

# **MAINVIEW<sup>®</sup> AutoOPERATOR Options User Guide**

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  - operating system type, version, and service pack or other maintenance level such as PUT or PTF
  - system hardware configuration
  - serial numbers
  - related software (database, application, and communication) including type, version, and service pack or maintenance level
- sequence of events leading to the problem
- commands and options that you used
- messages received (and the time and date that you received them)
  - product error messages
  - messages from the operating system, such as `file system full`
  - messages from related software



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# Contents

<b>About This Book</b> .....	<b>xix</b>
<b>Chapter 1</b>	<b>What MAINVIEW AutoOPERATOR TapeSHARE Is and How It Works</b>
	What You Need to Use AutoOPERATOR TapeSHARE ..... 1-1
	Defining TapeSHARE Terms and Concepts..... 1-2
	What the MAINVIEW AutoOPERATOR TapeSHARE Component Is ..... 1-2
	What a TapeSHARE PLEX Is ..... 1-3
	What TapeSHARE Does ..... 1-3
	When TapeSHARE Cannot Satisfy a Request ..... 1-4
	What Happens When TapeSHARE Cannot Satisfy a Request..... 1-5
	What You Can Tell TapeSHARE about Tape Devices (Optional) ..... 1-6
	What Preferencing Is ..... 1-6
	Designating Tape Devices Dedicated to One Image (NOGIVE Devices)..... 1-8
	Excluding Tape Devices from an Image (NOTAKE Devices)..... 1-9
	Additional Optional Customization Possibilities..... 1-9
	Examples of TapeSHARE at Work..... 1-10
	Scenario 1: How TapeSHARE Shares Tape Devices between Targets..... 1-10
	Scenario 2: What Happens If Not Enough Tape Devices Are Available ..... 1-11
	Scenario 3: What Happens When OS/390 Crashes ..... 1-11
<b>Chapter 2</b>	<b>Customizing TapeSHARE (Optional)</b>
	How TapeSHARE Is Customized..... 2-2
	Using the Dynamic Parameter Manager Application ..... 2-2
	Defining TapeSHARE Partners ..... 2-3
	Accessing the Dynamic Parameter Manager ..... 2-4
	Specifying a Partner Name..... 2-5
	Specifying How Long TapeSHARE Should Wait ..... 2-7
	To Specify a Time Out Value ..... 2-8

Specifying How Many Retries TapeSHARE Should Attempt . . . . .	2-8
Defining Actions to Take When Requests for Devices Cannot Be Met . . .	2-11
Defining NOGIVE Devices . . . . .	2-13
Defining NOTAKE Devices . . . . .	2-15
Defining NOGIVE-NOTAKE Devices . . . . .	2-17
Defining Tape Devices as Input-Only or Output-Only . . . . .	2-20
Turning on Preferencing . . . . .	2-22
Specifying a User-Defined Deallocation Procedure (SP4.x Only) . . . . .	2-24
Activating the AAOTSPxx Member . . . . .	2-26
AAOTSPxx Parameters . . . . .	2-27

### Chapter 3

#### Controlling Tape Activity from a Single Point with TapeSHARE

Accessing the TapeSHARE Workstation Panel . . . . .	3-2
Primary Commands . . . . .	3-3
Line Commands . . . . .	3-3
Viewing TapeSHARE Performance . . . . .	3-3
If You Use TapeSHARE in Its Default State . . . . .	3-5
Viewing Drive Status . . . . .	3-5
Primary Commands . . . . .	3-13
Line Commands . . . . .	3-14
TapeSHARE Workstation Fields . . . . .	3-15
Performance Statistics Fields . . . . .	3-15
Drive Status Fields . . . . .	3-16
Issuing Commands on the TapeSHARE Workstation Panel . . . . .	3-18

### Chapter 4

#### Introduction to MAINVIEW AutoOPERATOR for OS/390

OS/390 Operations Control . . . . .	4-2
SYSTEM STATUS . . . . .	4-2
OPERATOR REQUESTS . . . . .	4-3
ADDRESS SPACES . . . . .	4-3
OS/390 Resource Control . . . . .	4-4
VTAM RESOURCES . . . . .	4-4
ENQUEUE/RESERVE . . . . .	4-4
TAPE STATUS/CONTROL . . . . .	4-4
DASD STATUS/CONTROL . . . . .	4-5

### Chapter 5

#### SYSTEM STATUS Application

SYSTEM STATUS Panel . . . . .	5-2
Area 1 - Main System Statistics . . . . .	5-3
Area 2 - Job Watch Display . . . . .	5-4
Area 3 - Resource Definitions . . . . .	5-5
Area 4 - ALERTS Action and Information Messages . . . . .	5-8
SYSTEM STATUS PROFILE Panel . . . . .	5-8
Primary Commands . . . . .	5-12
Queues and Priorities . . . . .	5-12
TARGET PROFILE SELECTION Panel . . . . .	5-13
Updating the Default Target System . . . . .	5-14

<b>Chapter 6</b>	<b>VTAM RESOURCES Application</b>	
	Primary Commands . . . . .	6-2
	VTAM MAJOR NODES . . . . .	6-2
	Line Commands . . . . .	6-3
	VTAM APPLICATIONS . . . . .	6-4
	Line Commands . . . . .	6-5
	VTAM CDRMS . . . . .	6-5
	Line Commands . . . . .	6-6
	VTAM CDRSCS . . . . .	6-7
	Line Commands . . . . .	6-8
	VTAM LINES . . . . .	6-8
	Line Commands . . . . .	6-9
	VTAM CLUSTERS . . . . .	6-10
	Line Commands . . . . .	6-11
	VTAM TERMINALS . . . . .	6-12
	Line Commands . . . . .	6-13
<b>Chapter 7</b>	<b>OPERATOR REQUESTS Application</b>	
	Operator Request Messages . . . . .	7-1
	Primary Commands . . . . .	7-3
	Line Commands . . . . .	7-3
	OPERATOR REQUEST PROFILE Panel . . . . .	7-4
	Field Descriptions . . . . .	7-5
	AUTOCMD Commands . . . . .	7-5
<b>Chapter 8</b>	<b>ENQUEUE/RESERVE Application</b>	
	Field Descriptions . . . . .	8-2
	Primary Commands . . . . .	8-2
	Line Commands . . . . .	8-3
<b>Chapter 9</b>	<b>ADDRESS SPACES Application</b>	
	ADDRESS SPACES Panel . . . . .	9-2
	Field Descriptions . . . . .	9-3
	Primary Commands . . . . .	9-4
	Resource Exception Command . . . . .	9-5
	Line Commands . . . . .	9-5
	ADDRESS SPACES PROFILE Panel . . . . .	9-6
	Field Descriptions . . . . .	9-6
	AUTOCMD Commands . . . . .	9-7
	SYSPROG Line Commands . . . . .	9-7
<b>Chapter 10</b>	<b>TAPE STATUS/CONTROL Application</b>	
	Field Descriptions . . . . .	10-2
	Primary Commands . . . . .	10-3
	Line Commands . . . . .	10-4
	SYSPROG Line Commands . . . . .	10-4

<b>Chapter 11</b>	<b>DASD STATUS/CONTROL Application</b>	
	Dynamic UCBs . . . . .	11-2
	Field Descriptions . . . . .	11-2
	Primary Commands . . . . .	11-4
	Line Commands . . . . .	11-5
	SYSPROG Line Commands . . . . .	11-5
<b>Chapter 12</b>	<b>Using Basic SYSPROG Services from MAINVIEW AutoOPERATOR</b>	
	SYSPROG Services Primary Commands . . . . .	12-2
	SYSPROG Services Distributed with MAINVIEW AutoOPERATOR . . . . .	12-3
	SYSPROG Service Syntax . . . . .	12-6
	SYSPROG Services Message Format . . . . .	12-9
	Subroutine: ASTXA1MN . . . . .	12-9
	Subroutine ASTXA1AL . . . . .	12-15
	Subroutine ASTXA1AS . . . . .	12-15
	Subroutine ASTXA1XM . . . . .	12-16
	SYSPROG Services Security . . . . .	12-17
<b>Chapter 13</b>	<b>Introduction to MAINVIEW AutoOPERATOR for IMS</b>	
	Controlling the IMS Environment . . . . .	13-2
	IMS Resource Control . . . . .	13-2
	IMS Fast Path Resource Control . . . . .	13-5
	IMS Operations Control . . . . .	13-6
	Viewing IMS and BBI Messages (LOG DISPLAY Application) . . . . .	13-7
	Log Maintenance Procedures (BBIDLOGA, BBIDLOGB) . . . . .	13-7
	Modifying Sample EXECs (BBUSER Members) . . . . .	13-7
	Resource Exception Command . . . . .	13-8
<b>Chapter 14</b>	<b>NETWORK Applications</b>	
	Managing BTAM Communication Lines . . . . .	14-2
	Managing VTAM Nodes . . . . .	14-5
	Managing IMS Logical Terminals (LTERMs) . . . . .	14-8
	Managing ISC Links . . . . .	14-12
<b>Chapter 15</b>	<b>DATABASE Applications</b>	
	Managing All the Databases . . . . .	15-2
	Managing Fast Path Main Storage Databases (MSDB) . . . . .	15-9
	Managing Fast Path Data Entry Databases (DEDB) . . . . .	15-12
	Managing Data Entry Database (DEDB) Areas . . . . .	15-15
	Managing DEDB Area Data Sets . . . . .	15-19
<b>Chapter 16</b>	<b>TRANSACTION Applications</b>	
	Managing Transactions . . . . .	16-2
	Managing Fast Path Routing Codes . . . . .	16-6

<b>Chapter 17</b>	<b>IMS PROGRAM Application</b>	
<b>Chapter 18</b>	<b>STATUS/EXCEPTION Application</b>	
	STATUS .....	18-2
	EXCEPTIONS .....	18-4
	IMS STATUS PROFILE Panel .....	18-5
	Field Description .....	18-5
<b>Chapter 19</b>	<b>REGIONS Application</b>	
<b>Chapter 20</b>	<b>Customizing MAINVIEW AutoOPERATOR for IMS Application Panels</b>	
<b>Chapter 21</b>	<b>Automating and Simplifying IMS Operations</b>	
	How MAINVIEW AutoOPERATOR Interacts with IMF Products . . . .	21-3
	Suggested Areas for Automation .....	21-4
	Control IMS Resources .....	21-4
	Monitor Exceptions .....	21-6
	Coordinate Online IMS with Batch Processing .....	21-9
	Automate Performance Monitoring .....	21-11
	Simplify Operations .....	21-12
	Eliminating the IMS Hardcopy Printer .....	21-14
<b>Chapter 22</b>	<b>Introduction to MAINVIEW AutoOPERATOR for CICS</b>	
	MAINVIEW AutoOPERATOR for CICS Applications Overview . . . .	22-2
	SYSTEM STATUS Application .....	22-3
	BROADCAST Application .....	22-3
	DATABASE Application .....	22-4
	PROGRAM Application .....	22-4
	REGIONS Application .....	22-4
	Integrating the CICS Option with Other Products .....	22-5
	MAINVIEW AutoOPERATOR EXECs for CICS .....	22-5
<b>Chapter 23</b>	<b>Describing the CICS System Status Panel</b>	
	Using Primary Commands .....	23-1
	Hyperlinks to MAINVIEW for CICS: Area-2 .....	23-2
	ALERT Display: Area-3 .....	23-3
	System Status Profile Panel .....	23-4
	CICS TARGET PROFILE SELECTION Panel .....	23-5
	Line Commands for CICS TARGET PROFILE SELECTION Panel .....	23-6
<b>Chapter 24</b>	<b>BROADCAST Application</b>	
	Using the BROADCAST Application .....	24-2
	Terminals Eligible for Broadcast Messages .....	24-4
	CICS Message Display .....	24-4
	Primary Commands .....	24-5
	Line Commands .....	24-5

<b>Chapter 25</b>	<b>DATABASE Applications</b>	
	Managing All the Databases . . . . .	25-2
	Managing Fast Path Data Entry Databases (DEDB) . . . . .	25-6
	Managing Data Entry Database (DEDB) Areas . . . . .	25-9
<b>Chapter 26</b>	<b>CICS PROGRAM Application</b>	
<b>Chapter 27</b>	<b>CICS REGIONS Application</b>	
<b>Chapter 28</b>	<b>Introduction to MAINVIEW AutoOPERATOR Access NV</b>	
	CLIST and Variable Interaction . . . . .	28-1
	Storage Requirements . . . . .	28-2
	NetView and MAINVIEW AutoOPERATOR Communication . . . . .	28-2
	Using AOAnywhere in NetView . . . . .	28-4
<b>Chapter 29</b>	<b>NAIEXEC NetView Command Processor</b>	
	NetView Variables . . . . .	29-1
	NAICC . . . . .	29-1
	NAIRC . . . . .	29-2
	NAIEXEC Commands . . . . .	29-3
	NAIEXEC ALERT . . . . .	29-3
	NAIEXEC SELECT . . . . .	29-5
	NAIEXEC VDEL . . . . .	29-7
	NAIEXEC VGET . . . . .	29-8
	NAIEXEC VPUT . . . . .	29-11
<b>Chapter 30</b>	<b>IMFEXEC NetView Command Processor</b>	
<b>Chapter 31</b>	<b>MAINVIEW AutoOPERATOR Access NV Operator Workstation</b>	
	Standard I/O Emulation . . . . .	31-2
	Full-Screen Emulation . . . . .	31-3
	NetView Emulator Profile Panel . . . . .	31-3
<b>Chapter 32</b>	<b>MAINVIEW AutoOPERATOR for SAP High Availability</b>	
	Major Components . . . . .	32-1
	High Availability . . . . .	32-2
	SAP High Availability . . . . .	32-2
	How SAP High Availability Works . . . . .	32-3
	Recommended Documentation . . . . .	32-7
	IBM Documentation . . . . .	32-7
	SAP Central Instance Changes . . . . .	32-8
	Requirements to Use MAINVIEW AutoOPERATOR for SAP	
	High Availability . . . . .	32-9
	Installing and Implementing MAINVIEW AutoOPERATOR for	
	SAP High Availability . . . . .	32-10
	Using the Command Interface . . . . .	32-20

Performing Additional Customizations .....	32-21
Modifying the MVS Command Interface .....	32-21
Modifying the User Exit 1 (QAOSAPE1) – Selecting a z/OS System for SAP .....	32-22
Modifying the User Exit 2 (QAOSAPE2) – Starting a Process That Failed to Start .....	32-22
Modifying the User Exit 3 (QAOSAPE3) – Recovering a SAP Process That Failed .....	32-23
Modifying the User Exit 4 (QAOSAPE4) – Terminating a Process That Failed to Terminate .....	32-23
Managing USS Processes – DB2 ICL and Application Servers on z/OS .....	32-24
Removing SAP High Availability .....	32-27

## Appendix A

### **SYSPROG User Exit**

General Description .....	A-1
Entry Code Table .....	A-1
Linking to and from SYSPROG .....	A-3
ASTUXBGN UXENTER Macro .....	A-3
Register Conventions and Return Codes .....	A-4
User Words .....	A-4
Entry Point Descriptions .....	A-4
Initialization (AINIT) .....	A-4
Main Task Abend (AMABEND) .....	A-5
Main Task Termination (AMTERM) .....	A-5
Service Starting (ASSERV) .....	A-6
Service Failure (AFSERV) .....	A-7
Asynchronous Manager Abend (AATERM) .....	A-7
Asynchronous Manager Begin (AASBEG) .....	A-8
Asynchronous Manager End (AASEND) .....	A-8
Asynchronous Service Begin (AASSTRT) .....	A-9
Asynchronous Service Failed (AASFAIL) .....	A-9
Logging Manager Start (ALGBEG) .....	A-10
Logging Manager End (ALGEND) .....	A-10
Logging Service Start (ALGSTRT) .....	A-11
Logging Service Failure (ALGFAIL) .....	A-11
Logging Manager Abend (ALGABND) .....	A-11
Cross-Memory Failure (AXMFAIL) .....	A-12
Command Input (ACMDIN) .....	A-12
TP Monitor Stops a Terminal (ATPSTOP) .....	A-13
TP Monitor Abends (ATABND) .....	A-13
TP Monitor Detects Read I/O Error (ATPRDER) .....	A-14
TP Monitor Detects Write I/O Error (ATPWRRER) .....	A-14
TP Monitor Normal End (ATPEND) .....	A-15
User Password/Authorization Check (APWCHK) .....	A-15
Password Verification Failure (APWBAD) .....	A-16
CNSL Command Input (ACNCMD) .....	A-16
Password Verification Successful (APWGOOD) .....	A-17

---

Sample User Exit .....	A-17
------------------------	------

**Appendix B**

**BBUSER Library EXEC Index**

GROUP 1 - EXECs That Manage Application Resources .....	B-2
GROUP 2 - EXECs That Manage Network Resources .....	B-3
GROUP 3 - EXECs That Perform Miscellaneous Operational Procedures .....	B-4
GROUP 4 - EXECs That Perform AutoOPERATOR Functions .....	B-4
GROUP 5 - EXECs That React to IMS/VS Messages .....	B-5
GROUP 6 - EXECs That Respond to Timer-Driven Events .....	B-10
GROUP 7 - EXECs That Highlight DSNxxxx Messages .....	B-11
GROUP 8 - EXECs That Simplify DB2 Entry .....	B-11
GROUP 9 - EXECs That List Key People to Notify about Problems ..	B-12
GROUP 10 - EXECs That React to IMS RM and IMS WM Messages .....	B-13

**Appendix C**

**Commonly Asked TapeSHARE Questions and Answers**

**Appendix D**

**Making TapeSHARE Work with MVS Allocation More Effectively**

**Appendix E**

**NAIEXEC Command Glossary**

**Appendix F**

**BMC Software Subsystem Services**

Overview of BBXS .....	F-2
Using BBXS with Multiple BMC Software Products .....	F-2
Installing BBXS .....	F-3
Initializing BBXS .....	F-3
Initializing BBXS in an OS/390 System without COMMON STORAGE MONITOR .....	F-4
Initializing BBXS in an OS/390 System with COMMON STORAGE MONITOR .....	F-5
Initializing BBXS in an OS/390 System under VM .....	F-5

**Index**

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# Figures

Figure 2-1	MAINVIEW AutoOPERATOR Primary Option Menu	2-4
Figure 2-2	Dynamic Parameter Manager Panel	2-4
Figure 2-3	TapeSHARE Parameters Panel	2-5
Figure 2-4	TapeSHARE Parameters Panel: Adding a Partner Name	2-6
Figure 2-5	List of Defined Partners	2-6
Figure 2-6	TapeSHARE Parameters Panel: Specifying a New Time Out Value	2-8
Figure 2-7	TapeSHARE Parameters Panel: Specifying a Retry Count Value	2-9
Figure 2-8	TapeSHARE Parameters Panel: Specifying a Retry Interval Value	2-10
Figure 2-9	TapeSHARE Parameters Panel: Specifying an Action	2-12
Figure 2-10	TapeSHARE Parameters Panel: Specifying NOGIVE Devices	2-13
Figure 2-11	List of NOGIVE Devices	2-14
Figure 2-12	TapeSHARE Parameters Panel: Specifying NOTAKE Devices	2-15
Figure 2-13	List of NOTAKE Devices	2-16
Figure 2-14	TapeSHARE Parameters Panel: Specifying NOGIVE-NOTAKE Devices (Example 1)	2-17
Figure 2-15	List of NOGIVE Devices (for NOGIVE-NOTAKE)	2-18
Figure 2-16	TapeSHARE Parameters Panel: Specifying NOGIVE-NOTAKE Devices (Example 2)	2-19
Figure 2-17	List of NOTAKE Devices (for NOGIVE-NOTAKE)	2-19
Figure 2-18	TapeSHARE Parameters Panel: Specifying an Input-Only Device	2-21
Figure 2-19	List of Device Preferences	2-21
Figure 2-20	TapeSHARE Parameters Panel: Specifying Preferencing Guideline Mode	2-23
Figure 2-21	TapeSHARE Parameters Panel: Specifying Preferencing Force Mode	2-23
Figure 2-22	TapeSHARE Parameters Panel: Specifying a Deallocation Procedure	2-25
Figure 3-1	Example of the TapeSHARE Workstation Panel	3-1
Figure 3-2	Selecting Option 6 from the MAINVIEW AutoOPERATOR Primary Option Menu	3-2
Figure 3-3	Displaying the TapeSHARE Workstation Panel	3-2

Figure 3-4	Using the ALL Primary Command	3-6
Figure 3-5	Viewing Devices That Require Manual Intervention	3-8
Figure 3-6	Viewing All Devices	3-12
Figure 3-7	TapeSHARE Workstation Panel Fields	3-15
Figure 4-1	OS/390 OPERATOR WORKSTATION Panel	4-1
Figure 5-1	SYSTEM STATUS Panel — View 1	5-2
Figure 5-2	SYSTEM STATUS Panel — View 2	5-3
Figure 5-3	SYSTEM STATUS PROFILE Panel — View 1	5-9
Figure 5-4	SYSTEM STATUS PROFILE Panel — View 2	5-9
Figure 5-5	TARGET PROFILE SELECTION Panel	5-13
Figure 6-1	VTAM RESOURCES Menu	6-1
Figure 6-2	VTAM MAJOR NODES Panel	6-2
Figure 6-3	VTAM APPLICATIONS Panel	6-4
Figure 6-4	VTAM CDRMS Panel	6-5
Figure 6-5	VTAM CDRSCS Panel	6-7
Figure 6-6	VTAM LINES Panel	6-8
Figure 6-7	VTAM CLUSTERS Panel	6-10
Figure 6-8	VTAM TERMINALS Panel	6-12
Figure 7-1	OPERATOR REQUESTS Panel	7-1
Figure 7-2	OPERATOR REQUESTS Reply Panel	7-2
Figure 7-3	OPERATOR REQUESTS PROFILE Panel	7-4
Figure 8-1	ENQUEUE/RESERVE Panel	8-1
Figure 9-1	ADDRESS SPACES Panel, Left Side	9-1
Figure 9-2	ADDRESS SPACES Panel, Right Side	9-2
Figure 9-3	ADDRESS SPACES PROFILE Panel	9-6
Figure 10-1	TAPE STATUS/CONTROL Panel	10-1
Figure 11-1	DASD STATUS/CONTROL Panel	11-1
Figure 12-1	Local Journal Log Displayed in LOG DISPLAY	12-3
Figure 13-1	IMS OPERATOR WORKSTATION Panel	13-2
Figure 14-1	NETWORK Menu	14-1
Figure 14-2	BTAM LINES Application	14-2
Figure 14-3	VTAM NODES Application	14-5
Figure 14-4	LTERMS Application	14-8
Figure 14-5	ISC LINKS Application	14-12
Figure 15-1	DATABASE Menu	15-1
Figure 15-2	DL/I DATABASE Application	15-2
Figure 15-3	Fast Path MSDB Application	15-9
Figure 15-4	Fast Path DEDB Application	15-12
Figure 15-5	Fast Path AREA Application	15-15
Figure 15-6	Fast Path DEDB Area ADS Application (D Line Command, AREA Application)	15-19
Figure 16-1	TRANSACTION OPTION Menu	16-1
Figure 16-2	TRANSACTION Application	16-2
Figure 16-3	IMS Fast Path ROUTING CODE Application	16-6
Figure 17-1	PROGRAM Application	17-1
Figure 18-1	STATUS/EXCEPTION Application	18-1
Figure 18-2	IMS STATUS PROFILE Panel	18-5
Figure 18-3	IMS STATUS PROFILE Panel — Limiting Priorities	18-6

---

Figure 19-1	REGIONS Application	19-1
Figure 22-1	CICS OPERATOR WORKSTATION Panel	22-2
Figure 23-1	CICS System Status Panel: Area-2	23-2
Figure 23-2	CICS System Status Panel with ALERTs Displayed	23-3
Figure 23-3	CICS System Status Profile Panel (PROFILE)	23-5
Figure 23-4	CICS Target Profile Selection Panel	23-5
Figure 24-1	CICS BROADCAST Panel	24-2
Figure 25-1	DBCTL DATABASE Options Menu	25-1
Figure 25-2	DL/I DATABASE Application for DBCTL	25-2
Figure 25-3	Fast Path DEDB Application	25-6
Figure 25-4	Fast Path AREA Application	25-9
Figure 26-1	DBCTL PROGRAM Application	26-1
Figure 27-1	DBCTL REGIONS Application	27-1
Figure 28-1	Multiple BBI-SS PASs Communicating with One NetView System	28-3
Figure 31-1	NetView Line Mode Output in an ISPF Window	31-2
Figure 31-2	NetView Emulator Profile Panel	31-4
Figure 32-1	SAP Components and Connections	32-3
Figure 32-2	Changes to SAP in Support of SAP High Availability	32-5
Figure 32-3	Affect of Using Dynamic VIPA to Address the SAP Central Instance	32-6
Figure 32-4	HLQ.BBSAMP(QAOUSSST)	32-26
Figure F-1	Sample Line of an IEFSSNxx. Member of SYS1.PARMLIB	F-4
Figure F-2	IEFSSNxx Statement for COMMON STORAGE MONITOR and BBXS Initialization	F-5
Figure F-3	COMMNDxx Statement for BBXS Initialization in an OS/390 System under VM	F-6



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# Tables

Table 2-1	AAOTSPxx Parameter Definitions . . . . .	2-28
Table 3-1	TapeSHARE Workstation Primary Commands . . . . .	3-13
Table 3-2	TapeSHARE Workstation Line Commands . . . . .	3-14
Table 12-1	Primary SYSPROG Services Command Summary . . . . .	12-3
Table 29-1	NAIEXEC ALERT Command . . . . .	29-3
Table 32-1	SHARED Variables . . . . .	32-15
Table 32-2	SAP Commands . . . . .	32-20
Table A-1	Entry Code Table . . . . .	A-2
Table B-1	BBUSER Library Index: Group 1 Manage Application Resources . . . . .	B-2
Table B-2	BBUSER Library Index: Group 2 Manage Network Resources . . . . .	B-3
Table B-3	BBUSER Library Index: Group 3 Operational Procedures . . . . .	B-4
Table B-4	BBUSER Library Index: Group 4 Perform AutoOPERATOR Functions . . . . .	B-4
Table B-5	BBUSER Library Index: Group 5 React to IMS/VS Messages . . . . .	B-5
Table B-6	BBUSER Library Index: Group 6 Timer-Driven EXECs . . . . .	B-10
Table B-7	BBUSER Library Index: Group 7 Highlight DSN Messages . . . . .	B-11
Table B-8	BBUSER Library Index: Group 8 Simplify DB2 Entry . . . . .	B-11
Table B-9	BBUSER Library Index: Group 9 Key People Notification . . . . .	B-12
Table B-10	BBUSER Library Index: Group 10 IMS RM and WM Messages . . . . .	B-13
Table E-1	NAIEXEC Command Glossary . . . . .	E-1



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# About This Book

The *MAINVIEW AutoOPERATOR Options User Guide* documents user information and reference information for the following options for MAINVIEW AutoOPERATOR:

- MAINVIEW AutoOPERATOR TapeSHARE
- MAINVIEW AutoOPERATOR for IMS
- MAINVIEW AutoOPERATOR for CICS
- MAINVIEW AutoOPERATOR Access NV
- MAINVIEW AutoOPERATOR for OS/390 (previously called MAINVIEW AutoOPERATOR for MVS)
- MAINVIEW AutoOPERATOR Elan Workstation
- MAINVIEW AutoOPERATOR for SAP High Availability

This manual is for system programmers and operators. Use this manual when you need information about the MAINVIEW AutoOPERATOR options. The MAINVIEW AutoOPERATOR Elan Workstation and MAINVIEW AutoOPERATOR for MQSeries options are documented in separate sets of manuals (refer to “MAINVIEW AutoOPERATOR Product Library” on page xxii for more information).

This manual also makes several references to the BBI-SS PAS, which provides subsystem communication in its own OS/390 address space. The BBI online environment is described in the

- *MAINVIEW Administration Guide*
- *MAINVIEW Common Customization Guide*
- *Using MAINVIEW*

Throughout this book, references to OS/390 support also include support for MVS and z/OS.

# How This Book Is Organized

This book is organized as follows. In addition, this book contains an index.

Chapter/Appendix	Description
Chapter 1, "What MAINVIEW AutoOPERATOR TapeSHARE Is and How It Works"	describes the MAINVIEW AutoOPERATOR TapeSHARE component, which automates the process of sharing/passing tape devices between OS/390 images
Chapter 2, "Customizing TapeSHARE (Optional)"	describes how to customize TapeSHARE to fit your data center needs
Chapter 3, "Controlling Tape Activity from a Single Point with TapeSHARE"	describes how to use the TapeSHARE workstation panel to monitor and control all tape sharing activities for all OS/390 images that are in the TapeSHARE PLEX
Chapter 4, "Introduction to MAINVIEW AutoOPERATOR for OS/390"	describes how to use MAINVIEW AutoOPERATOR to monitor and automate your MVS systems and VTAM resources
Chapter 5, "SYSTEM STATUS Application"	describes how to use the SYSTEM STATUS Application to display a summary of OS/390 status and selected jobs, and report exceptions to normal system operation
Chapter 6, "VTAM RESOURCES Application"	displays VTAM RESOURCES, such as major nodes, cross-domain resources, lines, and terminal clusters
Chapter 7, "OPERATOR REQUESTS Application"	reports on mounts pending, outstanding mount-requests replies, and messages that indicate operator intervention
Chapter 8, "ENQUEUE/RESERVE Application"	describes enqueues and reserves in various situations
Chapter 9, "ADDRESS SPACES Application"	contains information about jobs, Started Tasks and TSO users in the target system specified
Chapter 10, "TAPE STATUS/CONTROL Application"	reports the status of tape drives on the specified target system, and enables the operator to issue commands to modify that status
Chapter 11, "DASD STATUS/CONTROL Application"	reports the status of Direct Access Storage Devices (DASD) in the target system specified and enables the operator to modify the status
Chapter 12, "Using Basic SYSPROG Services from MAINVIEW AutoOPERATOR"	documents the basic SYSPROG services that you can access from MAINVIEW AutoOPERATOR when MAINVIEW AutoOPERATOR for OS/390 option is installed
Chapter 13, "Introduction to MAINVIEW AutoOPERATOR for IMS"	describes how to monitor and automate MAINVIEW AutoOPERATOR for IMS in your data center
Chapter 14, "NETWORK Applications"	describes how to use the IMS OPERATOR WORKSTATION panel to manage specific applications
Chapter 15, "DATABASE Applications"	describes how to use the DATABASE menu to manage specific database applications
Chapter 16, "TRANSACTION Applications"	describes how to use the TRANSACTION menu to manage specific transaction applications
Chapter 17, "IMS PROGRAM Application"	describes how to use the IMS PROGRAM to monitor and manage programs that are defined to your IMS
Chapter 18, "STATUS/EXCEPTION Application"	displays IMS status and operation exception information

<b>Chapter/Appendix</b>	<b>Description</b>
Chapter 19, "REGIONS Application"	describes how to use the REGION application to monitor active IMS regions
Chapter 20, "Customizing MAINVIEW AutoOPERATOR for IMS Application Panels"	describes how to customize the MAINVIEW AutoOPERATOR for IMS Panels for your data center
Chapter 21, "Automating and Simplifying IMS Operations"	describes how you can use MAINVIEW AutoOPERATOR EXEC facility to monitor, automate and simplify IMS operations
Chapter 22, "Introduction to MAINVIEW AutoOPERATOR for CICS"	provides a series of Hyperlinks to MAINVIEW for CICS displays and an ALERTs display for CICS operational exceptions messages
Chapter 23, "Describing the CICS System Status Panel"	describes how to use the CICS System Status Panel
Chapter 24, "BROADCAST Application"	describes how to use the BROADCAST application to communicate with CICS terminals
Chapter 25, "DATABASE Applications"	describes how to use the CICS DATABASE applications to manage <ul style="list-style-type: none"> <li>• all databases that are defined to a IMS region</li> <li>• Fast Path data entry databases (DEDB)</li> <li>• Fast Path DEDB areas and area data sets</li> </ul>
Chapter 26, "CICS PROGRAM Application"	describes how to use the CICS Operator Workstation panel to monitor and manage CICS programs
Chapter 27, "CICS REGIONS Application"	describes how to use the CICS REGION application to display and monitor active IMS regions
Chapter 28, "Introduction to MAINVIEW AutoOPERATOR Access NV"	describes how to use MAINVIEW AutoOPERATOR Access NV to setup direct communicate between NetView and MAINVIEW AutoOPERATOR
Chapter 29, "NAIEXEC NetView Command Processor"	describes how to use the NAIEXEC NetView Command Processor
Chapter 30, "IMFEXEC NetView Command Processor"	describes how to use the IMFEXEC NetView Command Processor to invoke a NetView CLIST, a REXX EXEC or a command in the target NetView system
Chapter 31, "MAINVIEW AutoOPERATOR Access NV Operator Workstation"	describes how to use MAINVIEW AutoOPERATOR Access NV to access NetView online applications
Chapter 32, "MAINVIEW AutoOPERATOR for SAP High Availability"	describes how to implement MAINVIEW AutoOPERATOR for SAP High Availability
Appendix A, "SYSPROG User Exit"	contains description and sample of user exits
Appendix B, "BBUSER Library EXEC Index"	contains an index of EXECs that were contributed by users
Appendix C, "Commonly Asked TapeSHARE Questions and Answers"	contains answers to commonly asked questions regarding TapeSHARE operation
Appendix D, "Making TapeSHARE Work with MVS Allocation More Effectively"	contains information about customizing TapeSHARE to obtain the desired results for your data center
Appendix E, "NAIEXEC Command Glossary"	summarizes the NetView MAINVIEW AutoOPERATOR EXEC statements
Appendix F, "BMC Software Subsystem Services"	contains an overview of BBXS and describes installing and initializing the subsystem in an OS/390 system or in an OS/390system running under VM

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## Related Documentation

BMC Software products are supported by several types of documentation:

- online and printed books
- release notes and other notices

## MAINVIEW AutoOPERATOR Product Library

The MAINVIEW AutoOPERATOR base product and options are documented in the following MAINVIEW AutoOPERATOR manuals:

- *MAINVIEW AutoOPERATOR Customization Guide*
- *MAINVIEW AutoOPERATOR Basic Automation Guide*
- *MAINVIEW AutoOPERATOR Advanced Automation Guide*
- *MAINVIEW AutoOPERATOR Options User Guide*
- *MAINVIEW AutoOPERATOR for MQSeries Installation and User Guide*
- *MAINVIEW AutoOPERATOR Reference Summary*
- *MAINVIEW AutoOPERATOR Solutions Guide*

## Related Reading

For information about the BBI online environment, refer to:

- *MAINVIEW Common Customization Guide*
- *MAINVIEW Administration Guide*
- *Using MAINVIEW*

Also, refer to “MAINVIEW AutoOPERATOR Product Library” on page xxii for a list of the manuals that document the MAINVIEW AutoOPERATOR product.

This manual refers to the BMC Software MAINVIEW Solutions product, which is documented in the *MAINVIEW AutoOPERATOR Solutions Guide*.

The MAINVIEW AutoOPERATOR for IMS option works with MAINVIEW for IMS Online. MAINVIEW for IMS Online is documented in the following BMC Software manuals:

- *MAINVIEW for IMS Online - Analyzers Reference Manual*
- *MAINVIEW for IMS Online - Monitors and Traces Reference Manual*

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This manual also refers to the following IBM publications:

- *IMS Messages and Codes Reference Manual*
- *VTAM Messages and Codes*
- *MVS/XA SPL System Macros and Facilities*

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## Product Requirements

You must have AutoOPERATOR installed to run MAINVIEW AutoOPERATOR solutions. In addition, the following MAINVIEW components are required for RULE SETs as shown in the following table.

### MAINVIEW Components Required for RULESETs

MAINVIEW Components	RULESET: TYPE	AAORUL00 MVS	AAORULM1 MVS	AAORULM1 CICS	AAORULD1-D8 DB2
MAO - MV/AO for OS/390	Yes	Yes	Yes	Yes	Yes
CAO - MV/AO for CICS			Yes	Yes	
IAO - MV/AO for IMS					Yes
RES + (Full RESOLVE product)- MV SYSPROG			Yes		
IMF - MV/IMS					Yes
CMR - MV/CICS				Yes	
DMR - MV/DB2					Yes

## What the Conventions Are

The following syntax notation is used in this manual. Do not enter the special characters.

- Brackets, [ ], enclose optional parameters or keywords.
- Braces, { }, enclose a list of parameters; one must be chosen.
- vertical line, |, separates alternative options; one can be chosen.
- An *italicized* or underlined parameter is the default.
- AN ITEM IN CAPITAL LETTERS must be entered exactly as shown.
- Items in lowercase letters are values you supply.

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## Related Documentation

BMC Software products are supported by several types of documentation:

- online and printed books
- release notes and other notices

### Online and Printed Books

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### Release Notes and Other Notices

Printed release notes accompany each BMC Software product. Release notes provide current information such as

- updates to the installation instructions
- last-minute product information

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In addition, BMC Software sometimes provides updated product information between releases (in the form of a flash or a technical bulletin, for example). The latest versions of the release notes and other notices are available on the Web at <http://www.bmc.com/support.html>.

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# Chapter 1 What MAINVIEW AutoOPERATOR TapeSHARE Is and How It Works

This chapter describes the MAINVIEW AutoOPERATOR TapeSHARE component (referred to as TapeSHARE or AutoOPERATOR TapeSHARE) and includes the following discussions.

To Read about	See Page
"What You Need to Use AutoOPERATOR TapeSHARE"	1-1
"Defining TapeSHARE Terms and Concepts"	1-2
"When TapeSHARE Cannot Satisfy a Request"	1-4
"What You Can Tell TapeSHARE about Tape Devices (Optional)"	1-6
"Examples of TapeSHARE at Work"	1-10

## What You Need to Use AutoOPERATOR TapeSHARE

MAINVIEW AutoOPERATOR TapeSHARE is a MAINVIEW AutoOPERATOR component that automates the process of sharing/passing tape devices between OS/390 images. To use TapeSHARE, the prerequisites are as follows:

- MAINVIEW AutoOPERATOR for OS/390 must be installed.
- You must have a password key for the MAINVIEW AutoOPERATOR TapeSHARE product option.

As with other AutoOPERATOR components, TapeSHARE requires a password key before it can be activated. You must acquire a password key for every CPU that you plan to install TapeSHARE on.

For information about acquiring and using a password key, refer to the *MAINVIEW Common Customization Guide*.

Once TapeSHARE is implemented, it can operate entirely behind the scenes and does not require manual intervention. Most importantly, TapeSHARE is designed to be installed simply and implemented at your site *with no customization required*.

To best understand how to implement and use TapeSHARE, you must understand the following concepts:

- TapeSHARE
- TapeSHARE PLEX
- GIVE
- TAKE

These terms are described in “Defining TapeSHARE Terms and Concepts”.

## Defining TapeSHARE Terms and Concepts

The following describes key TapeSHARE terms and concepts.

### What the MAINVIEW AutoOPERATOR TapeSHARE Component Is

MAINVIEW AutoOPERATOR TapeSHARE is a MAINVIEW AutoOPERATOR component that automates the process of sharing/passing tape devices between OS/390 images.

TapeSHARE runs in an BBI-SS PAS and each OS/390 image can have only one TapeSHARE running at any time. Therefore, once TapeSHARE is activated in an image, if you attempt to start another TapeSHARE in the same image on another BBI-SS PAS, a warning message is issued and the attempt fails. The BBI-SS PAS continues to initialize.

TapeSHARE includes an operator control display (OCD) that allows you to see the tape sharing activity and have a single point-of-control for tape device management.

You also can track and measure shared tape activity with the AutoOPERATOR Automation Reporter application which gathers data for items such as how many requests are made for devices and how long it took for TapeSHARE to respond to the request.

## What a TapeSHARE PLEX Is

A TapeSHARE PLEX is a group of OS/390 images, each of which has TapeSHARE active. In this environment, tape devices can be shared between the images within the TapeSHARE PLEX. The images sometimes are referred to as “partners” in the PLEX.

During TapeSHARE initialization, a TapeSHARE component informs the other TapeSHAREs in the PLEX that it is active and can share its tape devices with the other images in the PLEX.

### Important Note

Be sure all available tape devices in the TapeSHARE PLEX have the same device address defined on all the images in the PLEX. For example, device 0123 should be defined as 0123 on all partners in the PLEX.

If the device addresses are different on different images, you must exclude these devices from control by defining them as NOGIVE-NOTAKE. Those tape devices will not be available for sharing by the TapeSHARE PLEX. For more information, refer to “Defining NOGIVE-NOTAKE Devices” on page 2-17.

## What TapeSHARE Does

When there are not enough devices on a particular image to satisfy the needs of a job that is running on the image, the job goes into Allocation Recovery. TapeSHARE is invoked when an Allocation Recovery situation occurs. It attempts to locate available devices from the other partners in the TapeSHARE PLEX that can be shared so the job can continue to run.

When TapeSHARE automates this sharing of tape devices within the PLEX, it is performing two important actions:

- GIVE
- TAKE

## GIVE

A GIVE happens when TapeSHARE becomes aware that a job in an OS/390 image within the TapeSHARE PLEX requires a tape device but none are available on that image. TapeSHARE attempts to find an available device from one of the partners within the PLEX. To be eligible to be shared, the tape device must be both

- online
- not allocated

When TapeSHARE finds a tape device that meets both these conditions, it makes the device available to be used by another partner in the TapeSHARE PLEX by varying it offline. This situation is a GIVE.

In summary, during a GIVE, TapeSHARE VARYs the tape device offline to one system, thereby allowing another system within the PLEX to TAKE it.

## TAKE

After a GIVE, when TapeSHARE has located a device from one of the partners in the PLEX, a TAKE occurs when TapeSHARE informs OS/390 that the device is available. During a successful TAKE, the job that needs the device receives it from TapeSHARE and completes its job.

## When TapeSHARE Cannot Satisfy a Request

If any of the following situations are true, TapeSHARE will not be able to satisfy a request for tape devices:

- Not enough devices are available to satisfy a request, which can occur because of the following reasons:
  - There simply are not enough available devices within the PLEX for all requests to be satisfied.
  - TapeSHARE has been customized to match the type of tape devices it finds with the type of tape devices that are requested by a job. This feature is called Preferencing.

When Preferencing is in effect, there might be available devices within the PLEX but TapeSHARE might not be able to find the requested type of device to satisfy the request. For more information about Preferencing and how it affects the way TapeSHARE works, refer to “What Preferencing Is” on page 1-6.

- All the partners within the PLEX have jobs that are in Allocation Recovery.

Although this circumstance is unusual, it is possible that all of the partners within the PLEX will need devices and have jobs in Allocation Recovery at the same time. If this situation happens, TapeSHARE is not able to satisfy a request.

- The communication links between BBI-SS PASs have been stopped.

TapeSHARE is installed in one BBI-SS PAS in an image. When you have a PLEX of images, the BBI-SS PASs communicate with each other by way of SS-to-SS communication links.

Therefore, TapeSHARE uses SS-to-SS communication and if the communication link between two partners has been stopped (for example, if the link has been stopped manually), TapeSHARE is not able to communicate with that partner. If the communication links between all partners in a PLEX have stopped, TapeSHARE is not able to perform tape device sharing actions.

## What You Can Do

Refer to Appendix D, “Making TapeSHARE Work with MVS Allocation More Effectively” for more information about what you can do to make TapeSHARE work with OS/390 allocation.

You can customize TapeSHARE to retry looking for devices up to 10 times, waiting up to 5 minutes between attempts. In the time between attempts, the situation within the PLEX might change, allowing TapeSHARE to successfully share devices.

For more information about how to modify TapeSHARE to use the RETRYCNT and RETRYINT parameters, refer to “Specifying How Many Retries TapeSHARE Should Attempt” on page 2-8.

## What Happens When TapeSHARE Cannot Satisfy a Request

When TapeSHARE cannot find the tape device (or devices) to satisfy a job’s needs, an Allocation Failed Event occurs. As a result of an Allocation Failed Event, TapeSHARE can tell OS/390 to perform one of the following actions:

- allow the site’s default policy to determine what to do
- issue a WTOR to inform and allow the operator to decide what to do
- cancel the job

- allow the job to wait without holding resources (WAIT/NOHOLD)
- allow the job to wait while holding resources (WAIT/HOLD)

You can choose to customize TapeSHARE to take any of these actions; for more information about these options and other optional customization possibilities, refer to “Defining Actions to Take When Requests for Devices Cannot Be Met” on page 2-11.

## What You Can Tell TapeSHARE about Tape Devices (Optional)

TapeSHARE is designed to work *without you having to perform any special implementation steps*. However, the following sections describe how to customize the way TapeSHARE performs in the TapeSHARE PLEX. These include:

- Preferencing
- designating tape devices that should never be GIVEN by TapeSHARE to other partners in the PLEX (NOGIVE devices)
- designating tape devices that an image will GIVE to TapeSHARE to share with other partners but will not TAKE back (NOTAKE devices)

### What Preferencing Is

In TapeSHARE, you can specify that a device (or a range of devices) within the TapeSHARE PLEX is input-only or output-only. Requesting an input-only device means you are requesting a device with a specific volume serial (volser) number. Requesting an output-only device is requesting a scratch tape.

If you choose to specify certain devices as input-only or output-only, you can then activate a TapeSHARE feature called *Preferencing*. Preferencing means that TapeSHARE will check the type of the device it finds and determine whether or not that device should be GIVEN to a partner.

Preferencing can be activated in one of two modes, and TapeSHARE uses the mode to determine whether or not to GIVE input-only or output-only devices under different circumstances. The two modes are

- **Guideline**

In Guideline mode, TapeSHARE always attempts to match the requested device with an available device but if an appropriate match cannot be made, TapeSHARE will mismatch the requested device with the available device. So if SYSA needs an input-only device but TapeSHARE finds only a device that has been specified as an output-only device, the device is GIVEN.

- **Force**

If Force mode is in effect, TapeSHARE never mismatches device types and for the scenario above, the output-only device is not GIVEN and an Allocation Failed Event occurs.

Regardless of which mode is in use, with Preferencing in effect TapeSHARE always checks how the device is specified (input- or output-only) on an image and uses that information to determine if it should be GIVEN to a partner. The following illustrate how Preferencing works with Guideline and Force modes.

### **Scenario 1**

Suppose Preferencing is activated in Force mode and a job requires an input-only device. The only available device that TapeSHARE locates is specified as an output-only device.

In this situation, TapeSHARE will not GIVE the device to the job and if no retry attempts are specified, an Allocation Failed Event occurs. TapeSHARE performs the action associated with an Allocation Failed Event.

### **Scenario 2**

With Preferencing activated in Guideline mode, in the same situation as above, TapeSHARE will GIVE the device to the job even though the two device definitions do not match. If TapeSHARE finds one output-only and one input-only device, the input-only device will be GIVEN to the job.

### Scenario 3

For this scenario, suppose Preferencing is activated in Guideline mode and a job requires five output-only tape devices. TapeSHARE finds four output-only devices and one input-only device. In Guideline mode, all five of the devices will be GIVEN to the job.

Had Force mode been active in this situation, the job would receive the four available devices. If no retry attempts are specified, an Allocation Failed Event occurs for the fifth device that was not found. TapeSHARE performs the action associated with an Allocation Failed Event.

### Scenario 4

For this example, Preferencing is in effect in Force mode. It is possible that a device may be defined as an input-only device on one image and as an output-only device on another image. Suppose that a device (whose address is 03E4) is defined as input-only on SYSA and as output-only on SYSB.

SYSC requires an output-only device and TapeSHARE checks partner SYSA first. On SYSA, device 03E4 is defined as input-only (and because Preferencing is on in Force mode), the device is not GIVEN to SYSC.

TapeSHARE proceeds to partner SYSB where the device is defined as output-only. TapeSHARE now GIVES the device to SYSC.

For more information about how to specify devices as input-only or output-only, or how to implement Preferencing, refer to “Customizing TapeSHARE (Optional)” on page 2-1.

## Designating Tape Devices Dedicated to One Image (NOGIVE Devices)

You can specify that some tape devices within the TapeSHARE PLEX are not eligible to be GIVEN by TapeSHARE when jobs within the PLEX require a device. These are called NOGIVE devices.

A NOGIVE device is dedicated to an image and TapeSHARE never will try to share this device with other partners in the PLEX. You may want to have NOGIVE devices for an image that performs a lot of batch job processing.

**Note:** An operator can still manually VARY a device online to an image. Once a device is manually varied online, TapeSHARE is able to control the allocation of the device.

However, if you manually VARY a device offline, TapeSHARE will not automatically VARY it online for you. You will have to VARY it online to return it to TapeSHARE control.

## Excluding Tape Devices from an Image (NOTAKE Devices)

You can specify that a tape device on an image is a NOTAKE device. This means that the device will not be used on that image but it may be GIVEN by TapeSHARE to another partner in the PLEX. Once the NOTAKE device is GIVEN to another partner, the original image will never TAKE the device back.

### Designating Tape Devices to be Excluded from TapeSHARE Control (NOGIVE-NOTAKE Devices)

You also can specify that some tape devices within the TapeSHARE PLEX are not within TapeSHARE control. These are called NOGIVE-NOTAKE devices. You may want to have NOGIVE-NOTAKE devices when you are performing maintenance on the system and the tape devices should be excluded completely from TapeSHARE control.

## Additional Optional Customization Possibilities

For more information about implementing any of the optional features, use the following table.

For More Information about	See Page
Specifying partners within the TapeSHARE PLEX	2-3
How much time TapeSHARE should wait for a successful GIVE to complete	2-7
How many times TapeSHARE should attempt to GIVE devices (and how long TapeSHARE should wait between attempts)	2-8
Actions that should be taken when an Allocation Failure Event occurs	2-11
How to designate NOGIVE or NOTAKE devices	2-13 and 2-15
How to designate NOGIVE-NOTAKE devices	2-17
How to designate tape devices with the TapeSHARE PLEX as input-only or output-only	2-20
How to turn on Preferencing	2-22
Specifying a user-defined deallocation procedure	2-24

## Examples of TapeSHARE at Work

The following scenarios describe how TapeSHARE operates in different situations.

### Scenario 1: How TapeSHARE Shares Tape Devices between Targets

In this scenario, there are three images in the TapeSHARE PLEX: SYSA, SYSB, and SYSC. A job named ABC is running on SYSA and requests three tape devices but only one is available on SYSA. Job ABC goes into Allocation Recovery and SYSA TapeSHARE is invoked automatically to find the two other devices from other images within the PLEX.

The following steps list the order that events occur when TapeSHARE attempts to find a device for a partner in the TapeSHARE PLEX.

- Step 1** Because Job ABC needs to find two other devices, SYSA TapeSHARE is invoked and begins to search the other partners within the TapeSHARE PLEX for available devices to be used for Job ABC.
- Step 2** SYSA TapeSHARE asks partner SYSB to GIVE two devices from its list of devices.
- Step 3** SYSB TapeSHARE searches the list for available devices that can be GIVEN to SYSA.  
  
SYSB TapeSHARE finds a device that is both online and not allocated to a job and VARYs the device offline. This action is a GIVE.
- Step 4** SYSA TapeSHARE receives permission to TAKE the device from SYSB TapeSHARE and TAKES it.  
  
SYSA still needs one more device.
- Step 5** SYSA TapeSHARE asks partner SYSC to GIVE one device from its list of devices.
- Step 6** SYSC TapeSHARE searches the list for an available device that can be GIVEN to SYSA.  
  
SYSC TapeSHARE finds a device that is both online and not allocated to a job and VARYs the device offline. This is a GIVE.

- Step 7** SYSA TapeSHARE receives permission to TAKE the device from SYSC and TapeSHARE TAKES it.

The Job ABC on SYSA now has all the devices it needs to complete its task.

## Scenario 2: What Happens If Not Enough Tape Devices Are Available

In this scenario (as in Scenario 1), there are three images in the TapeSHARE PLEX: SYSA, SYSB, and SYSC. A job named ABC is running on SYSA and requests three tape devices but only one is available on SYSA. Job ABC goes into Allocation Recovery and SYSA TapeSHARE is invoked automatically to find the two other devices from other partners within the PLEX.

The following steps list the order that events occur when TapeSHARE cannot meet a partner's request for devices.

- Step 1** Steps 1 through 5 are the same as in Scenario 1.
- Step 2** SYSC TapeSHARE searches the list for an available device but does not find a device that can be GIVEN to SYSA.
- Step 3** Because the request for devices for Job ABC on SYSA cannot be met by the partners in the PLEX (and no retries are specified), an Allocation Failed Event occurs and the user-specified action associated with this event is taken.

## Scenario 3: What Happens When OS/390 Crashes

In this scenario (as in Scenario 1), there are three images in the TapeSHARE PLEX: SYSA, SYSB, and SYSC. MVS on SYSC crashes with three tape devices online (which is the same as if the BBI-SS PAS with TapeSHARE running had crashed on SYSC).

The following steps list the order that events occur when a partner within the PLEX crashes.

- Step 1** SYSC comes down while tape devices AB0, AB3, and ABE are online.
- Step 2** Job XYZ001 starts on SYSB and requires three tape devices but none are available.

- Step 3** SYSB TapeSHARE asks SYSC TapeSHARE for any available devices but determines that SYSC is down.
- SYSB TapeSHARE marks SYSC as “dead”.
- Step 4** SYSB TapeSHARE then asks SYSA TapeSHARE for any available devices.
- Step 5** SYSA TapeSHARE GIVEs three devices to SYSB, and Job XYZ001 can complete its task.
- Step 6** The operator notices that three devices are offline to all systems so the operator VARYs them online.
- Step 7** SYSC is IPLed and TapeSHARE is initialized.
- SYSC TapeSHARE informs the other partners within the PLEX that it is back.
- Step 8** When SYSB TapeSHARE recognizes that SYSC TapeSHARE is back up, it marks SYSC *alive*.
- Step 9** SYSC TapeSHARE informs SYSA TapeSHARE that it is up and running.
- Step 10** SYSA TapeSHARE recognizes SYSC TapeSHARE and the PLEX is active again.

---

# Chapter 2 Customizing TapeSHARE (Optional)

This chapter describes how to customize TapeSHARE. All customization options are explained.

Important Note
Because TapeSHARE is designed to work without special customization steps, all of these procedures are <i>optional</i> . TapeSHARE <i>performs tape device sharing automation for you in its default mode</i> . You might want to read this chapter to learn what aspects of TapeSHARE can be customized and decide if you want to implement any of the customization.

To Read about	See Page
how to define partners within a TapeSHARE PLEX	2-3
how to specify how much time TapeSHARE should wait for a GIVE or TAKE to complete	2-7
what actions TapeSHARE should take when a request for tape devices cannot be met	2-8
how to specify if TapeSHARE should retry attempting to satisfy allocation requests and how long to wait between retry attempts to complete	2-11
how to designate NOGIVE or NOTAKE tape devices	2-13 and 2-15
how to designate NGIV-NTAK tape devices	2-17
how to define tape devices as input-only or output-only	2-20
how to turn on Preferencing	2-22
how to specify a user-defined deallocation procedure	2-24
how to activate an AAOTSPxx member	2-26

**Note:** Remember—none of these steps have to be completed; they are optional.

## How TapeSHARE Is Customized

BBPARM member AAOTSP $xx$ , where  $xx$  is a two-character, user-defined suffix, contains parameters that control how TapeSHARE operates. Each TapeSHARE can have an AAOTSP $xx$  member associated with it. A single TapeSHARE also might have several AAOTSP $xx$  members that you can activate under different circumstances.

Within a TapeSHARE PLEX, each TapeSHARE can have its own AAOTSP $xx$  member associated with it. For example, you might decide that within a TapeSHARE PLEX of SYSA, SYSB, and SYSC that SYSA can share devices with SYSB but not with SYSC. For this, you would have to define an AAOTSP $xx$  member for each image to make these specifications.

Or you might decide when TapeSHARE cannot satisfy a request for resources for SYSA that the action TapeSHARE takes is to allow the job to wait without holding resources but if a request for SYSC cannot be met, the action is to issue a WTOR. By changing the parameters in the AAOTSP $xx$  member for each TapeSHARE in the PLEX, you can customize the way TapeSHARE operates.

To complete any customization step described in this chapter, complete the installation steps described in the *MAINVIEW AutoOPERATOR Customization Guide*. The following sections describe each of the features and contain step-by-step procedures.

## Using the Dynamic Parameter Manager Application

Use the MAINVIEW AutoOPERATOR Dynamic Parameter Manager application to access the AAOTSP $xx$  member for each TapeSHARE. With the Dynamic Parameter Manager application, you easily can modify the AAOTSP $xx$  parameters as well as create additional AAOTSP $xx$  members. See “Accessing the Dynamic Parameter Manager” on page 2-4.

## Defining TapeSHARE Partners

After you decide which OS/390 images you want to have in a TapeSHARE PLEX, install TapeSHARE on each of the images. For example, you might want a TapeSHARE PLEX of SYSA, SYSB, and SYSC.

Install TapeSHARE into a BBI-SS PAS on each of these three systems (for installation information, see the *MAINVIEW AutoOPERATOR Customization Guide*). TapeSHARE checks to see if any partnerships are established. If you do not specify special partnerships between the systems, TapeSHARE assumes that any BBI node (defined in the BBINOD00 member) with TapeSHARE installed is a partner within the PLEX.

When defining partners in AAOTSPxx, you can create specific relationships between the partners and control how they interact with each other for tape device sharing. For example, you can specify that SYSA can share devices with only SYSB and not with SYSC. Or SYSA might share devices 0E01 through 0E05 with SYSB but any device on SYSA can be shared with SYSC. Set up these relationships with the partner parameter of the AAOTSPxx member, which you can modify with the Dynamic Parameter Manager application.

## Accessing the Dynamic Parameter Manager

The following describes how to access the Dynamic Parameter Manager.

- Step 1** Select Option 9 from the MAINVIEW AutoOPERATOR Primary Option Menu (see Figure 2-1).

**Figure 2-1 MAINVIEW AutoOPERATOR Primary Option Menu**

```

BMC Software ----- PRIMARY OPTION MENU ----- AutoOPERATOR
OPTION ==>>                                     DATE -- 01/02/01
                                                TIME -- 12:22:53
                                                USERID -- BAOMXY2
                                                MODE -- ISPF 4.8

Operator Workstations:
  1 ALERT Management                               5 NetView Resources
  2 MVS Resources                                  6 TapeSHARE
  3 CICS Resources                                 7 MQSeries
  4 IMS Resources

Automation:
  8 Basic and Advanced Automation                 9 Dynamic Parameter Manager

General Services:
  C Service Refresh Cycle Setup                  K Current PF Key Assignments
  L Display Journal                              T Tutorials
  M Display Messages and Codes                  X Terminate

                                                PF1/13 HELP PF3/15: EXIT

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```

The Dynamic Parameter Manager panel is displayed (Figure 2-2).

**Figure 2-2 Dynamic Parameter Manager Panel**

```

BMC Software ----- Dynamic Parameter Manager ----- AutoOPERATOR
COMMAND ==>>                                     TGT ==>> DSHD
Primary command: Add                             DATE --- 01/03/12
                                                TIME --- 16:13:03

LC CMDS --- (S)elect, (A)ctivate

Cmd  Member          Lib VV.MM  Created      Changed      Size  ID
--  -
_   AAOALS00          2  01.02  98/02/07    01/02/08 10:22    25   CMRH
_   AAOARP00          1  01.02  99/06/08    01/03/09 15:44    30   BAODYM4
_   AAOTSP00          1  01.01  99/06/09    01/03/12 16:12     5   KMZ1
_   AAOTSP55          1  01.00  99/06/09    01/03/09 13:45     1   MES2
    
```

- Step 2** Select the AAOTSP00 member by entering an S ((S)elect) line command) next to the AAOTSP00 member name.

The TapeSHARE Parameters panel is displayed (see Figure 2-3 on page 2-5).

**Figure 2-3 TapeSHARE Parameters Panel**

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>>>                                     TGT --- DSHD
                                                    DATE --- 01/03/12
                                                    TIME --- 16:27:51

                Member      Current

PARTNER      ==>>>                * LIST * (Enter ? for a partner list)

TIMEOUT      ==>>>      120        120        Subsystem response timeout value
RETRYCNT     ==>>>      2          2          Times to retry a take request
RETRYINT     ==>>>      30         30         Interval between take retries
ACTION       ==>>>  DEFAULT    DEFAULT    Allocation failure action

NOGIVE       ==>>>
NOTAKE       ==>>>                (Enter ? for a device list)
                (Enter ? for a device list)

PREF         ==>>>  NO          NO          Enable / Force preferencing
PREFDEV      ==>>>
                (Enter ? for a device list)

FREE         ==>>>  DEALLOC    DEALLOC    Deallocation procedure name
TRACE        ==>>>  NO          NO          Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes

```

Note that the first time you access this panel the left and right sides of the panel are displayed with the default values.

Also note that for some of the parameters, you must enter a question mark (?) in the input field to display another panel where you can enter new values. These parameters are

- NOGIVE
- NOTAKE
- partner
- prefdev

## Specifying a Partner Name

Modify the partner parameter after you have planned out which images will be TapeSHARE partners and if any of the partners will have devices that cannot be GIVEN to a partner.

Remember—when TapeSHARE is initialized, it checks to see if this parameter specifies any partnerships. If TapeSHARE finds that you have not specified partnerships, TapeSHARE assumes that any BBI node (defined in the BBINOD00 member) with TapeSHARE installed is a partner within the PLEX. If TapeSHARE finds that you have specified partnerships with this parameter, it does not check the BBINOD00 member.

To specify a partner, perform the following steps:

- Step 1** On the TapeSHARE Parameters panel, enter a question mark next to the **PARTNER** field. See Figure 2-4.

**Figure 2-4 TapeSHARE Parameters Panel: Adding a Partner Name**

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>                                     TGT --- DSHD
                                                DATE --- 01/03/12
                                                TIME --- 16:27:51

                Member      Current
PARTNER    ==>      ?                * LIST * (Enter ? for a partner list)

TIMEOUT    ==>      120              120      Subsystem response timeout value
RETRYCNT   ==>      2                2        Times to retry a take request
RETRYINT   ==>      30              30      Interval between take retries
ACTION     ==>      DEFAULT          DEFAULT  Allocation failure action

NOGIVE     ==>                                     (Enter ? for a device list)
NOTAKE     ==>                                     (Enter ? for a device list)

PREF       ==>      NO              NO       Enable / Force preferencing
PREFDEV    ==>                                     (Enter ? for a device list)

FREE       ==>      DEALLOC          DEALLOC  Deallocation procedure name
TRACE     ==>      NO              NO       Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes
    
```

- Step 2** After entering a question mark, press **Enter**.

Figure 2-5 is displayed.

**Figure 2-5 List of Defined Partners**

```

BMC Software ----- Update TapeSHARE Partners ----- AutoOPERATOR
COMMAND ==>                                     TGT --- DSHD
Primary command: Add                             DATE --- 01/03/14

LC CMDS --- (D)elete

***** END OF ENTRIES *****
    
```

- Step 3** Use this panel to enter a list of partners. To specify a partner, use the primary command **ADD** and the one- to four-character **BBI** subsystem name.

For example, to add a partner with a BBISS PAS name of SYSA, enter the following:

```

BMC Software ----- Update TapeSHARE Partners ----- AutoOPERATOR
COMMAND ==> ADD SYSA                             TGT --- DSHD
    
```

You also can enter (separated by a comma) the device address or a range of device addresses that cannot be given to that partner; for example:

---

```
BMC Software ----- Update TapeSHARE Partners ----- AutoOPERATOR
COMMAND ==> ADD SYSA,0123                                TGT --- DSHD
```

---

In this example, the device number 0123 will not be eligible to be GIVEN to partner SYSA. For a range of addresses, enter

---

```
BMC Software ----- Update TapeSHARE Partners ----- AutoOPERATOR
COMMAND ==> ADD SYSA,0123-0130                            TGT --- DSHD
```

---

In this example, the range of devices that fall between 0123 and 1300 will not be eligible to be GIVEN to partner SYSA.

To enter multiple ranges of devices, enter

---

```
BMC Software ----- Update TapeSHARE Partners ----- AutoOPERATOR
COMMAND ==> ADD SYSA,0123-0130,0E01-0E05                 TGT --- DSHD
```

---

**Step 4** Press **PF3** when you have finished entering all the partners.

You are returned to the TapeSHARE Parameters panel.

**Step 5** Repeat this process for every TapeSHARE within the PLEX for which you want to customize this parameter.

## Specifying How Long TapeSHARE Should Wait

You can decide to specify the amount of time that TapeSHARE should wait for a response from its partners in the PLEX. You can specify a value of 0 to 300 seconds that an image should wait for a response from its partners.

If the request for resources is not completed in the time specified, then the request times out and generates an Allocation Failed Event. You might want to specify time out values for an image where a lot of processing takes place and requests for devices happen often. By specifying a greater time out value, you can avoid having a lot of request failures.

The default time to wait is 120 seconds (two minutes) and is controlled by the TIMEOUT parameter.

Modify the timeout parameter after you have determined what an appropriate wait time is for a particular image.

## To Specify a Time Out Value

- Step 1** On the TapeSHARE Parameters panel, enter the time out value (in seconds) next to the **TIMEOUT** field. See Figure 2-6.

**Figure 2-6 TapeSHARE Parameters Panel: Specifying a New Time Out Value**

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>                                     TGT --- DSHD
                                                DATE --- 01/03/12
                                                TIME --- 16:27:51

                Member      Current

PARTNER  ==>                                     * LIST * (Enter ? for a partner list)

TIMEOUT ==>                180          120          Subsystem response timeout value
RETRYCNT ==>                 2           2           Times to retry a take request
RETRYINT ==>                30          30          Interval between take retries
ACTION   ==>   DEFAULT      DEFAULT      Allocation failure action

NOGIVE   ==>                                     (Enter ? for a device list)
NOTAKE   ==>                                     (Enter ? for a device list)

PREF     ==>   NO           NO           Enable / Force preferencing
PREFDEV  ==>                                     (Enter ? for a device list)

FREE     ==>   DEALLOC     DEALLOC     Deallocation procedure name
TRACE    ==>   NO           NO           Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes
    
```

In this example, the new time out value is three minutes.

- Step 2** Repeat this process for every TapeSHARE within the PLEX for which you want to customize this parameter.

## Specifying How Many Retries TapeSHARE Should Attempt

Occasionally, TapeSHARE will not be able to satisfy a request for devices; refer to “When TapeSHARE Cannot Satisfy a Request” on page 1-4 for more information. You can specify that TapeSHARE attempts more than once to satisfy requests made by an image.

For example, suppose SYSA requests devices from its partners within the PLEX and the first attempt made by TapeSHARE to satisfy the request fails. You can specify up to 10 retry attempts to satisfy the request. If all the retry attempts fail, an Allocation Failed Event occurs. When specifying retry attempts, you also can specify the number of seconds between each retry.

The default number of retry attempts is two, and the default wait time between attempts is 30 seconds. These are controlled by the `retrycnt` and `retryint` parameters.

Modify the `RETRYCNT` and `RETRYINT` parameters after you have determined

- how many retry attempts you want TapeSHARE to make after an initial allocation attempt fails
- how long TapeSHARE should wait between retry attempts

and after you have reviewed Appendix D, “Making TapeSHARE Work with MVS Allocation More Effectively.”

**Warning!** Incorrect modification of these parameters will negatively impact the effectiveness of TapeSHARE. You are strongly urged to review Appendix D, “Making TapeSHARE Work with MVS Allocation More Effectively” before you make changes.

To specify the number of retries, on the TapeSHARE Parameters panel, enter the number of retries (up to 10) next to the `RETRYCNT` field (Figure 2-7).

**Figure 2-7** TapeSHARE Parameters Panel: Specifying a Retry Count Value

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>>>                                     TGT --- DSHD
                                                    DATE --- 01/03/12
                                                    TIME --- 16:27:51

                Member      Current

PARTNER      ==>>>                * LIST * (Enter ? for a partner list)

TIMEOUT      ==>>>      180      120      Subsystem response timeout value
RETRYCNT     ==>>>      5        2        Times to retry a take request
RETRYINT     ==>>>      30      30      Interval between take retries
ACTION       ==>>>      CANCEL   DEFAULT Allocation failure action

NOGIVE       ==>>>
NOTAKE       ==>>>                (Enter ? for a device list)
                (Enter ? for a device list)

PREF         ==>>>      NO        NO        Enable / Force preferencing
PREFDEV      ==>>>
                (Enter ? for a device list)

FREE         ==>>>      DEALLOC  DEALLOC Deallocation procedure name
TRACE        ==>>>      NO        NO        Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes
    
```

In this example, the retry attempt value is five attempts after an initial allocation attempt fails.

**Step 3** If you want to change the default number of seconds to wait between retry attempts from 30 seconds, enter the new default wait interval. See Figure 2-8.

**Figure 2-8 TapeSHARE Parameters Panel: Specifying a Retry Interval Value**

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>                                     TGT --- DSHD
                                                DATE --- 01/03/12
                                                TIME --- 16:27:51

                Member      Current

PARTNER      ==>                                * LIST * (Enter ? for a partner list)

TIMEOUT      ==>          180          120      Subsystem response timeout value
RETRYCNT     ==>           5           2       Times to retry a take request
RETRYINT    ==>          15           30       Interval between take retries
ACTION       ==>   CANCEL      DEFAULT     Allocation failure action

NOGIVE       ==>
NOTAKE       ==>                                (Enter ? for a device list)
                                                (Enter ? for a device list)

PREF         ==>   NO           NO         Enable / Force preferencing
PREFDEV      ==>
                                                (Enter ? for a device list)

FREE         ==>   DEALLOC     DEALLOC   Deallocation procedure name
TRACE        ==>   NO           NO         Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes
    
```

---

In this example, the wait time between try attempts is 15 seconds.

**Step 4** Repeat this process for every TapeSHARE within the PLEX for which you want to customize this parameter.

## Defining Actions to Take When Requests for Devices Cannot Be Met

This section describes what actions TapeSHARE can take when a request for tape devices cannot be met (also called an Allocation Failed Event). The action taken by TapeSHARE for an Allocation Failed Event is controlled by the action parameter in AAOTSPxx.

For each TapeSHARE, you can specify a different action to be taken. The possible actions are

- allow the site's default policy to determine what to do
- issue a WTOR to the operator

This option is the default if your site does not have its own a default action defined.

- cancel the job that requested the tape devices
- allow the job to wait without holding resources

Suppose a job (ABC) needs to find five tape devices to complete its task but TapeSHARE can locate only four devices. By specifying nohold, you are allowing Job ABC to wait and the four available devices are not being held.

For more information, refer to Appendix D, "Making TapeSHARE Work with MVS Allocation More Effectively".

- allow the job to wait while holding resources

For the same situation, if you specify hold, Job ABC will hold onto the four devices that were found while it waits for TapeSHARE to find a fifth device.

For more information, refer to Appendix D, "Making TapeSHARE Work with MVS Allocation More Effectively".

Modify the action parameter after you have determined the most appropriate action to be taken when a job requests resources but cannot receive them immediately.

To specify an action, follow these steps:

- Step 1** On the TapeSHARE Parameters panel, enter the name of the action next to the **ACTION** field. See Figure 2-9.

**Figure 2-9 TapeSHARE Parameters Panel: Specifying an Action**

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>                                     TGT --- DSHD
                                                DATE --- 01/03/12
                                                TIME --- 16:27:51

                Member      Current

PARTNER      ==>                                * LIST * (Enter ? for a partner list)

TIMEOUT      ==>          180          120      Subsystem response timeout value
RETRYCNT     ==>           5           2       Times to retry a take request
RETRYINT     ==>          15          30       Interval between take retries
ACTION     ==>    CANCEL      DEFAULT      Allocation failure action

NOGIVE       ==>                                (Enter ? for a device list)
NOTAKE       ==>                                (Enter ? for a device list)

PREF         ==>    NO              NO       Enable / Force preferencing
PREFDEV      ==>                                (Enter ? for a device list)

FREE         ==>    DEALLOC      DEALLOC   Deallocation procedure name
TRACE        ==>    NO              NO       Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes
    
```

This example shows an action of CANCEL; the job is canceled if an Allocation Failed Event occurs.

Possible values for this field are

- DEFAULT: uses your site’s default action (default)
- WTOR: issues a WTOR
- CANCEL: cancels the job
- NOHOLD: job waits without holding resources
- HOLD: job waits while holding resources value

- Step 2** Repeat this process for every TapeSHARE within the PLEX for which you want to customize this parameter.

## Defining NOGIVE Devices

You might decide that some devices on a specific image should not be allowed to be GIVEN by TapeSHARE to other partners within the PLEX.

For example, you might have an image where a lot of batch processing takes place and tape devices are used often. The devices on this image can be designated as NOGIVE devices and TapeSHARE will never attempt to share those devices with other partners.

**Note:** A NOGIVE device can still be GIVEN manually to another image by an operator.

Defining NOGIVE devices is controlled by the NOGIVE parameter. Modify the NOGIVE parameter after you have determined which devices on an image should be dedicated to the image.

To specify a NOGIVE device, follow these steps:

- Step 1** On the TapeSHARE Parameters panel, enter a question mark next to the NOGIVE field. See Figure 2-10.

**Figure 2-10** TapeSHARE Parameters Panel: Specifying NOGIVE Devices

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>                                     TGT --- DSHD
                                                DATE --- 01/03/12
                                                TIME --- 16:27:51

                Member      Current
PARTNER    ==>
                * LIST * (Enter ? for a partner list)
TIMEOUT    ==>      180      120      Subsystem response timeout value
RETRYCNT   ==>       5       2       Times to retry a take request
RETRYINT   ==>      15      30      Interval between take retries
ACTION     ==>  CANCEL    DEFAULT  Allocation failure action

NOGIVE     ==>  ?
NOTAKE     ==>
PREF       ==>  NO       NO       Enable / Force preferencing
PREFDEV    ==>
FREE       ==>  DEALLOC  DEALLOC  Deallocation procedure name
TRACE      ==>  NO       NO       Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes

```

- Step 2** After entering a question mark, press **Enter**.

Figure 2-11 on page 2-14 is displayed.

**Figure 2-11 List of NOGIVE Devices**

```

BMC Software ----- Update Drives Dedicated to DSHD ----- AutoOPERATOR
COMMAND ==>
Primary command: Add                                TGT --- DSHD
                                                    DATE --- 01/03/14
                                                    TIME --- 17:38:34
LC CMDS --- (D)eleate

***** END OF ENTRIES *****
    
```

---

**Step 3** Use this panel to enter a list of all devices that you want dedicated to this image. Use the primary command **ADD** followed by the device address or range of addresses.

For example, to add a device address that is dedicated to this image (a NOGIVE device), enter

```

BMC Software ----- Update Drives Dedicated to DSHD ----- AutoOPERATOR
COMMAND ==> ADD 0144                                TGT --- DSHD
    
```

---

Or, to indicate a range of NOGIVE devices, enter

```

BMC Software ----- Update Drives Dedicated to DSHD ----- AutoOPERATOR
COMMAND ==> ADD 0144-014E                            TGT --- DSHD
    
```

---

**Step 4** Press **PF3** when you have finished entering all the NOGIVE device addresses.

You are returned to the TapeSHARE Parameters panel.

**Step 5** Repeat this process for every TapeSHARE within the PLEX for which you want to customize this parameter.

## Defining NOTAKE Devices

Just as you might decide that some devices on a specific image should not be accessible to TapeSHARE to GIVE to other partners within the PLEX, you also might decide that some devices should be not be taken by an image.

