitor
    Sequence Number        :
    Automation             :
    Chaining               :
    Condition              :
```

```
*
    Relationship Type       : PREPAVAILABLE
    Supporting Resource     : VTAM/APL/=
    Description             : Edit the description for test
    Sequence Number         : 1
    Automation              : PASSIVE
    Chaining                : WEAK
    Condition               : WhenDown
```

2. Add a new relationship to JES3. The data in the text file is initially:

```
UPD APL                     - JES3
* RELATIONSHIPS               no data available
```

Edit the file as follows:

```
...
UPD APL                     - JES3
  RELATIONSHIPS             ( policy replacement )
    Relationship Type       : HASMONITOR
    Supporting Resource     : JES3MON/MTR/=
    Description             : Relationship to JES3 Monitor
    Sequence Number         :
    Automation              :
    Chaining                :
    Condition               :
```

3. Delete the second relationship from TCPIP (blank all fields or delete all lines for the second relationship). The data in the text file is initially:

```
UPD APL                     - TCPIP
  RELATIONSHIPS             ( policy replacement )
    Relationship Type       : HASPARENT
    Supporting Resource     : RESOLVER/APL/=
    Description             : TCPIP requires RESOLVER for addr xlation
    Sequence Number         :
    Automation              :
    Chaining                :
    Condition               :
*
    Relationship Type       : HASPARENT
    Supporting Resource     : VTAM/APL/=
    Description             : TCPIP is dependent on VTAM
    Sequence Number         :
    Automation              :
    Chaining                :
    Condition               :
```

Edit the file, for example, as follows:

```
...
UPD APL                     - TCPIP
  RELATIONSHIPS             ( policy replacement )
    Relationship Type       : HASPARENT
    Supporting Resource     : RESOLVER/APL/=
    Description             : TCPIP requires RESOLVER for addr xlation
    Sequence Number         :
    Automation              :
    Chaining                :
    Condition               :
*
    Relationship Type       :
    Supporting Resource     :
    Description             :
    Sequence Number         :
    Automation              :
    Chaining                :
    Condition               :
```

Creating New Policy Objects Using Text Files

To create new policy objects, insert sections that have the following structure:

```
NEW <Entry Type>                : <new entry name>
COPY                            : <name of existing entry to copy data from>
WHERE_USED <parent entry type> : <name of existing entry to link to>
LINK_TO_CLASS                   : <name of existing APL class entry to link
to>
```

You can create new policy objects for any entry type *except* for types ENT (Enterprise), DMN (Remote Domains), REF (Resource References), and MSG (Messages).

The 'Policy Database Update Selection' panel provides an option to create templates for generating new entries (NEW template) in the policy or respectively deleting existing entries (DEL template) from the policy.

These sections can be inserted anywhere in the text file, with the following conditions:

- Policy object sections are not broken apart by other ones.
- The keywords (NEW, COPY, WHERE_USED, and LINK_TO_CLASS) *must* begin in column 1. Any *<Policy Item>* lines must begin in column 2 or 3. All other data must be indented.

The keywords LINK_TO_CLASS (for entry type APL only), COPY, and WHERE_USED are optional. If they are specified, they can appear in any order.

The NEW keyword allows additional specifications, for example, subsystem name, in the same notation as for the update function. All the fields that are available on the NEW panel for the entry type that you are creating are also valid here. Ensure that the field names are consistent with the NEW panel used in the Customization Dialogs.

The COPY keyword works in the same way as the COPY policy in the customization dialog panels. This means that the same limitations apply with respect to category, subcategory, or class/instance compatibilities.

For each keyword, the specification of only one value is allowed. To link an application to several application groups, the WHERE_USED keyword may appear as many times as you require.

The WHERE_USED keyword may need an optional parameter, *<parent entry type>*, for entries that might be linked to several parent types, for example, Service Periods to Applications, Application Groups or Monitor Resources.

If the parent entry type is omitted, the following defaults are assumed:

- For SYS the default is GRP
- For SVP the default is APL
- For TRG the default is APL

The parent entry type for Application Groups defaults according to the Application Group's type. If the type is SYSPLEX the default link parent entry type is Group, otherwise it is System.

If either of the COPY or LINK_TO_CLASS keywords is specified several times, the last one is used (the last specification overwrites any previous one) even if it is blank.

The following example shows a more elaborate definition:

```
NEW APL             : $IMS711_MSG_REGION5
  Subsystem Name    : IMS711M5
  Category          : IMS
  Job Name          : IMS711M5
  Short description : IMS V7 - IMS711 Message region on SYS1
LINK_TO_CLASS       : CLASS_IMS_TP
WHERE_USED APG      : IMS711_CONTROL
WHERE_USED APG      : APPLGR_MAINT
COPY                : IMS713M0
```

Note: You should take care with the order of your definitions. It is possible that a class link that you set with a LINK_TO_CLASS definition is overwritten by a class link that is inherited by a COPY command that is executed after the LINK_TO_CLASS definition.

The instructions to create new entries and the data to modify existing fields are both run from a flat file. As a consequence they can be combined so that the following would be possible:

```
NEW APL      : IMS721RC
COPY         : IMS713RC
WHERE_USED   : IMS721_CONTROL
LINK_TO_CLASS: CLASS_IMS_DBRC

UPD APL                 : IMS721RC
  DESCRIPTION
    Short description   : IMS V7 - IMS721 DBRC region on SYS2
  RELATIONSHIPS
    Relationship Type   : HASPARENT
    Supporting Resource : IMS721C4/APL/=
    Description         :
    Sequence Number     : 1
    Automation          :
    Chaining            :
    Condition           :
```

If the keyword NEW or UPD is specified more than once with the same application name, only the last specification is processed. All previous are ignored. If a specification is ignored, all data rows are skipped up to the next occurrence of NEW or UPD keyword. If a NEW or UPD keyword is skipped, an informational message is issued.

Here are some examples for the NEW keyword with all additional specifications for the following entry types:

- APL
- APG
- MTR
- UET

These are the most common entry types that you are likely to want to create new policy objects for via file updates.

Application

The following is an example for a new IMS Application Class entry, APLNEW, with data copied from an existing application, OTHERAPL, and linked to another class, IMSCLASS1:

```
NEW APL               : APLNEW
  Subsystem Name      : APLNEW
  Object Type         : CLASS
  Category            : IMS
  Subcategory         : CTL
  Job Type            :
  Job Name            :
  Transient Rerun     :
  Scheduling Subsystem :
  JCL Procedure Name  :
  Short Description   : New IMS application
  Long Description 1  :
  Long Description 2  :
  Long Description 3  :
  Long Description 4  :
  Long Description 5  :
COPY                  : OTHERAPL
LINK_TO_CLASS         : IMSCLASS1
```

Application Group

The following is an example for a new system Application Group entry, APGNEW, with data copied from an existing application group, OTHERAPG, and linked to an existing system, SYSTEM1:

```
NEW APG                : APGNEW
  Type                 : SYSTEM
  Nature               : BASIC
  Default Preference   : *DEF
  Automation Name      : APGAUTO
  Automatically link   : YES
  Behavior             : ACTIVE
  Move Mode            :
  Prepare Move         : YES
  Short Description    : New Application Group  of type System
  Long Description 1   :
  Long Description 2   :
  Long Description 3   :
  Long Description 4   :
  Long Description 5   :
COPY                   : OTHERAPG
WHERE_USED SYS         : SYSTEM1
```

Monitor Resource

The following is an example for a new Monitor Resource entry, MTRNEW:

```
NEW MTR                : MTRNEW
  Monitored object     : OBJECT1
  Monitored jobname    : JOB1
  Short Description    : New Monitor Resource
  Long Description 1   :
  Long Description 2   :
  Long Description 3   :
  Long Description 4   :
  Long Description 5   :
```

User Entry-Type Pair

The following is an example for a new User E-T Pair entry, UETNEW:

```
NEW UET                : UETNEW
  Short Description    : New User E-T Pair.
  Long Description 1   : For this entry type only
  Long Description 2   : the description lines can be specified
  Long Description 3   : in combination with the file update
  Long Description 4   : keyword 'NEW'.
  Long Description 5   :
```

Deleting Policy Objects Using Text Files

You can delete policy objects for any entry type except for type ENT (Enterprise), DMN (Remote Domains), REF (Resource References), and MSG (Messages).

The DEL keyword has the following syntax:

```
DEL <Entry Type> : <existing entry name>
```

The keyword can appear anywhere in the file with the following restrictions:

- the keyword DEL must begin in column 1,
- the keyword does not break other sequences, for example, a new entry consisting of NEW and related COPY, WHERE_USED keywords,
- no detail specifications are needed in subsequent lines (unlike, for example, NEW or UPD).

For each specification of DEL, only one entry name is allowed. To delete multiple entries, a single DEL specification is required for each entry.

If there are multiple DEL specifications for the same entry type/name this is not handled as an error. The entry is deleted and WARNING messages are issued additionally for each duplicate specification to indicate there may be an error.

An entry can only be deleted via the DEL keyword if it is not referenced anywhere else in the file. For example, an application can only be deleted via file if it is not modified via UPD or created via NEW in the same file. If there is a need to delete an entry and recreate it, then the corresponding specifications have to be split into two files that need to be run one after the other.

Generating a Job for Batch Update

You can run a job for batch update that performs the same processing as the UPDATE function of the customization dialog.

The SINGSAMP sample library contains a sample job for this task in member INGEBFLT. Before submitting this job, you need to edit the jobcard appropriately as described in the sample itself.

The batch update produces the following return codes:

0
Successful

4
Syntax errors or timestamp conflicts were detected; the update was terminated. See the job log or report file for details.

8
The update text file could not be read or the report data set could not be reallocated. The update was terminated.

>8
Severe error; update terminated. See the job log for details.

Chapter 10. Conversion Function

This chapter provides information on what you should be aware of before using the new release of SA z/OS. In detail, the following topics are discussed:

- "Moved and Restructured Data" on page 323
- "Initial Policy Database Conversion" on page 324

The conversion function creates a report called $RPTCNV as a member in the data set of the policy database. All messages are logged.

Moved and Restructured Data

Converting from SA z/OS 3.5

The following changes apply when converting from SA z/OS 3.5:

- All data used only for the SA z/OS Graphical Interface (NMC) is deleted from entry types SYS and GRP.
- Value NMC in inform list is deleted in entry types APL, APG, MTR, SDF, MDF and XDF.
- Existing data in all entry types is converted to new internal structure.

Converting from SA z/OS 3.4

The following changes apply when converting from SA z/OS 3.4:

- All data of CCN and CVP entry types are deleted
- The existing policy items JES2 SPOOLFULL and JES2 SPOOLSHORT are both split into two items: JES2 SPOOLFULL CNTL, JES2 SPOOLFULL CMDS, JES2 SPOOLSHORT CNTL, and JES2 SPOOLSHORT CMDS respectively
- Certain data in entry type APL, policy item CICS Control is deleted: Keypoint, Reload Transaction, CICSPlex/SM CMAS region
- Certain data in entry type APL, policy item DB2 Control is deleted: Shutdown Indoubt, Connection Monitor Delay, Terminate Thread Delay, Terminate Thread Cycles
- Certain data in entry type APL, policy item IMS Control is deleted: DBCTL control region
- All definitions with Entry Name THRESHOLDS in entry type UET, policy item E-T are deleted
- Processors with only NVC specified as a protocol are deleted
- Processors with NVC and INTERNAL specified as a protocol get all NVC protocol related data deleted
- Existing data in entry type AOP is converted to the new internal structure
- Existing data in entry type NFY is converted to the new internal structure
- Existing data in pseudo message IDs ACORESTART and INGTIMER in entry type APL are converted to policy item STARTUP
- Field **AT/MRT scope** is added from the Policy Database Options panel to entry type MSG, policy item BUILD CONTROL
- Within Message Automation definitions of entry type APL, MVC, and MSG, all Ignore / Suppress specifications are converted into the new Ignore and MPF specification fields:
  - IGNORE for a message is converted to YES for all three new fields **Ignore for AT**, **Ignore for MRT**, and **Ignore for MPF**
  - SUPPRESS for a message is converted to YES for **Ignore for AT** and **Ignore for MRT**, and furthermore within the MPF specifications the new field **MPF message parameter** gets the value "SUP(YES),AUTO(NO)".

© Copyright IBM Corp. 1996, 2017

Initial Policy Database Conversion

The first time that a policy database is opened with the customization dialog, conversion to the current layout is done automatically.

There are special conversion options available by selecting **0 Settings** in the Customization Dialog Primary Menu, and then **4 Convert** in the Customization Dialog Settings Menu. This displays the PDB Convert Option panel. This panel is used to specify the options for the PDB Conversion. These options are saved in your ISPF profile pool and remain in effect until set again

On this panel, SA z/OS allows you to request the generation of an automation name for application groups during the very first conversion of a policy database. If an application group has an automation name, SA z/OS can generate resources from such entries.

Selective Policy Database Conversion

After your entries have been migrated to the policy database, the conversion is done to convert the old data which might have been migrated to the policy database to the new format.

The migration functions automatically start the conversion function.

Generating a Job for Batch Conversion

You can run a job for batch conversion that performs the same processing as the conversion function of the customization dialog.

The SINGSAMP sample library contains a sample job for this task in member INGEBCON. Before submitting this job, you need to edit the jobcard appropriately as described in the sample itself.

Write Data to File using a Batch Job

You can customize and run sample job INGEBFXT, found in SINGSAMP, to write selected Entry Types from the policy database into a flat file in batch. Refer to the documentation within sample job INGEBFXT for further instructions.

The batch job produces the following return codes:

0
Successful

Other
Error. Refer to the job control output for further information.

Appendix A. Concurrent Customization by Multiple Users

The customization dialog supports concurrent access of multiple users. The following subsections describe the consequences for users that want to work simultaneously on entry types within one policy database.

Concurrent User Access Capabilities

If a policy database is selected for processing (using the SELECT or EDIT command), access to that policy database for other users is possible, that is, multiple editing of a policy database is supported.

Performing commands other than BROWSE, EDIT or SELECT against a policy database while another user is editing an entry may not work. This limitation depends on the data tables that are needed for the selected action or command, and it is indicated by specific messages. The most common situations are described in the following sections.

Concurrent User Access within the Customization Dialog

The customization dialog allows editing within all entry types by several users at the same time.

To prevent simultaneous usage of the same resource, serialization is implemented using the ENQ and DEQ macros with global resources. If an installation runs several systems in a global resource serialization (GRS) complex, but GRS is not installed, you should ensure that the following major names (qname of the ENQ and DEQ macros) are propagated:

INGPDB
This name is used by SA z/OS to serialize access within the customization dialog. It is mandatory to have this major name distributed among all systems where the customization dialog may run. Otherwise different users may overwrite their changes and data may get lost.

SYSDSN
This name is used by SA z/OS to obtain the user ID of a resource holder in case a policy database cannot be accessed. If this major name is not distributed, messages indicating that a resource cannot be accessed would not show a user ID.

SPFEDIT
This name is used by SA z/OS to obtain the user ID of a resource holder in case an ISPF table, which holds the data within a policy database, cannot be accessed. If this major name is not distributed, messages indicating that a resource cannot be accessed would not show a user ID.

Policy Definitions Usage

If you want to change your Enterprise Policy Options by selecting option 10 on the Customization Dialog Settings Menu panel (see Figure 262 on page 327), while another user works with a policy database, the selection is not possible and an appropriate message is displayed.

On the other hand, if you are accessing the SA z/OS policy items for modification, this will prevent other users from accessing any policy item and an appropriate message is displayed.

© Copyright IBM Corp. 1996, 2017

Policy Database Selection

If you want to issue a BUILD, DELETE, or REPORT command from the Policy Database Selection panel or use a DATA MANAGEMENT function while another user has accessed the same policy database, the command is rejected and an appropriate message is displayed.

Additionally, if you request access to a policy database via *S (Select)*, *(E)Edit*, or *BR(Browse)*, while a BUILD, DELETE, DATA MANAGEMENT function, or REPORT is in progress for this policy database, the access is rejected and an appropriate message is displayed.

For other commands there are also limitations, if a user has already opened the specific policy database. These limitations depend upon the selected entry types and actions, and are indicated by an appropriate message.

Entry Type Selection

If a policy database is opened successfully (with *S (Select)* or *E(Edit)*), the Entry Type Selection panel is displayed.

Here a specific Entry Type can be selected, or a BUILD can be requested.

If a BUILD command is issued from this screen, but another user has also opened this policy database to work with applications or any other entry type, the command is rejected and an appropriate message is displayed.

Entry Name Selection

On the Entry Name Selection panel a specific entry (for example, Application) can be selected, and a BUILD can be requested.

If you try a BUILD action, and the policy database has been simultaneously opened by another user, the command is rejected and an appropriate message is displayed.

If another user is currently editing the same application in the same policy database, access is allowed only to view the data, that is, changing the displayed data is not allowed. In this case, however, it is possible to select that application and view the data. A warning message is displayed on the Policy Selection panel, indicating that no updates will be accepted.

If, nevertheless, the displayed values are changed on the data entry panel for that policy option, these changes are not accepted when leaving that panel. If you try to leave the panel with the `END` command, a message will remind you that you must leave this panel with `CANCEL`.

Changing Links

The WHERE USED panel allows you to manage the links between the current entry and other entries in the policy database. The links are "parent-child" with the parent depending on the entry type.

The panel displays a list of all possible entries that may be linked to the current entry, showing entry name and type.

For example, the WHERE USED policy item for Systems allows you to change the links of one system to one or more groups or subgroups.

For example, the WHERE USED policy item for Applications allows you to change the links of one application to one or more application groups.

For example, the WHERE USED policy item for Application Groups allows you to change the links of one application group to one or more systems or sysplexes.

You can only add or remove such links, if no other user is accessing the "parent" entries. If another user is currently editing a "parent" entry, a message is displayed indicating that updates are not possible.

Appendix B. More about Using the Customization Dialog

Use this appendix to find out how to get help when using the customization dialog and how to change the customization dialog environment.

Changing Your Customization Dialog Environment

You can invoke the Settings function from the Customization Dialog Primary Menu or from the Menu pull-down of the Policy Database Selection panel.

The first three options in the Customization Dialog Settings Menu panel (see Figure 262 on page 327) allow you to change the customization dialog environment for your user ID. This is a usability function only and has no effect on the policy database contents.

```
  MENU  HELP
------------------------------------------------------------------------------
AOFGCUST                          Settings Menu
Option ===> ____________________________________________________________________

The following options apply only to your userid:

  1 Alias           Define alias for standard commands
  2 Display         Define display characteristics
  3 Message         Define message and logging options
  4 Convert         Define policy database conversion options
  5 Color           Define color for inherited class values


The following options can be made available to all SA z/OS users:

 10 Policy          Modify SA z/OS policy definitions
 11 Dsnames         Define SA z/OS data set names
 12 Workdsn         Define ISPF temporary data sets for batch build
 13 JobStep         Define JOB and EXEC statement for batch build
```

Figure 262. SA z/OS Customization Dialog Settings Menu

Alias
This option allows you to change commands and command abbreviations that can be entered on the command line or action column in the customization dialog.

Display
This option allows you to change the line spacing for lists that appear in the customization dialog.

Message
This option allows you to specify the level of detail in the messages you receive when you run various customization dialog options or batch jobs, and whether the messages are written to the ISPF log.

Furthermore you can enable additional checking during configuration build for Processor Operations definitions. All messages are shown on the In-progress panel of the build and appear in the build report. If the additional checking is disabled, the following information is written to the build report:

```
Note........ Checking for Processor Operations definitions is suppressed.
```

These settings are stored in the ISPF application profile. To have them available for batch processing (build or migration), make sure that your ISPF profile data set is allocated to the table library, DDname: AOFTLIB, as described in “Defining Data Sets for Batch Processing” on page 332.

© Copyright IBM Corp. 1996, 2017

Convert
This option lets you specify whether SA z/OS should create an automation name for an ApplicationGroup resource during the very first conversion of a policy database. See “Initial Policy Database Conversion” on page 324 for more information.

Color
This option allows you to specify the color and reverse video option that is used to display inherited class values.

Policy
See “Extending Policy Definitions” on page 329;

Dsnames
See “Defining Data Sets for Batch Processing” on page 332;

Workdsn
See “Defining ISPF Temporary Data Sets for Batch Build” on page 334;

Enabling and Disabling AT / MRT Syntax Checking

SA z/OS allows you to specify complete NetView automation table entries or message revision table entries for example by the override panels in the MESSAGES/USER DATA policy or by the AT/MRT INSERTS policy for entry type MSG.

For these specifications a syntax check is performed which, however, requires a special setup because the check is not run within the customization dialog itself, but within a NetView address space.

If a syntax check cannot be performed due to communication problems with NetView or because NetView is not available at all, a warning message is issued. This message is issued whenever the AT or MRT specification is modified. To avoid this message, the checking can be disabled with the following option on the 'Message' selection of the 'Settings Menu' in Figure 262 on page 327.

```
Enable checking of AT and MRT specifications requiring NetView:
  AT / MRT syntax check. . . YES (YES NO)
```

Figure 263. Automation Table Override Checking

The installation prerequisites are:

- the REXX function package INGTXFPG available in TSO/E
- a NetView running on the local system
- the command receiver task CMDRCVR and the automation operators AUTCMD0x must be up and running in the local NetView.

The details are described in the "Command Receivers" chapter of *IBM System Automation for z/OS Customizing and Programming*.

The syntax check consists of the following steps:

- For the AT syntax check, %INCLUDE AOFMSGSY is inserted as first line so that the synonyms of SA z/OS do not cause error messages. Beyond that, no other variable resolution takes place.
- For the MRT syntax check in policy AT/MRT INSERTS for entry type MSG, the condition UPON (OTHERMSG) is inserted as first line.
- The AT or MRT specification is sent to the local NetView by the command receiver infrastructure.
- The AT syntax is checked with the command 'AUTOTBL MEMBER=TEMPAT,TEST'
- The MRT syntax is checked with the command 'REVISE MSG MEMBER=TEMPAT,TEST'
- Each check is recorded in the netlog with the message 'ING335I Execute remote command on behalf of JOBID=RTL CLIST=AOFFTADV COMMAND=.....'
- The result of the syntax check, which is sent to the console, is caught by the work operator and returned to TSO

- In the customization dialog some superfluous messages like 'DSI412I THE FOLLOWING ERRORS ENCOUNTERED IN PROCESSING DSIPARM MEMBER TEMPAT' are dropped and the remaining syntax error messages are displayed in a pop-up window.

Extending Policy Definitions

With SA z/OS you can extend your policy definitions by creating new policy items or modifying existing ones. Any user-defined policy items that you create or modify are now kept separate from the SA z/OS policies.

This means that with future releases of SA z/OS you will not have to redefine those policy items that you have created or modified.

To create new policy items or modify existing ones, you should perform the following steps:

1. Select option **10 Policy** from the Customization Dialog Settings Menu (see Figure 262 on page 327). An Entry Type Selection panel is displayed.
2. Select the entry type that you want to create a new policy item or modify one for. The Edit Policy Selections panel is displayed, listing all current policy items for that entry type, as shown in Figure 264 on page 329. Any user-defined policy items are indicated by USR in the **Status** column.

```
  COMMANDS  ACTIONS  HELP
------------------------------------------------------------------------------
AOFGCPO1                    Edit Policy Selections          Row 1 to 14 of 44
Command ===> _____________________________________________  SCROLL===> PAGE

Entry Type : Application

Act   Stat  Policy Name          Policy Description
___   SEL   DESCRIPTION         Enter description
___   SEL   UPWARD CLASS        Select a class to inherit data from
___   SEL   DOWNWARD CLASS/INST  Select classes or instances that inherit data
___   USR   WAC INFO            Define WAC application information
___   SEL   APPLICATION INFO    Define application information
___   SEL   AUTOMATION FLAGS    Define application automation flags
___   SEL   TRIGGER             Select trigger
___   SEL   SERVICE PERIOD      Select service period
___   SEL   RELATIONSHIPS       Define relationships
___   SEL   MESSAGES/USER DATA  Define messages and user data
___   SEL   STARTUP             Define startup procedures
___   SEL   SHUTDOWN            Define shutdown procedures
___   SEL   THRESHOLDS          Define error thresholds
___   SEL   MINOR RESOURCE FLAGS Define application sub-component flags
```

Figure 264. Sample of Edit Policy Selections Panel

3. In the Edit Policy Selections panel you can:
   - Create a new entry by entering NEW at the command line. The new entry is added to the top of the list.
   - Create a new entry by entering INSERT in the **Act** column. The new entry is added after the entry where INSERT was specified.
   - Edit an entry by entering EDIT in the **Act** column. It is recommended to edit only user-defined entries. The existing SA z/OS policy definitions should not be modified.
   - Delete a user-defined entry by entering DELETE in the **Act** column.
   - Suppress an SA z/OS entry by entering REMOVE in the **Act** column.
   - Activate a deselected entry by entering SELECT in the **Act** column.
   - Leave the panel and save all changes by entering the END command.
   - Discard all changes by entering the CANCEL command.
4. If you choose to insert a new policy item for an entry type, or edit an existing policy item, the Define Policy Selection panel is displayed. The example in Figure 265 on page 330 shows how to define policy item APPLICATION INFO of entry type Application.

```
  COMMANDS  HELP
-------------------------------------------------------------------------------
AOFGCPO2                     Define Policy Selection
Command ===> ____________________________________________________________

Entry Type : Application

Enter or update the following to define the Policy Definition:

 Name . . . . . APPLICATION INFO___
 Description. . Define application information_____________
 Help Action. . PGM(ISPTUTOR) PARM(AOFHLPA0)_____________________________
 Edit Action. . CMD(AOFFLCVW DISPL,D0M)__________________________________
 ISPF Tables. . _________________________________________________________
 User Note. . . _________________________________________________________
           . . . _________________________________________________________
           . . . _________________________________________________________
           . . . _________________________________________________________
           . . . _________________________________________________________

 Filter attributes . . ____________________________
```

Figure 265. Define Policy Selection Panel

If you want to create policy items you must specify an ISPF action for the selection of the new policy item from the Policy Selection panel. You must then create your own ISPF input panel for the new policy item.

Each policy selection consists of information defining:

- How the policy appears on the *Policy Selection* panel.
- How the policy is processed when it is selected.
- Under what conditions the policy should be displayed.

This panel has the following fields:

Entry Type
Indicates the entry that the policy is being defined for. This field is set based on the entry type you had previously selected.

Policy Name
This is the name of the policy you are defining. It appears in the first column of the Policy Selection panel. This field is required.

Description
This is a short description of the policy. It appears in the second column of the Policy Selection panel. This field is required.

Help Action
Specifies the action to be taken when policy help is requested (by entering HELP in the Action column on the Policy Selection panel). The action must be a valid ISPF SELECT service. For example, to display an ISPF panel enter:

```
PGM(ISPTUTOR) PARM(panel-name)
```

The help text should describe the function provided by this policy rather than describing how to enter the data for the policy.

This field is optional; if no action is specified HELP will not be available from the Policy Selection panel for this policy.

Edit Action
Specifies the action to be taken when the policy is selected from the Policy Selection panel. The action must be a valid ISPF SELECT Service. This field is required.

ISPF Tables
Allows you to specify a list of ISPF tables which are used in this policy. All the table names specified here are provided for that policy if invoked in BROWSE mode. This specification is optional and only needed for BROWSE.

User Note
These fields are not shown on the Policy Selection panel. They can be used for documentation purposes. These fields are optional.

You can also specify filtering conditions, that is, attributes of the entry being processed from the Policy Selection panel that can be used to determine whether this policy should be displayed. The following filtering information can be specified:

Filter attributes
This specifies attributes that an entry must have in order for this policy to be displayed. This field contains multiple words, each word identifying one attribute. All the attributes specified must be satisfied in order for the policy to be displayed. If no attributes are specified then the policy is valid for all entries. The attributes that can be specified are defined by SA z/OS and differ based on the entry type, as shown in Table 8 on page 331.

Table 8. Policy Selection Filter Attributes

Entry Type	Attribute	Value
Group	Group type	(blank) STANDARD SYSPLEX
System	Operating System type	(blank) CF KVMIBM LINUX MVS VM VSE
ApplicationGroup	ApplicationGroup type	(blank) SYSPLEX SYSTEM
Application	Object type	(blank) CLASS INSTANCE
	Category	(blank) CICS DB2 E2EAGT JES2 JES3 IMAGE IMS INFOSPHERE LIFELINE MQ OPC TCPIP USS

Table 8. Policy Selection Filter Attributes (continued)		
Entry Type	**Attribute**	**Value**
Processor	Processor type/mode	(blank) ESA LPAR PSM
Others	–	

The following rules apply to the filtering attributes:

1. If no attributes are specified (indicated by *(blank)* in Table 8 on page 331), the policy is always displayed for all entries.
2. If multiple attributes are specified then all attributes must be satisfied in order for the policy to be displayed. For example:

   JES2 CLASS
   This displays the policy for application entries that are classes and are of category JES2.

   JES2
   This displays the policy for application entries that are of category JES2 and either class or instances.
3. For each ATTRIBUTE, the words listed in the VALUE column are mutually exclusive. If you specify both values the policy will never be displayed as both conditions cannot be true at the same time. Here is an example for systems:

   MVS VM
   This is never displayed because a system can be either MVS or VM but not both.
4. No validity checking is done on the attribute values. If an invalid value is specified the policy will never be displayed since the condition cannot be satisfied. Here is an example for systems:

   STANDARD
   This is never displayed because a system cannot be of type STANDARD.

Defining Data Sets for Batch Processing

Use Option 11 of the Customization Dialog Settings Menu panel to define the batch processing data sets.

To use the batch options of the build or migrate function you must first specify the names of the data sets required for the batch processing. These names form the DD name concatenations to be included in the JCL of the batch processing job.

```
  COMMANDS  HELP
------------------------------------------------------------------------------
AOFGCUSD                 Data Set Customization Details      Row 1 to 16 of 35
Command ===> _____________________________________________  SCROLL===> PAGE

DDname  Seq Bas Data set name                                  Volume Unit
AOFEXEC  98 YES 'ING.SINGIREX'                                 ______ ________
AOFEXEC  99 YES 'SYS1.ISPF.ISPEXEC'                            ______ ________
AOFIPDB  99 YES 'ING.SINGIPDB'                                 ______ ________
AOFLLIB  98 YES 'ING.SINGMOD1'                                 ______ ________
AOFLLIB  99 YES 'SYS1.ISPF.ISPLOAD'                            ______ ________
AOFMLIB  98 YES 'ING.SINGIMSG'                                 ______ ________
AOFMLIB  99 YES 'SYS1.ISPF.ISPMENU'                            ______ ________
AOFPLIB  98 YES 'ING.SINGIPNL'                                 ______ ________
AOFPLIB  99 YES 'SYS1.ISPF.ISPPENU'                            ______ ________
AOFSLIB  98 YES 'ING.SINGISKL'                                 ______ ________
AOFSLIB  99 YES 'SYS1.ISPF.ISPSLIB'                            ______ ________
AOFSTEP  99 YES 'ING.SINGMOD1'                                 ______ ________
AOFTABL  99 YES 'ING.CUSTOM.AOFTABL'                           ______ ________
AOFTLIB  96 NO  'OPER.ISPF.ISPPROF'                            ______ ________
AOFTLIB  97 NO  'ING.CUSTOM.AOFTABL'                           ______ ________
AOFTLIB  98 YES 'ING.SINGITBL'                                 ______ ________
AOFTLIB  99 YES 'SYS1.ISPF.ISPTLIB'                            ______ ________
```

Figure 266. SA z/OS Data Set Customization Details Panel

On the Data Set Customization Details panel, a table is displayed with groups of data definition (DD) names and data set names. You must modify the data set names in accordance with your local naming conventions.

Each column can be modified as follows:

DDname
No new DD names can be added, but a new entry for an existing DD name can be added at the end of the table. It is inserted at the correct position within the table when it is saved. An entry can be deleted by blanking out the DD name, but if an entry is removed incorrectly the batch functions become inoperative.

Seq
This entry should be a number from 1 through 99. This value positions the entry in the correct concatenation sequence when the JCL is built. The higher the number, the further down the concatenation sequence it appears. The values 98 and 99 are reserved.

Base
The Base column indicates a reserved DD name entry and should not be removed. All entries that are not reserved (see the **Seq** column description) must have the value of NO.

Data set name
This is the fully-qualified data set name, including quotation marks, that is represented by this DD name.

Volume
May be left blank for catalogued data sets, otherwise enter the label ID of the volume where the data set is located (as would be coded for an ALLOC JCL entry). SMS may be entered for any data set under space management.

Unit
Must be left blank for catalogued and space managed data sets, otherwise you must enter the unit relevant to the volume where the data set is located (as would be coded for an ALLOC JCL entry).

AOFIPDB is needed to get access to the automation manager logic file.

For AOFTLIB the following data sets should be additionally allocated to the ISPF table libraries:

- The user's ISPF profile may be added to obtain access to the dialog, messages and logging options. If you omit this, the options that provide the most information are always used. This relates only to the settings in option 3 Message of the Customization Dialog Settings Menu panel
- The table output data set of the Customization Dialog is needed to get access to the tables with user modifications, for example, the data set specifications.

In the example in Figure 266 on page 333, these are:

```
'OPER.ISPF.ISPPROF'
'ING.CUSTOM.AOFTABL'
```

The ISPF load libraries should be allocated to DDname AOFSTEP if they have not been defined in LPA.

To avoid ISPF enqueues with the ISPF input table library name, a temporary data set is always added as the first data set of the ISPTLIB data set allocation.

Defining ISPF Temporary Data Sets for Batch Build

Use Option 12 in the Customization Dialog Settings Menu panel to define the data sets for the batch build.

SA z/OS displays the ISPF Temporary Data Sets Preallocation for Batch panel (see Figure 267 on page 334).

