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SHARE Session 8458

Automation and Backup Scenarios for z/VM and Linux on System z

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March 2011

Agenda

- **Requirements for these automation scenarios**
- **Overview of products being used**
- **Automation scenarios**
 - Can be product agnostic
 - Live demos
 - Configuration options and sample code
- **Backup scenarios (including automation)**
 - Can be product agnostic
 - Live demos
 - Configuration options and sample code
- **Summary**



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Requirements

Implementing these Scenarios

Automation requirements for z/VM system

- **Take an action based on a message on a console**
 - Provide data from the message to the action
- **Send commands to Linux guests**
- **Schedule an action to occur immediately**
 - Or on a regular schedule
- **Trigger an action if spool usage reaches a specified percent full**
- **Chain any actions (triggered by messages, schedules, etc.)**
- **Suspend and resume message rules, schedules, spool monitors, etc.**
- **Issue commands real-time on a service machine console**
- **Add messages to a console view from local or remote sources**
- **Detect a user ID logging off**

Backup requirements for z/VM system

- **Define a backup job that limits the backup to a specified set of disks**
- **Customize messages that displayed when backup is complete**
- **Invoke backup via an “API”**



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Automating Operations

Operations Manager for z/VM

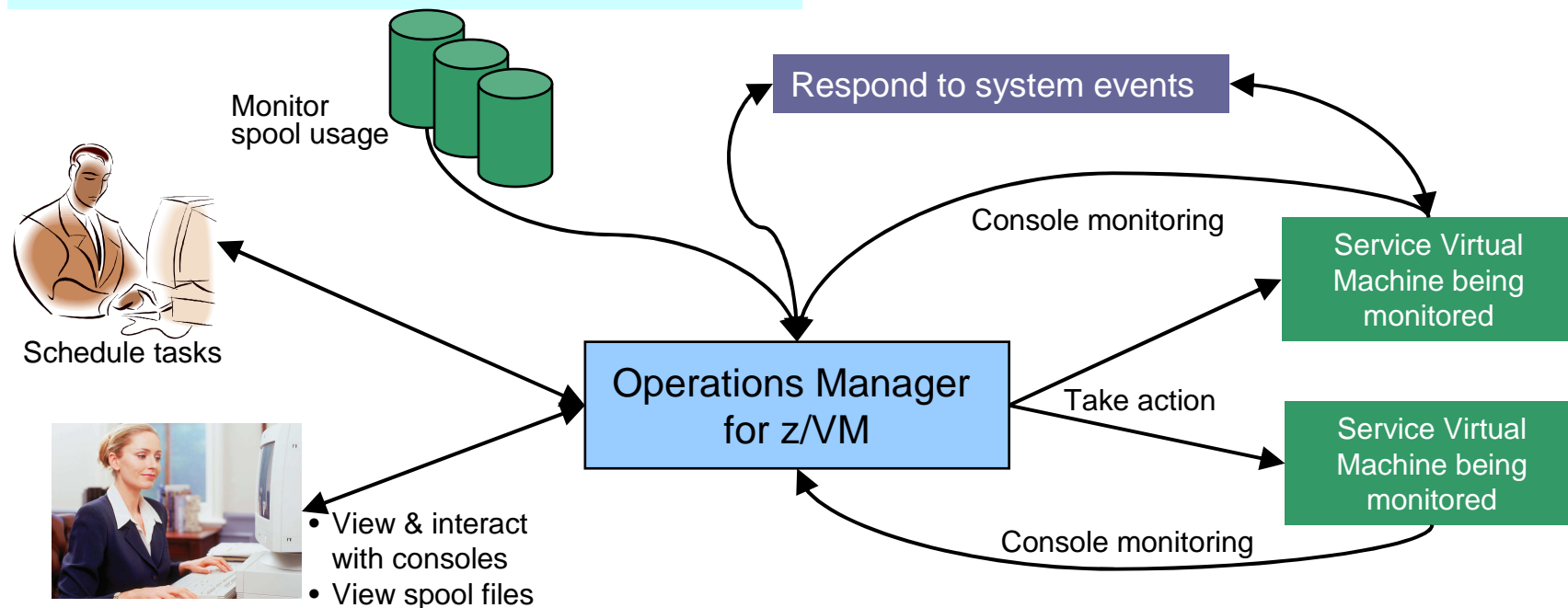
Operations Manager for z/VM

Increase productivity

- Authorized users view and interact with monitored virtual machines without logging onto them
- Multiple users view/interact with a virtual machine simultaneously

Improve system availability

- Monitor virtual machines and processes
- Take automated actions based on console messages
- Reduce problems due to operator error



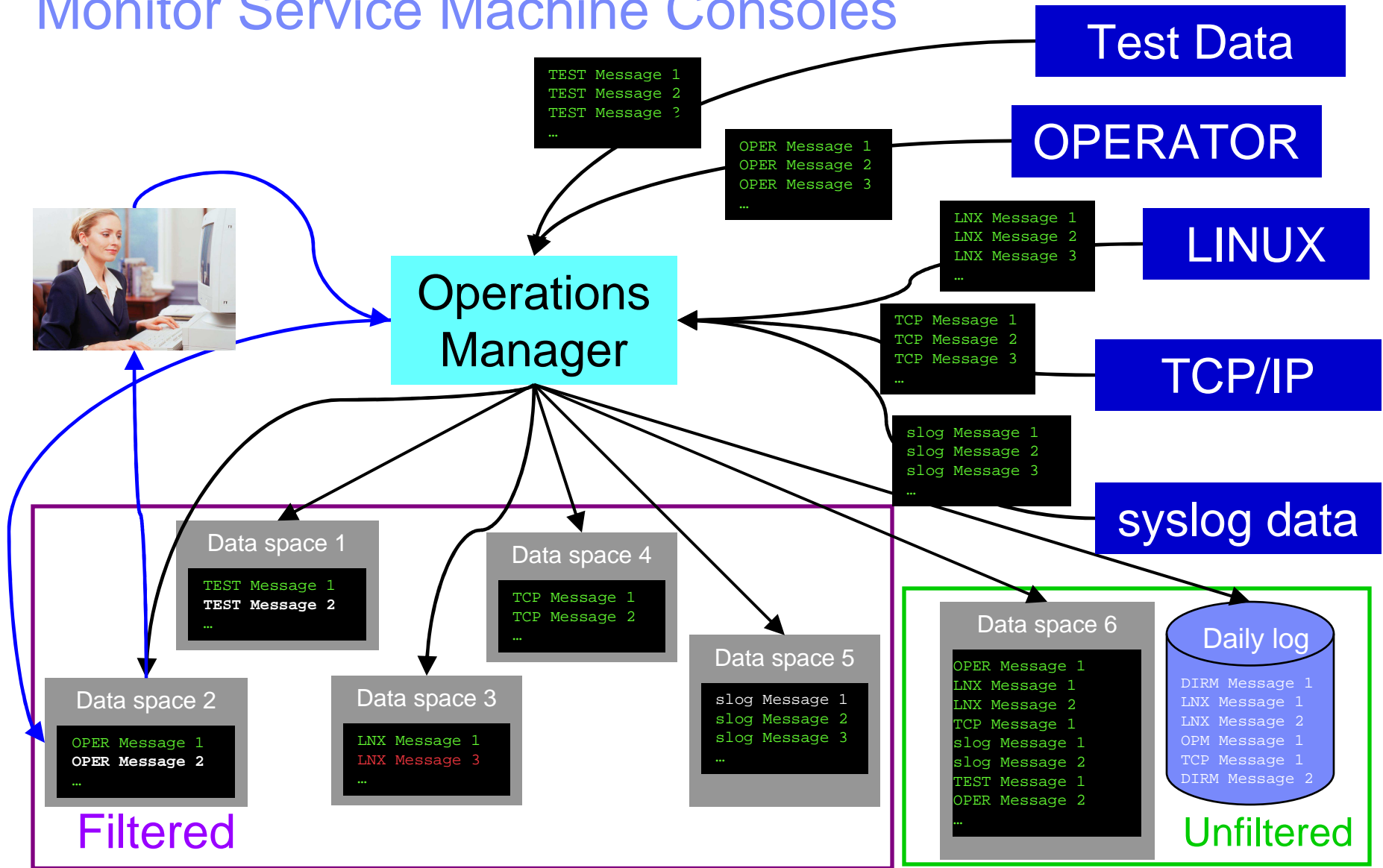
Automation

- Routine activities done more effectively with minimal operations staff
- Schedule tasks to occur on a regular basis