For example, you might decide that an image (SYSA) should not be able to use the devices with addresses from 0123 to 012F. When SYSA requests devices, it will TAKE any device but will not TAKE devices with these addresses. These devices are designated as NOTAKE devices.

**Note:** A NOTAKE devices can still be varied manually online to another image by an operator.

Defining NOTAKE devices is controlled by the NOTAKE parameter. Modify the NOTAKE parameter after you have determined which devices an image should not accept when a request for resources is made.

To specify a NOTAKE device, follow these steps:

- Step 1** On the TapeSHARE Parameters panel, enter a question mark next to the **NOTAKE** field. See Figure 2-12.

**Figure 2-12** TapeSHARE Parameters Panel: Specifying NOTAKE Devices

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>>                                     TGT --- DSHD
                                                    DATE --- 01/03/12
                                                    TIME --- 16:27:51

                Member      Current

PARTNER      ==>>                * LIST * (Enter ? for a partner list)

TIMEOUT      ==>>      180      120      Subsystem response timeout value
RETRYCNT     ==>>      5        2        Times to retry a take request
RETRYINT     ==>>      15       30       Interval between take retries
ACTION       ==>>  CANCEL    DEFAULT  Allocation failure action

NOGIVE       ==>>
NOTAKE       ==>>  ?
                                                    (Enter ? for a device list)
                                                    (Enter ? for a device list)

PREF         ==>>  NO        NO        Enable / Force preferencing
PREFDEV      ==>>
                                                    (Enter ? for a device list)

FREE         ==>>  DEALLOC  DEALLOC  Deallocation procedure name
TRACE        ==>>  NO        NO        Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes

```

**Step 2** After entering a question mark, press **Enter**.

Figure 2-13 is displayed.

**Figure 2-13 List of NOTAKE Devices**

```

BMC Software ----- Update Drives Excluded from DSHD ----- AutoOPERATOR
COMMAND ==>
Primary command: Add                                TGT --- DSHD
                                                    DATE --- 01/03/14
                                                    TIME --- 17:38:34

LC CMDS --- (D)elete

***** END OF ENTRIES *****
    
```

---

**Step 3** Use this panel to enter a list of all devices that you want designated as NOTAKE devices and that this image should not accept when a request for resources is made.

Use the primary command **ADD** followed by the device address or range of addresses.

For example, to add a NOTAKE device address, enter

```

BMC Software ----- Update Drives Excluded from DSHD ----- AutoOPERATOR
COMMAND ==> ADD 0133                                TGT --- DSHD
    
```

---

Or, to indicate a range of NOTAKE devices, enter

```

BMC Software ----- Update Drives Excluded from DSHD ----- AutoOPERATOR
COMMAND ==> ADD 0133-013F                            TGT --- DSHD
    
```

---

**Step 4** Press **PF3** when you have finished entering all the NOTAKE device addresses.

You are returned to the TapeSHARE Parameters panel.

**Step 5** Repeat this process for every TapeSHARE within the PLEX for which you want to customize this parameter.

## Defining NOGIVE-NOTAKE Devices

Define NOGIVE-NOTAKE devices when you have devices within the PLEX that should be excluded completely from TapeSHARE control. For example, you might apply maintenance regularly to some devices on an image and you want to exclude those devices from being allocated to other images.

By designating these devices as NOGIVE-NOTAKE devices, they will be excluded completely from TapeSHARE control. Defining NOGIVE-NOTAKE devices is controlled by modifying both the NOGIVE and the NOTAKE parameter together.

Modify the NOGIVE and the NOTAKE parameters after you have determined which devices on an image should be excluded completely from TapeSHARE control.

To specify a NOGIVE-NOTAKE device, follow these steps:

- Step 1** Determine the device addresses of the devices that you want excluded completely from TapeSHARE control.
- Step 2** On the TapeSHARE Parameters panel, enter a question mark next to the NOGIVE field. See Figure 2-14.

**Figure 2-14** TapeSHARE Parameters Panel: Specifying NOGIVE-NOTAKE Devices (Example 1)

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>                                     TGT --- DSHD
                                                DATE --- 01/03/12
                                                TIME --- 16:27:51

                Member      Current

PARTNER      ==>                * LIST * (Enter ? for a partner list)

TIMEOUT      ==>      180      120      Subsystem response timeout value
RETRYCNT     ==>      5        2        Times to retry a take request
RETRYINT     ==>      15       30       Interval between take retries
ACTION       ==>      CANCEL   DEFAULT  Allocation failure action

NOGIVE       ==>      ?
NOTAKE       ==>
                                                (Enter ? for a device list)
                                                (Enter ? for a device list)

PREF         ==>      NO        NO        Enable / Force preferencing
PREFDEV      ==>
                                                (Enter ? for a device list)

FREE         ==>      DEALLOC   DEALLOC   Deallocation procedure name
TRACE        ==>      NO        NO        Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes

```

**Step 3** After entering a question mark, press **Enter**.

Figure 2-15 is displayed.

**Figure 2-15 List of NOGIVE Devices (for NOGIVE-NOTAKE)**

```

BMC Software ----- Update Drives Dedicated to DSHD ----- AutoOPERATOR
COMMAND ==>
Primary command: Add                                TGT --- DSHD
                                                    DATE --- 01/03/14
                                                    TIME --- 17:38:34

LC CMDS --- (D)elete

***** END OF ENTRIES *****
    
```

---

**Step 4** On this panel, use the primary command **ADD** followed by the device address or range of addresses for all the devices that you want excluded from TapeSHARE control on this image.

**Note:** Remember, these same devices must be added to the NOTAKE panel to have them excluded from TapeSHARE control.

For example, to add a device address, enter

```

BMC Software ----- Update Drives Dedicated to DSHD ----- AutoOPERATOR
COMMAND ==> ADD 0133                                TGT --- DSHD
    
```

---

Or, to indicate a range of devices, enter

```

BMC Software ----- Update Drives Dedicated to DSHD ----- AutoOPERATOR
COMMAND ==> ADD 0133-013F                            TGT --- DSHD
    
```

---

**Step 5** Press **PF3** when you have finished entering all the device addresses.

You are returned to the TapeSHARE Parameters panel.

**Step 6** On the TapeSHARE Parameters panel, enter a question mark next to the **NOTAKE** field. See Figure 2-16 on page 2-19.

**Figure 2-16** TapeSHARE Parameters Panel: Specifying NOGIVE-NOTAKE Devices (Example 2)

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>>                                     TGT --- DSHD
                                                DATE --- 01/03/12
                                                TIME --- 16:27:51

                Member      Current

PARTNER      ==>>                * LIST * (Enter ? for a partner list)

TIMEOUT      ==>>      180      120      Subsystem response timeout value
RETRYCNT     ==>>      5        2        Times to retry a take request
RETRYINT     ==>>      15       30       Interval between take retries
ACTION       ==>>      CANCEL   DEFAULT  Allocation failure action

NOGIVE       ==>>                (Enter ? for a device list)
NOTAKE       ==>>      ?        (Enter ? for a device list)

PREF         ==>>      NO        NO        Enable / Force preferencing
PREFDEV      ==>>                (Enter ? for a device list)

FREE         ==>>      DEALLOC   DEALLOC   Deallocation procedure name
TRACE        ==>>      NO        NO        Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes

```

**Step 7** After entering a question mark, press **Enter**.

Figure 2-17 is displayed.

**Figure 2-17** List of NOTAKE Devices (for NOGIVE-NOTAKE)

```

BMC Software ----- Update Drives Excluded from DSHD ----- AutoOPERATOR
COMMAND ==>>                                     TGT --- DSHD

```

**Step 8** Use this panel to enter a list of all devices that you want excluded from TapeSHARE control on this image. Remember, these same devices were added to the NOGIVE panel to have them excluded from TapeSHARE control.

Use the primary command **ADD** followed by the device address or range of addresses. For example, to add a device address, enter

```

BMC Software ----- Update Drives Excluded from DSHD ----- AutoOPERATOR
COMMAND ==>> ADD 0133                                     TGT --- DSHD

```

Or to indicate a range of devices, enter

```

BMC Software ----- Update Drives Excluded from DSHD ----- AutoOPERATOR
COMMAND ==>> ADD 0133-013F                               TGT --- DSHD

```

**Step 9** Press **PF3** when you have finished entering all the device addresses.

**Step 10** You have now finished excluding devices from the BBI-SS PAS named DSHD.

To finish excluding devices from all the partners in the PLEX, you must repeat these steps for each partner.

When you are finished, the devices are excluded completely from TapeSHARE control.

## Defining Tape Devices as Input-Only or Output-Only

This section describes how you can specify that devices on each partner can be defined input-only or output-only and is controlled by the `prefdev` parameter. When these specifications are used in conjunction with the `pref` parameter, TapeSHARE uses one of two modes to determine whether or not to GIVE devices that have been defined as input-only or output-only under different circumstances.

For example, suppose half the devices on SYSA are defined as output-only devices and the other half as input-only. If a partner (SYSB) within the PLEX requires an output-only device to complete an output operation, TapeSHARE looks for an available device among all devices that have been defined as output-only devices on SYSA.

TapeSHARE has another feature called Preferencing that you activate if you specify input-only or output-only devices. (Refer to “What Preferencing Is” on page 1-6 for a discussion about Preferencing.)

Modify the `prefdev` parameter after you have determined which devices on each image should be allocated as input-only or output-only.

To specify a device as input-only, follow these steps:

- Step 1** On the TapeSHARE Parameters panel, enter a question mark next to the **PREFDEV** field. See Figure 2-18.

**Figure 2-18 TapeSHARE Parameters Panel: Specifying an Input-Only Device**

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>                                     TGT --- DSHD
                                                DATE --- 01/03/12
                                                TIME --- 16:27:51

                Member      Current

PARTNER      ==>                * LIST * (Enter ? for a partner list)

TIMEOUT      ==>         180         120      Subsystem response timeout value
RETRYCNT     ==>          5           2        Times to retry a take request
RETRYINT     ==>         15          30        Interval between take retries
ACTION       ==>  CANCEL      DEFAULT    Allocation failure action

NOGIVE       ==>
NOTAKE       ==>                (Enter ? for a device list)
                (Enter ? for a device list)

PREF         ==>  NO           NO        Enable / Force preferencing
PREFDEV    ==>  ?            ?        (Enter ? for a device list)

FREE         ==>  DEALLOC     DEALLOC   Deallocation procedure name
TRACE       ==>  NO           NO        Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes
    
```

- Step 2** After entering a question mark, press **Enter**.

Figure 2-19 is displayed.

**Figure 2-19 List of Device Preferences**

```

BMC Software ----- Update Drive Preference for DSHD ----- AutoOPERATOR
COMMAND ==>                                     TGT --- DSHD
Primary command: Add                             DATE --- 01/03/14
                                                TIME --- 17:40:22

LC CMDS --- (D)elete

***** END OF ENTRIES *****
    
```

- Step 3** Use this panel to enter a list of device addresses that are input-only or output-only.

- 3.A** Use the primary command **ADD** followed by the device address.
- 3.B** Separated by a comma, include an **I** (to indicate the device is input-only) or an **O** (to indicate it is output-only).

For example, to add a device address that is input-only, enter

---

```
BMC Software ----- Update Drive Preference for DSHD ----- AutoOPERATOR
COMMAND ==> ADD 0133,I                                     TGT --- DSHD
```

---

Or, to add an output-only device, enter

---

```
BMC Software ----- Update Drive Preference for DSHD ----- AutoOPERATOR
COMMAND ==> ADD 0133,O                                     TGT --- DSHD
```

---

**Step 4** Press **PF3** when you have finished entering all the devices.

You are returned to the TapeSHARE Parameters panel.

**Step 5** Repeat this process for every TapeSHARE within the PLEX for which you want to customize this parameter.

## Turning on Preferencing

After you have decided to designate input-only or output-only devices (as in “Defining Tape Devices as Input-Only or Output-Only” on page 2-20), you can turn on a feature called Preferencing. “What Preferencing Is” on page 1-6 provides a description of what Preferencing is and how TapeSHARE allocates resources when you decide to use Preferencing.

There are two modes of Preferencing: Guideline and Force. Preferencing is controlled by the pref parameter:

- To use Guideline mode, specify **YES**.
- To use Force mode, specify **FORCE**.

Modify the pref parameter after you have specified which devices are output-only or input-only devices and after you have decided which mode of Preferencing you want to have in effect for each TapeSHARE partner.

To specify Preferencing in Guideline mode, follow these steps:

- Step 1** On the TapeSHARE Parameters panel, enter **YES** next to the **PREF** field. See Figure 2-20.

**Figure 2-20 TapeSHARE Parameters Panel: Specifying Preferencing Guideline Mode**

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>>                                     TGT --- DSHD
                                                DATE --- 01/03/12
                                                TIME --- 16:27:51

Member      Current

PARTNER     ==>>                                * LIST * (Enter ? for a partner list)

TIMEOUT     ==>>      180          120          Subsystem response timeout value
RETRYCNT    ==>>        5           2           Times to retry a take request
RETRYINT    ==>>       15          30          Interval between take retries
ACTION      ==>>  CANCEL      DEFAULT      Allocation failure action

NOGIVE      ==>>
NOTAKE      ==>>                                (Enter ? for a device list)
                                                (Enter ? for a device list)

PREF      ==>>  YES          NO           Enable / Force preferencing
PREFDEV     ==>>
                                                (Enter ? for a device list)

FREE        ==>>  DEALLOC      DEALLOC      Deallocation procedure name
TRACE       ==>>  NO           NO           Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes

```

To specify Preferencing in Force mode, enter **FORCE** next to the **PREF** field. See Figure 2-21.

**Figure 2-21 TapeSHARE Parameters Panel: Specifying Preferencing Force Mode**

```

BMC Software --BMC Software ----- TapeSHARE Parameters -----
AutoOPERATOR
COMMAND ==>>                                     TGT --- DSHD
                                                DATE --- 01/03/12
                                                TIME --- 16:27:51

Member      Current

PARTNER     ==>>                                * LIST * (Enter ? for a partner list)

TIMEOUT     ==>>      180          120          Subsystem response timeout value
RETRYCNT    ==>>        5           2           Times to retry a take request
RETRYINT    ==>>       15          30          Interval between take retries
ACTION      ==>>  CANCEL      DEFAULT      Allocation failure action

NOGIVE      ==>>
NOTAKE      ==>>                                (Enter ? for a device list)
                                                (Enter ? for a device list)

PREF      ==>>  FORCE        NO           Enable / Force preferencing
PREFDEV     ==>>
                                                (Enter ? for a device list)

FREE        ==>>  DEALLOC      DEALLOC      Deallocation procedure name
TRACE       ==>>  NO           NO           Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes

```

- Step 2** Repeat this process for every TapeSHARE within the PLEX for which you want to customize this parameter.

## Specifying a User-Defined Deallocation Procedure (SP4.x Only)

**Note:** This procedure can be done only if you are running SP4.x.

You can specify a deallocation procedure which starts after TapeSHARE issues the vary offline command to GIVE a device to another image.

Scheduling this procedure triggers deallocation processing in the system giving the device and places the device in an offline state. For example, you might want to use this to have some automation procedure take place after a device has been varied offline.

This parameter is used only if TapeSHARE is operating in an SP4 environment. The deallocation procedure name is a one- to eight-character name. The default is DEALLOC.

Modify the free parameter after you have determined a deallocation procedure that you want to use.

To specify a deallocation procedure, follow these steps:

- Step 1** On the TapeSHARE Parameters panel, enter the one- to eight-character name of the deallocation procedure in the **FREE** field. See Figure 2-22.

**Figure 2-22 TapeSHARE Parameters Panel: Specifying a Deallocation Procedure**

```

BMC Software ----- TapeSHARE Parameters ----- AutoOPERATOR
COMMAND ==>>                                     TGT --- DSHD
                                                    DATE --- 01/03/12
                                                    TIME --- 16:27:51

                Member      Current

PARTNER      ==>>                * LIST * (Enter ? for a partner list)

TIMEOUT      ==>>      180      120      Subsystem response timeout value
RETRYCNT     ==>>      5        2        Times to retry a take request
RETRYINT     ==>>      15       30       Interval between take retries
ACTION       ==>>      CANCEL   DEFAULT  Allocation failure action

NOGIVE       ==>>
NOTAKE       ==>>                (Enter ? for a device list)
                (Enter ? for a device list)

PREF         ==>>      FORCE     NO      Enable / Force preferencing
PREFDEV      ==>>
                (Enter ? for a device list)

FREE       ==>>      RELEASE  DEALLOC  Deallocation procedure name
TRACE        ==>>      NO       NO      Start / Stop TapeSHARE tracing

Press END to save changes, CANCEL to cancel changes
    
```

In this example, the deallocation procedure is named **RELEASE**.

- Step 2** Repeat this process for every TapeSHARE within the PLEX for which you want to customize this parameter.

# Activating the AAOTSPxx Member

After a change is made to any parameter in an AAOTSPxx member (or after you have created a new AAOTSPxx member), you must complete this step to activate the change.

To activate the AAOTSPxx member, follow these steps:

**Step 1** Display the Dynamic Parameter Manager panel:

```

BMC Software ----- Dynamic Parameter Manager ----- AutoOPERATOR
COMMAND ==> TGT ==> DSHD
Primary command: Add DATE --- 01/03/12
LC CMDS --- (S)elect, (A)ctivate TIME --- 16:13:03

  Cmd  Member      Lib VV.MM  Created      Changed      Size  ID
  ---  ---
  -   AAOALS00      2  01.02  98/02/07  01/02/08 10:22   25  CMRH
  -   AAOARP00      1  01.02  99/06/08  01/03/09 15:44   30  BAODYM4
  -   AAOTSP00      1  01.01  99/06/09  01/03/12 16:12    5  KMZ1
  -   AAOTSP55      1  01.00  99/06/09  01/03/09 13:45    1  MES2
    
```

**Step 2** Activate the AAOTSP00 member by entering an **A** (for the (A)CTIVATE line command) next to it in the **Cmd** column.

```

BMC Software ----- Dynamic Parameter Manager ----- AutoOPERATOR
COMMAND ==> TGT ==> DSHD
Primary command: Add DATE --- 01/03/12
LC CMDS --- (S)elect, (A)ctivate TIME --- 16:13:03

  Cmd  Member      Lib VV.MM  Created      Changed      Size  ID
  ---  ---
  -   AAOALS00      2  01.02  98/02/07  01/02/08 10:22   25  CMRH
  -   AAOARP00      1  01.02  99/06/08  01/03/09 15:44   30  BAODYM4
  A   AAOTSP00      1  01.01  99/06/09  01/03/12 16:12    5  KMZ1
  -   AAOTSP55      1  01.00  99/06/09  01/03/09 13:45    1  MES2
    
```

The Confirm Parameter Activation panel is displayed.

---

```

BMC Software ----- Confirm Parameter Activation ----- AutoOPERATOR
COMMAND ==>>>                                     TGT --- DSHD
                                                    DATE --- 01/03/12
                                                    TIME --- 16:28:50

Current TARGET:      DSHD
Current SSID:        DSHD

Last Parm:           N/A      (Values may have been temporarily modified)
Replaced by:         AAOTSP00
Last update:
User:                RPR2

Instructions:

  Press ENTER to confirm activation request.
    (The parameters in the current SS will be dynamically updated)

  Press END   to cancel activation request.

```

---

The first time you activate a member, the **Last Parm** field value is N/A and the **Last Update** field is blank. In the future, when you activate a member, the **Last Parm** field shows the date of the currently active AAOTSPxx member, and the **Last Update** field shows the date you activated the current member.

**Step 3** Perform one of the following actions:

- To activate the member, press **Enter**.
- To cancel activation of this member, press **PF3**.

## AAOTSPxx Parameters

Table 2-1 on page 2-28 documents the parameters in BBPARM member AAOTSPxx. Each OS/390 image can have only one TapeSHARE installed in a BBI-SS PAsm, but the BBI-SS PAS might have multiple AAOTSPxx members associated with it.

### Important Note

TapeSHARE does not require that you perform any customization in the AAOTSPxx member or change any value. The parameters all have default values that allow TapeSHARE to perform tape device sharing in its out-of-the-box state.

Table 2-1 AAOTSPxx Parameter Definitions (Part 1 of 4)

Parameter Name	Possible Values	Definition
<b>ACTION=</b>	cancel wtor nohold hold default Default value is default.	The action TapeSHARE should take when an Allocation Failed Event occurs because a successful GIVE cannot be performed. Possible values and their definitions are  <b>CANCEL:</b> Cancels the job <b>WTOR:</b> Issues a WTOR to the operator <b>NOHOLD:</b> Causes the job to wait without holding resources <b>HOLD:</b> Causes the job to wait while holding resources <b>DEFAULT:</b> Causes the installation's default action to occur  <b>Example:</b> <b>ACTION=WTOR</b> For more information, refer to Appendix D, "Making TapeSHARE Work with MVS Allocation More Effectively."
<b>FREE=</b>	The one- to eight-character name of a deallocation procedure Default name is dealloc.	<b>For use with MVS SP4.x only.</b> Allows you to specify the one- to eight-character name of a deallocation procedure which starts after TapeSHARE issues the vary offline command to give a device to another image. Scheduling the procedure triggers (de)allocation processing in the system GIVEN the device and places the device in an OFFLINE state. <b>Example:</b> <b>FREE=RELEASE</b>
<b>NOGIVE=</b>	A tape device address (or a range of device addresses) Default value is none.	A list of device addresses (or a range of addresses) that should not be GIVEN to other partners within the TapeSHARE PLEX when they request devices to TAKE. <b>Note:</b> This does not prevent you from manually GIVING a NOGIVE device. If a device address is not associated with this parameter, TapeSHARE assumes there are no devices dedicated to this image. <b>Example:</b> <b>NOGIVE=0123</b> or <b>NOGIVE=0120-012F</b> You also can use this parameter in conjunction with the NOTAKE parameter. By specifying a device address on both these parameters, the device will be a NOGIVE-NOTAKE device and it will be excluded completely from TapeSHARE control. <b>Example:</b> <b>NOGIVE=0123</b> <b>NOTAKE=0123</b> If the device address 0123 is specified on both the NOGIVE and NOTAKE parameters, the 0123 is completely excluded from TapeSHARE control. TapeSHARE will not attempt to GIVE or TAKE this device.

Table 2-1 AAOTSPxx Parameter Definitions (Part 2 of 4)

Parameter Name	Possible Values	Definition
<b>NOTAKE=</b>	A tape device address (or a range of tape device addresses) Default value is none.	<p>A list of device addresses (or a range of addresses) that this image should not TAKE when a request for resources is made. TapeSHARE on this image will not accept (TAKE) the devices specified. If a value is not associated with this parameter, TapeSHARE assumes that it can accept any tape devices when a request for resources is made.</p> <p><b>Example:</b> <b>NOTAKE=0123</b> or <b>NOTAKE=0120-012F</b></p> <p>You also can use this parameter in conjunction with the NOGIVE parameter. By specifying a device address on both these parameters, the device will be a NOGIVE-NOTAKE device and it will be excluded completely from TapeSHARE control.</p> <p>For example: <b>NOGIVE=0123</b> <b>NOTAKE=0123</b></p> <p>If the device address 0123 is specified on both the NOGIVE and NOTAKE parameters, the 0123 device is completely excluded from TapeSHARE control. TapeSHARE will not attempt to GIVE or TAKE this device.</p>
<b>PARTNER=</b>	A BBI-SS PAS name that can be associated with either one or a range of tape devices Default value is none.	<p>A list of BBI-SS PAS names that are TapeSHARE PLEX partners. You also can include with the BBI-SS PAS name the device address (or a range of device addresses) that TapeSHARE cannot GIVE to the named partner. See examples below.</p> <p>If no values are associated with this parameter, TapeSHARE assumes that any BBI node defined in BBINOD00 member is a partner within a TapeSHARE PLEX.</p> <p><b>Example 1:</b> <b>PARTNER=SYSA</b></p> <p>In this example, SYSA is a partner to this image.</p> <p><b>Example 2:</b> <b>PARTNER=SYSC,0123</b></p> <p>In this example, SYSC is a partner to this image and the device whose address is 0123 cannot be GIVEN to partner SYSC.</p> <p><b>Example 3:</b> <b>PARTNER=SYSB,0120-0127</b></p> <p>In this example, SYSB is a partner to this image and the devices whose addresses fall between 0120 and 0127 cannot be GIVEN to partner SYSB.</p>

Table 2-1 AAOTSPxx Parameter Definitions (Part 3 of 4)

Parameter Name	Possible Values	Definition
<b>PREF=</b>	yes no force Default value is no.	<p>Allows you to specify whether or not Preferencing is activated. If activated, TapeSHARE uses the devices identified on the prefdev parameter for only the operation (input or output) identified for that device.</p> <p>This parameter must be used in conjunction with the prefdev parameter.</p> <p>For example, in Guideline mode, if SYSA needs an output-only device but only input-only devices are available, the input-only device will be GIVEN to SYSA.</p> <p>If Force mode were in place, the input-only device would not be GIVEN to SYSA and an Allocation Failure Event would occur.</p> <p><b>Example:</b>  <b>PREF=YES</b>  or  <b>PREF=NO</b>  or  <b>PREF=FORCE</b></p>
<b>PREFDEV=</b>	A tape device address (or a range of tape device addresses) followed by either an I for input-only or O for output-only; see examples Default value is none.	<p>A list of device addresses identified to TapeSHARE on this image that are allocated to perform input-only or output-only functions.</p> <p>This parameter should be used in conjunction with the pref parameter.</p> <p>With the pref activated, when a device is needed for an output-only operation, TapeSHARE attempts to choose from those devices identified by this parameter as output-only.</p> <p>If a value is not associated with this parameter, TapeSHARE will not invoke device preferencing.</p> <p><b>Example:</b>  <b>PREFDEV=01A0-01A3,I</b>  or  <b>PREFDEV=0130,O</b>  or  <b>PREFDEV=0150-015F,O</b></p>
<b>RETRYCNT=</b>	0-10 Default value is 2.	<p>The number of times TapeSHARE attempts to satisfy a request for devices after an initial attempt has failed.</p> <p>For example, suppose this system's request for devices is not satisfied and 3 retries is specified. TapeSHARE will attempt 3 more times to satisfy this request for devices.</p> <p><b>Example:</b>  <b>RETRYCNT=3</b></p> <p>This parameter is used in conjunction with the retryint parameter which specifies how long TapeSHARE waits between retry attempts. For more information, refer to Appendix D, "Making TapeSHARE Work with MVS Allocation More Effectively."</p> <p>This chapter describes how to customize TapeSHARE.</p>
		<b>Important Note</b>
		Incorrectly modifying these parameters will negatively impact TapeSHARE's effectiveness. You are strongly urged to review Appendix D, "Making TapeSHARE Work with MVS Allocation More Effectively" before you make changes.

Table 2-1 AAOTSPxx Parameter Definitions (Part 4 of 4)

Parameter Name	Possible Values	Definition
RETRYINT=	0-300 Default value is 30.	<p>The number of seconds TapeSHARE waits for devices between attempts after an initial attempt has failed.</p> <p>For example, suppose:</p> <ul style="list-style-type: none"> <li>• The retrycnt= parameter is set to 3 retries</li> <li>• The retryint= parameter is set to 45 seconds</li> <li>• This system's request for devices is not satisfied</li> </ul> <p>TapeSHARE waits 45 seconds after the initial attempt fails and retries to satisfy the request (retry attempt 1). If this attempt fails, TapeSHARE waits another 45 seconds and retries (attempt 2). If this attempt also fails, TapeSHARE waits another 45 seconds and retries (attempt 3).</p> <p>Should all three attempts fail, an Allocation Failed Event occurs and the specified action is taken.</p> <p><b>Example:</b> <b>RETRYCNT=3</b></p> <p>For more information, refer to Appendix D, "Making TapeSHARE Work with MVS Allocation More Effectively."</p>
<b>Important Note</b>		
Incorrectly modifying these parameters will negatively impact TapeSHARE's effectiveness. You are strongly urged to review Appendix D, "Making TapeSHARE Work with MVS Allocation More Effectively" before you make changes.		
<b>TIMEOUT=</b>	0 - 999 Default value is 120.	<p>The amount of time (in seconds) to wait for the partners to respond to a request for devices. When this time is reached and a successful GIVE has not completed, an Allocation Failed Event occurs unless you have specified a number of retries on the retrycnt parameter. See below.</p> <p><b>Example:</b> <b>TIMEOUT=20</b></p>
<b>TRACE=</b>	yes no Default value is no.	<p>Writes diagnostic information to BBITST DD Statement.</p> <p><b>Example:</b> <b>TRACE=NO</b></p>



---

---

# Chapter 3 Controlling Tape Activity from a Single Point with TapeSHARE

TapeSHARE provides the TapeSHARE Workstation panel (Figure 3-1), which allows you to both monitor and control all tape device sharing activity from a single panel. This panel shows tape sharing activity for all OS/390 images that are in the TapeSHARE PLEX.

**Figure 3-1 Example of the TapeSHARE Workstation Panel**

```
BMC Software ----- TapeSHARE Workstation -----
AutoOPERATOR
COMMAND ==> TGT --- TSHE
Interval ==> 3 DATE --- 00/12/27
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTI, (NOT)on TIME --- 12:37:14

Performance Statistics
Allocation Requests      7      Requests satisfied      5
Total Tape Requests     6      Average Time per Take   2
TapeSHARE Partners      4      Partner(s) not responding 2

----- Drive Status -----
LC CMDS --- (GE)t, (ON)line, (OF)fline, (UN)load, (MO)unt
          (NOG)ive, (GI)ve, (NOT)ake, (TA)ke
  Addr  Volser  Status  G-St T-St  Pref  Jobname  Type  Sys  Gives Takes
-----
  04C1             ON-AVAIL  NORM-NORM             349S  SYSF    0    2
  04E0             ON-AVAIL  NORM-NORM             349S  SYSE    1    0
  04E1  800106  ON-BUSY  NORM-NORM             DC$HSME 349S  SYSE    1    0
***** END OF REQUESTS *****
```

This panel is divided into two parts: Performance Statistics and Drive Status. With these two areas, you can see both statistics about tape sharing automation and the OS/390 and TapeSHARE status of individual devices within the PLEX.

# Accessing the TapeSHARE Workstation Panel

This section describes how to access and use the TapeSHARE Workstation panel. From the MAINVIEW AutoOPERATOR Primary Option Menu panel, select Option 6 TapeSHARE (see Figure 3-2).

**Figure 3-2 Selecting Option 6 from the MAINVIEW AutoOPERATOR Primary Option Menu**

```

BMC Software ----- PRIMARY OPTION MENU ----- AutoOPERATOR
OPTION ==> 6                                     DATE -- 01/01/10
                                                TIME -- 15:55:55
                                                USERID -- BAOMXY2
                                                MODE -- ISPF 4.8

Operator Workstations:
 1 ALERT Management                               5 NetView Resources
 2 MVS Resources                                  6 TapeSHARE
 3 CICS Resources                                 7 MQSeries
 4 IMS Resources

Automation:
 8 Basic and Advanced Automation                 9 Dynamic Parameter Manager

General Services:
 C Service Refresh Cycle Setup                   K Current PF Key Assignments
 L Display Journal                               T Tutorials
 M Display Messages and Codes                   X Terminate

                                                PF1/13 HELP PF3/15: EXIT

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```

The TapeSHARE Workstation panel is displayed (Figure 3-3).

**Figure 3-3 Displaying the TapeSHARE Workstation Panel**

```

BMC Software ----- TapeSHARE Workstation ----- AutoOPERATOR
COMMAND ==>                                     TGT --- TSHE
Interval ==> 3                                  DATE --- 00/12/27
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTi, (NOT)on TIME --- 12:37:14

Performance Statistics
Allocation Requests          7           Requests satisfied          5
Total Tape Requests          6           Average Time per Take         2
TapeSHARE Partners           4           Partner(s) not responding     2

----- Drive Status -----
LC CMDS --- (GE)t, (ON)line, (OF)fline, (UN)load, (MO)unt
              (NOG)ive, (GI)ve, (NOT)ake, (TA)ke
 Addr  Volser  Status  G-St T-St Pref Jobname  Type  Sys  Gives Takes
-----
 04C1                ON-AVAIL  NORM-NORM                349S  SYSF    0    2
 04E0                ON-AVAIL  NORM-NORM                349S  SYSE    1    0
 04E1 800106  ON-BUSY  NORM-NORM                DC$HSME 349S  SYSE    1    0
***** END OF REQUESTS *****
    
```

## Primary Commands

By using the primary commands on this panel, you can modify the way information is arranged in the display. Refer to Table 3-1 on page 3-13 for more information about the primary commands.

## Line Commands

Issuing line commands against specific devices allows you to control and change both the OS/390 status and the TapeSHARE status of a device. Refer to Table 3-2 on page 3-14 for more information about the line commands.

The following sections describe the different ways you can use the TapeSHARE Workstation to monitor and control tape sharing activity from the Workstation.

## Viewing TapeSHARE Performance

The following shows the Performance Statistics portion of the TapeSHARE Workstation panel.

---

⋮			
	Performance Statistics		
Allocation Requests	7	Requests satisfied	5
Total Tape Requests	6	Average Time per Take	2
TapeSHARE Partners	4	Partner(s) not responding	2
⋮			

---

Use this portion of the panel when you are trying to evaluate how well TapeSHARE is operating on your system and to give you an overall sense of how much tape sharing activity is occurring on your systems. The Performance Statistics fields are described in the following table:

Field Name	Description
<b>Allocation Requests/Requests Satisfied</b>	How many allocation requests have been made by jobs requesting devices from other partners in the PLEX and were satisfied. This count includes DASD requests as well as tape requests.
<b>Total Tape Requests</b>	Total number of tape devices obtained by TapeSHARE.

Field Name	Description
<b>Avg Time per Take</b>	Average time (in seconds) TapeSHARE took to complete a request.
<b>TapeSHARE Partners/Partner(s) not responding</b>	Number of partners in the PLEX and the number of partners that are not responding In general, the figures shown in the Performance Statistics portion of the Workstation are useful after you have determined what is the average amount of TapeSHARE activity. Then, if there should be a change in the statistics, you can have better sense of whether or not the changes are due to an abnormal condition or if it is an expected and acceptable amount.

The following scenarios describe situations that you can identify with the Performance Statistics fields.

### Scenario 1: Determining If You Have Enough Drives

You can use the **Allocation Requests** and **Requests Satisfied** fields to see if you have enough devices within your TapeSHARE PLEX. For example, there might be 20 Allocation Requests, and only three have been satisfied, as shown in this figure:

---

⋮		Performance Statistics	
Allocation Requests	20	Requests satisfied	3
Total Tape Requests	6	Average Time per Take	2
TapeSHARE Partners	4	Partner(s) not responding	2
⋮			

---

If, for your site, this discrepancy is consistently too large, it might be that there are not enough tape devices available in the TapeSHARE PLEX to be shared by all the partners. Or it might be that this number simply has increased due to an increase in the amount of jobs that require sharing devices.

### Scenario 2: Are All the Partners Responding

Another important aspect of TapeSHARE performance is how many partners are defined in the TapeSHARE PLEX and how many actually are responding. This information can be seen by these two fields: **Partners defined in Plex** and **Partner(s) not responding**.

---

⋮		Performance Statistics	
Allocation Requests	20	Requests satisfied	10
Total Tape Requests	6	Average Time per Take	2
TapeSHARE Partners	4	Partner(s) not responding	2
⋮			

---

Partners within the TapeSHARE PLEX depend on BBI SS PAS-to-SS PAS communication and if there is a sudden large change in the difference between these numbers, it might be that the BBI-SS PAS to BBI-SS PAS communication between images has somehow been stopped. You will want to determine if this is the case and then take steps to fix this situation.

## If You Use TapeSHARE in Its Default State

When you install TapeSHARE on multiple images of the TapeSHARE PLEX in its default state (without customization), every BBI node defined in the BBINOD00 table is defined as a partner in the PLEX. This number might not be an accurate reflection of how many OS/390 images are actually partners in the PLEX.

If you do not want every BBI node to be a defined partner of the TapeSHARE PLEX, you should use the Dynamic Parameter Manager application and add the partners with the PARTNERS= parameter. For more information, refer to “Defining TapeSHARE Partners” on page 2-3.

## Viewing Drive Status

The following shows the Drive Status portion of the TapeSHARE Workstation panel.

```

:
----- Drive Status -----
LC CMDS --- (GE)t, (ON)line, (OF)fline, (UN)load, (MO)unt
           (NOG)ive, (GI)ve, (NOT)ake, (TA)ke
  Addr  Volser  Status   G-St T-St  Pref  Jobname  Type  Sys  Gives Takes
-----
  04C1                ON-AVAIL  NORM-NORM                349S  SYSF    0    2
  04E0                ON-AVAIL  NORM-NORM                349S  SYSE    1    0
  04E1  800106  ON-BUSY  NORM-NORM  DC$HSME  349S  SYSE    1    0
***** END OF REQUESTS *****

```

Use this portion of the panel to see both the OS/390 and TapeSHARE status of all the devices on all the partners within the TapeSHARE PLEX. You can modify and perform tape device management with the line commands that enable you to modify both the OS/390 and the TapeSHARE status of a specific device. The Drive Status fields are as follows:

Field Name	Description
<b>Addr</b>	device addresses for all the devices within the PLEX
<b>Volser</b>	volume serial number (VOLSER) of the currently allocated or mounted volume

Field Name	Description
Status	current OS/390 status of the device
G-St T-St	current TapeSHARE status of the device; in other words, allows you to see the GIVE and TAKE status of the device
Pref	specifies if the device has been defined as input-only or output-only
Jobname	job name of the job using devices
Type	type of device
Sys	shows the SMF system name of the partner
Gives	number of times a device has been GIVEN
Takes	number of times a device has been TAKEN There are three important things to note about this portion of the panel: <ul style="list-style-type: none"> <li>• What the Sys column shows</li> <li>• What different colors mean</li> <li>• How the line commands (GE)t, (ON)line, (OF)line, (UN)load, and (MO)unt work</li> </ul>

### The Sys Column

Using the primary command ALL shows the status for all the devices and their relationship to each of the partners within the PLEX (see Figure 3-4).

**Figure 3-4 Using the ALL Primary Command**

```

BMC Software ----- TapeSHARE Workstation ----- AutoOPERATOR
COMMAND ==> TGT ==> TSHE
Interval ==> 3 DATE --- 00/12/11
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTI, (NOT)on TIME --- 13:59:12
Performance Statistics
Allocation Requests      10      Requests satisfied      5
Total Tape Requests      5      Average Time per Take    1
TapeSHARE Partners      6      Partner(s) not responding 3
----- Tape Status -----
LC CMDS --- (GE)t, (ON)line, (OF)fline, (UN)load, (MO)unt
              (NOG)ive, (GI)ve, (NOT)ake, (TA)ke
  Addr  Volser  Status  G-St T-St  Pref  Jobname  Type  Sys  Gives Takes
-----
  04C0      ON-AVAIL  NORM-NORM      349S  SYSD    1    2
  04C0      OFFLINE  NORM-NORM      349S  SYSE    1    0
  04C0      OFFLINE  NORM-NORM      349S  SYSF    0    0
  04C1      OFFLINE  NORM-NORM      349S  SYSD    1    1
  04C1      ON-AVAIL  NORM-NORM      349S  SYSE    0    0
  04C1      OFFLINE  NORM-NORM      349S  SYSF    0    0
    
```

Note that device 04C0 appears three times; once for each partner SYSD, SYSE, and SYSF. The current status of device 04C0 is shown once for partner and the Sys column shows the SMF system name of the partner.

## What Different Colors Mean

TapeSHARE uses three colors to help you see the status of the devices:

Color	Description
Blue	Device is online.
White	Device is offline.
Red	Device requires manual intervention.

In Figure 3-4 on a color display, ON-AVAIL would be blue (online) and all the other lines would be white (offline). No devices require manual intervention so there are no lines in red.

## How the Line Commands Work

When you use the line commands (GE)t, (ON)line, (OF)line, (UN)load, and (MO)unt, the commands are executed asynchronously. Therefore, you might have to press **Enter** a few times before you see the result of the command displayed on the panel.

To see the response of the command, you can look at the BBI-SS PAS Journal log of the system where the command was executed.

The line commands (NOG)ive, (GI)ve, (NOT)ake, and (TA)ke are executed synchronously and when you use them, the change is reflected immediately in the display.

## Scenario 1: Modifying the Drive Status Display

You can modify the data displayed in the Drive Status portion of the display in one of two ways:

- using the primary commands (described in Table 3-1 on page 3-13)
- using the fields below the column headings to qualify (or mask) the display, for example:

```

:
:
----- Drive Status -----
LC CMDS --- (GE)t, (ON)line, (OF)line, (UN)load, (MO)unt
              (NOG)ive, (GI)ve, (NOT)ake, (TA)ke
  Addr  Volser  Status  G-St T-St  Pref  Jobname  Type  Sys  Gives Takes
-----
  ___  04C1      ON-AVAIL  NORM-NORM          349S  SYSF      0    2
  ___  04E0      ON-AVAIL  NORM-NORM          349S  SYSE      1    0
  
```

Entering **ON-A** under the **Status** column and pressing **Enter** shows all the devices that have a OS/390 status of online and available.

### Scenario 2: Viewing Devices that Require Manual Intervention

As discussed on page 3-7, the color red is used to show devices that require operator intervention. On the TapeSHARE Workstation panel, you easily can see all the devices for all the partners in the PLEX that require operator intervention.

To see these devices, enter the primary command

**SORT STATUS D**

Figure 3-5 is displayed.

**Figure 3-5 Viewing Devices That Require Manual Intervention**

```

BMC Software ----- TapeSHARE Workstation ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> TSHE
Interval ==> 3                                     DATE --- 00/12/11
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTi, (NOT)on TIME --- 14:53:48

                Performance Statistics
Allocation Requests      16           Requests satisfied           9
Total Tape Requests      9           Average Time per Take         2
TapeSHARE Partners      6           Partner(s) not responding     3
----- Tape Status -----
LC CMDS --- (GE)t, (ON)line, (OF)ffline, (UN)load, (MO)unt
              (NOG)ive, (GI)ve, (NOT)ake, (TA)ke
  Addr  Volser  Status  G-St  T-St  Pref  Jobname  Type  Sys  Gives  Takes
-----
  04C0  802749  ON-MOUNT  NORM-NORM  DC$HSM  349S  SYSD    2    3
  04E0  ON-AVAIL  NORM-NORM  349S  SYSE    0    3
  04C1  ON-AVAIL  NORM-NORM  349S  SYSE    0    0
  04E1  OFFLINE   NORM-NORM  349S  SYSF    0    0
  04E1  OFFLINE   NORM-NORM  349S  SYSE    0    0
  04E1  OFFLINE   NORM-NORM  349S  SYSD    1    1
  04E0  OFFLINE   NORM-NORM  349S  SYSF    0    0
  04E0  OFFLINE   NORM-NORM  349S  SYSD    4    0
    
```

The first line of the display shows device 04C0 is waiting for a device to be mounted. On a color display, this line appears in red.

### Scenario 3: Viewing Devices That Are ONLINE to More Than One Partner

The MULTI primary command allows you to see if there are devices that are online to more than one partner at a time. This circumstance is unusual, but it can arise if an operator inadvertently manually VARYs a device online when it is already online. If TapeSHARE is performing all the sharing activity, this situation should never arise.

```

BMC Software ----- TapeSHARE Workstation ----- AutoOPERATOR
COMMAND ==> TGT ==> TSHE
Interval ==> 3 DATE --- 00/12/10
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTI, (NOT)on TIME --- 11:50:33
Performance Statistics
Allocation Requests 5 Requests satisfied 3
Total Tape Requests 3 Average Time per Take 1
TapeSHARE Partners 6 Partner(s) not responding 3
----- Tape Status -----
LC CMDS --- (GE)t, (ON)line, (OF)fline, (UN)load, (MO)unt
(NO)give, (GI)ve, (NOT)ake, (TA)ke
Addr Volser Status G-St T-St Pref Jobname Type Sys Gives Takes
-----
04C0 ON-AVAIL NORM-NORM 349S SYSE 1 0
04C0 ON-AVAIL NORM-NORM 349S SYSF 0 0
***** END OF REQUESTS *****

```

If this situation should arise, you should immediately determine which partner should have the device and then issue the OF line command against the device on the partner that should not have it.

#### Scenario 4: Viewing Devices That Are Not Available

The primary command NOTON shows all the devices that have valid paths but are not currently online to any of the partners within the PLEX, for example:

```

BMC Software ----- TapeSHARE Workstation ----- INVALID COMMAND
COMMAND ==> TGT ==> TSHE
Interval ==> 3 DATE --- 00/12/10
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTI, (NOT)on TIME --- 11:47:53
Performance Statistics
Allocation Requests 5 Requests satisfied 3
Total Tape Requests 3 Average Time per Take 1
TapeSHARE Partners 6 Partner(s) not responding 3
----- Tape Status -----
LC CMDS --- (GE)t, (ON)line, (OF)fline, (UN)load, (MO)unt
(NO)give, (GI)ve, (NOT)ake, (TA)ke
Addr Volser Status G-St T-St Pref Jobname Type Sys Gives Takes
-----
04D1 OFFLINE NORM-NORM 349S SYSD 0 0
04D1 OFFLINE NORM-NORM 349S SYSE 0 0
04D1 OFFLINE NORM-NORM 349S SYSF 0 0
04E0 OFFLINE NORM-NORM 349S SYSD 0 0
04E0 OFFLINE NORM-NORM 349S SYSE 0 0
04E0 OFFLINE NORM-NORM 349S SYSF 0 0
***** END OF REQUESTS *****

```

This example shows that two devices, 04D1 and 04E0, are offline to every partner in the PLEX. This might indicate that the device is offline because

- It was manually varied offline and never varied online.
- It is being used by a non-PLEX partner.

You should determine if you need to VARY the device online.

### Scenario 5: Getting a Device

The GET line command allows you to VARY a device offline from one partner and then online to another partner with a single command.

Issue the primary command **PATH** to see all the devices with valid paths for all partners and their online and offline devices. The following shows the display after **PATH** is issued.

```

BMC Software ----- TapeSHARE Workstation ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> TSHE
Interval ==> 3                                   DATE --- 00/12/10
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTI, (NOT)on  TIME --- 11:48:31
                                           Performance Statistics
Allocation Requests          5           Requests satisfied          3
Total Tape Requests         3           Average Time per Take         1
TapeSHARE Partners          6           Partner(s) not responding     3
----- Tape Status -----
LC CMDS --- (GE)t, (ON)line, (OF)ffline, (UN)load, (MO)unt
              (NOG)ive, (GI)ve, (NOT)ake, (TA)ke
  Addr  Volser  Status  G-St T-St  Pref  Jobname  Type  Sys  Gives Takes
-----
  ___  04C0      OFFLINE  NORM-NORM      349S  SYSD    0    1
  ___  04C0      OFFLINE  NORM-NORM      349S  SYSE    1    0
  ___  04C0      ON-AVAIL  NORM-NORM      349S  SYSF    0    0
  ___  04C1      ON-AVAIL  NORM-NORM      349S  SYSD    0    1
  ___  04C1      OFFLINE  NORM-NORM      349S  SYSE    1    0
  ___  04C1      OFFLINE  NORM-NORM      349S  SYSF    0    0
  ___  04D0      OFFLINE  NORM-NORM      349S  SYSD    0    0
  ___  04D0      ON-AVAIL  NORM-NORM      349S  SYSE    0    0
  ___  04D0      OFFLINE  NORM-NORM      349S  SYSF    0    0
  ___  04D1      OFFLINE  NORM-NORM      349S  SYSD    0    0
  ___  04D1      OFFLINE  NORM-NORM      349S  SYSE    0    0
  ___  04D1      OFFLINE  NORM-NORM      349S  SYSF    0    0
  ___  04E0      OFFLINE  NORM-NORM      349S  SYSD    0    0
  ___  04E0      OFFLINE  NORM-NORM      349S  SYSE    0    0
  ___  04E0      OFFLINE  NORM-NORM      349S  SYSF    0    0
  ___  04E1      ON-AVAIL  NORM-NORM      349S  SYSD    0    1
  ___  04E1      OFFLINE  NORM-NORM      349S  SYSE    1    0
  ___  04E1      OFFLINE  NORM-NORM      349S  SYSF    0    0
***** END OF REQUESTS *****

```

Suppose you want to use device 04C0 on SYSD and it is currently online SYSF. Enter the GE line command, as shown:

```

BMC Software ----- TapeSHARE Workstation ----- AutoOPERATOR
COMMAND ==> TGT ==> TSHE
Interval ==> 3 DATE --- 00/12/10
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTi, (NOT)on TIME --- 11:48:31
Performance Statistics
Allocation Requests 5 Requests satisfied 3
Total Tape Requests 3 Average Time per Take 1
TapeSHARE Partners 6 Partner(s) not responding 3
----- Tape Status -----
LC CMDS --- (GE)t, (ON)line, (OF)ffline, (UN)load, (MO)unt
(NOG)ive, (GI)ve, (NOT)ake, (TA)ke
Addr Volser Status G-St T-St Pref Jobname Type Sys Gives Takes
GE_ 04C0 OFFLINE NORM-NORM 349S SYSD 0 1
___ 04C0 OFFLINE NORM-NORM 349S SYSE 1 0
___ 04C0 ON-AVAIL NORM-NORM 349S SYSF 0 0
___ 04C1 ON-AVAIL NORM-NORM 349S SYSD 0 1
___ 04C1 OFFLINE NORM-NORM 349S SYSE 1 0
___ 04C1 OFFLINE NORM-NORM 349S SYSF 0 0
___ 04D0 OFFLINE NORM-NORM 349S SYSD 0 0
___ 04D0 ON-AVAIL NORM-NORM 349S SYSE 0 0
___ 04D0 OFFLINE NORM-NORM 349S SYSF 0 0
___ 04D1 OFFLINE NORM-NORM 349S SYSD 0 0
___ 04D1 OFFLINE NORM-NORM 349S SYSE 0 0
___ 04D1 OFFLINE NORM-NORM 349S SYSF 0 0
___ 04E0 OFFLINE NORM-NORM 349S SYSD 0 0
___ 04E0 OFFLINE NORM-NORM 349S SYSE 0 0
___ 04E0 OFFLINE NORM-NORM 349S SYSF 0 0
___ 04E1 ON-AVAIL NORM-NORM 349S SYSD 0 1
___ 04E1 OFFLINE NORM-NORM 349S SYSE 1 0
___ 04E1 OFFLINE NORM-NORM 349S SYSF 0 0
***** END OF REQUESTS *****

```

The device will become offline to SYSF and online to SYSD:

```

BMC Software ----- TapeSHARE Workstation ----- AutoOPERATOR
COMMAND ==> TGT ==> TSHE
Interval ==> 3 DATE --- 00/12/10
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTi, (NOT)on TIME --- 11:49:16
Performance Statistics
Allocation Requests 5 Requests satisfied 3
Total Tape Requests 3 Average Time per Take 1
TapeSHARE Partners 6 Partner(s) not responding 3
----- Tape Status -----
LC CMDS --- (GE)t, (ON)line, (OF)ffline, (UN)load, (MO)unt
(NOG)ive, (GI)ve, (NOT)ake, (TA)ke
Addr Volser Status G-St T-St Pref Jobname Type Sys Gives Takes
___ 04C0 ON-AVAIL NORM-NORM 349S SYSD 0 1
___ 04C0 OFFLINE NORM-NORM 349S SYSE 1 0
___ 04C0 OFFLINE NORM-NORM 349S SYSF 0 0
___ 04C1 ON-AVAIL NORM-NORM 349S SYSD 0 1
___ 04C1 OFFLINE NORM-NORM 349S SYSE 1 0
___ 04C1 OFFLINE NORM-NORM 349S SYSF 0 0
___ 04D0 OFFLINE NORM-NORM 349S SYSD 0 0
___ 04D0 ON-AVAIL NORM-NORM 349S SYSE 0 0
___ 04D0 OFFLINE NORM-NORM 349S SYSF 0 0
___ 04D1 OFFLINE NORM-NORM 349S SYSD 0 0
___ 04D1 OFFLINE NORM-NORM 349S SYSE 0 0
___ 04D1 OFFLINE NORM-NORM 349S SYSF 0 0
___ 04E0 OFFLINE NORM-NORM 349S SYSD 0 0
___ 04E0 OFFLINE NORM-NORM 349S SYSE 0 0
___ 04E0 OFFLINE NORM-NORM 349S SYSF 0 0
___ 04E1 ON-AVAIL NORM-NORM 349S SYSD 0 1
___ 04E1 OFFLINE NORM-NORM 349S SYSE 1 0
___ 04E1 OFFLINE NORM-NORM 349S SYSF 0 0
***** END OF REQUESTS *****

```

### Scenario 6: Viewing All Devices

To see all the devices for all the partners defined in the TapeSHARE PLEX, use the primary command **ALL**. Figure 3-6 on page 3-12 shows all the devices where there are three partner in the PLEX: SYSD, SYSE, and SYSF.

**Figure 3-6 Viewing All Devices**

```

BMC Software ----- TapeSHARE Workstation ----- AutoOPERATOR
COMMAND ==> TGT ==> TSHE
Interval ==> 3 DATE --- 00/12/10
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTI, (NOT)on TIME --- 11:48:10
Performance Statistics
Allocation Requests      5      Requests satisfied      3
Total Tape Requests     3      Average Time per Take    1
TapeSHARE Partners      6      Partner(s) not responding 3
----- Tape Status -----
LC CMDS --- (GE)t, (ON)line, (OF)fline, (UN)load, (MO)unt
              (NOG)ive, (GI)ve, (NOT)ake, (TA)ke
  Addr  Volser  Status  G-St T-St  Pref  Jobname  Type  Sys  Gives Takes
-----
  ___  04C0      OFFLINE  NORM-NORM      349S  SYSD    0    1
  ___  04C0      OFFLINE  NORM-NORM      349S  SYSE    1    0
  ___  04C0      ON-AVAIL  NORM-NORM      349S  SYSF    0    0
  ___  04C1      ON-AVAIL  NORM-NORM      349S  SYSD    0    1
  ___  04C1      OFFLINE  NORM-NORM      349S  SYSE    1    0
  ___  04C1      OFFLINE  NORM-NORM      349S  SYSF    0    0
  ___  04C2      NOPATH      3490  SYSD    0    0
  ___  04C2      NOPATH      3490  SYSE    0    0
  ___  04C2      NOPATH      3490  SYSF    0    0
  ___  04C3      NOPATH      3490  SYSD    0    0
  ___  04C3      NOPATH      3490  SYSE    0    0
  ___  04C3      NOPATH      3490  SYSF    0    0
  ___  04C4      NOPATH      3490  SYSD    0    0
  ___  04C4      NOPATH      3490  SYSE    0    0
  ___  04C4      NOPATH      3490  SYSF    0    0
  ___  04C5      NOPATH      3490  SYSD    0    0
  ___  04C5      NOPATH      3490  SYSE    0    0
  ___  04C5      NOPATH      3490  SYSF    0    0
  ___  04C6      NOPATH      3490  SYSD    0    0
  ___  04C6      NOPATH      3490  SYSE    0    0
  ___  04C6      NOPATH      3490  SYSF    0    0
  ___  04C7      NOPATH      3490  SYSD    0    0
  ___  04C7      NOPATH      3490  SYSE    0    0
  ___  04C7      NOPATH      3490  SYSF    0    0
  ___  04C8      NOPATH      3490  SYSD    0    0
  ___  04C8      NOPATH      3490  SYSE    0    0
  ___  04C8      NOPATH      3490  SYSF    0    0
  ___  04C9      NOPATH      3490  SYSD    0    0
  ___  04C9      NOPATH      3490  SYSE    0    0
  
```

As you can see, there are a lot of devices that have a status of NOPATH. The **ALL** primary command shows all the devices, even those that might have invalid paths.

## Primary Commands

Table 3-1 lists and describes all the primary commands you can enter on the TapeSHARE Workstation panel.

**Table 3-1 TapeSHARE Workstation Primary Commands**

Primary Command	Description
ONline ON	Shows all online devices for all partners responding within the PLEX
PATH	Shows all devices with valid paths for all online and offline devices that are responding within the PLEX
ALL	Shows all devices for all partners responding within the PLEX, even devices that might have invalid paths or devices that are SYSGENed (system generated) but do not physically exist
SORT	Sorts the display of devices to show all partners responding within the PLEX Use the SORT primary command with the following column headings: <ul style="list-style-type: none"> <li>• ADDR</li> <li>• VOLSER</li> <li>• STATUS</li> <li>• SYS</li> <li>• JOBNAME</li> <li>• TYPE</li> <li>• GIVES</li> <li>• TAKES</li> </ul> The display is sorted by default by the ADDR column.
UNSORT	Returns the sorted display to the default display (which is sorted by the ADDR column)
MULTI MULT	Shows the devices that are online to multiple partners If you use this command and devices are shown to be online to more than one partner, then you must decide which system should have the drive and then issue the OF (offline) command against the systems that should not have it.
NOTON NOT	Shows all the devices that have valid paths but are not currently online to any of the partners within the TapeSHARE PLEX

## Line Commands

Table 3-2 lists and describes all the line commands you can enter on the TapeSHARE Workstation panel. Note that any line command issued against a device will be issued against the system that is listed in the **Sys** column.

**Table 3-2** TapeSHARE Workstation Line Commands

Line Command	Description
GET GE	finds the device at one of the partners and VARYs it offline and then VARYs it online
ONLINE ON	issues the vary online command without first checking to see if the device is already online to any other system
OFFLINE OF	issues the vary offline command against the device
UNLOAD UN	unloads (dismounts) the volume from the device
MOUNT MO	issues the OS/390 mount command  You are then prompted for the volser (volume serial number).
<p><b>Note:</b> When you use the line commands (GE)t, (ON)line, (OF)fline, (UN)load, and (MO)unt, the commands are executed asynchronously. Therefore, you might have to press <b>Enter</b> a few times before you see the result of the command displayed on the panel. To see the response of the command, you can look at the BBI-SS PAS Journal log of the system where the command was executed.</p>	
NOGIVE NOG	Sets the device to NOGIVE status; the drive will not be GIVEN to another partner within the PLEX. The device will be dedicated to the partner it is currently on.
GIVE GI	Allows the device to be GIVEN to another partner.
NOTAKE NOT	Sets the device to NOTAKE status; the partner will not TAKE the device back.
TAKE TA	Allows the device to be TAKEN by another partner.

# TapeSHARE Workstation Fields

The following illustration shows the fields of the MAINVIEW AutoOPERATOR TapeSHARE Workstation panel.

**Figure 3-7 TapeSHARE Workstation Panel Fields**

```

BMC Software ----- TapeSHAREBMC Software -- Workstation -----
AutoOPERATOR
COMMAND ==>> TGT --- TSHE
Interval ==> 3 DATE --- 00/12/27
Commands: (ON)line, PATH, ALL, SORT, UNSORT, MULTI, (NOT)on TIME --- 12:37:14

Performance Statistics
Allocation Requests      7 Requests satisfied      5
Total Tape Requests     6 Average Time per Take   2
TapeSHARE Partners      4 Partner(s) not responding 2

----- Drive Status -----
LC CMDS --- (GE)t, (ON)line, (OF)fline, (UN)load, (MO)unt
              (NOG)ive, (GI)ve, (NOT)ake, (TA)ke
Addr  Volser  Status  G-St T-St  Pref  Jobname  Type  Sys  Gives Takes
-----
04C1                ON-AVAIL  NORM-NORM                349S  SYSF  0  N/A
04E0                ON-AVAIL  NORM-NORM                349S  SYSE  1  N/A
04E1  800106  ON-BUSY  NORM-NORM                DC$HSME 349S  SYSE  1  N/A
***** END OF REQUESTS *****

```

## Performance Statistics Fields

The following table describes the fields in the Performance Statistics portion of the panel. These numbers are collected from all the partners that are responding within the TapeSHARE PLEX.

Field Name	Description
Allocation Requests	shows how many allocation requests have been made to TapeSHARE by jobs requesting devices from other partners in the PLEX  Every time TapeSHARE must locate a device from the other partners in the PLEX for a job running on this image, the Allocation Requests value increments by 1. Therefore, for a single job, if TapeSHARE needs to look three times to locate devices for the job to complete and finds all the devices it needs, the Allocation Requests value is incremented by 3.
Requests Satisfied	shows the number of Allocation Requests that TapeSHARE satisfied for this image
Total Device Requests	shows the total number of devices obtained by TapeSHARE for this image  For every device TapeSHARE successfully acquires for this image, this value increments by 1. Therefore, if TapeSHARE allocates 10 devices for one job, the value is incremented by 10.
Avg Time per Take	shows the average time TapeSHARE took to successfully respond to an Allocation Request

Field Name	Description
TapeSHARE Partners	shows the number of partners in the PLEX  This is the number of BBI nodes that have the TapeSHARE component active.
Partner(s) not responding	shows the number of partners within the PLEX that currently are unable to respond to this partner

## Drive Status Fields

The following illustration shows the fields in the Drive Status portion of the panel.

```

:
----- Drive Status -----
LC CMDS --- (GE)t, (ON)line, (OF)fline, (UN)load, (MO)unt
          (NOG)ive, (GI)ve, (NOT)ake, (TA)ke
  Addr  Volser  Status  G-St T-St  Pref  Jobname  Type  Sys  Gives Takes
-----
  ___  04C1          ON-AVAIL  NORM-NORM          349S  SYSF    0  N/A
  ___  04E0          ON-AVAIL  NORM-NORM          349S  SYSE    1  N/A
  ___  04E1  800106  ON-BUSY  NORM-NORM          DC$HSME 349S  SYSE    1  N/A
***** END OF REQUESTS *****

```

You can qualify the display based on the following list of column headings:

- Addr
- Volser
- Status
- G-St T-St
- Pref
- Jobname
- Type
- Sys

The column headings are defined in the following table.

Column Heading	Description
<b>Addr</b>	shows the address of the device  <b>Note:</b> If the system is operating at SP4.x or above, the first digit of the device address always will be a zero.
<b>Volser</b>	shows the volume serial number of currently mounted volume
<b>Status</b>	shows the status of the device Possible statuses are  <b>ON-AVAIL:</b> specifies this device is available and might be allocated  <b>ON-MOUNT:</b> specifies there is a mount pending and there is a tape waiting to be mounted  <b>ON-NORDY:</b> specifies this device is allocated/not ready and that it is waiting for someone to push the ready button  <b>ON-BUSY:</b> specifies this device is reading or writing  <b>OFFLINE:</b> specifies this device is offline and the device is not currently selectable  <b>OF-PEND:</b> specifies this device is offline pending  <b>NOPATH:</b> specifies this device is in the system generation list but there is no path to it
<b>G-St T-ST</b>	shows the TapeSHARE GIVE and TAKE status of the device  Possible <b>Statuses</b> are <b>NORM:</b> specifies this device is available to be GIVEN or TAKEN  <b>NGIV:</b> specifies this device cannot be GIVEN to any other partner within the TapeSHARE PLEX  <b>NTAK:</b> specifies that this image will not TAKE this device for use  <b>NGIV-NTAK:</b> specifies this device is not available for GIVEN or TAKE
<b>Pref</b>	Shows whether or not the device has been defined as an input-only device or an output-only device
<b>Jobname</b>	Shows the name of the job that allocated the device
<b>Type</b>	Shows the device type
<b>Sys</b>	Shows the SMF system name of the partner
<b>Gives</b>	Shows the number of times this device has been GIVEN
<b>Takes</b>	Shows the number of times this device has been TAKEN

## Issuing Commands on the TapeSHARE Workstation Panel

TapeSHARE includes a set of BBI control commands you can use to change the status of the devices. The following table describes these devices. For a complete list of BBI control commands, refer to “BBI Control Commands” in the *MAINVIEW Administration Guide*.

Field Name	Description
.display d partners	displays the status of the TapeSHARE partners in the TapeSHARE PLEX.
.get g dddd,action1(,action2)	<p>enables you to VARY the status of a device online, where dddd is the three- or four-character device address.</p> <p>The parameters that can be used with this command are</p> <p><b>ONLINE:</b> locates the device on any TapeSHARE partner, VARYs it offline to that partner and online to the local partner If TapeSHARE cannot locate a device on any of the partners, TapeSHARE will not VARY the device online.</p> <p><b>GIVE NOGIVE:</b> changes the status of the device to GIVE or NOGIVE. You can use this parameter with the online parameter; for example, you can issue: <b>.GET dddd,ONLINE,NOGIVE</b></p> <p>This command VARYs the device online and does not allow it to be GIVEN back the original partner.</p> <p><b>take notake:</b> changes the status of the device to TAKE or NOTAKE; for example: You can use this parameter with the online parameter; for example, you can issue: <b>.GET dddd,ONLINE,NOTAKE</b></p> <p>This command <b>VARYs</b> the device online and does not allow it to be TAKEN by another partner.</p>
.locate l u,dddd	locates a device, where dddd is the three- or four-character device address (displays the status of a device)
.reset e ts,validate	<p>checks the path validity for all tape devices</p> <p>For example, suppose a path is marked active before this command is issued. If the path for a tape device becomes inactive when this command is issued, the entry in the device table for that tape device will be updated and marked as inactive.</p>

---

---

# Chapter 4 Introduction to MAINVIEW AutoOPERATOR for OS/390

MAINVIEW AutoOPERATOR for OS/390 (also referred to as AutoOPERATOR for OS/390) provides

- events to the Rule Processor for automation
- OS/390 operations control through interactive applications that consolidate operations activities of up to eight OS/390 systems
- OS/390 and VTAM resource control through online menus and applications with simple line commands
- an interactive interface to and a subset of SYSPROG commands

The applications are best summarized by looking at Options 1 to 7 on the OS/390 OPERATOR WORKSTATION panel, shown in Figure 4-1.

**Figure 4-1 OS/390 OPERATOR WORKSTATION Panel**

```
-----  
BMC Software ----- MVS OPERATOR WORKSTATION ----- AutoOPERATOR  
OPTION ===>                                     DATE -- 01/02/01  
                                                TIME -- 12:29:59  
                                                USERID -- BAOMXY2  
                                                MODE -- ISPF 4.8  
  
1 STATUS - Status of MVS System(s)  
2 VTAM - Display/Modify VTAM Resources  
3 OPER REQUEST- Outstanding Operator Requests  
4 ENQ/RESERVE - Display Enqueues and Reserves  
5 ADDR SPACE - Display/Modify Address Space Information  
6 TAPE - Display/Modify TAPE Devices  
7 DASD - Display/Modify DASD Devices  
  
X EXIT - Terminate  
                                                PF1/13: HELP  
                                                PF3/15: EXIT  
  
Copyright 2000, BMC Software, Inc. All rights reserved.  
-----
```

AutoOPERATOR for OS/390 application menus and panels display OS/390 resources and operational status for online monitoring and modification.

## OS/390 Operations Control

The following applications are provided for OS/390 operations control:

- STATUS (Option 1)
- OPER REQUEST (Option 3)
- ADDR SPACE (Option 5)

### SYSTEM STATUS

The SYSTEM STATUS application displays a summary of OS/390 status, watches selected jobs, and reports exceptions to normal system operation. In a multiimage OS/390 environment, AutoOPERATOR can display ALERTs from all systems, local and remote.

This application has a two-part graph. The left side graphs statistics on selected jobs. The right side graphs key OS/390 resources, showing how close each value is to user-specified thresholds.

Below the graph area is a scrollable list of ALERTs, showing their text, origin, and the times they were received. An ALERT is an action or information message (for more information about AutoOPERATOR ALERTs, refer to the *MAINVIEW AutoOPERATOR Basic Automation Guide*).

A follow-up EXEC associated with the ALERT can delete or otherwise follow up the ALERT. You also can delete the ALERT by deleting it from the ALERT DETAIL display.

To show all types of ALERTs or only critical ALERTs that require action, use the SYSTEM STATUS display. The PROFILE command allows you to customize thresholds and specify selected jobs to be displayed.

See Chapter 5, “SYSTEM STATUS Application” for more information.

## OPERATOR REQUESTS

The OPERATOR REQUESTS application displays outstanding messages that require action.

This application separates requests into three different categories and displays them on the OPERATOR REQUESTS panel in a scrollable display. The display lists the time each request was issued, the type of request, the jobname that issued it, the message ID, and the text. The categories are

- WTORs
- Outstanding mounts
- Action messages

This application can monitor up to eight OS/390 systems and provide a single consolidated display.

See Chapter 7, “OPERATOR REQUESTS Application” for more information.

## ADDRESS SPACES

The ADDRESS SPACES application is a scrollable display that shows detailed information about the system's batch jobs, Started Tasks, and TSO users.

Initially, all address spaces are sorted and displayed by ASID. Use primary commands to modify the display or sort them by any of the output fields on the panel, such as JOBNAME.

You can issue line commands that affect the operation of any job executing in a listed address space, just as if you were at the main console.

The ADDRESS SPACES PROFILE panel allows you to customize alarms. You can set alarm thresholds for excessive use for four system resources: CPU percentage, Paging, Real Memory, and SIOs.

See Chapter 9, “ADDRESS SPACES Application” for more information.

## OS/390 Resource Control

The resource applications display panels show status for:

- VTAM (Option 2)
- ENQ/RESERVE (Option 4)
- TAPE (Option 6)
- DASD (Option 7)

### VTAM RESOURCES

The VTAM RESOURCES application provides the ability to display and modify major VTAM resources, such as major nodes, applications, cross-domain resources, lines, terminals, and terminal clusters. Line commands are provided to activate, inactivate, display, and force various VTAM resources.

See Chapter 6, “VTAM RESOURCES Application” for more information.

### ENQUEUE/RESERVE

The ENQUEUE/RESERVE application displays enqueues and reserves in several display modes. In the default Conflicts display mode, the application lists all active reserves and the enqueues for which users are waiting. Use primary commands to change display modes.

Use a line command to cancel an address space holding or waiting for a resource.

See Chapter 8, “ENQUEUE/RESERVE Application” for more information.

### TAPE STATUS/CONTROL

Use the TAPE STATUS/CONTROL application to display the status of any tape or cartridge device and issue commands to change its status. When the TAPE application is first invoked, a scrollable list of all online tape and cartridge drives on the target system is displayed.

Similar to the information shown by the OS/390 Display Unit command, the TAPE display shows the mount attributes and status of each drive, and identifies the volume mounted on it (if any). Enter primary commands to scan the list for a tape drive (UCB) or a volume (VOLSER), or to display a category of drives or a group of VOLSERS. Use line commands to change the status of a drive, just as if you were at the main console.

See Chapter 10, “TAPE STATUS/CONTROL Application” for more information.

## **DASD STATUS/CONTROL**

Use the DASD STATUS/CONTROL application to check the status of any direct access storage device and issue commands to change its status. When you first invoke the DASD application, a scrollable list of all online DASDs defined to the target system is displayed.

Similar to the information shown by the OS/390 Display Unit command, the DASD display shows the mount attributes and status of each device, and identifies the volume mounted on it. Use primary commands to scan the list for a device (UCB) or a volume (VOLSER), or to display a category of devices or a group of VOLSERS. Use line commands to change the status of a device, just as if you were at the main console.

See Chapter 11, “DASD STATUS/CONTROL Application” for more information.



---

# Chapter 5      **SYSTEM STATUS** **Application**

The **SYSTEM STATUS** application displays a summary of the status of OS/390 and selected jobs, and reports exceptions to normal system operation. The panels are as follows:

- **SYSTEM STATUS**

Monitors selected jobs, displays a summary of the status of OS/390, and reports critical exceptions to normal operations by displaying colored/highlighted **ALERTs** that require operator intervention.

- **SYSTEM STATUS PROFILE**

Enables you to define job thresholds to be monitored on the System Status panel. These are set up after the **MAINVIEW AutoOPERATOR** application is activated and can be changed at any time online. See “**SYSTEM STATUS PROFILE Panel**” on page 5-8 for an explanation of this panel.

- **TARGET PROFILE SELECTION PANEL**

Allows you to define individual profiles for up to 23 targets (plus the default). See “**TARGET PROFILE SELECTION Panel**” on page 5-13 for an explanation of this panel.

**Note:** When you enter the **SYSTEM STATUS** application for the first time, the **SYSTEM STATUS PROFILE** panel is displayed. Pressing the **END** key saves the profile member **MVSSTA00** before you return to the **SYSTEM STATUS** panel. When you invoke this application in the future, the profile member is already available and you enter the **SYSTEM STATUS** panel directly.





### Primary Commands

You can enter the following commands on the COMMAND line of the SYSTEM STATUS panel.

Command	Description
GO	start auto-refresh the SYSTEM STATUS panel
PROFILE	display SYSTEM STATUS PROFILE panel
SORT	arrange the ALERTs display by TIME or QUEUE  If you use <b>SORT TIME</b> , the ALERTs are arranged with the most recently issued ALERT at the top of the display. If you use <b>SORT QUEUE</b> , the ALERTs are arranged by queue with the most recently created queue at the top of the display.

### Area 2 - Job Watch Display

This area lists the jobs being monitored, along with the graphs that plot statistics on the CPU utilization and IO rate per second for each job.

---

```

JOBNAME      -- CPU --  - SIO ---
-----
MVSSSC      | 0 --- 5|0 --- 10|
JES2        S  ==>
CMFXA       S  ==>
MKT21       S  ==32==>
CICS61BX    J
LGS61       T  ==70=>
CICS2101    S  ==40==>
MKT31
JEB1        S  ==>
BBISS       T  ==>
-----
    
```

---

The one-position code following each job name indicates the address space type:

- S            Started Tasks
- T            Time Sharing Users
- J            Batch Job
- blank        Address Space Not Active

You set up the job selection and monitoring criteria in the SYSTEM STATUS PROFILE panel. JOBNAMEs added to the PROFILE are permanent. You can add a JOBNAME for the current session only by overtyping another JOBNAME. This new job does not have an alarm set (see “Setting Thresholds” on page 5-11). Similarly, you can delete a JOBNAME for the current session by blanking it out.

### WATCH EXEC for Selected JOBNAMEs (\$WATCH)

You can initiate an EXEC named \$WATCH to determine the CPU usage for any JOBNAME. Place the cursor anywhere on the line of a selected JOBNAME on the SYSTEM STATUS panel and press **Enter**.

For example, if the cursor is on the CMFXA job name and you press ENTER, \$WATCH CMFXA appears in the upper right corner of the panel. The EXEC becomes active and displays a message in the ALERTs area for review.

### Scrolling Jobs

You can set up a maximum of 20 jobs in the SYSTEM STATUS PROFILE panel. The first 10 jobs appear on the SYSTEM STATUS panel. Put the cursor on Area 2 and press **PF7/19** or **PF8/20** to scroll up or down to see all the jobs being monitored.

## Area 3 - Resource Definitions

Area 3 lists resource definitions under the RESOURCE column that are set up on the SYSTEM STATUS PROFILE panel.

---

RESOURCE	-----	THRESHOLD	-----
-----	LOW <-----	VALUE	-----> HI
TOTCPU	5	20 : 90	100
JOBCPU	10	10 : 50	80
TSOCPU	5 <=====	10 : 50	( 3) 80
STCCPU	5	10 : 50	80
TOTSIO	5	10 : 80	90
CSABLO	30	40 : 90	100
CSABV	5	10 : 30	60
DEMPAG	20	40 : 80	90
UIC	0	50 :100	150
PDT	0	30 : 60	150
TOTPAG	0	0 :100	200
SWAP	35	60 : 90	100

---

In this graph, TSOCPU (CPU usage attributed to all TSO users) has a midrange threshold of 10 to 50 percent for CPU utilization. The arrow indicates that usage has fallen below 10 percent and the number on the right side, (3), indicates that TSOCPU is only 3 percent.