```
  OPTIONS  HELP
------------------------------------------------------------------------------
AOFGWKDS        ISPF Temporary Data Sets Preallocation for Batch
Command ===> ____________________________________________________________
                                                                More:     +
 Specify ISPF work data sets, used by ISPF for processing file tailoring
 services during batch build.

//ISPWRK1 DD DISP=NEW,UNIT=SYSALLDA,SPACE=(CYL,(5,10)),_____________________
//           DCB=(LRECL=256,RECFM=FB)_____________________________________
//ISPWRK2 DD DISP=NEW,UNIT=SYSALLDA,SPACE=(CYL,(5,10)),_____________________
//           DCB=(LRECL=256,RECFM=FB)_____________________________________
//ISPWRK3 DD DISP=NEW,UNIT=SYSALLDA,SPACE=(CYL,(5,10)),_____________________
//           DCB=(LRECL=256,RECFM=FB)_____________________________________
//ISPWRK4 DD DISP=NEW,UNIT=SYSALLDA,SPACE=(CYL,(5,10)),_____________________
//           DCB=(LRECL=256,RECFM=FB)_____________________________________
//ISPCTL1 DD DISP=NEW,UNIT=SYSALLDA,SPACE=(CYL,(5,10)),_____________________
//           DCB=(LRECL=80,RECFM=FB)______________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
```

Figure 267. ISPF Temporary Data Sets Preallocation for Batch Panel

This panel allows you to add or modify job control data to preallocate temporary ISPF data sets that are used for the batch build. The build function creates the ACF and AMC output files in two steps:

1. All members are created and stored in a temporary file using ISPF file tailoring.
2. This file is written to disk creating all the individual members.

To hold the intermediate files, ISPF work and control data sets are used. If the default allocations of ISPF are not sufficient, they can be changed on this panel.

The ISPWRK*x* ddnames are used by ISPF for file tailoring services. The ISPCTL*x* ddnames are used by ISPF to hold the file tailoring output and to pass it to the subsequent functions that write the members to the output data set.

User-written Functions

Option **U User** on the Customization Dialog Primary Menu displays the User-written Functions Selection Menu. This menu allows you to add installation-specific functions to the customization dialog.

As an example, one selection has already been provided:

```
1 - Transmit      Transmit build output to a remote node
```

If you select this option 1, SA z/OS displays the Send Policy Data Base panel (see Figure 268 on page 335), where you can distribute policy databases to remote nodes.

To add further selections, edit the panel (member AOFGUSR) and do the following:

- Add selection number and description to the panel)BODY section
- Add a line to the TRANSLATE instruction in the panel)PROC section, containing the selection number and the command string which invokes the new function.

The Send Policy Data Base panel allows you to transmit a build output data set to a specified node and user ID.

```
  MENU  HELP
------------------------------------------------------------------------------
AOFGCMDX             Send Automation Configuration Data Sets
Command ===> ____________________________________________________________

  To transmit the build output data set to a remote node,
  specify or revise the following values:

  Data set name . . . 'OPER1.USER.SOCNTL'_____________________________

  Target:
  User ID or nickname . . . OPER1____  Node ID  . . SYS1____

  Transmit command parameters:
  Command parameters. . . . ____________________________________________