Integration

Fulfill take action requests from OMEGAMON XE on z/VM and Linux

Monitor Service Machine Consoles



Monitor Service Machines

- **Define rules to**
 - Scan console messages for text matching
 - Includes column, wildcard, and exclusion support
 - Optionally restrict to specific user ID(s)
 - Take actions based on matches
- **Multiple rules can apply to one message**
 - Rules processed in order of definition in the configuration file
 - FINAL option available to indicate no additional rules should be evaluated

View and Interact with Consoles

- **Authorized users can view live consoles of monitored service machines and guests**
 - Multiple users can view the same console simultaneously
 - No need to logon to the service machine to see its console
 - Test data and Linux syslog data treated as a “console”
 - Views can be defined to look at a group of consoles in one view
- **Full screen mode**
 - Scroll up and down to view and search historical data
 - Auto scroll (on or off) as new output is displayed on the console
 - From command line, issue commands back to the monitored console
- **Amount of data that is visible depends on specified or default data space size**
- **Rules/actions may modify the view**
 - Suppress messages from the console
 - Hold or highlight messages with color, blinking, etc.
- **Authorized users can view the log file**
 - Can also request a copy of the log file from today or a previous day

Monitor and View Spool Files

- **Create spool monitors to trigger actions when**
 - Percent of spool usage falls within a specified range
 - Percent of spool usage increases at a specified rate
- **Actions triggered can be the same actions used by console monitoring**
- **Authorized users can**
 - Display a list of spool files based on one or more attributes
 - Owner
 - Size
 - Date created
 - From the list the user can
 - View the contents of an individual spool file
 - Transfer, change, or purge a spool file

Schedule Events and Actions

- **Define schedules**
 - Hourly, daily, weekly, monthly, or yearly
 - Once on specified month, day, year, and time
 - At regular intervals
 - Every x hours and y minutes
 - Within a specified window of time
 - Specify start time
 - Specify conflicting schedules
 - Specify maximum time to defer this schedule
 - Within limits
 - Restrict to specific days of the week: Monday through Sunday plus holidays
 - Restrict to certain hours of the day

- **Specify the action associated with the schedule**
 - Actions specified are the same as those for console and spool monitoring

Respond to System Events

- **Create monitors for z/VM system events (*VMEVENT) related to user IDs**
 - Logon
 - Logoff
 - Failure condition (typically CP READ)
 - Logoff timeout started
 - Forced sleep started
 - Runnable state entered (VM READ)
 - Free storage limit exceeded
- **Immediate notification and action when event occurs**
- **Optionally restrict to specific user ID(s)**
- **Specify the action associated with the event**
 - Actions specified are the same as those for schedules and console and spool monitors

Summary

- **Use Operations Manager to**
 - Automate daily operations
 - Prevent problems rather than react to them
 - Automate reactions to problems when they can't be prevented
 - Improve problem determination procedures
 - Increase programmer and operator productivity



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Managing Backup and Recovery

Backup and Restore Manager for z/VM

Product Overview

▪ Backup

- Requested by administrators
- Full or incremental
- Flexible selection of disks and files to back up
- Review job before submitting for backup
- Catalog housed in Shared File System

▪ Restore

- Performed by users for their own data
- Extending to other users available via exit
- Performed by administrators for any data
- Selection of data to restore
 - Full screen interface or commands

▪ Integration with Tape Manager for z/VM

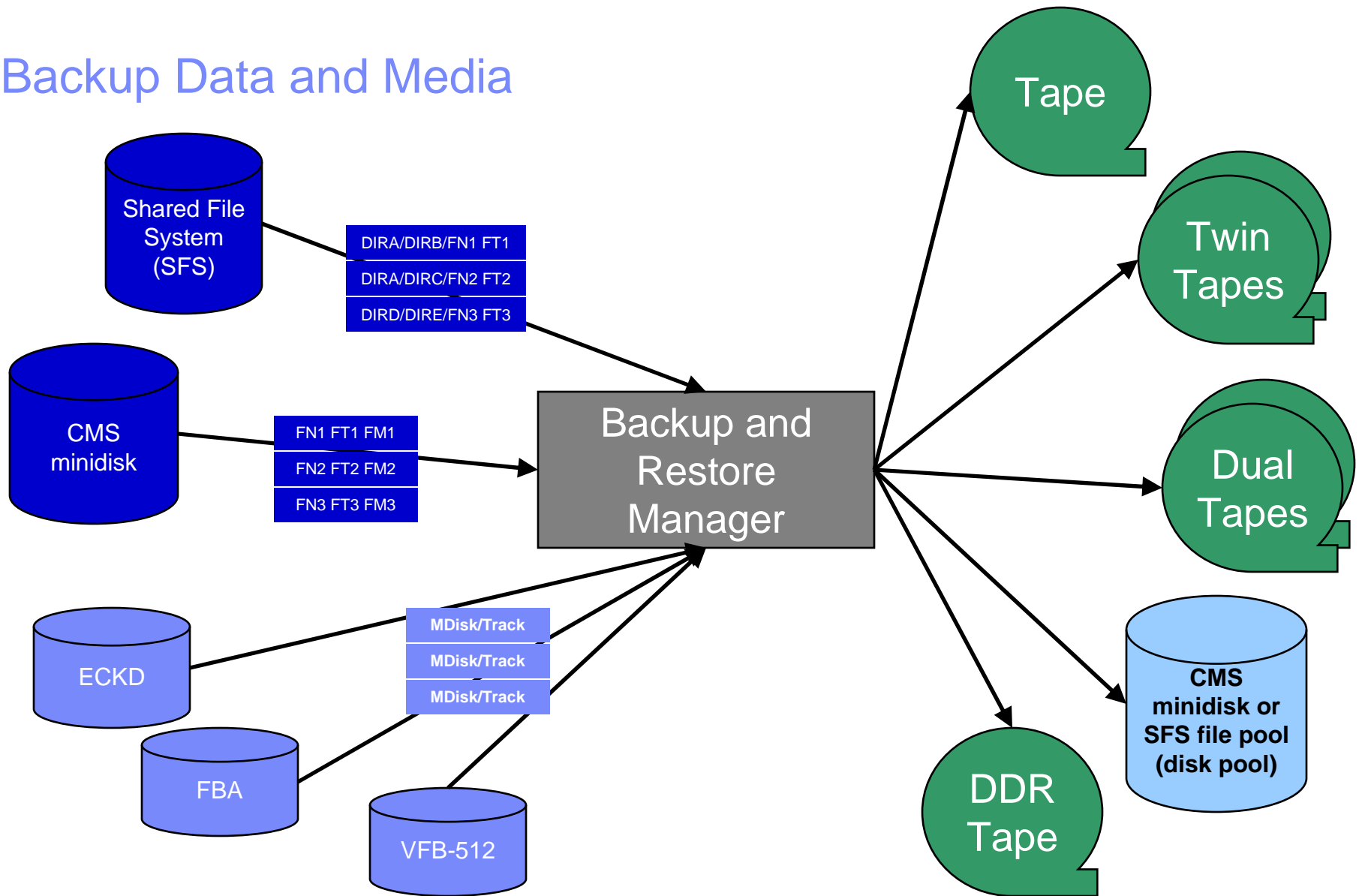
▪ Optional compression of data during backup