The usage is shown as either a yellow bar or an arrow (depending on the type of terminal you use). If the rate falls outside of the low or high range, then the rate is shown as a red bar or as a highlighted arrow.

The next example plots the same resource definitions as the above graph, but with values that are ABOVE the expected results.

---

RESOURCE	-----	THRESHOLD	-----
-----	LOW <-----	VALUE	-----> HI
TOTCPU	5	20 : 90	100
JOB CPU	10	10 : 50	80
TSOCPU	5 (70)	10 : 50	80
STCCPU	5	10 : 50	80
TOTSIO	5	10 : 80	90
CSABLO	30	40 : 90	100
CSAABV	5	10 : 30	60
DEMPAG	20	40 : 80	90
UIC	0	50 : 100	150
PDT	0	30 : 60	150
TOT PAG	0	0 : 100	200
SWAP	35	60 : 90	100

---

In this graph, TSOCPU has activity higher than 50 percent as the arrow indicates (or, if your monitor supports it, a bar). The number on the left, (70), gives the percentage being used.

If the arrow goes above the high value of 80, the arrow turns red or is highlighted as an alarm. Arrows do not appear on the graph when the activity is between the desired mid-threshold percentages.

## Scrolling Thresholds

More than 10 values can be monitored under the Value heading. To see all the values, move the cursor to one of the values and press **PF7/19** or **PF8/20** to scroll up or down.

## EXECs for Resources

Use Area 3 to enter a command to initiate an EXEC to determine specific information for a RESOURCE name. Put the cursor anywhere on the line of a selected RESOURCE name and press the ENTER key. The EXEC that matches that name appears in the upper right corner of the panel. The EXEC becomes active and displays a message in the ALERTS area.

If the cursor is on the TSO CPU line and ENTER is pressed, the message EXEC \$TSO CPU SCHEDLD appears in the upper right corner of the panel and the alert message:

```
07:57 CB1X      QA1 IS CURRENTLY USING 1.7 IN 3 SEC OR 57%
07:57 CB1X      QA1 (TSU) - ENTER 'YES' TO CANCEL
```

appears at the bottom of the SYSTEM STATUS panel.

The following EXECs are available for the resources.

<b>EXEC</b>	<b>Description</b>
<b>\$CSAABV</b>	Displays the names of the five address spaces using the most CSA above the line in descending order.
<b>\$CSABLO</b>	Displays the names of the five address spaces using the most CSA below the line in descending order.
<b>\$TOTSIO</b>	Displays the five devices with the highest I/O counts in the system in descending order. You can select any or all of the alerts from the ALERT application for more information. When an alert is selected by entering an s in the RSP column, additional alerts are displayed. These alerts show each address space that uses that volume and the percentage of I/O to that volume the address space used during a 15-second interval.
<b>\$JOB CPU</b>	Displays the job using the highest percentage of CPU and allows the TS user to cancel the job if necessary.
<b>\$STCCPU</b>	Displays the Started Task using the highest percentage of CPU and allows the TS user to cancel the job if necessary.
<b>\$TOTCPU</b>	Displays the highest user of CPU and allows the TS user to cancel the address space if necessary.
<b>\$TSO CPU</b>	Displays the TSO user using the highest percentage of CPU and allows the TS user to cancel the TSO address space.

EXECs for TOTPAG, DEMPAG, PDT, UIC, and SWAP are not available at this time.

## Area 4 - ALERTS Action and Information Messages

Area 4 displays action and information messages called warnings or alerts issued in response to exception conditions.

---

```

TIME ORIGIN Alerts ----- Total 6 ----- Sorted by ==> TIME 6
08:05 CB1X DALLAS LINE - LOBLAA02 - IMOP, NOTIFY SYSTEMS
08:02 CB1X NONAME SUBMITTED CMFXA AT
08:02 CB1X CMFXA HAS RUN FOR OF
07:57 CB1X SYSBSMF1 (STC) - ENTER 'YES' TO CANCEL
07:57 CB1X QA1 IS CURRENTLY USING 1.7 IN 3 SEC OR 57%
07:57 CB1X QA1 (TSU) - ENTER 'YES' TO CANCEL
07:57 CB1X LGS1GZIL IS CURRENTLY USING 0.7 IN 3 SEC OR 26%
07:57 CB1X LGS1GZIL (JOB) - ENTER 'YES' TO CANCEL
***** END OF ALERTS *****

```

---

Alerts received are maintained in different queues in the AutoOPERATOR Control Address Space. The alert queue is a push-down queue: the most recent alert is at the top of the list. The alerts queued in the AutoOPERATOR Address Space can originate in the local system or in a remote system.

Use the primary command Sort to sort the ALERT display by Queue or Time. If you use `SORT TIME`, the ALERTs are sorted with the most recently issued ALERT at the top of the display. If you use `SORT QUEUE`, the ALERTs are sorted with the most recently created queue is shown at the top of this display.

Set the initial sort order on the SYSTEM STATUS Profile panel. The default is QUEUE.

The panel displays the texts of the alerts. You can delete an alert from the alert queue or respond to an ALERT by transferring to the ALERT DETAIL Application and deleting (or responding to) the ALERT. See the *MAINVIEW AutoOPERATOR Basic Automation Guide* for more information on the ALERT applications.

## SYSTEM STATUS PROFILE Panel

SYSTEM STATUS PROFILE panel fields control the output data on the SYSTEM STATUS panel. You can revise each field at any time to change the selection of jobs or the monitoring criteria. To access this panel, enter PROFILE on the command line of the SYSTEM STATUS panel.

On the SYSTEM STATUS panel, the GRAPH SCALE and JOB WATCH THRESHOLDS display the Job Watch and the CPU percentage and SIO rate per second input fields. You set these thresholds on the SYSTEM STATUS PROFILE panel and overtype the names on the SYSTEM STATUS panel.

RESOURCE THRESHOLDS display the RESOURCE threshold fields that can be overtyped in the RESOURCE THRESHOLD area of the SYSTEM STATUS PROFILE panel to define the Low, Mid, and High thresholds.

**Figure 5-3 SYSTEM STATUS PROFILE Panel — View 1**

```

BMC Software ----- SYSTEM STATUS PROFILE ----- AutoOPERATOR
COMMAND ==>>
                                         DATE --- 01/03/08
                                         TIME --- 12:24:01

----- Jobwatch -----
MAXCPU ==>> 5
MAXSIO ==>> 5

----- Thresholds -----

      Jobname   CPU   SIO      Value  Low  Mid  Mid  High
==> MDB1AXPT   3    50    ==> TOTCPU  0   20  90  100
==> KTW1A      3    50    ==> JOBCPU  0   10  50   80
==> NETAVAIL   3    50    ==> TSOCPU  0   10  50   80
==> LGS41      3    50    ==> STCCPU  0   10  50   80
==> CICS2102   3    50    ==> TOTSIO  0   10  80  100
==> CICS1702   3    50    ==> CSABLO  0   40  90  100
==> DB2CDBM1   3    50    ==> CSAABV  0   10  30  100
==> NETB       3    50    ==> DEMPAG  0    0  50  100
==> DUMPSRV    3    50    ==> UIC     0   50 100  100
==> IMS31X     3    50    ==> PDT     0   30  60  120

Queues ==>> / / /
Priorities====>> /* /* /*

Enter CANCEL to cancel, END to save, TARGETS to invoke target profiling

```

To see the rest of the THRESHOLDS area, place the cursor in the thresholds area and press **PF8/20** to scroll down. Figure 5-4 displays the SYSTEM STATUS PROFILE panel after you scroll down.

**Figure 5-4 SYSTEM STATUS PROFILE Panel — View 2**

```

BMC Software ----- SYSTEM STATUS PROFILE ----- AutoOPERATOR
COMMAND ==>>
                                         DATE --- 01/03/08
                                         TIME --- 12:24:01

----- Jobwatch -----
MAXCPU ==>> 5
MAXSIO ==>> 5

----- Thresholds -----

      Jobname   CPU   SIO      Value  Low  Mid  Mid  High
==> DB2CMSTR   3    50    ==> TOTPAG  0    0 100  200
==> JES2       3    50    ==> SWAP    0    0  60  100
==> _____ 0    0          0    0  0    0
==> _____ 0    0          0    0  0    0
==> _____ 0    0          0    0  0    0
==> _____ 0    0          0    0  0    0
==> _____ 0    0          0    0  0    0
==> _____ 0    0          0    0  0    0
==> _____ 0    0          0    0  0    0
==> _____ 0    0          0    0  0    0

Queues ==>> / / /
Priorities====>> /* /* /*

Enter CANCEL to cancel, END to save, TARGETS to invoke target profiling

```

This panel allows you to enter

- job names to be monitored
- job thresholds for CPU and SIO utilization
- resource names to be monitored
- resource threshold requirements

You can also access the TARGET PROFILE SELECTION panel from this screen. Refer to “TARGET PROFILE SELECTION Panel” on page 5-13 for more information about this feature.

A maximum of 20 entries can be made under each heading.

## Monitoring Criteria

The following is an example of the fields defined in the SYSTEM STATUS PROFILE panel to control the activity of the Job Watch Display on the SYSTEM STATUS panel.

---

```
GRAPH SCALE OF JOB
MAXCPU ==> 5
MAXSIO ==> 10
```

---

In this example, the CPU graph has a scale of 0 - 5 percent. The SIO graph has a scale set from 0 - 10 percent. Figure 5-1 on page 5-2 displays the activity of the selected jobs using this percentage and rate criteria.

If MAXCPU is set to 100 percent and a job used only 2 or 3 percent of the MAXCPU, the graph cannot display any usable information. This limitation is also true of the MAXIO field.

## Jobname Selection

This area of the SYSTEM STATUS PROFILE panel lists jobs to be monitored by MAINVIEW AutoOPERATOR.

---

```
JOB WATCH THRESHOLDS:
Jobname CPU SIO
==> MVSSC 20 50
==> JES2 20 50
==> CMFXA 20 50
```

---

The jobs appear in the SYSTEM STATUS panel under the **JOBNAME** field.

## Setting Thresholds

The CPU and SIO fields that correspond to the Jobnames are set up as thresholds to indicate when a job uses more CPU or SIO than specified. In the above example, an alarm for job MVSSSC is issued if the job uses more than 20 percent of the CPU. Depending on your terminal, an alarm is shown either as a highlighted arrow or a red bar.

The arrow also displays the actual percentage value of usage for CPU and the rate value for SIO when an alarm is set, such as ==25=>.

## Monitoring Value Criteria

The following is an example of the fields set up on the SYSTEM STATUS PROFILE panel for the threshold values. Each resource to be monitored must be listed under the RESOURCE column heading.

---

```
RESOURCE THRESHOLDS:
  Name      Low   Mid   Mid   High
==> TOTCPU  5    20   90   100
==> JOBCPU  10   10   50   80
==> TSOCPU  5     10   50   80
```

---

The midpoint range (Mid) determines the acceptable ratio of machine use and appears under the THRESHOLDS heading. The low and high values are used as thresholds in the RESOURCE Area as described in “Area 3 - Resource Definitions” on page 5-5.

If TSO CPU falls below a threshold of 5 percent or above 80 percent for TSO CPU, the entire line is highlighted or displayed in red. This can be used as a diagnostic tool for any necessary corrective action.

## Resource Definitions

You can select the following resource definitions for graphic display on the right side of the SYSTEM STATUS panel:

Resource	Definition
TOTCPU	total CPU being used by all address spaces in the system
JOBCPU	total CPU being used by all initiated jobs in the system
TSO CPU	total CPU being used by all TSO users in the system
SWAP	system-wide swapping rate
CSABLO	common storage used below the 16-MB line
CSAABV	common storage used above the 16-MB line

Resource	Definition
TOTPAG	total system paging rate
DEMPAG	system-wide demand paging rate
STCCPU	total CPU being used by all started values in the system
TOTSIO	total SIO rate
PDT	page delay time in milliseconds  Values for the PDT field will always be 0 for releases of MVS/SP 3.1.3 and above.
UIC	average of unreferenced interval counts

## Primary Commands

You can use the following commands in the COMMAND field of the SYSTEM STATUS PROFILE panel.

Command	Description
END	save changes
CANCEL	cancel changes

## Queues and Priorities

---

```
Queues      ===>          /          /          /
Priorities  ===> *      / *        / *        / *
```

---

The **Queues** and **Priorities** fields enable you to display the ALERTs for a specific queue (up to four queues) and enable you to select the priority levels of the ALERTs to display.

For example, you can enter NETWORK in the **Queues** field and MAJOR and CRITICAL in the **Priorities** field to display all the major and critical ALERTs for the NETWORK queue.

**Note:** You must delete any asterisks from the unused or remaining input fields when you specify a queue or a priority. The asterisk causes those fields to default to all queues and all levels of priorities.

# TARGET PROFILE SELECTION Panel

Use the TARGET PROFILE SELECTION panel to define individual profiles for up to 23 targets plus a default target.

To create a new profile for an undefined MVS target, follow these steps:

- Step 1** Change the TGT system name on the SYSTEM STATUS panel to the target name for which you want to create a profile.
- Step 2** Enter the primary command **TARGETS** on the COMMAND line and press **Enter**.

Figure 5-5 shows an example of the TARGET PROFILE SELECTION panel.

**Figure 5-5 TARGET PROFILE SELECTION Panel**

```

BMC Software ----- TARGET PROFILE SELECTION -----
COMMAND ===>
                                                    DATE --- 01/03/14
                                                    TIME --- 15:42:27

Profiles are defined for these Target Systems.
LINE COMMANDS: (S)elect, (D)elele

LC  TARGET          LC  TARGET          LC  TARGET
___ MNVB            ___ -OPEN-         ___ -OPEN-
___ SYSB            ___ -OPEN-         ___ -OPEN-
___ -OPEN-          ___ -OPEN-         ___ XXXX
___ -OPEN-          ___ -OPEN-         ___ DEFAULT

Press END to save
    
```

You can enter the following commands in the LC column of this display:

Command	Description
S	Use S (select) to select an -OPEN- slot for use by the MVS target system (shown in the TGT field of the System Status application, Figure 5-1 on page 5-2).
D	Use D (delete) to make the indicated system profile slot available for use and remove the target from the profile.

After you assign a slot for a target, press **PF3** to display the **SYSTEM STATUS PROFILE** screen. You can now modify the **SYSTEM STATUS PROFILE** panel to create your profile.

**Note:** You cannot delete (D) a currently active target from this panel. You also cannot assign a target system twice.

## Updating the Default Target System

To update the profile for the default target system, follow these steps

- Step 1** In the **TGT** field of the **SYSTEM STATUS** panel, enter **DEFAULT**.
- Step 2** On the **COMMAND** line, type **PROFILE** and press **Enter**.

The profile panel for the default target system is displayed and you can modify the panel.

---

# Chapter 6 VTAM RESOURCES Application

When you select option 2, VTAM, from the MVS OPERATOR WORKSTATION panel, you get the VTAM RESOURCES menu shown in Figure 6-1.

**Figure 6-1 VTAM RESOURCES Menu**

---

```
BMC Software ----- VTAM RESOURCES ----- AutoOPERATOR
OPTION  ===>                                DATE  -- 01/03/12
                                           TIME  -- 19:44:01

      1 MAJNODES - Display/Modify Major Nodes
      2 APPLS   - Display/Modify Applications
      3 CDRMS   - Display/Modify Cross Domain Resource Managers
      4 CDRSCS  - Display/Modify Cross Domain Resources
      5 LINES   - Display/Modify Lines
      6 CLSTRS  - Display/Modify Terminal Clusters
      7 TERMS  - Display/Modify Terminals
```

---

The VTAM RESOURCES application displays VTAM resources, such as major nodes, cross-domain resources, lines, and terminal clusters. On these displays, you can use one-character line commands to activate, inactivate, or force inactivate selected resources.

From the VTAM RESOURCES menu, select the VTAM resource you want to view or control by entering the corresponding number in the OPTION field.

## Primary Commands

Enter the following primary commands on the COMMAND line of each of the seven VTAM RESOURCES applications.

Command	Description
L nodename	locate a specific major node
SELECT status OFF	select nodenames of a particular status; OFF selects all nodenames
GO	start auto-refresh of this application
SYSTEM	change the target system or subsystem
sc	scrolling commands
xx	application transfer commands

## VTAM MAJOR NODES

Select option 1 from the VTAM RESOURCES menu to display all active major nodes, as shown in Figure 6-2.

**Figure 6-2 VTAM MAJOR NODES Panel**

```

BMC Software ----- VTAM MAJOR NODES ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> CHICAGO
INTVL==> 1                                       DATE --- 01/03/08
STATUS=> INPUT                                    TIME --- 12:19:13
LC CMDS --- (A)ct, (I)nact, (F)orce (D)isplay, (DE) Display Every, (E)xpand
LC NODENAME ----- TYPE ----- STATUS -----
___ BBGG      LCL 3270 MAJ NODE  ACTIV
___ ACIC01    APPL SEGMENT      ACTIV
___ CICSB     APPL SEGMENT      ACTIV
___ QACICSB   APPL SEGMENT      ACTIV
___ AVAMB     APPL SEGMENT      ACTIV
___ ABBVTM    APPL SEGMENT      ACTIV
___ IMSB      APPL SEGMENT      ACTIV
___ BBIAPPLB  APPL SEGMENT      ACTIV
___ BBICDRMA  CDRSC SEGMENT     ACTIV
___ IMFAPPL   APPL SEGMENT      ACTIV
___ TSP32     APPL SEGMENT      ACTIV
___ A01APPLS  APPL SEGMENT      ACTIV
___ A01NPM    APPL SEGMENT      ACTIV
___ AIMF01    APPL SEGMENT      ACTIV
___ SWTCHAPB  APPL SEGMENT      ACTIV

```

Use the VTAM MAJOR NODES panel to check the status of a VTAM major node and change its status. Like the display shown for the D NET,MAJNODES command, the scrollable list shows the nodename, type of major node, and status for those nodes defined for the Systems Services Control Point (SSCP).

Use primary commands to scan the list for a specific NODENAME or display MAJOR NODES in a particular STATUS. Use line commands to change the status of a node, just as if you were at the main console.

The possible TYPEs for the NODENAMES include the following:

Node Type	Description
APPL SEGMENT	application program major node
CA MAJ NODE	channel-attachment major node
CDRM SEGMENT	cross-domain resource manager major node
CDRSC SEGMENT	cross-domain resource major node
LCL 3270 MAJ NODE	local 3270 major node
LCL SNA MAJ NODE	channel-attached(local) major node consisting of one or more SNA cluster controllers
PU T4/5 MAJ NODE	communication controller or a host with an SSCP
SW SNA MAJ NODE	xwitched SNA major node

## Line Commands

Enter the following commands in the LC column next to the resource you want to modify.

Command	VTAM Equivalent
<b>A(ct)</b>	V NET,ACT,ID=nodename
<b>I(nact)</b>	V NET,INACT,ID=nodename
<b>F(orce)</b>	V NET,INACT,ID=nodename,TYPE=FORCE
<b>D(isplay)</b>	D NET,ID=nodename
<b>D(isplay)E(very)</b>	D NET,ID=nodename,E
<b>E(xpand)</b>	Invoke VTAM MAJNODE DETAIL DISPLAY

Another way to invoke the VTAM MAJNODE DETAIL DISPLAY is to type **EXPAND** on the COMMAND line, position the cursor at the desired nodename, and press **Enter**. You can assign the EXPAND command to a PF key.

# VTAM APPLICATIONS

Select option 2 from the VTAM RESOURCES menu to display all active application program major nodes and the application programs contained in those nodes, as shown in Figure 6-3.

**Figure 6-3 VTAM APPLICATIONS Panel**

```

BMC Software ----- VTAM APPLICATIONS ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> CHICAGO
INTVL==> 1                                       DATE --- 01/03/08
STATUS=> INPUT                                   TIME --- 12:19:28
LC CMDS --- (A)ct, (I)nact, (F)orce, I(M)mediate, (D)isplay, (DE) Display Every
LC  APPLNAME MAJNODE ----- STATUS -----
___ VTAMB     VTAMSEG  ACTIV
___ ISTAT00   VTAMSEG  CONCT
___ ISTNOP    VTAMSEG  ACTIV
___ ISTPDCLU  VTAMSEG  ACTIV
___ ADMPRINT  AGDM01   ACTIV
___ BTSOB     BBTSOB   ACTIV
___ BTSOB001  BBTSOB   ACTIV
___ BTSOB002  BBTSOB   ACTIV
___ BTSOB003  BBTSOB   ACTIV
___ BTSOB004  BBTSOB   ACTIV
___ BTSOB005  BBTSOB   ACTIV
___ BTSOB006  BBTSOB   ACTIV
___ BTSOB007  BBTSOB   ACTIV
___ BTSOB008  BBTSOB   ACTIV
___ BTSOB009  BBTSOB   ACTIV
___ BTSOB010  BBTSOB   ACTIV
___ BTSOB011  BBTSOB   ACTIV
___ BTSOB012  BBTSOB   ACTIV

```

Use the VTAM APPLICATIONS panel to check the status of a VTAM application and change its status. Like the display shown for the D NET,APPLS command, the scrollable list shows the application name, the owning major node, and status of the applications.

Use primary commands to scan the list for a specific APPLNAME or display APPLNAMEs in a particular STATUS. Use line commands to change the status of an application, just as if you were at the main console.

The STATUS column lists the VTAM status abbreviations. Refer to the appendix “Resource Status Codes” in the IBM publication *VTAM Messages and Codes* for definitions of these status abbreviations.

## Line Commands

Enter the following commands in the LC column next to the resource you want to modify.

Command	VTAM Equivalent
<b>A(ct)</b>	V NET,ACT,ID=applname
<b>I(nact)</b>	V NET,INACT,ID=applname
<b>F(orce)</b>	V NET,INACT,ID=applname,TYPE=FORCE
<b>(i)M(mediate)</b>	V NET,INACT,ID=applname,TYPE=IMMED
<b>D(isplay)</b>	D NET,ID=applname
<b>D(isplay)E(very)</b>	D NET,ID=applname,E

## VTAM CDRMS

Select option 3 from the VTAM RESOURCES menu to display all active major nodes, as shown in Figure 6-4.

**Figure 6-4 VTAM CDRMS Panel**

```

BMC Software ----- VTAM CDRMS ----- AutoOPERATOR
COMMAND ==>>                                TGT ==>> CHICAGO
INTVL==> 1                                    DATE --- 01/03/08
STATUS=> INPUT                                TIME --- 12:20:03
LC CMDS --- (A)ct, (I)nact, (F)orce, I(M)ediate, (D)isplay, (DE)isplay Every
LC  CDRMNAME MAJNODE      SUBAREA ELEMENT NETID  ---- STATUS ----
---  VTAMA   CDRM00        5         1 USBOOL01  ACTIV
---  VTAMB   CDRM00        6         1 USBOOL01  ACTIV
---  SUB04   CDRM00        4         1 USBOOL01  ACTIV
---  SUB09   CDRM00        9         1 USBOOL01  NEVAC
---  SUB12   CDRM00       12         1 USBOOL01  PACDR
***** END OF VTAM CDRMS *****

```

Use the VTAM CDRMS panel to check the status of all VTAM cross-domain resource managers known to this VTAM. Like the display shown for the D NET,CDRMS command, the scrollable list shows the CDRM name, the owning major node, subarea number, element number, network identifier of the host, and the status of the CDRM. defined for the Systems Services Control Point (SSCP).

Use primary commands to scan the list for a specific CDRM name or display CDRMs in a particular STATUS. Use line commands to change the status of a CDRM, just as if you were at the main console.

The following list describes the fields and columns.

Column	Description
CDRMNAME	name given to the CDRM by the installation system programmer
MAJNODE	name of the owning VTAM node
SUBAREA	subarea address in decimal
ELEMENT	element address in decimal
NETID	indicates the host's network
STATUS	lists the VTAM status abbreviations

Refer to the appendix “Resource Status Codes” in the IBM publication *VTAM Messages and Codes* for definitions of these status abbreviations.

## Line Commands

Enter the following commands in the LC column next to the resource you want to modify.

Command	VTAM Equivalent
<b>A(ct)</b>	V NET,ACT,ID=cdrmname
<b>I(nact)</b>	V NET,INACT,ID=cdrmname
<b>F(orce)</b>	V NET,INACT,ID=cdrmname,TYPE=FORCE
<b>(i)M(mediate)</b>	V NET,INACT,ID=cdrmname,TYPE=IMMED
<b>D(isplay)</b>	D NET,ID=cdrmname
<b>D(isplay)E(very)</b>	D NET,ID=cdrmname,E



## Line Commands

Enter the following commands in the LC column next to the resource you want to modify.

Command	VTAM Equivalent
<b>A(ct)</b>	V NET,ACT,ID=cdrscname
<b>I(nact)</b>	V NET,INACT,ID=cdrscname
<b>F(orce)</b>	V NET,INACT,ID=cdrscname,TYPE=FORCE
<b>(i)M(mediate)</b>	V NET,INACT,ID=cdrscname,TYPE=IMMED
<b>D(isplay)</b>	D NET,ID=cdrscname
<b>D(isplay)E(very)</b>	D NET,ID=cdrscname,E

## VTAM LINES

Select option 5 from the VTAM RESOURCES menu to display the status of all lines, as shown in Figure 6-6.

**Figure 6-6 VTAM LINES Panel**

```

BMC Software ----- VTAM LINES ----- AutoOPERATOR
COMMAND ==>                                TGT ==>  CHICAGO
INTVL==>  1                                DATE --- 01/03/08
STATUS=>  INPUT                             TIME --- 12:21:44
LC CMDS --- (A)ct, (I)nact, (F)orce, I(M)ediate, (D)isplay, (DE)Display Every
LC LINENAME MAJNODE ----- STATUS -----
___ F05-L     ISTEPUS  ACTIV
___ F06-L     ISTEPUS  ACTIV
___ F07-L     ISTEPUS  ACTIV
___ RSLN029   LNCPV3V  ACTIV
***** END OF VTAM LINES *****

```

Use the VTAM LINES panel to check the status of all communication lines known to this VTAM. Like the display shown for the D NET,LINES command, the scrollable list shows the line name, the owning major node, and status of the lines.

Use primary commands to scan the list for a specific line or display lines in a particular STATUS. Use line commands to change the status of a LINENAME, just as if you were at the main console.

The STATUS column lists the VTAM status abbreviations. Refer to the appendix “Resource Status Codes” in the IBM publication *VTAM Messages and Codes* for definitions of these status abbreviations.

## Line Commands

Enter the following commands in the LC column next to the resource you want to modify.

<b>Command</b>	<b>VTAM Equivalent</b>
<b>A(ct)</b>	V NET,ACT,ID=linename
<b>I(nact)</b>	V NET,INACT,ID=linename
<b>F(orce)</b>	V NET,INACT,ID=linename,TYPE=FORCE
<b>(i)M(mediate)</b>	V NET,INACT,ID=linename,TYPE=IMMED
<b>D(isplay)</b>	D NET,ID=linename
<b>D(isplay)E(very)</b>	D NET,ID=linename,E

## VTAM CLUSTERS

Select option 6 from the VTAM RESOURCES menu to display all physical units, as shown in Figure 6-7.

**Figure 6-7 VTAM CLUSTERS Panel**

```

BMC Software ----- VTAM CLUSTERS ----- AutoOPERATOR
COMMAND ==>> TGT ==> CHICAGO
INTVL==> 1 DATE --- 01/03/08
STATUS=> INPUT TIME --- 12:22:07
LC CMDS --- (A)ct, (I)nact, (F)orce, (D)isplay, (DE)Display Every
LC NODENAME MAJNODE ----- TYPE ----- CUA ----- STATUS -----
___ ISTEPUS ISTEPUS PU_T4/5 MAJ NODE ACTIV
___ LNCPV3V LNCPV3V PU_T4/5 MAJ NODE ACTIV
___ RCTL029 LNCPV3V --PHYSICAL UNIT ACTIV
___ NCP790V NCP790V PU_T4/5 MAJ NODE ACTIV
___ A3725V A3725V PU_T4/5 MAJ NODE ACTIV
___ BS40 BS40 LCL SNA MAJ NODE ACTIV
___ BS40PU BS40 --PHYSICAL UNIT 0F40 ACTIV
___ BS80 BS80 LCL SNA MAJ NODE ACTIV
___ BS80PU BS80 --PHYSICAL UNIT 0F80 ACTIV
___ BSA0 BSA0 LCL SNA MAJ NODE ACTIV
___ BSA0PU BSA0 --PHYSICAL UNIT 0FA0 ACTIV
___ BSA1 BSA1 LCL SNA MAJ NODE ACTIV
___ BSA1PU BSA1 --PHYSICAL UNIT 0FA1 ACTIV
***** END OF VTAM CLSTR *****

```

Use the VTAM CLUSTERS panel to check the status of all communication controllers known to this VTAM. Like the display shown for the D NET,CLSTRS command, the scrollable list shows the cluster names, the owning major nodes, types, and status of the controllers.

Use primary commands to scan the list for a specific controller or display controllers in a particular STATUS. Use line commands to change the status of a NODENAME, just as if you were at the main console.

The fields in this panel are defined here.

Column	Description										
NODENAME	name given to the controller by the installation system programmer										
MAJNODE	name of the owning VTAM node										
TYPE	node names are defined as follows:										
	<table border="1"> <thead> <tr> <th>Node Type</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>APPL SEGMENT</td> <td>application program major node</td> </tr> <tr> <td>CA MAJ NODE</td> <td>cross-domain resource manager major node</td> </tr> <tr> <td>CDRM SEGMENT</td> <td>cross-domain resource major node</td> </tr> <tr> <td>CDRSC SEGMENT</td> <td>channel-attachment major node</td> </tr> </tbody> </table>	Node Type	Description	APPL SEGMENT	application program major node	CA MAJ NODE	cross-domain resource manager major node	CDRM SEGMENT	cross-domain resource major node	CDRSC SEGMENT	channel-attachment major node
Node Type	Description										
APPL SEGMENT	application program major node										
CA MAJ NODE	cross-domain resource manager major node										
CDRM SEGMENT	cross-domain resource major node										
CDRSC SEGMENT	channel-attachment major node										

Column	Description	
	LCL 3270 MAJ NODE	local 3270 major node
	LCL SNA MAJ NODE	channel-attached (local) major node consisting of one or more SNA terminal controllers
	PU T4/5 MAJ NODE	communication controller or a host with a SSCP
	SW SNA MAJ NODE	a switched SNA major node
CUA	hexadecimal channel unit address of the node	
STATUS	lists the VTAM status abbreviations	

Refer to the appendix “Resource Status Codes” in the IBM publication *VTAM Messages and Codes* for definitions of these status abbreviations.

## Line Commands

Enter the following commands in the LC column next to the resource you want to modify.

Command	VTAM Equivalent
<b>A(ct)</b>	V NET,ACT,ID=nodename
<b>I(nact)</b>	V NET,INACT,ID=nodename
<b>F(orce)</b>	V NET,INACT,ID=nodename,TYPE=FORCE
<b>(i)M(mediate)</b>	V NET,INACT,ID=nodename,TYPE=IMMED
<b>D(isplay)</b>	D NET,ID=nodename
<b>D(isplay)E(very)</b>	D NET,ID=nodename,E

# VTAM TERMINALS

Select option 7 from the VTAM RESOURCES menu to display all logical units, as shown in Figure 6-8.

**Figure 6-8 VTAM TERMINALS Panel**

```

BMC Software ----- VTAM TERMINALS ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> CHICAGO
INTVL==> 1                                       DATE --- 01/03/08
STATUS=> INPUT                                   TIME --- 12:22:48
LC CMDS --- (A)ct, (I)nact, (F)orce, (D)isplay, (DE)Display Every
LC UNITNAME MAJNODE ----- TYPE ----- ATTACH ----- STATUS -----
___ ISTEPUS   ISTEPUS   PU_T4/5 MAJ NODE      ACTIV
___ LNCPV3V   LNCPV3V   PU_T4/5 MAJ NODE      ACTIV
___ RSLN029   LNCPV3V   -LINE                 LEASED  ACTIV
___ RCTL029   LNCPV3V   --PHYSICAL UNIT      ACTIV
___ RS2900    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2901    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2902    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2903    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2904    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2905    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2906    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2907    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2908    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2909    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2910    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2911    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2912    LNCPV3V   ---LOGICAL UNIT      ACTIV
___ RS2913    LNCPV3V   ---LOGICAL UNIT      ACTIV

```

Use the VTAM TERMINALS panel to check the status of all terminals known to this VTAM. Like the display shown for the D NET,CLSTRS command, the scrollable list shows the LUNAMES, the owning major nodes, types of units, and the status of the units.

Use primary commands to scan the list for a specific unit or display units in a particular STATUS. Use line commands to change the status of a NODENAME, just as if you were at the main console.

The fields or columns are defined here.

Column	Description										
UNITNAME	name given to the terminal by the installation system programmer										
MAJNODE	name of the owning VTAM node										
TYPE	node types are defined as follows:										
	<table border="1"> <thead> <tr> <th>Node Type</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>APPL SEGMENT</td> <td>application program major node</td> </tr> <tr> <td>CA MAJ NODE</td> <td>channel-attachment major node</td> </tr> <tr> <td>CDRM SEGMENT</td> <td>cross-domain resource manager major node</td> </tr> <tr> <td>CDRSC SEGMENT</td> <td>cross-domain resource major node</td> </tr> </tbody> </table>	Node Type	Description	APPL SEGMENT	application program major node	CA MAJ NODE	channel-attachment major node	CDRM SEGMENT	cross-domain resource manager major node	CDRSC SEGMENT	cross-domain resource major node
Node Type	Description										
APPL SEGMENT	application program major node										
CA MAJ NODE	channel-attachment major node										
CDRM SEGMENT	cross-domain resource manager major node										
CDRSC SEGMENT	cross-domain resource major node										

Column	Description	
	Node Type	Description
	LCL 3270 MAJ NODE	local 3270 major node
	LCL SNA MAJ NODE	channel-attached (local) major node consisting of one or more SNA cluster controllers
	PU T4/5 MAJ NODE	communication controller or a host with a SSCP
	SW SNA MAJ NODE	switched SNA major no
ATTACH	indicates the type of line (LEASED or SWITCHED) that connects one node to another or the CUA address	
STATUS	lists the VTAM status abbreviations	

Refer to the appendix “Resource Status Codes” in the IBM publication *VTAM Messages and Codes* for definitions of these status abbreviations.

## Line Commands

Enter the following commands in the LC column next to the resource you want to modify.

Command	VTAM Equivalent
<b>A(ct)</b>	V NET,ACT,ID=unitname
<b>I(nact)</b>	V NET,INACT,ID=unitname
<b>F(orce)</b>	V NET,INACT,ID=unitname,TYPE=FORCE
<b>(i)M(mediate)</b>	V NET,INACT,ID=unitname,TYPE=IMMED
<b>D(isplay)</b>	D NET,ID=unitname
<b>D(isplay)E(very)</b>	D NET,ID=unitname,E



---

---

# Chapter 7 OPERATOR REQUESTS Application

The OPERATOR REQUESTS application reports on mounts pending, outstanding *mount requests* replies, and messages that indicate operator intervention. All items that request operator involvement are gathered on one screen. As the mounts or replies are satisfied, the messages are deleted.

Figure 7-1 OPERATOR REQUESTS Panel

---

```
BMC Software ----- OPERATOR REQUESTS ----- AutoOPERATOR
COMMAND ==>
INTERVAL ==> 3                                DATE --- 01/03/16
STATUS --- INPUT                               TIME --- 16:10:55
LC CMDS --- (R)eply,(C)ancel,(D)elete request
LC  TIME  TARGET  JOBNAME  ID  ----- DESCRIPTION ----- TOTAL    5
--- 10:26 SYSA    IMSPRODA  481 INT REQ,D3,0200,,,012003,IMSPRODA
--- 10:23 SS04    IMSPRODA  481 012001 IMSVS.LOGTAPE
--- 10:23 SYSTEM1 IMSPRODA  480 230872 IMSVS.LOGTAPE
--- 03:27 SYSA    JES328X   07 JES328X - ENTER COMMAND
--- 03:27 SYSB    AMDPRINT  04 ADM2000 I ADMOPUT(ADMPRINT). TO TERMINATE REPLY
***** END OF REQUESTS *****
```

---

## Operator Request Messages

The data display area shows only those messages that require or request operator action. These messages differ from the alerts generated by EXECs, and are of three basic types: outstanding replies, mount requests, and action messages.

To respond to outstanding replies, use the line command **R** to select them. When you enter **R** next to the message, a new panel appears with the information pertaining to that specific request; see Figure 7-2 on page 7-2. Enter the answer in the **REPLY** field. Press **END** to return to the list without a reply.

**Figure 7-2 OPERATOR REQUESTS Reply Panel**

---

```

BMC Software ----- OPERATOR REQUESTS ----- AutoOPERATOR
COMMAND ==>
                                         DATE -- 01/03/09
REPLY      ==>
MESSAGE TEXT== ADM2000 I ADMOPUT(ADMPRINT). TO TERMINATE, REPLY 'STOP', 'STO
JOB NAME    == ADMPRINT
REPLY ID    == 04
TIME ISSUED == 04.57

Fill in reply, and press ENTER for reply to be executed
Press END to return to list without reply

```

---

Mount requests are displayed for both tape drives and DASD. The messages disappear when the request is satisfied.

A message that requires intervention or other action is displayed in its original format. It disappears when the component that issued it deletes it with a Delete Operator Message (DOM) command.

The following list describes the fields for the OPERATOR REQUESTS reply panel:

Field	Description
<b>REPLY</b>	text expected to be received by the outstanding reply
<b>MESSAGE TEXT</b>	message that was presented to the operator
<b>JOB NAME</b>	name of the task that issued the WTOR
<b>REPLY ID</b>	ID assigned by the operating system to which the reply text will be issued
<b>TIME ISSUED</b>	time the WTOR was issued

---

## Primary Commands

Enter primary commands on the COMMAND line, including the following commands for the OPERATOR REQUESTS application.

<b>Command</b>	<b>Description</b>
<b>ALL</b>	display all mounts, replies, and action messages
<b>GO</b>	start Auto-refresh of the OPERATOR REQUESTS application
<b>MESSAGE</b>	display only action messages
<b>MOUNTS</b>	display only mount messages
<b>PROFILE</b>	access OPERATOR REQUESTS PROFILE PANEL
<b>REPLIES</b>	display only messages requesting replies

## Line Commands

Enter the following line commands in the column labeled LC.

<b>Command</b>	<b>Description</b>
<b>CAN</b>	cancel the job
<b>D</b>	delete message from display
<b>R</b>	reply to the message

# OPERATOR REQUEST PROFILE Panel

Access the OPERATOR REQUEST PROFILE panel by entering PROFILE on the COMMAND line of the OPERATOR REQUESTS panel.

**Figure 7-3 OPERATOR REQUESTS PROFILE Panel**

```

BMC Software ----- OPERATOR REQUESTS PROFILE ----- AutoOPERATOR
COMMAND ==>

AUTOCMD   ==> ALL           All, Mounts, Replies, Mess
SORT      ==> A           (A)scending, (D)escending

                After      Color
THRESHOLDS ==>      (Min)      1 to 999 minutes highlight with
                ==>      (Min)      YELLOW, RED, GREEN, BLUE, WHITE

TARGETS   (Enter Target Names) (Enter Device Range Specifications)
          ==> CHICAGO          FROM ==>      TO ==>
          ==> LONDON           ==>          ==>
          ==>                  ==>          ==>
          ==>                  ==>          ==>
          ==>                  ==>          ==>
          ==>                  ==>          ==>
          ==>                  ==>          ==>

Enter END to save changes, CANCEL to cancel
    
```

---

The OPERATOR REQUESTS PROFILE panel has four areas. The first area defines which commands will be automatically executed when the OPERATOR REQUESTS application is entered. If Mounts is specified for AUTOCMD, then only MOUNTS messages are displayed when you enter the application.

The second area sets the threshold levels for aging requests that determine the color the request is displayed in.

The third area determines which target systems are to be monitored by the OPERATOR REQUESTS application. You can specify up to eight targets.

The fourth area defines ranges of tape drive addresses that allows you to show only those mount messages for the specified ranges.

## Field Descriptions

The following list describes the fields on the OPERATOR REQUESTS PROFILE panel:

Field	Description
<b>SORT</b>	This field determines whether the sort is in ascending or descending order.
<b>THRESHOLDS</b>	These fields indicate the time period after which a message will change color and the color that a message turns to.
<b>TARGETS</b>	This field indicates the MAINVIEW AutoOPERATOR target names from which data about operator messages, mounts, and replies are gathered.
<b>FROM, TO</b>	This field indicates the device range specifications for the mount requests.

## AUTOCMD Commands

Enter the following commands in the **AUTOCMD** field of the OPERATOR REQUESTS PROFILE panel.

Command	Description
<b>All</b>	displays all operator requests
<b>Mounts</b>	displays only mount message “Mounts command” s
<b>Replies</b>	displays only WTOR “Replies command” s “WTOR”
<b>Messages</b>	displays all requests except mounts and replies



---

---

# Chapter 8 ENQUEUE/RESERVE Application

The ENQUEUE/RESERVE application displays enqueues and reserves in any of several situations. In the default Conflicts Mode, the application lists all active reserves and the enqueues for which users are waiting. In Reserves Mode, only reserves are displayed.

**Figure 8-1 ENQUEUE/RESERVE Panel**

```
----- BMC Software ----- ENQUEUE/RESERVE ----- AutoOPERATOR
COMMAND ==>
INTERVAL ==> 3
STATUS --- INPUT
LC CMDS --- (CAN)cel
TGT ==> SYSA
DATE --- 01/03/16
TIME --- 16:11:05
LC JOBNAME ASID -TYPE- STAT- --GRSID- -MAJOR-- MINOR----- TOTAL 4
___ CWBSS 184 EXCL HOLD SYSB SYSDSN MVS.CB1X.IMFJRNL2
___ CWB1RDR 45 SHR HOLD SYSB SYSDSN MVS.CB1X.IMFJRNL2
___ NETAVAIL 201 EXCL HOLD SYSB NETAVAIL SHADOWCB
___ NETALERT 209 EXCL WAIT SYSB NETAVAIL SHADOWCB
***** END OF ENQUEUES/RESERVES *****
```

The data display area lists any requested enqueues and reserves. There are commands to change modes and select enqueue data.

## Field Descriptions

The columns in the ENQUEUE/RESERVE panel are defined as:

<b>Column</b>	<b>Description</b>
<b>JOBNAME</b>	name of the job, Started Task, or TSO user ID holding/requesting the enqueue or reserve
<b>ASID</b>	address space identifier of the job, Started Task, or TSO user ID holding/requesting the enqueue or reserve
<b>TYPE</b>	SHARED or EXCLUSIVE
<b>STAT</b>	HOLDS or WAITING
<b>GRSID</b>	system ID of the requestor as extracted from the <b>RIBESYSN</b> field
<b>MAJOR</b>	QNAME of the resource
<b>MINOR</b>	RNAME name of the resource. If data contains unprintable characters, each string of hex data is shown preceded by x.
<b>TOTAL</b>	Reserves or Enqueues total

## Primary Commands

You can enter primary commands on the COMMAND line, including the following ENQUEUE/RESERVE primary commands.

<b>Command</b>	<b>Description</b>
<b>CONFLICT</b>	return to the default ENQUEUE/RESERVE display showing enqueue conflicts and all outstanding reserves
<b>DSN string</b>	display SYSDSN enqueues for the qualifier string. The string can include generic (*) characters
<b>ENQUEUEES</b>	display only non-RESERVE enqueues
<b>GO</b>	start auto-refresh of the ENQUEUEES application
<b>JOB</b>	display all enqueues for the specified job name
<b>USER</b>	display all enqueues for a specified TSO user ID

---

<b>MAJOR majorname</b>	display enqueues for the specified major queue name only
<b>RESERVES</b>	display only RESERVE enqueues
<b>SPFEDIT string</b>	display SPFEDIT enqueues for the qualifier string. The string can include generic (*) characters
<b>SPFMEM membername</b>	display SPFEDIT enqueues for the specified member-name string. The string can include generic (*) characters

## Line Commands

You can enter the following line command in the column labeled LC.

<b>Command</b>	<b>Description</b>
<b>CAN</b>	issue the CANCEL command for the job name



# Chapter 9 ADDRESS SPACES Application

The ADDRESS SPACES application provides information on jobs, Started Tasks, and TSO users in the target system specified. There are two panels: the ADDRESS SPACES panel and the ADDRESS SPACES PROFILE panel, used to set the display and threshold levels for the alarms.

The ADDRESS SPACES panel is 132 positions wide. Press **PF11/23** to view the right side of the monitoring criteria. Press **PF10/22** to return to the first 80 positions.

**Figure 9-1 ADDRESS SPACES Panel, Left Side**

```

BMC Software ----- ADDRESS SPACES ----- AutoOPERATOR
COMMAND ==>
INTERVAL ==> 3          INITS      JOBS      STCS      TSUS      CPU      DATE -- 01/03/16
STATUS --- INPUT      9          1          37         43         27      TIME -- 16:11:15
LC  JOBNAME  STEPNAME  PROCSTEP  TYPE  C  JNUM  POS  ASID  REAL  PAGING  SIO  CPU%
--- *MASTER*
--- PCAUTH  PCAUTH          STC    96  N/S    1  324K  .00  .04  .21
--- TRACE  TRACE          STC    N/S    2   84K  .00  .00  .32
--- DUMPSRV DUMPSRV  DUMPSRV  STC    OUT    5  168K  .00  .00  .34
--- CONSOLE CONSOLE          STC    N/S    6   92K  .00  .57  .67
--- ALLOCAS ALLOCAS          STC    N/S    8   96K  .00  .00  .43
--- MICE    MICE      XMSV     STC   238  N/S   12   60K  .00  .00  .20
--- MVSB    MVSB      STEPNAME STC    99  N/S   13  520K  .00  .00  .11
--- SMF     SMF       IEFPROF  STC    N/S   14  144K  .00  .00  .11
***** END OF DISPLAY ACTIVE *****

```

Figure 9-2 ADDRESS SPACES Panel, Right Side

```

BMC Software ----- ADDRESS SPACES ----- AutoOPERATOR
COMMAND ==>
INTERVAL ==> 3          INITS          JOBS          STCS          TSUS          CPU          DATE -- 01/03/16
STATUS --- INPUT      9          1          37          43          27          TIME -- 16:11:15
LC  JOBNAME REAL  PAGING  SIO  CPU% DP PGN DMN SR EXCP-CNT CPU-TIME
--- *MASTER* 324K .00 .04 .21 FF 0 289 23.39
--- PCAUTH 84K .00 .00 .32 EF 2 12 .54
--- TRACE 92K .00 .00 .54 EF 14 LW 21 .22
--- DUMPSRV 168K .00 .00 .34 EF 0 289 6.90
--- CONSOLE 92K .00 .57 .67 FF 14 14 8.10
--- ALLOCAS 96K .00 .00 .43 FF 9 39.06
--- MICE 60K .00 .00 .20 FF 14 681 12.19
--- MVSB 520K .00 .00 .11 EF 14 2 .04
--- SMF 144K .00 .00 .11 EF 14 2 .04
***** END OF DISPLAY ACTIVE *****

```

## ADDRESS SPACES Panel

The data display area is a scrollable table listing data about any or all types of address spaces, batch jobs, Started Tasks, and TSO users. You can scroll the table both vertically and horizontally.

You can enter primary commands to display address spaces by type, such as OSTC, or to sort them on any output field on the panel, such as JOBNAME or CPU TIME.

The first time the application is used during any terminal session, the address spaces are sorted by ASID. To sort the data on another field, use the SORT primary command. You can sort in ascending or descending order:

```
COMMAND ==>SORT fieldname A
```

```
COMMAND ==>SORT fieldname D
```

The data is sorted according to your last SORT command each time you press **Enter**. To return to sort order by ASID, enter SORT with no operands.

Issue line commands to affect the operation of a listed address space, whether a job, TSO user, or Started Task. The commands are executed just as if they had been issued at the operator's main console. Line commands are shown in "Line Commands" on page 9-5.

Lastly, you can issue line commands to select specific results for any job name. The output from these commands is available on the Journal Log Display. To display the results, press **PF5/17**. Selected result line commands are shown in “AUTOCMD Commands” on page 9-7.

Note: When you enter the ADDRESS SPACES application for the first time, the ADDRESS SPACES PROFILE panel is displayed. If you press the END key, a profile member named MVSACT00 is saved before you return to the ADDRESS SPACES panel. All future invocations of this application recognize that the profile member is available and you will enter the ADDRESS SPACES panel directly.

## Field Descriptions

The fields and column heading for the ADDRESS SPACES panel are described below. The panel is 132 positions wide; press PF11/23 and PF10/22 to switch between the right and left views of the panel.

Column	Description
<b>JOBNAME</b>	The name of the job, Started Task, or TSO user ID. Derived from ASCB.
<b>STEPNAME</b>	For a job, the name of a job step. For a Started Task, the name to modify. For a TSO user, the name of the LOGON PROC. Derived from TIOT.
<b>PROCSTEP</b>	For a job, the name of a PROC step. For a Started Task, nothing. For a TSO user, the terminal ID. Derived from TIOT.
<b>TYPE</b>	The specific type of address space. Either JOB, STC, or TSO. Derived from ASCB.
<b>C</b>	JOBCLASS for batch jobs. Derived from JES2 (requires the optional JES2MAO module).
<b>POS</b>	Position of address space: IN, OUT, N/S, or <-> (Transitioning). Derived from ASCB and OUCB.
<b>ASID</b>	Address space ID of this address space, in decimal. Derived from ASCB and ASID.
<b>DP</b>	Dispatching priority. Derived from ASCBDP.
<b>DMN</b>	Domain (period). Derived from OUCBDMN.
<b>SR</b>	Swap reason code. Derived from OUCBSRC.

<b>JNUM</b>	When available, this is the JES job number for the entity. Derived from JES2 or JES3.
<b>REAL</b>	The amount of real storage currently in use by the address space. Derived from ASCBFMCT.
<b>PAGING</b>	Total paging rate for the address space, in pages/second. Derived from OUXBPIN, OUXBPOUT, and OUXBCAPI.
<b>SIO</b>	Total I/O rate for the address space, in IOs/second. Derived from ASCBIOSC.
<b>CPU</b>	Percentage of CPU currently in use by the address space. Derived from ASCBEJST and ASCBSRBT.
<b>SIO CNT</b>	Total number of I/Os completed by the address space since the last step change. Derived from ASCBIOSC.
<b>PGN</b>	The Performance Group number for the address space. Derived from OUCBNPG.
<b>EXCP-CNT</b>	Number of I/O operations done by this job step. Execute Channel Program count. Derived from ASCB10SC.
<b>CPU TIME</b>	Total amount of CPU time consumed by the address space since the last step change, in seconds. Derived from ASCB.

## Primary Commands

Enter primary commands on the COMMAND line, including the following commands for the ADDRESS SPACES application.

<b>Command</b>	<b>Description</b>
<b>ALL</b>	Redisplay all of the address spaces after a JOB, STC or TSU command has been issued
<b>GO</b>	Start auto-refresh of the ADDRESS SPACE panel
<b>OJOB or JOB</b>	Display only jobs
<b>OSTC or STC</b>	Display only Started Tasks
<b>OTSU or TSU</b>	Display only TSO users

<b>SORT fieldname A D</b>	Sort data on the specified field (column), in either Ascending or Descending order
<b>x on off</b>	Display only those address spaces that have exceeded any thresholds or all address spaces

## Resource Exception Command

When a resource application is selected, the application displays the status of all the resources, including those that are not operating normally (exceptions). You can enter a resource exception command, **X {ON|OFF}**, to display only the resource exceptions or to display all the resources on any resource application. The default is **X OFF**, which displays all the resources defined to the target for that application.

For example,

```
COMMAND ===> X ON
```

entered from the ADDRESS SPACE application causes the application to display only those address spaces that have exceeded any thresholds as defined in the ADDRESS SPACES PROFILE.

## Line Commands

You can enter the following line commands in the column labeled LC.

Command	Description
<b>nn</b>	Issue the MVS command RESET jobname,PERFORM=nnn against the job. The range for nnn is 1 to 999.
<b>CAN</b>	Issue the MVS CANCEL command for the job name.
<b>FOR</b>	Issue the MVS FORCE command for the job name.
<b>PJ</b>	Issue the JES \$PJnnn command for the job.

# ADDRESS SPACES PROFILE Panel

Access the ADDRESS SPACES PROFILE panel by entering PROFILE on the COMMAND line of the ADDRESS SPACES panel.

**Figure 9-3 ADDRESS SPACES PROFILE Panel**

```

BMC Software ----- ADDRESS SPACES PROFILE ----- AutoOPERATOR
COMMAND ==>

AUTOCMD ==>

----- ALARMS -----
REAL    ==> 1000          Real storage usage in K
PAGING  ==> 20           Paging rate per second
SIO     ==> 20           Start I/O rate per second
CPU     ==> 5            CPU usage in percent

```

The ADDRESS SPACES PROFILE panel has two areas. The first area defines which commands will be automatically executed when the ADDRESS SPACES application is entered. If AUTOCMD ==> JOB is specified, then only jobs are displayed when entering the application. See “AUTOCMD Commands” on page 9-7.

The second area sets the threshold levels for alarms to be highlighted on the ADDRESS SPACES panel. Either fill in the threshold level needed to set alarms or set the level high enough so that alarms are ignored.

## Field Descriptions

The following list describes the fields for the ADDRESS SPACES PROFILE panel:

Field	Description
<b>REAL</b>	amount of real storage in thousands of bytes
<b>PAGING</b>	paging rate per second
<b>SIO</b>	number of started subchannel instructions issued
<b>CPU</b>	CPU usage in percent

## AUTOCMD Commands

You can enter the following commands in the AUTOCMD field of the ADDRESS SPACES PROFILE panel:

<b>Command</b>	<b>Description</b>
<b>SORT fieldname A D</b>	Sort data on the specified field (column), in either Ascending or Descending order
<b>GO</b>	Start auto-refresh of the ADDRESS SPACE panel
<b>JOB</b>	Display only jobs
<b>STC</b>	Display only Started Tasks
<b>TSU</b>	Display only TSO users

## SYSPROG Line Commands

Following is a list of SYSPROG line commands:

<b>Command</b>	<b>Description</b>
<b>TIO</b>	Name of the volume allocation by DD name
<b>MON</b>	Monitors a job for 30 seconds
<b>PRO</b>	Displays current maximum virtual storage usage and step and CPU limitations information
<b>STA</b>	Displays current job status
<b>SRM</b>	Shows SRM data for a job



# Chapter 10 TAPE STATUS/CONTROL Application

The TAPE STATUS/CONTROL application reports the status of tape drives on the specified target system, and allows the operator to issue commands to modify that status.

**Figure 10-1 TAPE STATUS/CONTROL Panel**

```

BMC Software ----- TAPE STATUS/CONTROL ----- AutoOPERATOR
COMMAND ==>
INTERVAL ==> 3 TGT ==> SYSB
STATUS --- INPUT DATE --- 01/03/16
LC CMDS --- (ON)line, (OF)fline, (UNL)oad TIME --- 10:34:00
LC CUA VOLUME TYPE JOBNAME VOLSTATE ----- STATUS -----
--- 480 3400 CWB1TAPE /REMOV ONLINE
--- 481 3400 CWB2TAPE /REMOV ONLINE
--- 482 34055 3400 CIABKUP PRIV/RESVD ALLOCATED
--- 483 20056 3400 QA2BOMT PRIV/RESVD ALLOCATED
--- 484 3400 CMF16 /REMOV ONLINE
--- 485 3400 CMF24 /REMOV ONLINE
--- 486 02003 3400 DLYDCS PRIV/RESVD ALLOCATED
--- 487 100304 3400 CWB1PRNT PRIV/RESVD ALLOCATED
--- 488 34579 3400 TCC2A PRIV/RESVD ALLOCATED
--- 489 37803 3400 TW24AB PRIV/RESVD ALLOCATED
--- 48A 3400 /REMOV OFFLINE NOT RDY
--- 48B 3400 /REMOV OFFLINE NOT RDY
--- 48C 3400 /REMOV OFFLINE NOT RDY
--- 48D 3400 /REMOV OFFLINE NOT RDY
--- 48E 3400 /REMOV OFFLINE NOT RDY
--- 48F 3400 /REMOV OFFLINE NOT RDY
--- 490 3400 /REMOV OFFLINE NOT RDY
--- 491 3400 CWBTPBKP PRIV/RESVD ALLOCATED CHG STAT DDR PNDG

```

The data display area shows tape drives and their status. The information is similar to the output of the MVS Display Unit command. Here, the information is in a scrollable list from which you can select devices with the desired characteristics, using simple commands. Device status is shown in three columns.

You can use line commands to alter device status just as if they had been issued at the operator's main console. There are two types of line commands: MAINVIEW AutoOPERATOR and SYSPROG line commands.

## Dynamic UCBs

This application handles device addresses that have been dynamically configured into the system. This application also recognizes when a dynamic I/O configuration change has taken place and displays the new configuration the next time you press ENTER or the PF7/8 keys.

**Note:** If a command is issued against a device in the list while an I/O configuration change is occurring, the command will be rejected and a message appears in the short message field in the upper right corner. This application also recognizes when a dynamic I/O configuration change has taken place and displays the new configuration the next time you press ENTER or the PF7/8 keys.

To reduce the overhead, the TAPE STATUS/CONTROL application does not PIN the UCBs it displays. Therefore, if you use this application during dynamic reconfiguration processing, you might receive an 0C4 abend. This abend is a very rare occurrence and does not merit using the overhead required to circumvent the situation.

## Field Descriptions

The columns in the TAPE STATUS/CONTROL panel are defined here. The source fields in the MVS control blocks that supply the data are listed for each item.

Column	Description
CUA	Channel Unit Address (device address) of the tape drive. Derived from UCBNAME.
VOLUME	VOLSER of the volume mounted on the tape drive. Derived from UCBVOLI.
TYPE	Type of tape drive, usually 3400 or 3480. Derived from UCBTYP.
JOBNAME	Job currently being processed. Derived from UCBFSEQ.

<b>VOLSTATE</b>	Mount attributes and other characteristics of the tape drive. Derived from UCBSTAB.
<b>STATUS</b>	<p>Three columns showing drive's overall status.</p> <p>The first column shows long-term status, indicated by ONLINE, OFFLINE, or ALLOCATED.</p> <p>The second column shows short-term status, indicated by BUSY, NOT RDY (not ready), or CHG STAT (changing status).</p> <p>The third column shows immediate status crucial to operations, indicated by DDR PNDG (dynamic device reconfiguration pending).</p> <p>Derived from UCBFLA.</p>

## Primary Commands

Enter primary commands on the **COMMAND** line, including the following commands for the **TAPE STATUS/CONTROL** application:

<b>Command</b>	<b>Description</b>
<b>ALLOC</b>	Display only allocated devices.
<b>GO</b>	Start auto-refresh of the <b>TAPE STATUS/CONTROL</b> application.
<b>F(ind) cua</b>	Find the listed device with this Control Unit Address. If the address is not complete, find the first CUA in the list that starts with this string (one or more characters).
<b>OFFLINE</b>	Display only offline devices.
<b>ONLINE</b>	Display only online devices.
<b>S(how)V(ol) mask</b>	Display all VOLSERS that fit a pattern mask of one to six characters that includes generic (*) or wildcard (+) characters. An * represents any number of consecutive characters (STR* shows all tape VOLSERS starting with STR). A + represents one character (+++010 shows VOLSERS ending in 010).
<b>V(olume) volser</b>	Locate the listed volume that has this VOLSER. If the VOLSER is not complete, locate the first VOLSER that starts with this one- to six-character string.

## Line Commands

Enter the following line commands in the column labeled LC:

<b>Command</b>	<b>Description</b>
<b>OF</b>	issues the command VARY cua,OFFLINE to place the device in OFFLINE status
<b>ON</b>	issues the command VARY cua,ONLINE to place the device in ONLINE status
<b>UNL</b>	issues the command UNLOAD cua to remove the current volume from the device

## SYSPROG Line Commands

Enter the following SYSPROG commands in the column labeled LC:

<b>Command</b>	<b>Description</b>
<b>IO</b>	displays all outstanding non-TP I/O
<b>USI</b>	displays active jobs using a specified device
<b>UCB</b>	displays a UCB in hexadecimal and character modes. Available only if the SYSPROG product is installed.

The SYSPROG line commands are also described in the online tutorials. To access the tutorials, press the HELP key (PF1/13) in the TAPE STATUS/CONTROL application.

---

---

# Chapter 11 DASD STATUS/CONTROL Application

The DASD STATUS/CONTROL application reports the status of Direct Access Storage Devices (DASD) in the target system specified, and allows the operator to modify the status.

**Figure 11-1 DASD STATUS/CONTROL Panel**

```
BMC Software ----- DASD STATUS/CONTROL ----- AutoOPERATOR
COMMAND ==>>
INTERVAL ==> 3 TGT ==> SYSA
DATE --- 01/03/16
STATUS --- INPUT TIME --- 10:34:05
LC CMDS --- (ON)line, (OF)fline, (UNL)oad
LC CUA VOLUME TYPE USERS VOLSTATE ----- STATUS -----
--- 240 CMF001 3380 37 PRIV/RSDNT ALLOCATED BUSY RESERVED
--- 241 IMF007 3380 10 PRIV/RSDNT ALLOCATED BUSY
--- 242 PMG006 3380 47 PRIV/RSDNT ALLOCATED DDR PNDG
--- 243 TSG001 3380 77 PRIV/RSDNT ALLOCATED
--- 248 MSC001 3380 0 PRIV/RSDNT ONLINE
--- 249 PMG005 3380 8 PRIV/RSDNT ALLOCATED
--- 24A DAV001 3380 13 PRIV/RSDNT ALLOCATED BUSY
--- 24B PMG004 3380 3 PRIV/RSDNT ALLOCATED
--- 250 IMF006 3380 51 PRIV/RSDNT ALLOCATED
--- 251 CMF002 3380 29 PRIV/RSDNT ALLOCATED
--- 252 DAV002 3380 49 PRIV/RSDNT ALLOCATED
--- 253 SYSMCA 3380 5 PRIV/RSDNT ALLOCATED BUSY
--- 254 IMF004 3380 36 PRIV/RSDNT ALLOCATED
--- 255 SYSP1A 3380 6 PRIV/RSDNT ALLOCATED
--- 258 CMF004 3380 10 PRIV/RSDNT ALLOCATED
--- 259 CMF003 3380 3 PRIV/RSDNT ALLOCATED
--- 25A IMF005 3380 30 PRIV/RSDNT ALLOCATED
--- 25B IMF013 3380 0 PRIV/RSDNT ALLOCATED
***** END OF DASD DEVICE *****
```

The data display area lists DASD devices showing volume and status information. This information is similar to the output of the MVS Display Unit command. Here, the information is in a scrollable list from which you can select devices with desired characteristics, using simple commands.

Device status is shown in a three-part column. You can issue line commands to alter device status. These commands are executed just as if they had been issued at the operator's main console.

## Dynamic UCBs

This application handles device addresses that have been dynamically configured into the system. This application also recognizes when a dynamic I/O configuration change has taken place and displays the new configuration the next time you press **Enter** or the **PF7/8** keys.

**Note:** If a command is issued against a device in the list while an I/O configuration change is occurring, the command is rejected and a message appears in the short message field in the upper right corner. This application recognizes when a dynamic I/O configuration change has taken place and displays the new configuration the next time you press **Enter** or the **PF7/8** keys.

To reduce the overhead, the DASD STATUS/CONTROL application does not PIN the UCBs it displays. Therefore, if you use this application during dynamic reconfiguration processing, you might receive an 0C4 abend. This occurrence is rare and does not merit using the overhead required to circumvent the situation.

## Field Descriptions

The fields for the DASD STATUS/CONTROL panel are defined here, listing the source fields in the MVS control fields for the data:

Column	Description
CUA	Control Unit Address (device address) of the DASD. Derived from UCBNAME.
VOLUME	VOLSER of the volume mounted on the DASD. Derived from UCBVOLI.
TYPE	Type of DASD. Derived from UCBTYP.
USERS	Number of currently allocated DD statements. Derived from UCBFSEQ.
VOLSTATE	Mount attributes and other characteristics of the DASD. Derived from UCBSTAB.

**STATUS**

Three columns showing the drive's overall status.

First column indicates long-term status with these terms:

ONLINE

OFFLINE

ALLOCATED

SYSRES

CONSOLE

Second column indicates short-term status with these terms:

BUSY

NOT RDY (not ready)

CHG STAT (changing status)

UNLD PND (unload pending)

C/P SUSP (channel program suspended)

Third column indicates immediate status crucial to operations with these terms:

RESERVED

RES PNDG (reserve pending)

DDR PNDG (dynamic device reconfiguration pending)

MNT PNDG (mount pending)

Derived from UCBFLA.

# Primary Commands

Enter primary commands on the COMMAND line, including the following commands for the DASD STATUS/CONTROL application:

<b>Command</b>	<b>Description</b>
<b>ALLOC</b>	Display only allocated devices.
<b>GO</b>	Start auto-refresh of the DASD application.
<b>F(ind) cua</b>	Find the listed device that has this Control Unit Address. If the address is not complete, find the first CUA in the list that starts with this string (one or more characters).
<b>OFFLINE</b>	Display only offline devices.
<b>ONLINE</b>	Display only online devices.
<b>O(only)P(age)</b>	Display only current paging volumes.
<b>PRIVATE</b>	Display only devices with PRIVATE attributes.
<b>PUBLIC</b>	Display only devices with PUBLIC attributes.
<b>S(how)V(ol) mask</b>	Display all VOLSERS that fit a pattern mask of one to six characters that includes generic (*) or wildcard (+) characters. An * represents any number of consecutive characters (STR* shows all VOLSERS starting with STR). A + represents one character (+++010 shows VOLSERS ending in 010).
<b>STORAGE</b>	Display only devices with STORAGE attributes.
<b>V(olume) volser</b>	Locate the listed volume that has this VOLSER. If the VOLSER is not complete, locate the first VOLSER that starts with this string (one to six characters).

## Line Commands

Enter the following line commands in the column labeled LC:

<b>Command</b>	<b>Description</b>
<b>OF</b>	issues the command VARY cua,OFFLINE to place the device in OFFLINE status
<b>ON</b>	issues the command VARY cua,ONLINE to place the device in ONLINE status
<b>MPR</b>	mounts a device PRIVATE for an online device only
<b>MPU</b>	mounts a device PUBLIC for an online device only
<b>MST</b>	mounts a device STORAGE for an online device only
<b>UNL</b>	issues the command UNLOAD cua to remove the current volume from the device

## SYSPROG Line Commands

Enter the following SYSPROG commands in the column labeled LC:

<b>Command</b>	<b>Description</b>
<b>IO</b>	Displays all outstanding non-TP I/O.
<b>SPA</b>	Displays disk space by UCB, volume serial, and generic name. Available only if the SYSPROG product is installed.
<b>USI</b>	Displays active jobs using a specified device.
<b>UCB</b>	Displays a UCB in hexadecimal and character modes. Available only if the SYSPROG product is installed.

The SYSPROG line commands are also described in the online tutorials. To access the tutorials, press the HELP key (PF1/13) in the DASD STATUS/CONTROL application.



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# Chapter 12 Using Basic SYSPROG Services from MAINVIEW AutoOPERATOR

This section documents the basic SYSPROG services (previously called RESOLVE services) that you can access from MAINVIEW AutoOPERATOR when the MAINVIEW AutoOPERATOR for OS/390 option is installed. Topics covered are

- SYSPROG services primary commands
- SYSPROG services distributed with AutoOPERATOR
- SYSPROG services syntax
- SYSPROG services message format
- SYSPROG services security

For complete syntax and examples of resulting output, refer to the *MAINVIEW SYSPROG Services User Guide and Reference* manual.

## SYSPROG Services Primary Commands

The basic SYSPROG services provide a real-time picture of current MVS operational events in the Journal and provide an online system management tool to

- display overall systems performance
- detect potential performance problems
- record SYSPROG service information using logging facilities
- modify parameters of selection criteria

You can enter SYSPROG commands in the COMMAND field of any MAINVIEW AutoOPERATOR application panels. To invoke a SYSPROG service, precede each command with a question mark; for example:

```
COMMAND ==> ?ASM,MAP
```

where

<b>?</b>	Is the command prefix required to invoke a SYSPROG service from an MAINVIEW AutoOPERATOR application
<b>ASM</b>	Is the SYSPROG services that displays auxiliary storage and page data set information
<b>MAP</b>	Is the SYSPROG service that displays additional auxiliary storage information per address space

The results of the SYSPROG command appear in the local BBI-SS PAS Journal (BBIJRNLL). In this example, the `ASM,MAP` command appears in the local BBI-SS PAS Journal with a display of the corresponding auxiliary storage and page data set information. The cursor is positioned under the command that was entered in the Journal display. You can scroll through this display, but you cannot issue commands.

Figure 12-1 on page 12-3 shows an example of the SYSPROG command output sent to a user's local BBI-SS PAS Journal and displayed by the General Service LOG DISPLAY.

**Figure 12-1 Local Journal Log Displayed in LOG DISPLAY**

```

BMC Software ----- LOG DISPLAY ----- GENERAL SERVICES
COMMAND ==>> TGT ==> LOCAL
LINE= 69 LOG= #1 STATUS INPUT TIME 18:02:30 INTV==> 1
18:01:18 %SWATCH JES2
18:01:23 %T$OCPU T$OCPU-
18:01:42 ASM,MAP
18:01:44 AMTA5CI LAST IPL WAS COLD START (CLPA)
18:01:44 AMTA51I ASMVT 00FDB8E8
18:01:44 AMTA52I TOTAL LOCAL SLOTS 95100 AVAILABLE 63867 = 67%
18:01:44 AMTA5DI LARGEST HOLDER OF SLOTS IS CIM4X WITH 2%
18:01:44 AMTA53I D/S 0 (847 PRV032) PLPA SIZE 4500 FREE 2346 = 52% BURST
18:01:44 AMTA53I D/S 1 (46E PRV031) COMN SIZE 3900 FREE 2772 = 71% BURST
18:01:44 AMTA56I D/S 2 (NOT IN USE) DUPLX
18:01:44 AMTA53I D/S 3 (860 SYSP1B) LOCAL SIZE 45000 FREE 33058 = 73% BURST
18:01:44 AMTA53I D/S 4 (863 SYSP3B) LOCAL SIZE 30000 FREE 18947 = 63% BURST
18:01:44 AMTA53I D/S 5 (A40 SYSP2B) LOCAL SIZE 10050 FREE 5442 = 54% BURST
18:01:44 AMTA53I D/S 6 (A41 SYSP4B) LOCAL SIZE 10050 FREE 5380 = 54% BURST
18:01:44 AMTA56I D/S 7 (NOT IN USE) UNKN
18:01:45 AMTA54I *MASTER* OWNS 0 VIO 51 NON-VIO SLOTS
18:01:45 AMTA54I PCAUTH OWNS 0 VIO 15 NON-VIO SLOTS
18:01:45 AMTA54I TRACE OWNS 0 VIO 8 NON-VIO SLOTS
18:01:45 AMTA54I GRS OWNS 0 VIO 149 NON-VIO SLOTS
18:01:45 AMTA54I DUMPSRV OWNS 0 VIO 75 NON-VIO SLOTS
18:01:46 AMTA54I CONSOLE OWNS 0 VIO 162 NON-VIO SLOTS
18:01:46 AMTA54I ALLOCAS OWNS 0 VIO 50 NON-VIO SLOTS
18:01:46 AMTA54I LLA OWNS 0 VIO 162 NON-VIO SLOTS
18:01:46 AMTA54I INIT OWNS 0 VIO 44 NON-VIO SLOTS
***** END OF LOG *****

```

## SYSPROG Services Distributed with MAINVIEW AutoOPERATOR

Table 12-1 lists the SYSPROG commands distributed with MAINVIEW AutoOPERATOR. For complete syntax and examples of resulting output, refer to the *MAINVIEW SYSPROG Services User Guide and Reference* manual.

**Table 12-1 Primary SYSPROG Services Command Summary (Part 1 of 4)**

Command	Description
ASM	Display auxiliary storage and page data set information. Syntax: ASM[,MAP] Example: ?ASM,MAP
BBXS	Problem diagnosis and recovery of BMC Software subsystem services. Syntax: BBXS[,DISPLAY START RESTART STOP MODIFY RELOAD] Example: ?BBXS,DISPLAY,ALL
CPU	Display total CPU utilization and proportionate use of CPU resources by job. Syntax: CPU[,time] Example: ?CPU,5
CSA	Display level of CSA utilization. Syntax: CSA[,MAP] Example: ?CSA,MAP

**Table 12-1 Primary SYSPROG Services Command Summary (Part 2 of 4)**

<b>Command</b>	<b>Description</b>
ENQUEUES	Show system and data set enqueue conflicts. Syntax: ENQ[,dsname-qualifier] [,SYSDSN] [,minor-name] [,major-name] Example: ?ENQ,SYS1
ESTORAGE	Provide information on the use of expanded storage for paging. Syntax: EST[MAP] [time]
FINDMBR	Identify the names of all libraries in a specified DD name that contain a specified member. Syntax: FINDMBR[,membername,DDname] Example: ?FINDMBR,TIME,SYSPROC
HELP	Display help information for any SYSPROG service. Syntax: HELP[,servicename] Example: ?HELP,TIO
INFO	Display information on the current operating environment. Syntax: INFO Example: ?INFO
IO	Display all outstanding non-teleprocessing I/O. Syntax: IO[,nnn] Example: ?IO,223
MDEVICE	Display the average number of I/O requests that were queued by the I/O supervisor for the specified device. Syntax: MDEV[,nnn-range][,time] Example: ?MDEV,150-151,5 Do not specify times greater than 60 seconds.
MEMSCAN	Scan storage allocations for a specified character or hex string. Syntax: MEMSCAN [,string,area] Example: ?MEMSCAN,TEXT,PRIVATE
MIO	Monitor system channel paths and devices for a specified time interval. Syntax: MIO[PP PP-PP ALL TIME] Example: ?MIO,ALL,10
MLCU	Monitor logical control unit activity for a specified time interval. Syntax: MLCU,[LLL LLL-LLL ALL TIME] Example: ?MLCU,ALL,10
MPATH	Monitor I/O channel path activity. Syntax: MPA[,path(-range)][,time] Example: ?MPA,00-14,20
MONITOR	Monitor a job for 30 seconds: Provide CPU time and EXCP counts for job step. Syntax: MON,address-name Example: ?MON,JES2
MSTORAGE	Map virtual storage areas above and below the 16MB line including location, length and percent used for each area, where available. Syntax: MSTORAGE Example: ?MSTORAGE

**Table 12-1 Primary SYSPROG Services Command Summary (Part 3 of 4)**

<b>Command</b>	<b>Description</b>
MTP	Display VOLSERS, device addresses, device types, and jobnames for tape and DASD pending-mount requests. Syntax: MTP Example: ?MTP
PAGING	Provide paging rates for demand paging, pages reclaimed, swap paging, and paging for the overall system. Syntax: PAG Example: ?PAG
PRIVATE	Summarize virtual storage allocations for private storage in an address space. Example: ?PRIVATE
PROGRESS	Display job and job step status for specified job name. Syntax: PRO,address-name Example: ?PRO,ISDIMs
REPLIES	Display outstanding MVS replies. Syntax: REP Example: ?REP
RESERVES	Show reserve activity for DASD devices. Syntax: RES Example: ?RES
RSM	Display use of real storage by system components, jobs, and initiators. Syntax: RSM[,MAP] Example: ?RSM,MAP
SOFTFRR	Display data from SYS1.LOGREC software records with a specified module name. Syntax: SOF [,recovery-modname][,MAP][,yy.ddd][,errorid] Example: ?SOFTFRR
SPACE	Determine the amount of space available on a specified device. Syntax: SPA [dvn],[unitname],[volser],[partial volser] Example: ?SPACE
SRM	Display SRM information. MAP requests the displaying of certain key SRM control block addresses. Syntax: SRM[,MAP NOMAP ASNAME] Example: ?SRM,MAP
STATUS	Display current status of active jobs. Syntax: STA[,ALL][,IN] [,TSO][,address-name] Example: ?STA,ALL
SYSDUMP	Display contents of all filled systemdump data sets. Syntax: SYS Example: ?SYS
TIOt	Display all allocated devices for a specified address space, Syntax: TIO,address-space-name[,MAP] [,ACT] Example: ?TIO,INVENTORY

**Table 12-1 Primary SYSPROG Services Command Summary (Part 4 of 4)**

Command	Description
TPIO	Display all outstanding I/O (including teleprocessing devices). Syntax: TPI[,dvn] Example: ?TPI,285
TQE	Display information about DIE routines scheduled for execution and pending timer interrupts for an address space Example: ?TQE
TRACK	Activate or stop SYSPROG command tracking. Syntax: TRACK[,xx ALL FREE STOP] Example: TRACK,FREE
TSULIST	Display user ID, ASID and node name for TSO users. Syntax: TSU Example: ?TSU
USING	Display all active jobs using a specified device. Syntax: USI{,dvn}{,ALL}{,volser}{,IN} Example: ?USI,PACK01
VMCMD	Issue a VM CP command. Syntax: VM,command-string[,volser]{,IN} Example: ?VM,Q USERS

## SYSPROG Service Syntax

SYSPROG syntax requires a unique service name (TCB, in the example below) followed by a comma and, optionally, a parameter such as address space name (JOBABC, in the example). Additional parameters are also delimited with commas.