  To issue the transmit command, enter the SEND command ( PF6 ).
  To exit from this panel without transmitting data, enter the CANCEL
  or END command.
```

Figure 268. Send Automation Configuration Data Sets Panel

With the parameter specified on this screen, a TSO TRANSMIT command is created. The transmission is started by issuing the SEND command (PF 6).

Data set name
This entry field is filled with the build output data set name of the current policy database, if that data set name is available. The name is always fully qualified and follows the TSO data set naming conventions.

User ID or nickname
allows to specify the target user ID or nickname. Input in this field is saved across sessions.

Node ID
allows to specify the target node. This field may remain empty, if a nickname has been specified. Input in this field is saved across sessions.

Command parameters
allows to specify parameters for the TRANSMIT command. Any values specified here are appended to the TRANSMIT command as they have been typed in. Input in this field is saved across sessions.

Alternate and Tertiary Configuration Support

There might be situations, for example, in disaster recovery or on weekends, when you want to have an alternative automation configuration for one or more systems out of your enterprise (policy database). In some other cases, in addition to an alternative automation, you might need a tertiary configuration so that three distinct configurations can be built using the same policy database.

The Customization Dialog allows you to specify an alternate or tertiary configuration by:

- Marking a system as part of an alternate configuration or a tertiary configuration
- Allowing a specific build for a normal, alternate, or tertiary configuration
- Enforcing the build of a normal, alternate, or tertiary configuration into different output data sets

All other definitions and links remain unchanged, for example, an application group can be linked to a normal system, an alternate system, a tertiary system, or to all of them.

How to Define Alternate and Tertiary Configurations for Systems

To define a system for an alternative configuration, add a "+" sign to the end of the MVS system name in the **Image/System name** field, either on the Define New Entry panel or in the SYSTEM INFO policy item. For example, SYS1+, where "+" indicates that SYS1 system belongs to the alternate configuration. To define a system for a tertiary configuration, add a "-" sign to the end of the MVS system name.

Furthermore, these "+" and "-" signs can be specified in the supporting resource definition of a relationship, and on the initial migration panel.

When a new system is defined and its processor operations name (in the **ProcOps name** field) is defaulted with the MVS system name, any "+" or "-" is removed.

When linking systems to a group or subgroup, the configuration type (normal, alternate, tertiary) is not checked. For example, if a sysplex is intended for an alternate configuration, you have to ensure that only systems for this configuration are linked to that sysplex. The same applies to tertiary configuration.

How to Build Alternate and Tertiary Configurations

The **Configuration Build** panel (see Figure 251 on page 288) has an option to select either a normal, alternate, or tertiary configuration build. The default is NORMAL. To avoid overwriting an existing configuration with wrong data, the build checks the configuration type in the build output data set. If there is already a configuration of a different type, the build is not started, and a warning message is displayed. If the policy database contains a normal and an alternate configuration, or an additional tertiary configuration, they have to be built into different output data sets.

Furthermore, the policy database name is checked to prevent an automation control file being destroyed by building a configuration into the wrong output data set.

When building an alternate configuration, all "+" signs are removed from the MVS system name. When building a tertiary configuration, all "-" signs are removed from the MVS system name. Thus the generated automation configuration files can be used for automation simply by switching the data sets.

If a policy database contains two configurations or three configurations, the build picks out the systems that are linked to the selected configuration:

- The ACF map AOFACFMP contains only the systems marked for the selected configuration. Systems for alternate configuration are marked by the "+" sign added to the MVS system names, while systems for tertiary configuration are marked by the "-" sign added to the MVS system names.
- System include members (ACFZ*xxx*) are generated only for the systems of the selected configuration.
- The AMC file, which is sysplex-oriented, consists of members for each sysplex and stand-alone system. In each sysplex, it contains only the systems that are marked for the selected configuration, and stand-alone system members are created only for systems of the selected configuration.
- The ATs are generated only for the systems of the selected configuration.
- The MPFLSTxx member is built for the messages that belong to the selected configuration.

Restrictions

For performance reasons, building the complete policy database (option 1), does not check which system each object is linked to. Thus the build output data set will contain fragments of each object in the policy database, regardless of which configuration they are linked to.

Of course, fragments of the wrong configuration cannot be accessed by automation because they are not included via system main include members. However, the build output data sets need to be large enough to hold all fragments.

Furthermore, with build option 3 (to build an entry type or entry name), it is possible to update each fragment in a data set, independent of its link to a configuration.

The *Unlinked* report (see Chapter 6, “Creating Reports about Policy Databases,” on page 279) does not include relationships that have been defined across configurations. That means, if a relationship is

defined between a resource in configuration NRM and another resource in configuration ALT, it is not included by the build function. However, the *Unlinked* report does not show it as not used.

It is not possible to define processor operations proxy resources for systems belonging to the alternate or tertiary configuration because the Processor Operations name must be different for all systems. For examples on how to use proxy definitions, see "Automating Processor Operations Resources of z/OS Target Systems Using Proxy Definitions" in *IBM System Automation for z/OS Customizing and Programming*.

Appendix C. Add-on policies

This section provides information about add-on policies in IBM Z System Automation.

- "*BASE" on page 340
  - JES, ICSF, OMVS, Automation Manager, System Automation Data Store, NetView, SDSF, SDSFAUX, RMF, RACF, TSO, HSM, HZSPROC, TCPIP, VTAM, and others
  - Base Communication Services (USS)
  - Secure Shell Daemon (SSHD)
  - File Transfer Protocol Daemon (FTPD)
  - TELNET Server for 3270 (TN3270)
  - IBM HTTP Server
  - NFS Server and Client
  - Dynamic Virtual IP Addressing (DVIPA)
- "*CICS" on page 346
- "*DB2" on page 348
- "*E2E" on page 351
  - E2E Automation Adapter
  - E2E Automation Agent
- "*GDPS" on page 354
- "*IBMCOMP" on page 356
  - z/OS Common Information Model
  - Automation RDS Archiver
  - Automation Command Receiver
  - Automation Webservices Adapter
  - NetView Event/Automation Service
  - z/OS MultiSite Workload Lifeline
  - Infosphere Q Replication for DB2
  - Infosphere Replication for IMS
  - z/OS Connect V1
  - z/OS Connect EE
  - WebSphere Application Server V7
  - IBM MQ
- "*IMS" on page 364
- "*ITM" on page 368
  - Automation Monitoring Analytics
  - OMEGAMON - NetView z/OS
  - OMEGAMON - z/OS
  - OMEGAMON - JVM on z/OS
  - OMEGAMON - IMS
  - OMEGAMON - CICS
  - OMEGAMON - DB2 Performance Monitor
  - OMEGAMON - Mainframe Networks on z/OS

© Copyright IBM Corp. 1996, 2017

  - OMEGAMON - MQ
- “*IWS” on page 374
- “*PROCOPS” on page 376
- “*SAPSRV” on page 380
- “*TBSM” on page 385

*BASE

IBM System Automation for z/OS

Version 4 Release 1

***BASE – Best Practice Policy**

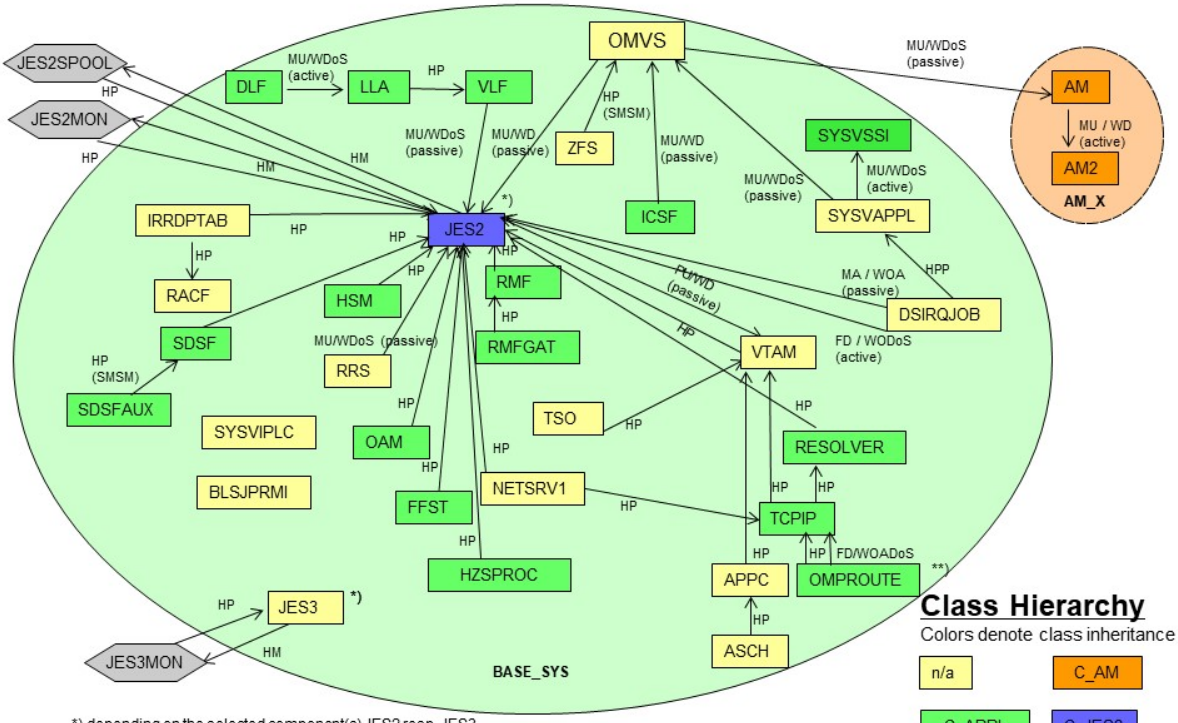
This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

1

*BASE – Best Practice Policy

• Base z/OS, JES2, JES3



*) depending on the selected component(s) JES2 resp. JES3
**) depending on the selected component DVIPA (see page 9)

Class Hierarchy

Colors denote class inheritance

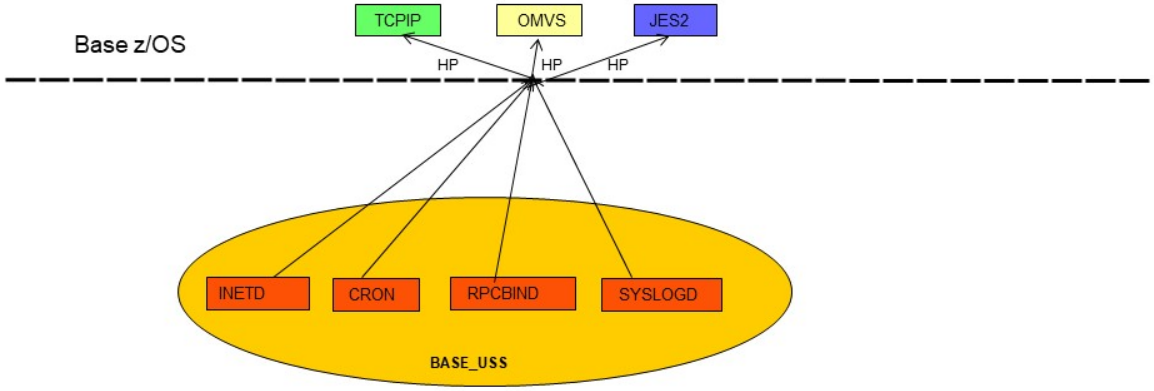
n/a | C_AM | C_APPL | C_JES2

2

© Copyright IBM Corp. 1996, 2017

*BASE – Best Practice Policy

• Base Communication Services (USS)



Class Hierarchy

Colors denote class inheritance

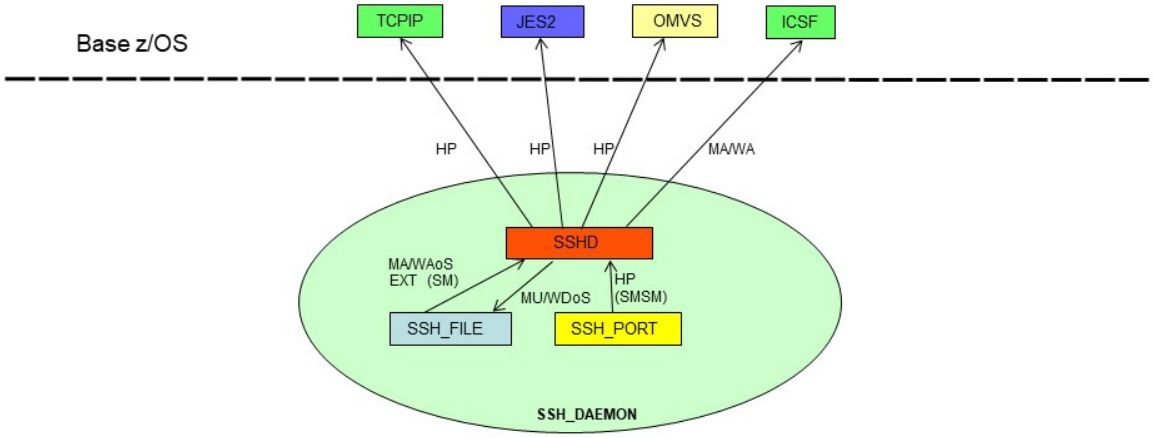
C_APPL | C_USS_APPL | C_JES2 | n/a

3

© Copyright IBM Corp. 1996, 2017

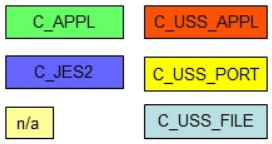
*BASE – Best Practice Policy

• Secure Shell Daemon (SSHD)



Class Hierarchy

Colors denote class inheritance

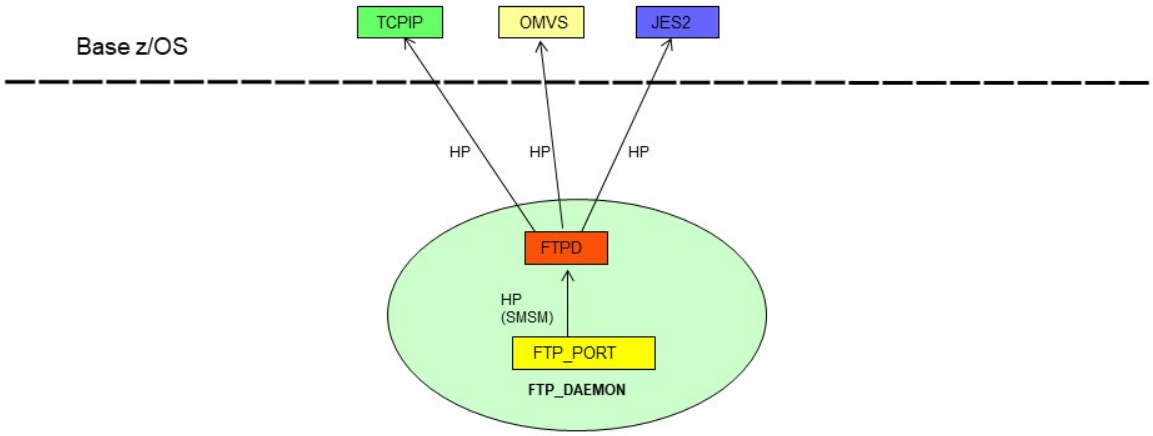


4

© Copyright IBM Corp. 1996, 2017

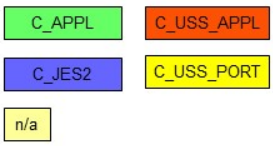
*BASE – Best Practice Policy

• File Transfer Protocol Daemon (FTPD)



Class Hierarchy

Colors denote class inheritance

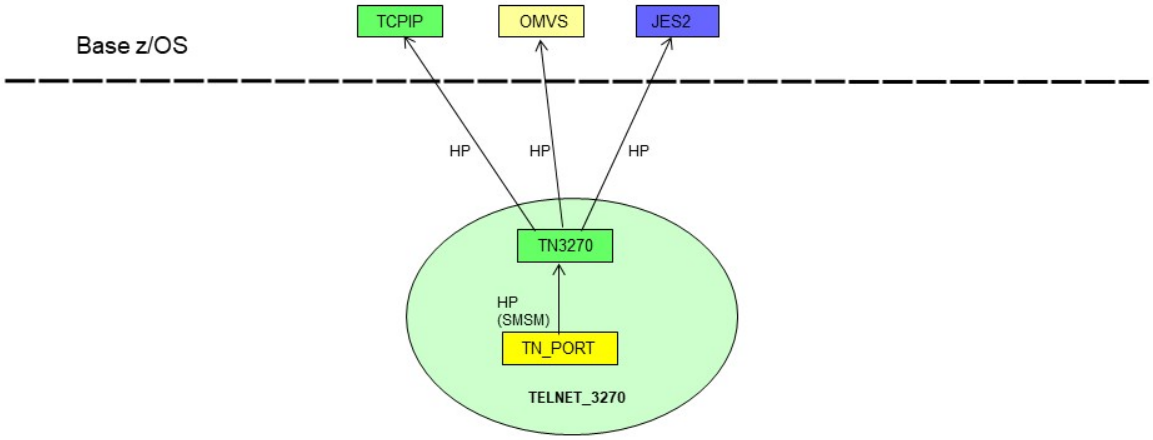


5

© Copyright IBM Corp. 1996, 2017

*BASE – Best Practice Policy

• TELNET Server for 3270 (TN3270)



Class Hierarchy

Colors denote class inheritance

C_APPL | C_USS_PORT

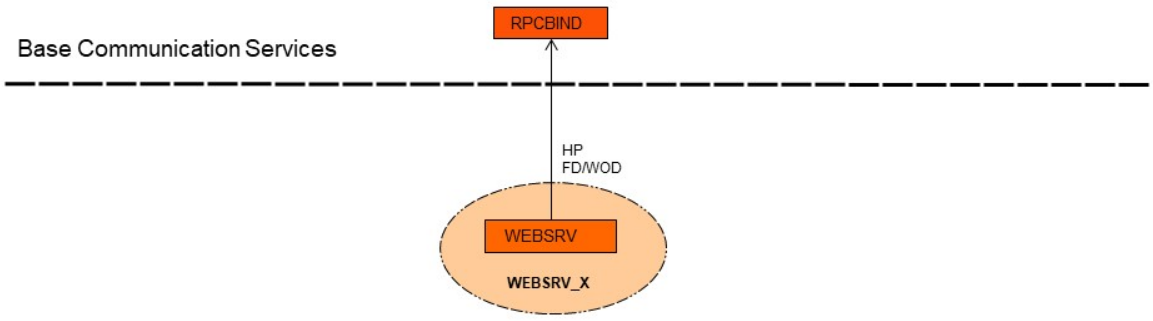
C_JES2 | n/a

6

© Copyright IBM Corp. 1996, 2017

*BASE – Best Practice Policy

• IBM HTTP Server



Class Hierarchy

Colors denote class inheritance

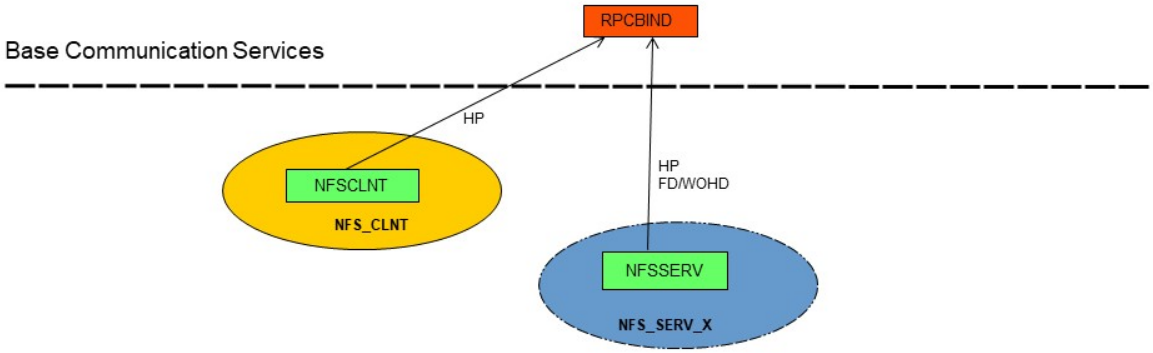
C_USS_APPL

7

© Copyright IBM Corp. 1996, 2017

*BASE – Best Practice Policy

• NFS Server and Client



Class Hierarchy

Colors denote class inheritance

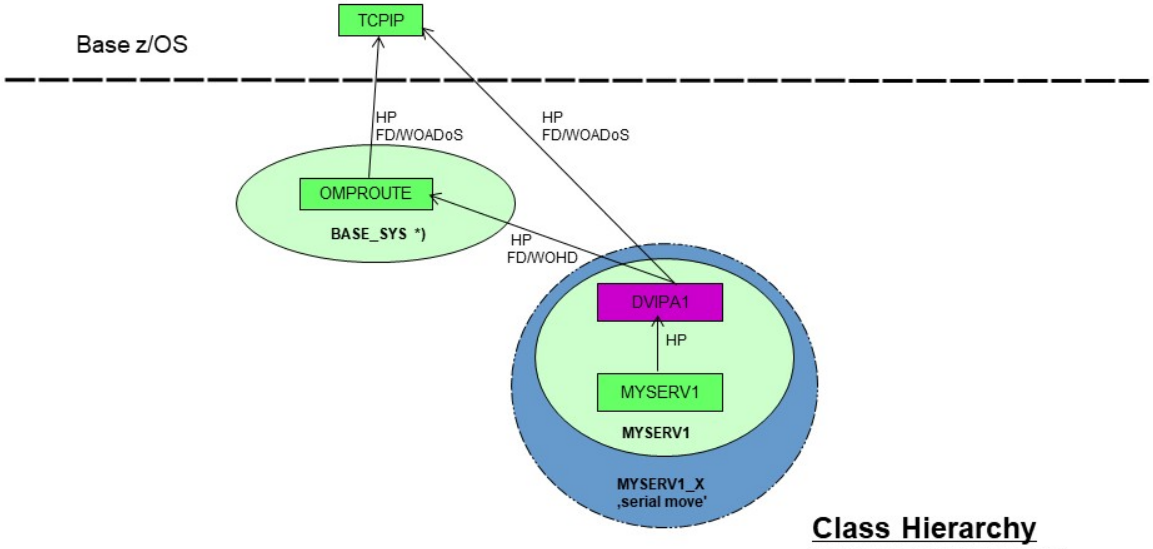
C_APPL C_USS_APPL

8

© Copyright IBM Corp. 1996, 2017

*BASE – Best Practice Policy

• Dynamic Virtual IP Addressing (DVIPA)



Class Hierarchy

Colors denote class inheritance

C_APPL C_DVIPA

*) if ONLY this component is selected BASE_SYS must be added and linked manually (see page 2)

9

© Copyright IBM Corp. 1996, 2017

Legend

Abbreviations

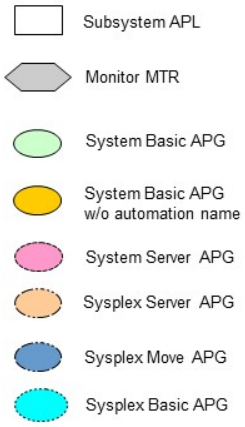
Relationship Types:

EXT	Externally
FD	ForceDown
MA	MakeAvailable
MU	MakeUnavailable
HM	HasMonitor
HP	HasParent
HPP	HasPassiveParent
PA	PrepareAvailable
PU	PrepareUnavailable

Conditions:

SMSM	StartsMeAndStopsMe
WA	WhenAvailable
WOA	WhenObservedAvailable
WAoS	WhenAvailableOrStarting
WD	WhenDown
WDoS	WhenDownOrStopping
WODoS	WhenObservedDownOrStopping
WOADoS	WhenObservedAssumedDownOrStopping
WOD	WhenObservedDown
WOAD	WhenObservedAssumedDown
WU	WhenUnavailable
WOHD	WhenObservedHardDown
WoWAUoS	WhenObservedWasAvailableUnknownOrSysGone

Symbols



10

© Copyright IBM Corp. 1996, 2017

IBM System Automation for z/OS

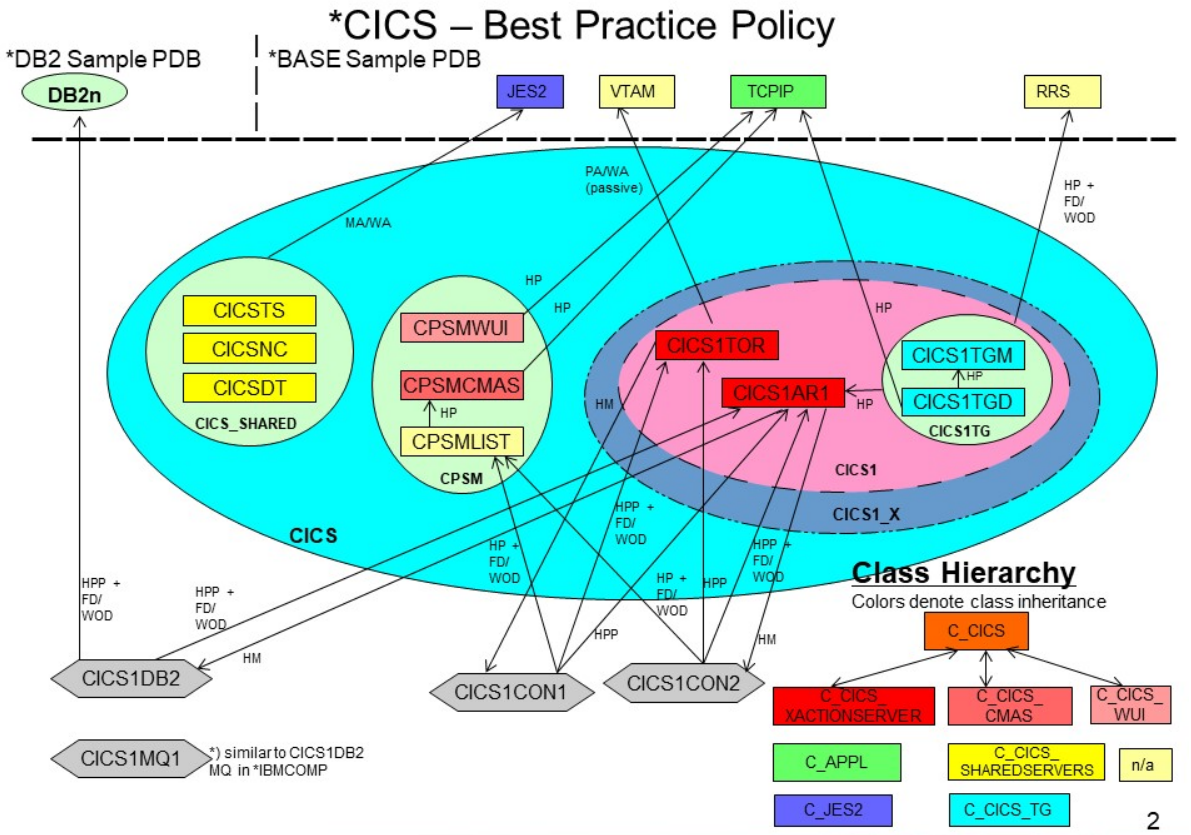
Version 4 Release 1

*CICS – Best Practice Policy

This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

1



© Copyright IBM Corp. 1996, 2017

Legend

Abbreviations

Relationship Types:

EXT	Externally
FD	ForceDown
MA	MakeAvailable
MU	MakeUnavailable
HM	HasMonitor
HP	HasParent
HPP	HasPassiveParent
PA	PrepareAvailable
PU	PrepareUnavailable

Conditions:

SMSM	StartsMeAndStopsMe
WA	WhenAvailable
WAoS	WhenAvailableOrStarting
WD	WhenDown
WDoS	WhenDownOrStopping
WADoS	WhenAssumedDownOrStopping
WOD	WhenObservedDown
WU	WhenUnavailable
WOHD	WhenObservedHardDown

Symbols

- Subsystem APL
- Monitor MTR
- System Basic APG
- System Basic APG w/o automation name
- System Server APG
- Sysplex Server APG
- Sysplex Move APG
- Sysplex Basic APG

3

© Copyright IBM Corp. 1996, 2017

IBM System Automation for z/OS

Version 4 Release 1

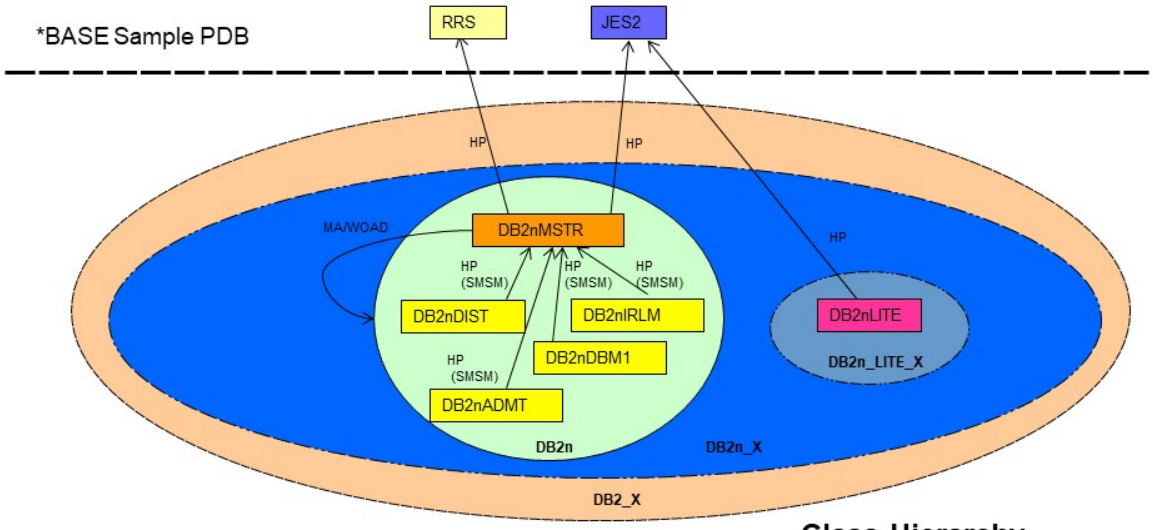
*DB2 – Best Practice Policy

This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

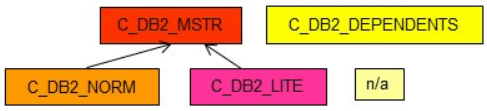
1

*DB2 – Best Practice Policy
Policy Entries



Class Hierarchy

Colors denote class inheritance

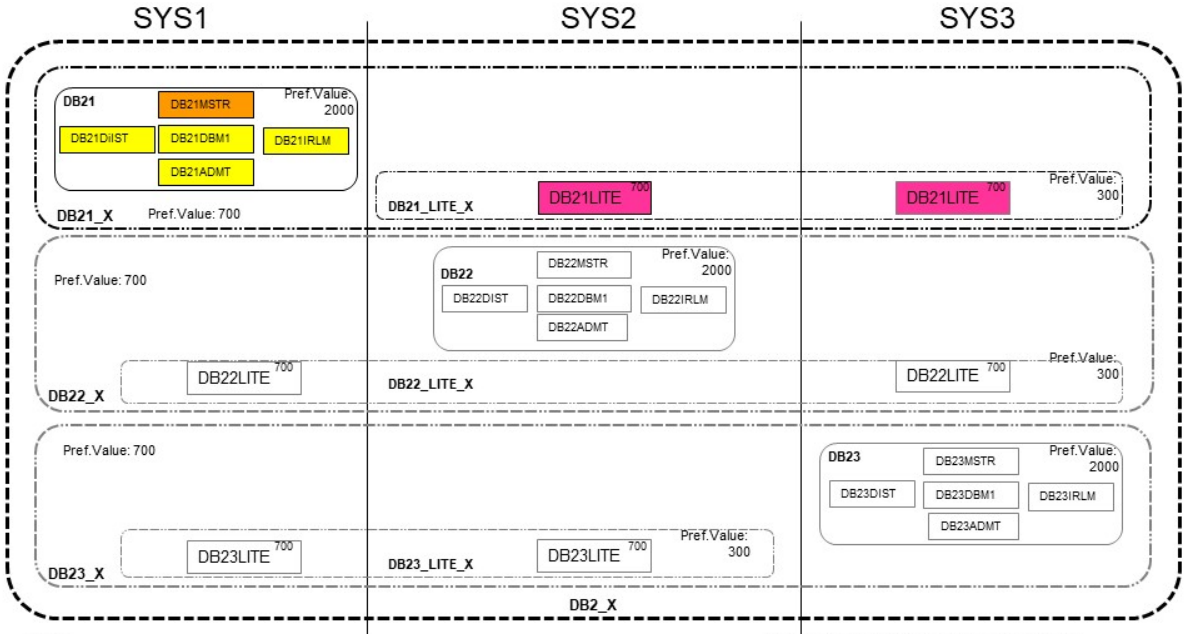


n: System Identification
(e.g. 1 for SYS1)

2

© Copyright IBM Corp. 1996, 2017

*DB2 – Best Practice Policy
Resources



Note:
You may use DB2 resp. DB2n as templates when creating further DB2 Subsystems or Data Sharing Groups.

DB2 Subsystem Naming Proposal: DBmn
m: DB2 Data Sharing Group ID
(e.g. 2)
n: System Identification
(e.g. 1 for SYS1)

3

© Copyright IBM Corp. 1996, 2017

Legend

Abbreviations

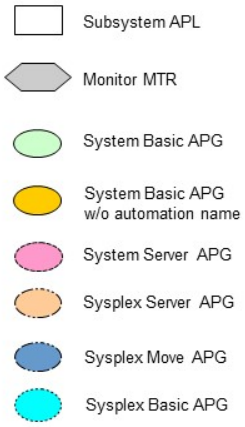
Relationship Types:

EXT	Externally
FD	ForceDown
MA	MakeAvailable
MU	MakeUnavailable
HM	HasMonitor
HP	HasParent
HPP	HasPassiveParent
PA	PrepareAvailable
PU	PrepareUnavailable

Conditions:

SMSM	StartsMeAndStopsMe
WA	WhenAvailable
WAoS	WhenAvailableOrStarting
WD	WhenDown
WDoS	WhenDownOrStopping
WADoS	WhenAssumedDownOrStopping
WOD	WhenObservedDown
WOAD	WhenObservedAssumedDown
WU	WhenUnavailable
WOHD	WhenObservedHardDown

Symbols



4

© Copyright IBM Corp. 1996, 2017

IBM System Automation for z/OS

Version 4 Release 1

*E2E – Best Practice Policy

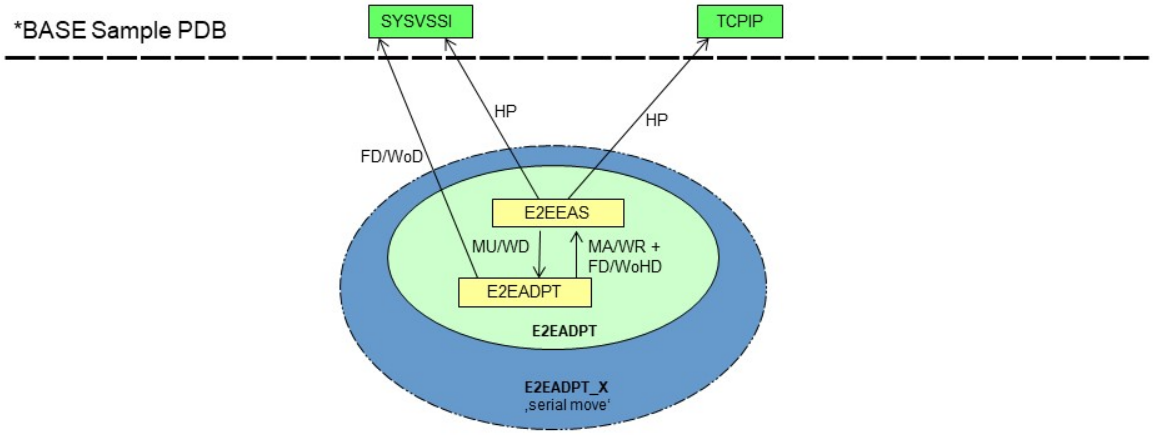
This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

1

*E2E – Best Practice Policy

• E2E Automation Adapter



Class Hierarchy

Colors denote class inheritance

n/a C_APPL

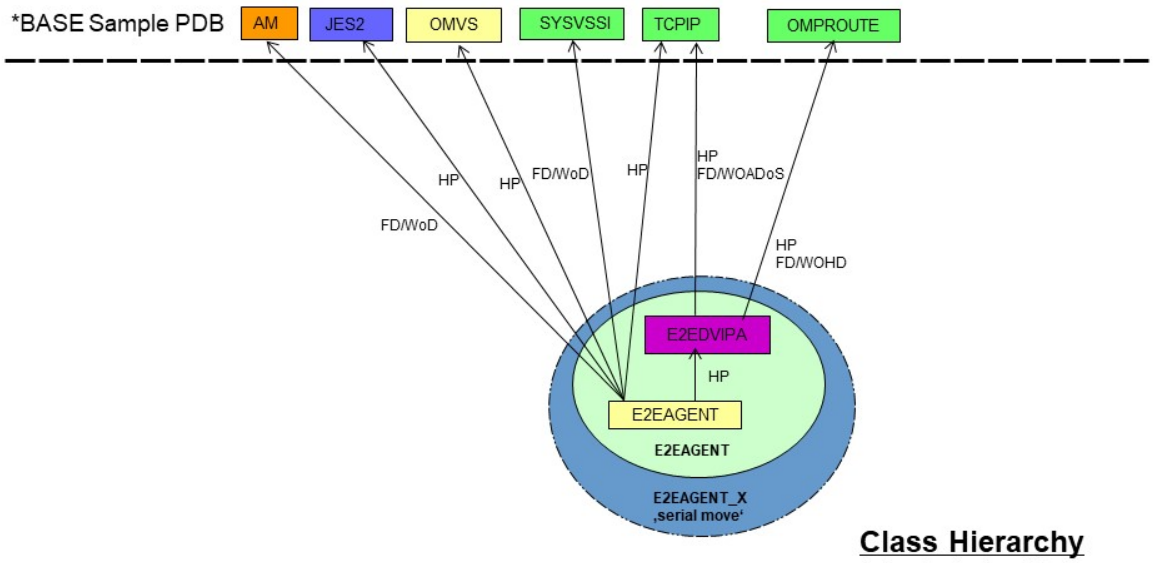
2

IBM Software

© Copyright IBM Corp. 1996, 2017

*E2E – Best Practice Policy

• E2E Automation Agent



Class Hierarchy

Colors denote class inheritance

C_AM C_JES2 n/a

C_APPL C_DVIPA

3

IBM Software

© Copyright IBM Corp. 1996, 2017

Legend

Abbreviations

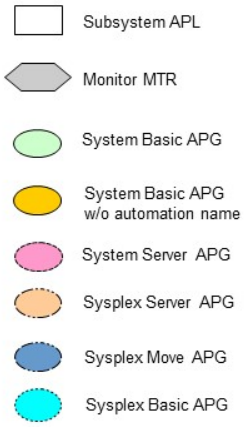
Relationship Types:

EXT	Externally
FD	ForceDown
MA	MakeAvailable
MU	MakeUnavailable
HM	HasMonitor
HP	HasParent
HPP	HasPassiveParent
PA	PrepareAvailable
PU	PrepareUnavailable

Conditions:

SMSM	StartsMeAndStopsMe
WA	WhenAvailable
WAoS	WhenAvailableOrStarting
WR	WhenRunning
WD	WhenDown
WDoS	WhenDownOrStopping
WADoS	WhenAssumedDownOrStopping
WOD	WhenObservedDown
WU	WhenUnavailable
WOHD	WhenObservedHardDown

Symbols



4

IBM Software

© Copyright IBM Corp. 1996, 2017

IBM System Automation for z/OS

Version 4 Release 1

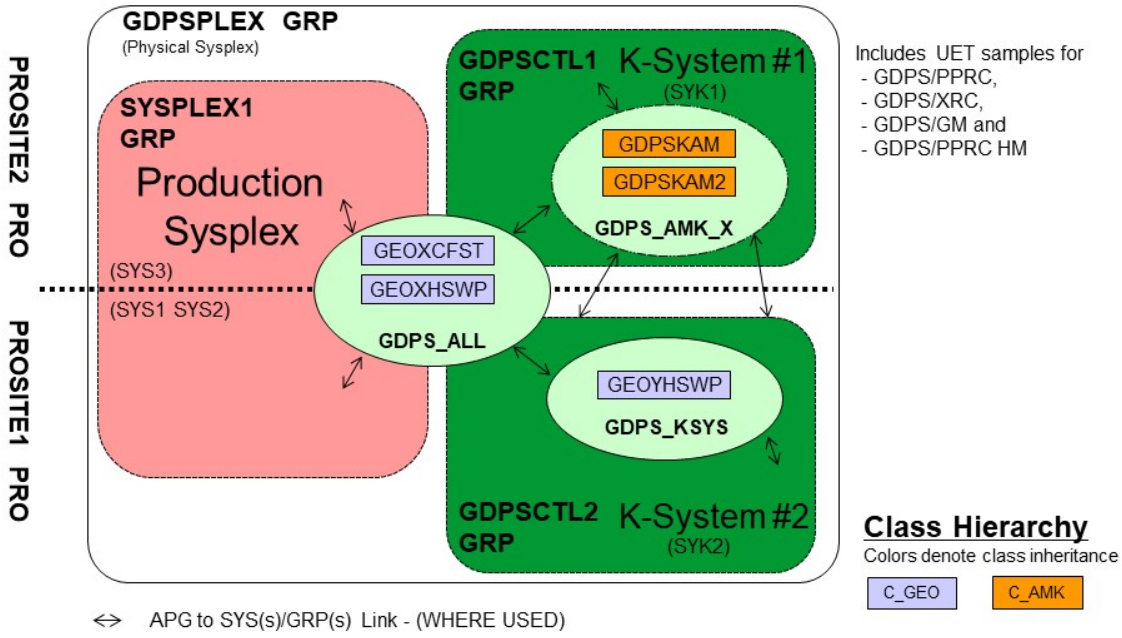
*GDPS – Best Practice Policy

This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

1

*GDPS - Best Practice Policy



2

© Copyright IBM Corp. 1996, 2016

Legend

Abbreviations

Relationship Types:

EXT	Externally
FD	ForceDown
MA	MakeAvailable
MU	MakeUnavailable
HM	HasMonitor
HP	HasParent
HPP	HasPassiveParent
PA	PrepareAvailable
PU	PrepareUnavailable

Conditions:

SMSM	StartsMeAndStopsMe
WA	WhenAvailable
WOA	WhenObservedAvailable
WAoS	WhenAvailableOrStarting
WD	WhenDown
WDoS	WhenDownOrStopping
WODoS	WhenObservedDownOrStopping
WOD	WhenObservedDown
WU	WhenUnavailable
WOHD	WhenObservedHardDown

Symbols

- Subsystem APL
- Monitor MTR
- System Basic APG
- System Basic APG w/o automation name
- System Server APG
- Sysplex Server APG
- Sysplex Move APG
- Sysplex Basic APG

3

© Copyright IBM Corp. 1996, 2016

*IBMCOMP

IBM System Automation for z/OS

Version 4 Release 1

***IBMCOMP – Best Practice Policy**

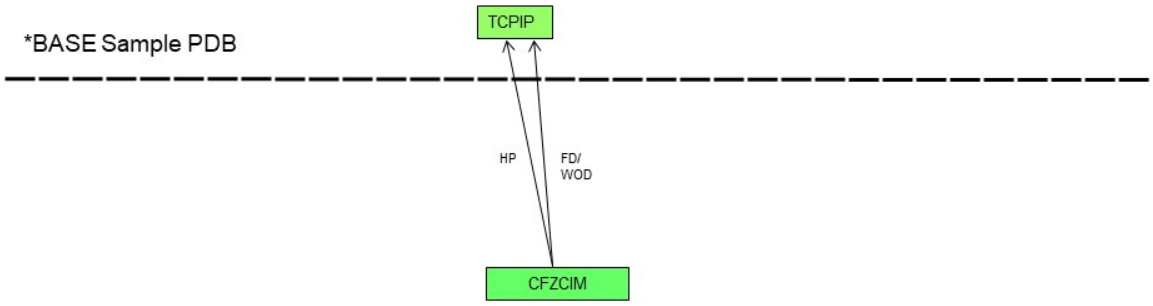
This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

1

*IBMCOMP – Best Practice Policy

• z/OS Common Information Model



Class Hierarchy

Colors denote class inheritance

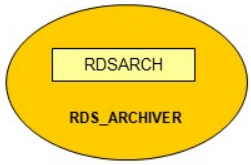
C_APPL

2

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• Automation RDS Archiver



Class Hierarchy

Colors denote class inheritance

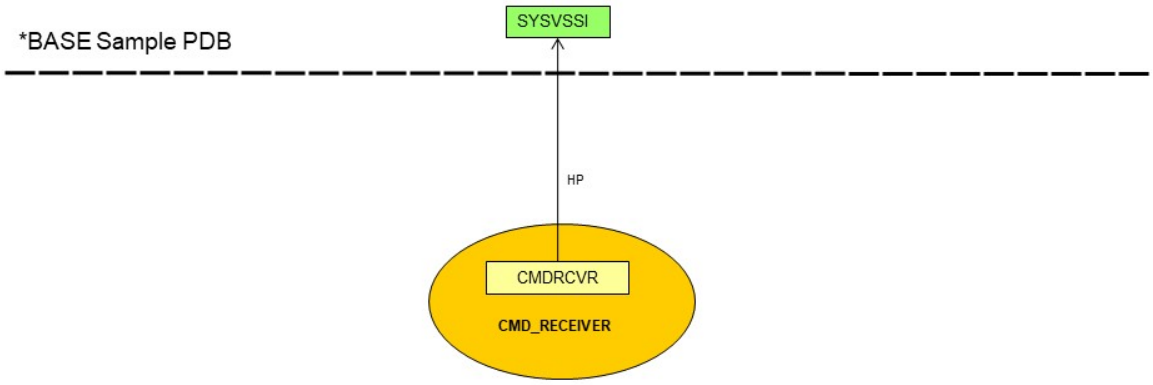
n/a

3

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• Automation Command Receiver



Class Hierarchy

Colors denote class inheritance

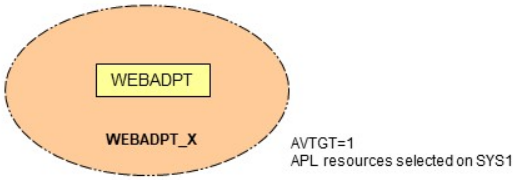
C_APPL n/a

4

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• Automation Webservices Adapter



Class Hierarchy

Colors denote class inheritance

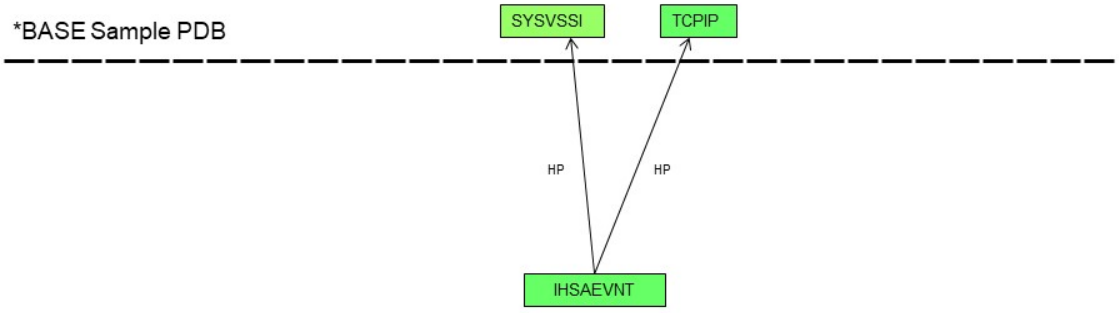
n/a

5

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• Event/Automation Service



Class Hierarchy

Colors denote class inheritance

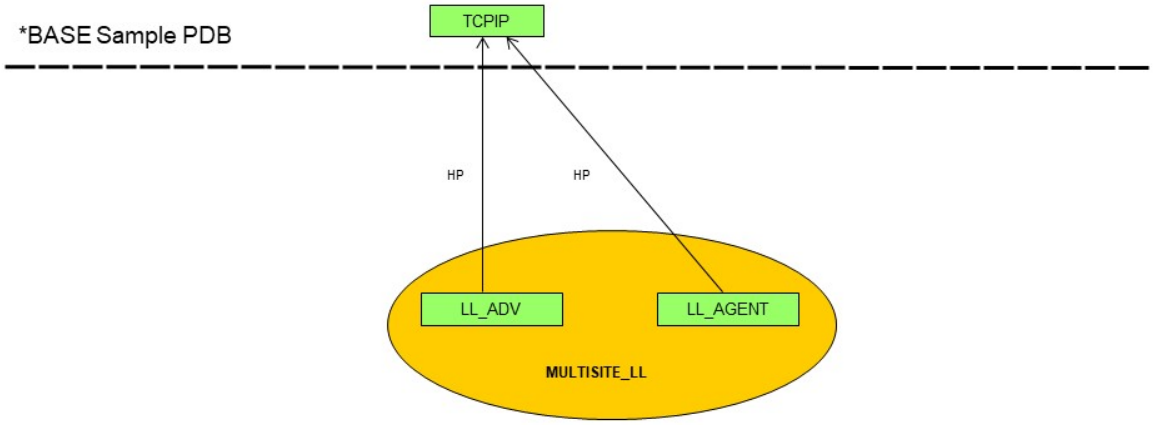
C_APPL

6

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• z/OS MultiSite Workload Life Line



Class Hierarchy

Colors denote class inheritance

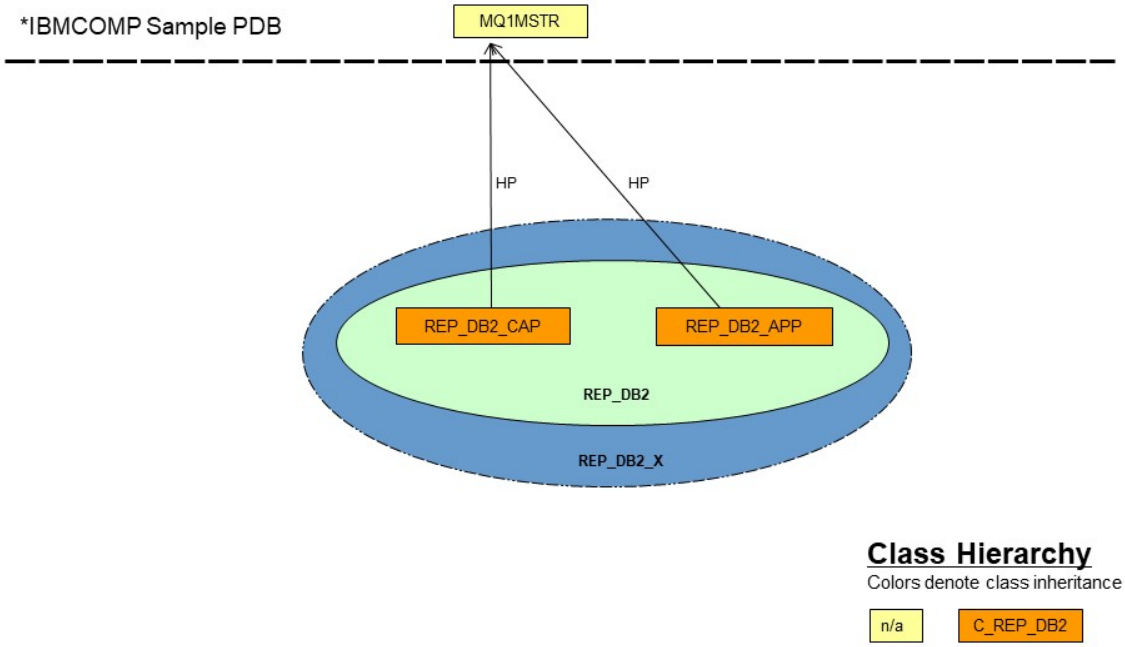
C_APPL

7

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• Infosphere Q Replication for DB2

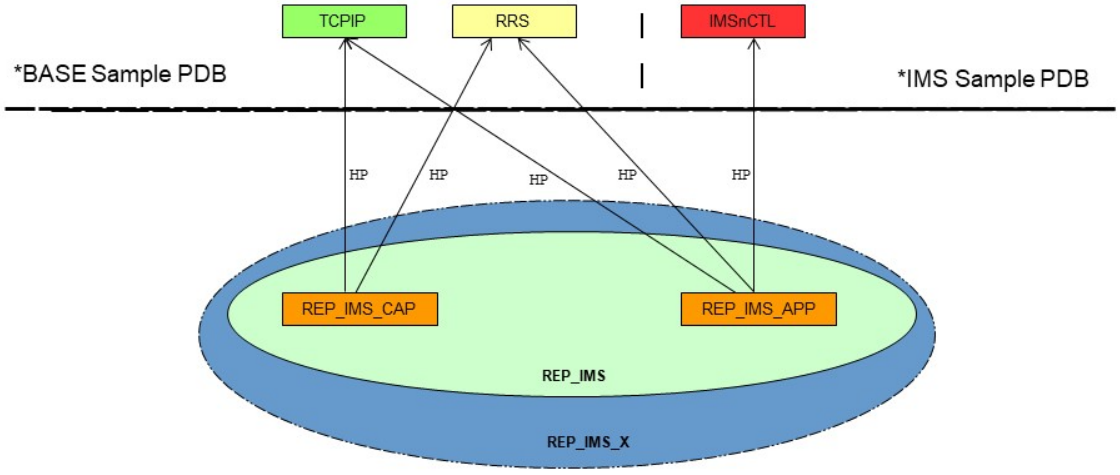


8

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• Infosphere Replication for IMS

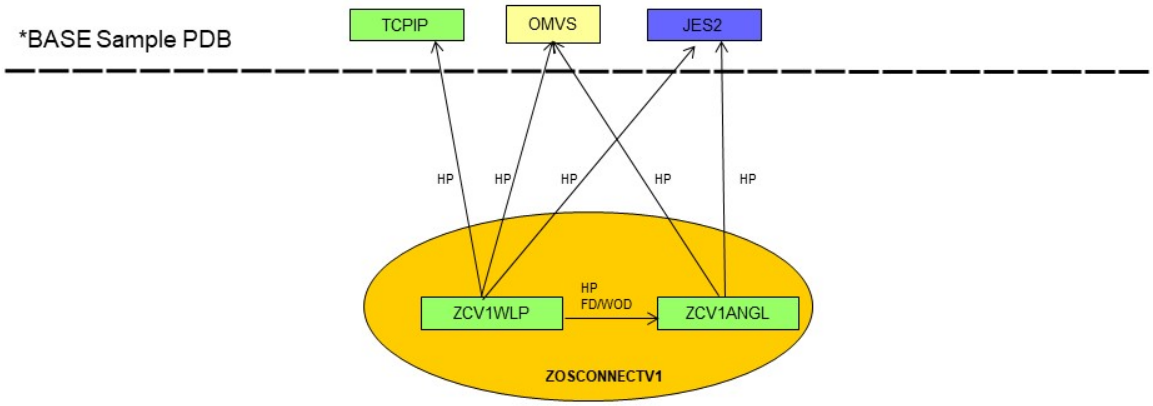


9

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• z/OS Connect V1



Class Hierarchy

Colors denote class inheritance

C_APPL n/a

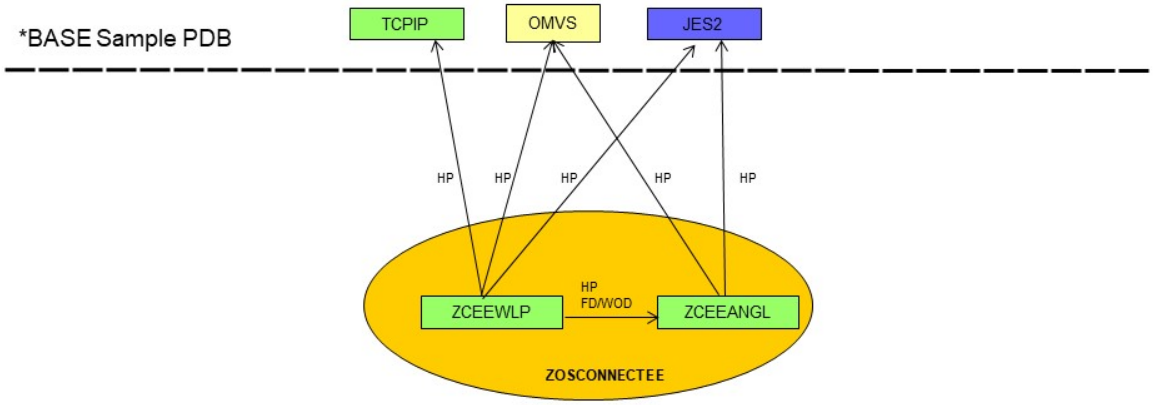
C_JES2

10

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• z/OS Connect EE



Class Hierarchy

Colors denote class inheritance

C_APPL n/a

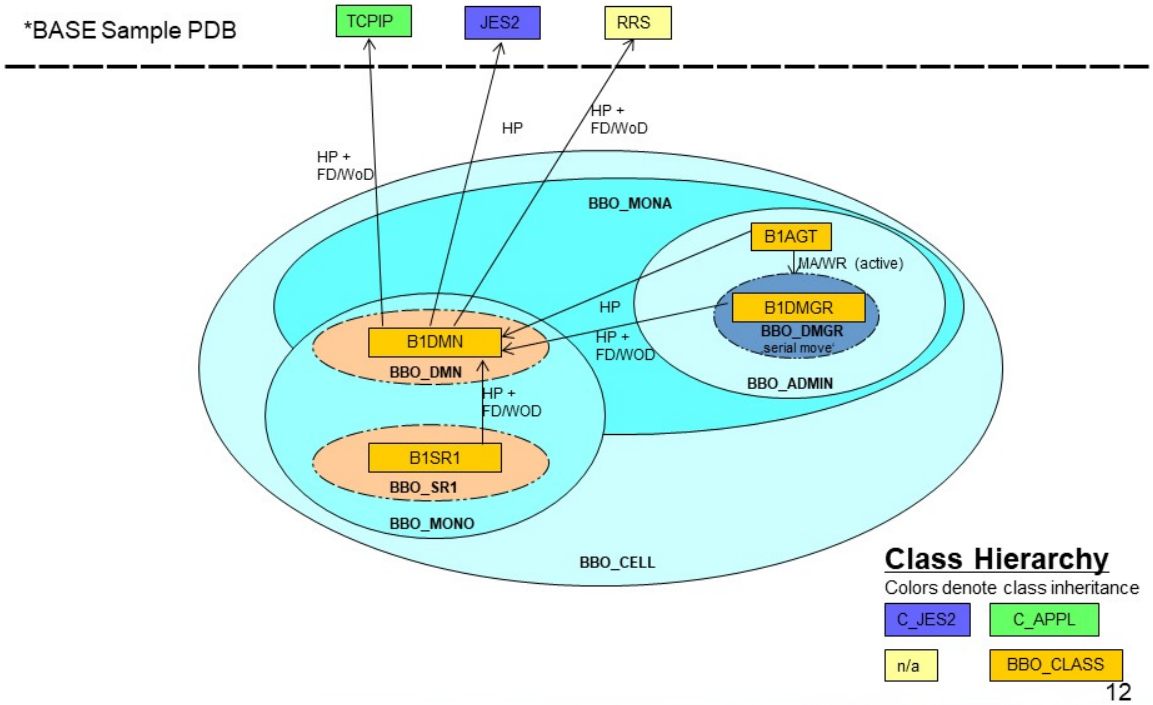
C_JES2

11

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• WebSphere Application Server V7

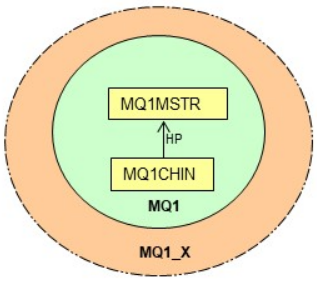


12

© Copyright IBM Corp. 1996, 2017

*IBMCOMP – Best Practice Policy

• IBM MQ



AVTGT=*ALL
APL resources selected on SYS1, SYS2 and SYS3

Class Hierarchy

Colors denote class inheritance

n/a

13

© Copyright IBM Corp. 1996, 2017

Legend

Abbreviations

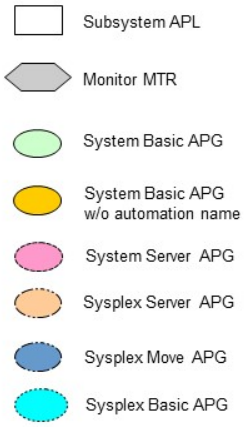
Relationship Types:

EXT	Externally
FD	ForceDown
MA	MakeAvailable
MU	MakeUnavailable
HM	HasMonitor
HP	HasParent
HPP	HasPassiveParent
PA	PrepareAvailable
PU	PrepareUnavailable

Conditions:

SMSM	StartsMeAndStopsMe
WA	WhenAvailable
WOA	WhenObservedAvailable
WAoS	WhenAvailableOrStarting
WD	WhenDown
WDoS	WhenDownOrStopping
WODoS	WhenObservedDownOrStopping
WOD	WhenObservedDown
WU	WhenUnavailable
WOHD	WhenObservedHardDown
WoWAUoS	WhenObservedWasAvailableUnknownOrSysGone

Symbols



14

© Copyright IBM Corp. 1996, 2017

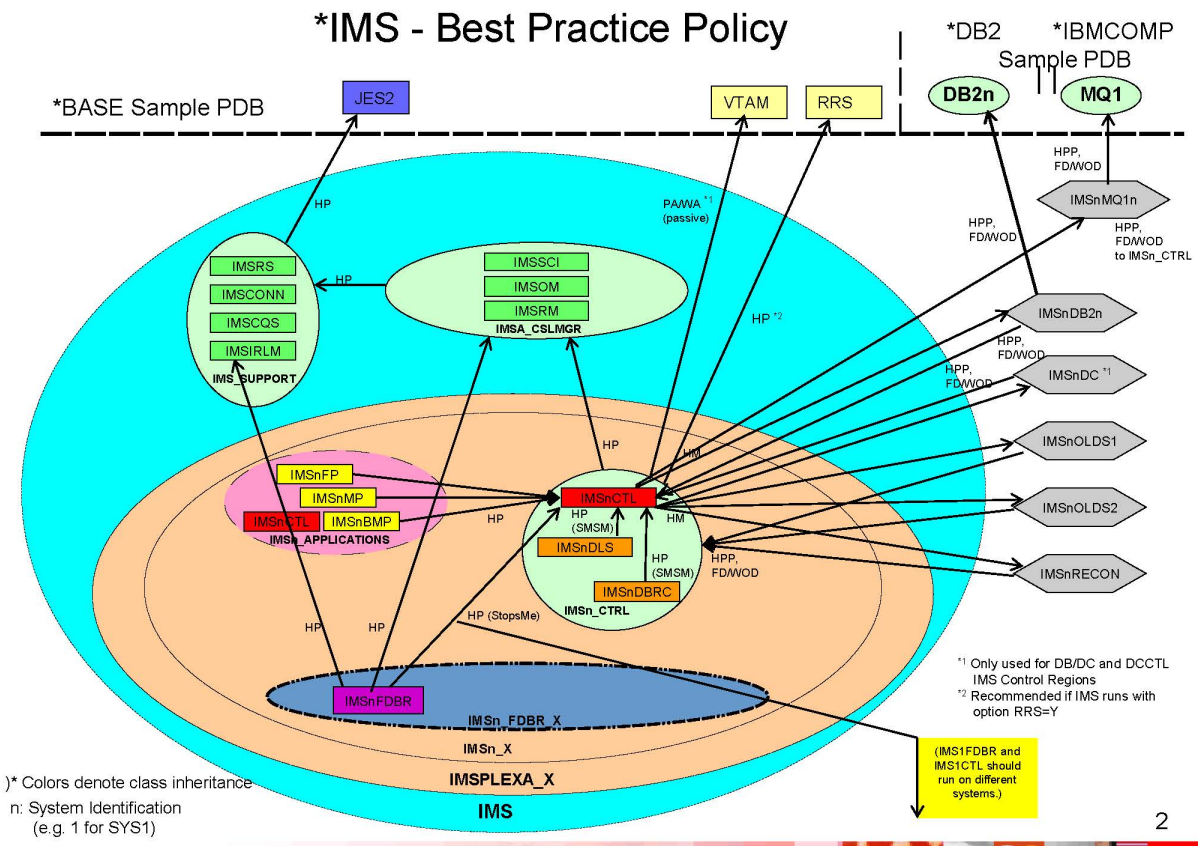
IBM System Automation for z/OS

Version 4 Release 1

*IMS – Best Practice Policy

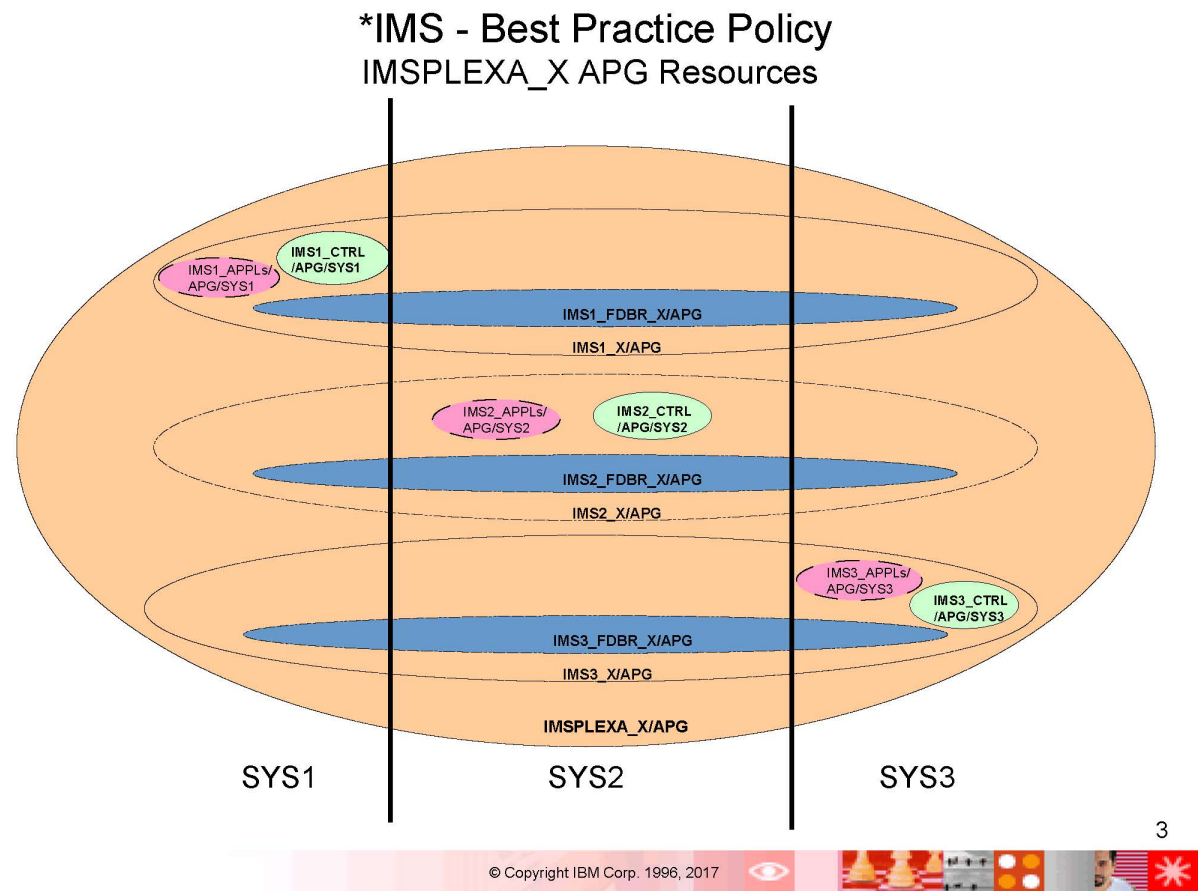
This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.



2

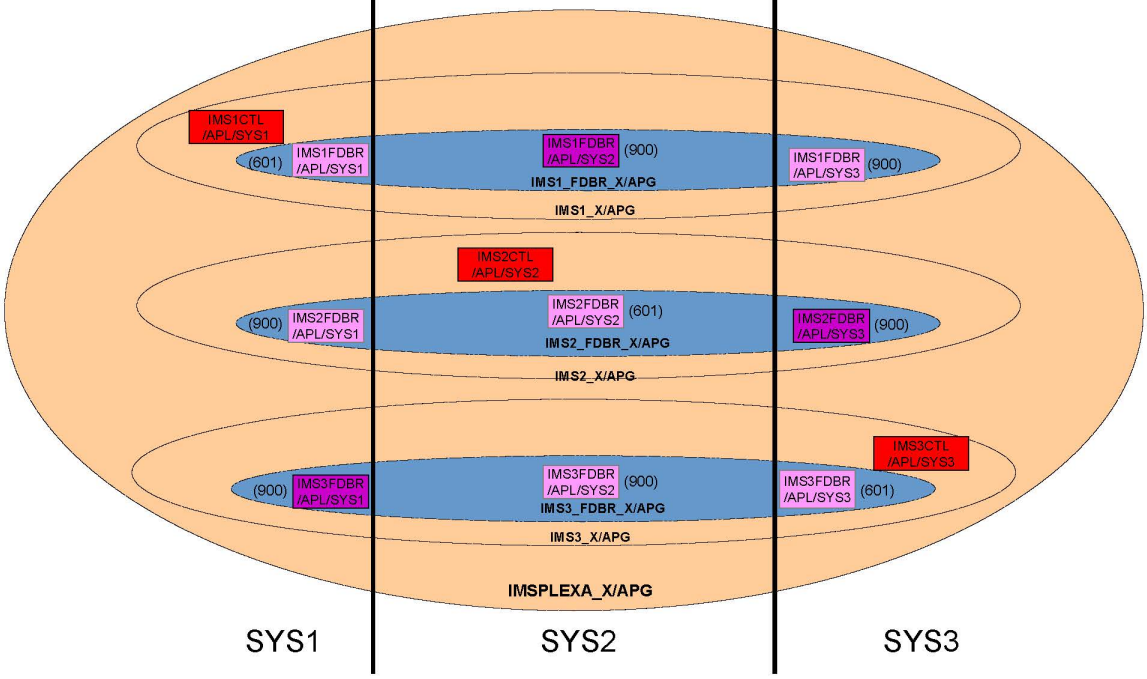
© Copyright IBM Corp. 1996, 2017



3

© Copyright IBM Corp. 1996, 2017

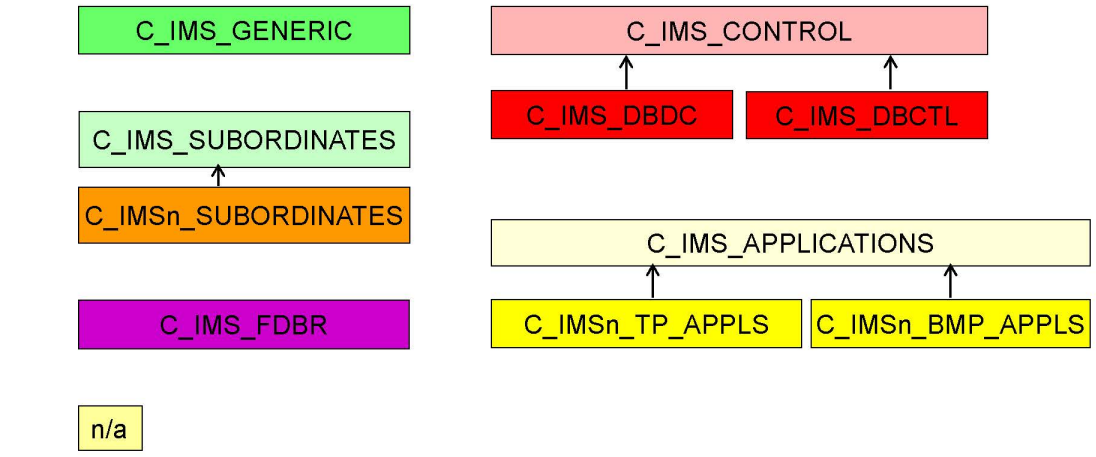
*IMS - Best Practice Policy
IMSnFDBR Resources



4

© Copyright IBM Corp. 1996, 2017

*IMS - Best Practice Policy
Class Hierarchy



↑= inherites from

5

© Copyright IBM Corp. 1996, 2017

Legend

Abbreviations

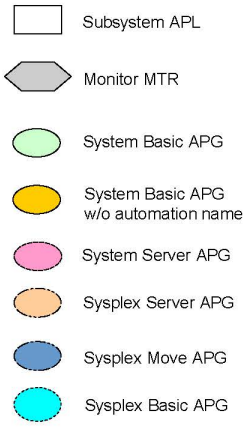
Relationship Types:

EXT	Externally
FD	ForceDown
MA	MakeAvailable
MU	MakeUnavailable
HM	HasMonitor
HP	HasParent
HPP	HasPassiveParent
PA	PrepareAvailable
PU	PrepareUnavailable

Conditions:

SMSM	StartsMeAndStopsMe
WA	WhenAvailable
WAoS	WhenAvailableOrStarting
WD	WhenDown
WDoS	WhenDownOrStopping
WADoS	WhenAssumedDownOrStopping
WOD	WhenObservedDown
WU	WhenUnavailable
WOHD	WhenObservedHardDown

Symbols



6

© Copyright IBM Corp. 1996, 2017

IBM System Automation for z/OS

Version 4 Release 1

*ITM – Best Practice Policy

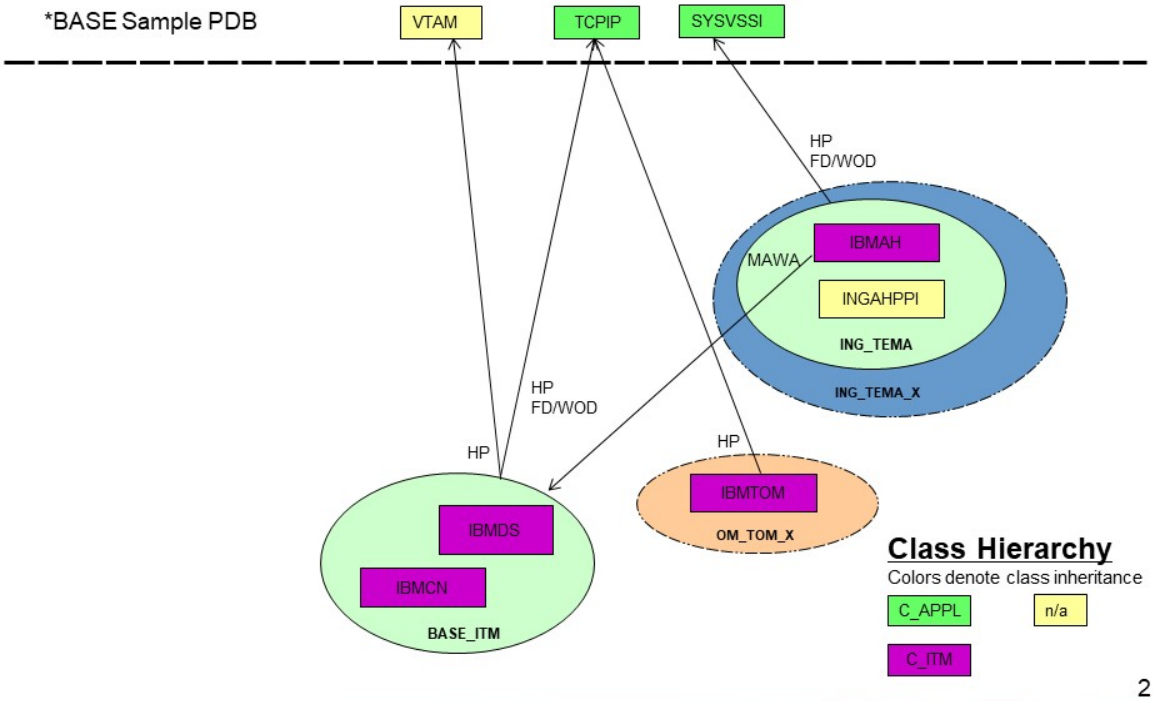
This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

1

*ITM – Best Practice Policy

• Automation Monitoring Agent

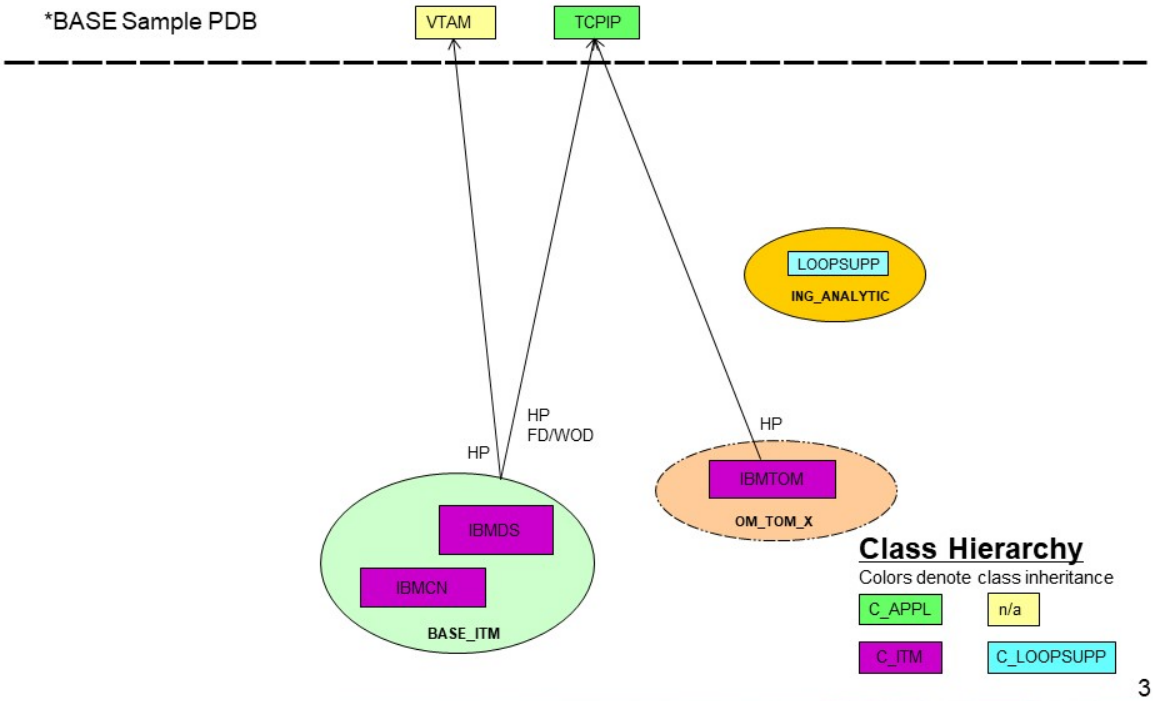


2

© Copyright IBM Corp. 1996, 2017

*ITM – Best Practice Policy

• Automation Monitoring Analytics

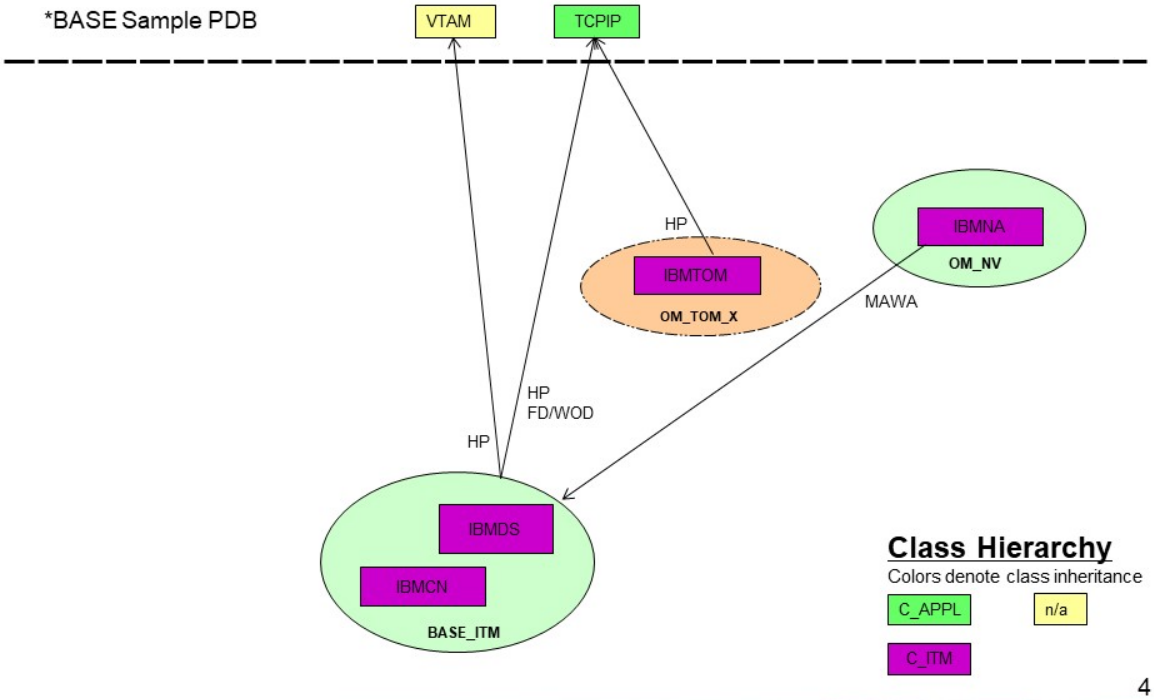


3

© Copyright IBM Corp. 1996, 2017

*ITM – Best Practice Policy

• OMEGAMON - NetView z/OS

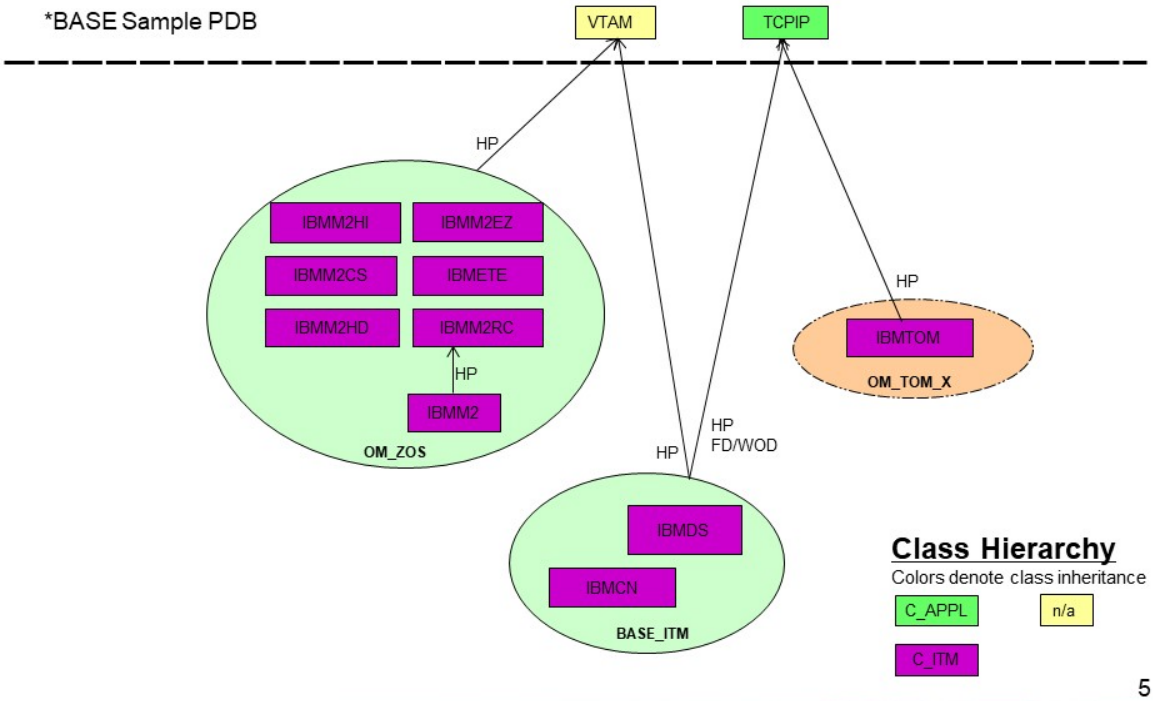


4

© Copyright IBM Corp. 1996, 2017

*ITM – Best Practice Policy

• OMEGAMON - z/OS

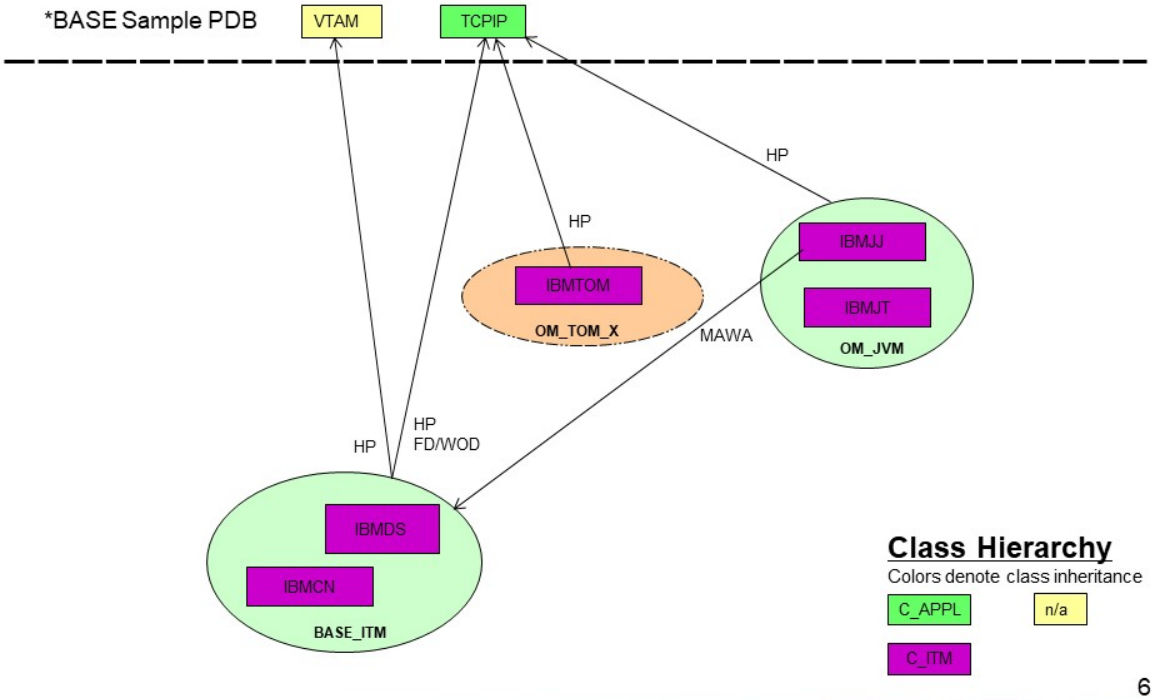


5

© Copyright IBM Corp. 1996, 2017

*ITM – Best Practice Policy

- OMEGAMON - JVM on z/OS

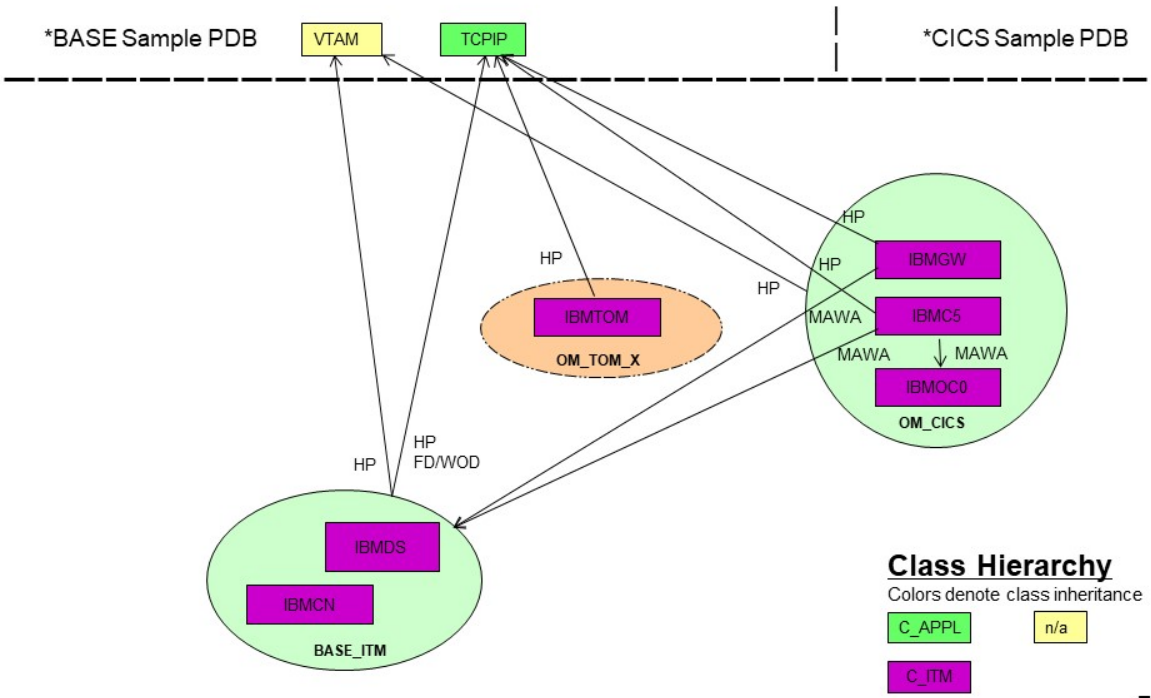


6

© Copyright IBM Corp. 1996, 2017

*ITM – Best Practice Policy

- OMEGAMON - CICS

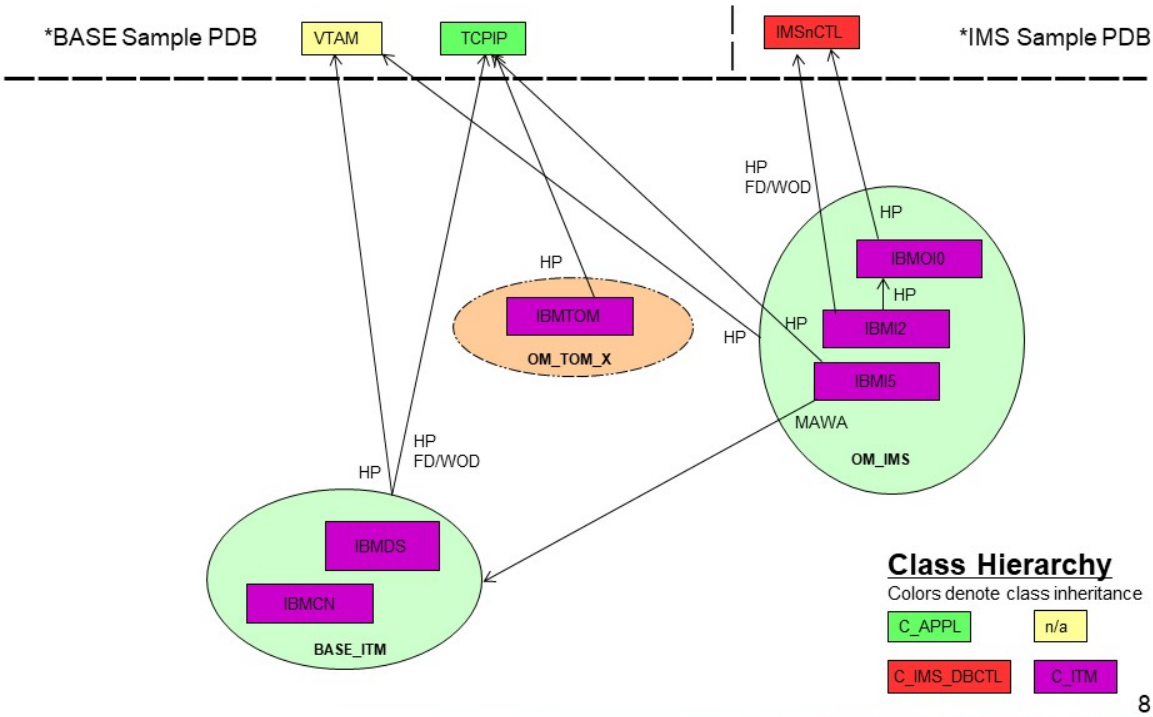


7

© Copyright IBM Corp. 1996, 2017

*ITM – Best Practice Policy

- OMEGAMON - IMS

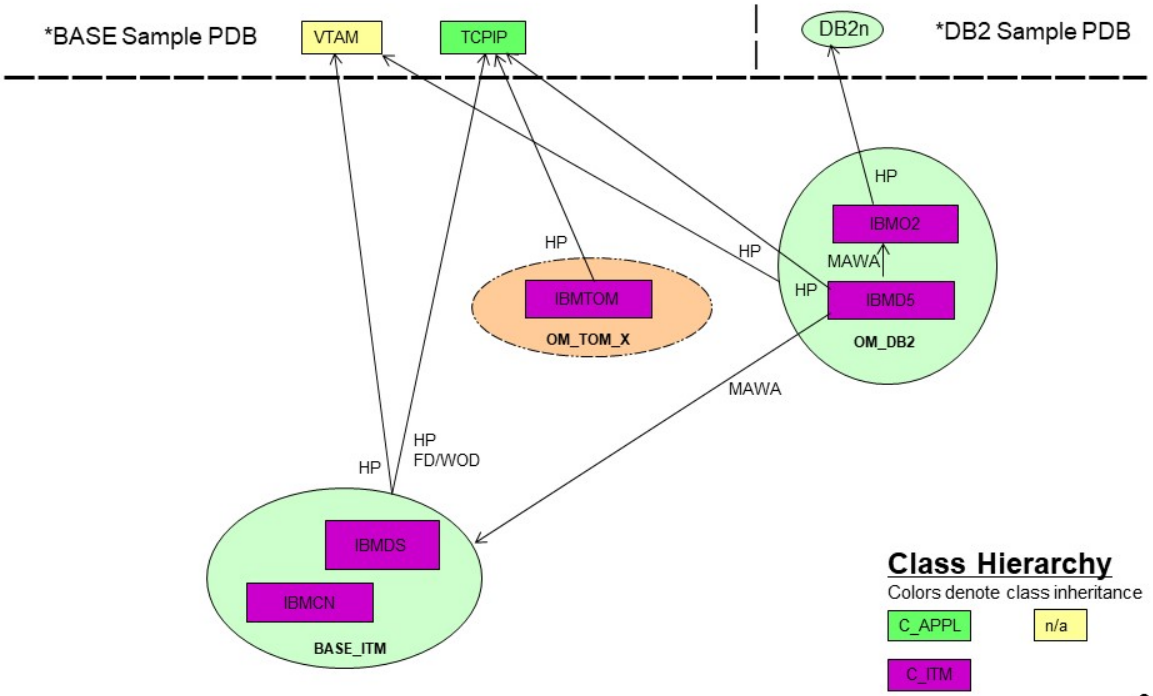


8

© Copyright IBM Corp. 1996, 2017

*ITM – Best Practice Policy

- OMEGAMON - DB2 Performance Monitor

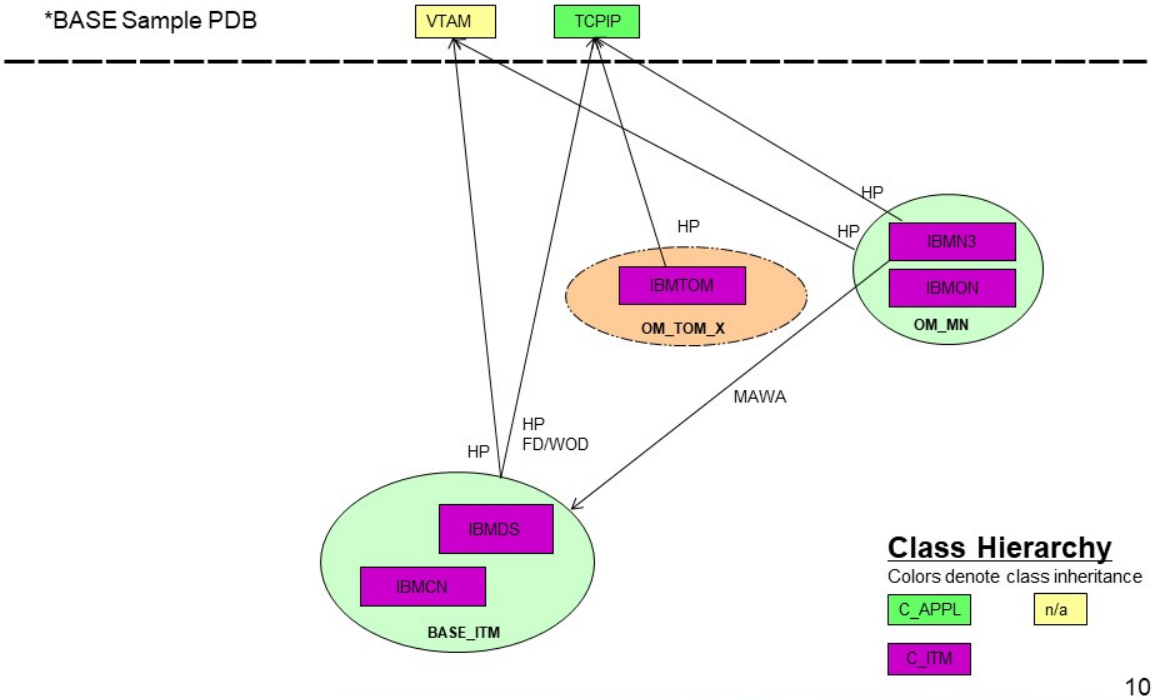


9

© Copyright IBM Corp. 1996, 2017

*ITM – Best Practice Policy

• OMEGAMON - Mainframe Networks on z/OS

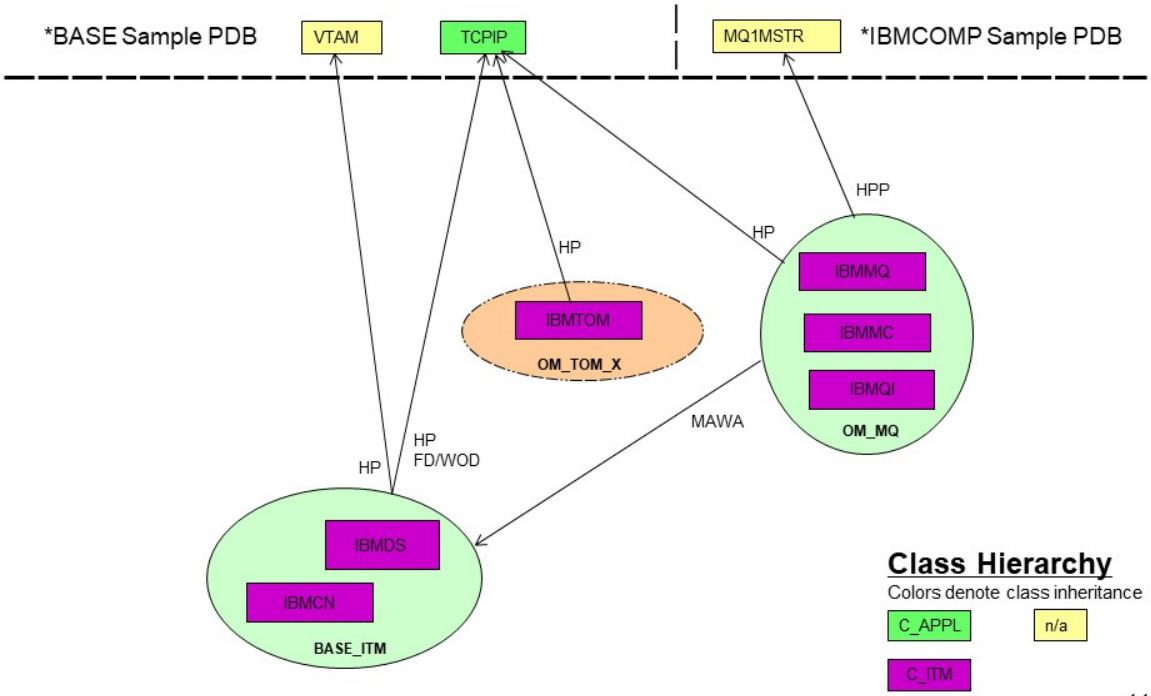


10

© Copyright IBM Corp. 1996, 2017

*ITM – Best Practice Policy

• OMEGAMON - MQ



11

© Copyright IBM Corp. 1996, 2017

IBM System Automation for z/OS

Version 4 Release 1

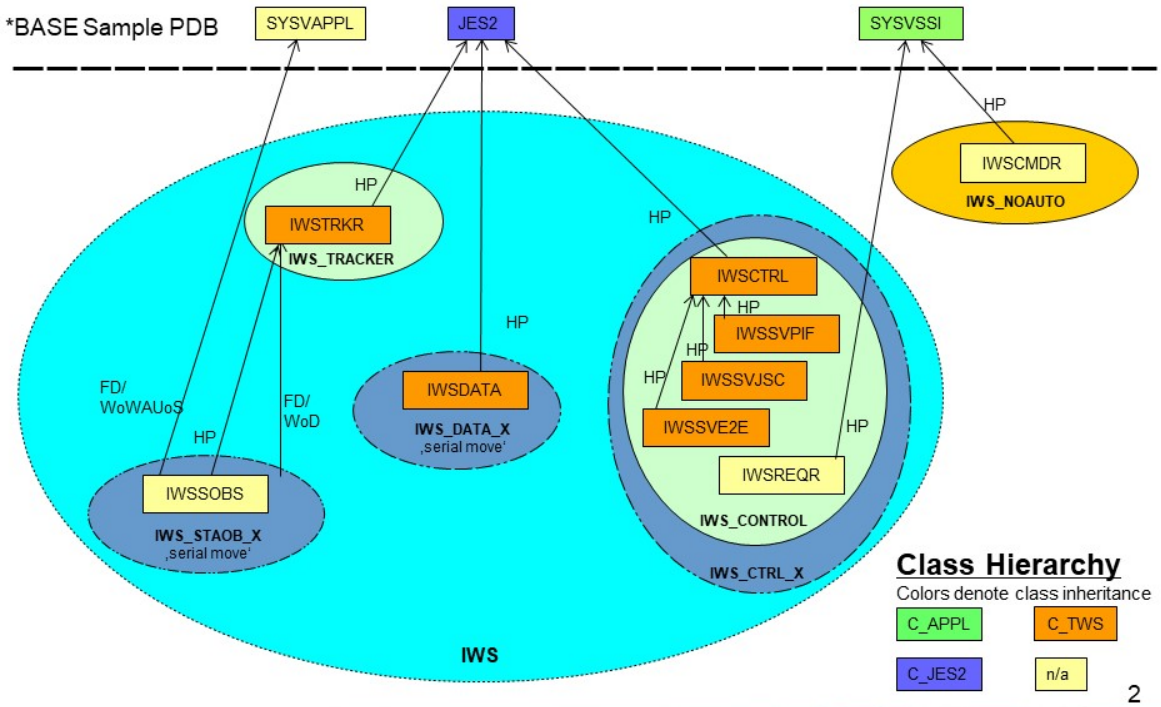
*IWS – Best Practice Policy

This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

1

*IWS - Best Practice Policy



2

© Copyright IBM Corp. 1996, 2017

Legend

Abbreviations

Relationship Types:

EXT	Externally
FD	ForceDown
MA	MakeAvailable
MU	MakeUnavailable
HM	HasMonitor
HP	HasParent
HPP	HasPassiveParent
PA	PrepareAvailable
PU	PrepareUnavailable

Conditions:

SMSM	StartsMeAndStopsMe
WA	WhenAvailable
WOA	WhenObservedAvailable
WAoS	WhenAvailableOrStarting
WD	WhenDown
WDoS	WhenDownOrStopping
WADoS	WhenAssumedDownOrStopping
WOD	WhenObservedDown
WU	WhenUnavailable
WOHD	WhenObservedHardDown
WoWAUoS	WhenObservedWasAvailableUnknownOrSysGone

Symbols

- Subsystem APL
- Monitor MTR
- System Basic APG
- System Basic APG w/o automation name
- System Server APG
- Sysplex Server APG
- Sysplex Move APG
- Sysplex Basic APG

3

© Copyright IBM Corp. 1996, 2017

*PROCOPS

IBM System Automation for z/OS

Version 4 Release 1

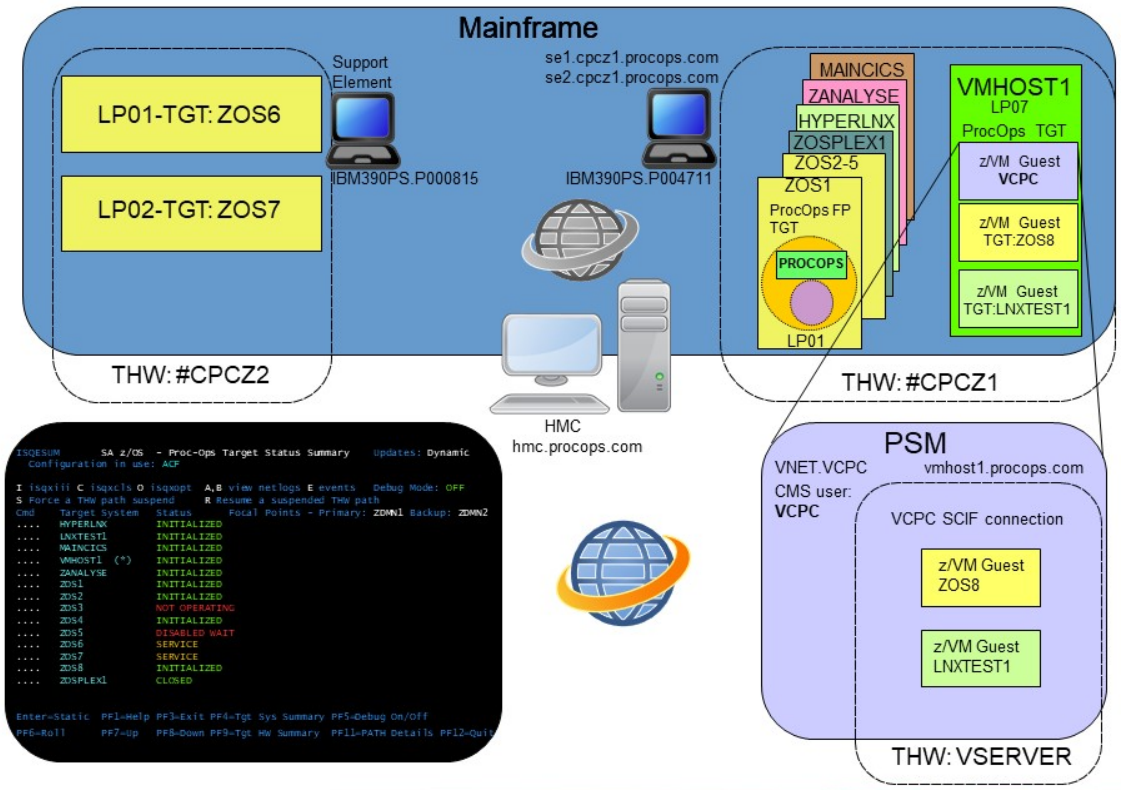
***PROCOPS – Best Practice Policy**

This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

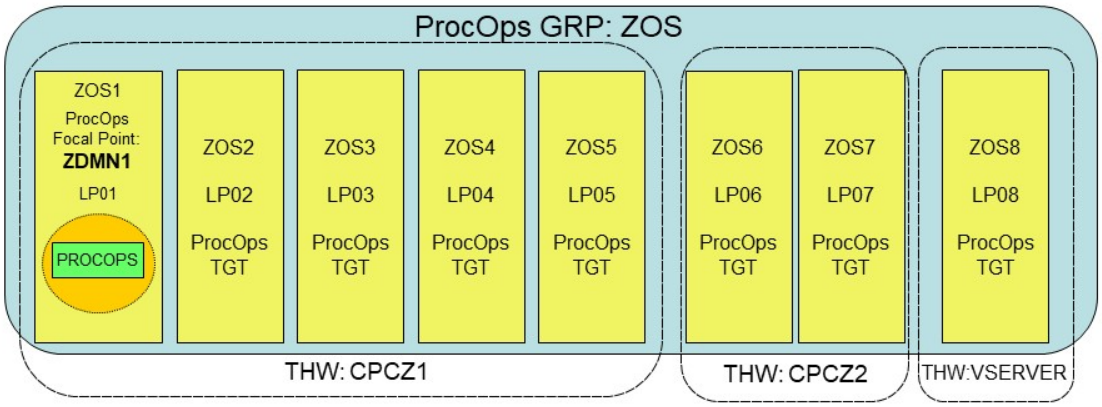
© Copyright IBM Corp. 1996, 2017

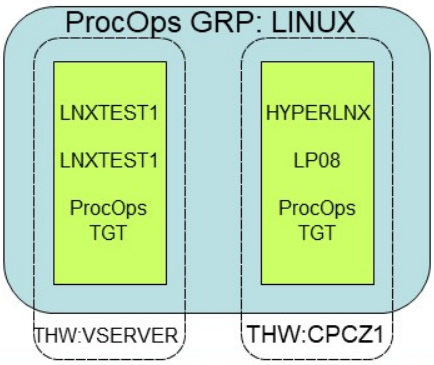
*PROCOPS – SNMP and TCPIP Connections



© Copyright IBM Corp. 1996, 2017

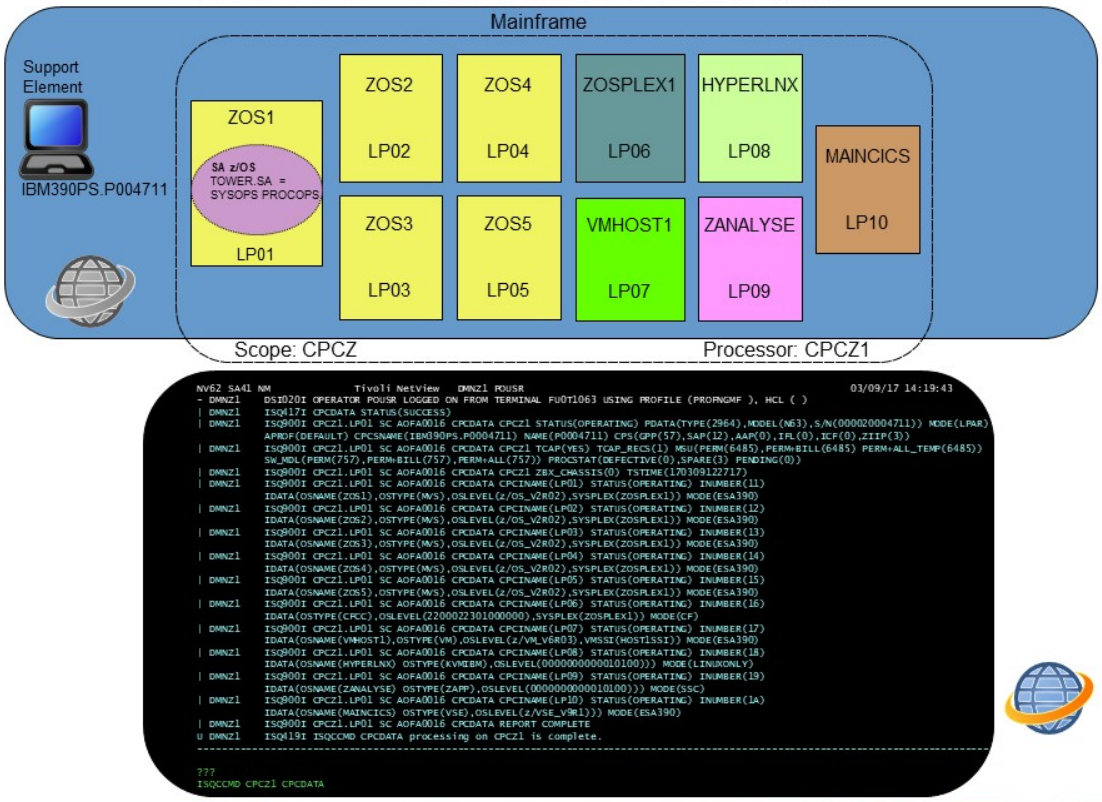
*PROCOPS – Target System Grouping





© Copyright IBM Corp. 1996, 2017

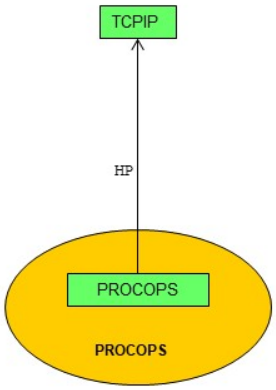
*PROCOPS – INTERNAL Connections



4

© Copyright IBM Corp. 1996, 2017

*PROCOPS – Best Practice Policy



Class Hierarchy

Colors denote class inheritance

5

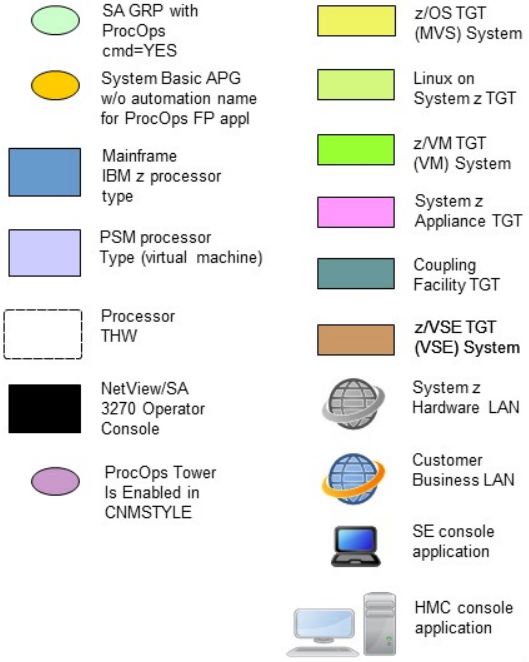
© Copyright IBM Corp. 1996, 2017

Legend

Abbreviations and Terms

APG	SA Application Group for ProcOps
FP	Focal Point (for ProcOps THW,TGT)
GRP	SA group with target system members
HP	HasParent relationship
HMC	Hardware Management Console
TGT	Target System for ProcOps
THW	Target Hardware for ProcOps (processor)
PSM	ProcOps Service Machine (z/VM CMS user)
SCIF	z/VM guest secondary console interface
SE	Support Element (attached to a CPC)
SNMP	Simple network management protocol, also denotes the IP based connection between the ProcOps FP and the System z console applications of the HMC or SE
TCPIP	IP based protocol family name, also denotes the connection between the ProcOps FP and the PSM z/VM CMS guest used to control the virtual ProcOps TGTs
Mainframe	Family name for an IBM z system type, allowed to be defined as a processor
INTERNAL	SA automation policy name of the SA-BCPii processor hardware management protocol

Symbols



6

© Copyright IBM Corp. 1996, 2017

*SAPSRV

IBM System Automation for z/OS

Version 4 Release 1

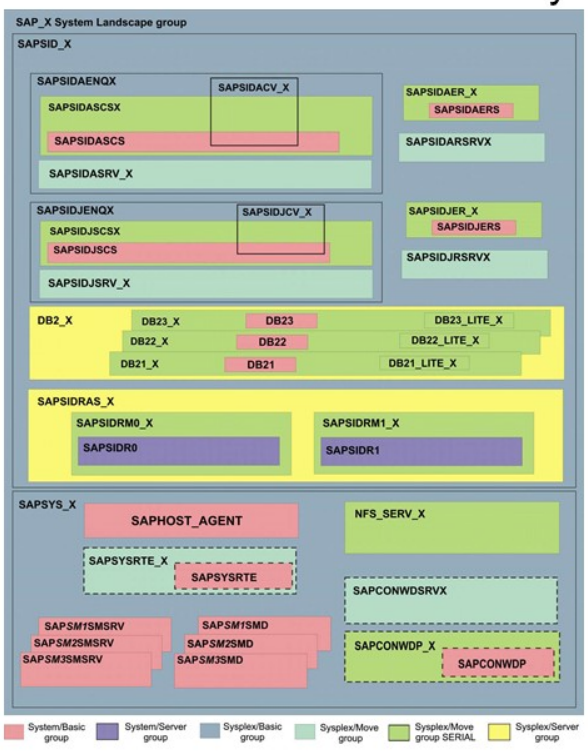
***SAPSRV – Best Practice Policy**

This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1 an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

1

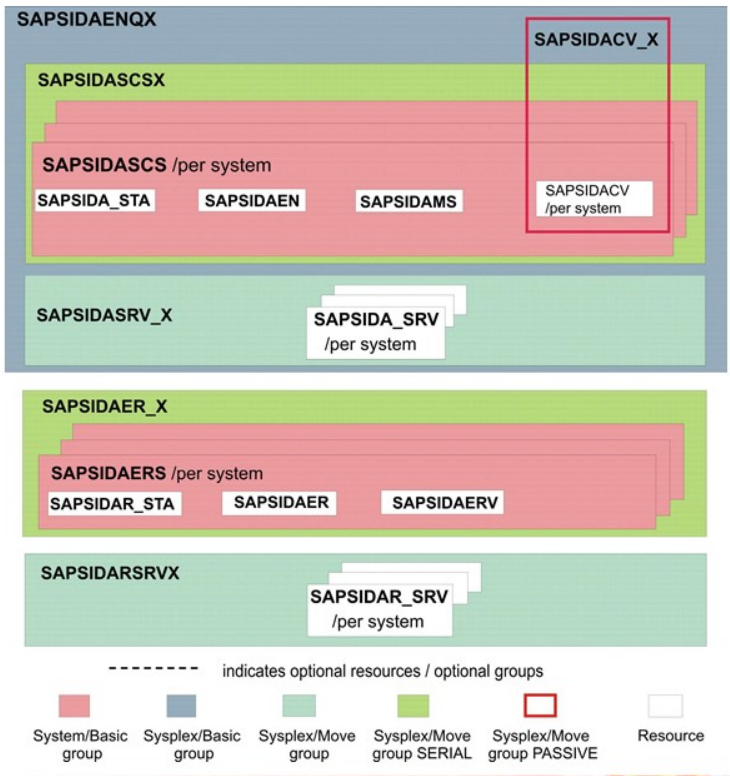