- Call your own compression algorithm
- Use IBM provided routine

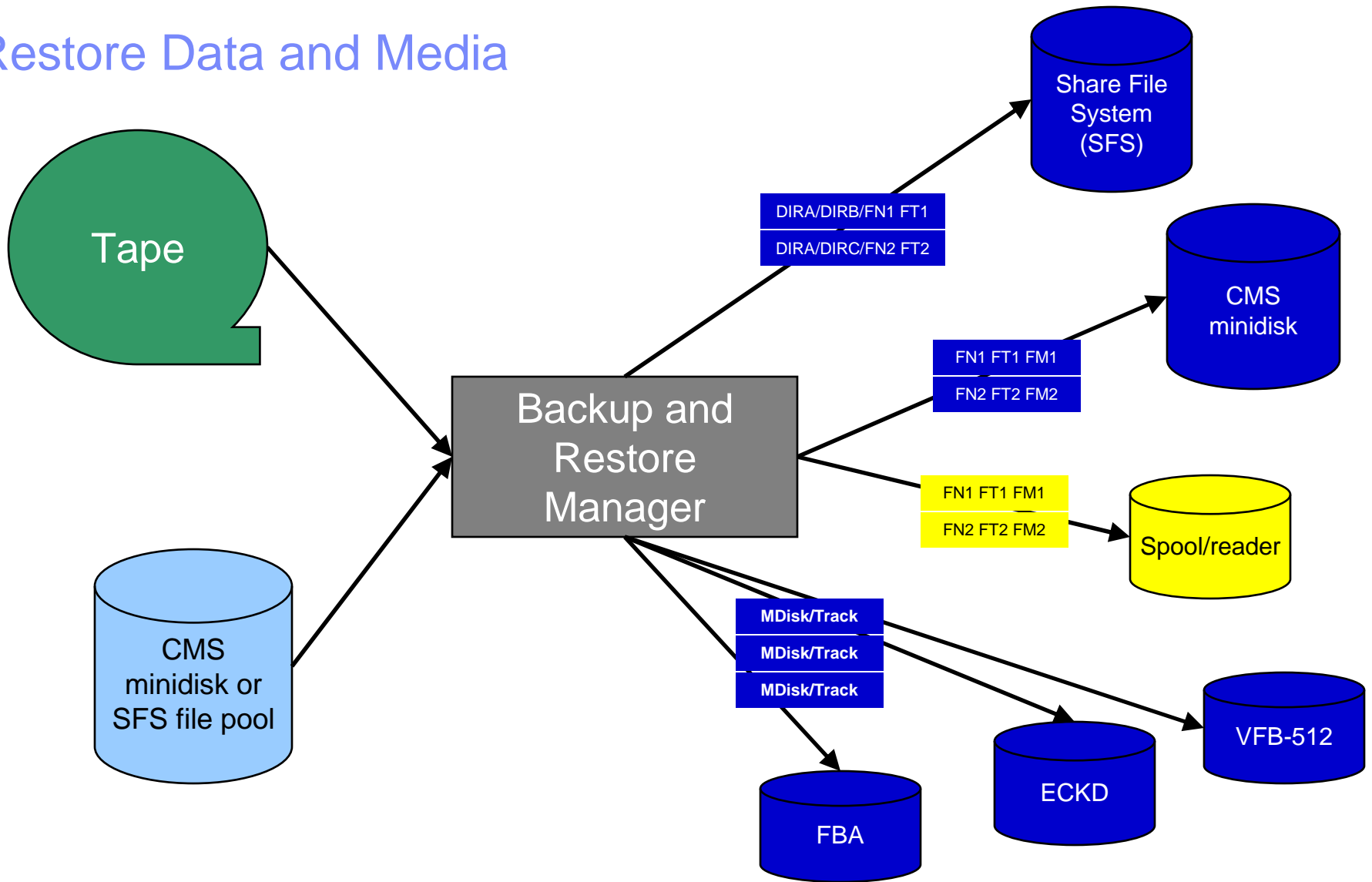
▪ Encryption exits available

- Call your own routine
- Use vendor-written routine, such as V/Soft Software's Encrypt/Backup for z/VM

Backup Data and Media



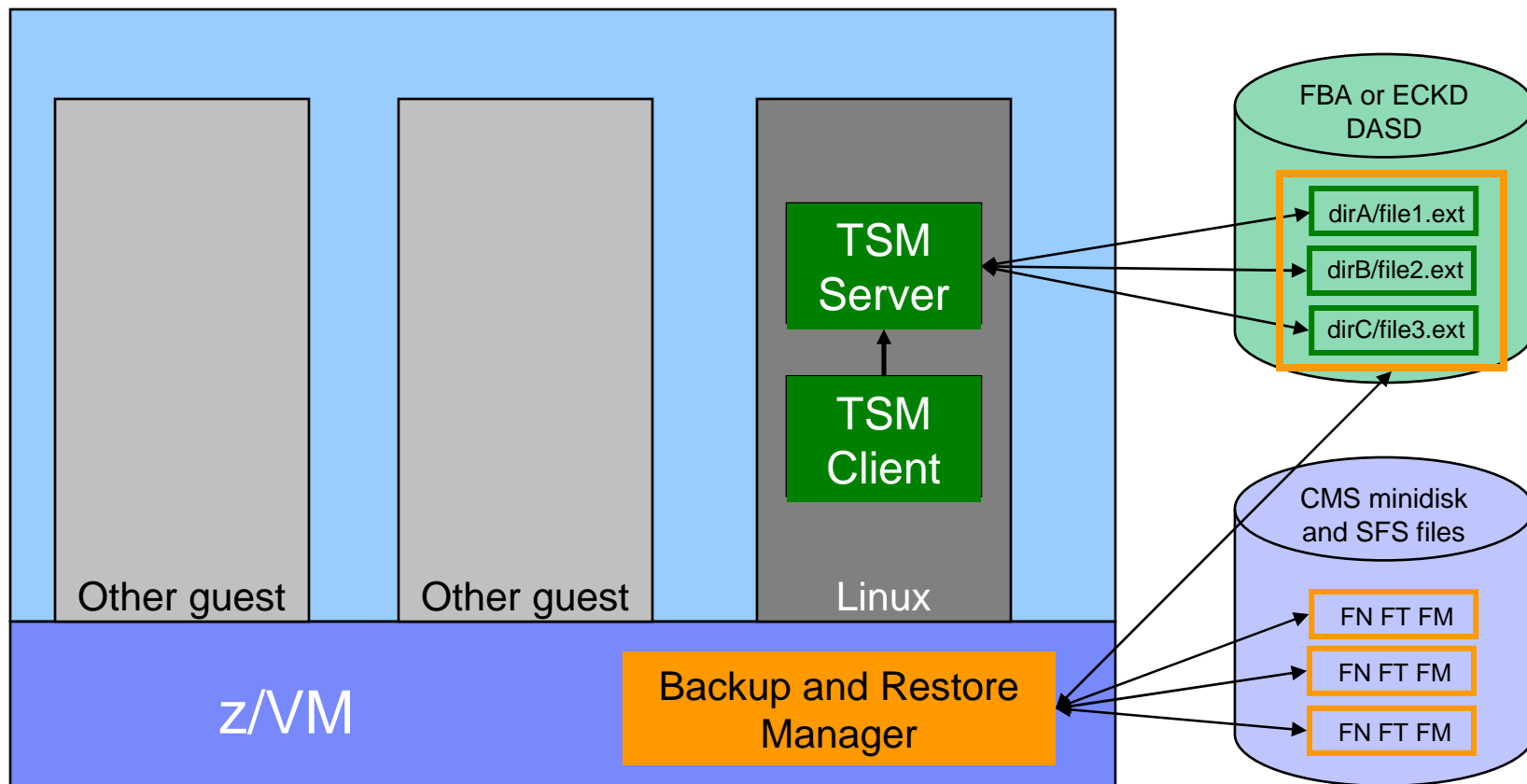
Restore Data and Media



Backup and Restore Manager and Linux Guests

Using Backup and Restore Manager with Tivoli Storage Manager

Choose the solution that meets your needs – or combine for file recovery and DR



TSM Server can be on any supported platform

Key Benefits

- **System backups available for Disaster Recovery**
 - Option to restore using DDR or Backup and Restore Manager
 - Manage retention of DR backups
 - Retrieve a list of tapes associated with a specific backup
 - Pull list for movement to off-site storage
- **Guest backups available for restoring to a previous state or level**
- **Backups of user data available for**
 - Restoring to a previous state or level
 - Replacing files accidentally erased or corrupted
- **Users restore their own data**
 - No administrator interaction required

Key Benefits Cont...