### Example

The service TCB, which displays the values of an address space's TCBs and RBs, can be invoked in any of the following ways:

```
TCB , JOBABC , MAP
TCB JOBABC MAP
TCB , JOBABC , MAP
```

Keyword operands must be spelled out far enough to avoid ambiguity. For example, if a service has only one keyword operand that begins with M, only M need be entered to select that operand. If a service has two or more keyword operands beginning with the same letter, specify enough characters to clarify your choice. (For example, if the two keyword operands UNIT and UCB appear for the same service, UN must be specified for UNIT and UC for UCB.)

The specific syntax of each service is described in detail in the individual service section. The following list describes the SYSPROG services syntax:

UPPERCASE	letters and words are coded exactly as they appear in the description
lowercase	letters and words represent variables for which specific information is to be substituted  Lowercase letters and words are not coded in the control statement.
subscripts	represent numeric parameters or sequenced positional parameters, which are not coded in the control statement
...	indicates that the preceding item might be repeated one or more times  If the ellipsis is followed by the same item subscripted, the last subscript indicates the maximum number of times that item might be repeated. The ellipsis is not coded.
{ }	indicate a required selection  If the braces enclose a stack of items, one of the items must be chosen. If a default is desired, it (and its associated keyword or subparameters) need not be coded. Braces are not coded.
[ ]	enclose an optional item or stack of items, only one of which might be chosen  If a default is indicated, it will be used unless specifically overridden. Brackets are not coded.
,	comma
=	equal sign
( )	parentheses
:	colon
'	single quote

The following list describes the allowable SYSPROG parameters:

aaaaaaaa	memory address from one to eight hexadecimal characters; for example, (0AF4)
asid	address space identification number  In most cases, the ASID number (one to four decimal digits enclosed in parentheses) might be used instead of the jobnames; for example, (08) or (23).
command	MVS or JES command; for example, V 052,ONLINE
command-list	member in the LIB PDS that contains a list of MVS or JES commands
cuu[-y]	device address and range; for example, 180 or 143-C
dvn[-y]	device number and range; for example, 180 or 143-C
dsname	data set name; for example, SYS1.DUMP or INVEN.Y1975.MONTH04
generic-name	generic name of devices defined in the system; for example, 3330, 3350, 3380
esoteric-name	esoteric name of devices defined in the system; for example, SYSDA, SORTWORK
jobname/address-space-name	MVS jobname of an address space currently active in the system; for example, INVENTORY or JOB2  Jobname might also be specified as (nn), where nn is the ASID in decimal of the desired job, or as *, which means the last job referenced, or as @, which means the SYSPROG job/session where the command is entered; for example, ST,(1) or ST,*.
member	member name of LIB data set  These members contain JCL for routine operational jobs or command lists for use with service SUBMIT.
time	time in seconds a service is to monitor
volser	volume serial for disk pack or tape volume; for example, PACK01 or 004561

# SYSPROG Services Message Format

The general SYSPROG message format is

AMT $ssnc$  message-text

where

$ss$	Is the last two characters of the SYSPROG load module name for the specified service. For example, the load module name for service ALLOC is ASTXA1A1; the abbreviated name is A1.
$n$	Is sequence character 1 to 9 or A to Z.
$c$	Is the message type code:
I	Information message
W	Warning message
E	Error message
A	Action message

Each message is explained under the applicable service description on the following pages; find it by looking up the message ID in the manual index.

## Subroutine: ASTXA1MN

Service: ASTXA1MN

Primary Use: Attaches the services and manages communication.

Processes abnormal service termination and all service malfunctions to prevent individual service errors from affecting overall system performance.

Processes all I/O errors and other system error conditions to isolate the system from SYSPROG malfunctions.

### *Messages*

AMT002I COMMAND REJECTED; MAXSERVS EXCEEDED

A request has been entered for a SYSPROG service, but you have reached the maximum number of concurrent services executing. Command rejected.

AMT003I xxxxxxxx IS NOT A VALID SERVICE NAME

The service specified probably was spelled incorrectly.

- AMT004I                   UNABLE TO LOCATE MODULE FOR SERVICE service-name
- The load module for the specified service could not be found.
- AMT005I                   INVALID SYNTAX, REQUEST IGNORED
- The syntax specified in the request was invalid. This syntax scan tests for proper placement of the comma or blank between the service name and operands.
- AMT006I                   service-name CODE=failure-code, SERVICE FAILED
- The specified service has failed with the displayed code. The function of SYSPROG is not impaired. The failure and service should be noted and documented for analysis by BMC Software.
- AMT007I                   BBX NOT AVAILABLE. REQUESTED SERVICE CAN NOT BE USED.
- The entered SYSPROG command required communication with the BBX subsystem, which was not available. The command cannot be executed.
- AMT008I                   SPECIAL SERVICE xxxxxxxx NOT SUPPORTED
- xxxxxxx is the long name of the service. The operator has requested a service whose entry in the name table indicates that the request is to be processed by a special routine, but there is no entry for the service in the special service table. The request is ignored.
- AMT009I                   COMMAND ENTERED NOT UNIQUE, RE-ENTER
- The specified service name was not unique. Reenter a unique name.
- AMT00AA                   ENTER PASSWORD FOR SERVICE service-name
- Enter the site-specified password to gain access to this service.
- AMT00BI                   PASSWORD INVALID, REQUEST IGNORED
- The entered password did not match the site-specified password. Reenter the command with the proper password.
- AMT00CI                   CONSOLE NOT AUTHORIZED TO ENTER RESOLVE COMMANDS
- To execute SYSPROG commands using MODIFY, a console must have SYS or ALL authority.

AMT00EI	<p>RESOLVE NOT AUTHORIZED. REQUESTED SERVICE CANNOT BE USED.</p> <p>SYSPROG is not properly authorized. The service invoked requires authorization.</p>								
AMT00FI	<p>RESOLVE GLOBAL STORAGE FREED</p> <p>During SYSPROG termination, all global system resources, such as CSA, have been freed.</p>								
AMT00GI	<p>ERROR FREEING CIB, RESOLVE TERMINATED</p> <p>This error occurs if two SYSPROG systems are running simultaneously with the same jobname when the command P SYSPROG is entered. One of the two SYSPROG systems will terminate normally; the second system will terminate with this message.</p>								
AMT00II	<p>BLDL FAILURE - PERMANENT I/O ERROR ON DIRECTORY - REENTER</p> <p>An error occurred while BLDL was trying to find the directory entry for a SYSPROG load module. Reenter the last command.</p>								
AMTIN1I	<p>SYSPROG INITIALIZATION, RELEASE x.x.x</p> <p>This message provides the release level.</p>								
AMTIN2I	<p>AUTHORIZATION REQUEST REFUSED (mmm), TERMINATING</p> <p>The SYSPROG SVC denied authorization to a TSO user. This is an unauthorized use of the SVC and is normally associated with a TSO user who attempts to gain access to an authorized state for other than SYSPROG use.</p> <p>The error code, mmm, has the following possible meanings:</p> <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 20px;">004</td> <td>Not a TSO address space.</td> </tr> <tr> <td style="padding-right: 20px;">008</td> <td>The AVT address passed to the SVC is not a valid address.</td> </tr> <tr> <td style="padding-right: 20px;">012</td> <td>Data in the AVT is not valid; the parameter passed to the SVC was not the address of SYSPROG's AVT.</td> </tr> <tr> <td style="padding-right: 20px;">016</td> <td>RB attributes are incorrect (for example, not a transient SVC).</td> </tr> </table>	004	Not a TSO address space.	008	The AVT address passed to the SVC is not a valid address.	012	Data in the AVT is not valid; the parameter passed to the SVC was not the address of SYSPROG's AVT.	016	RB attributes are incorrect (for example, not a transient SVC).
004	Not a TSO address space.								
008	The AVT address passed to the SVC is not a valid address.								
012	Data in the AVT is not valid; the parameter passed to the SVC was not the address of SYSPROG's AVT.								
016	RB attributes are incorrect (for example, not a transient SVC).								

	020	The attributes of the issuing program are invalid (for example, under TSO TEST).
	024	Not used.
	028	Request was invalid; neither set nor reset.
	032	The SVC number has not been supplied.
AMTIN2W		TSO/TEST ENVIRONMENT DETECTED - NOAPF OPTION FORCED  SYSPROG initialization detected that SYSPROG is running under TSO TEST. In TSO TEST environment, SYSPROG must run non-authorized. Many SYSPROG services are not available while running in this mode.
AMTIN3E		RESOLVE UNABLE TO LOCATE REQUIRED MODULE xxxxxxxx  A module required for successful initialization is missing. SYSPROG initialization terminated. Verify that all required modules are available in STEPLIB, AMTLIB, or link list libraries.
AMTIN3I		RESOLVE UNABLE TO ESTABLISH RECOVERY ENVIRONMENT  During initialization, SYSPROG was unable to establish a recovery environment. MVS denied the recovery request due to a system problem, such as insufficient LSQA.
AMTIN3W		RESOLVE UNABLE TO LOCATE MODULE xxxxxxxx  A module normally available, but not required, is missing. SYSPROG initialization continues. It is possible that one or more SYSPROG services might not be usable until the named module is available.
AMTIN4I		RESOLVE INITIALIZATION CONTINUES  This message appears after a warning level message during SYSPROG initialization.
AMTIN4W		xxxxxxx ASYNCH ENTRY IGNORED, TABLE OVERFLOW  You have specified a list of asynchronous services (through \$\$INASYN or \$\$INASNT members) that has more than 16 entries. Subsequent entries in the list will be ignored.
AMTIN5I		SYNTAX ERROR IN \$\$INSYS0, MEMBER IGNORED  The parameter split routine encountered invalid data while analyzing the parameter statement. The member is ignored.

- AMTIN6I                   SYNTAX ERROR IN \$\$INSYS0 (xxxxxxx), PARM IGNORED
- An individual parameter specified in member \$\$INSYS0 was invalid. The incorrect parameter is indicated by xxxxxxxx.
- AMTIN7I                   MODULE ASTXA1ii NOT FOUND, CONTINUING
- During initialization, an attempt was made to link to module ASTXA1ii (where ii is the two-character module suffix), but the module could not be found. Initialization continues, but the attempted function (for example, automatic startup of tracking or logging) is bypassed.
- AMTIN8I                   TSO USER REQUIRES OPER AUTHORITY
- TSO access to SYSPROG is available only to TSO user IDs with operator authority.
- AMTIN9I                   xxxxxxx SYNTAX ERROR IN USER ASYNCH ENTRY, CARD IGNORED
- xxxxxxx represents the first eight characters of the erroneous control statement. Asynchronous initialization continues by skipping this statement and proceeding to the next one.
- AMTINAI                  LOCAL 3270 INIT. FAILED; CONTINUING
- A LCL3270 DD statement is present, indicating that the SYSPROG full-screen TP monitor is required. The TP monitor initialization routine failed to complete.
- AMTINBW                  RESOLVE IS RUNNING NON-APF AUTHORIZED
- Warning message issued because many SYSPROG services are not available when running in this mode.
- AMTINHI                  MAJOR ERROR, OPERATING SYSTEM IS NOT MVS/XA OR MVS/ESA
- This version of SYSPROG will run only under MVS/XA or MVS/ESA. If a SYSPROG system for other than MVS/XA or MVS/ESA is desired, contact BMC Software.
- AMTINJW                  MODULE nnnnnnnn LOADED FROM AN UNAUTHORIZED LIBRARY
- The specified module was loaded from a library which was not APF authorized.

AMTINKI	JOBSTEP IS NOT AUTHORIZED
	Message is self-explanatory.
AMTINLW	nnnnnnnn NOT MARKED AUTHORIZED
	Message is self-explanatory.
AMTINMW	ABENDS MAY OCCUR EXECUTING SERVICES
	Message is self-explanatory.
AMTINPI	\$\$INPFKYS MEMBER CONTAINS INVALID DEFINITION - IGNORED
	The member \$\$INPFKYS in which the PF KEYS are defined contains an invalid definition. The invalid definition is ignored.
AMTINQI	SYSPROG COMMAND ID CHARACTER IS X
	X is replaced by the character specified by the CMDID= parameter in member \$\$INSYS0.
AMTINRE	COULD NOT ACTIVATE COMMAND EXIT
	The command exit could not be activated because
	<ul style="list-style-type: none"><li>• SYSPROG is not operating in supervisor state</li><li>• BBX is not active</li><li>• BBX does not support the command exit function</li></ul>
AMTINTI	SPECIFIED SYSPROG SVC IS NOT INSTALLED
	Consult BBILIB members to ensure customization was performed. If customization was properly performed, contact BMC Software Customer Support.
AMTINUI	SYSPROG SVC HAS IMPROPER ATTRIBUTES ASSIGNED
	The most likely cause of this message is the presence of the APF attribute and/or the nonpreemptive attribute in the SVC table entry of the SYSPROG SVC. Check to ensure that neither attribute is present.
AMTINVI	SPECIFIED SVC IS NOT THE SYSPROG SVC
	There was an error in the installation/customization procedure. Contact BMC Software Customer Support

AMTINWI                   SYSPROG SVC NOT SPECIFIED AND NOT FOUND

The SYSPROG authorization facility was improperly installed.

AMTINXI                   SYSPROG IS RUNNING NON-AUTHORIZED

One of two things has happened:

- SVC could not be found or was not correctly installed.
- The TSO authorization tables were not correctly updated to authorize SYSPROG.

Review the installation to be sure all steps are complete.

## Subroutine ASTXA1AL

Description:             ASTXA1AL is a dynamic allocation/deallocation subroutine.

Primary Use:             Performs dynamic allocation and deallocation for SYSPROG services.

### *Messages*

AMTALI                   ALLOCATION ERROR, RETURN xxxx, ERROR xxxx, REASON xxxx

SYSPROG encountered an error while attempting to dynamically allocate a data set. The return, error, and reason codes are those returned by dynamic allocation; see the IBM manual *System Macro Facilities SPL*.

## Subroutine ASTXA1AS

Description:             ASTXA1AS is the asynchronous service manager.

Primary Use:             Attaches asynchronous services as specified in \$\$INASYN (or \$\$INASNT) members in the LIB data set.

### *Messages*

AMTASI                   service-name ENDED WITH RC=xx, FUNCTION DEACTIVATED

The specified asynchronous service has failed. SYSPROG has deactivated the service, which will not be reinstated until SYSPROG is restarted.

## Subroutine **ASTXA1XM**

Description: ASTXA1XM is the cross-memory service routine.

Primary Use: Performs cross-memory SRB scheduling for SYSPROG services.

### *Messages*

- AMTXM1I CROSS MEMORY SERVICE UNABLE TO COMPLETE FOR address-space-name
- The specified address space was swapped out and SYSPROG was unable to effect a swap-in within 15 seconds. This address space should be investigated for problems.
- AMTXM2I CROSS MEMORY SERVICE ABENDED (Sxxx) FOR nnnnnnnn
- A cross-memory service routine has unexpectedly terminated. The system completion code is reported in field xxx of the message. The name of the target address space (the one in which the cross-memory service terminated) is reported in field nnnnnnnn.
- AMTXM3I CROSS MEMORY SERVICE FAILED; SRB FOR xxxxxxxx.yyyyyyyy TOO LONG
- A requestor of the cross-memory service specified an SRB routine that was too long to fit into the program area of SYSPROG's GSDA. xxxxxxxx is the CSECT name of the requesting service in the form ASTXA1ii, where ii is the two-character suffix of the CSECT name of the requesting service; yyyyyyyy is the name of the routine the caller requested.
- AMTXM4E UNABLE TO SWAP IN ADDRESS SPACE 'xxxxxxx' (aaaa)
- The cross memory service routine issued a SYSEVENT BRINGIN to force the target address space (name=xxxxxxx; asid=aaaa) into memory to schedule the required routine. Sixteen unsuccessful attempts were made before issuing this message. Investigate the specified address space to determine the problem.

---

# SYSPROG Services Security

MAINVIEW AutoOPERATOR users can make use of the SYSPROG services security exit when SYSPROG commands are issued either from the terminal session or from an EXEC. The SYSPROG exit entry code ASSERV is applicable to MAINVIEW AutoOPERATOR as follows:

**ASSERV**

Describes the function code passed in register 0 to the exit routine.

At this exit point, the user ID and command are passed to the exit for security validation.

The following fields in the AVT control block are significant to MAINVIEW AutoOPERATOR/SYSPROG security:

**AUTID**

Is the field in the AVT control block where the MAINVIEW AutoOPERATOR user ID is passed to the exit.

**AVTREPLY**

Is the field in the AVT that contains the SYSPROG command issued by the user.

The user ID passed to the exit is the user ID of the terminal session user who issued the SYSPROG command from the command line, issued the SYSPROG line command from one of the MVS services applications, or scheduled the EXEC that issues the SYSPROG service from the terminal session command line.

If the EXEC issues the SYSPROG command from the console (using the MVS MODIFY command), the user ID passed to the exit is that of the MAINVIEW AutoOPERATOR subsystem ID.

The exit can set return code 0 in register 15 to allow the service to continue or a nonzero return code to cause the service to be aborted.

For more information about SYSPROG user exits, refer to Appendix A, “SYSPROG User Exit”



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# Chapter 13 Introduction to MAINVIEW AutoOPERATOR for IMS

MAINVIEW AutoOPERATOR for IMS (also referred to as AutoOPERATOR for IMS) provides

- IMS events to the Rule Processor for automation
- IMS operations control through an interactive application that consolidates operations activity for IMS
- IMS resource control through online menus and applications with simple line commands to control IMS resources and activity
- an interactive interface to IMF applications and services

To control IMS operations, use the MAINVIEW AutoOPERATOR menus and applications. The SPF-like dialog is a set of menus and applications that the master terminal operator (MTO) uses to control IMS operation. The applications display the current IMS resources or IMS activity and any exceptions to normal activity. The MTO uses the applications to change the resources with a one- or two-character line command or to invoke MAINVIEW AutoOPERATOR EXECs that perform a group of IMS or MVS commands.

When you enter a line command in an application, MAINVIEW AutoOPERATOR responds by issuing the appropriate IMS command for that resource. The operator does not need to know the full IMS command. The application displays the short line commands that can be used. MAINVIEW AutoOPERATOR records the changed status on the panel when the change occurs.

EXECs can respond automatically to IMS or IMF messages or be scheduled by the time of day or the IMF user. EXECs are user-written programs that you can write to perform automation tasks on your system. See the *MAINVIEW AutoOPERATOR Advanced Automation Guide* for more information about EXECs, writing EXECs, and EXEC processing.

The applications are best summarized by looking at Options 1 to 6 on the IMS OPERATOR WORKSTATION panel:

**Figure 13-1 IMS OPERATOR WORKSTATION Panel**

```

BMC Software ----- IMS OPERATOR WORKSTATION ----- AutoOPERATOR
OPTION ===>                                     DATE -- 01/02/01
                                                TIME -- 12:51:56
                                                USERID -- BAOMXY2
                                                MODE -- ISPF 4.8

    1 STATUS      - Display Status of an IMS System
    2 NETWORK     - Display/Modify LINE/TERM/NODE
    3 DATABASE    - Display/Modify DATABASE
    4 TRANSACTION - Display/Modify TRANCODE
    5 PROGRAM     - Display/Modify PROGRAM
    6 REGIONS     - Display/Modify IMS REGION

    X EXIT       - Terminate
                                                PF1/13: HELP
                                                PF3/15: EXIT

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```

## Controlling the IMS Environment

MAINVIEW AutoOPERATOR application menus and panels display IMS resources or operation status for online monitoring and modification. Line commands that change the status are described for each application in the following chapters.

### IMS Resource Control

MAINVIEW AutoOPERATOR resource applications display panels show the IMS status for

- Network resources (Option 2)
- Databases (Option 3)
- Transactions (Option 4)
- Programs (Option 5)

## NETWORK Application

Option 2 displays information about BTAM communication lines, VTAM nodes, logical terminals, or ISC links. The information is selected from a NETWORK menu and is displayed as a scrollable list as follows:

- BTAM LINES application shows the
  - number of BTAM communication lines connected to IMS
  - symbolic name of the device
  - number of physical terminals
  - number of physical terminal input messages
  - number of physical terminal output messages
  - number of queued messages
  - line status
- VTAM NODES application shows the
  - node name (VTAM logical unit)
  - first LTERM assigned to the node
  - VTAM terminal device type
  - number of messages received from the node
  - number of messages sent to the node
  - number of messages still enqueued to the assigned LTERM for the node
  - VTAM node status
- LTERMS application shows the
  - logical terminal (LTERM) name
  - node (VTAM logical unit) name of an LTERM
  - physical line (PLINE) number
  - physical terminal number
  - number of physical terminal input messages
  - number of physical terminal output messages
  - LTERM status
- ISC LINKS application shows the
  - link name (VTAM addressable unit)
  - subpool name
  - remote session with which the link is in session
  - messages received over the link
  - messages sent over the link
  - messages still enqueued for the link
  - ISC link status

### **DATABASE Application**

Option 3 displays information about all the DL/I and Fast Path databases defined for your IMS. The Fast Path database application information is described in “IMS Fast Path Resource Control” on page 13-5. The DL/I application is a scrollable list for all the databases defined to IMS that shows the

- database name and its data set organization
- database type
- local database number
- status

### **TRANSACTION Application**

Option 4 displays information about the current IMS transactions and Fast Path routing codes. The Fast Path routing codes are described in “IMS Fast Path Resource Control” on page 13-5. The TRANSACTION application is a scrollable list that shows the

- transaction name
- IMS transaction type
- scheduling class
- Total number of messages enqueued
- remaining number of messages in the message queue
- current priority of the transaction
- Transaction limit priority
- transaction status

### **PROGRAM Application**

Option 5 shows a scrollable list of the IMS application programs. It displays the

- name of each program and its type (message processing, batch message processing, or Fast Path)
- current status

## IMS Fast Path Resource Control

You can display a Fast Path resource status by selecting the DATABASE or TRANSACTION application, described below, from the IMS OPERATOR WORKSTATION panel.

- DATABASE (Option 3)

This option displays a menu from which you can select four applications:

- The DL/I DATABASE application shows a scrollable list by database name, organization, type, local number, and status.
- The MAIN STORAGE DATABASE (MSDB) application shows a scrollable list of the MSDBs by name, the type (terminal-related, dynamic (MSRD); terminal-related, fixed (MSRF); nonterminal-related (MSNR)), MSDB virtual storage allocation, usage, and status.
- The DATA ENTRY DATABASE (DEDB) application shows a scrollable list of the DEDBs by name, the number of areas defined for each DEDB, and current status.
- The AREA application shows a scrollable list of the DEDB areas by name, the DEDB name, the number of area data sets (ADS), the percentage of sequential dependent and independent overflow used, any active utility, and the current status of the area.

The DEDB AREA detailed display shows the DEDB name, the area name, the VSAM Control Interval (CI) size, and the amount of available space (free CIs). It also lists the area data sets (ADSs) by ddname and shows the number of Error Queue Elements (EQE) used, the first volume and device address, and the ADS status.

- TRANSACTION (Option 4)

From the TRANSACTION menu you can select a ROUTING CODE application. This shows a scrollable list of current routing codes by name, the associated Fast Path message-driven program and balancing group (one BALG per each unique Fast Path program), the number of regions processing the balancing group, the number of transactions queued and dequeued by the balancing group, and the routing code status.

## IMS Operations Control

The IMS operations are controlled with

- an IMS status and exception display (Option 1)

The STATUS/EXCEPTION application displays current IMS activity and exceptions to normal activity divided into a STATUS area and an EXCEPTION area. Warning messages that identify IMS exceptions are shown in the EXCEPTION area.

The STATUS area shows the number of active message processing regions, batch message processing regions, Fast Path regions, the number of transactions processed and waiting to be processed, and two graphs. One graph indicates CPU and control region busy percentages and message queue utilization. The other graph represents response times for the first three IMF workload monitors that were started.

- a REGIONS application that shows current, active IMS regions (Option 6)

The REGIONS application displays the number of active and scheduled message processing, batch message processing, and Fast Path regions and the number of transactions queued per region, and a scrollable list of regions. The list displays the OS jobname for each region; the region type as MPP (message processing or Fast Path mixed mode), BMP (batch message processing), FPU (Fast Path Utility), MDP (message-driven Fast Path), IFP (nonmessage-driven Fast Path); the transaction code; the LTERM; class and program of the work in progress; the region ID; the real storage in use; the number of real I/Os; and the cumulative CPU time for the region.

- a Journal display that shows all current IMS messages sent to the MTO as well as BBI messages and IMS commands (highlighted) and command responses

The log can be browsed online with the LOG DISPLAY application.

- user-written EXECs that group predefined IMS, MVS, and IMF commands together for subsequent execution

## Viewing IMS and BBI Messages (LOG DISPLAY Application)

All commands and messages issued by IMS and MAINVIEW AutoOPERATOR are logged to the online BBI-SS PAS Journal log. This Journal log can be browsed or printed from the MAINVIEW AutoOPERATOR terminal session for IMS operational problem diagnosis and resolution. Browsing is done from the BBI LOG DISPLAY application, as described in the *MAINVIEW AutoOPERATOR Basic Automation Guide*.

## Log Maintenance Procedures (BBIDLOGA, BBIDLOGB)

MAINVIEW AutoOPERATOR for IMS uses two online logs, the BBI-SS PAS Journal log and the BBI-SS PAS Image log. Each log has dual data sets. The BBI-SS PAS Journal log records all BBI messages and IMS messages. The BBI-SS PAS Image log records screen images produced by the IMF analyzer and monitor products for offline printing.

The BBSAMP data set contains BMC Software-supplied BBIDLOGA and BBIDLOGB procedures. When a log is full, MAINVIEW AutoOPERATOR switches to the alternate log. BBIDLOGA is automatically scheduled to submit a batch job to print and reset a full BBI-SS PAS Journal log. BBIDLOGB is automatically scheduled to submit a batch job to print the BBI-SS PAS Image log data sets.

## Modifying Sample EXECs (BBUSER Members)

The BBUSER data set contains sample user-written EXECs that have been used in production systems. You can modify these or create your own EXECs as members of BBUSER, as described in the *MAINVIEW AutoOPERATOR Advanced Automation Guide*. After thoroughly testing an EXEC in your own environment, make it a member of the BBPROC data set so that you can execute it.

The distributed BBUSER EXECs (see Appendix B, “BBUSER Library EXEC Index”) provide the following services:

- manage application resources, such as transactions, programs, and databases
- manage network resources
- perform IMS operational procedures
- respond to IMS messages
- process IMS, MVS, or BBI system, job, and time data and issue commands

For example, an EXEC can start a region at a specific time of day within a timed interval.

## Resource Exception Command

When a resource application is selected, the application displays the status of all the resources, including those that are not operating normally (exceptions). You can enter a resource exception command, `X {ON|OFF}`, to display only the resource exceptions or to display all the resources on any resource application. The default is `X OFF`, which displays all the resources defined to IMS for that application.

For example,

```
COMMAND ===> X ON
```

entered from the AREAS application causes the application to display only those DEDB areas that have a status of RECOVERY NEEDED or STOPPED. If you enter LT on the COMMAND line to temporarily transfer to the LTERMS application, the LTERMS application is displayed with X ON. If you then reset X ON to OFF from LTERMS and return to AREAS, the AREAS application contains the original data before application transfer, including the value you set for the resource exception command. Pressing ENTER displays the current values. X ON remains on for application transfer until you enter X OFF.

---

---

# Chapter 14 NETWORK Applications

Select the NETWORK option, shown in Figure 14-1, from the IMS OPERATOR WORKSTATION panel.

**Figure 14-1 NETWORK Menu**

```
BMC Software ----- NETWORK ----- AutoOPERATOR
OPTION ==>                                     DATE -- 01/03/16
                                               TIME -- 10:00:35

  1 LINES      - Display/Modify IMS LINES
  2 NODES      - Display/Modify VTAM NODES
  3 LTERMS     - Display/Modify IMS LTERMS
  4 ISC LINKS  - Display/Modify ISC LINKS
```

The NETWORK option comprises a menu and set of applications. Use the menu to select an application to manage the

- BTAM communication lines
- VTAM network nodes
- IMS logical terminals (LTERMs)
- Network ISC links

# Managing BTAM Communication Lines

Select the BTAM LINES application, shown in Figure 14-2, from the NETWORK option menu.

**Figure 14-2 BTAM LINES Application**

```

BMC Software ----- BTAM LINES ----- AUTOOPERATOR
COMMAND ==>
LC CMDS ==> I, IN, P, S, R, RO
TGT ==> IMS130
LC LINE -DEVICE TYPE-- #TERM INPUT OUTPUT QUECNT ----- STATUS -----
  1 SYSTEM CONSOLE 1 1 26 0 LINE OPERATIONAL
  2 TWX 1 0 0 0 STOPPED
  3 DIAL 7 0 0 0 STOPPED
  4 TWX 1 0 0 0 STOPPED
  5 DIAL 7 0 0 0 STOPPED
  6 2740 MOD1 1 0 0 0 STOPPED
***** END OF LINES *****
    
```

This application displays a scrollable list of the switched and nonswitched communication lines connected to physical terminals. The application shows for each line: its line number, symbolic device type name, physical terminal number, physical terminal input message count, physical terminal output message count, queue message count, and current status.

Use the application to monitor or change a line's status as follows:

**Column**

**Description**

**LC**

The line command field. Enter any of the following 1- or 2-character line commands for the line you want to change:

**Line Command**

**MAINVIEW AutoOPERATOR Action**

- I** Issues the /IDLE LINE command to immediately terminate the communication, which stops message sending, receiving, and queuing. Partially processed input messages are discarded and output messages are returned to the message queues.
- IN** Issues the /IDLE LINE NOSHUT command to immediately terminate input to and output from 3270 remote BTAM lines without a checkpoint shutdown.
- P** Issues the /STOP LINE command to stop the sending, receiving, or queuing of output messages to the line, but the line is not stopped until it is stopped and idle.

<b>S</b>	Issues the /START LINE command to make an idle, stopped, or pstopped line available for use.
<b>R</b>	Issues the /RSTART LINE command to start a line in the condition it was before it was stopped.
<b>RO</b>	Issues the /RSTART LINE OPEN command to enable a stopped and idle remote BTAM line.
<b>DEVICE TYPE</b>	The symbolic name for the device type.
<b>#TERM</b>	The number of physical terminals connected to the line.
<b>INPUT</b>	The number of input messages to the physical terminal.
<b>OUTPUT</b>	The number of output messages from the physical terminal.
<b>QUECNT</b>	The number of messages remaining in the message queue.
<b>STATUS</b>	The current line status, which can be
	LINE OPERATIONAL The line is available.
STOPPED	The /STOP LINE command was issued.
INPUT STOPPED	The /STOP LINE, /PURGE LINE, or /PSTOP LINE command was issued.
OUTPUT STOPPED	The /STOP LINE, /PURGE LINE, or /PSTOP LINE command was issued.
QUEUING STOPPED	The /STOP LINE, /PURGE LINE, or /PSTOP LINE command was issued.
PSTOPPED	The /PSTOP LINE command was issued. All messages sent to or received from a line are stopped. Message queuing continues.
PURGING	The /PURGE LINE command was issued.
IDLE	The /IDLE LINE or /IDLE LINE NOSHUT command was issued. The line is terminated.

Exceptions off (X OFF) is the default. All lines are displayed, including those that are an exception to normal operation. If X ON is entered in the primary command field as described in “Resource Exception Command” on page 13-8, only the lines in an exception to normal operation are shown. The exception status can be

- STOPPED
- INPUT STOPPED
- OUTPUT STOPPED
- QUEUING STOPPED
- PSTOPPED
- PURGING
- IDLE

# Managing VTAM Nodes

Select the VTAM NODES application, shown in Figure 14-3, from the NETWORK option menu.

## Important Note

This application is not available if the target is a DBCTL address space.

**Figure 14-3** VTAM NODES Application

```

BMC Software ----- VTAM NODES ----- AUTOOPERATOR
COMMAND ==>
LC CMDS ==> P, S, I, A, F, L, U, O, C, R, PU
TGT ==> IMS130

```

LC	NODE	LTERM	DEV TYPE	RECD	SENT	QCNT	STATUS
	LOD6	LL0D6	3270 VTAM	0	0	0	NOT CONNECTED
	LOD7	LL0D7	3270 VTAM	0	0	0	NOT CONNECTED
	LOD8	LL0D8	3270 VTAM	0	0	0	NOT CONNECTED
	LOD9	LL0D9	3270 VTAM	0	0	0	OPERATIONAL
	LODA	LL0DA	3270 VTAM	0	0	0	NOT CONNECTED
	LODB	LL0DB	3270 VTAM	0	0	0	NOT CONNECTED
	LODC	LL0DC	3270 VTAM	0	0	0	NOT CONNECTED
	LODD	LL0DD	3270 VTAM	0	0	0	NOT CONNECTED
	LO9E	SECMAS	3284/3286	0	0	5	NOT CONNECTED
	LO9F	PRINT2	3284/3286	0	0	0	NOT CONNECTED
	LODE	PRINT3	3284/3286	0	0	0	NOT CONNECTED
	LODF	PRINT4	3284/3286	0	0	0	NOT CONNECTED
	LSNAA01	SNAPA01	SLU TYPE 2	0	0	0	NOT CONNECTED
	LSNAA02	SNAPA02	SLU TYPE 2	0	0	0	NOT CONNECTED
	LSNAA03	SNAPA03	SLU TYPE 2	0	0	0	NOT CONNECTED
	LSNAA04	SNAPA04	SLU TYPE 2	0	0	0	NOT CONNECTED
	LSNAA05	SNAPA05	SLU TYPE 2	0	0	0	NOT CONNECTED
	LSNAA06	SNAPA06	SLU TYPE 2	0	0	0	NOT CONNECTED
	LSNAA07	SNAPA07	SLU TYPE 2	0	0	0	NOT CONNECTED
	LSNAA08	SNAPA08	SLU TYPE 2	0	0	0	NOT CONNECTED

This application displays a scrollable list of the VTAM nodes. The application shows the node name, the LTERM assigned to the node, the VTAM terminal device type, the messages received and sent per node, the number of messages to be queued per node, and the current node status.

Use the application to monitor or change a node's status as follows:

<b>Column</b>	<b>Description</b>																								
<b>LC</b>	The line command field. Enter any of the following 1- or 2-character line command for the node you want to change:																								
	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><b>Line Command</b></th> <th style="text-align: left;"><b>MAINVIEW AutoOPERATOR Action</b></th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"><b>P</b></td> <td>Issues /STOP NODE to stop message queuing for the VTAM node and the sending or receiving of messages over the node. The currently connected terminal is disconnected.</td> </tr> <tr> <td style="vertical-align: top;"><b>S</b></td> <td>Issues /START NODE to accept a LOGON from a VTAM-attached terminal only if the node is disconnected, idle, or stopped.</td> </tr> <tr> <td style="vertical-align: top;"><b>I</b></td> <td>Issues the ACF/VTAM command VARY NET,INACT to deactivate a minor node.</td> </tr> <tr> <td style="vertical-align: top;"><b>A</b></td> <td>Issues the ACF/VTAM command VARY NET,ACT to make a minor node available to the network.</td> </tr> <tr> <td style="vertical-align: top;"><b>F</b></td> <td>Issues the ACF/VTAM command VARY NET,INACT,F to deactivate a minor node. The node is immediately deactivated without the terminal being deallocated.</td> </tr> <tr> <td style="vertical-align: top;"><b>L</b></td> <td>Issues /LOCK LTERM to stop the sending of application program output, which affects the LTERM associated with the physical input terminal.</td> </tr> <tr> <td style="vertical-align: top;"><b>U</b></td> <td>Issues /UNLOCK LTERM to free the LTERM previously locked by /LOCK LTERM.</td> </tr> <tr> <td style="vertical-align: top;"><b>O</b></td> <td>Issues /OPNDST to connect IMS to the VTAM terminal (open node for IMS VTAM terminal session).</td> </tr> <tr> <td style="vertical-align: top;"><b>C</b></td> <td>Issues /CLSDST to disconnect IMS from VTAM terminal (close node for IMS VTAM terminal session).</td> </tr> <tr> <td style="vertical-align: top;"><b>R</b></td> <td>Issues /RSTART NODE to start the node with the previous conditions it had before it was stopped.</td> </tr> <tr> <td style="vertical-align: top;"><b>PU</b></td> <td>Issues /PURGE LTERM to stop input for the LTERM. Messages can still be scheduled.</td> </tr> </tbody> </table>	<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>	<b>P</b>	Issues /STOP NODE to stop message queuing for the VTAM node and the sending or receiving of messages over the node. The currently connected terminal is disconnected.	<b>S</b>	Issues /START NODE to accept a LOGON from a VTAM-attached terminal only if the node is disconnected, idle, or stopped.	<b>I</b>	Issues the ACF/VTAM command VARY NET,INACT to deactivate a minor node.	<b>A</b>	Issues the ACF/VTAM command VARY NET,ACT to make a minor node available to the network.	<b>F</b>	Issues the ACF/VTAM command VARY NET,INACT,F to deactivate a minor node. The node is immediately deactivated without the terminal being deallocated.	<b>L</b>	Issues /LOCK LTERM to stop the sending of application program output, which affects the LTERM associated with the physical input terminal.	<b>U</b>	Issues /UNLOCK LTERM to free the LTERM previously locked by /LOCK LTERM.	<b>O</b>	Issues /OPNDST to connect IMS to the VTAM terminal (open node for IMS VTAM terminal session).	<b>C</b>	Issues /CLSDST to disconnect IMS from VTAM terminal (close node for IMS VTAM terminal session).	<b>R</b>	Issues /RSTART NODE to start the node with the previous conditions it had before it was stopped.	<b>PU</b>	Issues /PURGE LTERM to stop input for the LTERM. Messages can still be scheduled.
<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>																								
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<b>R</b>	Issues /RSTART NODE to start the node with the previous conditions it had before it was stopped.																								
<b>PU</b>	Issues /PURGE LTERM to stop input for the LTERM. Messages can still be scheduled.																								

<b>NODE</b>	The name of the VTAM node (VTAM network addressable unit).
<b>LTERM</b>	The first LTERM assigned to the node.
<b>DEV TYPE</b>	The type of VTAM terminal.
<b>RECD</b>	The number of messages received by the node.
<b>SENT</b>	The number of messages sent by the node.
<b>QCNT</b>	The number of messages still enqueued for all the LTERMs assigned to the node.
<b>STATUS</b>	The current node status, which can be
<b>OPERATIONAL</b>	The node is available.
<b>WTOR DEVICE</b>	The physical terminal associated with the LTERM is a WTOR device.
<b>STOPPED</b>	/STOP NODE or /PURGE LTERM was issued.
<b>PSTOPPED</b>	/PSTOP LTERM was issued. All messages sent to or received from a node are stopped. Message queuing continues.
<b>LTERM LOCKED FROM /LOCK</b>	/LOCK LTERM was issued.
<b>QUEUE I/O ERROR</b>	There is an I/O error. IMS cannot send output messages.
<b>PURGING</b>	/STOP NODE, /PSTOP LTERM, or /PURGE LTERM was issued.
<b>NOT CONNECTED</b>	The physical terminal is not connected.
<b>IN SESSION</b>	The LTERM is allocated to the LU6 session.

Exceptions off (X OFF) is the default. All nodes are displayed, including those that are an exception to normal operation. If X ON is entered in the primary command line as described in “Resource Exception Command” on page 13-8, only the nodes in an exception to normal operation are shown.

The exception status can be

- STOPPED
- PSTOPPED
- LTERM LOCKED FROM /LOCK
- QUEUE I/O ERROR
- PURGING

## Managing IMS Logical Terminals (LTERMs)

Select the LTERMS application, shown in Figure 14-4, from the NETWORK option menu.

**Figure 14-4 LTERMS Application**

```

BMC Software ----- LTERMS -----
AutoOPERATOR
COMMAND ==>                                     TGT ==> IMS130
LC CMDS ==> P, S, PU, I, A, F, R, L, U
LC  LTERM  NODE  LINE TERM  INPUT  OUTPUT  ----- STATUS -----
ALQAA11A          0      0 UNALLOCATED LU6
ALQAA01A          0      0 UNALLOCATED LU6
ALQBB11A          0      0 UNALLOCATED LU6
ALQBB01A          0      0 UNALLOCATED LU6
ALQCC11A          0      0 UNALLOCATED LU6
ALQCC01A          0      0 UNALLOCATED LU6
ALQDD11A          0      0 UNALLOCATED LU6
ALQDD01A          0      0 UNALLOCATED LU6
ALQEE11A          0      0 UNALLOCATED LU6
ALQEE01A          0      0 UNALLOCATED LU6
ALQFF11A          0      0 UNALLOCATED LU6
ALQFF01A          0      0 UNALLOCATED LU6
ALQGG11A          0      0 UNALLOCATED LU6
ALQGG01A          0      0 UNALLOCATED LU6
ALQHH11A          0      0 UNALLOCATED LU6
ALQHH01A          0      0 UNALLOCATED LU6
BOLD0    BOLD0     39    1    0    0 NOT CONNECTED
BOLD1    BOLD1     40    1    0    0 NOT CONNECTED
BOLD10   BOLD10     49    1    0    0 NOT CONNECTED
BOLD11   BOLD11     50    1    0    0 NOT CONNECTED
    
```

This application displays a scrollable list of logical terminals (LTERMS). The application shows the LTERM name, the node for the LTERM, the physical line number, the physical number of the terminal, the number of physical terminal input and output messages, and the current status.

Use the application to monitor or change an LTERM's status as follows:

<b>Column</b>	<b>Description</b>																				
<b>LC</b>	The line command field. Enter any of the following one- or two-character line command for the LTERM that you want to change:																				
	<table border="1"> <thead> <tr> <th><b>Line Command</b></th> <th><b>MAINVIEW AutoOPERATOR Action</b></th> </tr> </thead> <tbody> <tr> <td><b>P</b></td> <td>Issues /STOP LTERM to stop output message queuing for the LTERM from other terminals and the sending or receiving of messages by the LTERM.</td> </tr> <tr> <td><b>S</b></td> <td>Issues /START LTERM to start the LTERM.</td> </tr> <tr> <td><b>PU</b></td> <td>Issues /PURGE LTERM to stop input for the LTERM. Messages can still be sent to the terminal.</td> </tr> <tr> <td><b>I</b></td> <td>Issues ACF/VTAM command VARY NET,INACT to deactivate LTERM.</td> </tr> <tr> <td><b>A</b></td> <td>Issues ACF/VTAM command VARY NET,ACT to make LTERM available to the network.</td> </tr> <tr> <td><b>F</b></td> <td>Issues ACF/VTAM command VARY NET,INACT F to immediately deactivate LTERM.</td> </tr> <tr> <td><b>R</b></td> <td>Issues /RSTART LTERM to start the LTERM with the previous conditions it had before it was stopped.</td> </tr> <tr> <td><b>L</b></td> <td>Issues /LOCK LTERM to stop the sending of application program output which affects the LTERM associated with the physical input terminal.</td> </tr> <tr> <td><b>U</b></td> <td>Issues /UNLOCK LTERM to free the LTERM previously locked by /LOCK LTERM.</td> </tr> </tbody> </table>	<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>	<b>P</b>	Issues /STOP LTERM to stop output message queuing for the LTERM from other terminals and the sending or receiving of messages by the LTERM.	<b>S</b>	Issues /START LTERM to start the LTERM.	<b>PU</b>	Issues /PURGE LTERM to stop input for the LTERM. Messages can still be sent to the terminal.	<b>I</b>	Issues ACF/VTAM command VARY NET,INACT to deactivate LTERM.	<b>A</b>	Issues ACF/VTAM command VARY NET,ACT to make LTERM available to the network.	<b>F</b>	Issues ACF/VTAM command VARY NET,INACT F to immediately deactivate LTERM.	<b>R</b>	Issues /RSTART LTERM to start the LTERM with the previous conditions it had before it was stopped.	<b>L</b>	Issues /LOCK LTERM to stop the sending of application program output which affects the LTERM associated with the physical input terminal.	<b>U</b>	Issues /UNLOCK LTERM to free the LTERM previously locked by /LOCK LTERM.
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<b>U</b>	Issues /UNLOCK LTERM to free the LTERM previously locked by /LOCK LTERM.																				
<b>LTERM</b>	The name of the LTERM.																				
<b>NODE</b>	The name of the VTAM node (VTAM network addressable unit).																				
<b>LINE</b>	The number of the physical line (PLINE) attached to the terminal.																				
<b>TERM</b>	The physical number of the terminal (PTERM).																				
<b>INPUT</b>	The number of physical terminal input messages.																				

<b>OUTPUT</b>	The number of physical terminal output messages.
<b>STATUS</b>	The current LTERM status, which can be
OPERATIONAL	The LTERM is available.
WTOR DEVICE	The physical terminal associated with the LTERM is a WTOR device.
STOPPED	/STOP LTERM or /PURGE LTERM was issued.
PSTOPPED	/PSTOP LTERM was issued. All messages sent to or received from the LTERM are stopped. Message queuing continues.
LTERM LOCKED FROM /LOCK	/LOCK LTERM was issued.
QUEUE I/O ERROR	There is an I/O error. IMS cannot send output messages.
PURGING	/STOP LTERM, /PSTOP LTERM, or /PURGE LTERM was issued.
NOT CONNECTED	The physical terminal is not connected.
IN SESSION	The LTERM is allocated to the LU6 session.
UNALLOCATED LU6	The LU6 session is not allocated.
STATIC	The LTERM is statically defined to IMS.
UNALLOCATED DYNAMIC	This terminal was created dynamically by the IMS 4.1 ETO and is not allocated to a node.

Exceptions off (X OFF) is the default. All LTERMs are displayed, including those that are an exception to normal operation. If X ON is entered in the primary command line as described in “Resource Exception Command” on page 13-8, only the LTERMs in an exception to normal operation are shown.

The exception status can be

- STOPPED
- PSTOPPED
- LTERM LOCKED FROM /LOCK
- QUEUE I/O ERROR
- PURGING

For dynamic terminals created by the IMS 4.1 Extended Terminal Option (ETO), ISTAT might not show the dynamic terminals immediately.

LTERMS are organized by an IMS 4.1 hashing algorithm. IMF and MAINVIEW AutoOPERATOR services present LTERMS and nodes alphabetically. To do this, these products use an index table to sort them. The table is refreshed according to a specified refresh interval and only when LTERM/node displays are requested. The default refresh interval is 10 seconds. If the time since the last refresh is greater than 10 seconds, the table is updated. Service requests that occur prior to the interval expiration do not show dynamic terminals created during the interval.

The refresh interval determines how soon dynamic terminals are displayed by ISTAT. Short refresh intervals enable them to be displayed sooner but might consume more resources because the table is updated more frequently. Longer refresh intervals might consume less resources but might delay the display of recently created dynamic terminals.

The amount of resources consumed by sorting depends on the size of your site's terminal network. To change the refresh interval, use the CBSINTVL parameter in BBPARM member BBIISP00. For the new value to take effect, you must restart the BBI-SS PAS.

By default, the index table uses 200K of BBI-SS PAS extended private area storage. You can use the CBSORTSZ parameter in BBPARM member BBIISP00 to change this value. Each terminal entry requires 12 bytes (8 bytes for the terminal ID name and 4 bytes for the address of either the CNT or the CLB control block).

# Managing ISC Links

Select the ISC LINKS application, shown in Figure 14-5 on page 14-12, from the NETWORK option menu.

**Important Note**

This application is not available if the target is a DBCTL.

**Figure 14-5 ISC LINKS Application**

```

BMC Software ----- ISC LINKS ----- AutoOPERATOR
COMMAND ==>
LC CMDS ==> P, R, S, O, C, I, A
TGT ==> IMS130
LC  NODE      SUBPOOL  ---ID---  RECD  SENT  QCNT  ----- STATUS -----
ALABIMSC L1WA1I01 NONE      4     10    2    IN SESSION
ALABIMSC L1WA1001 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1I02 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1002 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1003 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1003 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1004 NONE      2      5    4    OPERATIONAL
ALABIMSC L1WA1004 NONE      1      2    0    OPERATIONAL
ALABIMSC L1WA1005 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1005 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1006 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1006 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1007 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1007 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1008 NONE      0      0    0    NOT CONNECTED
ALABIMSC L1WA1008 NONE      0      0    0    NOT CONNECTED
ALAAIMSF      NONE      0      0    0    NOT CONNECTED
    
```

This application displays a scrollable list of ISC links. The application shows the link name, the subpool name, the remote system ID, the messages received, sent, and enqueued per ISC link, and the current status of each link.

Use the application to monitor or change the status of an ISC link as follows:

<b>Column</b>	<b>Description</b>																
<b>LC</b>	The line command field. Enter one of the following one-character line command for the link you want to change:																
	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><b>Line Command</b></th> <th style="text-align: left;"><b>MAINVIEW AutoOPERATOR Action</b></th> </tr> </thead> <tbody> <tr> <td><b>P</b></td> <td>Issues /QUIESCE NODE P1 SUBPOOL P2 to stop communication through the link. The subpool associated with the VTAM node is shutdown and deallocated.</td> </tr> <tr> <td><b>R</b></td> <td>Issues /RSTART NODE P1 SUBPOOL P2 to start link with the conditions it had before it was stopped.</td> </tr> <tr> <td><b>S</b></td> <td>Issues /START NODE P1 SUBPOOL P2 to start half-session allocated to subpool P2 for node P1.</td> </tr> <tr> <td><b>O</b></td> <td>Issues /OPNDST NODE P1 SUBPOOL P2 ID P3 to open nodes defined with subpools P2 for node P1. Node must be disconnected, idle, or stopped.</td> </tr> <tr> <td><b>C</b></td> <td>Issues /CLSDST NODE P1 SUBPOOL P2 to terminate half-sessions of the ISC node allocated to the specified subpool. The subpools are not deallocated from the session.</td> </tr> <tr> <td><b>I</b></td> <td>Issues ACF/VTAM command VARY NET,INACT to deactivate link and make it unavailable to the network.</td> </tr> <tr> <td><b>A</b></td> <td>Issues ACF/VTAM command VARY NET,ACT to make link available to the network.</td> </tr> </tbody> </table>	<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>	<b>P</b>	Issues /QUIESCE NODE P1 SUBPOOL P2 to stop communication through the link. The subpool associated with the VTAM node is shutdown and deallocated.	<b>R</b>	Issues /RSTART NODE P1 SUBPOOL P2 to start link with the conditions it had before it was stopped.	<b>S</b>	Issues /START NODE P1 SUBPOOL P2 to start half-session allocated to subpool P2 for node P1.	<b>O</b>	Issues /OPNDST NODE P1 SUBPOOL P2 ID P3 to open nodes defined with subpools P2 for node P1. Node must be disconnected, idle, or stopped.	<b>C</b>	Issues /CLSDST NODE P1 SUBPOOL P2 to terminate half-sessions of the ISC node allocated to the specified subpool. The subpools are not deallocated from the session.	<b>I</b>	Issues ACF/VTAM command VARY NET,INACT to deactivate link and make it unavailable to the network.	<b>A</b>	Issues ACF/VTAM command VARY NET,ACT to make link available to the network.
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<b>A</b>	Issues ACF/VTAM command VARY NET,ACT to make link available to the network.																
<b>NODE</b>	The name of the link (VTAM network addressable unit).																
<b>SUBPOOL</b>	The name of the LTERM that is allocated to the ISC node.																
<b>ID</b>	The remote system with which the link is in session.																
<b>RECD</b>	The number of messages received by the link.																
<b>SENT</b>	The number of messages sent by the link.																
<b>QCNT</b>	The number of messages still enqueued to the link.																

**STATUS**

The current ISC link status, which can be

**OPERATIONAL**      The link is available.

**STOPPED**            /QUIESCE NODE P1 SUBPOOL P2 was issued.

**LTERM LOCKED FROM /LOCK**  
                             /LOCK LTERM was issued.

**NOT CONNECTED**    The physical terminal is not connected.

**IN SESSION**        The LTERM is allocated to the LU6 session.

**SESSION ERROR**    The LU6 session is not allocated.

Exceptions off (X OFF) is the default. All nodes are displayed, including those that are an exception to normal operation. If X ON is entered in the primary command line as described in "Resource Exception Command" on page 13-8, only the nodes in an exception to normal operation are shown.

The exception status can be

- **STOPPED**
- **LTERM LOCKED FROM /LOCK**
- **SESSION ERROR**

---

---

# Chapter 15 DATABASE Applications

Select the DATABASE option, shown in Figure 15-1, from the IMS OPERATOR WORKSTATION Panel.

**Figure 15-1 DATABASE Menu**

```
BMC Software ----- DATABASE OPTIONS ----- AutoOPERATOR
OPTION ==>                                     DATE -- 01/03/16
                                                TIME -- 09:54:03

1 DATABASES - Display/Modify DL/1 Databases
2 MSDB      - Display/Modify Main Storage Databases
3 DEDB      - Display/Modify Data Entry Databases
4 AREA      - Display/Modify DEDB Areas
```

The DATABASE option comprises a menu and set of applications. Use the menu to select an application to manage

- all databases that are defined for your IMS
- Fast Path main storage databases (MSDB)
- Fast Path data entry databases (DEDB)
- Fast Path DEDB areas and area data sets

# Managing All the Databases

Select the DL/I application, shown in Figure 15-2, from the DATABASE OPTIONS menu.

**Figure 15-2 DL/I DATABASE Application**

```

BMC Software ----- DATABASE ----- AutoOPERATOR
COMMAND ==>> TGT ==>> IMS71Y
LC CMDS ==> P, PG, S, SG, DR, RG, DD, DG, DF, FG, DV, VG, L, U, ?
LC DATABASE DATASET ORG TYPE LNUM ----- STATUS -----
BE1PARTS DMB NOT AVAIL DL/I 1 STO,NOTOPEN,NOTINIT
BE2ORDER DMB NOT AVAIL DL/I 2 STO,NOTOPEN,NOTINIT
BE2ORDRX DMB NOT AVAIL DL/I 3 STO,NOTOPEN,NOTINIT
BE2PCUST DMB NOT AVAIL DL/I 5 NOTOPEN,NOTINIT,ALLOCF+
BE3ORDER DMB NOT AVAIL DL/I 6 NOTOPEN
BE3ORDRX DMB NOT AVAIL DL/I 7 NOTOPEN
B00INP01 DMB NOT AVAIL DL/I 10 STO,NOTOPEN,NOTINIT
CUSTHDAM DMB NOT AVAIL DL/I 13 NOTOPEN
CYTDBDI1 DMB NOT AVAIL DL/I 18 STO,NOTOPEN,NOTINIT
CYTDBDO1 DMB NOT AVAIL DL/I 19 STO,NOTOPEN,NOTINIT
DBFSAMD1 FAST PATH MSDB 23 OPEN,EEQE
    
```

This application shows a scrollable list of all the databases by name for both DL/I and Fast Path. The list identifies the data set organization, the database type, the database number, and the status of each database. Use the DL/I application to control all the databases defined for your IMS, as follows:

**Note:** Although Fast Path databases are shown in this application, the applications designed specifically for MSDBs and DEDBs display data that is more meaningful for those databases.

Column	Description
LC	line command field

Enter any of the following one- or two-character line command on the line of the database you want to change:

Line Command	MAINVIEW AutoOPERATOR Action
<b>P</b>	issues the /STOP DATABASE command to stop the database
<b>PG</b>	issues the /STOP DATABASE GLOBAL command to stop the database
	The command applies to all online subsystems sharing the database.

- 
- S** issues the /START DATABASE command to start the database
- SG** issues the /START DATABASE GLOBAL command to start the database
- The command applies to all online subsystems sharing the database.
- DR** issues the /DBRECOVERY DATABASE command with NOFEOV to stop the scheduling of transactions that update or read the database
- The IMS log does not switch to the next OLDS (online log data set).
- Note:** This line command cannot be used for an MSDB.
- RG** issues the /DBRECOVERY DATABASE GLOBAL command with NOFEOV to stop the scheduling of transactions that update or read the database
- The IMS log does not switch to the next OLDS. The command applies to all online subsystems sharing the database.
- Note:** This line command cannot be used for an MSDB.
- DD** issues the /DBDUMP DATABASE command with NOFEOV to stop the scheduling of transactions or programs that update the specified database
- Transactions reading that database continue. The IMS log does not switch to the next OLDS.
- Note:** This line command cannot be used for a DEBD or MSDB.

**DG** issues the /DBDUMP DATABASE GLOBAL command with NOFEOV to stop the scheduling of transactions or programs that update the specified database

Transactions reading that database continue. The IMS log does not switch to the next OLDS. The command applies to all online subsystems sharing the database.

**Note:** This line command cannot be used for a DEBD or MSDB.

**DF** issues the /DBRECOVERY DATABASE without NOFEOV to stop the scheduling of transactions that update or read the database

The IMS log switches to the next OLDS (online log data set).

**Note:** This line command cannot be used for an MSDB.

**FG** issues the /DBRECOVERY DATABASE GLOBAL without NOFEOV to stop the scheduling of transactions that update or read the database

The IMS log switches to the next OLDS. The command applies to all online subsystems sharing the database.

**Note:** This line command cannot be used for an MSDB.

**DV** issues the /DBDUMP DATABASE command without NOFEOV

The command executes the same as /DBDUMP with NOFEOV except the IMS log switches to the next OLDS.

**Note:** This line command cannot be used for a DEBD or MSDB.

- VG** issues the /DBDUMP DATABASE GLOBAL without NOFEOV
- The command executes the same as /DBDUMP with NOFEOV except the IMS log switches to the next OLDS. The command applies to all online subsystems sharing the database.
- Note:** This line command cannot be used for a DEBD or MSDB.
- L** issues the /LOCK DATABASE command to stop the scheduling of application programs that use the database
- U** issues the /UNLOCK DATABASE command to free a database previously locked by the /LOCK command
- ?** issues the /DIS DATABASE command to display additional information for a database

**DATABASE** one- to eight-character name of the database

**DATASET ORG** IMS data set organization, which can be

**DMB NOT AVAIL** Data Management Block (DMB) control block cannot be located

The DMB pool might be too small for the DMB or the database has not been opened yet.

**ISAM CASE 1** HISAM database (one data set group)

**ISAM CASE 2** HISAM database (multiple data set groups)

**SSAM** single segment sequential database

**HSAM** multiple segment sequential database

**HD DIRECT** HDAM database (OSAM data set)

**HD INDEXED** data portion of HIDAM database (OSAM data sets)

**INDEX DATABASE** primary index to HIDAM database (ISAM data sets), or secondary index to HISAM, HIDAM, or HDAM database (ISAM data sets)

	<b>HISAM VSAM</b>	HISAM database (one data set group of VSAM data sets)
	<b>SHISAM VSAM</b>	single segment HISAM database (VSAM data sets)
	<b>VSAM INDEX-K</b>	primary index to HIDAM database (VSAM Keyed Sequential Data Sets (K SDS)), or secondary index to HISAM, HIDAM, or HDAM database (VSAM KSDS)
	<b>VSAM HDAM</b>	HDAM database (VSAM Entry Sequential Data Sets (ESDS))
	<b>PHDAM</b>	partitioned HDAM database (indicates HALDB database)
	<b>VSAM HIDAM</b>	data portion of HIDAM database (VSAM ESDS)
	<b>PHIDAM</b>	partitioned HIDAM database (indicates HALDB database)
	<b>VSAM INDEX-K/E</b>	secondary index to HISAM, HIDAM, or HDAM database (VSAM KSDS and ESDS (nonunique keys))
	<b>FAST PATH</b>	Fast Path database
	<b>PART</b>	HALDB database partition
	<b>PINDEX</b>	HALDB primary index
	<b>PSINDEX</b>	HALDB secondary index
<b>TYPE</b>		IMS database type, which can be
	<b>DL/I</b>	DL/I database
	<b>MSDB</b>	Fast Path main storage database
	<b>DEDB</b>	Fast Path data entry database
<b>LNUM</b>		local Data Management Block (DMB) number from the IMS database directory

<b>STATUS</b>	current database status, which can be
<b>ALLOCF</b>	dynamic allocation for the database was unsuccessful
<b>NOTOPEN</b>	database is not open
<b>STO</b>	/STOP DATABASE command was issued for the database
<b>OPEN</b>	database is open
<b>NOTINIT</b>	no DBD was found for the database during IMS initialization
<b>LOCK</b>	/LOCK DATABASE command was issued for the database
<b>EEQE</b>	database had a write error
<b>/DBD IN PROGRESS</b>	/DBDUMP DATABASE without NOFEOV was issued for the database
<b>/DBR IN PROGRESS</b>	/DBRECOVERY DATABASE with NOFEOV was issued for the database
<b>INQONLY</b>	updates to the database are not allowed  The scheduling of any transactions or programs updating the database has been stopped.
	<b>Note:</b> When INQUIRY ONLY and NOT OPEN are both true, INQ ONLY is shown.
<b>NR</b>	database is nonrecoverable
<b>AALOCS</b>	indicates that the database allocation was successful
<b>BACKOUT</b>	indicates incomplete backouts are preventing the use of the database
<b>OFR</b>	indicates that the database is being brought up the current tracking level with online forward recovery
<b>RECALL</b>	indicates the database is in recall

If the total number of concurrent statuses does not fit on the panel, the + character is displayed after the last displayed status. The additional statuses might be viewed by entering the ? line command against the database. This line command causes the IMS /DIS DATABASE command to be issued for the database in question.

Exceptions off (X OFF) is the default. All databases are displayed with a status, including those that are an exception to normal operation. If X ON for exceptions on is entered in the COMMAND line as described in “Resource Exception Command” on page 13-8, only databases in an exception to normal operation are displayed. The exception status can be

- STO
- LOCK
- EEQE
- INQONLY
- ALLOCF
- BACKOUT
- OFR
- RECALL

# Managing Fast Path Main Storage Databases (MSDB)

Select the MSDB application, shown in Figure 15-3, from the DATABASE options menu.

**Figure 15-3 Fast Path MSDB Application**

```

BMC Software ----- MAIN STORAGE DATABASES ----- AutoOPERATOR
COMMAND ==> TGT ==> IMS71Y
LC CMDS ==> S(START), P(STOP), L(LOCK), U(UNLOCK),?(DISPLAY)
LC DATABASE TYPE SEGMENTS UNUSED STORAGE ----- STATUS -----
DBFSAMD1 MSNR 2 0 88
DBFSAMD2 MSRF 2 0 128
IVPDB4 MSNR 6 0 264 LOCK
    
```

This application shows a scrollable list of the MSDB databases by name. The list identifies the MSDB type, the total number of segments, the number of unused segments, the virtual storage size, and the current status of each MSDB. Use the application to control the Fast Path Main Storage databases defined for your IMS, as follows:

**Column**

**Description**

**LC**

The line command field. Enter one of the following one-character line command on the line of the MSDB database you want to change:

**Line Command**

**MAINVIEW AutoOPERATOR Action**

- S** issues the /START DATABASE command to start the MSDB
- P** issues the /STOP DATABASE command to stop the MSDB
- L** issues the /LOCK DATABASE command to stop the scheduling of application programs that use the MSDB
- U** issues the /UNLOCK DATABASE command to free an MSDB previously locked by the /LOCK command
- ?** issues the /DIS DATABASE command to display additional information for a database

**DATABASE**

The one- to eight-character name of the MSDB.

<b>TYPE</b>	The type of MSDB, which can be:
<b>MSNR</b>	Nonterminal-related.
<b>MSRD</b>	Terminal-related, dynamic - allows insertions or deletions.
<b>MSRF</b>	Terminal-related, fixed - no insertions or deletions.
<b>SEGMENTS</b>	The total number of segments in the MSDB.
<b>UNUSED</b>	The number of unused segments in the MSDB.
<b>STORAGE</b>	The MSDB virtual storage size. If the value is less than 1K, it is displayed as the number of bytes. If the value is more than 1K, it is displayed as the number of K with one decimal point; for example 235.6K.
<b>STATUS</b>	The MSDB exceptional status, which can be:
<b>ALLOCF</b>	Dynamic allocation for the database was unsuccessful.
<b>EEQE</b>	The database had a write error.
<b>blank</b>	Status is not displayed; the MSDB is in normal operation.
<b>LOCK</b>	/LOCK DATABASE command was issued for the MSDB.
<b>STO</b>	/STOP DATABASE command was issued for the MSDB.
<b>NOTINIT</b>	No DBD was found for the database during IMS initialization.
<b>FLDOVER</b>	Packed field overflowed.
<b>INVPACK</b>	Invalid data in an MSDB-packed field.
<b>ALLOCS</b>	Indicates that database allocation was successful.
<b>BACKOUT</b>	Indicates there are incomplete backouts preventing the use of the database
<b>INQONLY</b>	Indicates a /DBDUMP command was issued for the database.

**OFR** Indicates that the database is being brought up the current tracking level with online forward recovery.

**RECALL** Indicates the database is in recall.

If the total number of concurrent statuses does not fit on the panel, the + character is displayed after the last displayed status. The additional statuses can be viewed by entering the ? line command against the database. This line command causes the IMS /DIS DATABASE command to be issued for the database in question.

Exceptions off (X OFF) is the default. All databases are displayed, including those that are an exception to normal operation. If the database is operating normally, a status is not displayed. If X ON is entered in the primary command line as described in "Resource Exception Command" on page 13-8, only the databases in an exception to normal operation are shown. The exception status can be

- LOCK
- STO
- FLDOVER
- INVPACK
- INQONLY
- ALLOCF
- BACKOUT
- OFR
- RECALL

# Managing Fast Path Data Entry Databases (DEDB)

Select the DEDB application, shown in Figure 15-4, from the DATABASE options menu.

**Figure 15-4 Fast Path DEDB Application**

```

BMC Software ----- DATA ENTRY DATABASES ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> IMS71Y
LC CMDS ==> P(STOP), S(START), DR(RECOVER NOFEOV), DF(RECOVER FE OV), L(LOCK)
              U(UNLOCK), D(SHOW AREAS),?(DISPLAY DEDB), PG, SG, RG, FG
              ----- AREAS -----
LC  DATABASE TOTAL  ACTIVE  STOPPED  NOTOPEN
   DBFSAMD3     1     0         0         1  NOTOPEN
   IVPDB3       2     0         0         2  NOTOPEN
***** END OF DEDBS *****
    
```

This application shows a scrollable list of the data entry databases defined for IMS by name. For each DEDB, the list identifies the total number of areas and the number of areas that are active, stopped, and not open and the current status of the DEDB. Use the application to control the DEDBs as follows:

Column	Description
LC	The line command field. Enter any of the following one- or two-character line command on the line of the DEDB database you want to change:
<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>
<b>P</b>	issues the /STOP DATABASE command to stop the DEDB
<b>PG</b>	issues the /STOP DATABASE GLOBAL command to stop the DEDB  The command applies to all online subsystems sharing the database.
<b>S</b>	issues the /START DATABASE command to start the DEDB
<b>SG</b>	issues the /START DATABASE GLOBAL command to start the DEDB  The command applies to all online subsystems sharing the database.

<b>DR</b>	<p>issues the /DBRECOVERY DATABASE command with NOFEOV to stop the scheduling of transactions that update or read the DEDB</p> <p>The IMS log does not switch to the next OLDS (online log data sets).</p>
<b>RG</b>	<p>issues the /DBRECOVERY DATABASE GLOBAL command with NOFEOV to stop the scheduling of transactions that update or read the DEDB</p> <p>The IMS log does not switch to the next OLDS. The command applies to all online subsystems sharing the database.</p>
<b>DF</b>	<p>issues the /DBRECOVERY DATABASE without NOFEOV to stop the scheduling of transactions that update or read the DEDB</p> <p>The IMS log switches to the next OLDS.</p>
<b>FG</b>	<p>issues the /DBRECOVERY DATABASE GLOBAL command without NOFEOV to stop the scheduling of transactions that update or read the DEDB</p> <p>The IMS log switches to the next OLDS. The command applies to all online subsystems sharing the database.</p>
<b>L</b>	<p>issues the /LOCK DATABASE command to stop the scheduling of application programs that use the DEDB</p>
<b>U</b>	<p>issues the /UNLOCK DATABASE command to free a DEDB previously locked by the /LOCK DATABASE command</p>
<b>D</b>	<p>displays the AREA application, shown in Figure 15-5, only for the database selected by the D line command</p>
<b>?</b>	<p>issues the /DIS DATABASE command to display additional information for a database</p>
<b>DATABASE</b>	<p>one- to eight-character name of the DEDB</p>
<b>TOTAL</b>	<p>total number of database areas for the DEDB</p>

<b>ACTIVE</b>	number of active areas for the DEDB
<b>STOPPED</b>	number of areas stopped for the DEDB
<b>NOT OPEN</b>	number of areas not opened for the DEDB
<b>STATUS</b>	current DEDB status, which can be
<b>blank</b>	status is not displayed, the DEDB is in normal operation
<b>ALLOCF</b>	dynamic allocation for the database was unsuccessful
<b>EEQE</b>	database had a write error
<b>LOCK</b>	/LOCK DATABASE command was issued for the DEDB
<b>STO</b>	/STOP DATABASE command was issued for the DEDB
<b>NOTINIT</b>	no DBD was found for the DEDB during IMS initialization
<b>NOTOPEN</b>	DEDB is available but not yet open  This is not an exception to normal operation.
<b>ALLOCS</b>	indicates that database allocation was successful
<b>BACKOUT</b>	indicates there are incomplete backouts preventing the use of the database
<b>INQONLY</b>	indicates a /DBDUMP command was issued for the database
<b>OFR</b>	indicates that the database is being brought up the current tracking level with online forward recovery
<b>RECALL</b>	indicates the database is in recall
<b>NR</b>	indicates the database is nonrecoverable  Note that this status is displayed only for nonrecoverable DEDBs that have open areas.

If the total number of concurrent statuses does not fit on the panel, the + character is displayed after the last displayed status. The additional statuses can be viewed by entering the ? line command against the database. This line command causes the IMS /DIS DATABASE command to be issued for the database in question.

Exceptions off (X OFF) is the default. All databases are displayed, including those that are an exception to normal operation. If a database is operating normally, a status is not displayed. If X ON for exceptions on is entered in the primary command line as described in “Resource Exception Command” on page 13-8, only databases in an exception to normal operation are displayed. The exception status can be

- LOCK
- STO
- ALLOCF
- INQONLY
- BACKOUT
- OFR
- RECALL

## Managing Data Entry Database (DEDB) Areas

Select the AREA application, shown in Figure 15-5, from the DATABASE menu to display all areas. You can also select this application from the DATA ENTRY DATABASES application with a D line command, as described in “Managing Fast Path Data Entry Databases (DEDB)” on page 15-12 to display the areas for only one DEDB.

**Figure 15-5 Fast Path AREA Application**

```

BMC Software ----- DATA ENTRY DATABASE AREAS ----- AutoOPERATOR
COMMAND ==> TGT ==> IMS71Y
LC CMDS: P(STOP), S(START), DR(RECOVER NOFEOV), DF(RECOVER FE OV), D(SHOW ADS)
          ?(DISPLAY AREA), PG, SG, RG, FG
LC  AREA      DATABASE  ADS  TOTAL  OVFLOW  SEQ DEP ACTIVE
          PCT USED  PCT USED  UTILITY  ----- STATUS -----
CUSDB    DBFSAMD3     0      0      0      0      STO,NOTOPEN
DFSIVD3A IVPDB3     0      0      0      0      STO,NOTOPEN
DFSIVD3B IVPDB3     0      0      0      0      NOTOPEN
***** END OF AREAS *****
    