*SAPSRV – Best Practice Policy



2

© Copyright IBM Corp. 1996, 2017

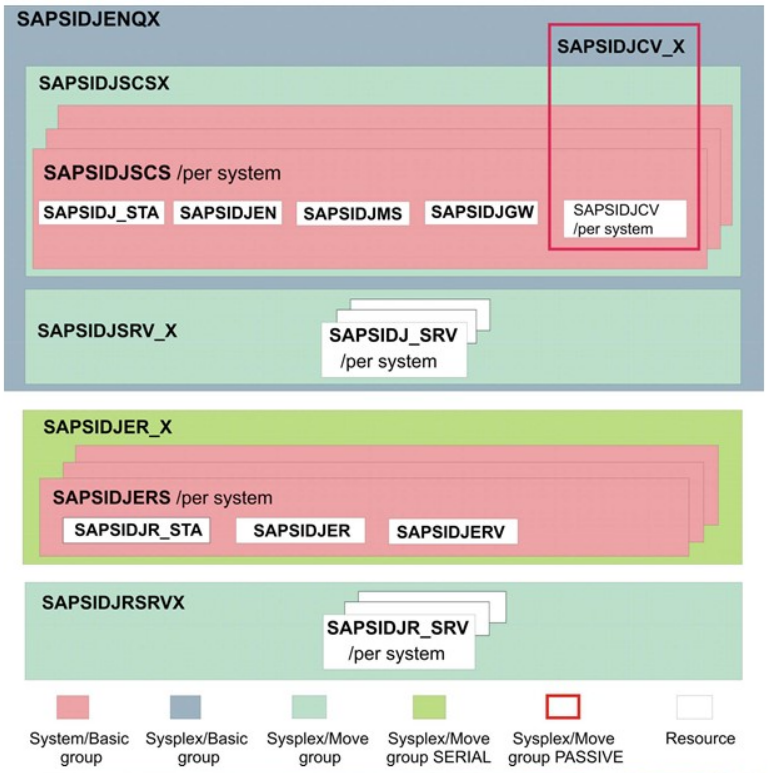
*SAPSRV – Best Practice Policy



3

© Copyright IBM Corp. 1996, 2017

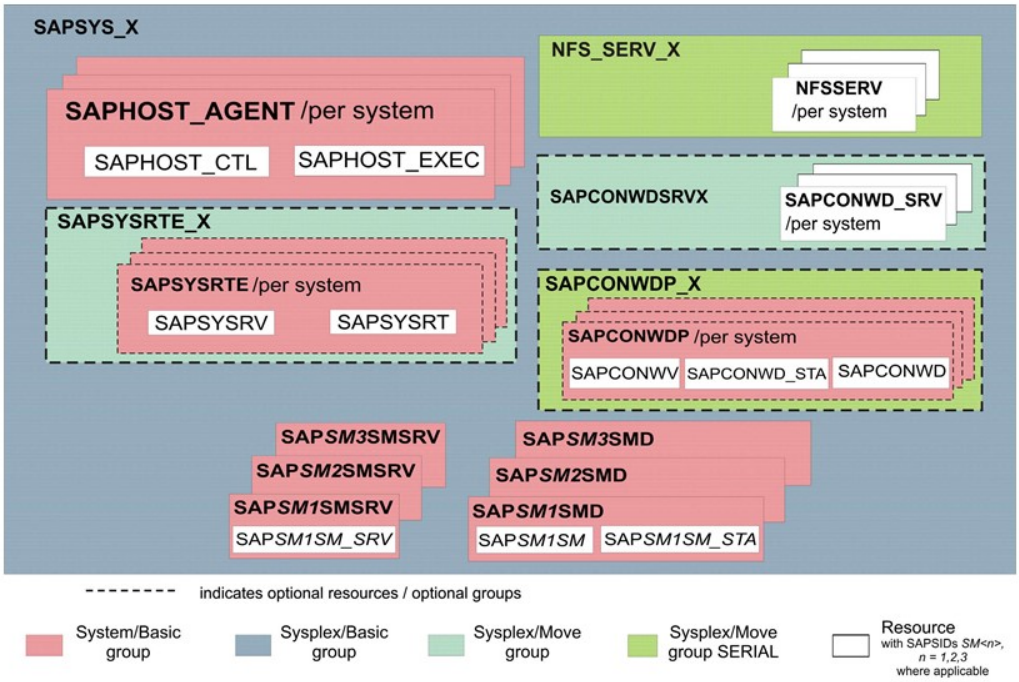
*SAPSRV – Best Practice Policy



4

© Copyright IBM Corp. 1996, 2017

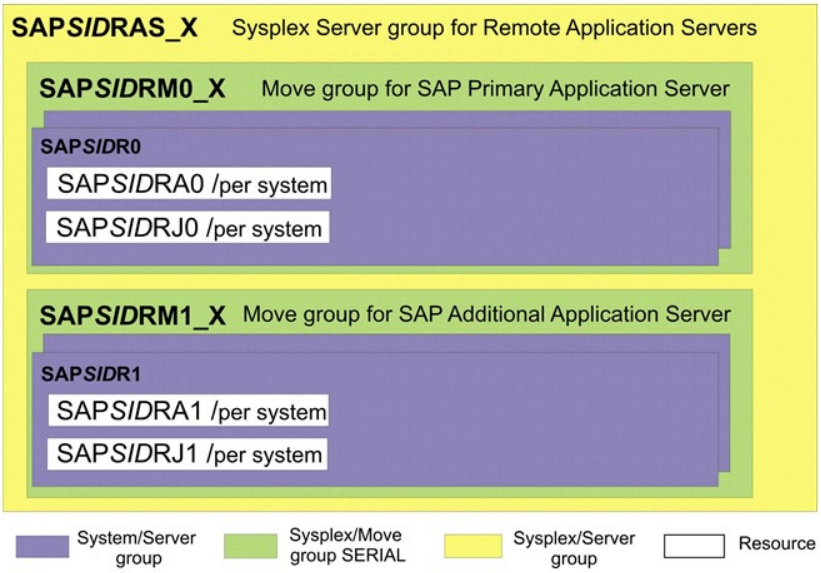
*SAPSRV – Best Practice Policy



5

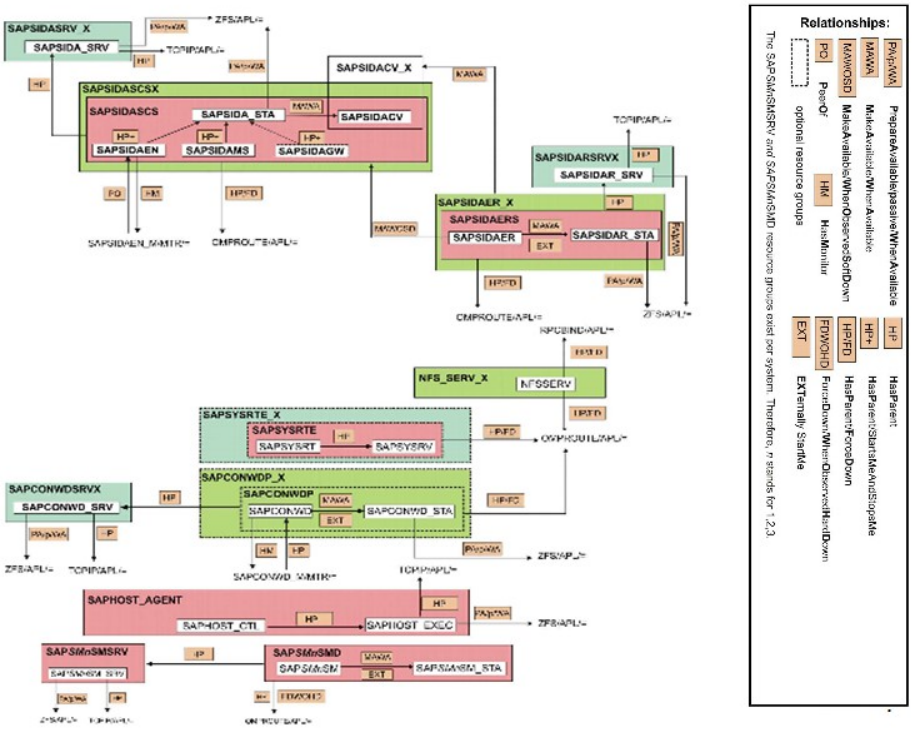
© Copyright IBM Corp. 1996, 2017

*SAPSRV – Best Practice Policy



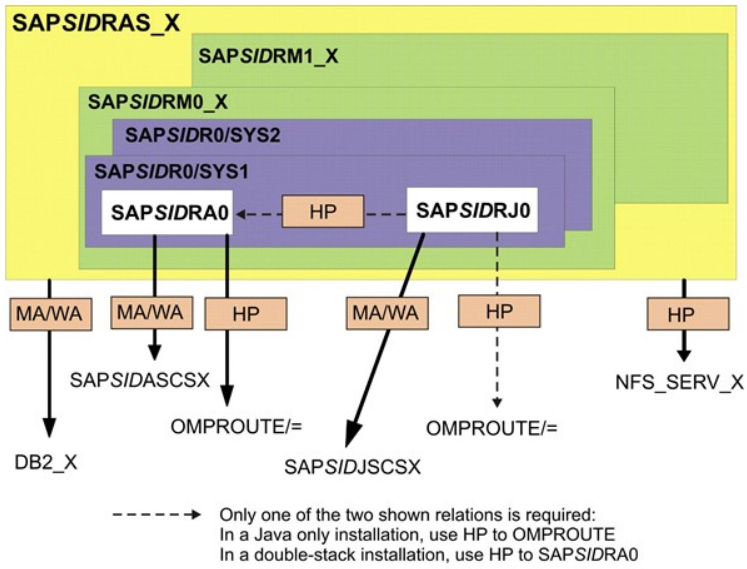
© Copyright IBM Corp. 1996, 2017

*SAPSRV – Best Practice Policy
Relationships



© Copyright IBM Corp. 1996, 2017

*SAPSRV – Best Practice Policy
Remote Application Server Policy Relationships



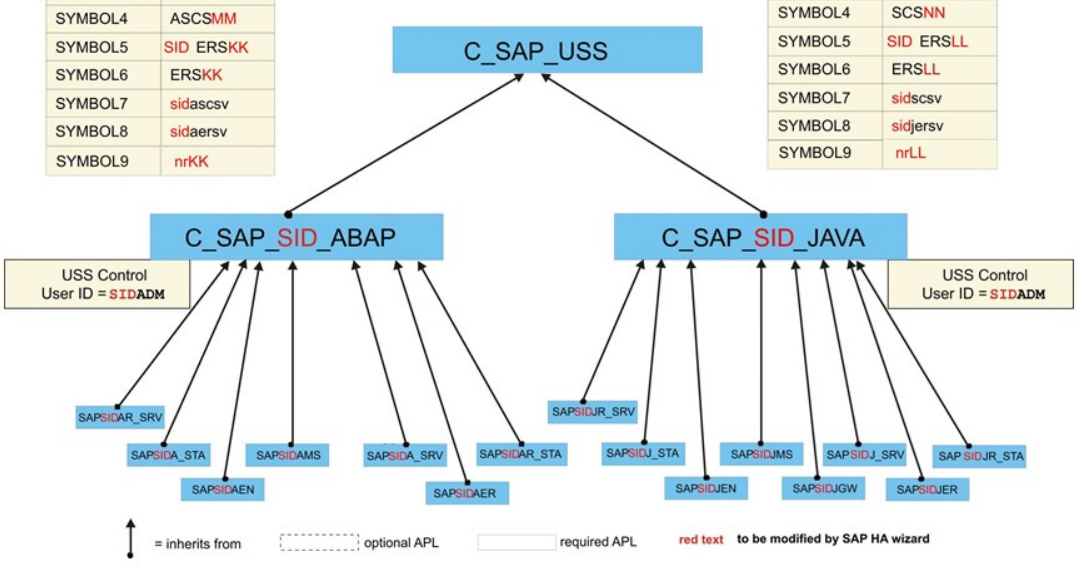
8

© Copyright IBM Corp. 1996, 2017

*SAPSRV – Best Practice Policy
Class Hierarchy

Symbol definitions - ABAP	
SYMBOL1	SID
SYMBOL2	nrMM
SYMBOL3	SID ASCSMM
SYMBOL4	ASCSMM
SYMBOL5	SID ERSKK
SYMBOL6	ERSKK
SYMBOL7	sidascsv
SYMBOL8	sidaersv
SYMBOL9	nrKK

Symbol definitions - JAVA	
SYMBOL1	SID
SYMBOL2	nrNN
SYMBOL3	SID SCSNN
SYMBOL4	SCSNN
SYMBOL5	SID ERSLL
SYMBOL6	ERSLL
SYMBOL7	sidscsv
SYMBOL8	sidjersv
SYMBOL9	nrLL



9

© Copyright IBM Corp. 1996, 2017

IBM System Automation for z/OS

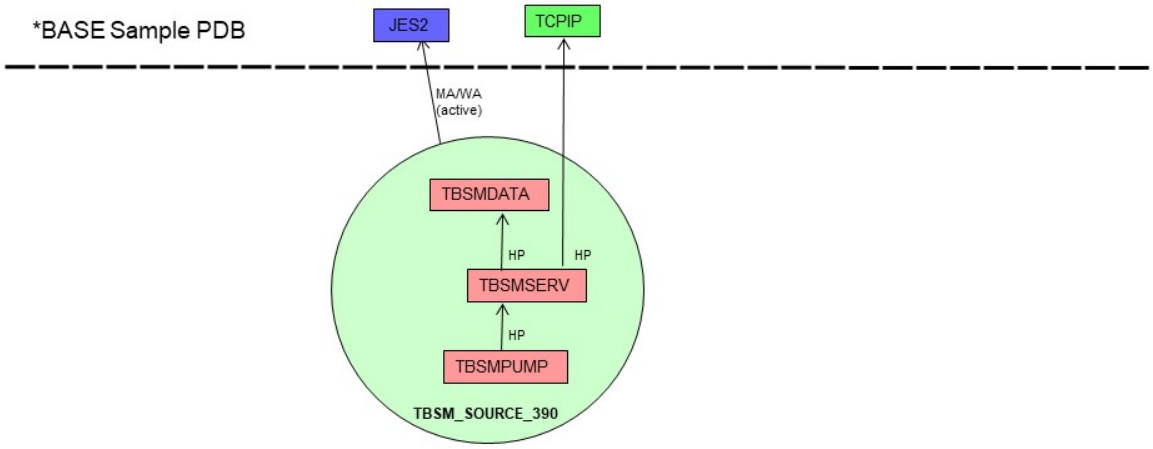
Version 4 Release 1

*TBSM – Best Practice Policy

This edition applies to IBM System Automation for z/OS (5698-SA4), Version 4 Release 1, an IBM licensed program, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 1996, 2017. All rights reserved.
US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

*TBSM Best Practice Policy



Class Hierarchy

Colors denote class inheritance

C_APPL C_JES2

C_TBSM

© Copyright IBM Corp. 1996, 2017

Legend

Abbreviations

Relationship Types:

EXT	Externally
FD	ForceDown
MA	MakeAvailable
MU	MakeUnavailable
HM	HasMonitor
HP	HasParent
HPP	HasPassiveParent
PA	PrepareAvailable
PU	PrepareUnavailable

Conditions:

SMSM	StartsMeAndStopsMe
WA	WhenAvailable
WAoS	WhenAvailableOrStarting
WD	WhenDown
WDoS	WhenDownOrStopping
WADoS	WhenAssumedDownOrStopping
WOD	WhenObservedDown
WOAD	WhenObservedAssumedDown
WU	WhenUnavailable
WOHD	WhenObservedHardDown

Symbols

Subsystem APL

Monitor MTR

System Basic APG

System Basic APG w/o automation name

System Server APG

Sysplex Server APG

Sysplex Move APG

Sysplex Basic APG

3

© Copyright IBM Corp. 1996, 2017

Appendix D. Notices

This information was developed for products and services offered in the US. This material might be available from IBM in other languages. However, you may be required to own a copy of the product or product version in that language in order to access it.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive, MD-NC119
Armonk, NY 10504-1785
US

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing
Legal and Intellectual Property Law
IBM Japan Ltd.
19-21, Nihonbashi-Hakozakicho, Chuo-ku
Tokyo 103-8510, Japan

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you provide in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Director of Licensing
IBM Corporation
North Castle Drive, MD-NC119
Armonk, NY 10504-1785
US

© Copyright IBM Corp. 1996, 2017

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

The performance data and client examples cited are presented for illustrative purposes only. Actual performance results may vary depending on specific configurations and operating conditions.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to actual people or business enterprises is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Each copy or any portion of these sample programs or any derivative work must include a copyright notice as follows:
© (your company name) (year).
Portions of this code are derived from IBM Corp. Sample Programs.
© Copyright IBM Corp. _enter the year or years_.

Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml.

Terms and conditions for product documentation

Permissions for the use of these publications are granted subject to the following terms and conditions.

Applicability

These terms and conditions are in addition to any terms of use for the IBM website.

Personal use

You may reproduce these publications for your personal, noncommercial use provided that all proprietary notices are preserved. You may not distribute, display or make derivative work of these publications, or any portion thereof, without the express consent of IBM.

Commercial use

You may reproduce, distribute and display these publications solely within your enterprise provided that all proprietary notices are preserved. You may not make derivative works of these publications, or reproduce, distribute or display these publications or any portion thereof outside your enterprise, without the express consent of IBM.

Rights

Except as expressly granted in this permission, no other permissions, licenses or rights are granted, either express or implied, to the publications or any information, data, software or other intellectual property contained therein.

IBM reserves the right to withdraw the permissions granted herein whenever, in its discretion, the use of the publications is detrimental to its interest or, as determined by IBM, the above instructions are not being properly followed.

You may not download, export or re-export this information except in full compliance with all applicable laws and regulations, including all United States export laws and regulations.

IBM MAKES NO GUARANTEE ABOUT THE CONTENT OF THESE PUBLICATIONS. THE PUBLICATIONS ARE PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.

Glossary

This glossary includes terms and definitions from:

- The *IBM Dictionary of Computing* New York: McGraw-Hill, 1994.
- The *American National Standard Dictionary for Information Systems*, ANSI X3.172-1990, copyright 1990 by the American National Standards Institute (ANSI). Copies can be purchased from the American National Standards Institute, 1430 Broadway, New York, New York 10018. Definitions are identified by the symbol (A) after the definition.
- The *Information Technology Vocabulary* developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition; definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating that final agreement has not yet been reached among the participating National Bodies of SC1.

The following cross-references are used in this glossary:

Contrast with. This refers to a term that has an opposed or substantively different meaning.

Deprecated term for. This indicates that the term should not be used. It refers to a preferred term, which is defined in its proper place in the glossary.

See. This refers the reader to multiple-word terms in which this term appears.

See also. This refers the reader to terms that have a related, but not synonymous, meaning.

Synonym for. This indicates that the term has the same meaning as a preferred term, which is defined in the glossary.

Synonymous with. This is a backward reference from a defined term to all other terms that have the same meaning.

A

ACF
See automation configuration file.

ACF/NCP
Advanced Communications Function for the Network Control Program. See Advanced Communications Function and Network Control Program.

ACF/VTAM
Advanced Communications Function for the Virtual Telecommunications Access Method. Synonym for VTAM. See Advanced Communications Function and Virtual Telecommunications Access Method.

active monitoring
In SA z/OSautomation control file, the acquiring of resource status information by soliciting such information at regular, user-defined intervals. See also passive monitoring.

adapter
Hardware card that enables a device, such as a workstation, to communicate with another device, such as a monitor, a printer, or some other I/O device.

adjacent hosts
Systems connected in a peer relationship using adjacent NetView sessions for purposes of monitoring and control.

adjacent NetView
In SA z/OS, the system defined as the communication path between two SA z/OS systems that do not have a direct link. An adjacent NetView is used for message forwarding and as a communication link between two SA z/OS systems. For example, the adjacent NetView is used when sending responses from a focal point to a remote system.

© Copyright IBM Corp. 1996, 2017

Advanced Communications Function (ACF)
A group of IBM licensed programs (principally VTAM, TCAM, NCP, and SSP) that use the concepts of Systems Network Architecture (SNA), including distribution of function and resource sharing.

advanced program-to-program communication (APPC)
A set of inter-program communication services that support cooperative transaction processing in a Systems Network Architecture (SNA) network. APPC is the implementation, on a given system, of SNA's logical unit type 6.2.

Advanced Workload Analysis Reporter (zAware)
IBM analytics appliance running in a z Systems partition, activated in zACI mode. Customers can use the appliance to monitor the console message streams of other LPARs running in the same System z® cluster and create trend reports. Exploiting zAware and these trend reports can help to better predict OS outages or performance degradations and initiate proactive clusters.

alert
In SNA, a record sent to a system problem management focal point or to a collection point to communicate the existence of an alert condition.

In NetView, a high-priority event that warrants immediate attention. A database record is generated for certain event types that are defined by user-constructed filters.

alert condition
A problem or impending problem for which some or all of the process of problem determination, diagnosis, and resolution is expected to require action at a control point.

alert threshold
An application or volume service value that determines the level at which SA z/OS changes the associated icon in the graphical interface to the alert color. SA z/OS may also issue an alert. See warning threshold.

AMC
See Automation Manager Configuration.

American Standard Code for Information Interchange (ASCII)
A standard code used for information exchange among data processing systems, data communication systems, and associated equipment. ASCII uses a coded character set consisting of 7-bit coded characters (8-bit including parity check). The ASCII set consists of control characters and graphic characters. See also Extended Binary Coded Decimal Interchange Code.

APF
See authorized program facility.

API
See application programming interface.

APPC
See advanced program-to-program communication.

application
In SA z/OS, applications refer to z/OS subsystems, started tasks, or jobs that are automated and monitored by SA z/OS. On SNMP-capable processors, application can be used to refer to a subsystem or process.

Application entry
A construct, created with the customization dialogs, used to represent and contain policy for an application.

application group
A named set of applications. An application group is part of an SA z/OS enterprise definition and is used for monitoring purposes.

application program
A program written for or by a user that applies to the user's work, such as a program that does inventory or payroll.

A program used to connect and communicate with stations in a network, enabling users to perform application-oriented activities.

application programming interface (API)
An interface that allows an application program that is written in a high-level language to use specific data or functions of the operating system or another program.

ApplicationGroup entry
A construct, created with the customization dialogs, used to represent and contain policy for an application group.

ARM
See automatic restart management.

ASCB
Address space control block.

ASCB status
An application status derived by SA z/OS running a routine (the ASCB checker) that searches the z/OS address space control blocks (ASCBs) for address spaces with a particular job name. The job name used by the ASCB checker is the job name defined in the customization dialog for the application.

ASCII
See American Standard Code for Information Interchange.

ASF
See automation status file.

authorized program facility (APF)
A facility that permits identification of programs that are authorized to use restricted functions.

automated console operations (ACO)
The use of an automated procedure to replace or simplify the action that an operator takes from a console in response to system or network events.

automated function
SA z/OS automated functions are automation operators, NetView autotasks that are assigned to perform specific automation functions. However, SA z/OS defines its own synonyms, or *automated function names*, for the NetView autotasks, and these function names are referred to in the sample policy databases provided by SA z/OS. For example, the automation operator AUTBASE corresponds to the SA z/OS automated function BASEOPER.

automatic restart management (ARM)
A z/OS recovery function that improves the availability of specified subsystems and applications by automatically restarting them under certain circumstances. Automatic restart management is a function of the Cross-System Coupling Facility (XCF) component of z/OS.

automatic restart management element name
In MVS 5.2 or later, z/OS automatic restart management requires the specification of a unique sixteen character name for each address space that registers with it. All automatic restart management policy is defined in terms of the element name, including the SA z/OS interface with it.

automation
The automatic initiation of actions in response to detected conditions or events. SA z/OS provides automation for z/OS applications, z/OS components, and remote systems that run z/OS. SA z/OS also provides tools that can be used to develop additional automation.

automation agent
In SA z/OS, the automation function is split up between the automation manager and the automation agents. The observing, reacting and doing parts are located within the NetView address space, and are known as the *automation agents*. The automation agents are responsible for:

- Recovery processing
- Message processing
- Active monitoring: they propagate status changes to the automation manager

automation configuration file
The SA z/OS customization dialogs must be used to build the automation configuration file. It consists of:

- The automation manager configuration file (AMC)
- The NetView automation table (AT)
- The NetView message revision table (MRT)
- The MPFLSTxx member

automation control file (ACF)
In SA z/OS, a file that contains system-level automation policy information. There is one master automation control file for each NetView system that SA z/OS is installed on. Additional policy information and all resource status information is contained in the policy database (PDB). The SA z/OS customization dialogs must be used to build the automation control files. They must not be edited manually.

automation flags
In SA z/OS, the automation policy settings that determine the operator functions that are automated for a resource and the times during which automation is active. When SA z/OS is running, automation is controlled by automation flag policy settings and override settings (if any) entered by the operator. Automation flags are set using the customization dialogs.

automation manager
In SA z/OS, the automation function is split up between the automation manager and the automation agents. The coordination, decision making and controlling functions are processed by each sysplex's ***automation manager***.

The automation manager contains a model of all of the automated resources within the sysplex. The automation agents feed the automation manager with status information and perform the actions that the automation manager tells them to.

The automation manager provides ***sysplex-wide*** automation.

Automation Manager Configuration
The Automation Manager Configuration file (AMC) contains an image of the automated systems in a sysplex or of a standalone system. See also automation configuration file.

Automation NetView
In SA z/OS the NetView that performs routine operator tasks with command procedures or uses other ways of automating system and network management, issuing automatic responses to messages and management services units.

automation operator
NetView automation operators are NetView autotasks that are assigned to perform specific automation functions. See also automated function. NetView automation operators may receive messages and process automation procedures. There are no logged-on users associated with automation operators. Each automation operator is an operating system task and runs concurrently with other NetView tasks. An automation operator could be set up to handle JES2 messages that schedule automation procedures, and an automation statement could route such messages to the automation operator. Similar to *operator station task*. SA z/OS message monitor tasks and target control tasks are automation operators.

automation policy
The policy information governing automation for individual systems. This includes automation for applications, z/OS subsystems, z/OS data sets, and z/OS components.

automation policy settings
The automation policy information contained in the automation control file. This information is entered using the customization dialogs. You can display or modify these settings using the customization dialogs.

automation procedure
A sequence of commands, packaged as a NetView command list or a command processor written in a high-level language. An automation procedure performs automation functions and runs under NetView.

automation routines
In SA z/OS, a set of self-contained automation routines that can be called from the NetView automation table, or from user-written automation procedures.

automation status file (ASF)
In SA z/OS, a file containing status information for each automated subsystem, component or data set. This information is used by SA z/OS automation when taking action or when determining what action to take. In Release 2 and above of AOC/MVS, status information is also maintained in the operational information base.

automation table (AT)
See NetView automation table.

autotask
A NetView automation task that receives messages and processes automation procedures. There are no logged-on users associated with autotasks. Each autotask is an operating system task and runs concurrently with other NetView tasks. An autotask could be set up to handle JES2 messages that schedule automation procedures, and an automation statement could route such messages to the autotasks. Similar to *operator station task*. SA z/OS message monitor tasks and target control tasks are autotasks. Also called *automation operator*.

available
In VTAM programs, pertaining to a logical unit that is active, connected, enabled, and not at its session limit.

B

Base Control Program (BCP)
A program that provides essential services for the MVS and z/OS operating systems. The program includes functions that manage system resources. These functions include input/output, dispatch units of work, and the z/OS UNIX System Services kernel. See also Multiple Virtual Storage and z/OS.

basic mode
A central processor mode that does not use logical partitioning. Contrast with logically partitioned mode.

BCP
See Base Control Program.

BCP Internal Interface
Processor function of System z processor families. It allows for communication between basic control programs such as z/OS and the processor support element in order to exchange information or to perform processor control functions. Programs using this function can perform hardware operations such as ACTIVATE or SYSTEM RESET.

beaconing
The repeated transmission of a frame or messages (beacon) by a console or workstation upon detection of a line break or outage.

blade
A hardware unit that provides application-specific services and components. The consistent size and shape (or form factor) of each blade allows it to fit in a BladeCenter chassis.

BladeCenter chassis
A modular chassis that can contain multiple blades, allowing the individual blades to share resources such as management, switch, power, and blower modules.

BookManager®
An IBM product that lets users view softcopy documents on their workstations.

C

central processor (CP)
The part of the computer that contains the sequencing and processing facilities for instruction execution, initial program load (IPL), and other machine operations.

central processor complex (CPC)
A physical collection of hardware that consists of central storage, (one or more) central processors, (one or more) timers, and (one or more) channels.

central site
In a distributed data processing network, the central site is usually defined as the focal point for alerts, application design, and remote system management tasks such as problem management.

channel
A path along which signals can be sent; for example, data channel, output channel. See also link.

channel path identifier
A system-unique value assigned to each channel path.

channel-attached
Attached directly by I/O channels to a host processor (for example, a channel-attached device).

Attached to a controlling unit by cables, rather than by telecommunication lines. Contrast with link-attached. Synonymous with local.

CHPID
In SA z/OS, channel path ID; the address of a channel.

CHPID port
A label that describes the system name, logical partitions, and channel paths.

CI
See console integration.

CICS/VS
Customer Information Control System for Virtual Storage. See Customer Information Control System.

CLIST
See command list.

clone
A set of definitions for application instances that are derived from a basic application definition by substituting a number of different system-specific values into the basic definition.

clone ID
A generic means of handling system-specific values such as the MVS SYSCLONE or the VTAM subarea number. Clone IDs can be substituted into application definitions and commands to customize a basic application definition for the system that it is to be instantiated on.

command
A request for the performance of an operation or the execution of a particular program.

command facility
The component of NetView that is a base for command processors that can monitor, control, automate, and improve the operation of a network. The successor to NCCF.

command list (CLIST)
A list of commands and statements, written in the NetView command list language or the REXX language, designed to perform a specific function for the user. In its simplest form, a command list is a list of commands. More complex command lists incorporate variable substitution and conditional logic, making the command list more like a conventional program. Command lists are typically interpreted rather than being compiled.

In SA z/OS, REXX command lists that can be used for automation procedures.

command procedure
In NetView, either a command list or a command processor.

command processor
A module designed to perform a specific function. Command processors, which can be written in assembler or a high-level language (HLL), are issued as commands.

Command Tree/2
An OS/2-based program that helps you build commands on an OS/2 window, then routes the commands to the destination you specify (such as a 3270 session, a file, a command line, or an

application program). It provides the capability for operators to build commands and route them to a specified destination.

common commands
The SA z/OS subset of the CPC operations management commands.

Common User Access (CUA) architecture