- **Flexible selection of data to back up**
 - Include/exclude
 - Minidisks, directories
 - Real device addresses or volsers
 - Extents
 - Mask by filename, filetype, or SFS path
 - Review a defined backup job before submission
- **Management of backup data**
 - Retention set as part of the backup job
 - Automatic aging and pruning of the backup catalog
 - Including associated tapes and disk pools
 - View/query the list of expired backups
- **Reduced backup window with concurrent processing**
 - Multiple worker service machines sharing the job
 - Suggest one worker service machine for each available tape drive

Summary

- **Use Backup and Restore Manager to**
 - Perform file-level backups of z/VM data
 - Perform image level backups on non-z/VM guest data
 - Perform disaster recovery backups of entire system
 - Easily find and restore data as needed
 - Manage retention of backup data

Demos Available

1. **Send an e-mail based on a console message**
2. **Send an alert to Netcool/OMNIBus based on a console message**
 - a. Using POSTZMSG interface to Netcool/OMNIBus
 - b. Using SNMP interface to Netcool/OMNIBus
3. **Send a message or e-mail based on spool usage**
4. **View and clean up spool files**
5. **Automated spool cleanup**
6. **Archiving DIRMAINT's log files when disk gets full**
7. **Process a file of test messages as a console**
8. **Process Linux syslog data as a console**
9. **Create a central operations console on one z/VM system**
10. **Create a central operations console across multiple z/VM systems**
11. **Integration with OMEGAMON XE on z/VM and Linux - take action based on CPU usage of a Linux guest**
12. **Monitor service machines for logoff – and autolog them**
13. **Perform an incremental backup**
14. **Find and restore a file from the backup catalog**
15. **Automatically shut down, back up, and restart a Linux guest**
16. **Reviewing a disaster recovery backup**
17. **Reviewing other ways to find data in the backup catalog**



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Automation Scenarios

Scenario 2b:

Send an Alert to OMNIbus – Using SNMP

- **Watch all monitored consoles for an error message that includes the word “abend”**
 - Message must also contain the word “snmp” (for demo purposes only)
- **Send an alert to OMNIbus if this word appears on a console**
 - Use SNMPTRAP command on z/VM
- **Dynamically include in the alert**
 - User ID that received the error message
 - Text of the abend message

Scenario 2b: Detailed Steps

- **View “All Events” in OMNIbus**

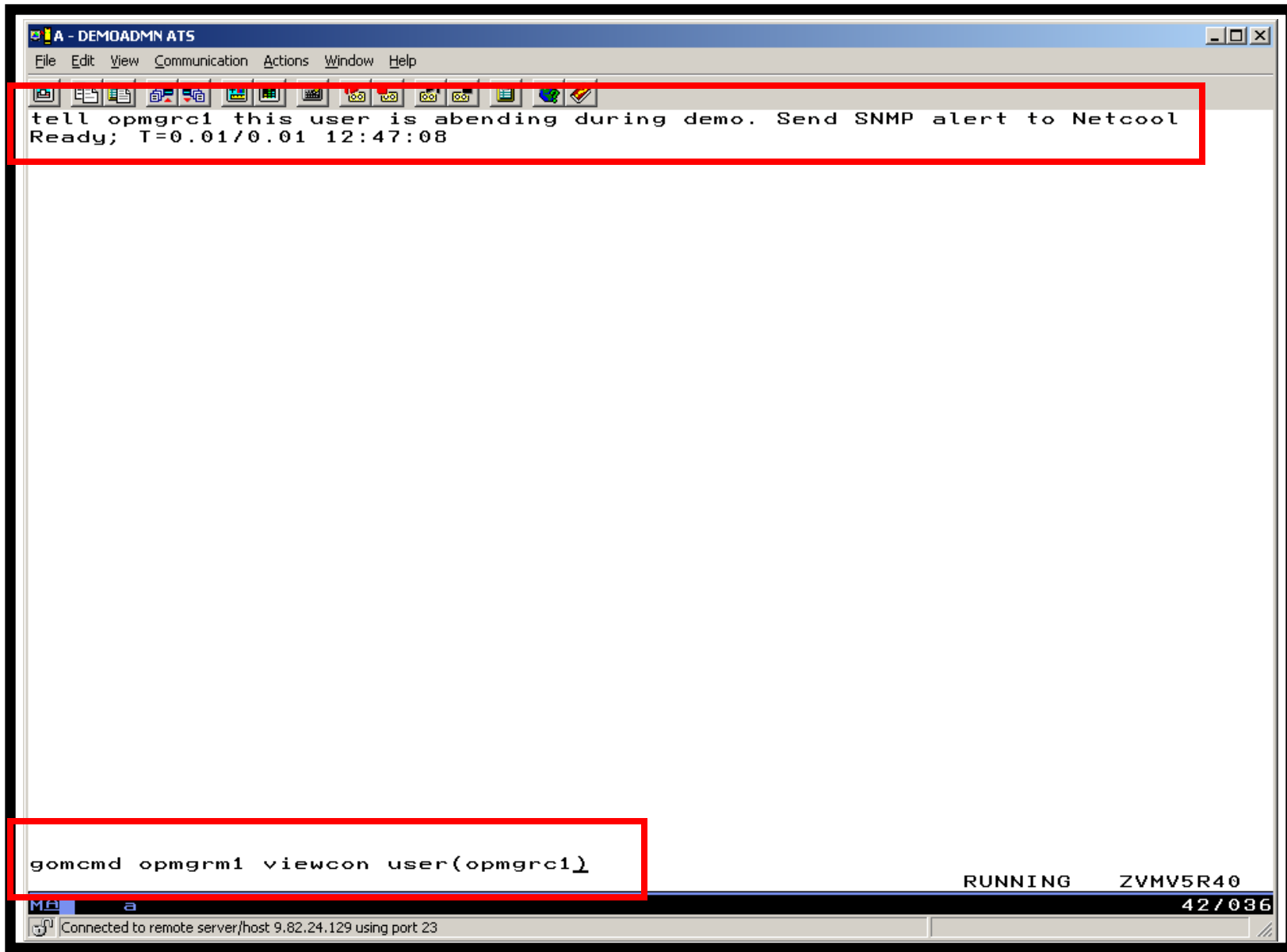
- **From any VM user ID:**

```
tell opmgrc1 this user is abending during demo. Send SNMP alert to Netcool
```

- **From an authorized VM user ID, view the console of OPMGRC1:**

```
gomcmd opmgrml viewcon user(opmgrc1)
```