```

This application shows a scrollable list of the Data Entry Databases defined for IMS by name. For each DEDB, it shows the area name, the number of area data sets (ADS), a usage percentage of independent overflow and sequential dependent control intervals, the active utility (if scheduled), and the current status of the DEDB area. Use the application to control the DEDB areas as follows:

<b>Column</b>	<b>Description</b>												
<b>LC</b>	The line command field. Enter any of the following one- or two-character line command on the line of the DEDB area you want to change:												
	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><b>Line Command</b></th> <th style="text-align: left;"><b>MAINVIEW AutoOPERATOR Action</b></th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"><b>P</b></td> <td>issues the /STOP AREA command to stop the DEDB area, which closes the data sets for the area and deallocates them</td> </tr> <tr> <td style="vertical-align: top;"><b>PG</b></td> <td>issues the /STOP AREA GLOBAL command to stop the DEDB area, which closes the data sets for the area and deallocates them   The command applies to all online subsystems sharing the database.</td> </tr> <tr> <td style="vertical-align: top;"><b>S</b></td> <td>issues the /START AREA command to start the DEDB area, which reallocates the DEDB area data sets</td> </tr> <tr> <td style="vertical-align: top;"><b>SG</b></td> <td>issues the /START AREA GLOBAL command to start the DEDB area, which reallocates the DEDB area data sets  The command applies to all online subsystems sharing the database.</td> </tr> <tr> <td style="vertical-align: top;"><b>DR</b></td> <td>issues the /DBRECOVERY AREA command with NOFEOV, which stops the area, closes the data sets, and deallocates them  The IMS log does not switch to the next OLDS (online log data sets).</td> </tr> </tbody> </table>	<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>	<b>P</b>	issues the /STOP AREA command to stop the DEDB area, which closes the data sets for the area and deallocates them	<b>PG</b>	issues the /STOP AREA GLOBAL command to stop the DEDB area, which closes the data sets for the area and deallocates them   The command applies to all online subsystems sharing the database.	<b>S</b>	issues the /START AREA command to start the DEDB area, which reallocates the DEDB area data sets	<b>SG</b>	issues the /START AREA GLOBAL command to start the DEDB area, which reallocates the DEDB area data sets  The command applies to all online subsystems sharing the database.	<b>DR</b>	issues the /DBRECOVERY AREA command with NOFEOV, which stops the area, closes the data sets, and deallocates them  The IMS log does not switch to the next OLDS (online log data sets).
<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>												
<b>P</b>	issues the /STOP AREA command to stop the DEDB area, which closes the data sets for the area and deallocates them												
<b>PG</b>	issues the /STOP AREA GLOBAL command to stop the DEDB area, which closes the data sets for the area and deallocates them   The command applies to all online subsystems sharing the database.												
<b>S</b>	issues the /START AREA command to start the DEDB area, which reallocates the DEDB area data sets												
<b>SG</b>	issues the /START AREA GLOBAL command to start the DEDB area, which reallocates the DEDB area data sets  The command applies to all online subsystems sharing the database.												
<b>DR</b>	issues the /DBRECOVERY AREA command with NOFEOV, which stops the area, closes the data sets, and deallocates them  The IMS log does not switch to the next OLDS (online log data sets).												

- RG** issues the /DBRECOVERY AREA GLOBAL command with NOFEOV, which stops the area, closes the data sets, and deallocates them
- The IMS log does not switch to the next OLDS. The command applies to all online subsystems sharing the database.
- DF** issues the /DBRECOVERY AREA command without NOFEOV, which stops the area of the database, closes the data sets, and deallocates them
- The IMS log switches to the next OLDS.
- FG** issues the /DBRECOVERY AREA GLOBAL command without NOFEOV, which stops the area, closes the data sets, and deallocates them
- The IMS log switches to the next OLDS. The command applies to all online subsystems sharing the database.
- D** displays the AREA DETAIL application, shown in Figure 15-6, for the area selected by the D line command
- ?** issues the /DIS AREA command to display additional information for an AREA

**AREA** The one- to eight-character area name.

**DATABASE** The one- to eight-character name of the DEDB that owns this area.

**TOTAL ADS** The total number of area data sets for this area.

**OVFLOW PCT USED** Percentage of independent overflow control intervals used.

**SEQ DEP PCT USED** Percentage of sequential dependent overflow control intervals used. N/A is displayed if sequential dependents are not defined.

<b>ACTIVE UTILITY</b>	The type of utility active against this area, which can be
<b>REORG</b>	DEDB Reorganization utility
<b>CREATE</b>	DEDB Create utility
<b>COMPARE</b>	DEDB ADS Compare utility
<b>SCAN</b>	DEDB sequential dependent Scan utility
<b>DELETE</b>	DEDB sequential dependent Delete utility

<b>STATUS</b>	The current area status, which can be
<b>blank</b>	Status is not displayed; the DEDB area is in normal operation.
<b>RECOV</b>	All Error Queue Elements (EQE) are used and the DEDB needs to be recovered.
<b>STO</b>	The /STOP AREA command was issued for the area.
<b>NOTOPEN</b>	The area is not yet open. This is not an exception to normal operation.
<b>INQONLY</b>	Indicates a /DBDUMP command was issued for the database.
<b>IC</b>	Indicates that image copy is in progress for that area or database by an HSSP region.
<b>RECALL</b>	Indicates the area is in recall.

If the total number of concurrent statuses does not fit on the panel, the + character is displayed after the last displayed status. The additional statuses can be viewed by entering the ? line command against the Area. This line command causes the IMS /DIS AREA command to be issued for the area in question. The status field on this panel has a length of 19 characters (as opposed to 24 characters for all other panels).

Exceptions off (X OFF) is the default. All DEDB areas are displayed, including those that are an exception to normal operation. If the area is operating normally, a status is not displayed. If X ON is entered in the

primary command line as described in “Resource Exception Command” on page 13-8, only the areas in an exception to normal operation are shown. The exception status can be:

- RECOV
- STO
- IC
- RECALL

## Managing DEDB Area Data Sets

Select the detail display for an area, shown in Figure 15-6, by selecting the area with a D line command as described in “Managing Data Entry Database (DEDB) Areas” on page 15-15.

**Figure 15-6 Fast Path DEDB Area ADS Application (D Line Command, AREA Application)**

```

BMC Software ----- DEDB AREA DETAIL DISPLAY ----- AutoOPERATOR
COMMAND ===>                                     TGT ===> IMS51X

DATABASE: DBFSAMD3          ----- CONTROL INTERVAL DATA -----
AREA      : CUSDB
CI SIZE   : 1,024
STATUS    :
                                TOTAL CI's   FREE CI's
                                Root addressable 77
                                Independent overflow 74      74
                                Sequential Dependent 823     695
                                Root CIs per UOW 5
                                Overflow CIs per UOW 10

----- AREA DATA SETS -----
LC CMDS: P(STOP) ?(DISPLAY AREA)
LC DDNAME  EQES USED   UNIT  VOLUME  ----- STATUS -----
CUSDB      0      835B  BAB306          FORPHAS
    
```

The DEDB Area Detail application displays

- database name, area name, VSAM control interval (CI) size, and DEDB area status (blank for normal operation, RECOVERY NEEDED, STOPPED, NOT OPEN as described in “Managing Data Entry Database (DEDB) Areas” on page 15-15)
- DEDB area structure and amount of available space (CIs) as
  - number of CIs, including dependent overflow CIs, in the root addressable area
  - number of CIs in independent overflow and the number that are free or unused

- number of sequential dependent CIs and the number that are free or unused. N/A is displayed if sequential dependent CIs are not defined
- number of root CIs per unit of work (UOW)
- number of dependent overflow CIs per UOW
- area data set information

There is a maximum of seven area data sets (ADS) per DEDB area. The area data set information is not scrollable. It lets you view the ADSs and stop one or more of them, as follows:

<b>Column</b>	<b>Description</b>																				
<b>LC</b>	The line command field. Enter the P line command, the only valid command for this application:																				
	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><b>Line Command</b></th> <th style="text-align: left;"><b>MAINVIEW AutoOPERATOR Action</b></th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"><b>P</b></td> <td>issues the /STOP ADS command, which closes and deallocates the data set</td> </tr> <tr> <td style="vertical-align: top;"><b>DDNAME</b></td> <td>one- to eight-character DDNAME of the area data set</td> </tr> <tr> <td style="vertical-align: top;"><b>EQES USED</b></td> <td>number of error queue elements used. There is one for each VSAM control interval that has an I/O error  There are 10 EQEs per ADS.</td> </tr> <tr> <td style="vertical-align: top;"><b>UNIT</b></td> <td>physical device address of the first volume on which the ADS resides</td> </tr> <tr> <td style="vertical-align: top;"><b>VOLUME</b></td> <td>volume serial number of the first volume on which the ADS resides</td> </tr> <tr> <td style="vertical-align: top;"><b>STATUS</b></td> <td>current ADS status, which can be           <table border="0" style="margin-left: 20px;"> <tr> <td style="vertical-align: top;"><b>blank</b></td> <td>Status is not displayed; the DEDB area data set is in normal operation.</td> </tr> <tr> <td style="vertical-align: top;"><b>SEVERR</b></td> <td>The ADS has a severe I/O error.</td> </tr> <tr> <td style="vertical-align: top;"><b>FORPHAS</b></td> <td>ADS is in the format phase of a CREATE utility.</td> </tr> </table> </td> </tr> </tbody> </table>	<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>	<b>P</b>	issues the /STOP ADS command, which closes and deallocates the data set	<b>DDNAME</b>	one- to eight-character DDNAME of the area data set	<b>EQES USED</b>	number of error queue elements used. There is one for each VSAM control interval that has an I/O error  There are 10 EQEs per ADS.	<b>UNIT</b>	physical device address of the first volume on which the ADS resides	<b>VOLUME</b>	volume serial number of the first volume on which the ADS resides	<b>STATUS</b>	current ADS status, which can be <table border="0" style="margin-left: 20px;"> <tr> <td style="vertical-align: top;"><b>blank</b></td> <td>Status is not displayed; the DEDB area data set is in normal operation.</td> </tr> <tr> <td style="vertical-align: top;"><b>SEVERR</b></td> <td>The ADS has a severe I/O error.</td> </tr> <tr> <td style="vertical-align: top;"><b>FORPHAS</b></td> <td>ADS is in the format phase of a CREATE utility.</td> </tr> </table>	<b>blank</b>	Status is not displayed; the DEDB area data set is in normal operation.	<b>SEVERR</b>	The ADS has a severe I/O error.	<b>FORPHAS</b>	ADS is in the format phase of a CREATE utility.
<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>																				
<b>P</b>	issues the /STOP ADS command, which closes and deallocates the data set																				
<b>DDNAME</b>	one- to eight-character DDNAME of the area data set																				
<b>EQES USED</b>	number of error queue elements used. There is one for each VSAM control interval that has an I/O error  There are 10 EQEs per ADS.																				
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<b>blank</b>	Status is not displayed; the DEDB area data set is in normal operation.																				
<b>SEVERR</b>	The ADS has a severe I/O error.																				
<b>FORPHAS</b>	ADS is in the format phase of a CREATE utility.																				

<b>COPPHAS</b>	The ADS is in the copy phase of a COPY utility.
<b>PREOPEN</b>	Pre-open for ADS failed.
<b>UNAVAIL</b>	Indicates an ADS that is unavailable.

If the total number of concurrent statuses does not fit on the panel, the + character is displayed after the last displayed status. The additional statuses can be viewed by entering the ? line command against the Data Set. This line command causes the IMS /DIS AREA command to be issued for the area associated with the Data Set in question.

Exceptions off (X OFF) is the default. All DEDB area data sets are displayed, including those that are an exception to normal operation. If the area is operating normally, a status is entered in the primary command line as described in “Resource Exception Command” on page 13-8, only the area data sets in an exception condition and the exception status are shown. The exception status can be

- SEVERR
- FORPHAS
- COPPHAS
- PREOPEN
- SEVERR



---

# Chapter 16 TRANSACTION Applications

Select the TRANSACTION option, shown in Figure 16-1, from the IMS.

**Figure 16-1 TRANSACTION OPTION Menu**

```
BMC Software ----- TRANSACTION OPTION MENU ----- AutoOPERATOR
OPTION  ==>                                         DATE  -- 01/03/16
                                                    TIME  -- 10:16:01

          1  TRANSACTIONS - Display/Modify transactions
          2  RTCODE      - Display/Modify Fast Path Routing Codes
```

The TRANSACTION option has a menu and set of applications. Use the menu to select an application to manage

- IMS transactions
- Fast Path routing codes

# Managing Transactions

Select the TRANSACTIONS application, shown in Figure 16-2, from the TRANSACTION option menu.

<b>Important Note</b>
This application is not available if the target is a DBCTL address space.

**Figure 16-2 TRANSACTION Application**

```

BMC Software ----- TRANSACTION -----AutoOPERATOR
COMMAND ==> TGT ==> IMS71X
LC CMDS ==> P, S, PU, PS, L, U ?
LC  TRANCODE  TYPE CLS  ENQCNT  QUECNT  CP LP  ----- STATUS -----
RESTRNB1  BMP  4    0    0  0  0  STO,LOCK,TRA,BAL(001)+
RESTRNB2  BMP  4    0    0  0  0  STO,LOCK
RESTRNB3  BMP  4    0    0  0  0  STARTED
RESTRNF1  FPE  1    0    0  1  1  STARTED
RESTRNM1  MPP  1    0    0  1  1  STARTED
RESTRNM2  MPP  1    0    0  1  1  STARTED
SAPTRN    MPP  1    0    0  1  1  STARTED
SYSAAPL1  MPP  1    0    0  1  1  RMT
SYSAAPL2  MPP  1    0    0  1  1  RMT
SYSAAPL3  MPP  1    0    0  1  1  RMT
SYSCAPL1  MPP  1    0    0  1  1  RMT
SYSCAPL2  MPP  1    0    0  1  1  RMT
SYSCAPL3  MPP  1    0    0  1  1  RMT
TEKTRNB1  BMP  4    0    0  0  0  STARTED
TEKTRNB2  BMP  4    0    0  0  0  STARTED
    
```

This application displays a scrollable list of all the IMS transactions by name. The list shows each transaction type, scheduling class, message count, priorities, and status. Use the application to control the IMS transactions, as follows:

Column	Description
LC	The line command field. Enter any of the following 1- or 2-character line command on the line of the transaction you want to change:
<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>
<b>P</b>	Issues the /STOP TRAN command to stop the scheduling or queuing of messages containing this transaction code.
<b>S</b>	Issues the /START TRAN command to start this transaction, which allows LTERM or other program message scheduling and queuing.

<b>PU</b>	Issues the /PURGE TRAN to stop input messages destined for this transaction code. Transactions can still be scheduled.
<b>PS</b>	Issues the /PSTOP TRAN to stop the scheduling of messages containing this transaction code. The command prevents transaction scheduling after the limit count for the transaction code is reached. PS cannot stop Fast Path Exclusive (FPE) transactions, but it can stop Fast Path Potential (FPP) transactions.
<b>L</b>	Issues the /LOCK TRAN command to stop the scheduling of messages containing this transaction code.
<b>U</b>	Issues the /UNLOCK TRAN command to free a transaction code previously locked by the /LOCK TRAN command.
<b>?</b>	Issues the /DIS TRAN command to display additional information for a transaction.
<b>TRANCODE</b>	The transaction name.
<b>TYPE</b>	The transaction type defined to IMS, which can be as follows:
<b>MPP</b>	The transaction can be processed only in an IMS message processing region.
<b>BMP</b>	The transaction can be processed only in an IMS batch message processing region.
<b>FPE</b>	The transaction is Fast Path Exclusive. It can be processed only in a Fast Path message-driven (MD) region.
<b>FPP</b>	The transaction is Fast Path Potential. It can be processed in a Fast Path, MPP, or BMP region, depending upon a user-written routing exit.
<b>CLS</b>	The scheduling class for the transaction.
<b>ENQCNT</b>	The total number of enqueued messages.
<b>QUECNT</b>	The remaining number of messages in the message queue.
<b>CP</b>	The current priority of the transaction.

<b>LP</b>	The limit priority of the transaction.
<b>STATUS</b>	The status of the transaction, which can be as follows:
<b>STARTED</b>	The transaction is available.
<b>STO</b>	The /STOP TRAN command was issued for the transaction.
<b>PSTO</b>	The /PSTOP TRAN command was issued for the transaction.
<b>PUR</b>	The /PURGE TRAN command was issued for the transaction. All input messages for the transaction are stopped.
<b>LOCK</b>	The /LOCK TRAN command was issued for the transaction. Message scheduling for the transaction stopped.
<b>USTO</b>	This trancode has been suspended because a database is not available.
<b>SPND</b>	The transaction is placed on the suspend queue due to ABENDU3303 in IMS (see the IBM publication <i>IMS Messages and Codes Reference Manual</i> ).
<b>RMT</b>	The transaction is to be processed by an IMS other than the local IMS (IMS Multiple Systems Coupling).
<b>I/O PRE</b>	A BMP program containing GSAM cannot complete scheduling because I/O prevention has not completed. Further I/O requests to data sets are inhibited.
<b>QERR</b>	An I/O error has occurred on the queue for remote transaction (MSC).
<b>BAL</b>	An transaction is eligible for load balancing. An example of an eligible transaction would be a transaction with parallel limits specified. BAL is followed by a value in parentheses that indicates the current maximum number of regions that can be simultaneously scheduled to process the transaction.

---

<b>DYN</b>	Dynamic. A transaction was built in a shared-queues environment to allow transaction messages to be enqueued, but the transaction cannot run on the current IMS subsystem.
<b>TRA</b>	The transaction is being traced.

If the list of concurrent statuses does not fit on the panel, the + character is displayed after the last displayed status. The additional statuses might be viewed by entering the ? line command against the transaction. This line command causes the IMS /DIS TRAN command to be issued for the transaction in question.

Exceptions off (X OFF) is the default. All transactions are displayed, including those that are an exception to normal operation. If X ON is entered in the primary command line as described in “Resource Exception Command” on page 13-8, only the transactions in an exception to normal operation are shown. The exception status can be

- STO
- PSTO
- PUR
- LOCK
- USTO
- SPND
- I/O PRE
- QERR
- TRA

ENQ is a primary command used only on the TRANSACTION application. Enter ENQ ON in the COMMAND field to display only the transactions that have a nonzero queue count. Enter **ENQ OFF** to display all the transactions.

# Managing Fast Path Routing Codes

Select the FAST PATH ROUTING CODES Application, shown in Figure 16-3, from the TRANSACTION OPTION MENU.

**Important Note**

This application is not available if the target is a DBCTL address space.

**Figure 16-3 IMS Fast Path ROUTING CODE Application**

```

BMC Software ----- FAST PATH ROUTING CODES -----
AutoOPERATOR
COMMAND ==>
LC CMDS ==> P(STOP), S(START)
TGT ==> IMS130
LC  RTCODE  PGM/BALG  RGNS  QUEUED  DEQCNT  -----STATUS-----
BBFTRN01 BBFPGM01    0      0      0  NOT SCHEDULED
BBFTRN02 BBFPGM02    0      0      0  NOT SCHEDULED
BBFTRN03 BBFPGM03    0      0      0  NOT SCHEDULED
BBFTRN04 BBFPGM04    0      0      0  NOT SCHEDULED
BBFTRN05 BBFPGM05    0      0      0  NOT SCHEDULED
BBFTRN06 BBFPGM06    0      0      0  NOT SCHEDULED
BBFTRN07 BBFPGM07    0      0      0  NOT SCHEDULED
BBFTRN08 BBFPGM08    0      0      0  NOT SCHEDULED
BBFTRN09 BBFPGM09    0      0      0  NOT SCHEDULED
BBFTRN10 BBFPGM10    0      0      0  NOT SCHEDULED
BBFTRN11 BBFPGM11    0      0      0  NOT SCHEDULED
BBFTRN12 BBFPGM12    0      0      0  NOT SCHEDULED
BBFTRN13 BBFPGM13    0      0      0  NOT SCHEDULED
BBFTRN14 BBFPGM14    0      0      0  NOT SCHEDULED
BBFTRN15 BBFPGM15    0      0      0  NOT SCHEDULED
BBFTRN16 BBFPGM16    0      0      0  NOT SCHEDULED
BBFTRN17 BBFPGM17    0      0      0  NOT SCHEDULED
BBFTRN18 BBFPGM18    0      0      0  NOT SCHEDULED
BBFTRN19 BBFPGM19    0      0      0  NOT SCHEDULED
BBFTRN20 BBFPGM20    1      0      2  SCHEDULED
    
```

This application displays a scrollable list of all the Fast Path routing codes by name. The list shows the associated application program. If the program is active, the balancing group (BALG) name, which is the same as the program name, is shown. The list also shows the number of regions processing the balancing group, the number of messages queued and dequeued by the balancing group, and the routing code status. Use the application as follows:

Column	Description
<b>LC</b>	The line command field. Enter one of the following line command on the line of the return code you want to change:
<b>Line Command</b>	MAINVIEW AutoOPERATOR Action
<b>P</b>	Issues the /STOP RTCODE to stop the processing of transactions for this routing code.

**S** Issues the /START RTCODE command to start the processing of transactions for this routing code.

**RTCODE** A one- to eight-character routing code name.

**PGM/BALG** The one- to eight-character application program name (PGM). If the program is active, this is a BALG name (same name as the program).

**RGNS** The number of active Fast Path regions for this BALG.

**QUEUED** The number of messages queued and waiting to be processed. Queued Fast Path transaction counts are not carried across BALG restarts. If a BALG terminates because of an operator command or restart, the statistics are lost.

**DEQCNT** The number of messages processed by this BALG. Dequeued Fast Path transaction counts are not carried across BALG restarts. If a BALG terminates because of an operator command or restart, the statistics are lost.

**STATUS** The current routing code status, which can be as follows:

**blank** The routing code is in normal operation but not scheduled; a status is not displayed.

**NOT SCHEDULED** No active BALG for this routing code.

**NOT INIT** During IMS initialization, a PSB was not found for the program associated with this routing code.

**STOPPED** The /STOP RTCODE command code was issued for this routing code.

**SCHEDULED** The BALG is active for this routing code.

Exceptions off (X OFF) is the default. All routing codes are displayed, including those that are an exception to normal operation. If the area is operating normally and is not scheduled, a status is not displayed. If X ON is entered in the primary command line as described in “Resource Exception Command” on page 13-8, only the routing codes in an exception to normal operation are shown. The exception status can be

- NOT SCHEDULED
- NOT INIT
- STOPPED



---

# Chapter 17 IMS PROGRAM Application

Select the PROGRAM application, shown in Figure 17-1, from the IMS Option.

**Figure 17-1 PROGRAM Application**

---

```
BMC Software ----- PROGRAM -----
COMMAND ==>                                     TGT ==> IMS71Y
LC CMDS ==> P, S, L, U, ?
LC PROGRAM- TYPE ----- STATUS -----
  PHISMUPD TP          STARTED
  PMSG1 TP            STARTED
  PMSG1V TP            STARTED
  PMSG2 TP            STARTED
  PTEST01 BMP         STARTED
  PTEST02 BMP         NOTINIT
  PTEST04 BMP         STARTED
  PVSAMINQ TP         STARTED
  PVSAMUPD TP         STO,LOCK
  RBSPSBB1 BMP        NOTINIT
  RBSPSBB2 BMP        NOTINIT
  RBSPSBB3 BMP        NOTINIT
  RBSPSBF1 FP N       NOTINIT
  RBSPSBM1 TP         NOTINIT
  RBSPSBM2 TP         NOTINIT
  RESPSBB1 BMP        NOTINIT
```

---

This application shows a scrollable list of IMS application programs by name, identifies the application program type, and displays the current status of each program. Use the application to control the programs defined for your IMS, as follows:

<b>Column</b>	<b>Description</b>
<b>LC</b>	The line command field. Enter one of the following 1-character line command on the line of the program you want to change:
<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>
<b>P</b>	Issues the /STOP PROGRAM command to stop the execution of the program.
<b>S</b>	Issues the /START PROGRAM command to start the program, which makes it available for scheduling in the IMS regions.
<b>L</b>	Issues the /LOCK PROGRAM command to stop the scheduling of the program.
<b>U</b>	Issues the /UNLOCK PROGRAM command to free a program previously locked by the /LOCK command.
<b>?</b>	Issues the /DIS PROGRAM command to display additional information for a program.
<b>PROGRAM</b>	The one- to eight-character name of the program.
<b>TYPE</b>	The type of application program, which can be:
<b>FP U</b>	Fast Path utility
<b>FP N</b>	Nonmessage-driven Fast Path application program
<b>FP M</b>	Message-driven Fast Path application program
<b>BMP</b>	Batch message processing program
<b>TP</b>	Message processing program (MPP)
<b>STATUS</b>	The current status of the application program, which can be as follows:
<b>STARTED</b>	The program is available.

---

<b>STO</b>	The program is stopped because /STOP PROGRAM was issued.
<b>LOCK</b>	The program is locked because /LOCK PROGRAM was issued.
<b>DB-STO</b>	A database used by the PSB is stopped.
<b>NOTINIT</b>	No PSB was found for the program during IMS initialization.
<b>I/O PRE</b>	A BMP program containing GSAM cannot complete scheduling because I/O prevention has not completed. Further I/O requests to data sets are inhibited.
<b>TRA</b>	The program is being traced.

If the list of concurrent statuses does not fit on the panel, the + character is displayed after the last displayed status. The additional statuses can be viewed by entering the ? line command against the program. This line command causes the IMS /DIS PROGRAM command to be issued for the program in question.

Exceptions off (X OFF) is the default. All programs are displayed, including those that are an exception to normal operation. If X ON is entered in the primary command line as described in “Resource Exception Command” on page 13-8, only the programs in an exception to normal operation are shown. The exception status can be

- STO
- LOCK
- DB-STO
- I/O PRE
- TRA





- Input

To enter data in the application, it must be in Input mode. If the application is in Refresh, press **ATTN** (SNA terminal) or **PA1** (non-SNA terminal) for input mode. The message, **INPUT**, is displayed in the **STATUS** field.

Commands can be entered in the command line or data can be entered in the **TGT** or **INTVL** input fields. Press **Enter** to display the IMS current status.

The application is divided into two parts (status and exceptions).

## STATUS

Use the **STATUS/EXCEPTION** application to monitor the status of the target IMS environment, which shows:

- The target IMS in the **TGT** field, the refresh interval in seconds in the **INTVL** field, and the application mode status in the **STATUS** field (**RUN** and **RUNNING** for screen refresh or **INPUT** for application command entries).
- The current checkpoint ID, the checkpoint number in the **CHKPT #** field, and the IMS status.

The first time you access this application, the **IMS STATUS PROFILE** panel is displayed (see Figure 18-2 on page 18-5).

If you do not make any modifications to this panel, then *all* warnings and **ALERTs** are displayed on the **STATUS/EXCEPTION** panel. Refer to “**IMS STATUS PROFILE Panel**” on page 18-5 for more information about customizing the **STATUS/EXCEPTION** panel with the **IMS STATUS PROFILE** panel.

The IMS status can be

- **CTL RGN ABEND** (control region abend)
- **DC/MONITOR ACTIVE**
- **QUEUES STOPPED**
- **NORMAL OPERATION**

- The name and status of the first two external subsystems defined to IMS and the number of regions connected to them.

The status can be

**CONNECTED/ n/ n** A connection has been established between IMS and DB2. The first number is the number of connected dependent regions and the second number is the number of dependent regions that are actually signed on to DB2.

**NOT CONNECTED** The subsystem has been defined to IMS, but no connection exists.

**CONNECTING** IMS is in the process of establishing a connection with the subsystem.

**STOPPED** The IMS operator has issued a /STO SUBSYS command.

**STOPPING** The IMS operator has issued a /STO SUBSYS command and the connection is in the process of stopping.

**TERMINATING** The subsystem connection is in the process of terminating due to an internal request from IMS or DB2. This could be a normal or abnormal condition as indicated by IMS messages.

- The number of message processing (MPPS) regions that are active and started (n/ n where n is an MPP count), the number of batch message processing (BMPS) and Fast Path message processing (IFPS) regions that are active, and the number of connected and active DBCTL threads (n/ n where n is a DBT count).
- The number of transactions queued for processing and the number of transactions processed for each region type.
- Graphic information as

— PERCENTS

This graph shows total system CPU (TCPU) and control region CPU (ICPU) busy percentages and the largest percent used of the IMS queue data sets SHMSG, LGMSG, or QBLKS (MSGQ).

— RESPONSE TIME

This graph shows transaction response time for the first three response monitors started if IMS Workload Monitor is installed.

# EXCEPTIONS

Use the lower portion of the STATUS/EXCEPTION application to

- view IMS exception messages

Exception messages indicate a condition in IMS operation that might require operator action. The messages are issued by an EXEC with the IMFEXEC ALERT command. (Refer to the *MAINVIEW AutoOPERATOR Advanced Automation Guide* for more information about using EXECs and the IMFEXEC command statements.)

- clear IMS exception messages

Messages displayed in the EXCEPTIONS area are sent by an EXEC to indicate that an IMS condition needs attention. The message is displayed until the condition is resolved. When the condition is resolved, the warning message can be cleared by the EXEC (ALERT .. DELETE command). The operator cannot delete warning messages from the IMS STATUS/EXCEPTION display. To delete an ALERT, you must use the ALERT DETAIL display of the ALERT Management Facility (see the *MAINVIEW AutoOPERATOR Basic Automation Guide*).

- sort the display of ALERTs

You can use the Sort primary command to sort the display of ALERTs by either TIME or QUEUE. If you use SORT TIME, the display will be sorted with the most recently issued ALERT at the top of the display. If you use SORT QUEUE, the display will be sorted by queue with the most recently created queue at the top of the display.

Set the initial sort criteria on the IMS STATUS PROFILE panel in the Initial sort order field. The default is QUEUE.

# IMS STATUS PROFILE Panel

You can determine what is displayed on a STATUS/EXCEPTION panel by changing the IMS STATUS PROFILE panel.

To access the profile for the STATUS/EXCEPTION panel, enter **PROFILE** on the COMMAND line. Figure 18-2 shows an example of the IMS STATUS PROFILE panel.

**Figure 18-2**      **IMS STATUS PROFILE Panel**

```

BMC Software ----- IMS STATUS PROFILE ----- AutoOPERATOR
COMMAND ==>>
                                         DATE --- 01/03/07
                                         TIME --- 09:25:27

USER      ==>> *           /           /           /
QUEUE     ==>> *           /           /           /
TARGET    ==>> IMSC       /           /           /
PRIORITY  ==>> *           /           /           /

Initial Alert sort order ==>> TIME      (QUEUE or TIME)

Press END to SAVE Profile and return to application

```

**Note:** All ALERT categories are set by IMFEXEC ALERT commands in the EXECs that send alerts to the ALERT application within a BBI-SS PAS. See the *MAINVIEW AutoOPERATOR Advanced Automation Guide* for more information about the IMXEXEC ALERT command and using EXECs.

## Field Description

There are four input fields to design a STATUS/EXCEPTION panel:

- Use USER to display the ALERTs or warnings sent to a particular user IDs.
- Use QUEUE to display ALERTs or warnings sent to a particular queues.
- Use TARGET to display ALERTs or warnings sent to a particular targets; the TARGET must be local.
- Use PRIORITY to display ALERTs or warnings of a particular priority.

You can specify four entries for each category.

**Note:** An \* indicates all entities for that category.

Therefore, Figure 18-2 creates a STATUS/EXCEPTION panel where all the ALERTs or warnings sent to any user ID or any queue with all priorities for target IMSC are shown.

The priorities can be limited, only allowing WARNING messages to be displayed, by changing the PRIORITY entry, as shown in Figure 18-3.

**Figure 18-3**      **IMS STATUS PROFILE Panel — Limiting Priorities**

```

BMC Software ----- IMS STATUS PROFILE ----- AutoOPERATOR
COMMAND ==>>
                                         DATE --- 01/03/07
                                         TIME --- 09:25:27

USER      ==>> *           /           /           /
QUEUE     ==>> *           /           /           /
TARGET    ==>> IMSC       /           /           /
PRIORITY  ==>> WARNING    /           /           /

      Press END to SAVE Profile and return to application
  
```

---

---

---

# Chapter 19 REGIONS Application

Select the REGIONS application, shown in Figure 19-1, from the IMS.

**Figure 19-1 REGIONS Application**

```
BMC Software ----- IMS REGIONS ----- AutoOPERATOR
COMMAND ==>>
#MPPS>> 2/ 2 #QUEUED>> 9 DB2B>> NOT CONNECTED INTVL==> 3
#BMPS>> 1 #QUEUED>> 0 DB2A>> CONNECTED/ 2/ 2 STATUS--- INPUT
#IFPS>> 0 #QUEUED>> 0 DB2C>> NOT CONNECTED DATE----- 01/03/16
LC CMDS: P(STOP), A(ABDUMP), C(CANCEL), PW(STOP WFI) TIME----- 15:31:01
LC JOBNAME TYP TRANCODE PSBNAME LTERM CLS RGN WKSET # SIOS CPU TIME
I14XMSG MPP DSN8PT DSN8IH13 1 1 152K 284 2.24
I14XMSG MPP DSN8CS DSN8IC13 1 2 248K 283 3.12
I14XBMP BMP TDRIVER PDRIVER 4 3 228K 49 .30
***** END OF REGIONS *****
```

REGIONS displays the active IMS regions. New information is displayed each time the display refreshes at a user-specified interval. You can specify either the Refresh mode or an Input mode as follows:

- Refresh

Enter the screen refresh interval in seconds from 1 to 99 in the INTVL field. The default is the INTERVAL parameter value in the BMC Software-distributed BBPROF data set member BBITSP00.

Start screen refresh by pressing the GO key (**PF6** or **18**) or by entering GO in the command input line. Screen refresh is indicated by the message, RUNNING, displayed in the STATUS field.

Data cannot be entered until you press ATTN (SNA terminal) or PA1 (non-SNA terminal), which exits Refresh and enters Input mode. INPUT is displayed in the STATUS field.

- Input

To enter data in the application, it must be in Input mode. If the application is in Refresh, press ATTN (SNA terminal) or PA1 (non-SNA terminal) for input mode. The message, INPUT, is displayed in the STATUS field.

Commands can be entered in the command line, data can be entered in the TGT or INTVL fields, and the line commands can be used. Press **Enter** to display the current IMS status.

The application shows the region status and a scrollable list of the active regions by name. The region status shown in the upper portion of the application displays

- number of message processing (MPPS) regions that are active and started (n/ n where n is an MPP count) and number of batch message processing (BMPS) and Fast Path message processing (IFPS) regions that are active
- number of transactions waiting to be processed per region type (# QUEUED >> field)
- name and status of the first three external subsystems defined to IMS and the number of regions connected to them

The status can be

<b>CONNECTED/ n/ n</b>	A connection has been established between IMS and DB2. The first number is the number of connected dependent regions and the second number is the number of dependent regions that are actually signed on to DB2.
<b>NOT CONNECTED</b>	The subsystem has been defined to IMS, but no connection exists.
<b>CONNECTING</b>	IMS is in the process of establishing a connection with the subsystem.
<b>STOPPED</b>	The IMS operator has issued a /STO SUBSYS command.
<b>STOPPING</b>	The IMS operator has issued a /STO SUBSYS command and the connection is in the process of stopping.

---

**TERMINATING**

The subsystem connection is in the process of terminating due to an internal request from IMS or DB2. This could be a normal or abnormal condition as indicated by IMS messages.

- target IMS in the **TGT** field
- refresh interval in seconds in the **INTVL** field and the application mode status in the **STATUS** field (**RUNNING** for refresh or **INPUT** for application command entry)

The scrollable list in the lower portion of the **REGIONS** application shows all the active regions. Use the list to manage a region's status as follows:

**Column****Description****LC**

The line command field. Enter any of the following 1- or 2-character line command on the line of the region you want to change:

**Line Command****MAINVIEW AutoOPERATOR Action****P**

Issues the **/STOP REGION** command to terminate the message processing region when the current transaction completes.

**A**

Issues the **/STOP REGION P1 ABDUMP P2** to abnormally terminate an application program.

**C**

Issues the **/STOP REGION CANCEL** to stop a looping region that cannot be stopped by the **/STOP REGION P1 ABDUMP P2** command.

**PW**

Issues the **/STOP REGION P1 TRAN** to stop a message processing program in wait-for-input (WFI) mode.

**JOBNAME**

The one- to eight-character OS **JOBNAME** for the region

**TYP**

The type of region, which can be as follows:

**MPP**

Message processing or Fast Path mixed mode region

**MDP**

Message-driven Fast Path region

**FPU**

Fast Path utility region

**BMP**

Batch message processing region

**IFP**

Fast Path exclusive

---

<b>DBT</b>	DBCTL thread
<b>JBP</b>	Non-message-driven IMS JAVA applications region
<b>JMP</b>	Message-driven IMS JAVA applications region
<b>TRANCODE</b>	The transaction in progress.
<b>PSBNAME</b>	The scheduled program.
<b>LTERM</b>	The logical terminal used for input.
<b>CLS</b>	The processing class.
<b>RGN</b>	The region ID.
<b>WKSET</b>	The real storage in use.
<b># SIOS</b>	The number of real I/Os.
<b>CPU Time</b>	The cumulative CPU time for the region.

---

---

# Chapter 20 Customizing MAINVIEW AutoOPERATOR for IMS Application Panels

All AutoOPERATOR displays are based on panels stored in the distribution data set BBPLIB. Each panel consists of fixed and variable data.

BBI provides a variety of displayable variables. The linkage between a variable displayed on the screen and one maintained by the BMC Software Dialog Manager is associated with a variable number, such as V12 or V13, in the appropriate field on the panel. The Dialog Manager displays only the selected subset of the variables coded in the body of the panel definition.

**Warning!** You *must* copy any customized or modified panel into UBBPLIB and concatenate it ahead of the BBPLIB panel library.

You can change MAINVIEW AutoOPERATOR panels to suit your needs. BBPLIB member EAAPPL is an example. EAAPPL defines the STATUS/EXCEPTION application panel. All the status application variables are described as comments in the panel definition. Do the following steps to change the variables to be displayed:

- Copy EAAPPL to UBBPLIB.
- Modify the constant information on the screen that describes each variable, such as the titles or the variable labels.
- Modify the variable number (Vnn where nn is a predefined number listed in a panel library member). The variable number corresponds to the data item to be displayed.

---

For example, if your site has IMS Workload Monitor (IMS WM), the response-time labels on the STATUS/EXCEPTION application panel (EAAPPL) can be changed to identify your site's application names. The EAAPPL panel shows the first three response monitors started by IMS WM.

For example, if the first three monitors started were

```
*           Response Time Monitors
REQ=@RSPT, ADDI+
REQ=@RSPT, ADDP+
REQ=@RSPT, DLET+
```

The labels for the response-time plots displayed on the EAAPPL screen could be changed to

```
                RESPONSE TIME
                0.....2.....4+
ADDINV         >>>>
ADDPART       >>>>>>>>
DLETINV       >>>>>
```

The labels can be any alphanumeric characters. They should be meaningful to your site.

Because the data from only three response monitors is displayed on the EAAPPL panel, the most important monitors should be started first. A group request can be issued with the TARGET=,BLK=,USRID= parameter when IMS starts, as described in the *IMF Online Products System and Use Guide*. This command ensures that the three response monitors are always started in the same sequence. If the startup of the response monitors changes, the labels on the EAAPPL panel need to be edited to identify these first three response monitors.

---

---

# Chapter 21 Automating and Simplifying IMS Operations

The first step to automating is to identify potential areas for automation. Review your operations procedures manual to find items that are already defined in steps that can be easily programmed into an EXEC. Ask the operators about time-consuming or complicated procedures that could be simplified. Review what happens during emergency situations: how the problem was discovered and what additional information would have been helpful.

MAINVIEW AutoOPERATOR provides powerful automation capabilities of the IMS environment with its capture of IMS MTO messages for logging and processing, and its EXEC facility for automating actions. IF-THEN-ELSE logic allows these actions to be tailored to the specific situation.

Within an EXEC, one or more of the following actions can be taken, depending on its purpose.

- Directly modify the system by issuing IMS, MVS or JES commands.
- Determine following action by analyzing the response segments received from an IMS command.
- Alert operations to an exception requiring action by posting a message to the STATUS/EXCEPTION and ALERT application displays.
- Invoke an existing IMS “automated operator” application by submitting an IMS transaction.
- Document current status of the system on the BBI-SS PAS Journal log by issuing IMS or DB2 display commands.

- Notify the appropriate person of exceptions that need a response. The EXEC can reword the message and then
  - send an alert to the STATUS/EXCEPTION and ALERT application displays
  - issue an MVS SEND to a local TSO user
  - issue a WTO to the MVS operator
  - send a message to an IMS LTERM, the MTO, or an IMS user
  - send a message to the BBI-SS PAS Journal log with a special search string, such as “SHIFT2”
  - page the on-call operator through the outboard processor MAINVIEW AutoOPERATOR Elan
  - schedule an EXEC on a remote system to notify someone at a remote location or on another system by any of the above methods

EXECs performing these actions can be scheduled in several different ways for different goals:

<b>User-initiated</b>	Simplifies entry of a long and complicated series of commands, reducing errors by minimizing manual input.
<b>Time-initiated</b>	Automates the execution of routine tasks to relieve the operator of the task and ensure consistency.
<b>Externally-initiated</b>	Coordinates the online IMS system with external events, especially related batch jobs.
<b>Remote EXEC-initiated</b>	Passes information and requests for action between connected systems.
<b>Command-initiated</b>	Monitors the submission of commands to the IMS system.
<b>Message-initiated</b>	Automates the response to an IMS event, often signalling an exception condition.

## How MAINVIEW AutoOPERATOR Interacts with IMF Products

MAINVIEW AutoOPERATOR for IMS interacts with all the IMF online products and facilities to automate IMF Performance Management and IMS control. Cross-product interactions provide these tools:

- A graphic display of current IMS transaction response times is included in the STATUS/EXCEPTION application panel if IMS WM is active.
- IMS monitor warning messages of resource or workload exception conditions are written to the BBI-SS PAS Journal log, along with IMS MTO messages, commands, and responses if IMS RM or IMS WM is active.
- Monitor warning messages from IMS RM or IMS WM can initiate EXECs that respond automatically to the detected exception conditions.
- The Interval Services facility, which starts a block of timer-driven requests at BBI-SS PAS startup, can initiate timer-driven requests both for time-initiated EXECs and for performance monitoring (IMS RA, RM, WA, WM).
- MAINVIEW AutoOPERATOR EXECs can issue IMF commands to control performance monitoring by
  - starting additional monitors (IMS RM and IMS WM) to gather more information
  - automatically logging displays to the IMAGE log to document current status of the system (IMS RA, RM, WA, WM)
- To get a complete picture of the status of one or more IMSs, set up a continuous refresh cycle of
  - Resource or Workload Analyzer displays
  - Resource or Workload Monitor plots
  - DMON and DWARN monitor summaries
  - IMS AO STATUS/EXCEPTION
  - IMS AO REGIONS
  - LOG DISPLAY

## Suggested Areas for Automation

The following section outlines areas that can be automated to improve IMS operations. Specific scenarios are given that might apply to your site.

### Control IMS Resources

IMS availability is no longer measured only by IMS Control Region uptime. Automating control of specific resources can measurably improve availability at both the application and user level.

- **Restart Transactions or Programs after an Abend**

When the IMS message DFS554A is issued, an EXEC can automatically respond to the message by issuing the commands to restart the abending program and transaction. The restart can be controlled according to the type of abend or the number of occurrences. This eliminates the delay caused by manually restarting a program and transaction. Also, the database administrator responsible for the application can be notified. The number of automatic restarts can be controlled by the EXEC.

See the sample EXEC DFS554A in the BBUSER library.

- **Restart Dropped Lines**

An EXEC can respond to the IMS message DFS970I by issuing commands to restart a dropped line, up to a specified number of tries. The network operator can be notified by a WTO at a specific destination (ROUTCDE) if these retries fail.

See the sample EXEC DFS970I in the BBUSER library.

- **Control a Large Group of IMS Resources**

Some IMSs are so large that IMS hangs if a /STOP NODE ALL or similar command is issued. Within an EXEC, use the generic commands so that commands can be issued for groups of resources. Then schedule each EXEC in stages to give IMS time to handle the commands. The staging can be done by the operator, or the first EXEC scheduled by the operator could schedule a time-initiated EXEC to handle the staging automatically, or delays can be included between the groups of commands within an EXEC.

- **Control a Group of Related Resources Simultaneously**

All of the resources for an application can be started or stopped at the same time when the operator submits an EXEC at the command line. For example,

```
COMMAND ==> %PAYROLL START
```

starts all of the databases, terminals and transactions for the application program PAYROLL. This not only speeds up the process, but also avoids input errors likely when the operator must key in a long series of commands and resource names.

See the sample EXEC PAYROLL in the BBUSER library.

- **Manage the IMS Test System**

Your test system can be automatically started daily at a specified time, message regions started, databases switched regularly, and users notified prior to shutdown.

See sample EXEC DRIVER in the BBUSER library.

- **Staged IMS Startup**

An EXEC can issue the commands that start the IMS control region, dependent regions, groups of lines and message regions, and assign transactions to classes. Or, the EXEC can issue the transaction classing assignments only.

The sample EXEC DFS994I in the BBUSER library starts up IMS resources in response to the IMS message DFS994I.

- **Reconfigure Resources**

A time-initiated EXEC can be scheduled to handle system reconfiguration for batch-oriented work when the major online workload has finished; for example, at 6 pm. Some of the possible actions are to send a message to all online users, stop most message regions, and then schedule BMPs. An EXEC could be provided to the operators that would allow them to delay these actions for a specified number of minutes in special conditions by setting a global variable that is tested at the beginning of this reconfiguration EXEC.

- **Program Changes in a Virtual Fetch Environment**

An EXEC can automate the steps needed to stop and restart the affected message regions when a program is changed and Virtual Fetch is being used.

- **Fast Path MSDB Recovery**

An EXEC can be scheduled to capture MSDB messages at checkpoint, to start a batch job to copy the MSDBs to MSDBINIT. If an ERE (emergency restart) occurs, the current version of the MSDBs will be automatically loaded.

- **Control ISC Links**

An EXEC can restart a failing link or reassign a link to a backup.

- **Control MSC Links**

An EXEC can restart a failing link or reassign a link to a backup.

- **Simplify DB2 Command Input**

EXECs can also be used to group logically related DB2 databases together, such as all DB2 databases used by IMS transactions. You could then display all the locks for that group of databases by invoking your EXEC:

```
COMMAND ==>> %DB2DB LOCK
```

and then viewing the results on the Journal log. The DB2DB EXEC would contain DB2 commands such as

```
CMD /SSR -DISPLAY DATABASE DB00001 LOCKS
CMD /SSR -DISPLAY DATABASE DB00100:DB00120 LOCKS
CMD /SSR -DISPLAY DATABASE DB035* LOCKS
```

## Monitor Exceptions

The monitoring of exception conditions can result in greatly improved availability and service. MAINVIEW AutoOPERATOR for IMS can either take a direct action, if possible, or ensure that the appropriate person is notified so that the condition will be corrected as soon as possible.

The following list includes suggestions for specific situations.

- **DFS3258A LAST OLDS IS BEING USED--NEED ARCHIVE**

In addition to sending an alert to the STATUS/EXCEPTION display an EXEC can issue a /DIS OLDS command to capture the status on the Journal log and then allocate an extra Online Log Data Set, if available.

- **DFS0845I xxxxxxxx DATASET LIMIT REACHED, DDNAME=yyyyyyyyy**

An EXEC can respond to IMS message, DFS0845I, by issuing the /BROADCAST or MVS SEND commands to broadcast a warning to the MVS console and the database staff when a database is full.

- **DSNM002I IMS xxxx DISCONNECTED FROM SUBSYSTEM yyy, RC=rc**

When DB2 is down, an EXEC can send an alert to the STATUS/EXCEPTION display with an interpretation of the return code. Or, the DBA for DB2 can be notified if DB2 terminated abnormally.

- **DFS0769I SELECTIVE DISPATCHING - resource**

In response to this message, an alert can be sent to the STATUS/EXCEPTION display. /DIS POOL DCC and /DIS QUEUE commands can be issued to capture the status on the Journal log. IMF plots of the pools, SAPs, and transaction arrival rates can be written to the Image log.

- **RMXXXXW or WMXXXXW -- IMF Monitor Warnings**

These messages are written when a user-specified threshold defining a resource (such as input queue length) or workload (such as response time) exception is exceeded. The text of the message defines the condition, and both the measured value and the threshold are available for analysis. RMXXXXW and WMXXXXW denotes when the threshold is exceeded and RMXXXXI and WMXXXXI denotes when the ALERT no longer exists.

Sometimes direct action will be possible, such as starting another message region. Very often, it would be valuable to have the EXEC log Performance Management displays, such as pools, scheduling, queuing, or program isolation (PI), to the Image log for exception condition analysis. This captures system status at the time of the exception.

Another possibility is to start new monitors to gather more detailed information, which will then be available for online viewing when analyzing the exception. For example, in response to the message AVG RESP TIME BY TRANS (TOTAL), send an alert to the STATUS/EXCEPTION display and start IMF monitors to collect response time by class.

If desired, key exception values, such as response time, can be saved in global variables for use in other EXECs. The RMXXXXXI or WMXXXXXI message, which indicates that a warning condition no longer exists, can be used to reset the global variable (or delete a warning on the STATUS/EXCEPTION display).

- **IMS Security Violation Message**

In response to a violation, an EXEC can lock that node.

- **RWARN -- Route Alerts to Global Screen**

If operations is monitoring several systems, you might want to set up one global alert screen to show exceptions from all systems. An EXEC can be written to route the alert to a remote systems and that remote system can post the alert to a global ALERT screen.

- **Ensure that MSDBs are Loaded at Startup**

You can write an EXEC to ensure that required MSDBs are successfully loaded at startup. The EXEC will issue a /DIS DB command for all required MSDBs. The command responses returned to the Journal will be identified by a format identifier (FID) of D03. An EXEC named D03 can check the status of each MSDB to ensure that it is available as all the response segments are returned within the same EXEC and can be accessed via local variables LINE1 - LINE $x$ . If not, a warning message can be sent to the STATUS/EXCEPTION display or, if necessary, IMS can be brought down immediately with the appropriate /CHE command.

- **DBRC Warning Messages**

To ensure that a DBRC warning message such as DFS485W RECOVERY DATA FOR dbxyz might BE MISSING FROM RECON is not overlooked at the console, write an EXEC that sends a message to the STATUS/EXCEPTION display.

You can write another EXEC that verifies periodically that a spare RECON is available. Do this by issuing the DBRC command /RML DBRC= 'RECON STATUS' and capturing the response line that is identified with RECON3. Then check this line for the word SPARE.

- **DSNM004I RESOLVE INDOUBT ENTRY(S) ARE OUTSTANDING FOR SUBSYSTEM xxxx**

In response to the DSNM004I message, an EXEC can issue the command,

```
/SSR -DISPLAY THREAD * TYPE INDOUBT
```

to display the INDOUBT entries. The EXEC then submits the jobs IMSINDBT and DB2INDBT. This message:

**Warning!** IMS and DB2 databases may be out of sync. This condition occurred at hh.mm.ss on yyddd. Check the output of the display thread command on the Journal log for the thread(s) involved. Check the output of job IMSINDBT for the X'5501FE' records written to the IMS Log for recovery. Check the output of job DB2INDBT for DB2 indoubt recovery information written to the DB2 log.

can be sent to the Operations Supervisor, the IMS DBA, the DB2 DBA, and the IMS and DB2 systems programmers. It can also be sent to the STATUS/EXCEPTION display, colored in red with an alarm.

## Coordinate Online IMS with Batch Processing

MAINVIEW AutoOPERATOR for IMS provides unique capabilities for coordinating online IMS with batch jobs. It allows the initiation of batch jobs from EXECs based on IMS status. And, by using the external EXEC scheduling facility, allows batch jobs to initiate IMS actions.

### Coordinated Image Copy

Described here is one possible scenario for handling image copy jobs.

- The process can be started by a data center scheduling package such as UCC7, by a time-initiated EXEC, or by a user-initiated EXEC submitted by the operator.

- This EXEC, named IMAGE1, issues the /DBR command and sets global variables, and WAITs for 30 seconds.

```
IMFEXEC CMD /DBR performance data tables
```

```
IMFEXEC VDCL performance data tables LIST  
(dbvertime deallok imageok)
```

```
IMFEXEC WAIT 30
```

If no deallocation has been indicated, IMAGE1 sends a warning message to the STATUS/EXCEPTION display.

- During the 30-second wait, a message-initiated EXEC named DFS0488I captures the indication of a successful deallocation, updates the **Deallok** flag, and schedules a cross-system EXEC.
- This cross-system EXEC, running on a batch machine, starts the Image copy job, WAITs nn minutes, and, if the job has not completed, sends a warning message to the STATUS/EXCEPTION display.

One of two job steps at the end of the Image copy job will run based on the condition code of the copy step. If zero, the jobstep starts the cross-system EXEC IMAGEOK, and, if not zero, starts the EXEC IMAGEBAD.

The IMAGEOK EXEC (running on the online IMS machine) issues a /START DB command, calculates the elapsed time from “dbvertime” (saved in the first EXEC as a global variable) to current time, and sends the message DB /performance data tables WAS UNAVAILABLE FOR nnn MINUTES to the Journal log.

The IMAGEBAD EXEC issues this alert:

```
ACTION REQUIRED BEFORE RESTORING performance data  
tables TO ONLINE IMS
```

## Coordinate Batch Job Completion during IMS Downtime

You can coordinate the batch job completion during IMS downtime to ensure that resources are available for the online system startup. For example, the EXEC IMSTERM starts a time-initiated EXEC named BATCH 10 minutes after IMS termination. The BATCH EXEC is scheduled every five minutes. It starts jobs, monitors their completions, and keeps track of which databases are ready. If a job is not completed on time, the BATCH EXEC sends a warning to the STATUS/EXCEPTION display.

## Automate Performance Monitoring

Some basic performance monitoring can be automated using standard IMS facilities, but many more are available when the other IMF online products are installed. The first three examples here cover the first case, the others assume that one or more of the IMF Performance Management products are installed.

- The EXEC DISA captures IMS status regularly on the Journal log by issuing the commands `/DISPLAY ACTIVE` and `/SSR -DIS THREAD( *)` every 15 minutes. The responses are written to the Journal log.
- An EXEC named @DIS can monitor the use of the `/DISPLAY` (or any other) command. When a `/DISPLAY` command is issued, MAINVIEW AutoOPERATOR searches for an EXEC named @DIS. This EXEC can check who is issuing the command and how often. This information can be written periodically to the Journal log.
- An EXEC can automatically start and stop DC Monitor for the required monitoring interval.
- A time-initiated EXEC named MIDNITE can reset logs for the next day. It could
  - issue `/CHE` and `/DBR D121PART` to force the OLDS to switch.
 

This action provides a cutoff for daily IRUF processing for IMS PR and IMS TA
  - switch BBI-SS PAS Journal and Image logs
  - reset IMS RM and IMS WM history buckets to zero
- A time-initiated EXEC could coordinate monitors with activity. You could
  - change active monitors when different regions, classes, or workloads are scheduled at various times of the day
  - run a set of special monitors from 11am to 11:30am with automatic logging to create a peak-usage profile
  - reset monitors at 6pm when the BMP workload starts

- You can gather workload and service level data from the Image log and write it to a data set for the performance analyst. This data can include information such as the number of transactions processed and response time, written to the Image log on a timed basis. The batch job can be tailored to select the information needed to solve a specific problem (to be run on request) or to select a standard set of data (to be run on a regular basis). When the job is complete, a message can be sent to the performance analyst stating that the named data set is now ready for review.

## Simplify Operations

Many examples of ways to simplify operations have been given in the previous sections. Here are additional examples specific to operations.

- **Automate Archiving of the IMS MTO Log**

Using the BBI-SS PAS Journal log, automate the archiving of a machine-readable IMS MTO log. Daily, a time-initiated EXEC can switch and dump the Journal log at midnight. The dumped copy is then archived on some offline media. This eliminates the need for a hardcopy log.

- **Document a Shift Turnover**

Document a shift turnover with a time-initiated EXEC that issues a message to the BBI-SS PAS Journal, such as

```
SHIFT2 CHANGE AT 1600
```

The operator can send additional comments to the Journal by entering messages on the COMMAND line. By including the word SHIFT2 in each message, FIND (and REPEAT FIND) commands can be used by the next shift operator to find all related messages.

- **Application Programmers Control IMS Test System**

Let application programmers use the MAINVIEW AutoOPERATOR application line commands, such as starting or stopping databases or transactions, to control the IMS test systems.

- **Control DBR Process**

Ensure that deallocation of DBR'd databases occurs successfully. Capture each /DBR command (using EXEC @DBR) and completion message (using EXEC DFS0488I). If the completion message is not received within the specified time, or the return code is not zero, send a warning to the STATUS/EXCEPTION display.

- **Establish Additional Recovery Points**

Establish additional recovery points when necessary by forcing an OLDS switch with a /DBR command against a dummy database such as the sample database DI21PART.

- **Automate Stopping Regions**

Save message region numbers at region startup (using EXEC DFS5551I) so that the region can be stopped automatically at the proper time. Do this by issuing the /STOP REGION command with the region number (jobname not allowed).

**Note:** Refer to the OSPI Application in the *MAINVIEW AutoOPERATOR Advanced Automation Guide* for alternative methods of stopping regions.

- **More Meaningful Messages**

Change the text of the messages sent to the STATUS/EXCEPTION display so that they will be more meaningful to the operator. For example, if an MSC link goes down, provide the name of the system or location of the link partner, rather than only the internal number.

- **Automate an On-Call List**

Automate the tracking of people who are on call. Set up an EXEC to run at BBI-SS PAS startup and at shift change to set global variables identifying the on-call personnel responsible for that time period.

For example, global variables for the payroll-dba or the IMS-SYSPROG can define the name, TSO ID, work extension and home phone number. All other EXECs then refer to these global identifiers instead of to specific information that continually changes. This single list is easily updated. It can be flexible enough to differentiate between workdays and weekends, holidays, or other special conditions.

## Eliminating the IMS Hardcopy Printer

Two sets of instructions exist for eliminating the IMS hardcopy printer. Follow the first set of instructions the first time you define the BTAM line in your IMS gen.

### To Define the First Btam Line

- Step 1** In the IMS system generation for the first BTAM line defined, the DD card cannot be a dummy. Add the following lines and then do the appropriate IMS gen.

```
LINEGRP DDNAME=ddname,UNITYTYPE=PUNCH LINE ADDR=xxx  
(address of a dummy device defined in your I/O gen for  
your two-track data set)
```

```
TERMINAL NAME ltermname  
(ltermname of your two-track data set)
```

```
LINEGRP DDNAME=ddname,UNITYTYPE=PUNCH LINE ADDR=xxx  
(address of a dummy device defined in your I/O gen)
```

```
TERMINAL NAME ltermname  
(ltermname of your dummy punch)
```

After the definition of your MTO master terminal, unless already defined in your IMS gen, add:

```
TERMINAL NAME=nodename, PTRSIZE=132, UNIT=3286 NAME  
(ltermname, SECONDARY)
```

where nodename and ltermname define the secondary master terminal.

- Step 2** Add the following to your IMS JCL.

```
//ddname DD DSN=(a two-track data set*), DISP=OLD  
          *Define with DCB=(RECFM=UM,LRECL=124,BLKSIZE=134)  
//ddname DD DUMMY,DCB=(RECFM=UM,LRECL=124,BLKSIZE=134)
```

- Step 3** At IMS startup, issue the IMS command:

```
/START LINE 3 PTERM 1  
(Line 1 is always MCO or WTO. Line 2 is the non-dummy  
DD.)
```

Then assign the LTERM to the dummy device defined in the first step. For example, if the secondary master's ltermname is ALTMASST, issue:

```
/ASSIGN LTERM ALTMASST LINE 3 PTERM 1
```

Messages to this LTERM will now dequeue as fast as they are queued.

### If the First BTAM Line Has Been Defined

**Step 1** In the IMS system generation, add the following and then do the appropriate IMS gen.

```
LINEGRP DDNAME=ddname,UNITYTYPE=PUNCH LINE ADDR=x  
(address of a dummy device defined in your I/O gen)
```

```
TERMINAL NAME ltermname  
(ltermname of your dummy punch)
```

After the definition of your MTO master terminal, unless already defined in your IMS gen, add:

```
TERMINAL NAME=nodename, PTRSIZE=132, UNIT=3286 NAME  
(ltermname, SECONDARY)
```

where nodename and ltermname define the secondary master terminal.

**Step 2** Add the following to your IMS JCL:

```
//ddname DD DUMMY, DCB=(RECFM=UM, LRECL=124, BLKSIZE=134)
```

**Step 3** At IMS startup, issue the IMS command:

```
/START LINE # PTERM 1
```

where # is the line number of the line defined in the first step. For example, if line ADDR=xxx was the fourth line defined in the IMS JCL, then issue:

```
/START LINE 5 PTERM 1  
(Line 1 is always MCO or WTO.)
```

Then assign the LTERM to the dummy device defined in the first step. For example, if the secondary master's ltermname is ALTMASST, then issue:

```
/ASSIGN LTERM ALTMASST LINE 5 PTERM 1
```

Messages to this LTERM will now dequeue as fast as they are queued.



---

---

# Chapter 22 Introduction to MAINVIEW AutoOPERATOR for CICS

MAINVIEW AutoOPERATOR for CICS provides the following options:

- An online CICS SYSTEM STATUS application that provides
  - a series of Hyperlinks to MAINVIEW for CICS displays
  - an ALERTs display for CICS operational exceptions messages
- The ability to create user-written automation procedures, called EXECs, in either REXX or CLIST languages. These EXECs can perform routine Master Console tasks and issue CICS CEMT service transactions or MAINVIEW AutoOPERATOR commands to streamline your CICS operational environment.
- Input to the Rule Processor from CICS Transient Data Queue (TDQ) messages.
- An online CICS BROADCAST application that allows you to selectively send messages to a list of terminals.

As an operator, you can use the MAINVIEW AutoOPERATOR ALERT and SYSTEM STATUS applications to better manage CICS operations.

# MAINVIEW AutoOPERATOR for CICS Applications Overview

Access to MAINVIEW AutoOPERATOR for CICS applications are summarized by looking at options 1 and 2 on the CICS OPERATOR WORKSTATION panel:

**Figure 22-1 CICS OPERATOR WORKSTATION Panel**

```

BMC Software ----- CICS OPERATOR WORKSTATION ----- AutoOPERATOR
OPTION  ==>>>
                                     DATE   -- 01/01/24
                                     TIME    -- 10:29:42
                                     USERID  -- DDH1X
                                     MODE    -- ISPF 4.1
1  STATUS      - Status of CICS System(s)
2  BROADCAST   - Send a Message to CICS Terminal(s)
3  DATABASE    - Display/Modify DBCTL DATABASE
4  PROGRAM     - Display/Modify DBCTL PROGRAM
5  REGIONS     - Display/Modify DBCTL REGION
                                     PF1/13: HELP
X  EXIT        - Terminate
                                     PF3/15: EXIT
    
```

You can control CICS operations by using the following options:

- 
- 1 STATUS - Status of CICS System(s)
  - 2 BROADCAST - Send a Message to CICS Terminal(s)
  - .
  - .
  - .
-

The MAINVIEW AutoOPERATOR for CICS option also provides support for MV MANAGER for DBCTL as a target address space with the following applications:

---

```
.  
.   
.   
3  DATABASE      - Display/Modify DBCTL DATABASE  
4  PROGRAM       - Display/Modify DBCTL PROGRAM  
5  REGIONS       - Display/Modify DBCTL REGION  
.   
.   
.
```

---

The following sections briefly describe all of these applications.

## SYSTEM STATUS Application

Use this application to monitor CICS operational exceptions and to launch MAINVIEW for CICS applications to view detailed information about a particular CICS resource. To switch between CICS targets on any CPU, change the target name in the TGT field in the upper right corner of the CICS SYSTEM STATUS display.

## BROADCAST Application

Use the CICS BROADCAST panel to send a one- to six-line message to one or more CICS terminals connected to your target CICS system. CICS terminals that are in use are displayed on the same panel, so you can quickly select the terminals to receive messages, using flexible sort criteria. These messages are sent asynchronously and are unobtrusive to the receiving terminal.

## **DATABASE Application**

Use the DATABASE option to display a menu from which you can select three applications:

- The DL/1 Databases application shows a scrollable list by database name, organization, type, local number, and status.
- The Data Entry Databases application shows a scrollable list of the DEDBs by name, the number of areas defined for each DEDB, and current status.
- The DEDB Areas application shows a scrollable list of the DEDB areas by name, the DEDB name, the number of area data sets (ADS), the percentage of sequential dependent and independent overflow used, any active utility, and the current status of the area.

## **PROGRAM Application**

Use the PROGRAM application to see a scrollable list of the DBCTL application programs. It displays the

- name of each program and its type (message processing, batch message processing, or Fast Path)
- current status

## **REGIONS Application**

Use the REGIONS application to see the number of active and scheduled message processing, batch message processing, and Fast Path regions and the number of transactions queued per region, and a scrollable list of regions.

## Integrating the CICS Option with Other Products

If you have other MAINVIEW AutoOPERATOR options or MAINVIEW performance products (such as CICS MANAGER, MAINVIEW for DB2, or MAINVIEW for IMS Online) installed, the CICS Option can issue commands through them. EXECs can communicate with these products and variables are shared across components. Therefore, you can solve performance and automation problems when MVS and DB2 resources affect CICS.

### MAINVIEW AutoOPERATOR EXECs for CICS

MAINVIEW AutoOPERATOR CLIST or REXX EXECs can be written to automate a wide range of CICS applications and systems. MAINVIEW AutoOPERATOR for CICS allows you to write EXECs that

- invoke CEMT in a CICS region
- start CICS transactions
- issue MAINVIEW AutoOPERATOR for CICS (IMFEXEC CICS) commands that can display and manipulate CICS resources.

**Note:** Refer to the *MAINVIEW AutoOPERATOR Advanced Automation Guide* for a complete list of IMFEXEC CICS commands.

In conjunction with, or as an alternative to, writing custom solutions with MAINVIEW AutoOPERATOR for CICS, the BMC Software MAINVIEW Solutions product contains several CICS-specific solutions. Refer to the *MAINVIEW AutoOPERATOR Solutions Guide* for additional information.



---

# Chapter 23 Describing the CICS System Status Panel

The CICS System Status panel has three areas. The first area, called the Control Area, is explained in Chapter 2, “Describing Common Application Functions and Display Fields” in the *MAINVIEW AutoOPERATOR Basic Automation Guide*.

The second area (Area-2) is described in the section, “Hyperlinks to MAINVIEW for CICS: Area-2” on page 23-2. The third area (Area-3) is described in the section, “ALERT Display: Area-3” on page 23-3.

## Using Primary Commands

The following primary commands can be typed on the COMMAND line of the CICS System Status application.

Command	Resulting Action
<b>EXPAND</b>	invokes other applications when you press Enter, based on the position of the cursor  It functions as if you press Enter with the command line blank. It exists for compatibility purposes only.
<b>GO</b>	invokes screen refresh mode
<b>PROFILE</b>	displays the CICS System Status Profile panel
<b>SORT</b>	sorts the ALERTs in the ALERTs Display  The SORT TIME command sorts the ALERTs with the most recently issued ALERT at the top of the display. The SORT QUEUE command sorts the ALERTs by queue with the most recently created queue at the top of the display. To change the sort criteria, use the <b>Initial sort sequence</b> field on the CICS System Status panel or the CICS System Status Profile panel.

## Hyperlinks to MAINVIEW for CICS: Area-2

As shown in Figure 23-1, the center of the panel contains resource names that describe the type of hyperlink that each field represents. By moving the cursor to an individual field and pressing ENTER, you can invoke the corresponding MAINVIEW for CICS application.

**Figure 23-1 CICS System Status Panel: Area-2**

```

:
                                     Hyperlinks to MainView for CICS
----- TASKS -----   ----- TERMINALS -----   --- FILES ---   ----- STORAGE USAGE -----
Current Tasks           Signed on now           Opened           DSA Storage
Total Tasks             Processing            Closed           Subpools
Abends                 Out of service       Disabled         MVS Region
Times at MAXT          Acquired             Enabled
:

```

To hyperlink to MAINVIEW for CICS, place the cursor on any field in this area and press ENTER. The following table lists the field names, MAINVIEW for CICS application that is invoked, and a description of data displayed on the screen.

Field Name	MAINVIEW for CICS Application	Description of Output
<b>Current Tasks</b>	Task Display	information related to currently running tasks
<b>Total Tasks</b>	Summary Display	current and trend performance indicators and summary of resource usage
<b>Abends</b>	Abend Display	information regarding recent abends and dumps taken
<b>Times at MAXT</b>	Tclass Display	transaction classes and related statistics
<b>Signed on now</b>	Terminal Display	number of terminals that are currently signed on.
<b>Processing</b>	Terminal Display	terminals currently in use
<b>Out of service</b>	Terminal Display	terminals out of service.
<b>Acquired</b>	Terminal Display	number of terminals acquired through VTAM by this CICS region
<b>Opened</b>	File Display	open files
<b>Closed</b>	File Display	closed files
<b>Disabled</b>	File Display	disabled files
<b>Enabled</b>	File Display	Enabled files
<b>DSA Storage</b>	DSAS Display	definition and status of dynamic storage areas in CICS

Field Name	MAINVIEW for CICS Application	Description of Output
Subpools	Subpool Display	CICS storage subpool usage statistics
MVS Region	Regions Display	current storage usage in the CICS address space

Refer to “ALERT Display: Area-3” for information about the third area of the CICS SYstem Status panel.

## ALERT Display: Area-3

As shown in Figure 23-2, the ALERT display area contains a scrollable list of ALERT messages for the target CICS system.

**Figure 23-2 CICS System Status Panel with ALERTs Displayed**

```

BMC Software ----- CICS System Status ----- AutoOPERATOR
COMMAND ==>> TGT ==>> CICSPROD
Interval ==> 3 Date --- 01/03/17
Status --- INPUT Time --- 17:00:21

----- Tasks ----- Hyperlinks to MainView for CICS
Current Tasks Signed on now Opened DSA Storage
Total Tasks Processing Closed Subpools
Abends Out of service Disabled MVS Region
Times at MAXT Acquired Enabled

Sorted by ==>> TIME Current Alerts: 7
TIME ORIGIN ----- ALERT MESSAGES -----
16:53 CICSTEST DFHAC2236 03/17/01 10:26:57 AAOCT12J
TRANSACTION PING ABEND ASRA IN PROGRAM PINGPARM
TERM K775. UPDATES TO LOCAL RECOVERABLE RESOURCES
WILL BE BACKED OUT
16:53 CICSTEST FT439 REQUEST DID NOT COMPLETE - REASON CODE 4607
16:52 CICSPROD DFHAC2236 03/17/01 10:26:57 AAOCT12J
TRANSACTION HK00 ABEND ASRA IN PROGRAM HK00INIT
TERM T072. UPDATES TO LOCAL RECOVERABLE RESOURCES
WILL BE BACKED OUT
16:52 CICSPROD FT430E UNABLE TO CONNECT WITH BBI-SS JB51 AT THIS TIME
16:51 CICSPROD FT439 REQUEST DID NOT COMPLETE - REASON CODE 4607
16:51 CICSTEST FT094S TRAN LMNG EXCEEDED SERVICE LEVEL
3.503 IS AVG RESPONSE
16:51 CICSTEST FT430E UNABLE TO CONNECT WITH BBI-SS JB51 AT THIS TIME
***** END OF ALERTS *****

```

To see more information about a particular ALERT, position the cursor anywhere on an ALERT and press ENTER. This action invokes the AutoOPERATOR ALERT Detail application. When the Alert Detail application screen is displayed, by default, only alerts from the same queue as the selected alert are displayed. You can alter this default configuration after the screen is initially displayed.

### ALERT Display Fields

The ALERT display area of the CICS System Status panel contains two fields:

Field Name	Description
TIME	time that the ALERT was issued
ALERT MESSAGES	text of ALERT messages. The first 68 characters of the message are displayed

## System Status Profile Panel

Use the CICS System Status Profile panel to indicate which ALERTs (based on queues and priorities) are displayed in Area-3 of the CICS System Status panel and how they are initially sorted.

You can define individual profiles for up to 23 CICS targets, and you can also define a default profile layout. To change a particular profile for a CICS system, follow this procedure:

1. Change the current TGT system name by typing the new target name in the **TGT** field.
2. Enter the **PROFILE** primary command.
3. Press **Enter**.

The current profile for the named system is displayed and can be changed. If no profile for the named system exists, the CICS Status Profile Targets panel is displayed. You can choose a profile slot. This slot is filled in with default values, which you can alter subsequently. If all of the slots are already filled, you can make space in the profile for a new target by deleting an old target system profile. It is not possible to delete the default profile specification.

The following example is of the CICS System Status Profile panel.



## Line Commands for CICS TARGET PROFILE SELECTION Panel

Use the following line commands in the LC column of this panel.

Command	Description
<b>S</b>	Selects this open slot for use by the CICS target name shown in the TARGET fields. The open slot will be replaced by a slot bearing the current system name.
<b>D</b>	Makes the indicated system profile slot available for use by deleting its current contents.

---

---

## Chapter 24 BROADCAST Application

When you select Option 2 from the Operator Workstation menu, the CICS BROADCAST panel is displayed, as shown in Figure 24-1. Use this panel to send a one- to six-line message to CICS terminals connected to the CICS system named in the TGT field. Only VTAM terminals which are acquired and non-VTAM terminals marked as in-service will receive these messages.

The BROADCAST application requires that receiving terminals have full Basic Mapping Support (BMS) because the application uses the ROUTE command to send messages to terminals.

This method of routing messages does not interrupt the work at the terminal unless the terminal is involved in a pseudo-conversational transaction where the operator enters data on the panel but has not pressed ENTER prior to the routing of the message. In this case, the data would be lost. Depending on the work in progress or the state of an idle terminal, the message might not be received for a considerable time.

**Figure 24-1 CICS BROADCAST Panel**

```

BMC Software ----- CICS BROADCAST ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> CICSA
                                                DATE --- 01/03/01
                                                TIME --- 12:39:22

ENTER MESSAGE TEXT:
==> Please note:
==> CICS will shut down in 10 minutes.
==> Please sign off.
==>
==>
==>
(S)elect terminal(s) from list below and enter SEND to broadcast the message
Sort criterion ==> TERMID
      TERM   VTAM   LOGON   TRAN   TYPE/   ACC.   VTAM   MESSAGE
LC   ID     NODENAME ID     ID     MODEL  MTHD  STAT  STATUS
---  ---   -
---  L352  TCPBL352          CEMT   R3277-2  VTAM  AUTO
---  BN23  BR02LU23  RACFUSER  CEDA   R3277-2  VTAM  ACQ
---  BA06  BR02LU06          CEMT   L3277-2  VTAM  AUTO  ROUTED
---  BA31  BL01LU31          XSPE   R3277-2  VTAM  ACQ   ROUTED
---  BA32  BL01LU31          R3277-2  VTAM  REL
---  CR04  CD04LU04          CEMT   R3277-2  VTAM  ACQ
---  CNS0          CONSOLE  CICS
---  CNS1          CONSOLE  CICS
---  CNS2          CONSOLE  CICS
---  CBN3          CONSOLE  CICS
***** END OF TERMINALS *****

```

The CICS BROADCAST panel has three areas. The first area, the Control Area, is explained in the *MAINVIEW AutoOPERATOR Basic Automation Guide*. See “Primary Commands” on page 24-5 for a description of primary commands you can enter on the COMMAND line.

In the middle area of the panel are six lines you can use to enter the text of the message you want to send. You can send the message lines to another CICS by changing the TGT field. By selecting a new target region and list of terminals, you can send the same message without re-entering the text.

The bottom area of the panel is a scrollable list of terminals on the target CICS system that are eligible for BROADCAST messages. Specific data about each terminal is displayed to help you select terminals to receive the message. See “Line Commands” on page 24-5 for a description of line commands you can enter in the LC column.

## Using the BROADCAST Application

Use the S line command to iteratively select and route messages to terminals. When a terminal is selected, the MESSAGE column reads MARKED and the line is displayed in reverse video (or it is highlighted). After you issue the SEND primary command, the message is routed to the selected terminals. The MESSAGE column reads ROUTED for those terminals.

Alternatively, you can use the **SELECT** primary command to select a list of terminals, using generic specifications. The panel is redisplayed with a short message indicating the number of terminals selected by the command, and the terminal list is positioned at the first **TERM ID** selected.

**Note:** Any criteria following the **SELECT** command refers to the column in the Sort Criteria field (**Term-ID** or **VTAM nodename**).

To send the message to the selected terminals, enter **SEND** on the **COMMAND** line and press **Enter**. Use the scroll keys to examine the list of selected terminals.

When you press **ENTER**, the panel is redisplayed and **ROUTED** is displayed in the **MESSAGE** column. You can use **SELECT** iteratively to select and route messages to terminals. To clear the messages from the terminal display, exit and re-enter the **BROADCAST** panel, or use the **EOF** key to erase the lines.

The fields on this panel are as follows:

<b>Field Name</b>	<b>Description</b>
<b>TERM ID</b>	one- to four-character CICS terminal ID for this terminal.
<b>VTAM NODENAME</b>	one- to eight-character VTAM node name for this terminal  For a non-VTAM terminal, this field is blank.
<b>LOGON ID</b>	one- to eight-character logon ID for the user who is currently signed on to this terminal  This field is blank if an external security manager is not being used with the CICS region.
<b>TRAN ID</b>	one- to four-character transaction ID that is currently running on this terminal  This field is blank if no transaction is currently executing at this terminal
<b>TYPE/MODEL</b>	one- to eight-character hardware terminal type and model
<b>ACC. MTHD</b>	access method (for example, VTAM or BTAM) used for this terminal
<b>VTAM STAT</b>	current VTAM status (for example, ACQUIRED, RELEASED) of this terminal
<b>MESSAGE STATUS</b>	contains <b>ROUTED</b> for any terminals that have had the message text routed to them. Otherwise it is blank.

## Terminals Eligible for Broadcast Messages

Not all terminals defined to CICS are good candidates for broadcast type messages. Generally, only interactive user terminals should receive messages. Many intelligent workstations and financial system controllers do not support the reception of broadcast messages.

It is not possible to route messages to certain terminal types, such as RJE stations, dedicated printers, and so on. When a broadcast message is undeliverable, an error message is asynchronously written to the CICS log by the CICS transaction. The message contains status and exception codes that indicate why the message could not be delivered.

The format of this message is

**FT801I (Date) (Time) Unable to route message to (Term), RC=X'xx'.**

The contents of the route return code matches the return code provided by the CICS BMS Route service. You can analyze it to determine the nature of the problem.

You can use the sample macro CAOTTAB to limit the number of terminals eligible for the Broadcast function. For information on CAOTTAB, refer to the *MAINVIEW AutoOPERATOR Customization Guide*.

## CICS Message Display

When a message is sent using the BROADCAST application, it is displayed on the CICS terminal as shown in the following figure. The CICS terminal screen is cleared before the message is displayed. The message is displayed immediately if no transaction is currently attached to the terminal. If a transaction is attached to the terminal, the message is displayed at the completion of the current transaction.