Guidelines for the dialog between a human and a workstation or terminal.

communication controller
A type of communication control unit whose operations are controlled by one or more programs stored and executed in the unit or by a program executed in a processor to which the controller is connected. It manages the details of line control and the routing of data through a network.

communication line
Deprecated term for telecommunication line.

connectivity view
In SA z/OS, a display that uses graphic images for I/O devices and lines to show how they are connected.

console automation
The process of having NetView facilities provide the console input usually handled by the operator.

console connection
In SA z/OS, the 3270 or ASCII (serial) connection between a PS/2 computer and a target system. Through this connection, the workstation appears (to the target system) to be a console.

console integration (CI)
A hardware facility that if supported by an operating system, allows operating system messages to be transferred through an internal hardware interface for display on a system console. Conversely, it allows operating system commands entered at a system console to be transferred through an internal hardware interface to the operating system for processing.

consoles
Workstations and 3270-type devices that manage your enterprise.

couple data set
A data set that is created through the XCF couple data set format utility and, depending on its designated type, is shared by some or all of the z/OS systems in a sysplex. See also sysplex couple data setand XCF couple data set.

coupling facility
The hardware element that provides high-speed caching, list processing, and locking functions in a sysplex.

CP
See central processor.

CPC
See central processor complex.

CPC operations management commands
A set of commands and responses for controlling the operation of System/390® CPCs.

CPC subset
All or part of a CPC. It contains the minimum *resource* to support a single control program.

CPU
Central processing unit. Deprecated term for processor.

cross-system coupling facility (XCF)
A component of z/OS that provides functions to support cooperation between authorized programs running within a sysplex.

Customer Information Control System (CICS)
A general-purpose transactional program that controls online communication between terminal users and a database for a large number of end users on a real-time basis.

customization dialogs
The customization dialogs are an ISPF application. They are used to customize the enterprise policy, like, for example, the enterprise resources and the relationships between resources, or the automation policy for systems in the enterprise. How to use these dialogs is described in *IBM System Automation for z/OS Customizing and Programming*.

D

DataPower® X150z
See IBM Websphere DataPower Integration Appliance X150 for zEnterprise (DataPower X150z).

DASD
See direct access storage device.

data services task (DST)
The NetView subtask that gathers, records, and manages data in a VSAM file or a network device that contains network management information.

data set
The major unit of data storage and retrieval, consisting of a collection of data in one of several prescribed arrangements and described by control information to which the system has access.

data set members
Members of partitioned data sets that are individually named elements of a larger file that can be retrieved by name.

DBCS
See double-byte character set.

DCCF
See disabled console communication facility.

DCF
See Document Composition Facility.

DELAY Report
An RMF report that shows the activity of each job in the system and the hardware and software resources that are delaying each job.

device
A piece of equipment. Devices can be workstations, printers, disk drives, tape units, remote systems or communications controllers. You can see information about all devices attached to a particular switch, and control paths and jobs to devices.

DEVR Report
An RMF report that presents information about the activity of I/O devices that are delaying jobs.

dialog
Interactive 3270 panels.

direct access storage device (DASD)
A device that allows storage to be directly accessed, such as a disk drive.

disabled console communication facility (DCCF)
A z/OS component that provides limited-function console communication during system recovery situations.

disk operating system (DOS)
An operating system for computer systems that use disks and diskettes for auxiliary storage of programs and data.

Software for a personal computer that controls the processing of programs. For the IBM Personal Computer, the full name is Personal Computer Disk Operating System (PCDOS).

display
To present information for viewing, usually on the screen of a workstation or on a hardcopy device.

Deprecated term for panel.

distribution manager
The component of the NetView program that enables the host system to use, send, and delete files and programs in a network of computers.

Document Composition Facility (DCF)
An IBM licensed program used to format input to a printer.

domain
An access method and its application programs, communication controllers, connecting lines, modems, and attached workstations.

In SNA, a system services control point (SSCP) and the physical units (PUs), logical units (LUs), links, link stations, and associated resources that the SSCP can control with activation requests and deactivation requests.

double-byte character set (DBCS)
A character set, such as Kanji, in which each character is represented by a 2-byte code.

DP enterprise
Data processing enterprise.

DSIPARM
This file is a collection of members for NetView customization.

DST
Data Services Task.

E

EBCDIC
See Extended Binary Coded Decimal Interchange Code.

ECB
See event control block.

EMCS
Extended multiple console support. See also multiple console support.

ensemble
A collection of one or more zEnterprise nodes (including any attached zBX) that are managed as a single logical virtualized system by the Unified Resource Manager, through the Hardware Management Console.

ensemble member
A zEnterprise node that has been added to an ensemble.

enterprise
The composite of all operational entities, functions, and resources that form the total business concern and that require an information system.

Enterprise Systems Architecture (ESA)
A hardware architecture that reduces the effort required for managing data sets and extends addressability for system, subsystem, and application functions.

entries
Resources, such as processors, entered on panels.

entry type
Resources, such as processors or applications, used for automation and monitoring.

environment
Data processing enterprise.

error threshold
An automation policy setting that specifies when SA z/OS should stop trying to restart or recover an application, subsystem or component, or offload a data set.

ESA
See Enterprise Systems Architecture.

event
In NetView, a record indicating irregularities of operation in physical elements of a network.

An occurrence of significance to a task; for example, the completion of an asynchronous operation, such as an input/output operation.

Events are part of a trigger condition, such that if all events of a trigger condition have occurred, a startup or shutdown of an application is performed.

event control block (ECB)
A control block used to represent the status of an event.

exception condition
An occurrence on a system that is a deviation from normal operation. SA z/OS monitoring highlights exception conditions and allows an SA z/OS enterprise to be managed by exception.

Extended Binary Coded Decimal Interchange Code (EBCDIC)
A coded character set of 256 8-bit characters developed for the representation of textual data. See also American Standard Code for Information Interchange.

extended recovery facility (XRF)
A facility that minimizes the effect of failures in z/OS, VTAM, the host processor, or high availability applications during sessions between high availability applications and designated terminals. This facility provides an alternate subsystem to take over sessions from the failing subsystem.

F

fallback system
See secondary system.

field
A collection of bytes within a record that are logically related and are processed as a unit.

file manager commands
A set of SA z/OS commands that read data from or write data to the automation control file or the operational information base. These commands are useful in the development of automation that uses SA z/OS facilities.

focal point
In NetView, the focal-point domain is the central host domain. It is the central control point for any management services element containing control of the network management data.

focal point system
A system that can administer, manage, or control one or more target systems. There are a number of different focal point system associated with IBM automation products.

SA z/OS Processor Operations focal point system. This is a NetView system that has SA z/OS host code installed. The SA z/OS Processor Operations focal point system receives messages from the systems and operator consoles of the machines that it controls. It provides full systems and operations console function for its target systems. It can be used to IPL these systems. Note that some restrictions apply to the Hardware Management Console for an S/390 microprocessor cluster.

SA z/OS SDF focal point system. The SA z/OS SDF focal point system is an SA z/OS NetView system that collects status information from other SA z/OS NetViews within your enterprise.

Status focal point system. In NetView, the system to which STATMON, VTAM and NLDM send status information on network resources.

Hardware Management Console. Although not listed as a focal point, the Hardware Management Console acts as a focal point for the console functions of an S/390 microprocessor cluster. Unlike all the other focal points in this definition, the Hardware Management Console runs on a LAN-connected workstation,

frame
For a System/390 microprocessor cluster, a frame contains one or two central processor complexes (CPCs), support elements, and AC power distribution.

full-screen mode
In NetView, a form of panel presentation that makes it possible to display the contents of an entire workstation screen at once. Full-screen mode can be used for fill-in-the-blanks prompting. Contrast with line mode.

G

gateway session
An NetView-NetView Task session with another system in which the SA z/OS outbound gateway operator logs onto the other NetView session without human operator intervention. Each end of a gateway session has both an inbound and outbound gateway operator.

generic alert
Encoded alert information that uses code points (defined by IBM and possibly customized by users or application programs) stored at an alert receiver, such as NetView.

group
A collection of target systems defined through configuration dialogs. An installation might set up a group to refer to a physical site or an organizational or application entity.

group entry
A construct, created with the customization dialogs, used to represent and contain policy for a group.

group entry type
A collection of target systems defined through the customization dialog. An installation might set up a group to refer to a physical site or an organizational entity. Groups can, for example, be of type STANDARD or SYSPLEX.

H

Hardware Management Console (HMC)
A user interface through which data center personnel configure, control, monitor, and manage System z hardware and software resources. The HMC communicates with each central processor complex (CPC) through the Support Element. On an IBM zEnterprise 196 (z196), using the Unified Resource Manager on the HMCs or Support Elements, personnel can also create and manage an ensemble.

Hardware Management Console Application (HWMCA)
A direct-manipulation object-oriented graphical user interface that provides a single point of control and single system image for hardware elements. The HWMCA provides grouping support, aggregated and real-time system status using colors, consolidated hardware messages support, consolidated operating system messages support, consolidated service support, and hardware commands targeted at a single system, multiple systems, or a group of systems.

help panel
An online panel that tells you how to use a command or another aspect of a product.

hierarchy
In the NetView program, the resource types, display types, and data types that make up the organization, or levels, in a network.

high-level language (HLL)
A programming language that provides some level of abstraction from assembler language and independence from a particular type of machine. For the NetView program, the high-level languages are PL/I and C.

HLL
See high-level language.

host (primary processor)
The processor that you enter a command at (also known as the *issuing processor*).

host system
In a coupled system or distributed system environment, the system on which the facilities for centralized automation run. SA z/OS publications refer to target systems or focal-point systems instead of hosts.

HWMCA
See Hardware Management Console Application.

Hypervisor
A program that allows multiple instances of operating systems or virtual servers to run simultaneously on the same hardware device. A hypervisor can run directly on the hardware, can run within an operating system, or can be imbedded in platform firmware. Examples of hypervisors include PR/SM, z/VM®, and PowerVM® Enterprise Edition.

I

IBM blade
A customer-acquired, customer-installed select blade to be managed by IBM zEnterprise Unified Resource Manager. One example of an IBM blade is a POWER7® blade.

IBM Secure Service Container (SSC)
IBM Z partitions, activated to run in SSC operating mode, provide the basic infrastructure runtime and deployment support for firmware or software based appliances, such as zAware or z/VSE® VNA.

IBM Smart Analyzer for DB2 for z/OS
An optimizer that processes certain types of data warehouse queries for DB2 for z/OS.

IBM System z Application Assist Processor (zAAP)
A specialized processor that provides a Java execution environment, which enables Java-based web applications to be integrated with core z/OS business applications and backend database systems.

IBM System z Integrated Information Processor (zIIP)
See Integrated Information Processor (IIP).

IBM Websphere DataPower Integration Appliance X150 for zEnterprise (DataPower X150z)
A purpose-built appliance that simplifies, helps secure, and optimizes XML and Web services processing.

IBM Workload Scheduler (IWS)
A family of IBM licensed products (formerly known as Tivoli Workload Scheduler or OPC/A) that plan, execute, and track jobs on several platforms and environments.

IBM zEnterprise 196 (z196)
The newest generation of System z family of servers built on a new processor chip, with enhanced memory function and capacity, security, and on demand enhancements to support existing mainframe workloads and large scale consolidation.

IBM zEnterprise BladeCenter Extension (zBX)
A heterogeneous hardware infrastructure that consists of a BladeCenter chassis attached to an IBM zEnterprise 196 (z196). A BladeCenter chassis can contain IBM blades or optimizers.

IBM zEnterprise BladeCenter Extension (zBX) blade
Generic name for all blade types supported in an IBM zEnterprise BladeCenter Extension (zBX). This term includes IBM blades and optimizers.

IBM zEnterprise System (zEnterprise)
A heterogeneous hardware infrastructure that can consist of an IBM zEnterprise 196 (z196) and an attached IBM zEnterprise BladeCenter Extension (zBX) Model 002, managed as a single logical virtualized system by the Unified Resource Manager.

IBM zEnterprise Unified Resource Manager
Licensed Internal Code (LIC), also known as firmware, that is part of the Hardware Management Console. The Unified Resource Manager provides energy monitoring and management, goal-oriented policy management, increased security, virtual networking, and data management for the physical and logical resources of a given ensemble.

I/O resource number
Combination of channel path identifier (CHPID), device number, etc. See internal token.

images
A grouping of processors and I/O devices that you define. You can define a single-image mode that allows a multiprocessor system to function as one central processor image.

IMS
See Information Management System.

IMS/VS
See Information Management System/Virtual Storage.

inbound
In SA z/OS, messages sent to the focal-point system from the PC or target system.

inbound gateway operator
The automation operator that receives incoming messages, commands, and responses from the outbound gateway operator at the sending system. The inbound gateway operator handles communications with other systems using a gateway session.

Information Management System (IMS)
Any of several system environments available with a database manager and transaction processing that are capable of managing complex databases and terminal networks.

Information Management System/Virtual Storage (IMS/VS)
A database/data communication (DB/DC) system that can manage complex databases and networks. Synonymous with Information Management System.

initial microprogram load
The action of loading microprograms into computer storage.

initial program load (IPL)
The initialization procedure that causes an operating system to commence operation.

The process by which a configuration image is loaded into storage at the beginning of a workday or after a system malfunction.

The process of loading system programs and preparing a system to run jobs.

initialize automation
SA z/OS-provided automation that issues the correct z/OS start command for each subsystem when SA z/OS is initialized. The automation ensures that subsystems are started in the order specified in the automation control files and that prerequisite applications are functional.

input/output configuration data set (IOCDS)
A configuration definition built by the I/O configuration program (IOCP) and stored on disk files associated with the processor controller.

input/output support processor (IOSP)
The hardware unit that provides I/O support functions for the primary support processor and maintenance support functions for the processor controller.

Integrated Information Processor (IIP)
A specialized processor that provides computing capacity for selected data and transaction processing workloads and for selected network encryption workloads.

Interactive System Productivity Facility (ISPF)
An IBM licensed program that serves as a full-screen editor and dialog manager. Used for writing application programs, it provides a means of generating standard screen panels and interactive dialogs between the application programmer and the terminal user. See also Time Sharing Option.

interested operator list
The list of operators who are to receive messages from a specific target system.

internal token
A *logical token* (LTOK); name by which the I/O resource or object is known; stored in IODF.

IOCDS
See input/output configuration data set.

IOSP
See input/output support processor..

IPL
See initial program load.

ISPF
See Interactive System Productivity Facility.

ISPF console
You log on to ISPF from this 3270-type console to use the runtime panels for SA z/OS customization panels.

issuing host
The base program that you enter a command for processing with. See primary host.

J

JCL
See job control language.

JES
See job entry subsystem.

JES2
An MVS subsystem that receives jobs into the system, converts them to internal format, selects them for execution, processes their output, and purges them from the system. In an installation with more than one processor, each JES2 processor independently controls its job input, scheduling, and output processing. See also job entry subsystem and JES3

JES3
An MVS subsystem that receives jobs into the system, converts them to internal format, selects them for execution, processes their output, and purges them from the system. In complexes that have several loosely coupled processing units, the JES3 program manages processors so that the global processor exercises centralized control over the local processors and distributes jobs to them using a common job queue. See also job entry subsystem and JES2.

job
A set of data that completely defines a unit of work for a computer. A job usually includes all necessary computer programs, linkages, files, and instructions to the operating system.

An address space.

job control language (JCL)
A problem-oriented language designed to express statements in a job that are used to identify the job or describe its requirements to an operating system.

job entry subsystem (JES)
An IBM licensed program that receives jobs into the system and processes all output data that is produced by jobs. In SA z/OS publications, JES refers to JES2 or JES3, unless otherwise stated. See also JES2 and JES3.

K

Kanji
An ideographic character set used in Japanese. See also double-byte character set.

L

LAN
See local area network.

line mode
A form of screen presentation in which the information is presented a line at a time in the message area of the terminal screen. Contrast with full-screen mode.

link
In SNA, the combination of the link connection and the link stations joining network nodes; for example, a System/370 channel and its associated protocols, a serial-by-bit connection under the control of synchronous data link control (SDLC). See synchronous data link control.

In SA z/OS, link connection is the physical medium of transmission.

link-attached
Describes devices that are physically connected by a telecommunication line. Contrast with channel-attached.

Linux on z Systems
UNIX-like open source operating system conceived by Linus Torvalds and developed across the internet.

local
Pertaining to a device accessed directly without use of a telecommunication line. Synonymous with channel-attached.

local area network (LAN)
A network in which a set of devices is connected for communication. They can be connected to a larger network. See also token ring.

A network that connects several devices in a limited area (such as a single building or campus) and that can be connected to a larger network.

logical partition (LP)
A subset of the processor hardware that is defined to support an operating system. See also logically partitioned mode.

logical token (LTOK)
Resource number of an object in the IODF.

logical unit (LU)
In SNA, a port through which an end user accesses the SNA network and the functions provided by system services control points (SSCPs). An LU can support at least two sessions, one with an SSCP and one with another LU, and may be capable of supporting many sessions with other LUs. See also physical unit and system services control point.

logical unit 6.2 (LU 6.2)
A type of logical unit that supports general communications between programs in a distributed processing environment. LU 6.2 is characterized by:

- A peer relationship between session partners
- Efficient use of a session for multiple transactions
- A comprehensive end-to-end error processing
- A generic application program interface (API) consisting of structured verbs that are mapped to a product implementation

Synonym for advanced program-to-program communication.

logically partitioned (LPAR) mode
A central processor mode that enables an operator to allocate system processor hardware resources among several logical partitions. Contrast with basic mode.

LOGR
The sysplex logger.

LP
See logical partition.