- **View the OMNIbus console to see the alert**



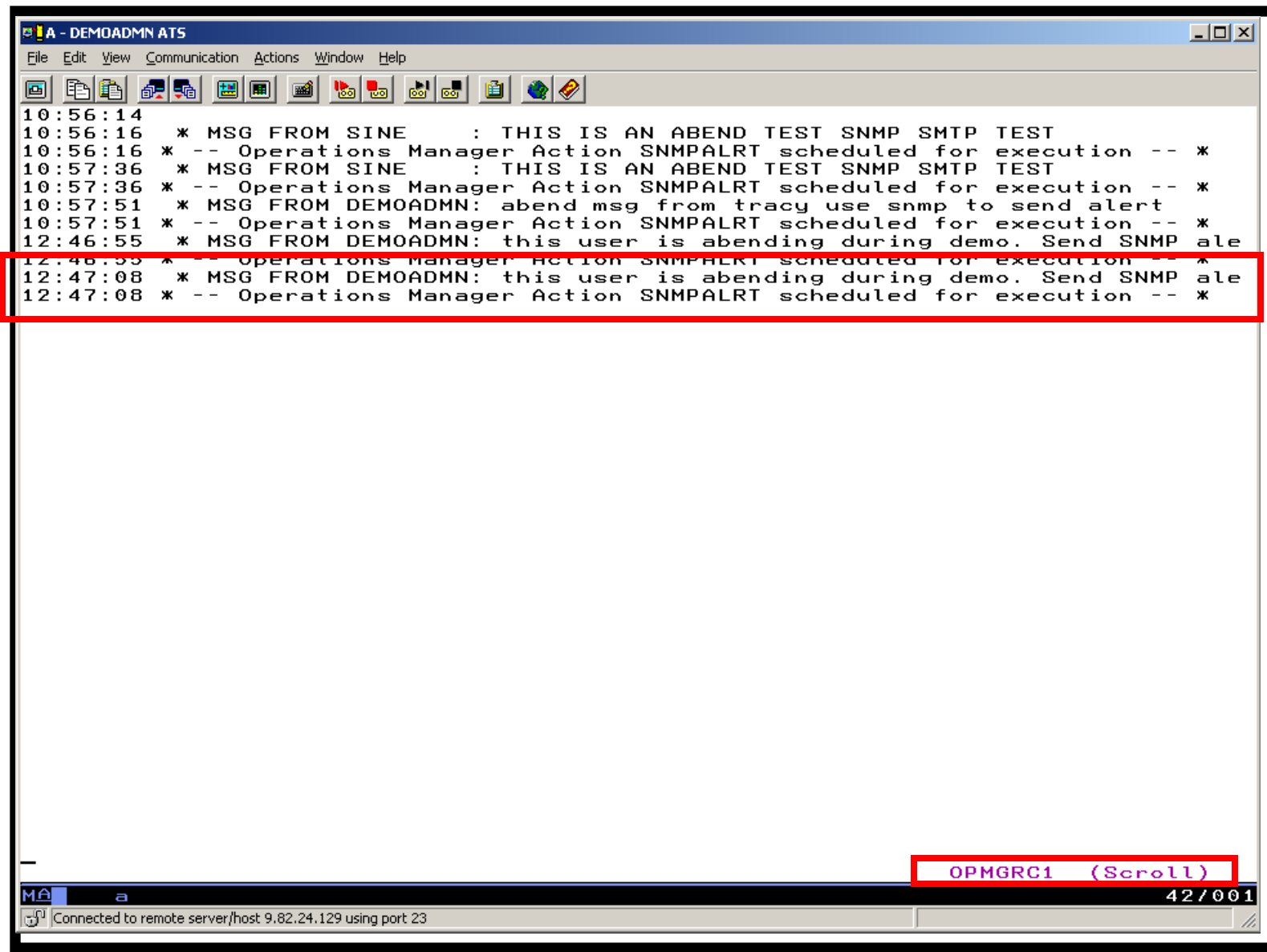
The screenshot shows a terminal window with a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The terminal content is as follows:

```
tell opmgrc1 this user is abending during demo. Send SNMP alert to Netcool  
Ready; T=0.01/0.01 12:47:08
```



```
gomcmd opmgrm1 viewcon user(opmgrc1)
```

At the bottom right of the terminal, the status 'RUNNING ZVMV5R40' is displayed. The status bar at the very bottom shows 'Connected to remote server/host 9.82.24.129 using port 23' and '42 / 036'.



```
A - DEMOADMN ATS
File Edit View Communication Actions Window Help
10:56:14
10:56:16 * MSG FROM SINE      : THIS IS AN ABEND TEST SNMP SMTP TEST
10:56:16 * -- Operations Manager Action SNMPALRT scheduled for execution -- *
10:57:36 * MSG FROM SINE      : THIS IS AN ABEND TEST SNMP SMTP TEST
10:57:36 * -- Operations Manager Action SNMPALRT scheduled for execution -- *
10:57:51 * MSG FROM DEMOADMN: abend msg from tracy use snmp to send alert
10:57:51 * -- Operations Manager Action SNMPALRT scheduled for execution -- *
12:46:55 * MSG FROM DEMOADMN: this user is abending during demo. Send SNMP ale
12:46:55 * -- Operations Manager Action SNMPALRT scheduled for execution -- *
12:47:08 * MSG FROM DEMOADMN: this user is abending during demo. Send SNMP ale
12:47:08 * -- Operations Manager Action SNMPALRT scheduled for execution -- *

OPMGRC1 (Scroll)
MA a 42/001
Connected to remote server/host 9.82.24.129 using port 23
```

Netcool/OMNIBus Event List : Filter="All Events", View="Default"

File Edit View Alerts Tools Help

All Events Default Top [OFF]

Node	Alert Group	Summary	Last Occurrence(+)	Count	Type	Expire Time	
mwbtp	TEST	Test_Message	07/10/2008 02:45:57 PM	4	Problem	Not Set	
hasl125	TESTEIF	test_message_from_eif_2	08/19/2008 03:30:51 PM	2	Problem	Not Set	USSJAVA
USIBMWZV.HSLV12	TBSMV3_SOURCE390		09/05/2008 09:38:25 AM	1	Problem	Not Set	USIBMWZ
OPMGRC1	WARN_EVENT	fatal_error_on_guest	04/24/2009 11:26:56 AM	2	Problem	Not Set	OpsMgr
hasle313:LZ	ITM_Linux_CPU	Linux_High_CPU_Overload[(Idle_CPU<10.	02/10/2010 07:39:46 PM	1	ITM Problem	Not Set	ITM
hasle332	JJELD	A JJELD process running on hasle332 ha	02/14/2010 11:05:10 PM	1	Problem	Not Set	
9.65.208.193	Generic	Egp Neighbour Loss	02/15/2010 09:00:59 PM	3	Type Not Set	Not Set	mttrapd
Primary:HASLE337:	ITM_NT_Monitored_Log	NT_Log_Space_Low[(%_Usage>=95) ON	02/16/2010 12:12:47 PM	1	ITM Problem	Not Set	ITM
Primary:HASLE337:	ITM_NT_Monitored_Log	NT_Log_Space_Low[(%_Usage>=95) ON	02/16/2010 12:12:47 PM	1	ITM Problem	Not Set	ITM
9.82.24.129	Generic	Cold Start	03/03/2010 02:25:12 PM	1	Type Not Set	Not Set	mttrapd
hasle332	IducMissed	Disconnecting e@09522621@09522621:1.	03/03/2010 04:54:00 PM	1	Problem	Not Set	
hasle332	Unix Event List	A e@09522621@09522621:1.0 process e	03/08/2010 08:09:44 AM	1	Problem	Not Set	
OPMGRC1	SCARY_EVENT	guest_is_abending	03/08/2010 12:25:42 PM	28	Problem	Not Set	OpsMgr
WSCZPLEX:MVS:SY	ITM_Sysplex_DASD_Gr	KM5_No_Sysplex_DASD_Filter_Warn[(Vol	03/09/2010 03:42:32 PM	2	ITM Problem	Not Set	ITM
Primary:HASLE337:	ITM_NT_Logical_Disk	NT_Logical_Disk_Space_Warning[(%_Fre	03/09/2010 04:28:37 PM	3	ITM Problem	Not Set	ITM
Primary:HASLE327:	ITM_NT_Monitored_Log	NT_Log_Space_Low[(%_Usage>=95) ON	03/11/2010 03:27:47 PM	1	ITM Problem	Not Set	ITM
HIAVSYSL:MVS:SY	ITM_Sysplex_DASD_Gr	KM5_No_Sysplex_DASD_Filter_Warn[(Vol	03/11/2010 03:38:17 PM	1	ITM Problem	Not Set	ITM
hasle313:PA	ITM_Disk_Utilization_LT	Warning threshold for disk utilization on o	03/11/2010 11:24:46 PM	1	ITM Problem	Not Set	ITM
hasle332		mttrapd probe on hasle332: Heartbeat Me	03/12/2010 12:37:53 PM	2312	Type Not Set	Not Set	mttrapd
9.82.24.129	Generic	Authentication	03/12/2010 12:50:23 PM	1652	Type Not Set	Not Set	mttrapd
9.82.24.129	Z/VM SNMP	this user is abending during demo. Send	03/12/2010 12:46:23 PM	9	Problem	Not Set	mttrapd

0 4 12 2 1 2 All Events

0 row(s) inserted, 1 row(s) updated and 0 row(s) deleted. 03/12/2010 12:52:37 PM root NCOMS[PR1]

Scenario 2b: How Do You Do That?