```
WARNING: CICS WILL SHUT DOWN AT 18:00
          PLANNED RESTART AT 20:00
WARNING: CICS WILL SHUT DOWN AT 18:00
          PLANNED RESTART AT 20:00
WARNING: CICS WILL SHUT DOWN AT 18:00
          PLANNED RESTART AT 20:00
MSG FROM OPERATOR: CMREDUS ON 02-FEB-91 AT 13:35 - PRESS
ENTER TO CONTINUE
```

## Primary Commands

You can enter the primary commands listed in the following list on the COMMAND line of the CICS BROADCAST panel.

Command	Description
<b>CANCEL</b>	Deselects any terminals previously selected so that the message is not sent. Exits the application.
<b>DESELECT [termid,termid]</b>	Deselects the selected terminals. Does not exit the application.
<b>LOCATE</b>	Positions the scrollable terminal list display at the first TERM ID that matches the string entered for LOCID. For example, L T positions the display at the first terminal that begins with T. If no TERM ID is found that matches the string, the display is positioned at the next higher value.
<b>RESET</b>	Refreshes the terminal list display.
<b>SELECT [TERM ID,TERM ID2,...TERM ID6] [TERM*1, TERM*2,...TERM*6]</b>	Selects one or more terminals (up to six terminals) to receive the message. You can use a single TERM ID, a list of TERM IDs, or a generic specification using an asterisk (*) or a plus sign (+).
<b>SEND</b>	Routes the message to the selected terminals.
	<b>Note:</b> These terminal identifiers correspond to CICS terminals if the sort criteria contains TERMID. The identifiers correspond to VTAM nodenames if the sort criteria contains NODENAME.

## Line Commands

You can enter the following line commands in the column labeled LC.

Command	Description
<b>S</b>	Select this terminal for message broadcast.
<b>D</b>	Deselect this terminal for message broadcast.



---

---

# Chapter 25 DATABASE Applications

Select the DBCTL DATABASE option, shown in Figure 25-1, from the CICS OPERATOR WORKSTATION panel.

**Figure 25-1 DBCTL DATABASE Options Menu**

```
-----  
BMC Software ----- DATABASE OPTIONS ----- AutoOPERATOR  
OPTION ===>                                     DATE -- 03/01/16  
                                                TIME -- 09:54:03  
  
1 DATABAS - Display/Modify DL/I Databases  
2 DEDB    - Display/Modify Data Entry Databases  
3 AREA    - Display/Modify DEDB Areas  
-----
```

The DATABASE option comprises a menu and set of applications. Use the menu to select an application to manage:

- All the databases defined to a IMS region.
- Fast Path data entry databases (DEDB)
- Fast Path DEDB areas and area data sets

# Managing All the Databases

Select the DL/I application, shown in Figure 25-2, from the DATABASE OPTIONS menu.

**Figure 25-2 DL/I DATABASE Application for DBCTL**

```

BMC Software ----- DATABASE ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> IMS410
LC CMDS ==> P, S, DR, DD, DF, DV, L, U
LC  DATABASE      DATASET ORG      TYPE LNUM  ----- STATUS -----
    BE1PARTS      DMB NOT AVAIL    DL/I   1  STARTED
    BE2ORDER      DMB NOT AVAIL    DL/I   2  STARTED
    BE2ORDRX      DMB NOT AVAIL    DL/I   3  STARTED
    BE2PARTS      DMB NOT AVAIL    DL/I   4  STARTED
    BE2PCUST      DMB NOT AVAIL    DL/I   5  STARTED
    BE3ORDER      DMB NOT AVAIL    DL/I   6  STARTED
    BE3ORDRX      DMB NOT AVAIL    DL/I   7  STARTED
    BE3PARTS      DMB NOT AVAIL    DL/I   8  STARTED
    BE3PSID1      DMB NOT AVAIL    DL/I   9  STARTED
    B00INP01      DMB NOT AVAIL    DL/I  10  DATABASE LOCKED
    B00OUT01      DMB NOT AVAIL    DL/I  11  DATABASE NOT INITIALIZED
    CUSTHDAM      DMB NOT AVAIL    DL/I  12  STARTED
    CUSTHIDM      DMB NOT AVAIL    DL/I  13  STARTED
    CUSTHISM      ISAM CASE 1      DL/I  14  DATABASE LOCKED
    CUSTINDX      DMB NOT AVAIL    DL/I  15  STARTED
    CUSTVSAM      DMB NOT AVAIL    DL/I  16  STARTED
    DBFSAMD1      FAST PATH          MSDB  17  DATABASE STOPPED
    DBFSAMD2      FAST PATH          MSDB  18  DATABASE IN ERROR
    DBFSAMD3      FAST PATH          DEDB  19  DATABASE NOT INITIALIZED
    DBFSAMD4      DMB NOT AVAIL    DL/I  20  STARTED
    
```

This application shows a scrollable list of all the databases by name for both DL/I and Fast Path. The list identifies the data set organization, the database type, the database number, and the status of each database. Use the DL/I application to control all the databases defined for your IMS, as follows:

**Note:** Although Fast Path databases are shown in this application, the applications designed specifically for MSDBs and DEBDBs display data that is more meaningful for those databases.

Column	Description
LC	The line command field. Enter any of the following one- or two-character line command on the line of the database you want to change:
<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>
<b>P</b>	Issues the /STOP DATABASE command to stop the database
<b>S</b>	Issues the /START DATABASE command to start the database

**DR** Issues the /DBRECOVERY DATABASE command with NOFEOV to stop the scheduling of transactions that update or read the database. The IMS log does not switch to the next OLDS (online log data set).

**Note:** This line command cannot be used for an MSDB.

**DD** Issues the /DBDUMP DATABASE command with NOFEOV to stop the scheduling of transactions or programs that update the specified database. Transactions reading that database continue. The IMS log does not switch to the next OLDS.

**Note:** This line command cannot be used for a DEDB or MSDB.

**DF** Issues the /DBRECOVERY DATABASE without NOFEOV to stop the scheduling of transactions that update or read the database. The IMS log switches to the next OLDS (online log data set).

**Note:** This line command cannot be used for an MSDB.

**DV** Issues the /DBDUMP DATABASE without NOFEOV. The command executes the same as /DBDUMP with NOFEOV except the IMS log switches to the next OLDS.

**Note:** This line command cannot be used for a DEDB or MSDB.

**L** Issues the /LOCK DATABASE command to stop the scheduling of application programs that use the database.

**U** Issues the /UNLOCK DATABASE command to free a database previously locked by the /LOCK command.

**DATABASE** one- to eight-character name of the database.

**DATASET ORG** The IMS data set organization, which can be

**DMB NOT AVAIL** The Data Management Block (DMB) control block cannot be located. The DMB pool might be too small for the DMB or the database has not been opened yet.

**ISAM CASE 1** HISAM database (one data set group).

	<b>ISAM CASE 2</b>	HISAM database (multiple data set groups).
	<b>SSAM</b>	Single segment sequential database
	<b>HSAM</b>	Multiple segment sequential database
	<b>HD DIRECT</b>	HDAM database (OSAM data set)
	<b>HD INDEXED</b>	Data portion of HIDAM database (OSAM data sets)
	<b>INDEX DATABASE</b>	Primary index to HIDAM database (ISAM data sets). Or, secondary index to HISAM, HIDAM, or HDAM database (ISAM data sets).
	<b>HISAM VSAM</b>	HISAM database (one data set group of VSAM data sets).
	<b>SHISAM VSAM</b>	Single segment HISAM database (VSAM data sets).
	<b>VSAM INDEX-K</b>	Primary index to HIDAM database (VSAM Keyed Sequential Data Sets (K SDS)). Or, secondary index to HISAM, HIDAM, or HDAM database (VSAM KSDS).
	<b>VSAM HDAM</b>	HDAM database (VSAM Entry Sequential Data Sets (ESDS)).
	<b>VSAM HIDAM</b>	Data portion of HIDAM database (VSAM ESDS).
	<b>VSAM INDEX-K/E</b>	Secondary index to HISAM, HIDAM, or HDAM database (VSAM KSDS and ESDS (nonunique keys)).
	<b>FAST PATH</b>	Fast Path database
<b>TYPE</b>		The IMS database type, which can be
	<b>DL/I</b>	DL/I database
	<b>MSDB</b>	Fast Path main storage database
	<b>DEDB</b>	Fast Path data entry database
<b>LNUM</b>		The local Data Management Block (DMB) number from the IMS database directory.

<b>STATUS</b>	The current database status, which can be
<b>ALLOCATION FAILURE</b>	Dynamic allocation for the database was unsuccessful.
<b>NOT OPEN</b>	The database is not open.
<b>STOPPED</b>	The /STOP DATABASE command was issued for the database.
<b>OPENED</b>	The database is open.
<b>NOT INITIALIZED</b>	No DBD was found for the database during IMS initialization.
<b>LOCKED</b>	The /LOCK DATABASE command was issued for the database.
<b>DATABASE IN ERROR</b>	The database had a write error.
<b>/DBD IN PROGRESS</b>	The /DBDUMP DATABASE without NOFEOV was issued for the database.
<b>/DBR IN PROGRESS</b>	The /DBRECOVERY DATABASE with NOFEOV was issued for the database.
<b>INQUIRY ONLY</b>	Updates to the database are not allowed. The scheduling of any transactions or programs updating the database has been stopped.
<b>Note:</b>	When INQUIRY ONLY and NOT OPEN are both true, INQ ONLY is shown.

Exceptions off (X OFF) is the default. All databases are displayed with a status, including those that are an exception to normal operation. If X ON for exceptions on is entered in the COMMAND line as described in Chapter , “Resource Exception Command” on page 8, only databases in an exception to normal operation are displayed. The exception status can be

- DATABASE STOPPED
- DATABASE LOCKED
- DATABASE IN ERROR

# Managing Fast Path Data Entry Databases (DEDB)

Select the DEDB application (shown in Figure 25-3) from the DATABASE options menu.

**Figure 25-3 Fast Path DEDB Application**

```

BMC Software ----- DATA ENTRY DATABASES ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> IMS410
LC CMDS ==> P(STOP), S(START), DR(RECOVER NOFEOV), DF(RECOVER FEVOV), L(LOCK)
              U(UNLOCK), D(SHOW AREAS)
----- AREAS -----
LC  DATABASE TOTAL  ACTIVE  STOPPED  NOTOPEN  ----- STATUS -----
BBFDDB01    11      0        0        11     NOT OPEN
BBFDDB02    11      0        0        11     NOT OPEN
BBFDDB03    11      8        2         1
BBFDDB04    11      0        0        11     NOT OPEN
BBFDDB05    11      0        0        11     NOT OPEN
BBFDDB06    11      0        0        11     LOCKED
BBFDDB07    11      0        0        11     NOT OPEN
BBFDDB08    11      0        0        11     NOT OPEN
BBFDDB09    11      0        0        11     NOT OPEN
BBFDDB10    11      0        0        11     NOT INIT
BBFDDB11    11      0        0        11     NOT OPEN
BBFDDB12    11      6        1         4
BBFDDB13    11      0        0        11     STOPPED
BBFDDB14    11      0        0        11     NOT OPEN
BBFDDB15    11      0        0        11     NOT OPEN
BBFDDB16    11      0        0        11     NOT OPEN
DBFSAMD3     1      1        0         0
***** END OF DEDBS *****
    
```

This application shows a scrollable list of the data entry databases defined for IMS by name. For each DEDB, the list identifies the total number of areas and the number of areas that are active, stopped, and not open and the current status of the DEDB. Use the application to control the DEDBs as follows:

Column	Description
LC	The line command field. Enter any of the following one- or two-character line command on the line of the DEDB database you want to change:
<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>
<b>P</b>	Issues the /STOP DATABASE command to stop the DEDB.
<b>S</b>	Issues the /START DATABASE command to start the DEDB.
<b>DR</b>	Issues the /DBRECOVERY DATABASE command with NOFEOV to stop the scheduling of transactions that update or read the DEDB. The IMS log does not switch to the next OLDS (online log data sets).

- DF** Issues the /DBRECOVERY DATABASE without NOFEOV to stop the scheduling of transactions that update or read the DEDB. The IMS log switches to the next OLDS.
- L** Issues the /LOCK DATABASE command to stop the scheduling of application programs that use the DEDB.
- U** Issues the /UNLOCK DATABASE command to free a DEDB previously locked by the /LOCK DATABASE command.
- D** Displays the AREA application, shown in Figure 15-5 on page 15-15, only for the database selected by the D line command.

<b>DATABASE</b>	One- to eight-character name of the DEDB.
<b>TOTAL</b>	Total number of database areas for the DEDB.
<b>ACTIVE</b>	Number of active areas for the DEDB.
<b>STOPPED</b>	Number of areas stopped for the DEDB.
<b>NOT OPEN</b>	Number of areas not opened for the DEDB.

<b>STATUS</b>	Current DEDB status, which can be
<b>blank</b>	Status is not displayed, the DEDB is in normal operation.
<b>ALLOCATION FAILURE</b>	Dynamic allocation for the database was unsuccessful.
<b>DATABASE IN ERROR</b>	The database had a write error.
<b>LOCKED</b>	The /LOCK DATABASE command was issued for the DEDB.
<b>STOPPED</b>	The /STOP DATABASE command was issued for the DEDB.
<b>NOT INIT</b>	No DBD was found for the DEDB during IMS initialization.
<b>NOT OPEN</b>	The DEDB is available but not yet open, which is not an exception to normal operation.

Exceptions off (X OFF) is the default. All databases are displayed, including those that are an exception to normal operation. If a database is operating normally, a status is not displayed. If X ON for exceptions on is entered in the primary command line as described in Chapter , “Resource Exception Command” on page 8, only databases in an exception to normal operation are displayed. The exception status can be

- LOCKED
- STOPPED
- NOT INIT

# Managing Data Entry Database (DEDB) Areas

Select the AREA application, shown in Figure 25-4, from the DATABASE menu to display all areas.

**Figure 25-4 Fast Path AREA Application**

```

BMC Software ----- DATA ENTRY DATABASE AREAS ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> IMS410
LC CMDS: P(STOP), S(START), DR(RECOVER NOFEOV), DF(RECOVER FEOV), D(SHOW ADS)

```

LC	AREA	DATABASE	TOTAL ADS	OVFLOW PCT USED	SEQ DEP PCT USED	ACTIVE UTILITY	STATUS
	CUSA02A	BBFDDB02	0	0	0		STOPPED
	CUSA020	BBFDDB02	0	0	0		NOT OPEN
	CUSA021	BBFDDB02	1	14	29		RECOVERY NEEDED
	CUSA022	BBFDDB02	0	0	0		NOT OPEN
	CUSA023	BBFDDB02	0	0	0		NOT OPEN
	CUSA024	BBFDDB02	0	0	0		NOT OPEN
	CUSA025	BBFDDB02	0	0	0		NOT OPEN
	CUSA026	BBFDDB02	0	0	0		NOT OPEN
	CUSA027	BBFDDB02	0	0	0		NOT OPEN
	CUSA028	BBFDDB02	1	7	12		I/O ERROR
	CUSA029	BBFDDB02	0	0	0		NOT OPEN
	CUSA03A	BBFDDB03	0	0	0		NOT OPEN
	CUSA030	BBFDDB03	0	0	0		NOT OPEN
	CUSA031	BBFDDB03	1	0	5	SCAN	
	CUSA032	BBFDDB03	0	0	0	CREATE	FORMAT PHASE
	CUSA033	BBFDDB03	0	0	0	CREATE	COPY PHASE
	CUSA034	BBFDDB03	0	0	0		NOT OPEN
	CUSA035	BBFDDB03	0	0	0		NOT OPEN
	CUSA036	BBFDDB03	0	0	0		NOT OPEN

This application shows a scrollable list of the Data Entry Databases defined for IMS by name. For each DEDB, it shows the area name, the number of area data sets (ADS), a usage percentage of independent overflow and sequential dependent control intervals, the active utility (if scheduled), and the current status of the DEDB area. Use the application to control the DEDB areas as follows:

**Column**

**Description**

**LC**

The line command field. Enter any of the following one- or two-character line command on the line of the DEDB area you want to change:

**Line Command**

**MAINVIEW AutoOPERATOR Action**

**P**

Issues the /STOP AREA command to stop the DEDB area, which closes the data sets for the area and deallocates them.

**S**

Issues the /START AREA command to start the DEDB area, which reallocates the DEDB area data sets.

<b>DR</b>	Issues the /DBRECOVERY AREA command with NOFEOV, which stops the area, closes the data sets, and deallocates them. The IMS log does not switch to the next OLDS (online log data sets).
<b>DF</b>	Issues the /DBRECOVERY DATABASE without NOFEOV, which stops the area, closes the data sets, and deallocates them. The IMS log switches to the next OLDS>
<b>D</b>	Displays the AREA DETAIL application, shown in Figure 15-6 on page 19, for the area selected by the D line command.
<b>AREA</b>	The one- to eight-character area name.
<b>DATABASE</b>	The one- to eight-character name of the DEDB that owns this area.
<b>TOTAL ADS</b>	The total number of area data sets for this area.
<b>OVFLOW PCT USED</b>	Percentage of independent overflow control intervals used.
<b>SEQ DEP PCT USED</b>	Percentage of sequential dependent overflow control intervals used. N/A is displayed if sequential dependents are not defined.
<b>ACTIVE UTILITY</b>	The type of utility active against this area, which can be
<b>REORG</b>	DEDB Reorganization utility
<b>CREATE</b>	DEDB Create utility
<b>COMPARE</b>	DEDB ADS Compare utility
<b>SCAN</b>	DEDB sequential dependent Scan utility
<b>DELETE</b>	DEDB sequential dependent Delete utility
<b>STATUS</b>	The current area status, which can be
<b>blank</b>	Status is not displayed; the DEDB area is in normal operation.
<b>RECOVERY NEEDED</b>	All Error Queue Elements (EQE) are used and the DEDB needs to be recovered.
<b>STOPPED</b>	The /STOP AREA command was issued for the area.

**NOT OPEN**

The area is not yet open. This is not an exception to normal operation.

Exceptions off (X OFF) is the default. All DEDB areas are displayed, including those that are an exception to normal operation. If the area is operating normally, a status is not displayed. If X ON is entered in the primary command line as described in “Resource Exception Command” on page 13-8, only the areas in an exception to normal operation are shown. The exception status can be RECOVERY NEEDED, or STOPPED.



---

---

# Chapter 26 CICS PROGRAM Application

Select the PROGRAM application, shown in Figure 26-1, from the CICS OPERATOR WORKSTATION panel.

**Figure 26-1 DBCTL PROGRAM Application**

```
BMC Software ----- PROGRAM ----- AutoOPERATOR
COMMAND ==>                                     TGT ==> IMS410
LC CMDS ==> P, S, L, U
LC PROGRAM- TYPE          ----- STATUS -----
  BBFPGM01 FP U           STARTED
  BBFPGM02 FP N           STARTED
  BBFPGM03 FP N           STARTED
  BBFPGM04 FP N           STARTED
  BBFPGM05 FP N           STARTED
  BBFPGM06 FP M           PROGRAM STOPPED
  BBFPGM07 FP N           STARTED
  BBFPGM08 FP N           STARTED
  BBFPGM09 FP N           STARTED
  BBFPGM10 BMP           PROGRAM LOCKED
  BBFPGM11 FP N           STARTED
  BBFPGM12 FP N           STARTED
  BBFPGM13 FP N           STARTED
  BBFPGM14 TP            PROGRAM NOT INITIALIZED
  BBFPGM15 TP            STARTED
  BBFPGM16 FP N           STARTED
  BBFPGM17 FP N           STARTED
  BBFPGM18 FP N           STARTED
  BBFPGM19 FP N           STARTED
  BBFPGM20 FP N           STARTED
```

---

This application shows a scrollable list of application programs by name, identifies the application program type, and displays the current status of each program. Use the application as follows:

<b>Column</b>	<b>Description</b>										
<b>LC</b>	line command field  Enter one of the following one-character line command on the line of the program that you want to change:  <table><thead><tr><th><b>Line Command</b></th><th><b>MAINVIEW AutoOPERATOR Action</b></th></tr></thead><tbody><tr><td><b>P</b></td><td>issues the /STOP PROGRAM command to stop the execution of the program</td></tr><tr><td><b>S</b></td><td>issues the /START PROGRAM command to start the program, which makes it available for scheduling</td></tr><tr><td><b>L</b></td><td>issues the /LOCK PROGRAM command to stop the scheduling of the program</td></tr><tr><td><b>U</b></td><td>issues the /UNLOCK PROGRAM command to free a program previously locked by the /LOCK command</td></tr></tbody></table>	<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>	<b>P</b>	issues the /STOP PROGRAM command to stop the execution of the program	<b>S</b>	issues the /START PROGRAM command to start the program, which makes it available for scheduling	<b>L</b>	issues the /LOCK PROGRAM command to stop the scheduling of the program	<b>U</b>	issues the /UNLOCK PROGRAM command to free a program previously locked by the /LOCK command
<b>Line Command</b>	<b>MAINVIEW AutoOPERATOR Action</b>										
<b>P</b>	issues the /STOP PROGRAM command to stop the execution of the program										
<b>S</b>	issues the /START PROGRAM command to start the program, which makes it available for scheduling										
<b>L</b>	issues the /LOCK PROGRAM command to stop the scheduling of the program										
<b>U</b>	issues the /UNLOCK PROGRAM command to free a program previously locked by the /LOCK command										
<b>PROGRAM</b>	one- to eight-character name of the program										
<b>TYPE</b>	type of application program, which can be  <table><tbody><tr><td><b>FP U</b></td><td>Fast Path utility</td></tr><tr><td><b>FP N</b></td><td>Nonmessage-driven Fast Path application program</td></tr><tr><td><b>FP M</b></td><td>Message-driven Fast Path application program</td></tr><tr><td><b>BMP</b></td><td>Batch message processing program</td></tr><tr><td><b>TP</b></td><td>Message processing program (MPP)</td></tr></tbody></table>	<b>FP U</b>	Fast Path utility	<b>FP N</b>	Nonmessage-driven Fast Path application program	<b>FP M</b>	Message-driven Fast Path application program	<b>BMP</b>	Batch message processing program	<b>TP</b>	Message processing program (MPP)
<b>FP U</b>	Fast Path utility										
<b>FP N</b>	Nonmessage-driven Fast Path application program										
<b>FP M</b>	Message-driven Fast Path application program										
<b>BMP</b>	Batch message processing program										
<b>TP</b>	Message processing program (MPP)										

---

**STATUS**

current status of the application program which can be

**STARTED** program is available

**PROGRAM STOPPED**

program is stopped because /STOP PROGRAM was issued

**PROGRAM LOCKED**

program is locked because /LOCK PROGRAM was issued

**DATABASE STOPPED**

database used by the PSB is stopped

**PROGRAM NOT INITIALIZED**

no PSB was found for the program during initialization

Exceptions off (X OFF) is the default. All programs are displayed, including those that are an exception to normal operation. If X ON is entered in the primary command line as described in “Resource Exception Command” on page 13-8, only the programs in an exception to normal operation are shown. The exception status can be

- PROGRAM STOPPED
- PROGRAM LOCKED
- DATABASE STOPPED



---

# Chapter 27 CICS REGIONS Application

Select the REGIONS application, shown in Figure 27-1, from the CICS OPERATOR WORKSTATION panel.

**Figure 27-1 DBCTL REGIONS Application**

```
BMC Software ----- IMS REGIONS ----- AutoOPERATOR
COMMAND ==>> TGT ==>> IMS410
#MPPS>> 2/ 2 #QUEUED>> 9 DB2B>> NOT CONNECTED INTVL==>> 3
#BMPS>> 1 #QUEUED>> 0 DB2A>> CONNECTED/ 2/ 2 STATUS--- INPUT
#IFPS>> 0 #QUEUED>> 0 DB2C>> NOT CONNECTED DATE---- 01/01/16
LC CMDS: P(STOP), A(ABDUMP), C(CANCEL), PW(STOP WFI) TIME----- 15:31:01
LC JOBNAME TYP TRANCODE PSBNAME LTERM CLS RGN WKSET # SIOS CPU TIME
I14XMSG MPP DSN8PT DSN8IH13 1 1 152K 284 2.24
I14XMSG MPP DSN8CS DSN8IC13 1 2 248K 283 3.12
I14XBMP BMP TDRIVER PDRIVER 4 3 228K 49 .30
***** END OF REGIONS *****
```

REGIONS displays the active IMS regions. New information is displayed each time the display refreshes at a user-specified interval. You can specify either the Refresh mode or an Input mode as follows:

- Refresh

Enter the screen refresh interval in seconds from 1 to 99 in the INTVL field. The default is the INTERVAL parameter value in the BMC Software-distributed BBPROF data set member BBITSP00.

Start screen refresh by pressing the GO key (**PF6** or **18**) or by entering GO in the command input line. Screen refresh is indicated by the message, RUNNING, displayed in the STATUS field.

Data cannot be entered until you press ATTN (SNA terminal) or PA1 (non-SNA terminal), which exits Refresh and enters Input mode. INPUT is displayed in the STATUS field.

- Input

To enter data in the application, it must be in Input mode. If the application is in Refresh, press ATTN (SNA terminal) or PA1 (non-SNA terminal) for input mode. The message, INPUT, is displayed in the STATUS field.

Commands can be entered in the command line, data can be entered in the TGT or INTVL fields, and the line commands can be used. Press **Enter** to display the current IMS status.

The application shows the region status and a scrollable list of the active regions by name. The region status shown in the upper portion of the application displays:

- The number of message processing (MPPS) regions that are active and started (n/ n where n is an MPP count) and the number of batch message processing (BMPS) and Fast Path message processing (IFPS) regions that are active.
- The number of transactions waiting to be processed per region type (# QUEUED >> field).
- The name and status of the first three external subsystems defined to IMS and the number of regions connected to them.

The status can be

<b>CONNECTED/ n/ n</b>	A connection has been established between IMS and DB2.  The first number is the number of connected dependent regions and the second number is the number of dependent regions that are actually signed on to DB2.
<b>NOT CONNECTED</b>	The subsystem has been defined to IMS, but no connection exists.
<b>CONNECTING</b>	IMS is in the process of establishing a connection with the subsystem.
<b>STOPPED</b>	The IMS operator has issued a /STO SUBSYS command.
<b>STOPPING</b>	The IMS operator has issued a /STO SUBSYS command and the connection is in the process of stopping.

---

**TERMINATING**

The subsystem connection is in the process of terminating due to an internal request from IMS or DB2. This could be a normal or abnormal condition as indicated by IMS messages.

- The target IMS in the **TGT** field.
- The Refresh interval in seconds in the **INTVL** field and the application mode status in the **STATUS** field (**RUNNING** for refresh or **INPUT** for application command entry).

The scrollable list in the lower portion of the **REGIONS** application shows all the active regions. Use the list to manage a region's status as follows:

**Column****Description****LC**

The line command field. Enter any of the following one- or two-character line command on the line of the region you want to change:

**Line Command****MAINVIEW AutoOPERATOR Action****P**

Issues the **/STOP REGION** command to terminate the message processing region when the current transaction completes.

**A**

Issues the **/STOP REGION P1 ABDUMP P2** to abnormally terminate an application program.

**C**

Issues the **/STOP REGION CANCEL** to stop a looping region that cannot be stopped by the **/STOP REGION P1 ABDUMP P2** command.

**PW**

Issues the **/STOP REGION P1 TRAN** to stop a message processing program in wait-for-input (WFI) mode.

**JOBNAME**

one- to eight-character OS **JOBNAME** for the region

**TYP**

The type of region, which can be

**MPP**

Message processing or Fast Path mixed mode region

**MDP**

Message-driven Fast Path region

**FPU**

Fast Path utility region

**BMP**

Batch message processing region

---

<b>IFP</b>	Fast Path exclusive
<b>DBT</b>	DBCTL thread
<b>TRANCODE</b>	The transaction in progress.
<b>PSBNAME</b>	The scheduled program.
<b>LTERM</b>	The logical terminal used for input.
<b>CLS</b>	The processing class.
<b>RGN</b>	The region ID.
<b>WKSET</b>	The real storage in use.
<b># SIOS</b>	The number of real I/Os.
<b>CPU Time</b>	The cumulative CPU time for the region.

---

---

# Chapter 28 Introduction to MAINVIEW AutoOPERATOR Access NV

MAINVIEW AutoOPERATOR Access NV (also referred to as AutoOPERATOR Access NV) bridges the functional gap between the IBM NetView product and the BMC Software MAINVIEW AutoOPERATOR product. MAINVIEW AutoOPERATOR Access NV builds a pipeline that provides direct communication between NetView and MAINVIEW AutoOPERATOR. This means that NetView and MAINVIEW AutoOPERATOR can send, retrieve, and act upon information between them

The pipeline is structured in two major areas:

- An automation pipeline that provides interaction and exchange between NetView and MAINVIEW AutoOPERATOR variables and automation procedures.
- A user-interface pipeline that is a NetView emulator in MAINVIEW AutoOPERATOR. The emulator enables you to access line mode commands. NetView access can be from a TSO, ISPF, VTAM, or EXCP terminal session.

## CLIST and Variable Interaction

The following lists the CLIST and variable interaction:

- NetView and MAINVIEW AutoOPERATOR can each schedule each other's EXECs and CLISTs.
- Each product can send ALERTS to the other.

- NetView can schedule MAINVIEW AutoOPERATOR EXECs on remote or local systems.
- NetView can access MAINVIEW AutoOPERATOR global variables.

The NetView emulator in MAINVIEW AutoOPERATOR has the following capabilities:

- NetView commands and CLISTs can be invoked from MAINVIEW AutoOPERATOR screens.
- MAINVIEW AutoOPERATOR line commands can invoke NetView displays.
- NetView can access multiple systems through MAINVIEW AutoOPERATOR sessions.
- A NetView emulator application is provided.
- ISPF terminal support is provided for NetView applications.

## Storage Requirements

The MAINVIEW AutoOPERATOR Access NV option requires 250K of virtual memory in the NetView address space. Increase the REGION size in the NetView JCL by this amount.

For each OST that NetView starts, you need a minimum of 16KB. The MAINVIEW AutoOPERATOR Access NV OST within NetView only requires 10 K.

## NetView and MAINVIEW AutoOPERATOR Communication

Communication between the NetView address space and the MAINVIEW AutoOPERATOR address space is achieved by individual tasks in the address spaces. A task in the MAINVIEW AutoOPERATOR address space acts as the recipient of all requests issued through the NAIEXEC command from the NetView address space.

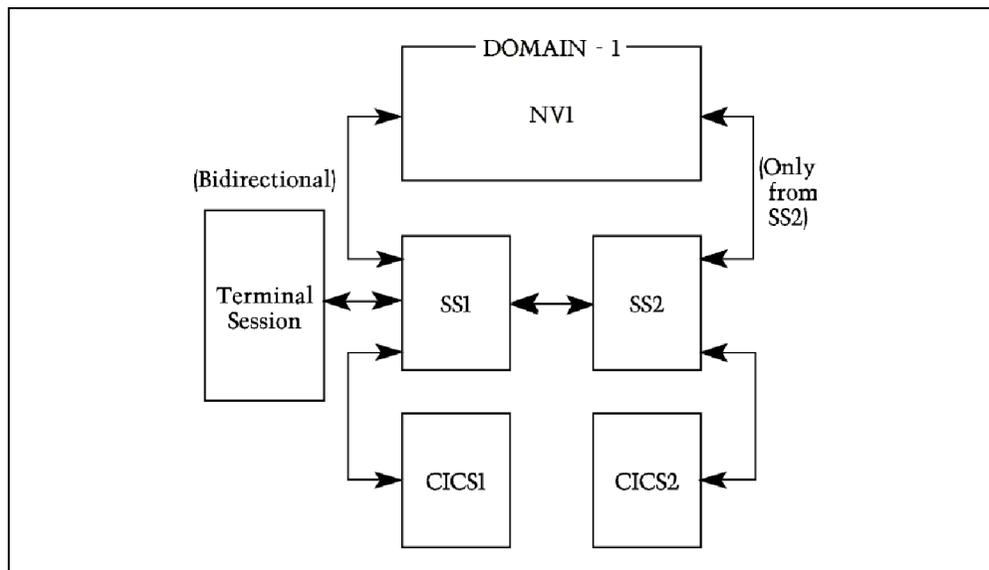
The task in the NetView address space services all requests addressed to it from the MAINVIEW AutoOPERATOR address space (IMFEXEC NETVIEW commands as well as emulator requests). The NetView task is implemented as an OPT (Optional task). At startup, NetView automatically attaches this task. Alternatively, a NetView operator can start the task manually.

A NetView address space in this configuration primarily addresses requests to one specific partner MAINVIEW AutoOPERATOR, the associated subsystem (SS). If a request is not specifically destined for this BBI-SS PAS, then MAINVIEW AutoOPERATOR routes the request to its final destination, which might be on a local or remote system.

Any MAINVIEW AutoOPERATOR on the same MVS system as the NetView system can request directly service from it. An MAINVIEW AutoOPERATOR request to NetView does not require a one-to-one connection.

Figure 28-1 illustrates an example of several BBI-SS PASs communicating with one NetView address space.

**Figure 28-1 Multiple BBI-SS PASs Communicating with One NetView System**



NetView communication to an MAINVIEW AutoOPERATOR requires that NetView attach to only one MAINVIEW AutoOPERATOR. For requests initiated in the MAINVIEW AutoOPERATOR address space, any number of SS-NV relationships can be maintained. This allows a terminal session to access a NetView system through its target (CICS1 or NV1 in this example).

In the example, the terminal session user, TS1, accesses CICS2 and enters a NetView command. The command is processed at the NetView related to CICS2, which is NV1.

## Using AOAnywhere in NetView

AOAnywhere is an API interface that provides access to many MAINVIEW AutoOPERATOR functions from other address spaces. AOAnywhere can be used from within a NetView EXEC through the use of AOEXEC commands as NetView commands when a valid MAINVIEW AutoOPERATOR Access NV key is active within the PAS. BMC Software recommends that you use AOAnywhere rather than NAIEXEC. AOAnywhere offers more commands and is more efficient because it does not use CSA storage. Additionally, when using AOAnywhere, the same EXECs used in NetView can be invoked from TSO or MAINVIEW AutoOPERATOR. Using AOAnywhere in NetView requires very little customization of the DSICMD member of DSIPARM in NetView.

For more information about customizing AOAnywhere in NetView, refer to the *MAINVIEW AutoOPERATOR Customization Guide*. For more information about using AOAnywhere in NetView, refer to the *MAINVIEW AutoOPERATOR Advanced Automation Guide*.

---

# Chapter 29 NAIEXEC NetView Command Processor

This command processor runs in the NetView address space. You can use it to

- invoke an EXEC in any remote or local MAINVIEW AutoOPERATOR associated with the processor complex
- generate an MAINVIEW AutoOPERATOR ALERT on any MAINVIEW AutoOPERATOR
- modify any global variable on any MAINVIEW AutoOPERATOR

## NetView Variables

The NAIEXEC command processor sets two NetView task global variables: NAICC and NAIRC. Task global variables are variables that can be referenced only by CLIST EXECs and REXX EXECs that run under the same task.

### NAICC

NAICC is equivalent to the TSO LASTCC or batch condition code. It indicates whether a command was partially or completely executed or whether a severe error was encountered during execution.

To retrieve the NAICC variable from the task global variable pool in NetView, issue the following command:

### **GLOBALV GETT NAICC**

These are the possible condition codes for NAICC and their meanings:

<b>Value</b>	<b>Description</b>
0	command executed successfully
4	command timed out
8	target not available or invalid
12	syntax error in command
16	subcommand keyword missing or command is incomplete
20	invalid or unknown subcommand
24	error encountered during execution
28	unknown error occurred
32	unable to set NetView variable or NAISVAR CLIST not available
36	unable to establish session

## **NAIRC**

NAIRC indicates the actual result of the operation. It is set only when the variable manipulation commands or the NAIEXEC SELECT command are used.

The possible NAIRC values and their meanings are documented with the individual services. For the NAIEXEC SELECT command, NAIRC contains the IMFRC value generated by the EXEC if the IMFEXEC EXIT statement was specified.

To retrieve the NAIRC variable from the task global variable pool in NetView, issue the following command:

### **'GLOBALV GETT NAIRC'**

## NAIEXEC Commands

The following sections discuss each command in detail and explain the expected return codes.

**Note:** The maximum length of any NAIEXEC command must not exceed 255 characters.

### NAIEXEC ALERT

**Warning!** NAIEXEC command statements are designed to be used only in a NetView address space. They do not execute correctly when used within an MAINVIEW AutoOPERATOR address space.

The NAIEXEC ALERT command generates an ALERT in any associated MAINVIEW AutoOPERATOR defined in the BBIJNT00 member of the BBPARM data set. This command is similar to the IMFEXEC ALERT command.

**Table 29-1** NAIEXEC ALERT Command (Part 1 of 2)

Command	Parameters	Description.
ALERT	ALERT-key (name of ALERT)	used when deleting the ALERT  Maximum length is 64 alphanumeric positions.  <b>Note:</b> BMC Software recommends that you use AOEXEC ALERT instead NAIEXEC ALERT because AOAnywhere offers more commands and does not use CSA storage, which makes it more efficient. Additionally, when using AOAnywhere, the same EXECs used in NetView can be invoked from TSO or MAINVIEW AutoOPERATOR.
	'alert-text'	text of the ALERT message  Maximum message length is 230 alphanumeric positions.
	ALARM( <i>NO</i> )	indicates if an audible alarm is emitted from the terminal  The message <code>IMPORTANT ALERT</code> appears in the upper right corner of the screen.

**Table 29-1 NAIEXEC ALERT Command (Part 2 of 2)**

<b>Command</b>	<b>Parameters</b>	<b>Description.</b>
	<b>COLOR</b> (WHITE)	specifies the color of the ALERT  This parameter overrides the color assigned by PRIORITY. The possible colors are RED PINK YELLOW DKBLUE LTBLUE GREEN WHITE
	<b>EXEC</b> (execname)	specifies the name of the follow-up EXEC and its operands  Maximum length is 230 characters.
	<b>HELP</b> (panelname)	specifies the name of an extended description member of BBPLIB shown on the Extended Alerts panel  Maximum length is 8 characters.
	<b>PCMD</b> ('command string')	primary command string that the terminal user can execute  This command will perform as if it were entered at the display's command line. Maximum length is 230 characters.
	<b>PRI</b> ( <i>WARNING</i> )	specifies the priority of the alert  They are as follows: <ul style="list-style-type: none"> <li>• CRITICAL</li> <li>• MAJOR</li> <li>• MINOR</li> <li>• WARNING</li> <li>• INFORMATIONAL</li> <li>• CLEARING</li> </ul>
	<b>QUEUE</b> (MAIN)	specifies the name of the queue to use
	<b>TARGET</b> (name)	specifies the system to which the ALERT is sent
	<b>ORIGIN</b> ()	enables you to override the origin of the ALERT  If you execute the command specified in PCMD(), then the BBI-TS user's target is automatically switched to the origin of the ALERT.
	<b>USER</b> (userid)	specifies the name of a user ID that the ALERT is addressed to

The syntax of the NAIEXEC ALERT command is

```
NAIEXEC ALERT key 'text' COLOR() ALARM() EXEC() TARGET()
ORIGIN()
```

For example,

```
NAIEXEC ALERT CACB 'CICS ACB INACTIVE' EXEC(STCACB)
TARGET(CAO1)
```

generates an MAINVIEW AutoOPERATOR ALERT with a key of CACB. The ALERT is generated in the MAINVIEW AutoOPERATOR CAO1 with the text CICS ACB INACTIVE. When the operator selects this ALERT, the EXEC STCACB is scheduled.

The return codes are

**NAICC** as defined in “NetView Variables” on page 29-1

**NAIRC** not used

To retrieve the NAICC and NAIRC variables from the task global variable pool in NetView, issue the following command:

```
GLOBALV GETT NAICC,NAIRC
```

The combined length of the completed statement can be no more than 255 characters, although the combined allowable length of all the parameters is much greater.

## NAIEXEC SELECT

The NAIEXEC SELECT command invokes a CLIST in any associated MAINVIEW AutoOPERATOR that is defined in the Job Name Table (BBIJNT00).

Command	Parameters	Description.
SELECT	EXEC(execname p1...pn) TARGET(tgname) WAIT(n)	Schedule an EXEC on another system.  <b>Note:</b> BMC Software recommends that you use AOEXEC SELECT instead of NAIEXEC SELECT because AOAnywhere offers more commands and does not use CSA storage, which makes it more efficient. Additionally, when using AOAnywhere, the same EXECs that are used in NetView can be invoked from TSO or MAINVIEW AutoOPERATOR.

The syntax is:

```
NAIEXEC SELECT EXEC(execname p1...pn) TARGET(tgtname)
WAIT(20)
```

where

- EXEC(execname)** (*required*) Enables you to specify the name of an EXEC to be invoked. The EXEC you specify with this keyword is known as the called EXEC.
- p1...pn** (*optional*) Is any number of optional parameters to be passed to the EXEC.
- TARGET(tgtname)** (*optional*) Identifies a name of the MAINVIEW AutoOPERATOR SS on which the EXEC is to be invoked. If not given, the EXEC is scheduled on the associated MAINVIEW AutoOPERATOR. The MAINVIEW AutoOPERATOR SS must have the Access NV key.
- WAIT(n)** (*optional*) Allows you to specify, in seconds, the amount of time that the EXEC is to wait for completion of the called EXEC before it signals a timeout to the calling EXEC.

The default is 30 seconds. The total length of the command cannot exceed 255 characters.

The called EXEC is scheduled synchronously to the calling EXEC. This means the CLIST issuing the NAIEXEC command is suspended until the called EXEC terminates or the request times out (default is 30 seconds).

The return code generated by the called EXEC can be retrieved by examining the results of the NAIRC variable. The contents of NAIRC are undefined in the case of a non-zero NAICC code from this service.

The NetView operator ID, under which this command is issued, must have EXEC authority *and* any additional authority required to execute the commands contained in the EXEC. Refer to the *MAINVIEW AutoOPERATOR Customization Guide* for more information about authority issues.

For example,

```
NAIEXEC SELECT EXEC(CHKNET01 RD1217) TARGET(MAO1)
WAIT(25)
```

schedules the EXEC named CHKNET01 with the parameter RD1217 in the MAINVIEW AutoOPERATOR address space MAO1. The address space MAO1 must either be the MAINVIEW AutoOPERATOR subsystem ID or a valid target defined in the MAINVIEW AutoOPERATOR BBPARM member

BBIJNT00. The calling EXEC will wait 25 seconds for the completion of CHKNET01. If CHKNET01 does not complete in 25 seconds, NAICC is set to a value of 4.

The return codes are

**NAICC** as defined in “NetView Variables” on page 29-1

**NAIRC** contains the value of the MAINVIEW AutoOPERATOR IMFRC variable, which is set by the IMFEXEC exit code (nn) statement in the MAINVIEW AutoOPERATOR EXEC

To retrieve the NAICC and NAIRC variables from the task global variable pool in NetView, issue the following command:

**GLOBALV GETT NAICC,NAIRC**

## NAIEXEC VDEL

Use the NAIEXEC VDEL command to delete one or more MAINVIEW AutoOPERATOR global variables.

Command	Parameters	Description.
VDEL	var (v1 v2...) TARGET(tgtname)	Deletes one or more global variables.  <b>Note:</b> BMC Software recommends that you use AOEXEC VDEL instead of NAIEXEC VDEL because AOAnywhere offers more commands and does not use CSA storage, which makes it more efficient. Additionally, when using AOAnywhere, the same EXECs that are used in NetView can be invoked from TSO or MAINVIEW AutoOPERATOR.

The syntax is

NAIEXEC VDEL var TARGET(tgtname)

or

NAIEXEC VDEL (v1 v2 v3...) TARGET(tgtname)

where

**var** (*required*) Is the name of an MAINVIEW AutoOPERATOR global variable. (Maximum length is 32 alphanumeric characters.)

**(v1 v2...)** (*required*) Is a list of MAINVIEW AutoOPERATOR global variables, separated by commas or blanks. (Maximum length is 230 characters.)

**TARGET(tgtname)** (*optional*) Specifies the name of the MAINVIEW AutoOPERATOR where the variable should be deleted. Using the TARGET keyword it is possible to route the request to any MAINVIEW AutoOPERATOR in the processor complex known to the associated MAINVIEW AutoOPERATOR through the BBPARM member BBIJNT00 in the MAINVIEW AutoOPERATOR address space. If not given, the variable is deleted in the associated MAINVIEW AutoOPERATOR SS. The MAINVIEW AutoOPERATOR SS must have the Access NV key.

For example:

```
NAIEXEC VDEL (TRANSERR STARTERR OPENERR) TARGET(SSA1)
```

deletes the MAINVIEW AutoOPERATOR global variables TRANSERR, STARTERR, and OPENERR in the MAINVIEW AutoOPERATOR subsystem SSA1.

The return codes are

**NAICC** as defined in “NetView Variables” on page 29-1

**NAIRC** 0 = variable deleted

8 = variable not found

To retrieve the NAICC and NAIRC variables from the task global variable pool in NetView, issue the following command:

```
GLOBALV GETT NAICC,NAIRC
```

## NAIEXEC VGET

Use the NAIEXEC VGET command to retrieve the value of an MAINVIEW AutoOPERATOR global variable available in the NetView address space. The contents of this variable are placed into one of the OST's global variables.

Command	Parameters	Description
VGET	nvvar [FROM(var) TARGET(tgtname)]	Retrieves the value of a global variable in the MAINVIEW AutoOPERATOR address space and make it available to the NetView address space.  <b>Note:</b> BMC Software recommends that you use AOEXEC VGET instead of NAIEXEC VGET because AOAnywhere offers more commands and does not use CSA storage, which makes it more efficient. Additionally, when using AOAnywhere, the same EXECs that are used in NetView can be invoked from TSO or MAINVIEW AutoOPERATOR.

The syntax of the command is

```
NAIEXEC VGET nvvar FROM(var) TARGET(tgtname)
```

where

**var** (*optional*) Is the name of an MAINVIEW AutoOPERATOR global variable. (Maximum length is 32 alphanumeric characters.) Do not use a leading ampersand (&).

If not specified, nvvar will be used as the variable to VGET from MAINVIEW AutoOPERATOR address space.

**nvvar** (*required*) Is the name of a NetView variable that receives the contents of the MAINVIEW AutoOPERATOR global variable. Use the NetView naming conventions. Do not specify a leading ampersand (&) sign. The maximum length for the name of a NetView CLIST variable is 11 characters and for NetView REXX variables is 31 characters.

**TARGET(tgtname)** (*optional*) Specifies the name of the MAINVIEW AutoOPERATOR where the variable should be retrieved from. Using the TARGET keyword, it is possible to route the request to any MAINVIEW AutoOPERATOR in the processor complex known to the associated MAINVIEW AutoOPERATOR through the BBPARM member BBIJNT00 in the MAINVIEW AutoOPERATOR address space. If not given, the variable will be retrieved from the associated MAINVIEW AutoOPERATOR.

After VGET executes, examine NAICC and NAIRC to determine if the variables were successfully retrieved or were not defined in the designated MAINVIEW AutoOPERATOR. If a variable with the indicated NetView name already exists under the executing OST, the value of this variable is overwritten.

For example:

```
NAIEXEC VGET QSMFID
GLOBALV GETT QSMFID
```

retrieves the value of the MAINVIEW AutoOPERATOR global variable QSMFID.

The value is retrieved from the associated MAINVIEW AutoOPERATOR BBI-SS PAS. The value of &TGLOBAL or GLOBALV GETT for CLIST EXECs (and 'GLOBALV GETT' or 'GLOBALV DEFT' for REXX EXECs) is required to be able to retrieve variables set by the NAIEXEC command processor. Refer to the IBM publication *NetView Customization Guide: Writing Command Lists* for information about NetView TASK global variables. This information is also necessary for the NAICC and the NAIRC variables; for example:

```
GLOBALV GETT NAICC,NAIRC
```

or

```
&TGLOBAL NAICC,NAIRC
```

The contents of this variable are stored in the task global variable for this OST as QSMFID.

**Note:** VGET requires that the NAISVAR CLIST is installed. NAIEXEC invokes this CLIST to set variables NAICC and NAIRC and other variables returned by the NAIEXEC VGET command. The maximum length of the value of an MAINVIEW AutoOPERATOR variable returned to NetView to become a NetView variable is 213 characters.

The return codes are

**NAICC** as defined in “NetView Variables” on page 29-1

**NAIRC** 0 = request completed successfully

8 = variable not found

To retrieve the NAICC and NAIRC variables from the task global variable pool in NetView, issue the following command:

```
GLOBALV GETT NAICC,NAIRC
```

## NAIEXEC VPUT

Use the NAIEXEC VPUT command to set an MAINVIEW AutoOPERATOR global variable to a certain value.

Command	Parameters	Description.
VPUT	varname FROM('value') TARGET(tgtname)	<p>Sets an MAINVIEW AutoOPERATOR global variable to a certain value.</p> <p><b>Note:</b> BMC Software recommends that you use AOEXEC VPUT instead of NAIEXEC VPUT because AOAnywhere offers more commands and does not use CSA storage, which makes it more efficient. Additionally, when using AOAnywhere, the same EXECs that are used in NetView can be invoked from TSO or MAINVIEW AutoOPERATOR.</p>

The syntax is

```
NAIEXEC VPUT varname FROM('value') TARGET(tgtname)
```

where

- varname** (*required*) Is the name of the global MAINVIEW AutoOPERATOR variable to set. The variable might already exist. Do not use a leading ampersand (&) sign. (Maximum length is 32 alphanumeric characters.)
- value** (*required*) Is the value you assign to the MAINVIEW AutoOPERATOR global variable. You must place the value in single quotes if it contains blanks or special characters. A NetView variable can be used.
- TARGET(tgtname)** (*optional*) Is the name of the MAINVIEW AutoOPERATOR where you set the variable. NAIEXEC VPUT uses the TARGET keyword to route the request to any MAINVIEW AutoOPERATOR in the processor complex known to the associated MAINVIEW AutoOPERATOR through the BBPARM member BBIJNT00 in the MAINVIEW AutoOPERATOR address space. If not given, the variable is set in the associated MAINVIEW AutoOPERATOR. The MAINVIEW AutoOPERATOR SS must have the Access NV key.

For example,

```
NAIEXEC VPUT CICSACB FROM('ACTIVE')
```

sets the value of the global variable CICSACB in the associated MAINVIEW AutoOPERATOR to ACTIVE. You do not need to specify the target because this value defaults to the subsystem specified in DSIPARM member NAILOPT00. Refer to the *MAINVIEW AutoOPERATOR Customization Guide*.

The return codes are

**NAICC** as defined in “NetView Variables” on page 29-1

**NAIRC** 0 = variable updated

4 = variable created

To retrieve the NAICC and NAIRC variables from the task global variable pool in NetView, issue the following command:

**GLOBALV GETT NAICC,NAIRC**

---

# Chapter 30 IMFEXEC NetView Command Processor

The IMFEXEC NetView command processor represents the EXEC link between the MAINVIEW AutoOPERATOR address space and any NetView system. The issuing MAINVIEW AutoOPERATOR need not be the associated MAINVIEW AutoOPERATOR of the target NetView. With NetView, you can schedule a NetView CLIST, a REXX EXEC, or a command in the target NetView system.

Upon termination of the NETVIEW command, the IMFCC variable will contain one of the following values:

Value	Description
0	command executed successfully
4	MAINVIEW AutoOPERATOR for NetView not installed in target or not started
8	jobname not available or invalid
12	request timed out
16	Syntax error in command

Command	Parameters	Description
NETVIEW	'command' WAIT() JOBNAME()	schedules a NetView CLIST, REXX EXEC, or NetView command.

---

The syntax for the command is

```
IMFEXEC NETVIEW 'command' WAIT(wsec) JOBNAME(jobname)
```

where

- 'command'** Is any valid NetView command. This command must be non-conversational because the EXEC cannot reply to any generated prompts.
- wsec** Is the number of seconds the EXEC waits for the successful execution of the command. You do not have to wait if the results do not need to be checked. The default is 10 seconds.
- jobname** Is the name of a NetView address space where the command is to be issued. MAINVIEW AutoOPERATOR for NetView must be installed in this address space. If you do not specify the jobname, then this command defaults to the jobname specified in the BBISSP00 member of BBPARM. Parameter is NetView=.

When the request is completed, the MAINVIEW AutoOPERATOR variable IMFNOL contains the actual number of lines of output generated by NetView in response to this command. The individual lines are placed into the local variables LINE1 through LINE $n$ . The current maximum data to be returned is approximately 7000 characters.

For example,

```
IMFEXEC NETVIEW 'MAJNODES' WAIT(15) JOBNAME(CNM01)
```

issues the NetView MAJNODES command in the NetView address space CNM01. It allows up to 15 seconds to return the results to the EXEC before timing out.

**Note:** Invoking a full screen processor causes an error message to be returned to the EXEC. The person who writes the EXEC must ensure that only line-mode type output is produced. A maximum of approximately 7000 characters of data can be retrieved using a single call.

---

# Chapter 31 MAINVIEW AutoOPERATOR Access NV Operator Workstation

MAINVIEW AutoOPERATOR Access NV enables an MAINVIEW AutoOPERATOR terminal session user to access any NetView online application without leaving the terminal session environment or logging on to a VTAM terminal.

All functions of NetView emulation are accessed from one central application using standard I/O emulation. The following section describes this mode.

Full-screen access to NetView 3.1 is not supported in MAINVIEW AutoOPERATOR 4.1 and higher. For more information about full-screen emulation, refer to “Full-Screen Emulation” on page 31-3.

## Standard I/O Emulation

Standard mode display emulation in MAINVIEW AutoOPERATOR Access NV intercepts all data from command processors that use the DSIPSS TYPE=OUTPUT, TYPE=FLASH, or TYPE=IMMED macro format. This type of output is a line-oriented mode that drives the screen asynchronously. Most of the NetView NCCF commands are examples of this kind of output; for example, the display commands or the CLIST WRITE statement.

The invocation of a single command processor might result in zero to any number of lines returned in this way. MAINVIEW AutoOPERATOR Access NV waits for the OST to return to its wait for command input. It gathers all the information returned by NetView and presents it to the terminal session user. Because more than one page of information can be formatted, you can examine the output by using the UP and DOWN (PF7/PF8) scroll keys.

Figure 31-1 is an example of NetView output.

**Figure 31-1 NetView Line Mode Output in an ISPF Window**

```

BMC Software ----- NetView OPERATOR WORKSTATION ----- MAINVIEW
AutoOPERATOR
COMMAND ==>
Interval ==> 1          Netview System ==>CNMPROC      TGT ==> CHICAGO
Status --- INPUT          Date --- 01/02/04
NV CMD ==> MAJNODES      Time --- 15:17:56
MAJNODES
DISPLAY NET MAJNODES
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MAJOR NODES
IST089I VTAMSEG TYPE = APPL SEGMENT      ACTIV
IST089I ISTOPUS TYPE = PU T4 5 MAJ NODE  ACTIV
IST089I AGDM01 TYPE = APPL SEGMENT      ACTIV
IST089I ATSOB TYPE = APPL SEGMENT      ACTIV
IST089I LNCPV3U TYPE = PU T4 5 MAJ NODE  ACTIV
IST089I NCP790T TYPE = PU T4 5 MAJ NODE  ACTIV
IST089I A3725P TYPE = PU T4 5 MAJ NODE  ACTIV
IST089I CDRM00 TYPE = CDRM SEGMENT      ACTIV
IST089I CDRSC00 TYPE = CDRSC SEGMENT    ACTIV
IST089I BS40 TYPE = LCL SNA MAJ NODE    ACTIV
IST089I BB20 TYPE = LCL 3270 MAJ NODE    ACTIV
IST089I BB60 TYPE = LCL 3270 MAJ NODE    ACTIV
IST089I BS80 TYPE = LCL SNA MAJ NODE    ACTIV
IST089I BSA0 TYPE = LCL SNA MAJ NODE    ACTIV
IST089I BSA1 TYPE = LCL SNA MAJ NODE    ACTIV

```

Any data that is not retrieved before the command returns is saved in the NetView address space; the maximum is approximately 7000 characters. This data can be retrieved by not entering a command on the command line and pressing **Enter**.

## Full-Screen Emulation

Full-screen access to NetView 3.1 is not supported in MAINVIEW AutoOPERATOR 4.1 and higher. To access NetView, use the OSPI function, which provides a consistent and reliable interface.

In order to use OSPI, you must define and activate ACBs which can be used to communicate with the NetView address space. For instructions on customizing OSPI, refer to “Defining OSPI Virtual Terminals” in the *MAINVIEW AutoOPERATOR Customization Guide*.

To invoke a full-screen application, follow these steps:

**Step 1** On the terminal session command line, type OSPI.

The OSPI scripting panel appears.

**Step 2** Type the NetView application ID.

**Step 3** Type the logmode.

**Step 4** Press **Enter**.

The NetView logon panel appears.

**Step 5** Proceed with normal logon and invoke the desired full-screen application.

**Note:** If you have been using the Access/NV workstation and want to use the same userid to log on to NetView, prior to invoking OSPI you must issue a log off command from the workstation NetView command line.

## NetView Emulator Profile Panel

Use the NetView Emulator Profile panel to determine whether the OST used for communicating with NetView is automatically logged off when you leave this application.

To access the NetView Emulator Profile panel, type

**PROFILE**

at the COMMAND. The panel in Figure 31-2 on page 31-4 is displayed.

On this panel, you can specify YES or NO in the field:

**Auto LOGOFF** ==>

If you specify YES and the OST is logged off, a new LOGON statement is processed every time you enter the application. Therefore, for performance reasons, BMC Software recommends that you specify No.

**Figure 31-2 NetView Emulator Profile Panel**

---

```
BMC Software ----- NetView Emulator Profile -----  
AutoOPERATOR  
COMMAND ==>  
  
DATE --- 01/02/07  
TIME --- 17:07:50
```

Auto LOGOFF ==> NO

Enter CANCEL to cancel, END to save

---

---

---

# Chapter 32 **MAINVIEW AutoOPERATOR for SAP High Availability**

MAINVIEW AutoOPERATOR for SAP High Availability product helps you to reduce SAP single points of failure that can interrupt your SAP users. The product also provides uninterrupted SAP availability when SAP must be moved to another system or when an IPL of the current system is required.

## **Major Components**

The core component of the MAINVIEW AutoOPERATOR for SAP High Availability product is MAINVIEW AutoOPERATOR, which provides the automation required to ensure availability of SAP.

PATROL for SAP Solutions products (Trak and Manager) are optional. This SAP monitoring suite of products enhances the performance and availability of your SAP system by detecting internal SAP problems and taking corrective actions for those problems.

## High Availability

High Availability (HA) is a concept where an enterprise is designed to ensure that component failures have the least amount of impact as possible in a production environment. That is, the loss of any specific component or piece of hardware does not impact availability because backup components and hardware are in place. For example, if your system has only one OSA network adapter, a failure of the OSA would prohibit access to this system. High Availability requires redundant components that eliminate a single point of failure.

**Note:** This product only addresses SAP High Availability. It does not address enterprise-wide high availability.

## SAP High Availability

In SAP, two points of failure need to be considered for SAP High Availability. The first is the SAP Central Instance that contains the enqueue server. Loss of the enqueue server results in a system outage to users. This failure point is addressed by SAP High Availability. The second failure point is the database server. If all application servers are connected to the same database server, a loss of that server results in the loss of application servers, which affects all of the SAP users. Possible resolutions to this failure point are discussed in this chapter, but are not directly addressed by MAINVIEW AutoOPERATOR for SAP High Availability.

Implementing SAP High Availability changes the nature of the Central Instance by removing the Application Server component. Therefore, throughout this chapter, references to Central Instance are referring to the Central Instance server without the application server component.

Application servers are not considered a single point of failure because multiple application servers can be active on multiple systems. Loss of a single application server terminates only users and transactions attached to that application server. These users can reconnect using another active application server. Therefore, application servers are not part of this product.

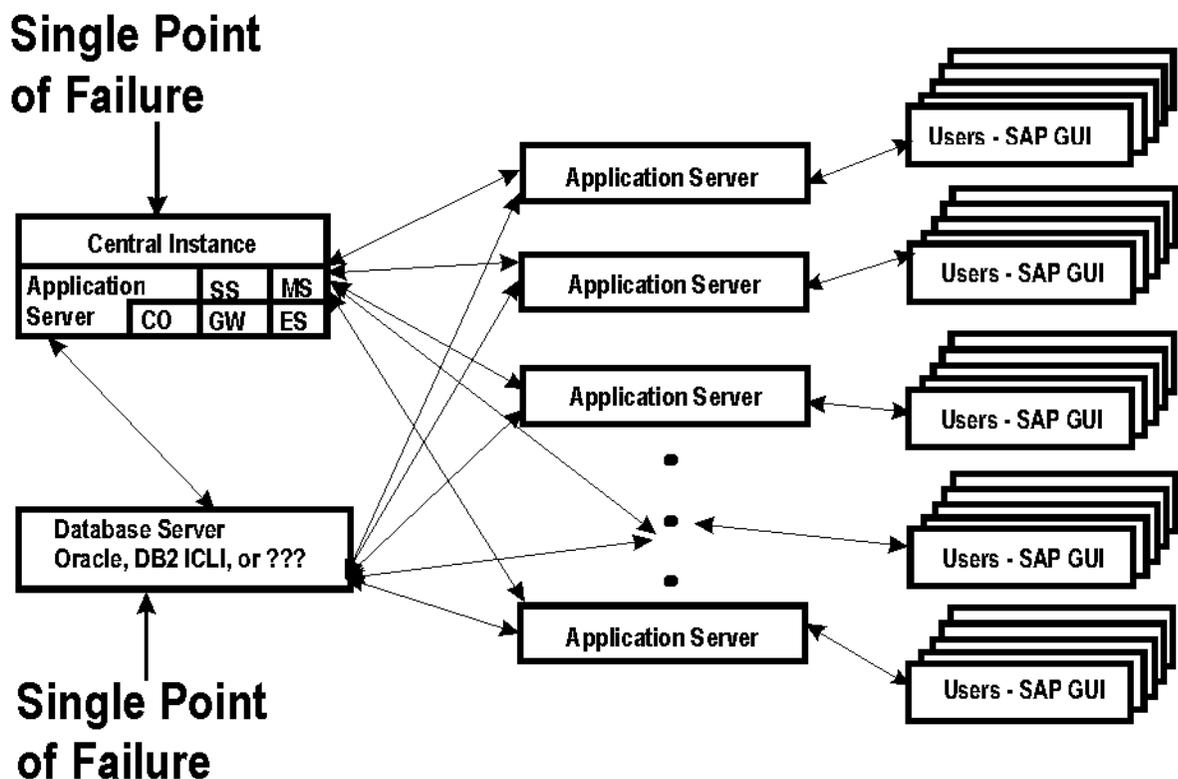
Although application servers are not implemented within this product, you are still able to issue the START and STOP commands for these servers on z/OS. You need to implement a method to determine if an application server has failed.

## How SAP High Availability Works

Figure 32-1 shows the SAP components and how they connect together. Each component can be located on different machines or on the same machine. If the assumption is that each component is located on different machines, you can clearly see that there are two single points of failure. Failure of the Central Instance or the database server causes an outage for the entire SAP user community. Additionally, the Central Instance and database server reside on specific machines. The loss of either of these machines means that you have an extended user outage.

Application servers, on the other hand, do not cause a complete user outage because multiple application servers exist on different machines. Users are connected to different application servers. Loss of a SAP GUI is not a high availability issue because it only affects one user.

Figure 32-1 SAP Components and Connections



MAINVIEW AutoOPERATOR for SAP High Availability directly addresses availability issues with the Central Instance.

Although high availability issues with the database server are not directly addressed by this product, this chapter discusses how these issues can be resolved. See “Installing and Implementing MAINVIEW AutoOPERATOR for SAP High Availability” on page 32-10.

With the installation of MAINVIEW AutoOPERATOR for SAP High Availability, the first change that takes place is the removal of the application server in the Central Instance. Once this application server no longer exists, the SAP GUI can no longer connect to Application Server 00. Removing the application server removes the connection to the database server from the Central Instance.

What is significant about this change is that the Central Instance is no longer fixed to a specific machine. It can be moved from one machine to another machine.

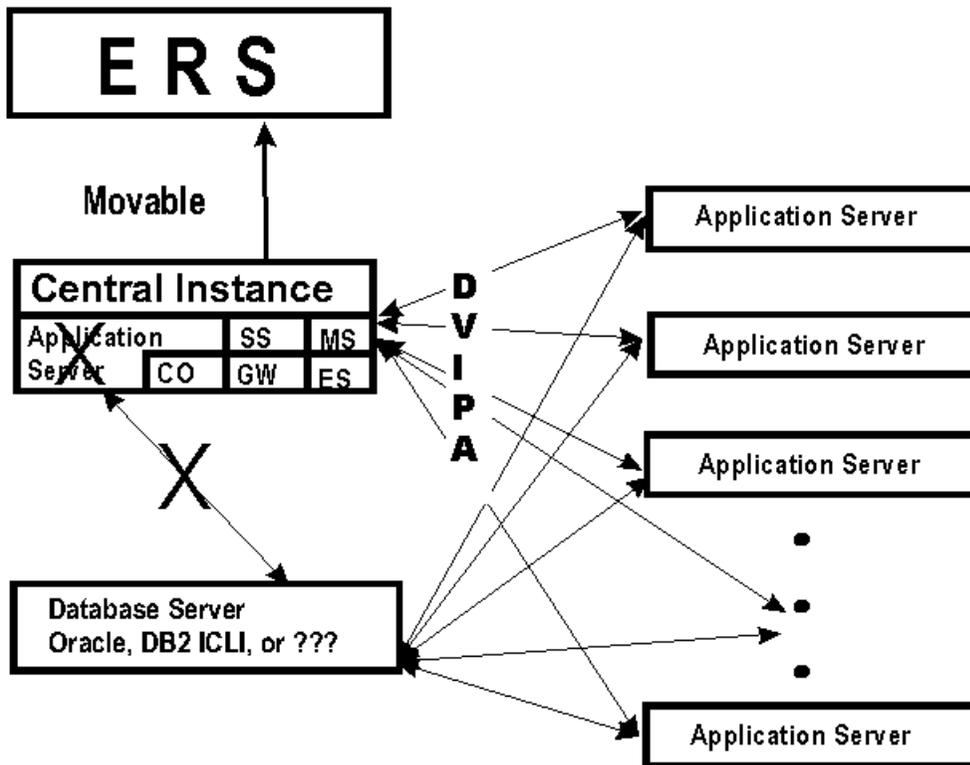
An additional component has been added called the Enqueue Replication Server (ERS). The ERS runs on another machine and maintains a copy of the vital information within the Central Instance. Loss of the Central Instance is no longer a major problem because restarting the Central Instance on the ERS will retain the status of the active transactions.

Since the Central Instance is movable, the application servers need a method to locate it. Using Dynamic VIPA (DVIPA) solves this problem.

Figure 32-2 on page 32-5 demonstrates

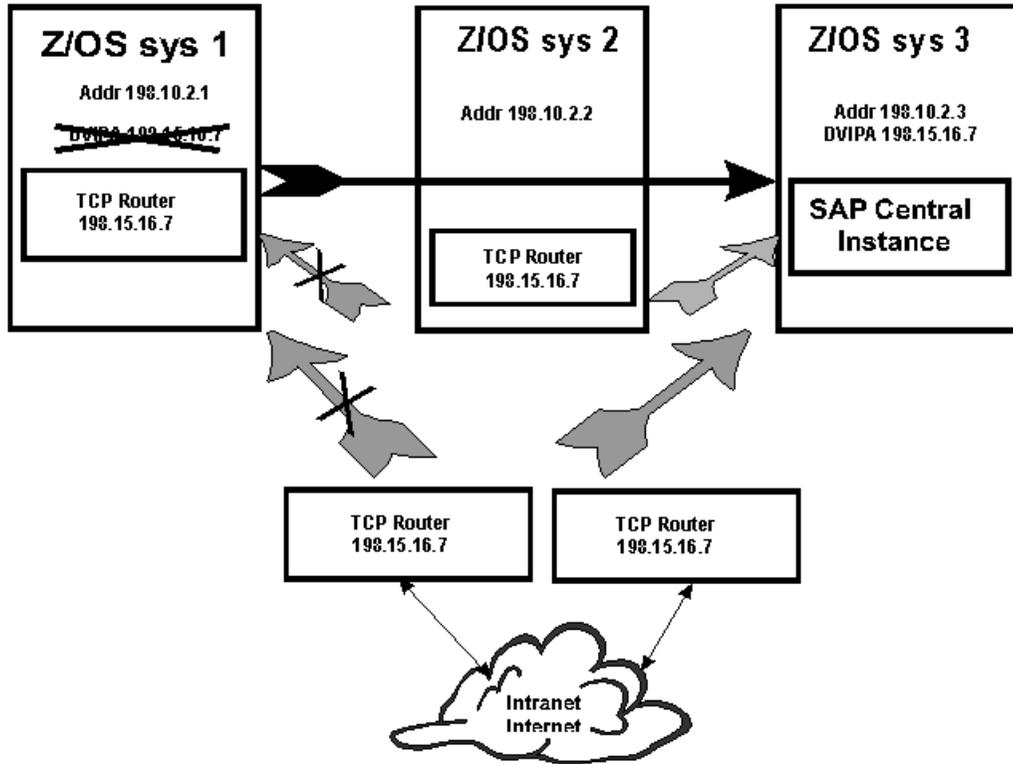
- the loss of the application server in the Central Instance
- that the DVIPA supports the Application Servers connection to the Central Instance
- that the Central Instance is movable to the ERS system
- the Central Instance no longer connects to the database server

Figure 32-2 Changes to SAP in Support of SAP High Availability



Typically, TCP/IP addresses point to a specific machine. With DVIPA, TCP/IP addresses no longer point to a specific machine; instead, they are dynamically modified to point to a machine at the time that it is needed.

Figure 32-3 Affect of Using Dynamic VIPA to Address the SAP Central Instance



SAP application servers are typically configured to use the TCP/IP address of a specific machine. By specifying a DVIPA address in the configuration, the application servers do not need to be modified. Instead, the DVIPA address is altered to point to the machine where the Central Instance is running.

# Recommended Documentation

## IBM Documentation

### IBM Redbook Containing Sample SAP Customization for High Availability

*SG24-6836-00: SAP on DB2 UDB for OS/390 and z/OS: High Availability Solution Using System Automation*

### Additional IBM Redbooks

- *SG24-6847: SAP on DB2 UDB for OS/390 and z/OS - Implementing Application Servers for Linux on zSeries*
- *SG24-5690: SAP R/3 on DB2 UDB for OS/390: Database Availability Considerations*

### Other IBM Books

- *SC26-7417: Network File System Customization and Operation*
- *SC33-7966: SAP R/3 on DB2 UDB for OS/390 and z/OS: Planning Guide*
- *SC33-7966: SAP R/3 on DB2 for OS/390: Connectivity Guide*
- *R/3 Installation on OS/390 Unix System Services, Release 4.6C SR2*
- *SC26-9935: DB2 UDB for OS/390 and z/OS Version 7: Data Sharing Planning and Administration*
- *SAP R/3 Installation on Linux for zSeries: IBM DB2 UDB for OS/390 and z/OS, Release 4.6C SR2 (product publication)*

### IBM SAP Notes

- 509529: DB2/390: *Changing the DB2 Host Proactively*
- 402078: DB2/390: *New Failover Support with 6.10 (Kernel)*
- 026317: DB2/390: *Set up LOGON Group for Automatic Load Balancing*

## SAP Central Instance Changes

Because implementation of SAP High Availability extensions eliminate the application server component from Central Instance, the SAP Application Server 00 no longer exists. SAP clients should no longer attempt to connect to this application server.

The remaining processes of the Central Instance are as follows:

- Enqueue Server (ES)
- Message Server (MS)
- Syslog Sender (SS)
- Syslog Collector (SC)
- GateWay (GW)

These processes are started and maintained by MAINVIEW AutoOPERATOR for SAP High Availability.

Another process, Enqueue Replicator Server (ERS), is implemented in the SAP High Availability extension. This process must run on another system in the sysplex where the above SAP processes can resume in case of system failure. By moving the Central Instance processes to this system, all in-flight work is recovered and the active SAP users can continue without any interruption of current work.

# Requirements to Use MAINVIEW AutoOPERATOR for SAP High Availability

The following product releases are required for use with MAINVIEW AutoOPERATOR for SAP High Availability. PATROL for SAP with special transport for high availability is optional.

- MAINVIEW AutoOPERATOR 6.3 or later
- SAP with the high availability extension
- SAP 6.3 or later
- z/OS 1.2 or later
- IBM APAR PQ62419
- Unix System Services (USS) with shared HFS
- Dynamic VIPA
- Parallel Sysplex with two or more systems that support SAP
- REXX runtime library or an installed and available alternate REXX runtime library
- product authorization through BBKEYs (MAO and SHA)

# Installing and Implementing MAINVIEW AutoOPERATOR for SAP High Availability

The following steps describe tasks you must perform in the MAINVIEW AutoOPERATOR product to implement MAINVIEW AutoOPERATOR for SAP High Availability.

**Step 1** Eliminate single points of failure in your enterprise.

The objective of this product is to make SAP highly available; however, hardware and software outside of SAP can limit availability. To address this limitation, you must take the following action:

Review your network and system configurations to identify possible single points of failure that could impact SAP availability.

The following list describes some common problem areas:

- single connection to the internet
- single routes between TCP nodes
- single OSA network adapter to the network
- single path to DASD

**Note:** This list is not complete and varies depending upon your environment. You should perform a thorough review of your enterprise and determine which elements might impact SAP availability and what measures can be taken to ensure that they are not a single point of failure.

**Step 2** (*optional*) Implement DB2 shared databases and schedule startup.

Perform this step only if your SAP uses the DB2 database on z/OS. Using shared DB2 databases in your enterprise provides multiple access points for your databases. In addition application servers that run on z/OS can now access DB2 directly, which provides stability to your SAP users. Another benefit of using DB2 databases is that your database server (DB2 ICLI) can run on multiple machines at the same time. This implementation reduces the impact of the failure of a single system in your sysplex.

For information about how to implement DB2 shared databases, refer to the IBM manual, *DB2 UDB for OS/390 and z/OS: Data Sharing Planning and Administration, SC26-9935*.

**Note:** MAINVIEW AutoOPERATOR for SAP High Availability manages the SAP environment only. Therefore if you choose to use DB2, you must monitor DB2 separately and verify that it is running on all systems that require it.

**Step 3** (optional) Implement DB2 ICLI and schedule startup.

Perform this step only if your SAP uses the DB2 database and your application servers use the DB2 ICLI as the database server. Note that application servers within the sysplex can be configured to use DB2 directly and bypass the DB2 ICLI.

To ensure High Availability for the application servers, the ICLI should be available on more than one system in the sysplex. DB2 shared databases are required for the DB2 ICLI. Additionally, to provide true High Availability, you must consider using a method by which the application servers utilize different DB2 ICLIs. Not doing so makes your SAP vulnerable to a single DB2 ICLI failure.

You can distribute a workload across multiple DB2 ICLIs through different methods. For example, you might consider using Dynamic VIPA, a DNS workload balancing product by IBM, or other methods not discussed here.

For detail information about how to implement DB2 ICLI, refer to the IBM manual, *SAP R/3 on DB2 UDB for OS/390 and z/OS: Planning Guide, SC33-7966*

**Note:** MAINVIEW AutoOPERATOR for SAP High Availability manages the SAP environment only. Therefore, if you use this option, you must schedule and monitor the DB2 ICLI to ensure that it is running on all systems on which it is required. For more information, refer to “Managing USS Processes – DB2 ICLI and Application Servers on z/OS” on page 32-24. In addition, you must manage the dynamic VIPA address.

**Step 4** Implement USS shared HFS files.

You must set up shared HFS files in USS. All SAP file systems must be shared between all systems in the sysplex. Before starting shared HFS, review the requirements for sharing various directories. For example, directories such as /tmp, /var & ... should not be shared between systems because of file name conflicts.

**Note:** For information about how to implement shared HFS files, refer to the IBM manual, *OS/390 Unix System Services Planning SC28-1890*.

**Step 5** Install the USS scripts.

**5.A** Create a USS directory where you want the BMC Software scripts to be installed.

**5.B** From a TSO user ID that has write access to this directory or has superuser authority, issue the command:

```
TSO EX 'hlq.BBSAMP(QAOSAPUI)'
```

where *hlq* is the high-level qualifier used for MAINVIEW AutoOPERATOR. The following prompt is displayed:

```
Please enter directory where the USS files should  
be loaded
```

**5.C** At this prompt, enter the directory where you want to install these scripts. Ensure that this directory is specified in the PATH for the SAP administrator user ID. If you are not familiar with how to modify the PATH, consult your Unix expert. Additionally, verify that the SAP administrator has execute authority for this directory.

**Step 6** Add security definitions.

The security products RACF, TopSecret and ACF2 are supported by this product.

You must add the following security definitions to use the MAINVIEW AutoOPERATOR for SAP High Availability product:

**6.A** Assign the user ID for the AutoOPERATOR PAS to UID 0 with this TSO command:

```
ALU xxxx OMVS(UID(0))
```

where *xxxx* is the user ID.

**Warning!** All USS functions performed in the AutoOPERATOR PAS will now execute as UID 0, which is a very privileged user ID. When you use this ID, you can easily cause problems by inadvertently issuing a USS command with the wrong parameters or performing a USS function that should not have been performed.

In addition, your existing EXECs that use USS can mistakenly be affected. For example, you will no longer be creating files with UID 0. When USS files are listed, they will start displaying the last user ID assigned to UID 0. Spawned tasks will have UID 0 and will not be protected against making mistakes.

**6.B** Assign the user ID for the AutoOPERATOR PAS access as follows:

**BPX.DAEMON CLASS(FACILITY) ID(BBI\$USER) ACCESS(READ)**

**6.C** Adding the following definition is optional for setting the jobname of processes, but it is required if you are using CSM to manage SAP.

Assign each SAP administrator ID (xxxADM where xxx is the SAP system ID) READ access to CLASS(FACILITY) RESOURCE(BPX.JOBNAME).

**6.D** Assign READ access to CLASS(FACILITY) resource(BPX.DAEMON) to the user ID for the AutoOPERATOR PAS.

**6.E** Assign READ access to AOAnywhere resources to the user ID for the AutoOPERATOR PAS, if security has been defined for AOAnywhere.

**6.F** Handle the ICH420I SYSLOG message. The ICH420I message in the SYSLOG indicates that an unauthorized program is executing in an authorized environment, thus making the environment unauthorized. You can remove the executing program or authorize the program.

- To remove executing program, the program must be executing from your USS profile or from a source where the program can be removed. Change the profile so that it only executes the program when the program is running and connected to a terminal.
- To authorize the program, add the data set that is found in the ICH420I message to the APF list or you can give AutoOPERATOR READ access to the security CLASS(PROGRAM) RESOURCE(program-name). Note that the security class PROGRAM requires additional parameters.

**Step 7** Install SAP with High Availability Extension.

To install SAP with High Availability Extension, refer to the SAP note (402078: DB2/390: “New Failover Support with 6.10 (Kernel).”) This extension can be installed any time before implementation. It does not affect the operation of SAP until the profiles have been modified.

**Step 8** Modify the SAP profiles to activate SAP High Availability.

SAP High Availability is not activated by default; you must modify the SAP profiles. For instructions on modifying the SAP profiles, refer to the *IBM Redbook SG24-6836: SAP on DB2 UDB for OS/390 and z/OS: High Availability Solution Using System Automation, Section 4.1.3 “SAP PROFILE PARAMETERS.”* The SAP PROFILE PARAMETERS section includes a detailed description of SAP profile parameters and recommended values that affect SAP High Availability. In addition the book, *z/OS: High Availability Solution Using System Automation, Section 4.1.3*, contains sample profiles.

**Warning!** Before making any changes, be sure to make a backup of the profiles to be modified. You will need the backup to restore these profiles if you decide to remove this support.

**Step 9** (optional) Install and customize application servers on z/OS.

Although no application servers are required on z/OS, you should still set up application servers on each system. Implementation of SAP High Availability removes the application server from the SAP Central Instance. If you experience problems after the installation of SAP High Availability, you might find that you no longer have access to the SAP system because you lack an application server.

For more information about how to install and customize SAP application servers, refer to the SAP installation materials.

**Step 10** Implement Dynamic VIPA (DVIPA) addresses.

Assign each SAP system one DVIPA address that is associated with the SAP Central Instance. MAINVIEW AutoOPERATOR for SAP High Availability performs a MODDVIPA to move the VIPA address to the system currently running the SAP Central Instance.

For information about how to implement DVIPA, refer to the IBM manual, *OS/390 IBM CS IP Configuration Reference*.

**Step 11** Configure each MAINVIEW AutoOPERATOR.

- 11.A** Add Rule Set RULQAOSH to the BBPARM member AAOPRMxxx list of Rule Sets to be activated. This change should be made to all systems that run MAINVIEW AutoOPERATOR for SAP High Availability.
- 11.B** For each AutoOPERATOR PAS that can run this SAP system, set the variables in the SHARED variable pool as listed in Table 32-1 on page 32-15. The simplest method of setting these variables is to edit BBPARM member BBIVARxx to include these variable definitions.

**Note:** Setting these variables indicates that SAP can run on this system. Removing these variables from a system removes the system from the list of systems that can run this SAP system.

Replace the xxx in the variable name in the table with the SAP system ID. Create a set of variables for each SAP system that might operate within the enterprise.

**Table 32-1 SHARED Variables**

BMC_SAPHA_DVIPA.xxx	contains the VIPA address for this SAP Central Instance
BMC_SAPHA_PROF.xxx	contains the filename of the SAP Central Instance profile
BMC_SAPHA_DIR.xxx	(optional) starts SAP from a directory other than the xxxADM home directory  Do not set this variable if SAP starts from the xxxADM home directory.

- 11.C** MAINVIEW AutoOPERATOR for SAP High Availability requires BBKEYS authorization for SHA and MAO. Order and install these keys if they are not already in the product.
- 11.D** Verify that all of the AutoOPERATOR PASs that control SAP belong to the same XCF group.

**Step 12** Start SAP and verify that SAP is operational.

MAINVIEW AutoOPERATOR for SAP High Availability is now configured and ready to support SAP.

In the following verification steps, the xxx represents the SAP system ID.

**12.A** Start the SAP Central Instance by using the MVS command

**SH xxx START**

Review the messages in the AutoOPERATOR Journal to ensure that no errors have occurred.

**12.B** Issue the MVS command

**SH xxx STATUS**

to display where SAP is currently running.

**12.C** Issue the MVS command

**D OMVS,U=xxxADM**

to display the list of tasks.

Verify that all of the implemented tasks are listed. If you authorized BPX.JOBNAME in step 6, verify that the jobname is correct. For example:

CMD=es.sapxxx_*	jobname column should have SAPxxxES
CMD=ms.sapxxx_*	jobname column should have SAPxxxMS
CMD=gw.sapxxx_*	jobname column should have SAPxxxGW
CMD=gw.sapxxx_*	jobname column should have SAPxxxCO
CMD=se.sapxxx_*	jobname column should have SAPxxxSE

Sample output from the D OMVS,U=xxxADM command follows.

---

MF8ADM	SAPMF8GW	004E	16843063	1	1FI	20.30.37	.377
	LATCHWAITPID=		0			CMD=gw.sapMF8_EM00	pf=/usr/sap/MF8/SYS/profi
MF8ADM	SAPMF8CO	0027	33620356	1	1FI	21.39.41	1.572
	LATCHWAITPID=		0			CMD=co.sapMF8_EM00	-F pf=/usr/sap/MF8/SYS/pr
MF8ADM	SAPMF8ES	0049	16843144	1	HS	21.39.38	1.642
	LATCHWAITPID=		0			CMD=es.sapMF8_EM00	pf=/usr/sap/MF8/SYS/profi
MF8ADM	SAPMF8MS	001B	33620367	1	1FI	21.39.47	.392
	LATCHWAITPID=		0			CMD=ms.sapMF8_EM00	pf=/usr/sap/MF8/SYS/profi
MF8ADM	SAPMF8SE	001C	33620368	1	1FI	21.39.47	.392
	LATCHWAITPID=		0			CMD=se.sapMF8_EM00	pf=/usr/sap/MF8/SYS/profi

---

**12.D** Start an application server that connects to this SAP system.

**12.E** Start your SAP GUI.

**12.F** Connect and logon to this SAP.

**Warning!** A SAP logon can take several minutes or more.

**12.G** Enter **SM12** in the **Transaction** field to display the SET LOCK ENTRIES list. Click the **Enter** button (the green circle with a check mark).

**Note:** To display the description of an button, move the mouse over the button.

**12.H** Click the **List** button to display the list of locks that you hold. This list should be empty.

**12.I** Open a second SAP window by clicking the **Creates a New Session** button.

You should now have a new SAP Easy Access window.

**12.J** In the **Transaction** field, enter **SU01** to display the User Maintenance screen and click **Enter** (the green circle with a check mark).

**12.K** Enter your user ID in the **User** field and click the **Change** button (pencil) to display the modification screen for your user ID.

A lock is created that can be displayed.

**12.L** Return to the first SAP window where you displayed the lock entry list and click the **Refresh** button. Editing your user ID causes a lock entry to be displayed.

**12.M** On the MVS console, issue the command

**F BPXOINIT,TERM=####**

where #### is the PID of the ES.SAPxxx\_ task as displayed in step 12.C. Issuing this command cancels the enqueue server and causes SAP to recover.

**12.N** Issue the MVS command

**SH xxx STATUS**

to display where SAP has moved.

- 12.O** Display the list of tasks (refer to step 12.C) and verify that the processes are now on this system.
- 12.P** On the Lock Entry List SAP window, click the **Refresh** button and verify that the lock still exists.

**Step 13** Monitor and handle error messages.

MAINVIEW AutoOPERATOR for SAP High Availability writes all warning and error messages to the journal. These messages are important to monitor so you know when errors occur that could potentially disable SAP High Availability by making your SAP vulnerable to outages.

- 13.A** You should monitor messages SH8130E and SH8093W. These messages are important because they indicate that a system has been marked as a failed system and is unusable for this SAP system.
- 13.B** *(optional)* Choose a method of notification that a problem has occurred. For example, Rules QAOSAPER and QAOSAPWA in Rule Set RULQAOSH are shipped disabled. These Rules generate ALERTs from the error and warning messages that are generated for MAINVIEW AutoOPERATOR for SAP High Availability. You could either enable these Rules at MAINVIEW AutoOPERATOR startup or create similar Rules that would provide immediate notification of the failure.
- 13.C** Correct the problems associated with the failed system.
- 13.D** After the problems are corrected, issue the MAINVIEW AutoOPERATOR for SAP High Availability command INCLUDE SYSTEMS(xxxx) for the system that was corrected.

This system is now recovered and ready for use.

**Step 14** *(optional)* Use CSM to control SAP Central Instance.

If you use CSM to manage your system and you want the SAP Central Instance to be under CSM control, perform the following steps:

- 14.A** Add a CSM object called **SAPxxxES**, where *xxx* is the SAP system ID, and modify the **Member of Group** field to include the system on which the object will first start.

- 14.B** On the Command Specification panel for that object, make the following changes:
- Set the start command limit to 1.
  - Change the start command to **QAOSAPHA xxx START CSM** (where *xxx* is the SAP system ID).
  - Change the stop command to **QAOSAPHA xxx SHUTDOWN CSM** (where *xxx* is the SAP system ID).

- 14.C** On the Object Groups for object name panel, take the following actions:
- Enter **M** on the COMMAND line, to make the object group status Member for the group that is assigned to the primary system.
  - Enter **O** on the COMMAND line to make the object group status Movable (eligible) for all other systems where SAP can run.

In this method, operation of the SAP Central Instance is different in that it starts on the system where CSM starts. In the case of a MOVE, SAP moves to the system that is requested in CSM.

- 14.D** On the Event Specifications 1 panel, change GENERATE from YES to NO.

Event handling for SAP is performed by MAINVIEW AutoOPERATOR for SAP High Availability, which means that no Event Specifications are needed for this object. Because these Event Specifications are not needed, specifying NO eliminates the Rules that are normally generated for Event Specifications.

**Step 15** (*optional*) Automate the startup and shutdown of the ICLI and Application Servers.

If you use CSM to manage your system and you want either the DB2 ICLI or your application servers on z/OS to be under CSM control, perform this step.

Although MAINVIEW AutoOPERATOR for SAP High Availability does not provide support for application servers and the DB2 ICLI, it does provide utilities that can be useful for these processes. For more information about how to automate these processes, see “Managing USS Processes – DB2 ICLI and Application Servers on z/OS” on page 32-24.

## Installation Completion

The MAINVIEW AutoOPERATOR for SAP High Availability product is now functional and available to start and shut down your SAP systems. See “Performing Additional Customizations” on page 32-21 for information about further customization to the setup and implementation of the MAINVIEW AutoOPERATOR for SAP High Availability product.

## Using the Command Interface

MAINVIEW AutoOPERATOR for SAP High Availability has a console command interface so that operators can control the SAP system. The default command prefix is “SH” and can be modified as described in “Performing Additional Customizations” on page 32-21. See Table 32-2 for command syntax.

**Table 32-2** SAP Commands (Part 1 of 2)

Command	Function
The command format is <b>SH sap_sid command command_parms</b> , where sap_sid is the SAP system ID. Command and command_parms are one of the following commands:	
SH <i>sap_sid</i> START	starts the SAP Central Instance and the Enqueue Replication Server processes  <b>Note:</b> Do not use when the CSM interface has been implemented.
SH <i>sap_sid</i> SHUTDOWN	shuts down the SAP Central Instance and the Enqueue Replication Server processes  <b>Note:</b> Do not use when the CSM interface has been implemented.
SH <i>sap_sid</i> STATUS	displays information about the SAP High Availability Central Instance and the Enqueue Replication Server processes
SH <i>sap_sid</i> EXCLUDE SYSTEMS(#### #### ...)	excludes systems where SAP Central Instance and ERS must not run  The #### is the SMF ID of the system to be excluded.  If the SAP Central instance or the ERS is on one of these systems, they will be moved to other systems. This command enables you to move SAP without disrupting users, thus freeing these systems for IPL.  <b>Note:</b> Do <i>not</i> use this command if you implemented the CSM interface.

Table 32-2 SAP Commands (Part 2 of 2)

Command	Function
SH <i>sap_sid</i> INCLUDE SYSTEMS(#### #### ...)	includes systems that were excluded or failed  The #### is the SMF ID of the system to be included.  If you modified exit QAOSAPE1 (system selection), use of this command might cause the SAP Central Instance or ERS to move to a new system if your changes request the move.
SH <i>sap_sid</i> DEBUG <ON OFF>	alters the debug state for MAINVIEW AutoOPERATOR for SAP High Availability.  <b>Note:</b> When debugging is turned on, detail messages are written to the journal that describe the actions taken by the MAINVIEW AutoOPERATOR for SAP High Availability product.
SH <i>sap_sid</i> DISABLE	disables the MAINVIEW AutoOPERATOR for SAP High Availability recovery
SH <i>sap_sid</i> ENABLE	enables the MAINVIEW AutoOPERATOR for SAP High Availability recovery

## Performing Additional Customizations

As delivered, the MAINVIEW AutoOPERATOR for SAP High Availability product is sufficient for most situations. However, you can perform additional customization for your specific environment.

### Modifying the MVS Command Interface

You communicate with MAINVIEW AutoOPERATOR for SAP High Availability through the default MVS console command, SH. To use a different console command, perform the following steps:

- Step 1** Copy Rule QAOSAP01 from Rule Set RULQAOSH into one of your Rule Sets.
- Step 2** Change the command selection criteria to the command that you want.
- Step 3** If you do not want the MVS command SH to be available to operators, issue the BBI command (**.SET RULE,DISABLE,QAOSAP01**) on each AutoOPERATOR PAS at startup.

## Modifying the User Exit 1 (QAOSAPE1) – Selecting a z/OS System for SAP

This user exit is an EXEC coded in REXX. You can modify this exit to change the system selection priority where SAP and the ERS will run. By default, this EXEC selects the first system returned. This selection is random. If you defined the enqueue server to CSM, you should not modify this EXEC. It contains code that enables CSM to function correctly.

One use for this exit is to implement WLM for system selection so that the system best suited for SAP is used.

To modify this exit, take the following actions:

- Step 1** Copy BBPROC(QAOSAPE1) to UBBPROC(QAOSAPE1)
- Step 2** Make your changes to UBBPROC(QAOSAPE1). Complete documentation for this exit is located in the EXEC header.

## Modifying the User Exit 2 (QAOSAPE2) – Starting a Process That Failed to Start

This user exit is an EXEC coded in REXX. This exit enables you to take actions if SAP processes fail to start. The default action for this exit is to exit with RC=0, which means that the processes were not started. If the failure of specific processes is not important to your environment, you can use this exit to ignore that failure. For example, SYSLOG sender and SYSLOG collector report only statistics. Therefore, failure of these processes might not warrant a complete failure of the SAP environment, or you might have some method for recovering these processes.

To modify this exit, take the following actions:

- Step 1** Copy BBPROC(QAOSAPE2) to UBBPROC(QAOSAPE2).
- Step 2** Make the desired changes to UBBPROC(QAOSAPE2). Complete documentation for this exit is located in the EXEC header.

## Modifying the User Exit 3 (QAOSAPE3) – Recovering a SAP Process That Failed

This user exit is an EXEC coded in REXX. This exit determines the action to be taken when a SAP process fails (except for the Enqueue Server process, which automatically causes a SAP system move whenever it fails). The default action for this exit is to restart the failed process three times. If the process fails more than three times, the SAP Central Instance processes are moved to the Enqueue Replicator Server system.

If the failure of a specific process is not important to your environment, you can use this exit to ignore that failure. For example, because SYSLOG sender and SYSLOG collector only report statistics, failure of these processes might not warrant a move of the SAP system. In a production environment, keeping SAP running might be more important than losing SAP statistics.

To modify this exit, take the following actions:

- Step 1** Copy BBPROC(QAOSAPE3) to UBBPROC(QAOSAPE3).
- Step 2** Make the desired changes to UBBPROC(QAOSAPE3). Complete documentation for this exit is located in the EXEC header.

## Modifying the User Exit 4 (QAOSAPE4) – Terminating a Process That Failed to Terminate

This user exit is an EXEC coded in REXX. This exit enables you to take actions if an SAP process could not be terminated. The default action for this exit is to exit with rc=0, which means that a process did not terminate.

To modify this exit, take the following actions:

- Step 1** Copy BBPROC(QAOSAPE4) to UBBPROC(QAOSAPE4).
- Step 2** Make the desired changes to UBBPROC(QAOSAPE4). Complete documentation for this exit is located in the EXEC header.

## Managing USS Processes – DB2 ICLI and Application Servers on z/OS

Although MAINVIEW AutoOPERATOR for SAP High Availability is designed to manage Central Instance USS processes, it can be used to monitor other USS processes, too. This section describes how you can manage USS processes for the DB2 ICLI and application servers on z/OS.

### Automating Starting and Stopping USS Processes

The functions for starting and stopping USS processes can be automated. In addition, you might have other commands that must run in USS that are candidates for automation. For more information about automation capabilities, refer to “QAOUSS - Running USS Commands and Scripts”. The QAOUSS EXEC enables you to run the Start and Stop scripts. BMC Software recommends that you specify the user ID under which these servers should run. In addition, the Start script should always be run with NOHUP to preserve the server so that it will continue to run after the mother task has terminated.

### QAOUSS - Running USS Commands and Scripts

The QAOUSS EXEC provides an easy method for running USS commands and scripts. In your MAINVIEW AutoOPERATOR EXECs, the format of the call is represented by the following code:

---

```
call qaouss "CMD(start_or_stop_command)" ,  
           < "USERID(userid)" , >  
           < "JOBNAME(jobname)" , >  
           < "NOHUP" , >  
           < "NO_SHELL" >
```

---

where

**CMD(...)** is the command that is used to start, stop or perform some USS command. Note that USS commands are case sensitive.

**USERID(...)** is the user ID under which this command is to be executed. Security permission to class SURROGAT resource BPX.SRV.userid is required. This operand is optional and uses the user ID of the AutoOPERATOR PAS as the default.

**JOBNAME(...)** is the MVS job name to be assigned to the address space supporting the USS process. Using this operand requires security access to class FACILITY resource BPX.JOBNAME for the user ID specified in **USERID()**.

**NOHUP** specifies that the NOHUP program should be executed before running your script or command. This option suppresses the HUP signals. The HUP signal occurs for a process when one of the mother processes terminates, such as, when an EXEC terminates and all subordinate processes terminate as a result.

**NO\_SHELL** causes the command to be executed directly and prevents the start of the user's shell environment first. Environment variables that are normally available in the shell environment are not set.

### **Return Codes**

The return code 0 only indicates that the USS command or script was executed and does not guarantee the success of the EXEC. You must analyze the output to determine the success of the EXEC. A nonzero return code means that the EXEC did not run at all.

### **Returned Messages**

The STDOUT and STDERR are returned in local variables **MSG.#**. Local variable **MSG.0** contains the number of messages returned. Use **IMFEXEC VGET MSG.# LOCAL** to retrieve the variables.

## **CSM - Managing the USS Processes Using CSM (*Optional*)**

If you plan to use CSM to manage the DB2 ICLIs and application servers, you must perform the follow actions:

- Step 1** Verify that the **JOBNAME** parameter on the QAOUSS EXEC that calls the Start script matches the CSM object name. Periodically, CSM verifies that this job exists in order to verify that the task is still running.

**Step 2** Create your Start and Stop scripts to generate WTOs or journal messages that indicate whether the start or stop was successful. CSM must capture these messages to verify that the object was successfully started.

**Warning!** Although CSM periodically checks that the jobname still exists, you must still monitor the USS object and inform CSM of whether the object is up or down. The following sample EXEC demonstrates how you can monitor the USS processes. Such an EXEC must be run periodically to verify that the processes still exist. BMC Software recommends that the EXEC runs at least every 30 seconds.

**Figure 32-4** HLQ.BBSAMP(QAOUSSST)

```

/* rexx */
"IMFEXEC VENQ 'BMCUSER.SAPHA.MONITOR' EXC TEST"
if imfrc <> 0 then do
    say "Process monitor already running"
    exit 99
end
"IMFEXEC VENQ 'BMCUSER.SAPHA.MONITOR' EXC"

call syscalls "ON" /* setup syscalls */
address syscall "SETEUID 0" /* become super user */
if retval = -1 then do
    say "SETEUID failed with errno="errno "errnojr="errnojr
    return 30
end
/*-----*/
/* Get the list of active USS processes running */
/*-----*/
address syscall "getpsent process."
if rc /= 0 | retval = -1 then do
    say "error getting process list using GETPSENT," ,
        "rc="rc "retval="retval "errno="errno "errnojr="errnojr
    return 41
end
do y = 1 to process.0
    if process.y.ps_cmd = "/command/start/icli" then icli_act = "Y"
    if process.y.ps_cmd = "/command/start/appserv1" then appl_act = "Y"
    if process.y.ps_cmd = "/command/start/appserv2" then app2_act = "Y"
end
"IMFEXEC VGET (CSM.ICLIJOB.STATE CSM.APPSRV1.STATE CSM.APPSRV2.STATE) SHARED"
if icli_act = "Y" & csm.iclijob.state <> "UP" then call csmup "ICLIJOB"
if icli_act <> "Y" & csm.iclijob.state <> "DOWN" then call csmdown "ICLIJOB"
if appl_act = "Y" & csm.appsrv1.state <> "UP" then call csmup "APPSRV1"
if appl_act <> "Y" & csm.appsrv1.state <> "DOWN" then call csmdown "APPSRV1"
if app2_act = "Y" & csm.appsrv2.state <> "UP" then call csmup "APPSRV2"
if app2_act <> "Y" & csm.appsrv2.state <> "DOWN" then call csmdown "APPSRV2"

```

**Note:** A copy of this EXEC is included in BBSAMP(QAOUSSST).

## Removing SAP High Availability

To remove SAP High Availability, restore your SAP profiles to their original state, and remove the shared variables that were added in Step 11.B on page 32-15. The next cold start of each BBI PAS removes control of SAP from the MAINVIEW AutoOPERATOR for SAP High Availability product.



---

# Appendix A SYSPROG User Exit

This appendix contains the following discussions:

- general description
- entry code table
- linking to and from SYSPROG
- entry point descriptions
- sample user exit

## General Description

The user-written exit routine receives control when the reasons or conditions listed in the entry code table occur. The user exit routine must be reentrant since it might be invoked by several tasks executing concurrently.

**Note:** The user-written exit routine module name is ASTXA1UE for XA and ESA systems, and ASTMVSUE for prior systems.

## Entry Code Table

Table A-1 on page A-2 is a list of entry codes and names for each reason or condition. The name is used as a keyword in the ASTUXBGN and UXENTER macros.

**Table A-1**      **Entry Code Table**

<b>Code</b>	<b>Name</b>	<b>Condition or Reason</b>
0	AINIT	at the completion of initialization of SYSPROG
4	AMABEND	if the SYSPROG main task abends (from the main task's ESTAE routine)
8	AMTERM	when the SYSPROG main task terminates normally
12	AATERM	if the asynchronous manager abends (from the asynchronous manager's STAE routine)
16	ASSERV	when the SYSPROG main task invokes each service
20	AFSERV	when a service invoked by the SYSPROG main task fails
24	AASBEG	at the start of the asynchronous manager's processing cycle
28	AASEND	at the end of the asynchronous manager's processing cycle
32	AASSTRT	when the asynchronous manager invokes each asynchronous service
36	AASFAIL	when a service invoked by the asynchronous manager fails
40	ALGBEG	at the start of the logging manager's processing cycle
44	ALGEND	at the end of the logging manager's processing cycle
48	ALGABND	when the logging manager terminates abnormally
52	ALGFAIL	when a service invoked by the logging manager fails
56	ALGSTRT	when a logging manager invokes each service
60	AXMFAIL	when the cross-memory manager detects that an SRB abended
64	ACMDIN	when the main task receives command input from the operator
68	ATPSTOP	when the TP monitor stops a terminal
72	ATPABND	when the TP monitor abends
76	ATPRDER	when the TP monitor encounters a READ I/O error
80	ATPWRRER	when the TP monitor encounters a WRITE I/O error
84	ATPEND	when the TP monitor terminates normally
88	APWCHK	main task password check
92	APWBAD	main task's password verification failed
96	Unused	
100	Unused	
104	ACNCMD	when the CNSL Service is about to execute an MVS command
108	APWGOOD	main task's password validation OK

# Linking to and from SYSPROG

The following sections describe how to use the ASTUXBGN|UXENTER macro to link to and from SYSPROG.

## ASTUXBGN|UXENTER Macro

The ASTUXBGN|UXENTER macro establishes linkage to and from SYSPROG. It also

- provides a standard OS register save area, which can be followed by an optional work area
- sets up addressability to the SYSPROG AVT in Register 11
- defines a base register for itself in Register 12
- creates the branch table pointing to each of the routines the user has provided, filling in null entries for those omitted

To specify the entry points that you wish to utilize in your user exit, locate the names for the entry points in the “Entry Code Table” on page A-1. Use each name, followed by an equal sign and the label of the subroutine to process the condition as keyword parameters on the ASTUXBGN (or UXENTER) macro.

**Example:**

```
ASTUXBGN APWGOOD=label11,APWBAD=label12
```

Macro ASTUXBGN (and UXENTER) generates prologue and epilogue code for the user exit and therefore must be the first statement in the user exit.

## Register Conventions and Return Codes

When control is passed to ASTMVSUE, the register setup is as follows:

<b>R0</b>	function code identifying the exit routine to receive control
<b>R1</b>	address of the AVT
<b>R2</b>	refer to the specific entry point description in “Entry Point Descriptions”
<b>R13</b>	address of a standard OS save area
<b>R14</b>	return address
<b>R15</b>	address of the entry point of ASTMVSUE

## User Words

Two anchor points, described below, are provided for communication between user-written services and exit routines. These fields might be used to anchor user-defined control blocks.

- AVTUSER, a fullword in the AVT
- ADAUSER, a fullword in the ADA

## Entry Point Descriptions

Each entry point and the status that exists when the entry point is called and the possible return codes that the exit might return are listed below.

### Initialization (AINIT)

Receives control from the SYSPROG main task after all other initialization is complete.

Valid parameters are

Reg 1 – address of real AVT

Reg 2 – not significant

Valid return codes are

0 – continue

Non-0 – abort; SYSPROG will terminate immediately

Parameter on ASTUXBGN|UXENTER macro: AINIT=label

## Main Task Abend (AMABEND)

Received control from the SYSPROG main task ESTAE routine.

Valid parameters are

Reg 1            address of real AVT

Reg 2            address of SDWA passed to the ESTAE routine or zero if there  
was no SDWA available

Return codes are not significant.

PARAMETER on ASTUXBGN|UXENTER macro: AMABEND=label

**Note:** GSDA has been freed; therefore, no SRBs might be scheduled by the  
ASTXMS|XMEMORY macro.

Note the following points:

- Both REALTIME and the advanced early warning system have been stopped.
- The SYSPROG address space has been made swappable again.
- SYSPROG is still authorized.

## Main Task Termination (AMTERM)

Receives control from the SYSPROG main task termination routine.

Valid parameters are

Reg 1            address of real AVT

Reg 2            not significant

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: AMTERM=label

**Note:** GSDA has been freed; therefore, no SRBs might be scheduled by the ASTXMS|XMEMORY macro.

Note the following points:

- Both REALTIME and the advanced early warning system have been stopped.
- The SYSPROG address space has been made swappable again.
- SYSPROG is still authorized.

This exit will be taken even though termination was requested by the user's initialization exit routine.

## Service Starting (ASSERV)

Receives control just before the SYSPROG service is loaded and attached.

Valid parameters are

Reg 1            address of real AVT

Reg 2            not significant

Valid return codes are

0 – continue; that is, load and attach the service

Non-0 – abort; bypass the service; prompt for next command

Parameter on ASTUXBGN|UXENTER macro: ASSERV=label

**Note:** BLDL and password checking, if any, have been completed.

The AVT has been set up for the service; for example, the first two characters of the AVTREPLY field contain the module suffix.

## Service Failure (AFSERV)

Receives control from the SYSPROG main task after it has been determined that a SYSPROG service has abended.

Valid parameters are

Reg 1            address of real AVT

Reg 2            not significant

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: AFSERV=label

**Note:** Message AMT006I, informing the operator of the command failure, has already been issued.

The AVTECB field in the AVT is the ECB that has been posted at the failing service's task end. It contains the abend or return code.

## Asynchronous Manager Abend (AATERM)

Receives control from the asynchronous manager's ESTAE routine.

Valid parameters are

Reg 1            address of real AVT

Reg 2            address of the SDWA passed to the ESTAE routine or to zero if there was no SDWA available

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: AATERM=label

## Asynchronous Manager Begin (AASBEG)

Receives control from asynchronous manager when its time interval has expired.

Valid parameters are

Reg 1            address of real AVT

Reg 2            not significant

Valid return codes are

0 – continue

Non-0 – bypass this asynchronous cycle

Parameter on ASTUXBGN|UXENTER macro: AASBEG=label

## Asynchronous Manager End (AASEND)

Receives control from asynchronous manager before the STIMER is issued to wait for the next interval.

Valid parameters are

Reg 1            address of real AVT

Reg 2            not significant

Valid return codes are

0 – continue; issue the STIMER for another interval

Non-0 – terminate the asynchronous manager task

Parameter on ASTUXBGN|UXENTER macro: AASEND=label

**Note:** The asynchronous manager's AVT and GSDA have been freed. Therefore, the ASTXMS|XMEMORY macro might not be issued.

## Asynchronous Service Begin (AASSTRT)

Receives control from the asynchronous manager before each service is attached.

Valid parameters are

Reg 1            address of the asynchronous manager's AVT

Reg 2            not significant

Valid return codes are

0 – continue; attach the asynchronous service

Non-0 – bypass this service

Parameter on ASTUXBGN|UXENTER macro: AASSTRT=label

**Note:** The AVTREPLY field has been set up to appear as it will for the service that is being invoked.

## Asynchronous Service Failed (AASFAIL)

Receives control from asynchronous manager when it detects that an asynchronous service has ended abnormally.

Valid parameters are

Reg 1            address of the asynchronous manager's AVT

Reg 2            address of the service entry in the ADA containing the name of the module and its report interval

Parameter on ASTUXBGN|UXENTER macro: AASFAIL=label

**Note:** The ADAECB field in the ADA is the ECB that has been posted at the failing service's task end. It contains the abend code if the service abended or the return code if it ended normally.

## Logging Manager Start (ALGBEG)

Receives control from the logging manager each time it is invoked by the asynchronous manager.

Valid parameters are

- |       |   |
|-------|---|
| Reg 1 | address of logging manager's AVT  |
| Reg 2 | address of a fullword containing the address of the first command in the logging list |

The first word of each entry is a forward pointer to the next entry or zero if it is the last entry in the list. Following the forward pointer, is either a logging command (for example, EJECT) or the data that will be moved into the AVTREPLY field when the service is invoked by the logging manager.

Valid return codes are

0 – continue; process the current logging cycle

Non-0 – bypass this logging cycle

Parameter on ASTUXBGN|UXENTER macro: ALGBEG=label

## Logging Manager End (ALGEND)

Receives control from the logging manager after it has completed a cycle through its list of services.

Valid parameters are

- |       |                     |
|-------|---------------------|
| Reg 1 | address of real AVT |
| Reg 2 | not significant     |

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: ALGEND=label

## Logging Service Start (ALGSTRT)

Receives control from the logging manager each time it attaches a service.

Reg 1            address of real AVT

Reg 2            not significant

Valid return codes are

0 – continue; attach the service

Non-0 – bypass this logging service

Parameter on ASTUXBGN|UXENTER macro: ALGSTRT=label

## Logging Service Failure (ALGFAIL)

Receives control from the logging manager after it has detected that the ECB for the logged service indicates something other than a syntax error.

Valid parameters are

Reg 1            address of real AVT

Reg 2            not significant

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: ALGFAIL=label

**Note:** The TCB for the logged service has already been detached.

## Logging Manager Abend (ALGABND)

Receives control from the logging manager's ESTAE routine when it is abending.

Valid parameters are

Reg 1            address of logging manager's AVT

Reg 2            address of the SDWA or zero if there is no SDWA

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: ALGABND=label

## Cross-Memory Failure (AXMFAIL)

Receives control from the cross-memory manager when it detects that a scheduled SRB has abended.

Valid parameters are

Reg 1            address of the caller service's AVT

Reg 2            two's complement of 1024

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: AXMFAIL=label

**Note:** The cross-memory manager has already issued the error message (AMTXM2I) and saved a copy of the GSDA in the SYSPROG address space (in subpool 2). After receiving control back from the user exit routine, the cross-memory manager will finish cleaning up and issue an abend 800 to cancel the caller subtask with a dump. The user routine can prevent the abend by resetting register 2 to +1024 when control is returned.

## Command Input (ACMDIN)

Receives control from the SYSPROG main task after receiving a command from the operator.

Valid parameters are

Reg 1            address of real AVT

Reg 2            not significant

Valid parameters are

Reg 1            address of real AVT

Reg 2            address of an 80-character field containing the input character string.

Valid return codes are

0 – continue parsing the input character stream

Non-0 – input command will be ignored

Parameter on ASTUXBGN|UXENTER macro: ACMDIN=label

**Note:** The character string is converted to uppercase and checked for all blanks. For no input--that is, all blanks--the user exit routine does not receive control.

## TP Monitor Stops a Terminal (ATPSTOP)

Control is passed to this exit routine when the TP monitor detects and excessive number of I/O errors for a terminal and deactivates it.

Valid parameters are

Reg 1            address of real AVT

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: ATPSTOP=label

## TP Monitor Abends (ATABND)

Control is passed to this exit from the TP monitor's ESTAE routine.

Valid parameters are

Reg 1            address of real AVT

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: ATPABND=label

## TP Monitor Detects Read I/O Error (ATPRDER)

An error was encountered trying to read from the BTAM line group. The TP monitor will abort when control is returned to it from this exit. Not available under TSO.

Valid parameters are

Reg 1                    address of real AVT

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: ATPRDER=label

## TP Monitor Detects Write I/O Error (ATPWREER)

An error was encountered trying to write to one of the terminals allocated to the TP monitor. Available under TSO.

Valid parameters are

Reg 1                    address of real AVT

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: ATPWREER=label

## TP Monitor Normal End (ATPEND)

Receives control when TP monitor is terminating.

Valid parameters are

Reg 1            address of real AVT

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: ATPEND=label

## User Password/Authorization Check (APWCHK)

Receives control from the SYSPROG command input routine after a BLDL has determined that the required module is available.

Valid parameters are

Reg 1            address of AVT for invoked service

Valid return codes are

0 – proceed with normal SYSPROG password check

4 – user is authorized to execute this SYSPROG service

8 – abort this service; user is not authorized

Parameter on ASTUXBGN|UXENTER macro: APWCHK=label

**Note:** The AVTREPLY field in the AVT contains the module suffix (for example, B2, followed by the specified operands). The user exit routine might change the operand as an alternative to refusing to authorize the use of the service.

## Password Verification Failure (APWBAD)

Receives control from the SYSPROG password verification routine when the user has failed to provide the correct password in response to the SYSPROG password prompt.

Valid parameters are

Reg 1            address of real AVT

Reg 2            not significant

Return codes are not significant.

Parameter on ASTUXBGN|UXENTER macro: APWBAD=label

## CNSL Command Input (ACNCMD)

Receives control when the CNSL service is about to enter an MVS system command.

Valid parameters are

Reg 1            address of user service's AVT

Reg 2            address of CNSL command buffer formatted as follows:

- LEN – DS H length of command
- LEN – DS H reserved
- CMND – DS OH text of command

Valid return codes are

0 – proceed with normal SYSPROG password check

4 – user is authorized to execute this SYSPROG service

Parameter on ASTUXBGN|UXENTER macro: ACNCMD=label

## Password Verification Successful (APWGOOD)

Receives control from the SYSPROG password verification routine when the user has provided the correct password in response to the SYSPROG password prompt.

Valid parameters are

Reg 1	address of user service's AVT
Reg 2	address of a doubleword that contains the password (in lower case) the user entered.

Parameter on ASTUXBGN|UXENTER macro: APWGOOD=label

## Sample User Exit

A sample user exit is supplied in the BBSRC data set. The member name is ASTXA1UE for MVS/XA and ESA systems, and ASTMVSUE for prior systems. This code is supplied only as an example. You might modify it to meet your specific requirements. The sample user exit illustrates the following points:

- An extra work area is acquired upon each entry through the ASTUXBGN|UXENTER macro.  
**Note:** It is addressed by the dummy section, SAVEAREA, which defines the standard save area of 18 fullwords followed by the extra space.
- Common subroutines might be shared (provided they are reentrant) by the various exit subroutines; for example, each exit routine performs the setup subroutine.
- The exit routine might send messages to the SYSPROG session with the SYSPROG ASTWTO macro or to the operator with the MVS WTO macro.
- The user exit runs under the task that called it for the specific condition. Therefore, it will be called by multiple tasks. Furthermore, tasks frequently terminate after performing their function.

Since the operating system automatically frees storage GETMAINED by a task in nonshared subpools when the task terminates, shared subpools must be used for storage that will be shared between exit subroutines. Subpool 12 should be used when shared storage is required. SYSPROG does not share subpool 0.

The user exit must make sure that shared storage is freed when it is no longer required to prevent a continuous increase in the size of the subpool throughout the life of the SYSPROG session.

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# Appendix B    **BBUSER Library EXEC Index**

This appendix contains an index of EXECs that were contributed by user. These are examples of IMS management techniques that you can customize to fit your site's needs. After customizing an EXEC, make it a member of BBPROC so that it can be executed.

The index is divided into the following groups:

- GROUP 1**      EXECs that manage application resources such as transactions, programs, and databases.
- GROUP 2**      EXECs that manage network resources.
- GROUP 3**      EXECs that perform miscellaneous operational procedures.
- GROUP 4**      EXECs that perform AutoOPERATOR functions including log maintenance procedures.
- GROUP 5**      EXECs that react to IMS messages. If the EXEC name is something other than the message ID, it will not be automatically invoked.
- GROUP 6**      EXECs that respond to timer-driven events.
- GROUP 7**      EXECs that highlight DSNxxxx messages routed from DB2 to the IMS MTO.
- GROUP 8**      EXECs that simplify DB2 command entry for the IMS MTO that is also controlling a DB2 subsystem.
- GROUP 9**      EXECs that list key people to be notified when a problem condition arises.
- GROUP 10**     EXECs that react to IMS RM and IMS WM messages.

# GROUP 1 - EXECs That Manage Application Resources

**Table B-1 BBUSER Library Index: Group 1 Manage Application Resources (Part 1 of 2)**

Name	Description	Resources
@DIS	GENERIC DISPLAY INVOKES %GROUP TXN/PGM/DB	TXN/KPGM/DB
DISACC	INVOKES %GROUP TO DISPLAY TXN/PGM/DB ACC	TXN/PGM/DB
DISADF	INVOKES %GROUP TO DISPLAY TXN/PGM/DB ADFf	TXN/PGM/DB
DISBCA	INVOKES %GROUP TO DISPLAY TXN/PGM/DB BCA	TXN/PGM/DB
DISDSS	INVOKES %GROUP TO DISPLAY TXN/PGM/DB DSS	TXN/PGM/DB
DISXXX	GENERIC DISPLAY TXN/PGM/DB	TXN/PGM/DB
PAYROLL	STARTS PAYROLL APPLICATION AND CHECKS RESOURCES	TXN/PGM/DB
GROUP	TESTS FOR VALID DATA AND SETS APPL AND SCOPE IF APPL = ADF INVOKES &GRPADF IF APPL = BCA INVOKES %GRPBCA IF APPL = SAM INVOKES %GRPSAM IF SPECIAL CASE RESETS APPL THEN GOES TO OK IF ALL OK THEN INVOKES %GRPDOIT SETS SCOPE = DB/PGM/TXN/ALL SETS CMD = STA/STO/DBR/DIS/LOC/UNL/PUR/MSG SENDS WARNING MSG IF BAD DATA	SCOPE= TXN PGM DB ALL
GRPADF	CMD = OFF SCOPE = DB/PGM/TXN/ALL OFF = DBR/STO	DB/PGM/TXN
GRPBCA	CMD = OFFSCOPE = DB/PGM/TXN/ALL OFF = DBR/STO	DB/PGM/TXN
GRPDOIT	VALID PARM CK FROM %GROUP INVOKES IF CMD = OFF DBR/STO DB & STO/TXN SENDS WARN MSG IF SCOPE = DONE CHECKS APPL FOR SPECIFIC OR GENERIC DB	DB/TXN
GRPSAM	INVOKED BY %GROUP IF APPL = SAM DBR/STO	DB/PGM/TXN
PAYROLL	STARTS/STOPS THE PAYROLL APPLICATION	DB/LTERM/TXN
PURGTRAN	INVOKES %GROUP TO PURGE ALL REQ'D TXNS	TXN
STADSSIN	STARTS ALL DSS TXNS	TXN
STADSSUP	STARTS ALL DSS UPDATE TXNS	TXN
START	INVOKES %GROUP SCOPE = ALL	DB/PGM/TXN
STARTACC	INVOKES %GROUP TO STA ACC(*)	DB/TXN
STARTADF	INVOKES %GROUP TO STA ADF(*) THRU %GRPADF	DB/PGM/TXN
STARTDSS	INVOKES 5GROUP TO STA DSS(*) THRU &GRPDOIT	DB/PGM/TXN
STODSSIN	STOPS ALL DSS TXNS WITH NO PARMS PASSED	TXNS
STODSSUP	STOPS ALL DSS UPDATE TXNS & SENDS WARN MSG	TXNS
STOP	INVOKES %GROUP TO PUR/TXN & OFF /ALL WARNS	DB/PGM/TXN

**Table B-1 BBUSER Library Index: Group 1 Manage Application Resources (Part 2 of 2)**

<b>Name</b>	<b>Description</b>	<b>Resources</b>
STOPACC	INVOKES %GROUP TO PUR/TXNS & OFF/ALL THRU %GRPDOIT & SENDS WARN & BROADCAST	DB/TXNS
STOPADF	INVOKES %GROUP TO PUR/TXN & OFF/ALL THRU %GRPADF	DB/PGM/TXNS
STOPAIM	INVOKES %GROUP TO PUR/TXN & OFF/ALL APPL = AIM & SENDS WARN MSG	DB/TXN
STOPBCA	INVOKES %GROUP TO PUR/TXN & OFF/ALL THRU %GRPBCA	DB/PGM/TXN
STOPDSS	INVOKES %GROUP TO PUR/TXN & OFF/ALL APPL = DSS	DB/TXNS
TESTA	TEST EXEC TO DIS/TRAN PART(*) NO PARMS	TXN
TESTB	TEST EXEC TO DIS/TXN = KPART/ADD WITH NO PARMS	TXN

## GROUP 2 - EXECs That Manage Network Resources

**Table B-2 BBUSER Library Index: Group 2 Manage Network Resources**

<b>Name</b>	<b>Description</b>	<b>Function</b>
DEQ	START/STOP/DIS/DEQ VTAM NODES	MISC CMDS
DSSMFX	ASSIGN LTERM/NODE	ASSIGN
RESET	RST/STO/STA/DIS NODE	RESET

## GROUP 3 - EXECs That Perform Miscellaneous Operational Procedures

Table B-3 BBUSER Library Index: Group 3 Operational Procedures

Name	Description	Function
@STO	VERIFY VALID USER OR LTERM FOR STOPPING DATABASE	STO
DCMON	ON/OFF	DCMON
ISXXX	DISPLAY TXN/PGM/DB	DISPLAY
GM1	GENERIC DATABASE DISPLAY	DISPLAY
POSTJOB	EXECUTE A USER-WRITTEN PROGRAM FROM WITHIN EXEC	CALL
SENDMSG	SEND A MESSAGE TO AN IMS/VIS LTERM FROM AN EXEC	SEND
SUBTRAN	SUBMIT TRANSACTIONS TO THE IMS MESSAGE QUEUE	SUBMIT
TIME0700	PROCEDURE TO STA/DB/TXN FOR APPL=MSPH/DSS/AVI ALSO INVOKES %GROUP TO START REMAINDER OF APPLS TO BE STARTED AT 0700 ALSO STO/TXNS THAT CANNOT RUN CONCURRENTLY	STA STO
TIME1700	SENDS WARN MSG PURGING ALL REQUIRED TXNS INVOKES %GROUP TO PUR/TXNS STOPS DSS TXNS INVOKES %GROUP TO OFF/ALL APPLS STOPPED 1700	MSG PUR STO OFF
TIME1702	REPEAT OF 1700 JUST IN CASE	OFF
TUNE0914	REASSIGNS TXN CLASSES	ASSIGN
WARNIMF	EXEC SCHEDULES WARNING TO ANOTHER SS	WARN

## GROUP 4 - EXECs That Perform AutoOPERATOR Functions

Table B-4 BBUSER Library Index: Group 4 Perform AutoOPERATOR Functions

Name	Description	Function
IM0500W	PARSES WARNING MSG FOR MONITOR SERVICES	WARN/IM0500W
IM0501I	DEQUEUE'S IM0500W WARNING MESSAGE	DWARN/IM0501I
RMXXXXW WMXXXXW RMXXXXI WMXXXXI	PARSES WARNING MSG FOR MONITOR SERVICES PROTOTYPE FOR AVG RESP BY CLASS & TXN ARRIVALS BY CLASS **NOTE MUST MODIFY FOR OTHER WARNINGS ** **ONLY ONE IM4700W ALLOWED IN LIB **	WARN/IM4700W
IM4701I	DEQUEUE'S IM4700W WARNING MESSAGE	DWARN/IM4701I

# GROUP 5 - EXECs That React to IMS/VS Messages

**Table B-5** BBUSER Library Index: Group 5 React to IMS/VS Messages (Part 1 of 5)

Name	Description	Message ID
ALLOCATI	ALLOCATION FAILED FOR DB XXXXXX	DFS2503W
EDIT	NOW EDITING SLDS VOL	DFS3257I
DFS022I	DYNAMIC BACKOUT WAS SUCCESSFUL FOR JOBNAME DYNAMIC BACKOUT WAS NOT SUCCESSFUL FOR JOBNAME	DFS022I
DFS0229W	CSA PSB POOL SIZE GT OR EQ TO DLS PSB POOL SIZE	DFS0229W
DFS027I	I/O ROUTINE ERROR	DFS027I
DFS034I	DATABASE AUTHORIZATION AND LOCKS RELEASED	DFS034I
DFS036I	BATCH BACKOUT NOT REQUIRED FOR JOBNAME BATCH BACKOUT IS REQUIRED FOR JOBNAME	DFS036I
DFS040I	UNABLE TO ACQUIRE COMMAND LOCK, DATA SHARING DISCONTINUED	DFS040I
DFS0404W	INCONSISTENT ACBLIB SPECIFICATION - IMSACBX - CODE=YYY-ZZZ	DFS0404W
DFS0451A	DFSXXXX,DBDNAME,DDNAME,DDDD,EEEE	DFS0451A
DFS049I	UNABLE TO OBTAIN STORAGE TO BUILD DATABASE AUTHORIZATION	DFS049I
DFS0613I	CTL RGN U113 DUE TO SXXXX UYYYY DURING DL/I CALL IN MPP	DFS0613I
DFS0730I	UNABLE TO OPEN/CLOSE DATA SET WITH DDNAME	DFS0730I
DFS074I	QUEUE ERROR-MESSAGE CANCELLED	DFS074I
DFS0764A	PAGE FIX FOR EXCPVR-REQUIRED AREAS FAILED. REPLY 'RETRY'	DFS0764A
DFS0769I	SELECTIVE DISPATCHING	DFS0769I
DFS0840I	INDEX ERROR DBNAME STATUS KEY	DFS0840I
DFS0845I	XXXXX DATASET LIMIT REACHED, DDNAME=YYYYYYY	DFS0845I
DFS086	CONVERSATIONAL RESOURCES UNAVAILABLE	DFS086
DFS091I	UNABLE TO LOCATE X'42' LOG RECORD	DFS091I
DFS096W	DATABASE BUFFERS PURGED, UPDATE INTENT, NOLOG SELECTED	DFS096W
DFS124I	CANNOT ENQUEUE LTERM ON LINE	DFS124I
DFS140	HH:MM:SS CHECKPOINT IN PROGRESS, CANNOT PROCESS COMMAND	DFS140
DFS169I	NO STORAGE AVAILABLE FOR DSFRPSTB	DFS169I
DFS171A	SECURITY LOAD FAILED RC=AABB	DFS171A
DFS194W	DATABASE XXXXXXXX REFERENCED BY PSB YYYYYYYY IS NOT REGISTERED WITH DBRC	DFS194W

**Table B-5 BBUSER Library Index: Group 5 React to IMS/VS Messages (Part 2 of 5)**

<b>Name</b>	<b>Description</b>	<b>Message ID</b>
DFS2011I	IRLM FAILURE, IMS/VS QUIESICING	DFS2011I
DFS2013	NUMBER OF RECORDS IN QBLKS DATA SET HAS EXCEEDED UPPER THRESHOLD	DFS2013
DFS2014	NUMBER OF RECORDS IN SMSGQ DATA SET HAS EXCEEDED UPPER THRESHOLD	DFS2014
DFS2015	NUMBER OF RECORDS IN LMSGQ DATA SET HAS EXCEEDED UPPER THRESHOLD	DFS2015
DFS2020I	VTAM STORAGE ALLOCATION FAILURE RTNCD=8	DFS2020I
DFS2029I	MONITOR UNAVAILABLE	DFS2029I
DFS2037I	START DC HAS NOT BEEN COMPLETED	DFS2037I
DFS2038I	INSUFFICIENT STORAGE AVAILABLE TO PROCESS COMMAND	DFS2038I
DFS2039I	RESOURCES INDICATED EXCEED MAXIMUM LOG BUFFER AVAILABLE	DFS2039I
DFS206I	QBLK D/S LIMIT REACHED. MUST REBUILD.	DFS206I
DFS207I	SMSG D/S LIMIT REACHED. MUST REBUILD.	DFS207I
DFS208I	LMSG D/S LIMIT REACHED. MUST REBUILD.	DFS208I
DFS2109I	VTAM ACB NOT OPEN	DFS2109I
DFS2110I	NON-QUICK VTAM SHUTDOWN REQUESTED	DFS2110I
DFS2112I	UNABLE TO CLOSE VTAM ACB, REG15=RC, ACBERFLG=XX	DFS2112I
DFS2136	REQUIRED RESTART RESPONSE NOT RECEIVED LINK XX	DFS2136
DFS2147I	ACB CLOSE PENDING ON MASTER TERMINALS.	DFS2147I
DFS216I	SYSTEM COMMAND FAILURE, NOTIFY SYSTEM PROGRAMMER	DFS216I
DFS2161I	LINK XXX STOPPED BY PARTNER	DFS2161I
DFS2165I	ROUTING LOOP DETECTED I: SSS/NAME, D: SSS/NAME	DFS2165I
DFS2178I	VTAM HAS BEEN CANCELLED	DFS2178I
DFS2181I	CANNOT OVERRIDE FORCED COMMAND SECURITY	DFS2181I
DFS2202I	PERMANENT I/O ERROR ON IMSMON	DFS2202I
DFS2206I	PC MONITOR LOGGING NOT AVAILABLE	DFS2206I
DFS2233I	ASSIGNMENT REDUNDANT	DFS2233I
DFS2272I	PURGE KEYWORD INVALID, ONLY ONE CTC LINK ALLOWED	DFS2272I
DFS2275I	SORT FAILED-INCREASE REGION SIZE	DFS2275I
DFS2297	PURGE KEYWORD IS INVALID, LINK NOT CTC	DFS2297
DFS2298A	BACKOUT PROCESSING INCOMPLETE FOR PSB PSBNAME	DFS2298A
DFS234I	INVALID RETURN FROM PAGING	DFS234I
DFS2387X	UNABLE TO OPEN SYSOUT DATA SETS	DFS2387X
DFS2407I	NUMBER OF IOBS SPECIFIED AT IMS/VS GEN IS TOO SMALL- MINIMUM NUMBER WILL BE USED	DFS2407I

**Table B-5 BUSER Library Index: Group 5 React to IMS/VS Messages (Part 3 of 5)**

<b>Name</b>	<b>Description</b>	<b>Message ID</b>
DFS2419I	UNABLE TO ROUTE DL/I CALL TRACE OUTPUT TO IMS/VS LOG	DFS2419I
DFS2422I	DL/I TRACE TERMINATED-NO OUTPUT DATA SET PROVIDED	DFS2422I
DFS2450I	UNABLE TO ACQUIRE STORAGE FOR PI/ENQ POOL	DFS2450I
DFS2451W	THE LAST BLOCK OF ENQ/DEQ STORAGE IS BEING ACQUIRED	DFS2451W
DFS2466W	IMS NOT DEFINED TO RACF	DFS2466W
DFS2470A	/SIGN COMMAND REQUIRED	DFS2470A
DFS2474I	RECEIVE ANYS EXHAUSTED, REG0=XX, CLOSING VTAM ACB	DFS2474I
DFS2481I	DATABASE RECOVERY CONTROL FEATURE NOT OPERABLE	DFS2481I
DFS2483A	DBRC INITIALIZATION ERROR	DFS2483A
DFS2484I	JOBNAME=ARXXXXXX GENERATED BY LOG AUTOMATIC ARCHIVING	DFS2484I
DFS2505I	ERROR PROCESSING ACBLIB-OPEN ERROR	DFS2505I
DFS2519I	ERROR PROCESSING ACBLIB-READ ERROR	DFS2519I
DFS2558A	RECFM OF DDNAME=PROCLIB NOT FIXED	DFS2558A
DFS2559A	GETMAIN FAILED	DFS2559A
DFS271I	UNABLE TO LOAD ERROR MESSAGE OUTPUT DESCRIPTION	DFS271I
DFS2854W	JOBNAME, STEPNAME, REGION, REASON--FAILED SECURITY CHECK	DFS2854W
DFS299A	SEGMENT EDIT EXIT FAILURE-NOTIFY SYSTEMS PROGRAMMER	DFS299A
DFS3127	I/O ERROR ON RESTART DATA SET	DFS3127
DFS3127I	TYPE ERROR OCCURRED ON THE RESTART DATA SET	DFS3127I
DFS3128A	OPEN FAILED ON RESTART DATA SET	DFS3128A
DFS3132A	CANNOT BUILDQ. SHUTDOWN WAS FREEZE	DFS3132A
DFS3257I	ONLINE LOG NOW OPND/SWTCHD/CLSD/DEALL	DFS3257I
DFS3258A	LAST ONLINE LOG DATASET NEEDS ARCHIVE	DFS3258A
DFS3260I	ONLINE LOG DATA SET SHORTAGE -- NEED ANOTHER DATA SET	DFS3260I
DFS3262I	NO DATA SET AVAILABLE FOR LOG WRITE AHEAD	DFS3262I
DFS3263I	ARCHIVE UTILITY ENDED UNSUCCESSFULLY (RRRRRRRR)	DFS3263I
DFS3264I	ARCHIVE UNABLE TO OPEN XXXX	DFS3264I
DFS3274I	DBRC LOG XXXX EXIT FAILED (YY)	DFS3274I
DFS3312I	DBRC INITIALIZATION FAILED -- RC = NN	DFS3312I
DFS3411X	UNABLE TO OPEN THE MODSTAT DATA SET	DFS3411X
DFS3412X	ERROR READING MODSTAT DATA SET	DFS3412X
DFS3413X	INVALID CONTENTS IN THE MODSTAT DATA SET	DFS3413X

**Table B-5 BBUSER Library Index: Group 5 React to IMS/VS Messages (Part 4 of 5)**

<b>Name</b>	<b>Description</b>	<b>Message ID</b>
DFS3414X	NOT ENOUGH STORAGE TO INITIALIZE	DFS3414X
DFS3415X	LIBRARY XXXXXXXX IN USE BY ANOTHER OS/VS TASK	DFS3415X
DFS3416X	OPEN FAILED FOR LIBRARY XXXXXXXX	DFS3416X
DFS3417X	UNABLE TO LOCATE MODULE XXXXXXXX	DFS3417X
DFS3418X	UNABLE TO DELETE MODULE XXXXXXXX	DFS3418X
DFS3419X	UNABLE TO LOAD MODULE XXXXXX	DFS3419X
DFS3420X	RESIDUAL MESSAGES EXIST FOR DELETED TRANSACTIONS	DFS3420X
DFS3421X	UNABLE TO FIND XXXX CONTROL BLOCK NAMED YYYYYYYY	DFS3421X
DFS3422X	INSUFFICIENT STORAGE FOR XXXX CONTROL BLOCKS	DFS3422X
DFS3435A	UNABLE TO LOCATE OR LOAD MODULE "DFSNNNNS"	DFS3435A
DFS3438I	RESERVED INDEX AREA IN MFS BUFFER POOL TOO SMALL	DFS3438I
DFS3439W	I/O ERROR READING THE DIRECTORY FOR DDNAME --NNN	DFS3439W
DFS3441I	UNABLE TO ACQUIRE STORAGE FOR MODIFY	DFS3441I
DFS3446I	INDEX AREA IN MFS BUFF POOL TOO SMALL. NN ENTRIES TRUNC	DFS3446I
DFS3447I	UNABLE TO ACQ STG FOR INACT FORMAT LIBRARY DIRECTORIES	DFS3447I
DFS3452I	WORK IN PROGRESS FOR RESOURCES TO BE CHG/DEL	DFS3452I
DFS3453W	ERROR WRITING MODSTAT DATA SET	DFS3453W
DFS3454I	I/O ERROR READING RESIDENT DIRECTORY (\$\$IMSDIR) -NNN	DFS3454I
DFS3467I	ERROR READING MODSTAT DATA SET	DFS3467I
DFS355I	ERRORS DETECTED. DATABASE RELOAD UNSUCCESSFUL.	DFS355I
DFS406A	INVALID STATE OF SYSTEM DATA SETS REQUIRES BLDQ	DFS406A
DFS551	BATCH REGION XXXXXXXX STARTED ID=NN TIME=TTTT	DFS551
DFS552	BATCH REGION XXXXXXXX STOPPED ID=NN	DFS552
DFS552I	IFP REGION XXXXXXXX STOPPED. ID=YY TIME=ZZZZ MESSAGE BATCH	DFS552I
DFS554	XXXXXXXX NN STEPNAME PROGNAME(1) TRANCODE NNN,RTCD PSB SMB LTERM XXXXXXXX	DFS554
DFS554A	IMSRGN/TXN/PGM/LTERM ABEND INFO	DFS554A
DFS555I	TRAN XXXXXXXX ABEND	DFS555I
DFS561I	ERROR READING ACBLIB PSB=PSBNAME/DMB=DMBNAME	DFS561I
DFS616I	SYSTEM LOG DATA SET NOT CLOSED-LOG WRITE ERROR	DFS616I
DFS810A	IMS/VS READY YYDDDD/HHMMSST JOBNAME.STEPNAME	DFS810A
DFS844I	DFSDVSM0 XXXXXXXX DATASET FULL DDNAME = DDDDDDDD IMSRGN	DFS844I

**Table B-5 BBUSER Library Index: Group 5 React to IMS/VS Messages (Part 5 of 5)**

<b>Name</b>	<b>Description</b>	<b>Message ID</b>
DFS970I	HH:MM:SS UNEXPECTED STATUS ,NODE XXXXXXXX STUFF	DFS970I
DFS972A	*IMS AWAITING MORE INPUT*	DFS972A
DFS979I	BATCH MESSAGE PROGRAM XXX WAS ACTIVE AT TIME OF FAILURE	DFS979I
DFS980	BACKOUT COMPLETE FOR PROGRAM XXXXXX	DFS980
DFS981I	PROGRAM PPP AND THE FOLLOWING DATABAZSES HAVE BEEN STOPPED!	DFS0981I
DFS983I	I/O ERROR IN DATABASE XXX, PROGRAM YYY DURING BACKOUT	DFS983I
DFS984I	UNABLE TO OPEN DATABASE XXX, PROGRAM YYY FOR BACKOUT	DFS984I
DFS985I	SYSTEM ERROR DURING BACKOUT FOR DB = DDD, PGM = PPP, CODE = X	DFS985I
DFS986A	CANNOT OPEN SYSTEM DATA SET-DD NAME-NNN, RC = XX	DFS986A
DFS992	DMB POOL TOO SMALL, UNABLE TO SCHEDULE PSB PSBNAME	DFS992
DFS992I	DMB POOL TOO SMALL, UNABLE TO SCHEDULE PSB PSBNAME	DFS992I
DFS993	PSB POOL TOO SMALL, UNABLE TO SCHEDULE PSBI	DFS993
DFS993I	CSA DLS PSB POOL TOO SMALL, UNABLE TO SCHEDULE PSB PSBNAME	DFS993I
DFS994I	CHKPT YYDDD/HHMMSS**VOLSER*****SIMPLE**COLD START	DFS994I

## GROUP 6 - EXECs That Respond to Timer-Driven Events

Table B-6 BBUSER Library Index: Group 6 Timer-Driven EXECs

Name	Description	Function
DISA	ISSUES /DIS A COMMAND EVERY 30 MINUTES	/DIS A
DRIVER	<p>CONTROLS SCHEDULING OF IMS/VS-RELATED EVENTS DURING A DAY</p> <p>AT 7 AM SEND IMS STARTUP MESSAGE START IMS/VS</p> <p>AT 10 AM QUEUE DATABASE RECOVERY EXEC SEND WARNING MESSAGE</p> <p>AT 10:05 AM QUEUE EXEC TO START DATABASES SEND WARNING MESSAGE</p> <p>AT 3 PM QUEUE DATABASE RECOVERY EXEC SEND WARNING MESSAGE</p> <p>AT 3:05 PM QUEUE EXEC TO START DATABASES SEND WARNING MESSAGE</p> <p>AT 4:50 PM SEND IMS/VS SHUTDOWN MESSAGE AT 5 PM REQUEST IMS/VS SHUTDOWN</p> <p>SEND SHUTDOWN MESSAGE</p>	<p>MSG</p> <p>CMD S IMSTEST, AUTO=Y</p> <p>CMD DBRDB1 WARN</p> <p>CMD STADB2 WARN</p> <p>CMD DBRDB2 WARN</p> <p>CMD STADB1 WARN</p> <p>CMD /BRO</p> <p>CMD /CHE FREEZE</p> <p>MSG</p>
MIDNITE	Q VARIABLES AND COMMANDS PERFORM SCHEDULED JOURNAL AND LOG MAINTENANCE	TIMINIT
SUBBMP	STARTS BMP REGION EVERY DAY EXCEPT WEEKENDS AT 6 PM	/STA REG
VARDISP	DISPLAYS EXEC VARIABLES IN BBI JOURNAL TO TEST CALLX SERVICE	MSG
WKBACKUP	STARTS WEEKLY BACKUP JOB EVERYDAY AT 6 PM EXCEPT FRIDAY	CMD S /MSRDR, MBR=WKBKUP

## GROUP 7 - EXECs That Highlight DSNxxxx Messages

**Table B-7 BBUSER Library Index: Group 7 Highlight DSN Messages**

<b>.Name</b>	<b>Description</b>
DSNM001I	(XXXX) CONNECTED TO SUBSYSTEM (YYYY)
DSNM002I	IMS/VS (XXXX) DISCONNECTED FROM SUBSYSTEM (YYYY)
DSNM003I	INFORMS DB2 SYSTEM PROGRAMMER AND OPERATOR IF IMS/VS FAILS TO CONNECT WITH DB2 (RETURN CODE 04 SHOWN). ALSO INFORMS DB2 SYSTEM PROGRAMMER AND DIRECTOR IF RETURN CODE IS '00'
DSNM004I	ROUTES MESSAGE TO NOTIFY EXEC WHEN IMS/VS AND DB2 ARE NOT IN SYNCHRONIZATION
DSNM005I	RESOLVES INDOUBT SYNCHRONIZATION PROBLEM WITH SUBSYSTEM (XXXX)

## GROUP 8 - EXECs That Simplify DB2 Entry

**Table B-8 BBUSER Library Index: Group 8 Simplify DB2 Entry (Part 1 of 2)**

<b>Name</b>	<b>Description</b>
DB2CMDS	displays IMF DB2 commands that might be issued as EXECs from the command line of the AutoOPERATOR
DB2DB	dispalys DB2 databases
DB2DBA	displays DB2 databases that are active
DB2DBL	displays DB2 database locks
DB2DBR	displays DB2 databases are restricted; 'DB RESTRICTED(STOP)'
DB2DBU	displays database use
DB2PDB	stops a DB2 databse
DB2PTRAC	stops a DB2 trace
DB2RBSDS	re-establishes dual bootstrap data sets (note: must have bsds privilege)
DB2RECIN	recovers indoubt action
DB2DB	starts db2 database
DB2STRAC	starts db2 trace
DB2TERMU	terminates db2 utilities
DB2THD	displays all db2 threads
DB2THDA	displays db2 active threads
DB2THDIN	displays db2 threads indoubt

**Table B-8 BBUSER Library Index: Group 8 Simplify DB2 Entry (Part 2 of 2)**

<b>Name</b>	<b>Description</b>
DB2TRACE	displays db2 trace
DB2UTIL	displays db2 utilities

## GROUP 9 - EXECs That List Key People to Notify about Problems

The name of the EXEC must be equivalent to the name of the person if a person is being notified.

**Table B-9 BBUSER Library Index: Group 9 Key People Notification**

<b>Name</b>	<b>Description</b>
SMITH1	SYSTEM PROGRAMMER PHONE AND PAGER NUMBERS
SMITH2	MVS PROGRAMMER PHONE AND PAGER NUMBERS
SMITH3	DB2 SYSTEM PROGRAMMER PHONE AND PAGER NUMBERS
SMITH4	HELP DESK CRISIS MANAGER PHONE AND PAGER NUMBERS
SMITH5	TECHNICAL SERVICES MANAGER PHONE AND PAGER NUMBERS
SMITH6	DATA CENTER DIRECTOR PHONE AND PAGER NUMBERS
WEEK1	PHONE AND PAGER NUMBERS FOR ENTIRE ON-CALL LIST FOR THE WEEK
NOTIFY	WARNING MESSAGE CONTAINING MESSAGE TEXT, NAME OF PERSON ON-CALL, AND PHONE AND PAGER NUMBERS FOR THAT PERSON

# GROUP 10 - EXECs That React to IMS RM and IMS WM Messages

**Table B-10**      **BBUSER Library Index: Group 10 IMS RM and WM Messages (Part 1 of 4)**

<b>Name</b>	<b>Message</b>
RM0010W	IMS-RM/MFSIO: MFS I/O EXCEEDED
RM0011I	IMS-RM/MFSIO: MFS I/O OK
RM0020W	IMS-RM/MFSIR: MFS IMMEDIATE REQUESTS EXCEEDED
RM0021I	IMS-RM/MFSIR: MFS IMMEDIATE REQUESTS NOW OK
RM0030W	IMS-RM/MFSFD: % MFS BLOCKS FOUND IN POOL EXCEEDED
RM0031I	IMS-RM/MFSFD: % MFS BLOCKS FOUND IN POOL NOW OK
RM0040W	IMS-RM/QIO: QUEUE I/O EXCEEDED
RM0041I	IMS-RM/QIO: QUEUE I/O NOW OK
RM0050W	IMS-RM/QWAIT: QUEUING WAITS EXCEEDED
RM0051I	IMS-RM/QWAIT: QUEUING WAITS NOW OK
RM0060W	IMS-RM/INQBG: IN-Q LENGTH BY BALG EXCEEDED
RM0061I	IMS-RM/INQBG: IN-Q LENGTH BY BALG NOW OK
RM0070W	IMS-RM/INQTR: IN-Q LENGTH BY TRancode EXCEEDED
RM0071I	IMS-RM/INQTR: IN-Q LENGTH BY TRancode NOW OK
RM0080W	IMS-RM/INQL: IN-Q LENGTH BY CLASS EXCEEDED
RM0090W	IMS-RM/IQSCL: SCHEDULABLE IN-Q BY CLASS EXCEEDED
RM0091I	IMS-RM/IQSCL: SCHEDULABLE IN-Q BY CLASS NOW OK
RM0100W	IMS-RM/OQLT: OUT-Q LENGTH BY LTERM EXCEEDED
RM0101I	IMS-RM/OQLT: OUT-Q LENGTH BY LTERM NOW OK
RM0110W	IMS-RM/OQLN: OUT-Q LENGTH BY LINE EXCEEDED
RM0111I	IMS-RM/OQLN: OUT-Q LENGTH BY LINE NOW OK
RM0120W	IMS-RM/OQND: OUT-Q LENGTH BY NODE EXCEEDED
RM0121I	IMS-RM/OQND: OUT-Q LENGTH BY NODE NOW OK
RM0130W	IMS-RM/OUTLT: MSGS OUTPUT BY LTERM EXCEEDED
RM0131I	IMS-RM/OUTLT: MSGS OUTPUT BY LTERM NOW OK
RM0140W	IMS-RM/OUTLN: MSGS OUTPUT BY LINE EXCEEDED
RM0141I	IMS-RM/OUTLN: MSGS OUTPUT BY LINE NOW OK
RM0150W	IMS-RM/OUTND: MSGS OUTPUT BY NODE EXCEEDED
RM0151I	IMS-RM/OUTND: MSGS BY NODE NOW OK
RM0160W	IMS-RM/ARVBG: TRAN ARRIVALS BY BALG EXCEEDED
RM0161I	IMS-RM/ARVBG: TRAN ARRIVALS BY BALG NOW OK

**Table B-10**      **BBUSER Library Index: Group 10 IMS RM and WM Messages (Part 2 of 4)**

<b>Name</b>	<b>Message</b>
RM0170W	IMS-RM/ARVTR: TRAN ARRIVALS BY TRANCODE EXCEEDED
RM0171I	IMS-RM/ARVTR: TRAN ARRIVALS BY TRANCODE NOW OK
RM0180W	IMS-RM/ARVCL: TRAN ARRIVALS BY CLASS EXCEEDED
RM0181I	IMS-RM/ARVCL: TRAN ARRIVALS BY CLASS(PARM) NO LONGER > Y
RM0190W	IMS-RM/ARVPR: TRAN ARRIVALS BY PGM EXCEEDED
RM191I	IMS-RM/ARVPR: TRAN ARRIVALS BY PGM NOW OK
RM0200W	IMS-RM/PRCBG: TRANS PROC'D BY BALG EXCEEDED
RM0201I	IMS-RM/PRCBG: TRANS PROC'D BY BALG NOW OK
RM0210W	IMS-RM/PRCTR: TRANS PROC'D BY TRANCODE EXCEEDED
RM0211I	IMS-RM/PRCTR: TRANS PROC'D BY TRANCODE NOW OK
RM0220W	IMS-RM/PRCCL: TRANS PROC'D BY CLASS EXCEEDED
RM0221I	IMS-RM/PRCCL: TRANS PROC'D BY CLASS NOW OK
RM0230W	IMS-RM/PRCPR: TRANS PROC'D BY PGM EXCEEDED
RM0231I	IMS-RM/PRCPR: TRANS PROC'D BY PGM NOW OK
RM0240W	IMS-RM/SCHFL: SCHED FAILURES BY TYPE EXCEEDED
RM0241I	IMS-RM/SCHFL: SCHED FAILURES BY TYPE NOW OK
RM0250W	IMS-RM/MSGT: MESSAGE CALLS PER SCHEDULING BY REGION
RM0251I	IMS-RM/MSGT: MESSAGE CALLS PER SCHEDULING NOW OK
RM0260W	IMS-RM/MSGGU: MESSAGE CALLS PER MGU BY REGION
RM0261I	IMS-RM/MSGGU: MESSAGE CALLS PER MGU NOW OK
RM0270W	IMS-RM/DBTOT: DATABASE CALLS PER SCHEDULING BY REGION
RM0271I	IMS-RM/DBTOT: DATABASE CALLS PER SCHEDULING REGION NOW OK
RM0280W	IMS-RM/DBGU: DATABASE CALLS PER MGU BY REGION
RM0281I	IMS-RM/DBGU: DATABASE CALLS PER MGU NOW OK
RM0290W	IMS-RM/DBIO: DB I/O COUNT BY SUBPOOL EXCEEDED
RM0291I	IMS-RM/DBIO: DB I/O COUNT BY SUBPOOL NOW OK
RM0300W	IMS-RM/DBSTL: DB BFR STEALS BY SUBPOOL EXCEEDED
RM0301I	IMS-RM/DBSTL: DB BFR STEALS BY SUBPOOL NOW OK
RM0310W	IMS-RM/DBSTL: VSAM DB I/O BY SUBPOOL EXCEEDED
RM0311I	IMS-RM/DBSTL: VSAM DB I/O BY SUBPOOL NOW OK
RM0320W	IMS-RM/VDBWR: VSAM WRITES BY SUBPOOL EXCEEDED
RM0321I	IMS-RM/VDBWR: VSAM WRITES BY SUBPOOL NOW OK
RM0330W	IMS-RM/DSAP: DYN SAP % UTILIZATION EXCEEDED
RM0331I	IMS-RM/DSAP: DYN SAP % UTILIZATION NOW OK
RM0340W	IMS-RM/CIOP: CIOP % UTILIZATION EXCEEDED

**Table B-10 BBUSER Library Index: Group 10 IMS RM and WM Messages (Part 3 of 4)**

<b>Name</b>	<b>Message</b>
RM0341I	IMS-RM/CIOP: CIOP % UTILIZATION NOW OK
RM0350W	IMS-RM/CWAP: CWAP % UTILIZATION EXCEEDED
RM0351I	IMS-RM/CWAP: CWAP % UTILIZATION NOW OK
RM0360W	IMS-RM/WKAP: WKAP % UTILIZATION EXCEEDED
RM0361I	IMS-RM/WKAP: WKAP % UTILIZATION NOW OK
RM0370W	IMS-RM/PSBW: PSB WORK POOL % UTIL EXCEEDED
RM0371I	IMS-RM/PSBW: PSB WORK POOL % UTIL NOW OK
RM0380W	IMS-RM/DBWP: DB WORK POOL % UTIL EXCEEDED
RM0381I	IMS-RM/DBWP: DB WORK POOL % UTIL NOW OK
RM0390W	IMS-RM/PSBP: PSB POOL % UTILIZATION EXCEEDED
RM0391I	IMS-RM/PSBP: PSB POOL % UTILIZATION NOW OK
RM0400W	IMS-RM/DMBP: DMB POOL % UTILIZATION EXCEEDED
RM0401I	IMS-RM/DMBP: DMB POOL % UTILIZATION NOW OK
RM0410W	IMS-RM/HIOP: HIOP POOL % UTILIZATION EXCEEDED
RM0411I	IMS-RM/HIOP: HIOP POOL % UTILIZATION NOW OK
RM0420W	IMS-RM/RECA: RECA POOL % UTILIZATION EXCEEDED
RM0421I	IMS-RM/RECA: RECA POOL % UTILIZATION NOW OK
RM0430W	IMS-RM/EPCB: EPCB POOL % UTILIZATION EXCEEDED
RM0431I	IMS-RM/EPCB: EPCB POOL % UTILIZATION NOW OK
RM0440W	IMS-RM/PAGE: PAGING (REGION EXCEEDED)
RM0441I	IMS-RM/PAGE: PAGING (REGION) NOW OK
RM0450W	IMS-RM/DPAGE: DEMAND PAGING BY REGION EXCEEDED
RM0451I	IMS-RM/DPAGE: DEMAND PAGING BY REGION NOW OK
RM0460W	IMS-RM/CSAUT: CSA % UTILIZATION EXCEEDED
RM0461I	IMS-RM/CSAUT: CSA % UTILIZATION NOW OK
RM0480W	IMS-RM/CSAFR: CSA FRAGMENTATION EXCEEDED
RM0481I	IMS-RM/CSAFR: CSA FRAGMENTATION NOW OK
RM0500W	IMS-RM/SIO: START I/O'S BY UNIT ADDR EXCEEDED
RM0501I	IMS-RM/SIO: START I/O'S BY UNIT ADDR NOW OK
RM0510W	IMS-RM/DLIO: DL/1 EXCP COUNT BY DDNAME EXCEEDED
RM0511I	IMS-RM/DLIO: DL/1 EXCP COUNT BY DDNAME NOW OK
RM0530W	IMS-RM/SYSIO: EXCP COUNT BY DDNAME EXCEEDED
RM0531I	IMS-RM/SYSIO: EXCP COUNT BY DDNAME NOW OK
RM0550W	IMS-RM/CHBSY: LOGICAL CHANNEL BUSY EXCEEDED
RM0551I	IMS-RM/CHBSY: LOGICAL CHANNEL BUSY NOW OK

**Table B-10**      **BBUSER Library Index: Group 10 IMS RM and WM Messages (Part 4 of 4)**

<b>Name</b>	<b>Message</b>
RM0570W	IMS-RM/SHMSG: SHORT MSG QUEUE % UTIL EXCEEDED
RM0571I	IMS-RM/SHMSG: SHORT MSG QUEUE % UTIL NOW OK
RM0580W	IMS-RM/LGMSG: LONG MSG QUEUE % UTIL EXCEEDED
RM0581I	IMS-RM/LGMSG: LONG MSG QUEUE % UTIL NOW OK
RM0590W	IMS-RM/QBLKS: QBLKS % UTILIZATION EXCEEDED
RM0591I	IMS-RM/QBLKS: QBLKS % UTILIZATION NOW OK
RM0600W	IMS-RM/WAIT: REGION IN A LONG PI WAIT
RM0601I	IMS-RM/WAIT: REGION IN A LONG PI WAIT NOW OK
RM0630W	IMS-RM/PIENQ: PI ENQUEUES BY RGN EXCEEDED
RM0631I	IMS-RM/PIENQ: PI ENQUEUES BY RGN NOW OK
RM0640W	IMS-RM/PIPL: PI POOL % UTILIZATION EXCEEDED
RM0641I	IMS-RM/PIPL: PI POOL % UTILIZATION NOW OK
RM0680W	IMS-RM/MFSP: MFS POOL % UTILIZATION EXCEEDED
RM0681I	IMS-RM/MFSP: MFS POOL % UTILIZATION NOW OK
RM0690W	IMS-RM/D2CON: DB2 CONNECTIONS EXCEEDED
RM0691I	IMS-RM/D2CON: DB2 CONNECTIONS NOW OK
RM0700W	IMS-RM/D2THD: DB2 ACTIVE THREADS EXCEEDED
RM0701I	IMS-RM/D2THD: DB2 ACTIVE THREADS NOW OK
WM0040W	IMS-WM/#PROC: TRANS PROCESSED EXCEEDED
WM0041I	IMS-WM/#PROC: TRANS PROCESSED NOW OK
WM0060W	IMS-WM/#OBAW: OVERFLOW BUFFER WAITS EXCEEDED
WM0061I	IMS-WM/#OBAW: OVERFLOW BUFFER WAITS NOW OK
WM0070W	IMS-WM/#CIC: CI CONTENTIONS EXCEEDED
WM0071I	IMS-WM/#CIC: CI CONTENTIONS NOW OK
WM0090W	IMS-WM/#CDB2: DB2 DATABASE CALLS EXCEEDED
WM0091I	IMS-WM/#CDB2: DB2 DATABASE CALLS NOW OK
WM0100W	IMS-WM/#SDB2: DB2 SPECIAL CALLS EXCEEDED
WM0101I	IMS-WM/#SDB2: DB2 SPECIAL CALL NOW OK
WM0110W	IMS-WM/\$CTOT: TOTAL PROGRAM CALLS EXCEEDED
WM0111I	IMS-WM/\$CTOT: TOTAL PROGRAM CALLS NOW OK
WM0120W	IMS-WM/\$CBMP: TOTAL BMP CALLS EXCEEDED
WM0121I	IMS-WM/\$CBMP: TOTAL BMP CALLS NOW OK
WM0130W	IMS-WM/\$CMPP: TOTAL MPP CALLS EXCEEDED
WM0131I	IMS-WM/\$CMPP: TOTAL MPP CALLS NOW OK

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# Appendix C Commonly Asked TapeSHARE Questions and Answers

This appendix contains answers to commonly asked questions regarding TapeSHARE operation. For more information, contact BMC Software Customer Support.

**Question:** How can users turn off TapeSHARE without stopping the BBI-SS PAS?

**Answer:** Create an AAOTSPxx member and specify a single partner statement that refers to the BBI-SS PAS. Activate the member using the .RESET BBI control command or through the Dynamic Parameter Manager application. All current tape activity continues without interruption.

For the MAINVIEW AutoOPERATOR running at the 3.1.0 level, you must have PTF BPO3114 applied before you can specify a single partner statement that points to the local BBI-SS PAS.

**Question:** How can I dedicate specific tape devices to a specific MVS image at a specific time of day?

**Answer: Follow these instructions:**

- Step 1** Create an AAOTSPxx member for the partners where the drives will NOT be dedicated and define those drives as NOTAKE.
- Step 2** Create an AAOTSPxx member for the partner where the drives will be dedicated and define those drives as NOGIVE.
- Step 3** Create a time-initiated Rule that issues the ACTIVATE command and puts these two parameter members in place at the desired times.

---

When these parameter members are active, TapeSHARE moves the drives over to the partner where they will be dedicated as jobs require them, and the NOTAKE setting disallows the drives from being taken back for as long as the configuration is in place and active.

When you want to return to “share all” mode, the same time-initiated Rule can activate an AAOTSPxx member without the NOGIVE and NOTAKE specifications.

**Question:** How much additional ECSA is needed for TapeSHARE?

**Answer:** MAINVIEW AutoOPERATOR needs 3K of ECSA for TapeSHARE.

**Question:** Since MVS rejects a VARY ONLINE command against a drive that is currently online on another MVS system, why does the TapeSHARE Workstation provide a MULTi command?

**Answer:** It is possible for 3480, 3490, 3410, and 3420 tape drives to be VARYed ONLINE to more than one MVS system. It can be done at the console when the VARY command is used with the SHARED parameter.

Because a tape drive, which is ONLINE to more than one MVS system, is incompatible with the way TapeSHARE operates, the MULTi command allows you to list any drives that are online to more than one system.

If this situation arises, you should immediately determine which partner should have the device and then issue the OF(fl ine) line command against the device on the partner that should not have it (refer to Chapter 2, “Controlling Tape Activity from a Single Point with TapeSHARE”).

**Question:** If a partner in a TapeSHARE Plex is re-IPLed, how can it start with the same drives ONLINE as it had before the IPL?

**Answer:** MVS controls what drives are ONLINE when MVS image is IPLed. If you notice that some drives are OFFLINE after an IPL, you can use the TapeSHARE Workstation and issue the (ON)LINE command. Then you might want to review the IPL procedure and include these drives in the list containing drives that should be online after an IPL. You can contact IBM for more information.

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**Question:** Can the RETRY count maximum value be increased to more than 10?

**Answer:** The maximum value for the RETRY count is 10. If there are not enough drives in the TapeSHARE PLEX to satisfy the outstanding allocation requests, 10 RETRYs might not be sufficient for the jobs to receive the needed drives.

Raising the RETRY count to more than 10 can adversely affect the system and cause both MVS ALLOCATION and TapeSHARE not to work as designed.

At times, when there are more tape allocation requests than there are tape drives, maximum tape throughput can be accomplished with the default TapeSHARE RETRYCNT and RETRYINT values by specifying a tape allocation/recover action (either through the ACTION parameter in BBPARM member AAOTSPxx or through the analogous MVS parameter) to HOLD or NOHOLD.

This allows TapeSHARE to function as designed; it switches tape drives as needed when there are drives available on remote partners. When there are no drives available on remote partners, control is returned to MVS ALLOCATION, which attempts to satisfy the outstanding allocation requests with drives on the local partner (whose drives might have become available while TapeSHARE was retrying for devices from the remote partners).

In general (and especially in small TapeSHARE PLEXes), it is not recommended that RETRY count be raised higher than the default (which is 2) or that the retry interval be changed from the default (which is 30 seconds)

**Question:** Can TapeSHARE coexist with other ALLOCATION exits?

**Answer:** Yes, TapeSHARE can coexist with other ALLOCATION exits.

**Question:** If a job requests UNIT=3480 or UNIT=SILO, will TapeSHARE honor the request and attempt to get a 3480 or SILO type device?

**Answer:** Yes, MVS passes information to TapeSHARE (which includes the specific device type from the job) and TapeSHARE attempts to satisfy the Allocation Request with the specified device type.

---

**Question:** If a device does not have a PATH to MVS image, after the PATH is established, TapeSHARE still shows that device with OFFLINE status although the device is ONLINE after activating the PATH. Why doesn't TapeSHARE reflect the new status of the device?

**Answer:** TapeSHARE does not detect dynamic PATH changes. To display the path change, you can either issue the BBI command

**.E TS,VALIDATE**

or activate the BBPARM member AAOTSPxx with the Dynamic Parameter Manager application. Both actions cause the path status to be refreshed.

You can also automate this procedure by creating a Rule that is triggered by a message ID indicating a PATH change (for example, IEE302I) and the Rule can issue the BBI command

**.E TS,VALIDATE**

**Question:** If a device has to be set to OFFLINE manually (outside of TapeSHARE), how can I be sure that TapeSHARE will not attempt to use this device to satisfy an Allocation Request?

**Answer:** To be sure that TapeSHARE reacts correctly for a device that has been manually VARYed OFFLINE, BMC Software recommends that you define the device to TapeSHARE as NOGIVE/NOTAKE and issue the OFFLINE command. For example, you can create a Rule that issues the BBI command

**.G devnum,NOGIVE,NOTAKE**

and issues the VARY OFFLINE command.

When this Rule fires, it ensures that TapeSHARE will not be confused if it attempts to GIVE this device at the same time you manually issue the VARY OFFLINE command for the device.

**Question:** Can TapeSHARE function on MVS SP 4.2 system?

**Answer:** Yes.

---

**Question:** Can TapeSHARE perform Allocation Influencing (for example, specifying a specific device range for specific jobs)?

**Answer:** TapeSHARE does not have the capabilities to perform Allocation Influencing by itself. However, this can be achieved with another BMC Software MAINVIEW product: PRO/SMS. PRO/SMS version 3.5.1 (and higher), when used in conjunction with TapeSHARE, creates a powerful tool for device management

**Question:** How can you set TapeSHARE so it does not retry for a specific device type (for example, 3480)?

**Answer:** To prevent TapeSHARE from retrying for a specific device type, define all devices of this type as NOTAKE on the local system.

If TapeSHARE on the local system detects a device that can satisfy the Allocation Request and this device is available for taking, it assumes that it can take the device from another partner. In this case, it will RETRY the other partners.

**Question:** What happens to TapeSHARE when RDS is started?

**Answer:** If, after IPL, MAINVIEW AutoOPERATOR is started first and RDS becomes active later, the status of the units is not correct. You issue the BBI command

**.E TS VALIDATE**

or

**.E PARM AAOTSP00**

to correct the status.

If RDS is bounced, it is normal to see that on the remote system all the units are offline and on the local system all the units are online. When RDS is not active, TapeSHARE is not aware of a device until the `.E TS VALIDATE` command is issued.

---

**Question:** What do I do when I receive an abend SOC1 when trying to use TapeSHARE?

**Answer:** For MAINVIEW AutoOPERATOR version 3.1, apply APAR zap BAO2955 or BPO3305. For MAINVIEW AutoOPERATOR version 4.1, apply BPO3306.

**Question:** Is there a command that will GIVE all devices ONLINE from SYSA to SYSB or SYSC?

**Answer:** There is no single command that will GIVE all devices from one system to another, but there are a few ways to accomplish that:

- You can use the TapeSHARE Workstation application to give the devices to another system
- You can schedule an EXEC on the system that issues the .G commands. For example:

```
"IMFEXEC SELECT EXEC(execname)
TARGET(SYSB)"
```

with a WAIT(YES) or WAIT(NO) specified. The EXEC issues commands in the format:

```
.G dddd,ONLINE
```

- You can create two Rules on each system.

— Create Rule 1 with the following specifications:

Rule GIVE (Type CMD):

S1 : Command ID ==> GIVE

A1 : Reject Command ==> YES

WTO ==> &IMFTEXT \*\*\* COMMAND INTERCEPTED BY  
TAPESHARE

AA : Function ==> ADD

Key ==> GET&WORD2.&IMFOTIME

Text ==> GET &WORD2 (requested by &QIMFID on &IMFODATE)

Queue ==> GET&QIMFID

Target ==> &WORD3

---

where

- S1** is the primary Selection Criteria panel for event type CMD
- A1** is the primary Action Specification panel for event type CMD
- AA** is the Alert Action(s) panel for event type CMD

— Create Rule 2 with the following specifications:

Rule GET (Type ALRT):

S1 : Text ID ==> GET

Queue ==> GET\*

A1 : Command (Type MVS) ==> F BBL,.GET &WORD2

where

- S1** is the primary Selection Criteria panel for event type ALRT
- A1** is the primary Action Specification panel for event type ALRT

Now you can use commands such as `GIVE unitaddr ssid`, which cause the Rules to take action.

**Question:** Why do I still receive the WTOR IEF238D when I specify WAIT/NOWAIT in TapeSHARE?

**Answer:** This is normal and expected because of the way MVS Allocation works. The sequence of the events that occur if there are no available devices to satisfy the job's requests is

1. MVS ALLOCATION cannot find a device.
2. Alloc passes control to Dynamic Exit Handler.
3. Dynamic Exit Handler passes control to each exit.
4. No devices could be found and the exit returns to Allocation specifying WAIT/NOHOLD.
5. Allocation issues: “IEF289E waiting for volumes or units” and waits.
6. Allocation wakes up and goes back to step 1.

---

This entire sequence is repeated for each time specified in the SYS1.PARMLIB member ALLOCxx. The default is 5 times.

When that number is exceeded, MVS Allocation issues the IEF238D WTOR in SYSLOG.

You can find a sample ALLOCxx member in SYS1.SAMPLIB(ALLOC00). For documentation on how to code ALLOCxx, refer to the IBM publication *MVS Initialization and Tuning Guide*.

If you review the SYSLOG for the time of the failure, you can see the IEF289E waiting for volumes or units message being issued. This is a result of the exit telling MVS Allocation to WAIT.

BMC Software recommends that you alter ALLOCxx to indicate a higher value for max-times. In addition, a Rule can be created to automatically respond to the WTOR if it is generated. By watching the fired count of the Rule, you can determine if the number of times specified in ALLOCxx is resolving most of the problems or not.

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# Appendix D Making TapeSHARE Work with MVS Allocation More Effectively

TapeSHARE does not alter or replace MVS Allocation processing. It works with MVS Allocation to ensure that the maximum number of tape device allocation requests are satisfied.

The default settings for the TapeSHARE retry and recovery parameters (such as `retrycnt`, `retryint`, and `action`) have been calculated to achieve maximum tape-dependent throughput in most installations.

Before you make adjustments to these parameters, you should try to determine that operating TapeSHARE with the default settings does not achieve the desired results.

**Warning!** Only after you have operated with TapeSHARE's default parameters and determined that these default settings do not allow for the desired number of tape device allocation requests to be satisfied does BMC Software recommend that you customize *both*

- TapeSHARE through the BBPARM member AAOTSPxx member
- MVS Allocation through the SYS1.PARMLIB(ALLOCxx) member

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Specifically, BMC Software recommends the following settings:

- Use the TapeSHARE default settings of `retrycnt=5` and `retryint=30` (seconds)

The retry parameter processing causes MVS Allocation to single-thread activity so increasing the time between RETRYs or the number of RETRYs can *negatively impact system throughput*.

The default value, which cause TapeSHARE to RETRY five times with a 30-second WAIT between retries, is optimal in most cases and should be altered only after careful consideration.

- Specify `action=nohold` in BBPARM member AAOTSPxx

This setting tells MVS Allocation to allow the requestor to WAIT (subject to the conditions outlined in this section) and go through Allocation again (subject to the conditions outlined in this section) when another device becomes available.

The `action=hold` setting is *not recommended*. When HOLD is specified, MVS Allocation Recovery is single-threaded and no other Allocations will complete recovery processing until this request is satisfied. Use of HOLD should be carefully considered.

The BMC Software suggestion for MVS Allocation customization is that you modify `SYS1.PARMLIB(ALLOCxx)` to increase the number of retries for MVS Allocation. The default value is 5 and the maximum allowed is 255. Determine and specify the value that best suits your site.

Once you have customized both TapeSHARE and MVS Allocation as previously outlined, it is still possible to receive the IEF238D WTOR. This can occur under the following circumstances:

- MVS Allocation will only allow waiting if there are online tape devices that are not allocated to the requesting job.

Therefore, even with a TapeSHARE `action=nohold` specification, if there are currently no tape devices available on the local partner's system and TapeSHARE fails to get a device from a remote partner, MVS Allocation will not allow a WAIT (which is implied in NOHOLD) and will take the action defined by the MVS `SYS1.PARMLIB(ALLOCxx)` `POLICYNW` parameter in use for that system.

- 
- During normal Allocation processing, MVS will go into Allocation Recovery when it finds no online tape device to satisfy the request.

At that point, TapeSHARE is given control and attempts to get a device from its partner(s). TapeSHARE retries as many times as is specified in the AAOTSPxx member in use for that system.

If TapeSHARE fails to get a device, it returns to MVS Allocation with the action specified on the action= parameter in AAOTSPxx for that system. If the action is HOLD or NOHOLD (which both imply a WAIT), and a WAIT is permitted, MVS Allocation will cause the requestor to wait until either MVS Unallocation is driven on that system or a device is varied online.

At that point, the requestor goes through Allocation processing again, and, if it fails to obtain a device, TapeSHARE will be redriven by MVS Allocation. This process is repeated the number of times specified in the MVS SYS1.PARMLIB(ALLOCxx) member in use on this system at that time. The default value is 5. When that value is exceeded, MVS Allocation takes the action defined in SYS1.PARMLIB(ALLOCxx) (where the default action is to issue the IEF238D WTOR).

Finally, BMC Software also recommends that you implement automation to handle the WTOR IEF238D with MAINVIEW AutoOPERATOR Rules to automate those situations when the IEF238D WTOR is issued.



# Appendix E NAIEXEC Command Glossary

Table E-1 summarizes the NetView MAINVIEW AutoOPERATOR EXEC statements.

**Table E-1 NAIEXEC Command Glossary**

Value	Description
Syntax: Example: Function:	NAIEXEC ALERT key 'text' COLOR( ) ALARM( ) EXEC( ) TARGET( ) ORIGIN( ) NAIEXEC ALERT CACB 'CICS ACB INACTIVE' EXEC(STCACB) TARGET(CAO1) Generates an ALERT in the associated MAINVIEW AutoOPERATOR.
Syntax: Example: Function:	IMFEXEC NETVIEW 'command' WAIT(wsec) JOBNAME(jobname) IMFEXEC NETVIEW 'MAJNODES' WAIT(15) JOBNAME(CNM01) Invokes a NetView CLIST, a REXX EXEC, or a command in this NetView system.
Syntax: Example: Function:	NAIEXEC SELECT EXEC[execname p1...pn] TARGET(name) NAIEXEC SELECT EXEC(CHKNET01 RD1217) TARGET(MAO1) Invokes a CLIST in the associated MAINVIEW AutoOPERATOR.
Syntax: Example: Function:	NAIEXEC VDEL var TARGET(tgtname) NAIEXEC VDEL (v1 v2 v3...) TARGET(tgtname) NAIEXEC VDEL (TRANSERR STARTERR OPENERR)TARGET(SSA1) Deletes one or more MAINVIEW AutoOPERATOR global variables.
Syntax: Example: Function:	NAIEXEC VGET nvvar [FROM(var) TARGET(tgtname)] NAIEXEC VGET QSMFID Retrieves the value of an MAINVIEW AutoOPERATOR global variable and makes it available in the NetView address space.
Syntax: Example: Function:	NAIEXEC VPUT varname FROM('var') TARGET(tgtname) NAIEXEC VPUT CICSACB FROM('ACTIVE') Sets an MAINVIEW AutoOPERATOR global variable to a certain value.



---

# Appendix F    **BMC Software Subsystem Services**

The BMC Software Subsystem Services (BBXS) are a set of common service routines used by BMC Software products.

The following BMC Software products use BBXS:

- MAINVIEW AutoOPERATOR for OS/390
- CMF MONITOR
- DASD ADVISOR
- MAINVIEW for IMS Online
- MAINVIEW for OS/390
- MAINVIEW SYSPROG Services
- MAINVIEW VistaPoint

This appendix provides an overview of BBXS and describes installing and initializing the subsystem in an OS/390 system or in an OS/390 system running under VM. Understanding BBXS functions and initialization procedures is necessary because the subsystem resides in CSA (common service area) memory and can impact your system performance if not installed, initialized, and used properly.

This appendix also lists BBXS error messages and abend codes.

## Overview of BBXS

BBXS has three parts:

- a formal OS/390 subsystem
- service routines that are dynamically loaded into extended CSA
- extended CSA memory used for:
  - control table (BBCT)
  - subsystem service routines
  - shared data areas

**Note:** Some of this storage is page-fixed.

From an external view, BBXS is a proper OS/390 subsystem. However, unlike subsystems such as JES2 and JES3, BBXS does not require its own address space. BBXS uses only the SSCTSUSE field of the subsystem's CVT or SSCVT to anchor the BMC Software Subsystem Services Control Table (BBCT). The BBCT is built during BBXS initialization, and primarily contains pointers to BBXS service routines. These routines return data in response to specific requests from BMC Software products.

## Using BBXS with Multiple BMC Software Products

Since many BMC Software products use BBXS, it is important that they all use the same version of BBXS. This avoids errors that can occur when a down-level version of the CSA-resident components of BBXS attempts to run with a more recent version of the dynamic BBXS components or vice versa. When maintenance is applied to BBXS or a product that requires BBXS, it can affect all products that use BBXS.

## Installing BBXS

Installing the subsystem is part of the installation process for any product that requires BBXS. The BBXS FMID, BBBBXnn, where nn is the current BBXS version and release level, is included in the FMID set of every BMC Software product that requires BBXS.

Place all BMC Software product load modules, including the BBXS load modules, in the prefix.BBLINK data set. The BBLINK data set must be APF authorized. If you use BBLINK from either STEPLIB or JOBLIB, all BMC Software products must specify the same data set.

BMC Software recommends that you place the BBLINK data set in the LINKLST library concatenation. Using LINKLST is important, but it is even more important to use only one initialization method and to control it carefully.

## Initializing BBXS

BMC Software ships a sample Started Task procedure for BBXS initialization in the prefix.BBSAMP data set. During customization, the @BBXINIT member is copied to a library you specify and renamed to BBXSINIT. This procedure runs the BBXSINIT program that initializes or reinitializes the BBXS subsystem.

BMC Software recommends that you use the BBXSINIT procedure early in the IPL process or after applying maintenance to BBXS.

**Note:** Except in places where the @BBXINIT procedure is specifically mentioned, the remainder of this appendix uses the term BBXSINIT interchangeably to refer to both the program and the procedure that executes the program.

After BBXS is initialized, routines and shared data areas loaded into CSA memory remain there until the next IPL.

The BBXSINIT program, as the name implies, creates new copies of the BBXS modules and data areas in CSA and initializes all ongoing BBXS processes, such as channel and device data collection. Any new product startups or product restarts use the new BBXS code and data areas. CSA used by a previous initialization of BBXS is not released until an IPL occurs.

Do not run the BBXSINIT program as part of another startup procedure. If the other procedure needs to run more than once between IPLs, BBXS is reinitialized and claims more valuable CSA space.

Reinitialization of BBXS is required so that changes to CSA-resident BBXS modules become effective and dynamically loaded modules match the version of the CSA-resident modules. The reinitialized version of BBXS works with all versions of BMC Software products because BBXS is downwardly compatible.

**Note:** BMC Software recommends that you recycle all products that use BBXS after the BBXS subsystem is reinitialized so that the new BBXS code is used by all applications.

BBXS is initialized using a different method for each of the following systems:

- an OS/390 system without the COMMON STORAGE MONITOR component of MAINVIEW for OS/390
- an OS/390 system with the COMMON STORAGE MONITOR component of MAINVIEW for OS/390
- an OS/390 system under VM

MAINVIEW for OS/390 contains a component called COMMON STORAGE MONITOR that allows the user to collect data on the allocations and use of common storage (CSA). This component can be activated or not activated. BMC Software recommends that you start this monitor as soon as possible in order to track all CSA allocations directly after IPL.

## Initializing BBXS in an OS/390 System without COMMON STORAGE MONITOR

Before you initialize BBXS in an OS/390 system without the COMMON STORAGE MONITOR component of MAINVIEW for OS/390, you should establish BBXS's OS/390 subsystem table entry.

The statement shown in Figure F-1 creates the OS/390 subsystem control table (SSCVT) for BBXS but does not initialize BBXS data areas or service modules in CSA.

**Figure F-1**      **Sample Line of an IEFSSNxx. Member of SYS1.PARMLIB**

BBXS	<i>Causes OS/390 to reserve a subsystem ID</i>
------	--

BMC Software recommends this initialization statement for all sites that do not run the COMMON STORAGE MONITOR component of MAINVIEW for OS/390 as a subsystem. Place this statement first in the IEFSSNxx list to ensure that a product using BBXS can locate the BBCT as soon as possible. It is valuable documentation for other systems programmers to see.

## Initializing BBXS in an OS/390 System with COMMON STORAGE MONITOR

If you start the COMMON STORAGE MONITOR component of MAINVIEW for OS/390 as a subsystem, BBXS is initialized at the same time.

To define an automatic subsystem start for the COMMON STORAGE MONITOR component of MAINVIEW for OS/390 and BBXS, modify an active IEFSSNxx member in SYS1.PARMLIB as shown in Figure F-2, so that the statement is processed by OS/390 at IPL time. Place this statement first in the IEFSSNxx list to ensure that a product using BBXS can locate the BBCT as soon as possible.

**Figure F-2** IEFSSNxx Statement for COMMON STORAGE MONITOR and BBXS Initialization

```
BBXS , BBXCSMON , ' START , ALL , BOTH , ANY '
```

**Note:** Before the statement shown in Figure F-2 can be executed, the prefix.BBLINK data set must be in LINKLST because there is no opportunity to specify a STEPLIB. See the *MAINVIEW for OS/390 Customization Guide* for an explanation of the parameters.

## Initializing BBXS in an OS/390 System under VM

When your OS/390 is a VM guest

- BBXS cannot collect data about I/O queuing
- the ability of BBXS to gather I/O configuration data might be limited

Without this information, some product functions are limited. Depending on your VM configuration, BBXS can be initialized to collect the I/O usage and configuration data, but only under certain circumstances.

If you run your OS/390 under VM in a non-ESCON environment, BBXS is unable to identify which IOCDS to use. To provide the IOCDS information, you must initialize BBXS by executing the BBXSINIT program with the IOCDSRES parameter. BBXS uses the IOCP data from your local IOCDS generation process to build the data areas in CSA that contain channel and device data.

### The IOCDS= Parameter

The IOCDSRES parameter identifies the resident IOCDS ID that BBXS will use during initialization. It has values Ax or Bx, where x is a number that may be as high as 7, depending upon your processor. The number refers to the IOCDS within the Processor Controller File. You must obtain and use the correct IOCDS ID. There may be separate IOCDSs for each LPAR in your system.

**Note:** BMC Software recommends that you contact the person responsible for IOCDS generations at your site to obtain the current IOCDS ID and notify that person that the IOCDSRES parameter in BBXSINIT must be kept up to date with any changes made to the IOCDS.

BMC Software recommends that you define the BBXSINIT program, using the IOCDSRES parameter, as an automatically started procedure so that you can provide the location of the IOCDS data.

You can make OS/390 automatically start BBXS initialization in an OS/390 system running under VM by defining the sample statement, shown in Figure F-3, within a COMMNDxx member of SYS1.PARMLIB.

**Figure F-3**      **COMMNDxx Statement for BBXS Initialization in an OS/390 System under VM**

COM= ' S BBXSINIT, IOCDS=Ax ' <i>Initialize BBXS for OS/390 under VM</i>
--

**Note:** This statement assumes that you renamed the sample @BBXINIT procedure to BBXSINIT when you copied @BBXINIT from the BBSAMP data set to your SYS1.PROCLIB data set during customization.

**Warning!** If the IOCDSRES parameter is not supplied when BBXS is initialized, BBXS issues a WTOR message, BBX017A, prompting you for the IOCDS data set ID. It is easy to miss this message and, if no response is made, BBXS continues without the I/O configuration data.

## **VM Systems with ESCON**

Although you must run the BBXSINIT procedure to initialize BBXS, VM systems with ESCON capabilities do not allow the retrieval of the configuration data by the BBXSINIT program, unless OS/390 is running under VM/ESA. To provide retrieval of I/O configuration data for VM/ESA systems with ESCON capabilities, you must specify RMCHINFO on the VM directory options statement. The RMCHINFO parameter tells VM/ESA that it should allow the guest OS/390 to request channel and I/O configuration data.



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# Index

## Symbols

/BROADCAST command 21-7  
@BBXINIT F-3  
@DBR (EXEC) 21-12  
@DIS (EXEC) 21-11

## A

AAOTSPxx, Dynamic Parameter Manager application, TapeSHARE 2-2  
AASBEG A-2  
    *See also* ASTUXBGN|UXENTER macro  
AASEND A-2  
    *See also* ASTUXBGN|UXENTER macro  
AASFAIL A-2  
    *See also* ASTUXBGN|UXENTER macro  
AASSTRT A-2  
    *See also* ASTUXBGN|UXENTER macro  
AATERM A-2  
    *See also* ASTUXBGN|UXENTER macro  
ACMDIN A-2  
    *See also* ASTUXBGN|UXENTER macro  
ACNCMD A-2  
    *See also* ASTUXBGN|UXENTER macro  
ACTION, TapeSHARE  
    describing 2-28  
    specifying 2-11  
Activate command 6-3  
address space name 12-8

ADDRESS SPACES application, ADDRESS SPACES panel  
    ADDRESS SPACES PROFILE panel 9-6  
    AUTOCMD commands 9-7  
    description 4-3, 9-1  
    field descriptions 9-3  
    line commands 9-5  
    primary commands 9-4  
    use 9-2  
ADS (area data sets), DEDB application 15-17, 15-20 to 15-21  
AFSERV A-2  
    *See also* ASTUXBGN|UXENTER macro  
AINIT, initialization A-4  
alarms 9-7  
ALERT  
    Display Fields description 23-4  
    from an EXEC 5-8  
    NAIEXEC NetView command processor 29-1  
    priority 5-12  
    queues 5-8, 5-12  
ALGABND A-2  
    *See also* ASTUXBGN|UXENTER macro  
ALGBEG A-2  
    *See also* ASTUXBGN|UXENTER macro  
ALGEND A-2  
    *See also* ASTUXBGN|UXENTER macro  
ALGFAIL A-2  
    *See also* ASTUXBGN|UXENTER macro  
ALGSTRT A-2  
    *See also* ASTUXBGN|UXENTER macro  
ALL primary command, TapeSHARE 3-13

ALLOC primary command, DASD  
     STATUS/CONTROL application 11-4  
 allocation recovery, TapeSHARE 1-3  
 AMABEND A-2  
     *See also* ASTUXBGN|UXENTER macro  
 AMTERM A-2  
     *See also* ASTUXBGN|UXENTER macro  
 APPL SEGMENT node 6-3  
 application  
     ADDRESS SPACES 4-3, 9-1 to 9-7  
     BTAM LINES 14-2 to 14-4  
     DASD STATUS/CONTROL 4-5, 11-1 to 11-5  
     DATA ENTRY DATABASE AREAS 15-15 to 15-19  
     DATA ENTRY DATABASES 15-12 to 15-15  
     DATABASE OPTIONS 15-1  
     DBCTL DATA ENTRY DATABASE AREAS 25-9 to 25-11  
     DBCTL DATA ENTRY DATABASES 25-6 to 25-8  
     DBCTL DATABASE 25-1  
     DBCTL PROGRAM 26-1 to 26-3  
     DBCTL REGIONS 27-1 to 27-4  
     DEDB AREA DETAIL DISPLAY 15-19 to 15-21  
     DL/I DATABASES 15-2 to 15-8  
     ENQUEUE/RESERVE 8-1 to 8-3  
     FAST PATH ROUTING CODES 16-6 to 16-7  
     IMS resource control 13-2 to 13-8  
     ISC LINKS 14-12 to 14-14  
     LOG DISPLAY 13-6  
     LTERMS 14-8 to 14-11  
     MAIN STORAGE DATABASES 15-9 to 15-11  
     NETWORK 14-1 to 14-14  
     OPERATOR REQUESTS 4-3, 7-1 to 7-5  
     PROGRAM 17-1 to 17-3  
     REGIONS 19-1 to 19-4  
     STATUS/EXCEPTION 18-1 to 18-6  
     SYSTEM STATUS 4-2, 5-1 to 5-14  
     TAPE STATUS/CONTROL 4-4, 10-1 to 10-4  
     TRANSACTION 16-2 to 16-5  
     TRANSACTION OPTION MENU 16-1  
     VTAM APPLICATIONS 6-4 to 6-5

application (*continued*)  
     VTAM CDRMS 6-5 to 6-6  
     VTAM CDRSCS 6-7 to 6-8  
     VTAM CLUSTERS 6-10 to 6-11  
     VTAM LINES 6-8 to 6-9  
     VTAM nodes 14-5 to 14-8  
     VTAM RESOURCES 6-1 to 6-13  
     VTAM TERMINALS 6-12 to 6-13  
 application transfer, AREAS application 13-8  
 APPLS command 6-4  
 APWBAD A-2  
     *See also* ASTUXBGN|UXENTER macro  
 APWCHK A-2  
     *See also* ASTUXBGN|UXENTER macro  
 APWGOOD A-7, A-17  
 Area 2, CICS System Status Panel 23-2  
 AREA application  
     description 13-5  
     use 15-13, 15-15 to 15-19, 25-7  
     utilities 15-18  
 area data sets. *See* ADS  
 Area-3, ALERT display 23-3  
 ASID name, defining 12-8  
 ASM service 12-3  
 ASSERV  
     *See also* ASTUXBGN|UXENTER macro  
     entry code A-2  
     SYSPROG services security exit 12-17  
 ASTUXBGN|UXENTER macro A-4  
 ASTXA1AL  
     SYSPROG messages, AMTAL1I 12-9  
     SYSPROG subroutines 12-15  
 ASTXA1AS 12-15  
 ASTXA1MN, SYSPROG messages  
     AMT002I 12-9  
     AMT003I 12-9  
     AMT004I 12-10  
     AMT005I 12-10  
     AMT006I 12-10  
     AMT007I 12-10  
     AMT008I 12-10  
     AMT009I 12-10  
     AMT00AA 12-10  
     AMT00BI 12-10  
     AMT00CI 12-10  
     AMT00EI 12-11  
     AMT00FI 12-11  
     AMT00GI 12-11

---

ASTXA1MN, SYSPROG messages (*continued*)

- AMT00II 12-11
- AMTIN1I 12-11
- AMTIN2I 12-11
- AMTIN2W 12-12
- AMTIN3E 12-12
- AMTIN3I 12-12
- AMTIN3W 12-12
- AMTIN4I 12-12
- AMTIN4W 12-12
- AMTIN5I 12-12
- AMTIN6I 12-13
- AMTIN7I 12-13
- AMTIN8I 12-13
- AMTIN9I 12-13
- AMTINAI 12-13
- AMTINBW 12-13
- AMTINHI 12-13
- AMTINJW 12-13
- AMTINKI 12-14
- AMTINLW 12-14
- AMTINMW 12-14
- AMTINPI 12-14
- AMTINQI 12-14
- AMTINRE 12-14
- AMTINTI 12-14
- AMTINUI 12-14
- AMTINVI 12-14
- AMTINWI 12-15
- AMTINXI 12-15

ASTXA1MN, SYSPROG subroutines 12-9

ASTXA1UE|ASTMVSUE sample module A-17

ASTXA1XM 12-16

asynchronous manager

- abend A-7
- begin A-8
- end A-8

asynchronous service A-9

ATABND A-13

ATPABND A-2

- See also* ASTUXBGN|UXENTER macro

ATPEND A-2

- See also* ASTUXBGN|UXENTER macro

ATPRDR A-2

- See also* ASTUXBGN|UXENTER macro

ATPSTOP A-2

- See also* ASTUXBGN|UXENTER macro

ATPWRRER A-2

- See also* ASTUXBGN|UXENTER macro

AUTID, SYSPROG services security exit 12-17

AUTOCMD commands 9-7

automating IMS operations 21-1 to 21-15

AutoOPERATOR

- CLIST and variable interaction 28-1
- communication with NetView 28-2
- displays 20-1

AutoOPERATOR for CICS

- acquired (VTAM) terminals 24-1
- AutoOPERATOR EXECs 22-5
- BROADCAST application 22-2, 22-3, 24-1 to 24-5
  - See also* BROADCAST application broadcast messages 24-4
- Describing ALERT Display Fields 23-4
- Describing the CICS SYSTEM STATUS Panel 23-1
- File Control Table (FCT) 23-2
- hyperlinks to MAINVIEW for CICS 23-2
- hyperlinks to MAINVIEW for CICS, File Control Table (FCT) 23-2, 23-3
- integrating with CICS MANAGER 22-5
- integrating with IMF products 22-5
- integrating with MAINVIEW for DB2 22-5
- line commands, list 23-6
- message display 24-4
- operator workstation panels, CICS SYSTEM STATUS PROFILE (TARGETS) 23-5
- operator workstation panels, CICS SYSTEM STATUS with ALERT display 22-1
- operator workstation panels, SYSTEM STATUS 22-3
- overview 22-1
- routing messages 24-1
- SYSTEM STATUS application 22-1
  - See also* SYSTEM STATUS application SYSTEM STATUS PROFILE Panels 23-4
  - using primary commands 23-1

AutoOPERATOR for CICS, hyperlinks to MAINVIEW for CICS, File Control Table (FCT)

- description of fields 23-3

---

AutoOPERATOR for IMS, overview 13-1 to 13-8  
AutoOPERATOR for OS/390, overview 4-1 to 4-5  
AutoOPERATOR line commands  
    BTAM LINES application 14-2  
    DATABASE 15-2  
    DEDB 15-12  
    DEDB AREAS 15-16  
    FAST PATH ROUTING CODES 16-6  
    ISC LINKS application 14-13  
    LTERM application 14-8  
    MSDB 15-9  
    PROGRAM 17-2  
    REGIONS 19-3  
    TRANSACTION 16-2  
    VTAM NODES application 14-6  
AVTREPLY, SYSPROG services security exit 12-17  
AXMFAIL A-2  
    *See also* ASTUXBGN|UXENTER macro

## B

BALG (balancing group)  
    Fast Path Resource Control 13-5  
    processing messages 16-7  
    restarting 16-7  
    terminating 16-6  
batch  
    condition code 29-1  
    online coordination 21-9 to 21-10  
BBCT F-2  
BBIDLOGA, EXEC 13-7  
BBIDLOGB, EXEC 13-7  
BBI-SS PAS, Journal log 13-7  
BBLINK data set F-3  
BBPLIB 20-1  
BBSRC, data set A-17  
BBUSER  
    data set 13-7  
    library, description B-1 to B-16  
BBX, products that use F-1

BBXS  
    BBCT F-2, F-5  
    CSA (common service area) F-1  
    FMID F-3  
    installing F-3  
    JES2 F-2  
    JES3 F-2  
    MVS system F-3  
    MVS system, initializing F-1  
    overview F-2  
    parts of F-1  
    service 12-3  
    SSCT, SSCTUSE field F-2  
    SYS1.PARMLIB  
        IEFSSNxx statement F-5  
        system performance F-1  
BBXS BBLINK  
    JOBLIB F-3, F-5  
    LINKLIST F-5  
    STEPLIB F-3, F-5  
BBXS, initializing  
    @BBXINIT procedure F-3  
    BBXSINIT program F-3  
    COMMON STORAGE MONITOR F-4  
    MVS system F-1, F-6  
    MVS system running under VM F-1, F-5  
    overview F-2  
BBXS, MVS system running under VM  
    initializing F-1, F-5  
    IOCDS data F-6  
    IOCDS generation F-6  
    IOCDS=parameter F-6 to F-7  
    IOCP data F-6  
    Processor Controller File F-6  
BBXS, other products  
    BBLINK data set F-5  
    compatibility F-4  
    version level F-2  
BBXS, products that use F-1  
BBXS, SYS1.PARMLIB  
    COMMNDxx member F-6  
    IEFSSNxx statement F-5  
BBXS, system libraries  
    JOBLIB F-3, F-5  
    LINKLIST F-3  
    STEPLIB F-3, F-5  
BBXSINIT F-3  
BLK, subparameter 20-2

---

BMC Software Subsystem Services (BBXS).  
  *See* BBXS  
BMC Software Subsystem Services Control  
  Table. *See* BBCT  
BMC\_SAPHA\_DIR 32-15  
BMC\_SAPHA\_DVIPA 32-15  
BMC\_SAPHA\_PROF 32-15  
BMP transaction type, processing 16-3  
BMPS regions 18-3, 19-2  
BROADCAST application (AutoOPERATOR  
  for CICS)  
  accessing 24-1  
  acquired (VTAM) terminals 24-1  
  Basic Mapping Support (BMS) 24-1, 24-4  
  broadcast messages 24-4  
  CICS BROADCAST panel 24-1  
  description 22-3, 24-1 to 24-5  
  fields 24-3  
  line commands 24-5  
  message display 24-4  
  overview 22-2  
  primary commands 24-1, 24-2, 24-5  
  routing messages 24-1  
  scrolling 24-2  
  sending messages 24-2  
browse 31-3  
BTAM line 21-14, 21-15  
BTAM LINES application, description 13-3,  
  14-2 to 14-4

## C

C/P SUSP 11-3  
CA node 6-3  
CAN command 9-5  
CANCEL primary command, AutoOPERATOR  
  for CICS 24-5  
CDRM SEGMENT node 6-3  
CDRMS application 6-4  
CDRMS command 6-5  
CDRSC command 6-7  
CDRSC SEGMENT node 6-3  
CDRSCS application 6-4  
CICS message display, AutoOPERATOR for  
  CICS 24-4

CICS SYSTEM STATUS Panel  
  Area-2 23-2  
  description of 23-1  
CLIST, variable interaction 28-1  
CLSTRS command 6-10, 6-12  
CLUSTERS application 6-10  
CMD parameter 29-4  
CNSL command input A-16  
coded exit routines, product tape A-17  
color, mount requests 7-4  
command input A-12  
COMPARE utility, AREA application 15-18  
CONFLICT command 8-2  
conflict mode 8-1, 8-2  
control commands, TapeSHARE, list of 3-18  
controlling MVS operations 4-2  
CPU service 12-3  
CREATE utility, AREA application 15-18  
cross-memory failure A-12  
CSA service 12-3  
CSAABV EXEC 5-7  
CSABLO EXEC 5-7  
CSM, managing USS processes 32-25  
CUA 10-2, 11-2  
customizing IMS application panels 20-1  
CVT F-2

## D

DASD STATUS/CONTROL application  
  description 4-5, 11-1 to 11-5  
  field descriptions 11-2  
  line commands 11-5  
  panel 11-1  
  primary commands 11-4  
  SYSPROG line commands 11-5  
DATA ENTRY DATABASE AREAS 15-15 to  
  15-19  
DATA ENTRY DATABASES application  
  15-12 to 15-15  
DATABASE application 15-1 to 15-8  
  description 13-4  
DATABASE application (AutoOPERATOR for  
  CICS) 22-4  
DATABASE OPTIONS application 15-1  
DB2 (EXEC) 21-6  
DB2 ICLI 32-24

---

DBCTL AREA application 25-9 to 25-11  
DBCTL DATA ENTRY DATABASE AREAS  
25-9 to 25-11  
DBCTL DATA ENTRY DATABASES  
application 25-6 to 25-8  
DBCTL DATABASE application 25-2 to 25-5  
DBCTL PROGRAM application 26-2 to 26-3  
DBCTL REGIONS application 27-1 to 27-4  
DBRC warning message 21-8  
DC Monitor 18-2, 21-11  
DDR PNDG 10-3, 11-3  
deallocation procedure, TapeSHARE, specifying  
2-24  
DEDB  
application 13-5  
AREA ADS application 15-19 to 15-21  
area data sets 15-19 to 15-21  
AREA display 13-5  
areas 13-5, 15-15 to 15-19, 25-9 to 25-11  
EQE (error queue elements) 13-5  
status 15-14, 25-8  
VSAM CI size 13-5  
DELETE utility, AREA application 15-18  
DESELECT command, AutoOPERATOR for  
CICS 24-5  
DESELECT line command, SYSTEM STATUS  
application 23-6  
DEV TYPE, VTAM terminal 14-3  
DEVICE TYPE, VTAM terminal 14-7  
devices 2-20  
DFS0488I (EXEC) 21-12  
DFS0769I (EXEC) 21-7  
DFS0845I (EXEC) 21-7  
DFS3258A (EXEC) 21-7  
DFS554A (EXEC) 21-4  
DFS5551I (EXEC) 21-13  
DFS970I (EXEC) 21-4  
DFS994I (EXEC) 21-5  
DISA (EXEC) 21-11  
Display command 6-3  
Display Every command 6-3  
Display Unit command 10-1, 11-1  
DL/I  
application 13-4  
database 13-4, 15-2 to 15-8  
description 13-4

DMB (Data Management Block)  
locating 15-5, 25-3  
number 15-6, 25-4  
DRIVER EXEC 21-5  
DSIPSS TYPE=OUTPUT 31-2  
DSIPSS TYPE=PANEL 31-3  
DSN command 8-2  
DSNM002I (EXEC) 21-7  
DSNM004I (EXEC) 21-9  
Dynamic Parameter Manager, TapeSHARE  
actions 2-11  
activating AAOTSPxx 2-26  
customizing 2-2 to 2-31  
deallocation 2-24  
input-only devices 2-20  
NOGIVE devices 2-13  
NOGIVE-NOTAKE devices 2-17  
NOTAKE devices 2-15  
output-only devices 2-20  
partners 2-3, 2-5  
preferencing 2-22  
retries 2-8  
timing out 2-7  
Dynamic Storage Area (DSA),  
AutoOPERATOR for CICS 23-2

## E

EAAPPL panel, editing 20-2  
emulation, full-screen 31-3  
ENQ command, AutoOPERATOR for IMS,  
primary command 16-5  
ENQUEUE/RESERVE application  
conflict mode 8-1, 8-2  
description 4-4  
ENQUEUE/RESERVE panel 8-1  
field descriptions 8-2  
line commands 8-3  
primary commands 8-2  
reserves mode 8-1, 8-3  
ENQUEUEES command 8-2  
ENQUEUEES service 12-4

entry point description, SYSPROG  
 asynchronous manager abend A-7, A-8  
 asynchronous manager begin A-8  
 asynchronous manager end A-8  
 asynchronous service begin A-9  
 asynchronous service failed A-9  
 command input A-12  
 cross-memory failure A-12  
 initialization A-4  
 logging manager abend A-11  
 logging manager end A-10  
 logging manager start A-10  
 logging service failure A-11  
 logging service start A-11  
 main task abend A-5  
 main task termination A-5  
 password verification failure A-16  
 service failure A-7  
 service starting A-6  
 TP monitor abends A-13  
 TP monitor detects read I/O error A-14  
 TP monitor detects write I/O error A-14  
 TP monitor normal end A-15  
 TP monitor stops a terminal A-13  
 user password/authorization check A-15  
 EQE (error queue elements) 13-5, 15-18, 25-10  
 ESCON capabilities F-7  
 ESTORAGE service 12-4  
 Exception command 9-5, 13-8  
 EXCEPTION messages 13-6  
 EXEC examples  
   @DBR 21-12  
   @DIS 21-11  
   DB2 21-6  
   DBRC warning 21-8  
   DFS0488I 21-12  
   DFS0769I 21-7  
   DFS0845I 21-7  
   DFS3258A 21-7  
   DFS554A 21-4  
   DFS5551I 21-13  
   DFS970I 21-4  
   DFS994I 21-5  
   DISA 21-11  
   DRIVER 21-5  
   DSNM002I 21-7  
   DSNM004I 21-9  
   Fast Path MSDB 21-6

## EXEC examples (*continued*)

IM4700W 21-7  
 ISC links 21-6  
 MIDNITE 21-11  
 MON 21-11  
 MSC links 21-6  
 MSDBs 21-8  
 MTO log 21-12  
 on-call list 21-13  
 PAYROLL 21-5  
 reconfiguration 21-5  
 RWARN 21-8  
 security violation 21-8  
 virtual fetch 21-6  
 EXEC keyword 29-6  
 EXECs  
   and CLISTs 28-1  
   for Resources 5-7  
 Expand command 6-3

## F

### Fast Path

active regions 16-7  
 databases 13-4, 15-6  
 dequeued transaction counts 16-7  
 resource status 13-5  
 routing code 13-4, 16-6  
 Fast Path MSDB 21-6  
 FAST PATH ROUTING CODES, application  
   16-6 to 16-7  
 field description, TapeSHARE 3-15, 3-16  
 Find CUA, primary command  
   DASD STATUS/CONTROL application  
     11-4  
   TAPE STAU/CONTROL application 10-3  
 FINDMBR service 12-4  
 FOR command 9-5  
 Force command 6-3  
 FPE transaction type, processing 16-3  
 FPP transaction type, processing 16-3  
 FREE parameter, TapeSHARE 2-28  
 full-screen emulation 31-3

---

## G

GET line command (TapeSHARE) 3-14  
GIVE line command (TapeSHARE) 3-14  
GIVE, TapeSHARE 1-3  
global variable 29-1, 29-9  
GO command  
    DASD STATUS/CONTROL application  
        11-4  
    ENQUEUES application 8-2  
    OPERATOR REQUESTS application 7-3

## H

hardcopy printer 21-14  
HD DIRECT 15-5, 25-4  
HD INDEXED 15-5, 25-4  
HDAM 15-5, 15-6, 25-4  
help 31-3  
HELP service 12-4  
HIDAM 15-5, 15-6, 25-4  
HISAM  
    AutoOPERATOR for CICS 25-4  
    AutoOPERATOR for IMS 15-5, 15-6  
HSAM 15-5, 25-4  
hyperlinks to MAINVIEW for CICS, invoking  
    corresponding applications 23-2

## I

ICLI, DB2 32-24  
ICPU (control region CPU) 18-3  
IFPS regions 18-3, 19-2  
IM4700W (EXEC) 21-7  
Image copy job 21-9 to 21-10  
IMFCC variable 30-1  
IMFEXEC command processor 30-1  
IMFEXEC NetView command processor 30-1  
immediate line command, VTAM RESOURCES  
    application 6-5  
IMS resources, restarting automatically 21-4  
IMS STATUS  
    display of 13-6, 18-1  
    region 19-2

IMS STATUS PROFILE panel  
    accessing 18-5  
    initial display 18-2  
    panel fields 18-5  
Inactivate command 6-3  
INDEX DATABASE 15-5, 25-4  
INDEX-K 15-6, 25-4  
INDEX-K/E 15-6, 25-4  
INFO service 12-4  
initializing BBXS F-3, F-5  
INPUT mode 18-2  
INPUT-ONLY, TapeSHARE 2-20  
installing BBXS F-3  
Interval Services facility 21-3  
IO command 10-4  
IO service 12-4  
IOCDs  
    data F-5  
    generation F-6  
IOCDs= parameter F-5  
ISAM  
    AutoOPERATOR for CICS 25-3, 25-4  
    AutoOPERATOR for IMS 15-5  
ISC links 14-12 to 14-14, 21-6  
ISC LINKS application  
    description 13-3  
    managing ISC links 14-12 to 14-14  
ISPF window 31-2

## J

JES \$PJ command 9-5  
JOB command 8-2, 9-4  
JOB CPU EXEC 5-7  
jobname 30-2

## L

LCL 3270 node 6-3  
LCL SNA node 6-3  
LGMSG queue 18-3  
line commands (AutoOPERATOR for CICS)  
    BROADCAST application 24-5  
    SYSTEM STATUS application 23-6  
line commands, TapeSHARE 3-14  
line mode output 31-2

---

LINES application 6-8  
LINES command 6-8  
linking  
    ASTENTER|ENTER macro A-3  
    ASTEXIT|EXIT macro A-3  
    ASTUXBGN|UXENTER macro A-3  
    from SYSPROG A-3  
    to SYSPROG A-3  
links, ISC 14-12 to 14-14  
LOCATE command (AutoOPERATOR for CICS) 24-5  
LOG DISPLAY application 13-6  
logging manager  
    abend A-11  
    end A-10  
    start A-10  
logging service A-11  
LTERM application  
    changing status 14-8  
    description 13-3  
    LTERM 21-14, 21-15  
    LTERM application 14-9 to 14-11  
    monitoring status 14-8

## M

MAIN STORAGE DATABASES application  
    15-9 to 15-11  
main task abend A-5  
main task termination A-5  
MAINVIEW 32-10  
MAINVIEW AutoOPERATOR for SAP High Availability  
    Command Interface 32-20  
    Installing and Implementing 32-10  
    security definitions 32-10  
MAJNODE command 6-2, 30-2  
MAJOR command 8-3  
Major Components 32-1  
MAJOR NODES application 6-2  
mask, patterns 11-4  
MDEVICE service 12-4  
MEMSCAN service 12-4  
message  
    display, AutoOPERATOR for CICS 24-4  
    format, SYSPROG services 12-9

MESSAGE command 7-3  
Messages command 7-5  
MIDNITE (EXEC) 21-11  
MIO service 12-4  
MLCU service 12-4  
MNT PNDG 11-3  
MON (EXEC) 21-11  
monitor exceptions 21-6 to 21-9  
MONITOR service 12-4  
MOUNT line command (TapeSHARE) 3-14  
mount requests 7-2  
MOUNTS command 7-3, 7-5  
MPATH service 12-4  
MPP count 18-3, 19-2  
MPP transaction type, processing 16-3  
MPPS regions 18-3, 19-2  
MPR line command, DASD  
    STATUS/CONTROL application 11-5  
MPU line command, DASD  
    STATUS/CONTROL application 11-5  
MSC links 21-6  
MSDB  
    application 13-5  
    exception status 15-10 to 15-11  
    freeing 15-9  
    loaded at startup 21-8  
    size 15-10  
    stopping 15-9  
    type 15-9  
MST line command, DASD  
    STATUS/CONTROL application 11-5  
MSTORAGE service 12-4  
MTO log (EXEC) 21-12  
MTO message log display 13-6  
MTP service 12-5  
MULTI primary commands, TapeSHARE 3-13  
MVS applications 4-1  
MVS operations, controlling 4-2  
MVS OPERATOR WORKSTATION panel 4-1  
MVS Region, AutoOPERATOR for CICS 23-3  
MVS resources 4-4  
MVS system, BBXS F-5  
MVS WTO macro A-17

---

## N

NAICC command processor 29-1, 29-2

NAIEXEC ALERT keywords

ALARM 29-3

alert-key 29-3

alert-text 29-3

CMD 29-3

COLOR 29-3

EXEC 29-3

HELP 29-3

ORIGIN 29-4

PCMD 29-3

PRI 29-3

QUEUE 29-4

TARGET 29-4

USER 29-4

NAIEXEC command glossary E-1

NAIEXEC command processor 29-1

NAIEXEC NetView command processor 29-1

NAIEXEC SELECT 29-5

NAIEXEC VDEL 29-7

NAIEXEC VGET 29-8

NAIEXEC VPUT 29-11

NAIRC 29-1, 29-2

NCCF commands 31-2

NetView address space 29-1

NetView communication with AutoOPERATOR  
28-2

NetView emulator 31-1

NetView emulator profile panel 31-3

NETVIEW keyword

JOBNAME 30-1

WAIT 30-1

NETWORK application 13-3

NETWORK option menu 14-12 to 14-14

node types 6-3

NOGIVE line command (TapeSHARE) 3-14

NOGIVE, TapeSHARE

describing 2-28

specifying 2-13

NOGIVE-NOTAKE, TapeSHARE

describing 1-9

specifying 2-17

NOT primary command (TapeSHARE) 3-13

NOTAKE line command (TapeSHARE) 3-14

NOTAKE, TapeSHARE

describing 1-9, 2-29

specifying 2-15

NOTON primary command (TapeSHARE)

3-13

NPDA command processor 31-3

## O

OF line command

DASD STATUS/CONTROL application

11-5

TAPE STATUS/CONTROL application

10-4

OFFLINE line command (TapeSHARE) 3-14

OFFLINE primary command

DASD STATUS/CONTROL application

11-4

TAPE STATUS/CONTROL application

10-3

OJOB command 9-4

OLDS (online log data set)

DATABASE application, switching 15-3,  
15-4

DEDB application, switching 15-13, 15-16  
switching 25-3, 25-6

ON line command

DASD STATUS/CONTROL application

11-5

TAPE STATUS/CONTROL application

10-4

ON primary command, TapeSHARE 3-13

on-call list 21-13

ONLINE line command (TapeSHARE) 3-14

ONLINE primary command

DASD STATUS/CONTROL application

11-4

TAPE STATUS/CONTROL application

10-3

ONline primary command, TapeSHARE 3-13

online tutorials 10-3

Only Page primary command, DASD

STATUS/CONTROL application 11-4

---

OPERATOR REQUESTS application  
  action messages 7-1  
  AUTOCMD commands 7-5  
  DASD mount request 7-2  
  field descriptions 7-3, 7-5  
  line commands 7-3  
  OPERATOR REQUEST PROFILE panel  
    7-4, 7-5  
  operator requests messages 7-1  
  outstanding replies 7-1  
  panel 7-1  
  primary commands 7-3  
operator station task. *See* OST  
ORIGIN parameter 29-4  
OSAM 15-5, 25-4  
OST (operator station task) 29-9  
OSTC command 9-4  
OTSU command 9-4  
output-only specification 2-20

## P

PAGING service 12-5  
panels  
  customizing 20-1  
  STATUS PROFILE TARGETS 23-5  
  SYSTEM STATUS PROFILE 23-4  
panels, AutoOPERATOR for CICS  
  CICS BROADCAST 24-1  
  CICS SYSTEM STATUS PROFILE  
    (TARGETS) 23-5  
  CICS SYSTEM STATUS with ALERT  
    23-3  
  operator workstation 22-2  
PARTNER, TapeSHARE  
  adding 2-3  
  describing 1-2, 2-29  
password (TapeSHARE) 1-1  
password verification  
  failure A-7  
  successful A-17  
PATH primary command (TapeSHARE) 3-13  
pattern masking, wildcards 11-4  
PAYROLL (EXEC) 21-5  
PJ command 9-5  
PLINE (physical line), attached to terminal 14-9  
PREF, TapeSHARE  
  describing 2-30  
  specifying 2-22  
PREFDEV, TapeSHARE 2-30  
preferencing, TapeSHARE  
  describing 1-4  
  examples of 1-7  
  force mode 1-7  
  guideline mode 1-7  
  specifying 2-22  
PRI parameter 29-4  
primary commands  
  AutoOPERATOR for CICS 23-5, 24-2, 24-5  
  TapeSHARE 3-13  
  using 23-1  
primary commands, BROADCAST application  
  CANCEL 24-5  
  DESELECT 24-5  
  LOCATE 24-5  
  RESET 24-5  
  SELECT 24-2, 24-5  
  SEND 24-2, 24-5  
primary commands, SYSTEM STATUS  
  application 23-5  
priority ALERTs 5-12  
PRIORITY field 18-5  
PRIVATE primary command, DASD  
  STATUS/CONTROL application 11-4  
PRIVATE service 12-5  
product tape A-17  
PROFILE panel, line commands 23-6  
PROFILE TARGETS, panel description 23-5  
PROGRAM  
  application 13-4, 17-1  
  type 17-2  
PROGRESS service 12-5  
PSB routing code 16-7  
PTERM (physical terminal) number 14-9  
PU T4/5 node 6-3  
PUBLIC primary command, DASD  
  STATUS/CONTROL application 11-4

---

## Q

QAOSAPE1 32-22  
QAOSAPE3 32-23  
QAOUSS EXEC 32-24  
QBLKS  
    fields 18-5  
    percentage used 18-3  
    PRIORITY 18-5  
    QUEUE 18-5  
    TARGET 18-5  
    USER 18-5  
QUEUE field 18-5  
queues 5-12

## R

reconfiguration EXEC 21-5  
refresh mode 18-1  
region type 19-3  
REGIONS application  
    description 13-6  
    using 19-1 to 19-4  
register conventions, SYSPROG A-4  
REORG utility, AREA application 15-18  
REPLIES  
    command 7-3, 7-5  
    service 12-5  
RES PNDG 11-3  
RESERVES command 8-3  
reserves mode 8-1, 8-3  
RESERVES service 12-5  
RESET command, AutoOPERATOR for CICS  
    24-5  
resource control 21-4 to 21-6  
resource exception command X ON|OFF 9-5,  
    13-8  
resource EXECs 5-6  
resource thresholds 5-9  
restarting IMS resources 21-4  
retries, TapeSHARE 1-5  
RETRYCNT, TapeSHARE  
    describing 2-30  
    specifying 2-8  
RETRYINT, TapeSHARE  
    describing 2-31  
    specifying 2-12

return codes, SYSPROG A-4  
REXX  
    CLIST 30-1  
    EXEC 30-1  
ROUTING CODE application  
    description 13-5  
    exceptions 16-7  
    RTCODE 16-6, 16-7  
    status 16-7  
RSM service 12-5  
Rules Processor  
    processing CICS events 22-1  
    processing IMS events 13-1  
    processing MVS events 4-1  
RUN/RUNNING 18-2  
RWARN (EXEC) 21-8

## S

SAP Central Instance 32-8  
SAP High Availability Solution  
    description 32-1  
    removing 32-27  
SAP profiles, modifying 32-14  
SCAN utility, AREA application 15-18  
security violation (EXEC) 21-8  
SELECT command, AutoOPERATOR for CICS  
    line command 24-5  
    primary command 24-2, 24-5  
SELECT keyword  
    EXEC 29-5  
    TARGET 29-5  
SELECT line command, SYSTEM STATUS  
    application 23-6  
SELECT NAIEXEC 29-5  
SEND command, AutoOPERATOR for CICS  
    primary command 24-2, 24-5  
service failure A-7  
service starting A-6  
shift turnover 21-12  
SHISAM 15-6, 25-4  
SHMSG queue 18-3  
ShowVol command 10-3  
ShowVol command, DASD STATUS/CONTROL  
    application 11-4  
SOFTFRR service 12-5

SORT command 9-5  
 SORT primary commands, TapeSHARE 3-13  
 SPACE service 12-5  
 SPFEDIT command 8-3  
 SPFMEM command 8-3  
 SRM service 12-5  
 SSAM 15-5, 25-4  
 SSCP 6-2  
 SSCT F-2, F-4  
 SSCTUSE field F-2  
 standard I/O emulation 31-2  
 STATUS application. *See* SYSTEM STATUS application  
 STATUS PROFILE TARGETS, panel  
     description 23-5  
 STATUS service 12-5  
 STATUS/EXCEPTION application  
     accessing 18-5  
     description 13-6  
     IMS STATUS PROFILE panel 18-2, 18-5  
     panel fields 18-5  
     target status 18-2  
 STC command 9-4  
 STCCPU EXEC 5-7  
 STORAGE primary command, DASD  
     STATUS/CONTROL application 11-4  
 storage requirements 28-2  
 subpools, AutoOPERATOR for CICS 23-3  
 SW SNA node 6-3  
 SYSDUMP service 12-5  
 SYSPROG  
     ASTUXBGN macro A-1  
     ASTWTO macro A-17  
     ASTXA1UE|ASTMVSUE module A-1  
     CNSL command input A-16  
     description A-1  
     entry code table A-1 to A-2  
     line commands 10-4  
     user exit A-1 to A-17  
     user-written routines A-1  
     UXENTER macro A-1  
 SYSPROG services  
     issued from EXECs 12-17  
     message format 12-9  
     primary commands 12-2 to 12-6  
     security exit 12-17  
     syntax for service names 12-6

SYSTEM STATUS application  
     alerts messages 5-8  
     description 4-1  
     EXEC job watch 5-5  
     jobname selection 5-10  
     monitoring jobwatch criteria 5-10  
     monitoring value criteria 5-11  
     primary commands 5-4, 5-12  
     resource definitions 5-11  
     scrolling jobs 5-5  
     scrolling thresholds 5-6  
     SYSTEM STATUS panel 5-1, 5-2  
     SYSTEM STATUS PROFILE panel 5-1, 5-8  
 TARGET PROFILE SELECTION PANEL  
     5-1, 5-12  
     threshold standards 5-5  
     thresholds 5-11  
 SYSTEM STATUS application,  
     AutoOPERATOR for CICS  
     CICS SYSTEM STATUS PROFILE panel  
         23-5  
     description 22-3  
     line commands 23-6  
     primary commands 23-5  
     SYSTEM STATUS panel with ALERT  
         display 23-3  
 SYSTEM STATUS panel  
     Area 1 - System Statistics 5-3  
     Area 2 - Job Watch 5-4  
     Area 3 - Resource Definitions 5-5  
     Area 4 - ALERTS Messages 5-8  
     description 5-1, 5-2  
 SYSTEM STATUS PROFILE panel  
     description 5-8  
     primary commands 5-12  
     priority 5-12  
     queues 5-12

## T

TAKE action, TapeSHARE 1-3  
 TAKE line command (TapeSHARE) 3-14  
 tape drive  
     mount requests 7-1  
     specifying addresses 7-4  
     status 10-1

---

TAPE STATUS/CONTROL application

- description 4-4
- field descriptions 10-2
- line commands 10-4
- panel 10-1
- primary commands 10-3
- SYSPROG line commands 10-4

TapeSHARE

- examples of 1-10
- function 1-4
- introduction 1-1
- password 1-1
- primary commands 3-13

TapeSHARE workstation, fields

- Addr 3-17
- Allocation Requests 3-15
- Avg Time per Take 3-15
- Gives 3-17
- G-St T-St 3-17
- Jobname 3-17
- Partner(s) not responding 3-16
- Pref 3-17
- Requests Satisfied 3-15
- Status 3-17
- Sys 3-17
- Takes 3-17
- TapeSHARE Partners 3-16
- Total Device Requests 3-15
- Type 3-17
- Volser 3-17

TapeSHARE, customizing

- actions 2-11
- deallocation 2-24
- force mode 1-7
- guideline mode 1-7
- input-only devices 2-20
- NOGIVE devices 2-13
- NOGIVE-NOTAKE devices 2-17
- NOTAKE devices 2-15
- output-only devices 2-20
- partners 2-3, 2-7
- preferencing 2-22
- retries 2-8
- retry interval 2-10
- timing out 2-8

TapeSHARE, describing

- allocation recovery 1-5
- GIVE 1-4
- NOGIVE devices 1-8
- NOGIVE-NOTAKE devices 1-9
- NOTAKE devices 1-9
- partners 1-3
- preferencing 1-4
- RETRYCNT 1-5
- RETRYINT 1-5
- TAKE 1-4
- TapeSHARE PLEX 1-3

TapeSHARE, workstation

- accessing 3-2
- BBI control commands 3-18
- drive status 3-5, 3-7
- field descriptions 3-15 to 3-16
- introduction 3-1
- line commands 3-14
- performance statistics 3-3 to 3-7
- primary commands 3-13

TARGET

- field 18-5
- keyword 29-6
- parameter 20-2

TARGET PROFILE SELECTION 5-1

TARGET PROFILE SELECTION PANEL 5-12

Tasks column, AutoOPERATOR for CICS 23-2

TCPU (total CPU) 18-3

TERMINALS application 6-12

tgtname 29-7, 29-9

TIMEOUT, TapeSHARE

- describing 2-31
- specifying 2-7

TIOT service 12-5

total CPU. *See* TCPU

TOTCPU EXEC 5-7

TOTSIO EXEC 5-7

TP monitor

- abends A-13
- detecting read I/O error A-14
- detecting write I/O error A-14
- normal end A-15
- stopping a terminal A-13

TPIO service 12-6

TQE service 12-6

TRACE, TapeSHARE 2-31

TRACK service 12-6

---

TRANSACTION application  
description 13-4, 13-5  
using 16-1 to 16-7

TRANSACTION OPTION MENU 16-1

TRANSACTION type, defining 16-3

TSO LASTCC 29-1

TSOCPU EXEC 5-7

TSU command 9-4

TSULIST service 12-6

TYPE=  
ASYPANEL 31-3  
FLASH 31-2  
IMMED 31-2

## U

UCB command 10-4

UCC7 package 21-9

unit of work 15-20

UNL command 10-4

UNL line command, DASD  
STATUS/CONTROL application 11-5

UNLD PND 11-3

UNLOAD line command (TapeSHARE) 3-14

UNSORT primary commands (TapeSHARE)  
3-13

UOW (unit of work) 15-20

USER command 8-2

user exit  
BBSRC A-17  
SYSPROG A-1  
SYSPROG, entry code table A-1 to A-2

USER field 18-5

user password authorization check 18-2

user words, SYSPROG A-4

user-written routines. *See* SYSPROG

USI command 10-4

using AOAnywhere in NetView 28-4

USING service 12-6

USRID subparameter 20-2

USS Shared HFS 32-11

## V

values  
command processor 29-2  
global variable 29-11

varname 29-11

VDEL 29-7 to 29-8

VGET 29-8 to 29-10

virtual fetch 21-6

VMCMD service 12-6

VOLSER 10-2, 11-2

VOLSTATE 10-3, 11-2

Volume primary command, DASD  
STATUS/CONTROL application 11-4

VPUT 29-11 to 29-12

VSAM 15-5, 15-6, 25-4

VSAM CI size 13-5, 15-19

VTAM nodes  
name 14-9  
subpool 14-13

VTAM NODES application  
description 13-3  
using 14-5 to 14-8

VTAM RESOURCES application  
APPLICATIONS 6-4  
CDRMS 6-5  
CDRSCS 6-5  
CLUSTERS 6-10  
description 4-4  
LINES 6-8  
MAJOR NODES 6-2  
node status 6-2, 6-3  
primary commands 6-2  
TERMINALS 6-12

## W

WAIT keyword 29-6

wildcard characters 11-4

wsec 30-2

WTOR 7-2, 7-5

WTOR device, associated with an LTERM  
14-10

---

# X

X on/off 9-5, 13-8

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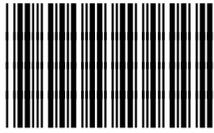
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