LPAR
See logically partitioned mode.

LU
See logical unit.

LU 6.2
See logical unit 6.2.

LU 6.2 session
A session initiated by VTAM on behalf of an LU 6.2 application program, or a session initiated by a remote LU in which the application program specifies that VTAM is to control the session by using the APPCCMD macro. See logical unit 6.2.

LU-LU session
In SNA, a session between two logical units (LUs) in an SNA network. It provides communication between two end users, or between an end user and an LU services component.

M

MAT
Deprecated term for NetView automation table.

MCA
See Micro Channel architecture.

MCS
See multiple console support.

member
A specific function (one or more modules or routines) of a multisystem application that is defined to XCF and assigned to a group by the multisystem application. A member resides on one system in the sysplex and can use XCF services to communicate (send and receive data) with other members of the same group.

message automation table (MAT)
Deprecated term for NetView automation table.

message class
A number that SA z/OS associates with a message to control routing of the message. During automated operations, the classes associated with each message issued by SA z/OS are compared to the classes assigned to each notification operator. Any operator with a class matching one of the message's classes receives the message.

message forwarding
The SA z/OS process of sending messages generated at an SA z/OS target system to the SA z/OS focal-point system.

message group
Several messages that are displayed together as a unit.

message monitor task
A task that starts and is associated with a number of communications tasks. Message monitor tasks receive inbound messages from a communications task, determine the originating target system, and route the messages to the appropriate target control tasks.

message processing facility (MPF)
A z/OS table that screens all messages sent to the z/OS console. The MPF compares these messages with a customer-defined list of messages (based on this message list, messages are automated and/or suppressed from z/OS console display), and marks messages to automate or suppress. Messages are then broadcast on the subsystem interface (SSI).

message suppression
The ability to restrict the amount of message traffic displayed on the z/OS console.

Micro Channel architecture
The rules that define how subsystems and adapters use the Micro Channel bus in a computer. The architecture defines the services that each subsystem can or must provide.

microprocessor
A processor implemented on one or a small number of chips.

migration
Installation of a new version or release of a program to replace an earlier version or release.

MP
Multiprocessor.

MPF
See message processing facility.

MPFLSTxx
The MPFLST member that is built by SA z/OS.

multi-MVS environment
physical processing system that is capable of operating more than one MVS image. See also MVS image.

multiple console support (MCS)
A feature of MVS that permits selective message routing to multiple consoles.

Multiple Virtual Storage (MVS)
An IBM operating system that accesses multiple address spaces in virtual storage. The predecessor of z/OS.

multiprocessor (MP)
A CPC that can be physically partitioned to form two operating processor complexes.

multisystem application
An application program that has various functions distributed across z/OS images in a multisystem environment.

multisystem environment
An environment in which two or more systems reside on one or more processors. Or one or more processors can communicate with programs on the other systems.

MVS
See Multiple Virtual Storage.

MVS image
A single occurrence of the MVS operating system that has the ability to process work. See also multi-MVS environment and single-MVS environment.

MVS/ESA
Multiple Virtual Storage/Enterprise Systems Architecture. See z/OS.

MVS/JES2
Multiple Virtual Storage/Job Entry System 2. A z/OS subsystem that receives jobs into the system, converts them to an internal format, selects them for execution, processes their output, and purges them from the system. In an installation with more than one processor, each JES2 processor independently controls its job input, scheduling, and output processing.

N

NAU
See network addressable unit.

See network accessible unit.

NCCF
See Network Communications Control Facility..

NCP
See network control program (general term).

See Network Control Program (an IBM licensed program). Its full name is Advanced Communications Function for the Network Control Program. Synonymous with ACF/NCP.

NCP/token ring interconnection
A function used by ACF/NCP to support token ring-attached SNA devices. NTRI also provides translation from token ring-attached SNA devices (PUs) to switched (dial-up) devices.

NetView
An IBM licensed program used to monitor a network, manage it, and diagnose network problems. NetView consists of a command facility that includes a presentation service, command processors, automation based on command lists, and a transaction processing structure on which the session monitor, hardware monitor, and terminal access facility (TAF) network management applications are built.

NetView (NCCF) console
A 3270-type console for NetView commands and runtime panels for system operations and processor operations.

NetView automation procedures
A sequence of commands, packaged as a NetView command list or a command processor written in a high-level language. An automation procedure performs automation functions and runs under the NetView program.

NetView automation table (AT)
A table against which the NetView program compares incoming messages. A match with an entry triggers the specified response. SA z/OS entries in the NetView automation table trigger an SA z/OS response to target system conditions. Formerly known as the message automation table (MAT).

NetView command list language
An interpretive language unique to NetView that is used to write command lists.

NetView hardware monitor
The component of NetView that helps identify network problems, such as hardware, software, and microcode, from a central control point using interactive display techniques. Formerly called *network problem determination application*.

NetView log
The log that NetView records events relating to NetView and SA z/OS activities in.

NetView message table
See NetView automation table.

NetView paths via logical unit (LU 6.2)
A type of network-accessible port (VTAM connection) that enables end users to gain access to SNA network resources and communicate with each other. LU 6.2 permits communication between processor operations and the workstation. See logical unit 6.2.

NetView-NetView task (NNT)
The task that a cross-domain NetView operator session runs under. Each NetView program must have a NetView-NetView task to establish one NNT session. See also operator station task.

NetView-NetView task session
A session between two NetView programs that runs under a NetView-NetView task. In SA z/OS, NetView-NetView task sessions are used for communication between focal point and remote systems.

network
An interconnected group of nodes.

In data processing, a user application network. See SNA network.

network accessible unit (NAU)
In SNA networking, any device on the network that has a network address, including a logical unit (LU), physical unit (PU), control point (CP), or system services control point (SSCP). It is the origin or the destination of information transmitted by the path control network. Synonymous with network addressable unit.

network addressable unit (NAU)
Synonym for network accessible unit.

Network Communications Control Facility (NCCF)
The operations control facility for the network. NCCF consists of a presentation service, command processors, automation based on command lists, and a transaction processing structure on which the network management applications NLDM are built. NCCF is a precursor to the NetView command facility.

Network Control Program (NCP)
An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and interconnected network capability. Its full name is Advanced Communications Function for the Network Control Program.

network control program (NCP)
A program that controls the operation of a communication controller.

A program used for requests and responses exchanged between physical units in a network for data flow control.

Networking NetView
In SA z/OS the NetView that performs network management functions, such as managing the configuration of a network. In SA z/OS it is common to also route alerts to the Networking NetView.

NIP
See nucleus initialization program.

NNT
See NetView-NetView task.

notification message
An SA z/OS message sent to a human notification operator to provide information about significant automation actions. Notification messages are defined using the customization dialogs.

notification operator
A NetView console operator who is authorized to receive SA z/OS notification messages. Authorization is made through the customization dialogs.

NTRI
See NCP/token ring interconnection.

nucleus initialization program (NIP)
The program that initializes the resident control program; it allows the operator to request last-minute changes to certain options specified during system generation.

O

objective value
An average Workflow or Using value that SA z/OS can calculate for applications from past service data. SA z/OS uses the objective value to calculate warning and alert thresholds when none are explicitly defined.

OCA
In SA z/OS, operator console A, the active operator console for a target system. Contrast with OCB.

OCB
In SA z/OS, operator console B, the backup operator console for a target system. Contrast with OCA.

OPC/A
See Operations Planning and Control/Advanced.

OPC/ESA
See Operations Planning and Control/Enterprise Systems Architecture.

operating system (OS)
Software that controls the execution of programs and that may provide services such as resource allocation, scheduling, input/output control, and data management. Although operating systems are predominantly software, partial hardware implementations are possible. (T)

operations
The real-time control of a hardware device or software function.

Operations Planning and Control/Advanced (OPC/A)
A set of IBM licensed programs that automate, plan, and control batch workload. OPC/A analyzes system and workload status and submits jobs accordingly.

Operations Planning and Control/Enterprise Systems Architecture (OPC/ESA)
A set of IBM licensed programs that automate, plan, and control batch workload. OPC/ESA analyzes system and workload status and submits jobs accordingly. The successor to OPC/A.

operator
A person who keeps a system running.

A person or program responsible for managing activities controlled by a given piece of software such as z/OS, the NetView program, or IMS.

A person who operates a device.

In a language statement, the lexical entity that indicates the action to be performed on operands.

operator console
A functional unit containing devices that are used for communications between a computer operator and a computer. (T)

A display console used for communication between the operator and the system, used primarily to specify information concerning application programs and to monitor system operation.

In SA z/OS, a console that displays output from and sends input to the operating system (z/OS, LINUX, VM, VSE). Also called *operating system console*. In the SA z/OS operator commands and configuration dialogs, OC is used to designate a target system operator console.

operator station task (OST)
The NetView task that establishes and maintains the online session with the network operator. There is one operator station task for each network operator who logs on to the NetView program.

operator view
A set of group, system, and resource definitions that are associated together for monitoring purposes. An operator view appears as a graphic display in the graphical interface showing the status of the defined groups, systems, and resources.

OperatorView entry
A construct, created with the customization dialogs, used to represent and contain policy for an operator view.

optimizer
A special-purpose hardware component or appliance that can perform a limited set of specific functions with optimized performance when compared to a general-purpose processor. Because of its limited set of functions, an optimizer is an integrated part of a processing environment, rather than a stand-alone unit. One example of an optimizer is the IBM Smart Analytics Optimizer for DB2 for z/OS.

OS
See operating system.

OST
See operator station task.

outbound
In SA z/OS, messages or commands from the focal-point system to the target system.

outbound gateway operator
The automation operator that establishes connections to other systems. The outbound gateway operator handles communications with other systems through a gateway session. The automation operator sends messages, commands, and responses to the inbound gateway operator at the receiving system.

P

page
The portion of a panel that is shown on a display surface at one time.

To transfer instructions, data, or both between real storage and external page or auxiliary storage.

panel
A formatted display of information that appears on a terminal screen. Panels are full-screen 3270-type displays with a monospaced font, limited color and graphics.

By using SA z/OS panels you can see status, type commands on a command line using a keyboard, configure your system, and passthru to other consoles. See also help panel.

In computer graphics, a display image that defines the locations and characteristics of display fields on a display surface. Contrast with screen.

parameter
A variable that is given a constant value for a specified application and that may represent an application, for example.

An item in a menu for which the user specifies a value or for which the system provides a value when the menu is interpreted.

Data passed to a program or procedure by a user or another program, specifically as an operand in a language statement, as an item in a menu, or as a shared data structure.

partition
A fixed-size division of storage.

In VSE, a division of the virtual address area that is available for program processing.

On an IBM Personal Computer fixed disk, one of four possible storage areas of variable size; one can be accessed by DOS, and each of the others may be assigned to another operating system.

partitionable CPC
A CPC that can be divided into 2 independent CPCs. See also physical partition, single-image mode, MP, and side.

partitioned data set (PDS)
A data set in direct access storage that is divided into partitions, called *members*, each of which can contain a program, part of a program, or data.

passive monitoring
In SA z/OS, the receiving of unsolicited messages from z/OS systems and their resources. These messages can prompt updates to resource status displays. See also active monitoring

PCE
A processor controller. Also known as the support processor or service processor in some processor families.

PDB
See policy database.

PDS
See partitioned data set.

physical partition
Part of a CPC that operates as a CPC in its own right, with its own copy of the operating system.

physical unit (PU)
In SNA, the component that manages and monitors the resources (such as attached links and adjacent link stations) of a node, as requested by a system services control point (SSCP) through an SSCP-PU session. An SSCP activates a session with the physical unit to indirectly manage, through the PU, resources of the node such as attached links.

physically partitioned (PP) configuration
A mode of operation that allows a multiprocessor (MP) system to function as two or more independent CPCs having separate power, utilities, and maintenance boundaries. Contrast with single-image mode.

PLEXID group
PLEXID group or "extended XCF communication group" is a term used in conjunction with a sysplex. The PLEXID group includes System Automation Agents for a subset of a sysplex or for the entire sysplex. It is used to provide XCF communication beyond the SAplex boundaries. For a detailed description, refer to "Defining the Extended XCF Communication Group" in *IBM System Automation for z/OS Planning and Installation*.

POI
See program operator interface.

policy
The automation and monitoring specifications for an SA z/OS enterprise. See *IBM System Automation for z/OS Defining Automation Policy*.

policy database
The automation definitions (automation policy) that the automation administrator specifies using the customization dialog is stored in the policy database. Also known as the PDB. See also automation policy.

POR
See power-on reset.

port
System hardware that the I/O devices are attached to.

An access point (for example, a logical unit) for data entry or exit.

A functional unit of a node that data can enter or leave a data network through.

In data communication, that part of a data processor that is dedicated to a single data channel for the purpose of receiving data from or transmitting data to one or more external, remote devices.

power-on reset (POR)
A function that re-initializes all the hardware in a CPC and loads the internal code that enables the CPC to load and run an operating system. See initial microprogram load.

PP
See physical partition.

PPI
See program to program interface.

PPT
See primary POI task.

PR/SM
See Processor Resource/Systems Manager.

primary host
The base program that you enter a command for processing at.

primary POI task (PPT)
The NetView subtask that processes all unsolicited messages received from the VTAM program operator interface (POI) and delivers them to the controlling operator or to the command processor. The PPT also processes the initial command specified to execute when NetView is initialized and timer request commands scheduled to execute under the PPT.

primary system
A system is a primary system for an application if the application is normally meant to be running there. SA z/OS starts the application on all the primary systems defined for it.

problem determination
The process of determining the source of a problem; for example, a program component, machine failure, telecommunication facilities, user or contractor-installed programs or equipment, environment failure such as a power loss, or user error.

processor
A device for processing data from programmed instructions. It may be part of another unit.

In a computer, the part that interprets and executes instructions. Two typical components of a processor are a control unit and an arithmetic logic unit.

processor controller
Hardware that provides support and diagnostic functions for the central processors.

processor operations
The part of SA z/OS that monitors and controls processor (hardware) operations. Processor operations provides a connection from a focal-point system to a target system. Through NetView on the focal-point system, processor operations automates operator and system consoles for monitoring and recovering target systems. Also known as ProcOps.

Processor Resource/Systems Manager (PR/SM)
The feature that allows the processor to use several operating system images simultaneously and provides logical partitioning capability. See also logically partitioned mode.

ProcOps
See processor operations.

ProcOps Service Machine (PSM)
The PSM is a CMS user on a VM host system. It runs a CMS multitasking application that serves as "virtual hardware" for ProcOps. ProOps communicates via the PSM with the VM guest systems that are defined as target systems within ProcOps.

product automation
Automation integrated into the base of SA z/OS for the products CICS, DB2, IMS, IBM Workload Scheduler (formerly called *features*).

program operator interface (POI)
A NetView facility for receiving VTAM messages.

program to program interface (PPI)
A NetView function that allows user programs to send or receive data buffers from other user programs and to send alerts to the NetView hardware monitor from system and application programs.

protocol
In SNA, the meanings of, and the sequencing rules for, requests and responses used for managing the network, transferring data, and synchronizing the states of network components.

proxy resource
A resource defined like an entry type APL representing a processor operations target system.

PSM
See ProcOps Service Machine.

PU
See physical unit.

R

RACF
See Resource Access Control Facility.

remote system
A system that receives resource status information from an SA z/OS focal-point system. An SA z/OS remote system is defined as part of the same SA z/OS enterprise as the SA z/OS focal-point system to which it is related.

requester
A workstation from that user can log on to a domain from, that is, to the servers belonging to the domain, and use network resources. Users can access the shared resources and use the processing capability of the servers, thus reducing hardware investment.

resource
Any facility of the computing system or operating system required by a job or task, and including main storage, input/output devices, the processing unit, data sets, and control or processing programs.

In NetView, any hardware or software that provides function to the network.

In SA z/OS, any z/OS application, z/OS component, job, device, or target system capable of being monitored or automated through SA z/OS.

Resource Access Control Facility (RACF)
A program that can provide data security for all your resources. RACF protects data from accidental or deliberate unauthorized disclosure, modification, or destruction.

resource group
A physically partitionable portion of a processor. Also known as a *side*.

Resource Measurement Facility (RMF)
A feature of z/OS that measures selected areas of system activity and presents the data collected in the format of printed reports, System Management Facility (SMF) records, or display reports.

restart automation
Automation provided by SA z/OS that monitors subsystems to ensure that they are running. If a subsystem fails, SA z/OS attempts to restart it according to the policy in the automation configuration file.

Restructured Extended Executor (REXX)
A general-purpose, high-level, programming language, particularly suitable for EXEC procedures or programs for personal computing, used to write command lists.

return code
A code returned from a program used to influence the issuing of subsequent instructions.

REXX
See Restructured Extended Executor.

REXX procedure
A command list written with the Restructured Extended Executor (REXX), which is an interpretive language.

RMF
See Resource Measurement Facility.

S

SAF
See Security Authorization Facility.

SA IOM
See System Automation for Integrated Operations Management.

SAplex
SAplex or "SA z/OS Subplex" is a term used in conjuction with a sysplex. In fact, a SAplex is a subset of a sysplex. However, it can also be a sysplex. For a detailed description, refer to "Using SA z/OS Subplexes" in *IBM System Automation for z/OS Planning and Installation*.

SA z/OS
See System Automation for z/OS.

SA z/OS customization dialogs
An ISPF application through which the SA z/OS policy administrator defines policy for individual z/OS systems and builds automation control data.

SA z/OS customization focal point system
See focal point system.

SA z/OS data model
The set of objects, classes and entity relationships necessary to support the function of SA z/OS and the NetView automation platform.

SA z/OS enterprise