Rule and action in Operations Manager:

*

* Send an alert to OMNibus using SNMP for abend

* msgs on consoles

```
DEFRULE NAME (ABNDSNMP) , +
```

```
  MATCH ( *abend*snmp* ) , +
```

```
  ACTION ( SNMPALRT ) , +
```

```
  PARM ( ABEND )
```

*

```
DEFACTN NAME ( SNMPALRT ) , +
```

```
  COMMAND ( EXEC SNMP2OMN &T ) , +
```

```
  ENV ( SVM )
```

Scenario 2b: How Did You Do That?

SNMP2OMN EXEC

```
/* SNMP2OMN action routine for Operations Mgr */  
address command  
parse arg ":" msgtext  
msgtext2 = "'msgtext '"  
/* Send message */  
snmptrap trape 1.1 number 30 1.2 text "UXZVM001" 1.3 text msgtext2 ent 1.3.6.1.4.1.9545.6  
exit
```

Scenario 2b: Additional Steps Required on z/VM

- **SNMPD user ID configured and running**
- **Update files on TCPMAINT 198 disk**
 - Add OMNIbus IP address to SNMPTRAP DEST file
 - Open SNMPD and SNMPQE ports in PROFILE TCPIP
 - Update SNMPMIBX TEXT section of MIB_EXIT DATA
- **Give OPMGRM1 and OPMGRSn access to SNMPTRAP command**
 - On TCPMAINT 592 disk

Scenario 2b: Additional Steps Required on OMNibus

- **Install the IBM Tivoli Netcool/OMNibus SNMP Probe**
 - Install it on same platform as target OMNibus server
- **Customize operational information in the probe properties (mttrapd.props)**
 - Listening port, heartbeat interval, mibs and mibs locations, etc.
- **Customize the probe rules (mttrapd.rules)**
 - Map variables created by the probe (from data extracted from the SNMP trap) into the desired OMNibus event fields
 - Default mappings for the SNMP generic traps (trap types 0-5)
 - Enterprise-specific traps (trap type 6) require customization
- **Documentation for installation and customization**
 - IBM Tivoli Netcool/OMNibus SNMP Probe Reference Guide (SC23-6003-04)

Scenarios 2a and 2b – POSTZMSG vs SNMP

■ Using POSTZMSG

- Can direct the alert to only the IP address(es) you specify
- Need a Linux guest running and logged on that can run POSTZMSG and must be on the same z/VM system
 - Can be overcome by using a socket interface to send POSTZMSG command to the guest
- Limit of 160 characters on POSTZMSG command sent to Linux guest (using CP SEND)
 - Can't always send full text of message
 - Can be overcome by using a socket interface to send POSTZMSG command to the guest

■ Using SNMP

- No requirement for a Linux guest. SNMP runs on z/VM.
- No limit on message size
- All SNMP alerts on z/VM go the same set of IP addresses

Scenario 3:

Send a Message or E-mail if Spool Usage is Too High

- **Operations Manager monitors the spool usage (percent full)**
- **Usage exceeds the specified limit**
 - For demo purposes, we'll dynamically resume (re-activate) an existing spool monitor that requires the spool to only be 25% full
- **Automatically send an e-mail to someone who can evaluate and take action**
- **For demo purposes, suspend (de-activate) the spool monitor when complete**

Scenario 3: Detailed Steps

- **From an authorized VM user ID, see the spool usage:**

```
gomcmd opmgrm1 viewspl
```

- **From a user ID with Operations Manager privileges:**

```
gomcmd opmgrm1 resume spool(splfull12)
```

- **Check the Operations Manager log to see the spool monitor triggered:**

```
gomcmd opmgrm1 viewlog
```

- **Check the inbox of the appropriate person to see the e-mail**

- **From a user ID with Operations Manager privileges:**

```
gomcmd opmgrm1 suspend spool(splfull12)
```

B - DEMOADMN ATS

File Edit View Communication Actions Window Help

System: ZVMV5R40 Spool: 48% Used Files: 0% Used 1 of 339
 Max: 2.4G Max: 1655640

Cmd	Owner	File	CLS	QUE	TYP	Size	Hold	Date	Time	Name	Type
	BLDSEG	0022	T	RDR	CON	8K	NONE	11/18	15:19:45		
	TCPMAINT	0011	T	RDR	CON	8K	NONE	11/18	14:42:34		
	TCPMAINT	0010	T	RDR	CON	8K	NONE	11/18	14:26:11		
	TCPMAINT	0008	T	RDR	CON	8K	NONE	11/09	17:41:40		
	TCPMAINT	0009	T	RDR	CON	12K	NONE	11/09	17:41:25		
	TCPMAINT	0007	T	RDR	CON	8K	NONE	11/09	17:00:28		
	TCPMAINT	0006	T	RDR	CON	16K	NONE	10/27	16:02:16		
	OPERATOR	0015	T	RDR	CON	20K	NONE	10/27	16:02:14		
	TCPMAINT	0003	T	RDR	CON	8K	NONE	05/26	15:47:09		
	TCPMAINT	0002	T	RDR	CON	4K	NONE	05/26	15:47:03		
	TCPMAINT	0001	T	RDR	CON	4K	NONE	05/26	15:46:54		
	MAINT	0087	T	RDR	CON	8K	NONE	05/26	15:39:32		
	MAINT	0062	A	RDR	PUN	4K	NONE	05/06	15:02:06		
	MAINT	0053	T	RDR	CON	4K	NONE	03/16	16:39:52		
	MAINT	0120	T	RDR	CON	16K	NONE	11/18	16:56:56		
	TCPMAINT	0013	T	RDR	CON	8K	NONE	11/18	16:56:33		
	MAINT	0117	T	RDR	CON	16K	NONE	11/18	15:22:33		
	MAINT	0118	T	RDR	CON	4K	NONE	11/18	15:22:28		
	MAINT	0119	T	RDR	CON	4K	NONE	11/18	15:22:28		
	MAINT	0085	T	RDR	CON	4K	NONE	05/26	15:37:45		
	MAINT	0083	A	RDR	PUN	4K	NONE	05/26	15:37:45		
	MAINT	0027	T	RDR	CON	4K	NONE	12/18	09:20:43		
	MAINT	0028	T	RDR	CON	4K	NONE	12/18	09:20:43		
	MAINT	0014	T	RDR	CON	4K	NONE	08/21	16:02:18		
	MAINT	0015	T	RDR	CON	4K	NONE	08/21	15:08:03		
	MAINT	0003	T	RDR	CON	4K	NONE	08/21	14:40:03		
	MAINT	0016	T	RDR	CON	4K	NONE	08/21	15:08:03		
	TCPMAINT	0012	T	RDR	CON	8K	NONE	11/18	15:22:28		