The group of systems and resources defined in the customization dialogs under one enterprise name. An SA z/OS enterprise consists of connected z/OS systems running SA z/OS.

SA z/OS focal point system
See focal point system.

SA z/OS policy
The description of the systems and resources that make up an SA z/OS enterprise, together with their monitoring and automation definitions.

SA z/OS policy administrator
The member of the operations staff who is responsible for defining SA z/OS policy.

SA z/OS SDF focal point system
See focal point system.

SCA
In SA z/OS, system console A, the active system console for a target hardware. Contrast with SCB.

SCB
In SA z/OS, system console B, the backup system console for a target hardware. Contrast with SCA.

screen
Deprecated term for panel.

screen handler
In SA z/OS, software that interprets all data to and from a full-screen image of a target system. The interpretation depends on the format of the data on the full-screen image. Every processor and operating system has its own format for the full-screen image. A screen handler controls one PS/2 connection to a target system.

SDF
See status display facility.

SDLC
See synchronous data link control.

SDSF
See System Display and Search Facility.

secondary system
A system is a secondary system for an application if it is defined to automation on that system, but the application is not normally meant to be running there. Secondary systems are systems to which an application can be moved in the event that one or more of its primary systems are unavailable. SA z/OS does not start the application on its secondary systems.

Security Authorization Facility (SAF)
An MVS interface with which programs can communicate with an external security manager, such as RACF.

server
A server is a workstation that shares resources, which include directories, printers, serial devices, and computing powers.

service language command (SLC)
The line-oriented command language of processor controllers or service processors.

service period
Service periods allow the users to schedule the availability of applications. A service period is a set of time intervals (service windows), during which an application should be active.

service processor (SVP)
The name given to a processor controller on smaller System/370 processors.

service threshold
An SA z/OS policy setting that determines when to notify the operator of deteriorating service for a resource. See also alert threshold and warning threshold.

session
In SNA, a logical connection between two network addressable units (NAUs) that can be activated, tailored to provide various protocols, and deactivated, as requested. Each session is uniquely identified in a transmission header by a pair of network addresses identifying the origin and destination NAUs of any transmissions exchanged during the session.

session monitor
The component of the NetView program that collects and correlates session-related data and provides online access to this information. The successor to NLDM.

shutdown automation
SA z/OS-provided automation that manages the shutdown process for subsystems by issuing shutdown commands and responding to prompts for additional information.

side
A part of a partitionable CPC that can run as a physical partition and is typically referred to as the A-side or the B-side.

Simple Network Management Protocol (SNMP)
A set of protocols for monitoring systems and devices in complex networks. Information about managed devices is defined and stored in a Management Information Base (MIB).

single image
A processor system capable of being physically partitioned that has not been physically partitioned. Single-image systems can be target hardware processors.

single-MVS environment
An environment that supports one MVS image. See also MVS image.

single-image (SI) mode
A mode of operation for a multiprocessor (MP) system that allows it to function as one CPC. By definition, a uniprocessor (UP) operates in single-image mode. Contrast with physically partitioned (PP) configuration.

SLC
See service language command.

SMP/E
See System Modification Program/Extended.

SNA
See Systems Network Architecture.

SNA network
In SNA, the part of a user-application network that conforms to the formats and protocols of systems network architecture. It enables reliable transfer of data among end users and provides protocols

for controlling the resources of various network configurations. The SNA network consists of network addressable units (NAUs), boundary function components, and the path control network.

SNMP
See Simple Network Management Protocol.

solicited message
An SA z/OS message that directly responds to a command. Contrast with unsolicited message.

SSCP
See system services control point.

SSI
See subsystem interface.

start automation
Automation provided by SA z/OS that manages and completes the startup process for subsystems. During this process, SA z/OS replies to prompts for additional information, ensures that the startup process completes within specified time limits, notifies the operator of problems, if necessary, and brings subsystems to an UP (or ready) state.

startup
The point in time that a subsystem or application is started.

status
The measure of the condition or availability of the resource.

status display facility (SDF)
The system operations part of SA z/OS that displays status of resources such as applications, gateways, and write-to-operator messages (WTORs) on dynamic color-coded panels. SDF shows spool usage problems and resource data from multiple systems.

steady state automation
The routine monitoring, both for presence and performance, of subsystems, applications, volumes and systems. Steady state automation may respond to messages, performance exceptions and discrepancies between its model of the system and reality.

structure
A construct used by z/OS to map and manage storage on a coupling facility.

subgroup
A named set of systems. A subgroup is part of an SA z/OS enterprise definition and is used for monitoring purposes.

SubGroup entry
A construct, created with the customization dialogs, used to represent and contain policy for a subgroup.

subplex
See SAplex.

subsystem
A secondary or subordinate system, usually capable of operating independent of, or asynchronously with, a controlling system.

In SA z/OS, an z/OS application or subsystem defined to SA z/OS.

subsystem interface (SSI)
The z/OS interface over which all messages sent to the z/OS console are broadcast.

support element
A hardware unit that provides communications, monitoring, and diagnostic functions to a central processor complex (CPC).

support processor
Another name given to a processor controller on smaller System/370 processors. See service processor.

SVP
See service processor.

symbolic destination name (SDN)
Used locally at the workstation to relate to the VTAM application name.

synchronous data link control (SDLC)
A discipline for managing synchronous, code-transparent, serial-by-bit information transfer over a link connection. Transmission exchanges may be duplex or half-duplex over switched or nonswitched links. The configuration of the link connection may be point-to-point, multipoint, or loop. SDLC conforms to subsets of the Advanced Data Communication Control Procedures (ADCCP) of the American National Standards Institute and High-Level Data Link Control (HDLC) of the International Standards Organization.

SYSINFO Report
An RMF report that presents an overview of the system, its workload, and the total number of jobs using resources or delayed for resources.

SysOps
See system operations.

sysplex
A set of z/OS systems communicating and cooperating with each other through certain multisystem hardware components (coupling devices and timers) and software services (couple data sets).

In a sysplex, z/OS provides the coupling services that handle the messages, data, and status for the parts of a multisystem application that has its workload spread across two or more of the connected processors, sysplex timers, coupling facilities, and couple data sets (which contains policy and states for automation).

A Parallel Sysplex® is a sysplex that includes a coupling facility.

sysplex application group
A sysplex application group is a grouping of applications that can run on any system in a sysplex.

sysplex couple data set
A couple data set that contains sysplex-wide data about systems, groups, and members that use XCF services. All z/OS systems in a sysplex must have connectivity to the sysplex couple data set. See also couple data set.

Sysplex Timer
An IBM unit that synchronizes the time-of-day (TOD) clocks in multiple processors or processor sides. External Time Reference (ETR) is the z/OS generic name for the IBM Sysplex Timer (9037).

system
In SA z/OS, system means a focal point system (z/OS) or a target system (MVS, VM, VSE, LINUX, or CF).

System Automation for Integrated Operations Management
An outboard automation solution for secure remote access to mainframe/distributed systems. Tivoli System Automation for Integrated Operations Management, previously Tivoli AF/REMOTE, allows users to manage mainframe and distributed systems from any location.

The full name for SA IOM.

System Automation for z/OS
The full name for SA z/OS.

system console
A console, usually having a keyboard and a display screen, that is used by an operator to control and communicate with a system.

A logical device used for the operation and control of hardware functions (for example, IPL, alter/display, and reconfiguration). The system console can be assigned to any of the physical displays attached to a processor controller or support processor.

In SA z/OS, the hardware system console for processor controllers or service processors of processors connected using SA z/OS. In the SA z/OS operator commands and configuration dialogs, SC is used to designate the system console for a target hardware processor.

System Display and Search Facility (SDSF)
An IBM licensed program that provides information about jobs, queues, and printers running under JES2 on a series of panels. Under SA z/OS you can select SDSF from a pull-down menu to see the resources' status, view the z/OS system log, see WTOR messages, and see active jobs on the system.

System entry
A construct, created with the customization dialogs, used to represent and contain policy for a system.

System Modification Program/Extended (SMP/E)
An IBM licensed program that facilitates the process of installing and servicing an z/OS system.

system operations
The part of SA z/OS that monitors and controls system operations applications and subsystems such as NetView, SDSF, JES, RMF, TSO, ACF/VTAM, CICS, IMS, and OPC. Also known as SysOps.

system services control point (SSCP)
In SNA, the focal point within an SNA network for managing the configuration, coordinating network operator and problem determination requests, and providing directory support and other session services for end users of the network. Multiple SSCPs, cooperating as peers, can divide the network into domains of control, with each SSCP having a hierarchical control relationship to the physical units and logical units within its domain.

System/390 microprocessor cluster
A configuration that consists of central processor complexes (CPCs) and may have one or more integrated coupling facilities.

Systems Network Architecture (SNA)
The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through, and controlling the configuration and operation of, networks.

T

TAF
See terminal access facility.

target
A processor or system monitored and controlled by a focal-point system.

target control task
In SA z/OS, target control tasks process commands and send data to target systems and workstations through communications tasks. A target control task (a NetView autotask) is assigned to a target system when the target system is initialized.

target hardware
In SA z/OS, the physical hardware on which a target system runs. It can be a single-image or physically partitioned processor. Contrast with target system.

target system
In a distributed system environment, a system that is monitored and controlled by the focal-point system. Multiple target systems can be controlled by a single focal-point system.

In SA z/OS, a computer system attached to the focal-point system for monitoring and control. The definition of a target system includes how remote sessions are established, what hardware is used, and what operating system is used.

task
A basic unit of work to be accomplished by a computer.

In the NetView environment, an operator station task (logged-on operator), automation operator (autotask), application task, or user task. A NetView task performs work in the NetView environment. All SA z/OS tasks are NetView tasks. See also message monitor task, and target control task.

telecommunication line
Any physical medium, such as a wire or microwave beam, that is used to transmit data.

terminal access facility (TAF)
A NetView function that allows you to log onto multiple applications either on your system or other systems. You can define TAF sessions in the SA z/OS customization panels so you don't have to set them up each time you want to use them.

In NetView, a facility that allows a network operator to control a number of subsystems. In a full-screen or operator control session, operators can control any combination of subsystems simultaneously.

terminal emulation
The capability of a microcomputer or personal computer to operate as if it were a particular type of terminal linked to a processing unit to access data.

threshold
A value that determines the point at which SA z/OS automation performs a predefined action. See alert threshold, warning threshold, and error threshold.

time of day (TOD)
Typically refers to the time-of-day clock.

Time Sharing Option (TSO)
An optional configuration of the operating system that provides conversational time sharing from remote stations. It is an interactive service on z/OS, MVS/ESA, and MVS/XA.

Time-Sharing Option/Extended (TSO/E)
An option of z/OS that provides conversational timesharing from remote terminals. TSO/E allows a wide variety of users to perform many different kinds of tasks. It can handle short-running applications that use fewer sources as well as long-running applications that require large amounts of resources.

timers
A NetView instruction that issues a command or command processor (list of commands) at a specified time or time interval.

TOD
Time of day.

token ring
A network with a ring topology that passes tokens from one attaching device to another; for example, the IBM Token-Ring Network product.

TP
See transaction program.

transaction program
In the VTAM program, a program that performs services related to the processing of a transaction. One or more transaction programs may operate within a VTAM application program that is using the VTAM application program interface (API). In that situation, the transaction program would request services from the applications program using protocols defined by that application program. The application program, in turn, could request services from the VTAM program by issuing the APPCCMD macro instruction.

transitional automation
The actions involved in starting and stopping subsystems and applications that have been defined to SA z/OS. This can include issuing commands and responding to messages.

translating host
Role played by a host that turns a resource number into a token during a unification process.

trigger
Triggers, in combination with events and service periods, are used to control the starting and stopping of applications in a single system or a parallel sysplex.

TSO
See Time Sharing Option.

TSO console
From this 3270-type console you are logged onto TSO or ISPF to use the runtime panels for SA z/OS customization panels.

TSO/E
See Time-Sharing Option/Extended.

TWS
See IBM Workload Scheduler (IWS).

U

unsolicited message
An SA z/OS message that is not a direct response to a command.

uniform resource identifier (URI)
A uniform resource identifier is a string of characters used to identify a name of a web resource. Such identification enables interaction with representations of the web resource over the internet, using specific protocols.

user task
An application of the NetView program defined in a NetView TASK definition statement.

Using
An RMF Monitor III definition. Jobs getting service from hardware resources (processors or devices) are **using** these resources. The use of a resource by an address space can vary from 0% to 100% where 0% indicates no use during a Range period, and 100% indicates that the address space was found using the resource in every sample during that period.

V

view
In the NetView Graphic Monitor Facility, a graphical picture of a network or part of a network. A view consists of nodes connected by links and may also include text and background lines. A view can be displayed, edited, and monitored for status information about network resources.

Virtual Server
A logical construct that appears to comprise processor, memory, and I/O resources conforming to a particular architecture. A virtual server can support an operating system, associated middleware, and applications. A hypervisor creates and manages virtual servers.

Virtual Server Collection
A set of virtual servers that supports a workload. This set is not necessarily static. The constituents of the collection at any given point are determined by virtual servers involved in supporting the workload at that time.

virtual Server Image
A package containing metadata that describes the system requirements, virtual storage drives, and any goals and constraints for the virtual machine {for example, isolation and availability). The Open Virtual Machine Format (OVF) is a Distributed Management Task Force (DMTF) standard that describes a packaging format for virtual server images.

Virtual Server Image Capture
The ability to store metadata and disk images of an existing virtual server. The metadata describes the virtual server storage, network needs, goals and constraints. The captured information is stored as a virtual server image that can be referenced and used to create and deploy other similar images.

Virtual Server Image Clone
The ability to create an identical copy (clone) of a virtual server image that can be used to create a new similar virtual server.

Virtual Storage Extended (VSE)
A system that consists of a basic operating system (VSE/Advanced Functions), and any IBM supplied and user-written programs required to meet the data processing needs of a user. VSE and the hardware that it controls form a complete computing system. Its current version is called VSE/ESA.

Virtual Telecommunications Access Method (VTAM)
An IBM licensed program that controls communication and the flow of data in an SNA network. It provides single-domain, multiple-domain, and interconnected network capability. Its full name is Advanced Communications Function for the Virtual Telecommunications Access Method. Synonymous with ACF/VTAM.

VM Second Level Systems Support
With this function, Processor Operations is able to control VM second level systems (VM guest systems) in the same way that it controls systems running on real hardware.

VM/ESA
Virtual Machine/Enterprise Systems Architecture. Its current version is called z/VM.

volume
A direct access storage device (DASD) volume or a tape volume that serves a system in an SA z/OS enterprise.

VSE
See Virtual Storage Extended.

VTAM
See Virtual Telecommunications Access Method.

W

warning threshold
An application or volume service value that determines the level at which SA z/OS changes the associated icon in the graphical interface to the warning color. See alert threshold.

workstation
In SA z/OS workstation means the *graphic workstation* that an operator uses for day-to-day operations.

write-to-operator (WTO)
A request to send a message to an operator at the z/OS operator console. This request is made by an application and is handled by the WTO processor, which is part of the z/OS supervisor program.

write-to-operator-with-reply (WTOR)
A request to send a message to an operator at the z/OS operator console that requires a response from the operator. This request is made by an application and is handled by the WTO processor, which is part of the z/OS supervisor program.

WTO
See write-to-operator.

WTOR
See write-to-operator-with-reply.

WWV
The US National Institute of Standards and Technology (NIST) radio station that provides standard time information. A second station, known as WWVB, provides standard time information at a different frequency.

X

XCF
See cross-system coupling facility.

XCF couple data set
The name for the sysplex couple data set prior to MVS/ESA System Product Version 5 Release 1. See also sysplex couple data set.

XCF group
A set of related members that a multisystem application defines to XCF. A member is a specific function, or instance, of the application. A member resides on one system and can communicate with other members of the same group across the sysplex.

XRF
See extended recovery facility.

Z

z/OS
An IBM mainframe operating system that uses 64-bit real storage. See also Base Control Program.

z/OS component
A part of z/OS that performs a specific z/OS function. In SA z/OS, component refers to entities that are managed by SA z/OS automation.

z/OS subsystem
Software products that augment the z/OS operating system. JES and TSO/E are examples of z/OS subsystems. SA z/OS includes automation for some z/OS subsystems.

z/OS system
A z/OS image together with its associated hardware, which collectively are often referred to simply as a system, or z/OS system.

z196
See IBM zEnterprise 196 (z196).

zAAP
See IBM System z Application Assist Processor (zAAP).

zBX
See IBM zEnterprise BladeCenter Extension (zBX).

zBX blade
See IBM zEnterprise BladeCenter Extension (zBX) blade.

zCPC
The physical collection of main storage, central processors, timers, and channels within a zEnterprise mainframe. Although this collection of hardware resources is part of the larger zEnterprise central processor complex, you can apply energy management policies to zCPC that are different from those that you apply to any attached IBM zEnterprise BladeCenter Extension (zBX) or blades. See also central processor complex.

zEnterprise
See IBM zEnterprise System (zEnterprise).

Index

Special Characters

*BASE sample policy 273
+SA_PREDEFINED_MSGS MVS Component entry 298

A

accessibility xxiii
ACF 229
ACFFQRY 62
actions on policy databases 269
add-on sample policies
  importing 309
  listed 273
alternate configuration
  building 336
  defining 336
  restrictions 336
alternate configuration support 335
alternate data sets, monitoring 82
AMC file
  distributing 292
ANYSTART 161
AOCCLONE 7
AOCCLONE IDs 7
AOFSMARTMAT advanced automation option, to enable AT updates 296
APPLGROUP INFO policy item 107
application
  scenario, creating 38
application class 123
Application Defaults entry type 241
Application Defaults entry type, short description 2
Application entry type
  creating 123
  introduction 123
  policy items 127
application entry type, short description 2
application group
  nature 102
  nature of 39
  scenario, creating 39
  Sysplex Application Group 39
  System Application Group 39
application group entry type, short description 2
application group resource name 39
APPLICATION GROUPS policy item
  for systems 92
APPLICATION INFO policy item
  for application defaults 241