MA b 05/001

Connected to remote server/host 9.82.24.129 using port 23

```
B - DEMOADMN ATS
File Edit View Communication Actions Window Help
Ready; T=0.01/0.01 18:58:40
gomcmd opmgrm1 resume spool(splfull2)
Ready; T=0.01/0.01 19:00:02

gomcmd opmgrm1 viewlog_

RUNNING ZVMV5R40
31/023
Connected to remote server/host 9.82.24.129 using port 23
```


```

b - DEMOADMN ATS
File Edit View Communication Actions Window Help
03/14/2010 18:35:50 GOMCMD0216L BKRCATLG "BKRCAT8510I 03/14/10 18:35:50 WAKEUP
03/14/2010 18:35:50 GOMCMD0216L BKRCATLG "BKRCAT8512I The stack contains 0 ent
03/14/2010 18:37:56 GOMCMD0216L BKRBAKUP "BKRBAK8510I 03/14/10 18:37:56 WAKEUP
03/14/2010 18:37:56 GOMCMD0216L BKRBAKUP "BKRBAK8512I The stack contains 0 ent
03/14/2010 18:50:50 GOMCMD0216L BKRCATLG "BKRCAT8510I 03/14/10 18:50:50 WAKEUP
03/14/2010 18:50:50 GOMCMD0216L BKRCATLG "BKRCAT8512I The stack contains 0 ent
03/14/2010 18:52:04 GOMCMD0201L DEMOADMN "VIEWSPL" VID=DEMOADMN SRC=MASIUCV C
03/14/2010 18:52:56 GOMCMD0216L BKRBAKUP "BKRBAK8510I 03/14/10 18:52:56 WAKEUP
03/14/2010 18:52:56 GOMCMD0216L BKRBAKUP "BKRBAK8512I The stack contains 0 ent
03/14/2010 18:55:19 GOMCMD0201L DEMOADMN "VIEWSPL" VID=DEMOADMN SRC=MASIUCV C
03/14/2010 18:59:23 GOMCMD0224L MAINT EVENT TYPE 0 VID=*VMEVENT SRC=MASIUCV
03/14/2010 18:59:23 GOMCMD0224L MAINT EVENT TYPE 5 VID=*VMEVENT SRC=MASIUCV
03/14/2010 19:00:02 GOMCMD0201L DEMOADMN "RESUME SPOOL(SPLFULL2)" VID=DEMOADMN
03/14/2010 19:00:06 GOMSM00403I SPOOL ALERT: MONITOR SPLFULL2 USAGE CONDITI
03/14/2010 19:00:06 GOMSM00401I SPOOL USE: MONITOR SPLFULL2 SPACE 48 PERCENT,
03/14/2010 19:00:06 GOMSM00402I SPOOL CHG: MONITOR SPLFULL2 SPACE 0 PERCENT, F
03/14/2010 19:00:06 GOMACT0260I SPOOL SPLFULL2 ACTION SPLEMAIL TRIGGERED BY
03/14/2010 19:00:06 GOMACT0262I ACTION SPLEMAIL BEGIN FOR SPOOL SERVER OPMG
03/14/2010 19:00:06 GOMACT0269L COMMAND "EXEC SMTPNOTE TLD1 AT US.IBM.COM 48 S
03/14/2010 19:00:06 GOMACT0270L DMSXS0587I XEDIT:
03/14/2010 19:00:06 GOMACT0270L NOTE OPMGRM1 NOTE A1 sent to TLD1 at US.IBM.CO
03/14/2010 19:00:06 GOMACT0267I ACTION SPLEMAIL END RC=0 SERVER OPMGRM1
03/14/2010 19:00:06 GOMCMD0216L SMTP "RDR FILE 0065 SENT FROM OPMGRM1 PUN
03/14/2010 19:00:06 GOMCMD0216L SMTP "* From SMTP: Received Spool File 006
03/14/2010 19:00:08 GOMCMD0216L SMTP "* From SMTP: Mail delivered to: <TLD
03/14/2010 19:00:28 GOMCMD0201L DEMOADMN "VIEWLOG" VID=DEMOADMN SRC=MASIUCV C
03/14/2010 19:01:06 GOMSM00403I SPOOL ALERT: MONITOR SPLFULL2 USAGE CONDITI
03/14/2010 19:01:06 GOMSM00401I SPOOL USE: MONITOR SPLFULL2 SPACE 48 PERCENT,
03/14/2010 19:01:06 GOMSM00402I SPOOL CHG: MONITOR SPLFULL2 SPACE 0 PERCENT, F
03/14/2010 19:01:06 GOMACT0260I SPOOL SPLFULL2 ACTION SPLEMAIL TRIGGERED BY
MASALOG
MA b 31/001
Connected to remote server/host 9.82.24.129 using port 23

```

The screenshot shows the IBM Lotus Notes interface. The search bar contains 'lucie' and the results are filtered to show 'High Importance' and 'Normal' messages. The following table represents the data visible in the search results:

Sender	Subject	Date	Size
[Redacted]	[Redacted]	[Redacted]	38K
[Redacted]	[Redacted]	[Redacted]	26K
[Redacted]	[Redacted]	[Redacted]	86K
OPMGRM1	Spool is 48% full on z/VM system	03/14/2010 05:04 PM	3K
OPMGRM1	Spool is 48% full on z/VM system	03/14/2010 05:03 PM	3K
OPMGRM1	Spool is 48% full on z/VM system	03/14/2010 05:02 PM	3K
OPMGRM1	Spool is 48% full on z/VM system	03/14/2010 05:01 PM	3K
OPMGRM1	Spool is 48% full on z/VM system	03/14/2010 05:00 PM	3K



Spool is 48% full on z/VM system
OPMGRM1 to: Tracy Dean 03/14/2010 05:04 PM
 Default custom expiration date: 03/14/2011 [Show Details](#)

The following message was received on GDP4.GDPSPLEX.WSCLAB.WASHINGTON.IBM.COM :
 Spool is 48% full on z/VM system

DO NOT REPLY - This e-mail was generated by an automated service machine

Scenario 3: How Do You Do That?

Spool monitor and action in Operations Manager:

*

*

```
DEFSMON NAME(SPLFULL2),+
```

```
  USAGE(025-099),+
```

```
  ACTION(SPLEMAIL),+
```

```
  PARM(SPOOL)
```

*

```
DEFACTN NAME(SPLEMAIL),+
```

```
  COMMAND(EXEC SMTPNOTE tld1 at us.ibm.com &4 &p),+
```

```
  ENV(LVM)
```

Scenario 3: How Do You Do That?

SMTPNOTE EXEC (excerpts)

```
/* */
Parse arg mail_user dummyat mail_node baduser errtype msgtext
if errtype = 'ABEND' then
  errtext = 'Abend on user ID' baduser 'on z/VM system'
else
  if errtype = 'SPOOL' then do
    errtext = 'Spool is' baduser'% full on z/VM system'
    msgtext = errtext
  end
  else errtext = msgtext /* Construct the e-mail */
line.1 = 'OPTIONS: NOACK    LOG    SHORT    NONOTEBOOK ALL CLASS A'
line.2 = 'Date: ' Date() ', ' Time()
line.3 = 'From: Operations Manager for z/VM'
line.4 = 'To: ' mail_user 'at' mail_node
line.5 = 'Subject: ' errtext
...
line.7 = msgtext
line.8 = ' '
line.9 = 'DO NOT REPLY - This e-mail was generated by an automated service machine
line.0 = 9
'PIPE stem line. | > TEMP NOTE A'
'EXEC SENDFILE TEMP NOTE A (NOTE SMTP'
```

Scenario 8: Process Linux Syslog Data as a Console

- **Route syslog data from a Linux guest to Operations Manager for z/VM**
 - Supports syslog and syslog-ng
 - syslog-ng includes hostname or IP address in message
- **Treat it as the console of a “fake” user ID**
- **Trigger rules and actions based on syslog data**
- **View the “console” containing syslog data**
- **Option to create one console per syslog or combine multiple syslogs into one console**