  for applications 132
application instance 123
application monitor routine 125, 138
application move, resource aware 115
application resource name 38
application resources
  automatically linking 39
application resources *(continued)*
  generating 39
APPLICATION SYMBOLS policy item 142
application type 123
ApplicationGroup entry type
  creating 102
  introducing 102
  policy items 105
APPLICATIONS policy item 109
applying service updates 299
ASCB chaining
  MVS job type 123
  with application automation 132
assigning
  clone IDs 7
  system automation symbols 7
AT 64
AT/MRT INSERTS policy item 227
AT/MRT syntax checking, disabling 328
AT/MRT syntax checking, enabling 328
ATTEND TIME policy item 233
AUTHENTICATION policy item 255
automated function 146, 161, 165, 166
Automatic Restart Manager
  defining element names 132
  using clone values for element names 132
automation
  considerations 6
  table policy definition 95
automation configuration
  ACF 292
  AMC file 292
  automation control file 292
  automation manager configuration file 292
  introducing 15
AUTOMATION CONSOLE policy item 97
automation control file
  building 287
  distributing 292
automation flags
  setting application defaults 241
AUTOMATION FLAGS policy item
  for Application Defaults 241
  for applications 140
  for MVSCOMP Defaults 238
  for System Defaults 239
automation manager configuration file
  building 287
  distributing 292
automation name 39, 102
automation networks
  definition 249
automation operators 242
Automation Operators entry type 242
Automation Operators entry type, short description 2
AUTOMATION OPTIONS policy item 240
automation policy

automation policy *(continued)*
defining, outlined 1
overview of defining 1
automation procedure
functions managed by 6
introducing 6
recovery of components and data sets 6
automation resource name 102
AUTOMATION SYMBOLS policy item 96
autotask 2
availability target 115

B

BASIC 102
BASIC application group 39
batch build
INGEBCON 293
job 293
return codes 293
batch build processing
defining data sets 332
defining ISPF temporary data sets 334
batch conversion 324
batch update
INGEBFLT 321
job 321
return codes 321
behavior of application groups
ACTIVE 102
PASSIVE 102
BROWSE command 23
build
job for batch build 293, 321
BUILD
automation control file 287
automation manager configuration file 287
description 287
MPFLSTxx member 287
NetView automation table 287
Policy Database Selection panel 269
system operations configuration files 287
BUILD error messages 290
build processing
with BUILD command 288
BUILDF command 287
bulk deletion
policy objects 22
bulk update 311

C

canceling input 19
CDS 82
chaining 111
changing links
concurrent user access 326
CICS CONTROL policy item 178, 179
CICS subsystems
policy items 178
classes, nested 11
cleanup delay policy definition 132
CLISTS policy item 259
clone IDs
assigning 7
clone values 132
CMD processing 146
code processing 149
COMMAND DEFINITIONS policy item 85
COMMAND FLOODING policy item 87
command prefix 132
command processing 146
command routing mechanism 75
common routine, introduced 6
components
recovery of with automation procedures 6
components, SA z/OS enterprise 71
concurrent customization by multiple users 325
concurrent user access
changing links 326
entry name selection 326
entry type selection 326
introuducing 19
policy database selection 326
policy definitions 325
condition
relationship 111
shutdown 191
startup 191
unset condition 188
CONDITION policy item
for a trigger 191
for an event 188
configuration
of automation 15
configuration files
distributing 292
configuration focal point system 15
configuration support, alternate 335
configuration support, tertiary 335
considerations
automation 6
console name 97
controller details
OPC 219
conversion
job for batch conversion 324
of initial policy database 324
selective policy database conversion 324
write data to file using batch job 324
conversion function 323
COPY policy item 26
copying policy
information that is copied 27
process 27
couple data set 82
creating
application groups 102
application groups, scenario 39
applications 123
applications, scenario 38
events 186
groups 78
MOVE sysplex application group, scenario 46
policy databases 270
policy objects 19
policy objects using text file updates 318

creating *(continued)*
policy objects, scenario 35
processors 193
SERVER sysplex application groups, scenario 52
subgroups 89
sysplex application groups, scenario 39, 46
sysplexes, scenario 36
system application groups, scenario 42, 44
systems 91
systems, scenario 36
critical threshold 169
CRM 75
customization dialog
canceling input 19
changing environment 327
features 17
help 17
invocation 15
primary menu 15
primary menu, introducing 15
starting 15
using 15, 17

D

data
finding in a panel 23
management 305
moved and restructured 323
data sets
defining for batch processing 332
ISPF temporary, defining for batch processing 334
monitoring 82
recovery of with automation procedures 6
DB2 CONTROL policy item 180
DB2 subsystems
policy items 180
defining
alternate configuration for systems 336
automation policy, outlined 1
automation policy, overview 1
data sets for batch processing 332
ISPF temporary data sets for batch processing 334
relationships 111
tertiary configuration for systems 336
deleting
policy object 21
policy objects using text file updates 320
several policy objects 22
single policy object 21
dependent resource 111
Description panel 26
DESCRIPTION policy item 26
desired status, setting 107, 132, 206, 240, 258
DesiredStatus vote 107, 132, 206, 240, 258
disability xxiii
disabling AT/MRT syntax checking 328
DISPACF 62
displaying panel ID 4
distributing
automation control file 292
configuration files 292
DMN
entry type 262
DOCUMENTATION policy item 73
DOMAIN INFO policy item 263
DOWNWARD CLASS/INST policy item 131
drain, JES2 173

E

E-T DATA policy item 266
element name, Automatic Restart Manager
cloned 132
constant 132
defining 132
enabling AT/MRT syntax checking 328
enterprise definition 15, 73
Enterprise entry type
policy items 73
enterprise entry type, short description 2
entry name selection
concurrent user access 326
entry type
Application 123
Application Defaults 241
ApplicationGroup 102
Automation Operators 242
defined 2
DMN 262
Enterprise 73
Events 186
fast path 18
Group 78
introduction 2
Monitor Resource 204
MVS Component 234
MVSCOMP Defaults 238
Network 249
Notify Operators 245
Processor 193
Resident CLISTs 259
Service Periods 188
short description
application 2
Application Defaults 2
application group 2
Automation Operators 2
enterprise 2
events 2
group 2
messages 2
monitor resource 2
MVS Component 2
MVSCOMP Ddefaults 2
Network 2
Notify Operators 2
Pacing Gates 2
processor 2
product automation 2
Resident CLISTs 2
service periods 2
Status Display 2
subgroup 2
Sysplex Defaults 2
system 2
System Defaults 2
tape attendance 2

entry type *(continued)*
short description *(continued)*
timers 2
triggers 2
User E-T Pairs 2
zEnterprise Ensembles 2
Status Display 260, 263
SubGroup 89
Sysplex Application Group 102, 105
Sysplex Defaults 258
System 91
System Application Group 105
System Defaults 239
Tape Attendance 232
Timers 223, 229
Triggers 191
User E-T Pairs 265
zEnterprise Ensemble 214
entry type Pacing Gates 217
entry type selection
concurrent user access 326
error messages
BUILD 290
events
scenario 55
Events entry type
creating 186
policy items 187
events entry type, short description 2
exit names policy definition 95
extending policy definitions 329
external shutdown 132
external startup 132
EXTERNALLY relationship 111

F

FALLBACK status
support 172
using 172
fast path
entry type 18
policy item 18
FINAL shutdown 163
FIND command 23
finding data in a panel 23
focal point
name 76
focal point NetView domains policy definition 250
focal point services 249
FORCE shutdown 163
FORCEDOWN relationship 111
frequent threshold 169
FULL SESSIONS policy item 251
functions
user-written 334
functions managed by automation procedures 6

G

gateway monitor time policy definition 95
gateway policy definition 252
GATEWAY policy item 252
GENERATED RESOURCES policy item 122, 172
generic routine, introduced 6
global resource serialization 325
Group entry type
creating 78
group entry type, short description 2
GROUP INFO policy item 81
grouping
scenario 33
groups
creating 78
standard 78
sysplex 78
GRS 325
GUESTS AND SYSTEMS policy item 203

H

HASMONITOR relationship 111
HASPARENT relationship 111
HASPASSIVEPARENT relationship 111
heartbeat
interval 91
missing heartbeat delay 91
heartbeat interval 91
help information 17

I

IEADMCxx SYMBOLS policy item 88
IMMED shutdown 163
importing
add-on sample policies 309
policy database data 305
policy database data, batch 308
IMS CONTROL policy item 181, 182
IMS subsystems
policy items 181
infrequent threshold 169
ING.CUSTOM.AOFTABL 287, 332
INGEBCON member for batch build 293
INGEBFLT member for batch update 321
INGEBRPT member, for batch report creation 279
INGMSGSA automation table 298
INGPDB 325
INGSEND PARMS policy item 75
inheritance
classes 11
initialize target system 99
input, canceling 19
interested operator list 99
invoking the customization dialog 15
IPL
MVS target system 100
VM target system 102
IPL INFO policy item for systems 100
ISPF temporary data sets, defining for batch build 334

J

JES2
recovery parameters 174
spool recovery

JES2 *(continued)*
spool recovery *(continued)*
establishing 173
from full condition 173
JES2 DRAIN 173, 176
JES2 SPOOLFULL 173, 174
JES2 SPOOLSHORT 173, 175
JES2 subsystems
policy items 173
JES3
recovery parameters 177, 178
SPOOL
control 177
SPOOLFULL 177
SPOOLSHORT 177
JES3 SPOOLFULL 177
JES3 SPOOLSHORT 178
JES3 subsystems
policy items 177
JOB DEFINITIONS policy item 84
job name
defined 123
job type
description 123
MVS 123
NONMVS 123
policy definition 123
TRANSIENT 123
JOB/ASID DEFINITIONS policy item 84

K

keyboard xxiii

L

labels, system, in overrides 297
linking application resources automatically 39
linking policy objects 28
load profile name 99
LOCAL PAGE DATA SET policy item 83
LOCATE 269
logging function for policy database 276
logging policy database modifications 276
LPARS AND SYSTEMS policy item 200

M

maintenance, policy database 269
MAKEAVAILABLE relationship 111
MAKEUNAVAILABLE relationship 111
MANAGE 269
MCSFLAGS policy definition 97
MEMBER OF policy item
for application groups 122
for applications 173
MESSAGE AUTOMATION policy item
for enterprises 224
message class 246
message classes 246
message prefix 132
message processing
code processing 149
message processing *(continued)*
reply processing 148
scenario 63
user defined data 152
with user-defined data 63
message revision table
introducing 295
messages
predefined 298
predefined, modifying 299
response 100, 102
messages entry type, short description 2
MESSAGES/USER DATA policy item
for applications 144
for monitor resources 208
for MVS components 237
minor resources 238
MINOR RESOURCES policy item, for applications 170
MINOR RESOURCES policy item, for MVS components 238
missing heartbeat 91
missing heartbeat delay 91
modifications to policy database, logging 276
MONITOR INFO policy item 206
Monitor Resource
entry type 204
monitor resource entry type, short description 2
monitoring
alternate data sets 82
primary data sets 82
tape mounts 232
Monitoring, Sysplex Timer 82
MOVE 102
MOVE application group 39
MOVE group
introduced 46
moved and restructured data 323
MOVED status
using 172
MPF DEFINITIONS policy item 226
MPFLSTxx member
building 287
distributing 292
MVS Component
+SA_PREDEFINED_MSGS 298
MVS Component entry type
using 234
MVS Component entry type, short description 2
MVS job 123
MVS Target System IPL Information panel 100
MVSCOMP Defaults entry type 238
MVSCOMP Defaults entry type, short description 2
MVSDUMP
MVS Component entry type 234
MVSESA INFO policy item
for MVSCOMP Defaults 238

N

naming restrictions 287
nature of application groups
BASIC 39, 102
introduced 39
MOVE 39, 102
SERVER 39, 102

nested classes
  defaulting 12
  hierarchy 12
  inheritance 12
  inherited 11
  introduced 11
  link considerations 13
NetView
  nomination before BUILD 1
  Operators 243
  RMTCMD command 249
NetView automation table
  AOFSMARTMAT advanced automation option 296
  building 287
  distributing 292
  enabling updates 296
  INGMSGSA 298
  introduction 295
  scenario 64
Network entry type 249
Network entry type, short description 2
NONMVS job 123
NORM shutdown 163
notification operators 246
notify operators entry type 245
Notify Operators entry type, short description 2
NOTIFY OPERATORS policy item 246

O

OMEGAMON sessions policy definition 253
OMEGAMON SESSIONS policy item 253
OPC automation 72
OPC CONTROL policy item 182, 183
OPC controller details
  policy items 219
OPC special resources 72, 220
OPC subsystems
  policy items 182
OPC system details 72, 218
OPC workstation domains 72, 221
OPCA DOMAINID policy item 221
OPCA PCS policy item 219
OPCAO ENVIRON policy item 218
operator console
  interested operator 99
output data set 288
overrides, application labels 297
overrides, system labels 297
overview of defining automation policy 1

P

Pacing Gates entry type 217
Pacing Gates entry type, short description 2
Pacing Gates policy item 217
panel ID, displaying 4
PEEROF relationship 111
policy
  add-on sample 273
  basic sample 273
  samples 273
policy database
policy database *(continued)*
  adding to index 270
  available actions 269
  batch import 308
  creating 270
  creating policy objects using text file updates 318
  data, importing 305
  data, updating policy text files 313
  data, updating via file 311
  initial conversion of 324
  logging function 276
  logging modifications 276
  maintenance 269
  reports 279
  reports, batch creation 279
  reports, job for batch creation 279
  sending to remote nodes 334
  sharing 325
  specifying settings 274
  updating data, block replacement 314
  updating data, block replacement examples 314
  updating data, field replacement 314
  updating data, policy replacement 316
  updating data, policy replacement examples 316
  using existing 269
policy database selection
  concurrent user access 326
policy definitions
  concurrent user access 325
policy definitions, extending 329
policy item
  APPLICATION GROUPS, for systems 92
  AT/MRT INSERTS 227
  AUTOMATION CONSOLE 97
  AUTOMATION OPTIONS 240
  AUTOMATION SYMBOLS 96
  COMMAND DEFINITIONS 85
  COMMAND FLOODING 87
  common policy items 26
  COPY 26
  create or modify 329
  defined 2
  DESCRIPTION 26
  fast path 18
  for standard groups 79
  for sysplex groups 80
  GROUP INFO 81
  INGSEND PARMS 75
  introducing 4
  IPL INFO, for systems 100
  JOB DEFINITIONS 84
  JOB/ASID DEFINITIONS 84
  LOCAL PAGE DATA SET 83
  MESSAGE AUTOMATION for enterprises 224
  MPF DEFINITIONS 226
  PROCESSOR 98
  PROCESSOR OPS INFO 76
  RECOVERY OPTIONS 88
  RESOURCE DEFINITIONS 87
  SEND COMMAND OPERS 74
  SUBGROUP INFO 90
  SYMBOL DESCRIPTION 77
  SYSPLEX 82
  SYSTEM INFO 95

policy item *(continued)*
SYSTEMS, for SubGroups 90
TARGET SYSTEM INFO, for systems 99
USER MSG CLASSES 76
WHERE USED 28
policy object
bulk deletion 22
copying 26
copying definitions 26
creating 19
defined 2
deleting 21
deleting policy objects using text file updates 320
deleting several 22
introducing 4
renaming 20
scenario, creating 35
single, deleting 21
policy objects
linking 28
POSTSTART 161
predefined SA z/OS messages
introduced 298
modifying 299
viewing generated AT entry 298
preference values
default 102
effective 115
overview 115
scenarios 115
preferences 46
PREPAVAILABLE relationship 111
PREPUNAVAILABLE relationship 111
PRESTART 161
primary data sets, monitoring 82
primary JES policy definition 95
primary menu
customization dialog 15
customization dialog, introducing 15
priority of requests 189
Processor entry type
creating 193
policy items for mainframe preocessors 195
policy items for PSM 201
processor entry type, short description 2
PROCESSOR INFO policy item 196
PROCESSOR OPS INFO policy item 76
PROCESSOR policy item 98
product automation entry type, short description 2
profile information before BUILD 1
PSM 193
PSM INFORMATION policy item 202

R

RECOVERY OPTIONS policy item 88
REFERENCES policy item 263
REFRESHSTART 161
relationship
condition 111
EXTERNALLY 111
FORCEDOWN 111
HASMONITOR 111
HASPARENT 111
relationship *(continued)*
HASPASSIVEPARENT 111
MAKEAVAILABLE 111
MAKEUNAVAILABLE 111
PEEROF 111
PREPAVAILABLE 111
PREPUNAVAILABLE 111
relationships
defining 111
types 111
RELATIONSHIPS policy item 110, 143
REMOTE RESOURCE policy item 264
renaming
policy object 20
reply processing 148
report
service updates 300
REPORT 269
reports
about ApplicationGroups 279
about Applications 279
about generated resources 279
Resident CLISTs entry type 259
Resident CLISTs entry type, short description 2
resource
background information 36
dependent 111
scenario 33
supporting 111
resource aware application move 115
RESOURCE DEFINITIONS policy item 87
RESOURCE INFO policy item 258
resource name
WLM 132
resource states
desired, setting 107, 132, 206, 240, 258
resources
scenario 33
scenario, grouping 34
scenario, matching to systems 35
scenario, nesting 34
RESOURCES policy item 115
resources, generating 42
restart option policy definition 132
restrictions, building alternate configuration 336
restrictions, building tertiary configuration 336
return codes
batch build 293
batch update 321
REXX script, message scenario 66
RFIND command 23
RMTCMD command 249
route codes policy definition 97

S

SA z/OS enterprise components 71
sample policies
*BASE 273
add-on 273
add-on importing 309
basic 273
introduction 273
satisfactory target 115

scenario
creating application groups 39
creating applications 38
creating MOVE sysplex application group 46
creating policy objects 35
creating SERVER sysplex application groups 52
creating sysplex application groups 39, 46
creating sysplexes 36
creating system application groups 42, 44
creating systems 36
grouping 33
grouping resources 34
identifying resources 33
matching resources to systems 35
message processing 63
nesting resources 34
NetView automation table 64
REXX script 66
schedule override 54
schedules 54
service periods 54
User E-T Pairs 61
using customization dialog 33
using triggers and events 55
working with resources 33
schedule
scenario 54
schedule override scenario 54
SDF
automation control file entry 260
highlight 260
priority policy definition 260
root name policy definition 96
SDF DETAILS policy item 260
SDF FOCALPOINT policy item 250
SEND COMMAND OPERS policy item 74
sending policy databases to remote nodes 334
Sequence Number
automation control file 111
SERVER application group 39
SERVER group 52
service period
scenario 54
SERVICE PERIOD policy item
for application groups 105
Service Periods entry type 188
service periods entry type, short description 2
service updates
applying 299
report 300
service window 189
SERVICE WINDOW policy item 189
settings
policy databases 274
settings menu 327
Settings option 327
shortcut keys xxiii
shutdown command processing
INIT or FINAL 165
NORM, IMMED or FORCE 166
shutdown condition 191, 192
SHUTDOWN condition for a trigger 192
shutdown delay policy definition 132
SHUTDOWN policy item 163
shutdown processing
command 165
for applications 163
reply 167
shutdown reply processing
INIT 167
NORM, IMMED or FORCE 168
SMFDUMP
MVS Component entry type 234
SOAP SERVER policy item 255
SPECIAL RESOURCE policy item
OPC 221
SPECIAL RESOURCES policy item
for OPC controller details 219
SPFEDIT 325
SPOOLFULL 173
SPOOLFULL (JES3) 177
SPOOLSHORT 173
SPOOLSHORT(JES3) 177
standard group 78
standard groups, policy items 79
start
restart after IPL 132
start timeout policy definition 132
starting the customization dialog 15
STARTUP 161
startup condition 191
STARTUP condition for a trigger 192
startup condition list 192
startup parameters 132
startup phases
POSTSTART 161
PRESTART 161
STARTUP 161
STARTUP policy item 160
Status Display
display facility 260, 263
entry type 260, 263
Status Display entry type, short description 2
subcategory 123
SubGroup entry type
creating 89
policy items 90
subgroup entry type, short description 2
SUBGROUP INFO policy item 90
subgroups
creating 89
subsystem
name, defining 123
supporting resource 111
symbol descriptions 77
SYSDSN 325
SYSLOG
MVS Component entry type 234
SYSNAME naming restrictions 287
sysplex
scenario, creating 36
ways to create 36
sysplex application group
scenario, creating 39, 46
scenario, creating MOVE group 46
scenario, creating SERVER group 52
Sysplex Application Group
generating Sysplex Application Group resources 39

Sysplex Application Group entry type 102
Sysplex Defaults entry type 258
Sysplex Defaults entry type, short description 2
sysplex group 78
sysplex groups, policy items 80
SYSPLEX policy item 82
Sysplex Timer Monitoring 82
system application group
  scenario, creating 42, 44
System Application Group 39, 103
System Application Groups 105
SYSTEM ASSOCIATION policy item 172
system automation symbols
  assigning 7
  using 8
system console
  interested operator 99
System Defaults entry type 239
System Defaults entry type, short description 2
System entry type
  creating 91
  policy items 92
system entry type, short description 2
SYSTEM INFO policy item 95
system labels in overrides 297
system monitor time policy definition 95
system operations configuration files
  building 287
system symbols
  using 8
systems
  scenario, creating 36
SYSTEMS policy item
  for processors 195
  for SubGroups 90

T

TAF 249
TAF fullscreen sessions policy definition 251
Tape Attendance entry type 232
tape attendance entry type, short description 2
tape mount, monitoring 232
tape policy 232
target
  focal point name 76
TARGET SYSTEM INFO
  for systems 99
target system information
  initialize target system 99
  load profile name 99
  time zones 99
target system time zones 99
task
  message monitor 76
  target control 76
Terminal Access Facility 249
tertiary configuration
  building 336
  defining 336
  restrictions 336
tertiary configuration support 335
threshold
  critical 169
threshold *(continued)*
  frequent 169
  infrequent 169
THRESHOLDS policy item
  for application defaults 241
  for MVSCOMP Defaults 238
  for System Defaults 239
Timers entry type 223, 229
timers entry type, short description 2
TIMERS policy item 229
TRANSIENT job 123
trigger
  link to an application group 105
TRIGGER policy item
  for application groups 105, 110
  for applications 143
  for monitor resources 214
triggers
  scenario 55
Triggers entry type 191
triggers entry type, short description 2

U

unset condition 187, 188
update
  job for batch update 321
updating
  policy database data policy text files 313
  policy database data via file 311
  policy database data, block replacement 314
  policy database data, block replacement examples 314
  policy database data, field replacement 314
  policy database data, policy replacement 316
  policy database data, policy replacement examples 316
UPWARD CLASS policy item 130
user defined data processing 152
User E-T Pairs
  entry type 265
  scenario 61
User E-T Pairs entry type, short description 2
USER MSG CLASSES policy item 76
user-written functions 334
USS CONTROL policy item 184
USS subsystems
  policy items 183

V

VIEW 269
VM Target System IPL Information panel 102
vote, DesiredStatus 107, 132, 206, 240, 258
VTAMLST 251

W

WHERE USED policy item 28
WLM resource name 132
workstation domains
  OPC 221

Z

z/OS job name defined 123
zEnterprise Ensemble Entry Type
    entry type 214
zEnterprise Ensemble policy item 215
zEnterprise Ensembles entry type, short description 2

SC34-2717-01