Scenario 8: Detailed Steps

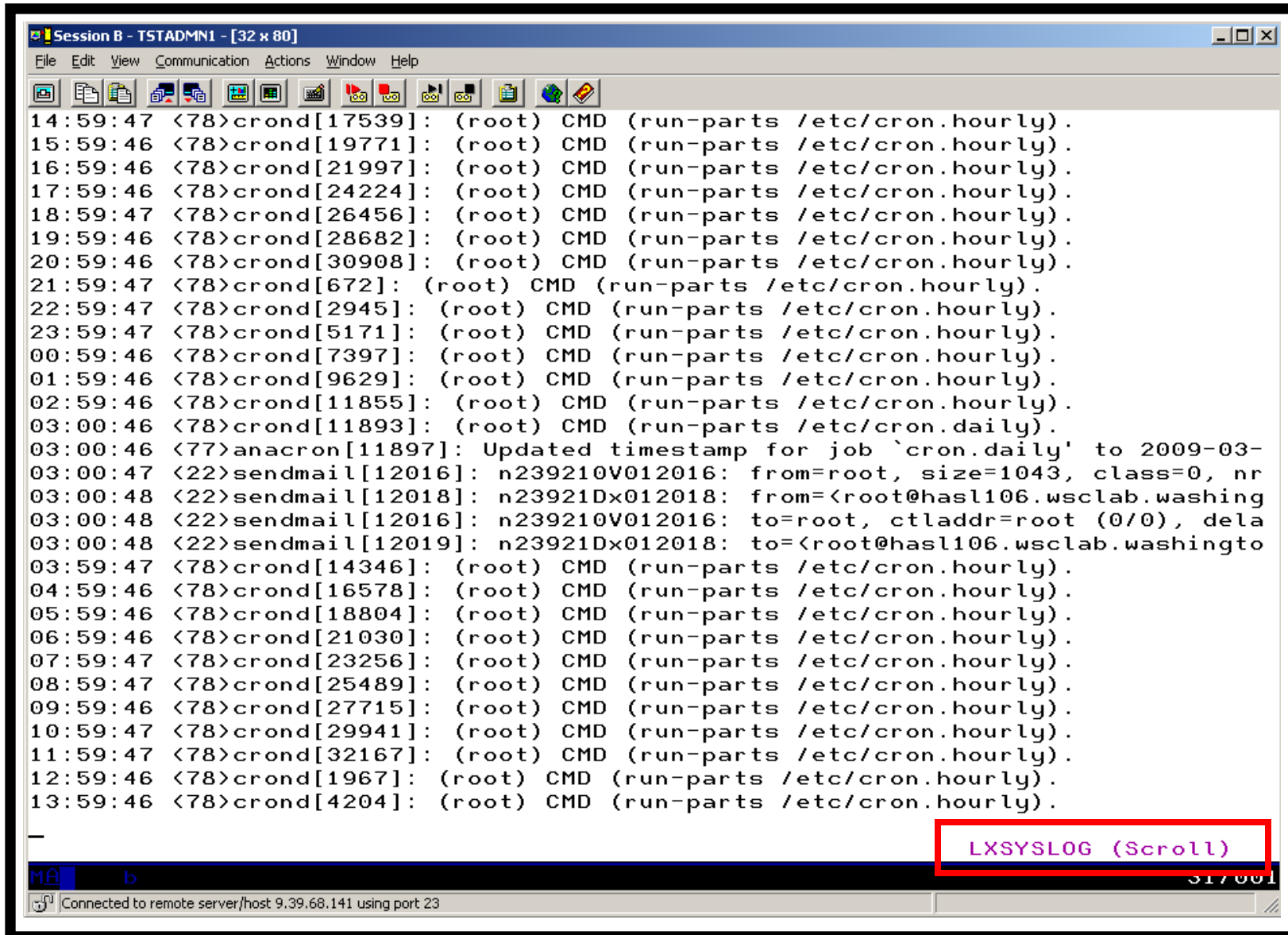
- **From an authorized z/VM user ID, view any syslog data already received**

```
gomcmd opmgrm1 viewcon user(lxsyslog)
```

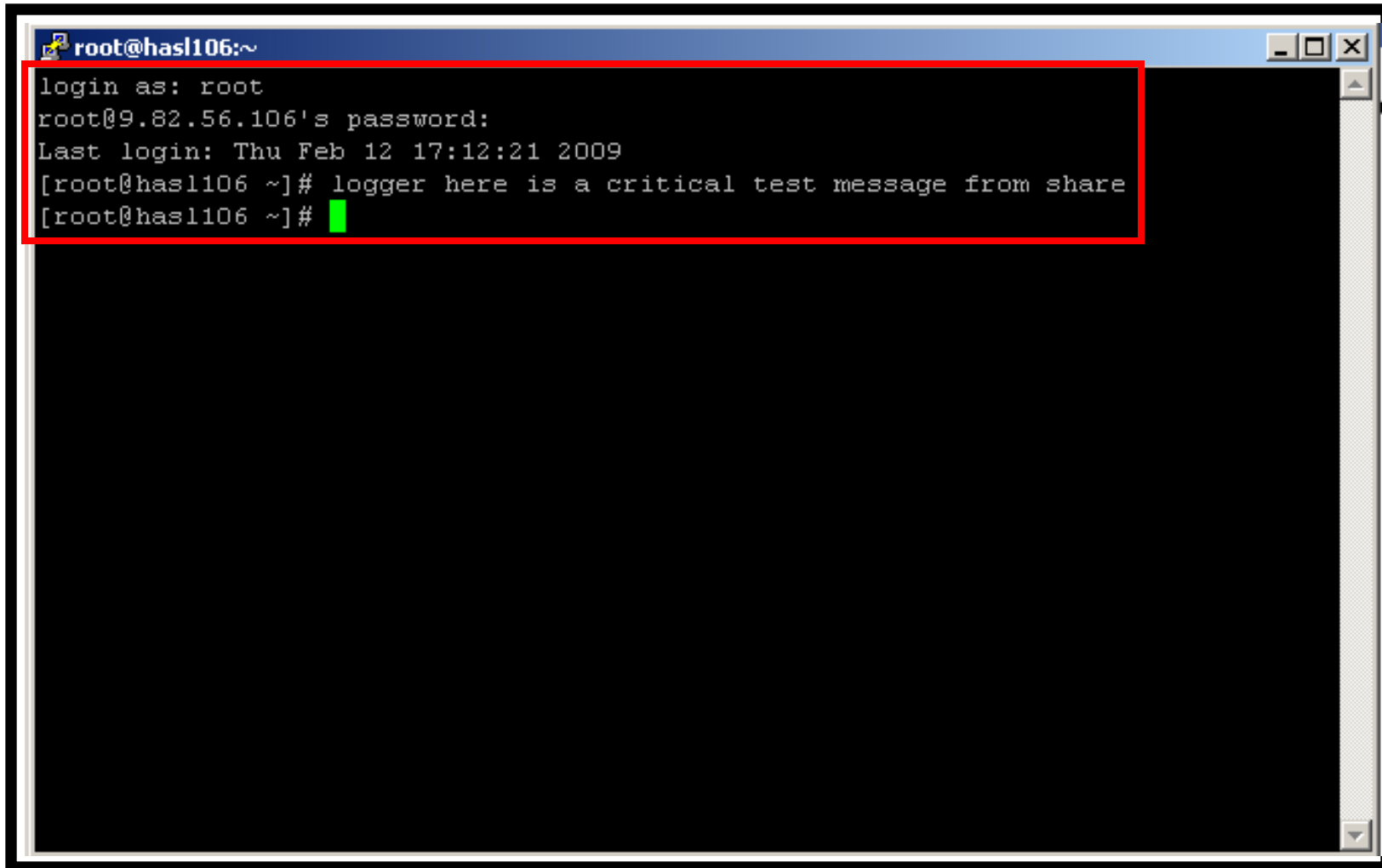
- **Use PUTTY to connect to a Linux guest**
- **Login as root and issue the command**

```
logger here is a critical test message from SHARE
```

- **Return to the VIEWCON session**
 - See the message in the syslog “console”
 - Using syslog, so no hostname or IP address
- **Repeat from a different Linux guest that uses syslog-ng**

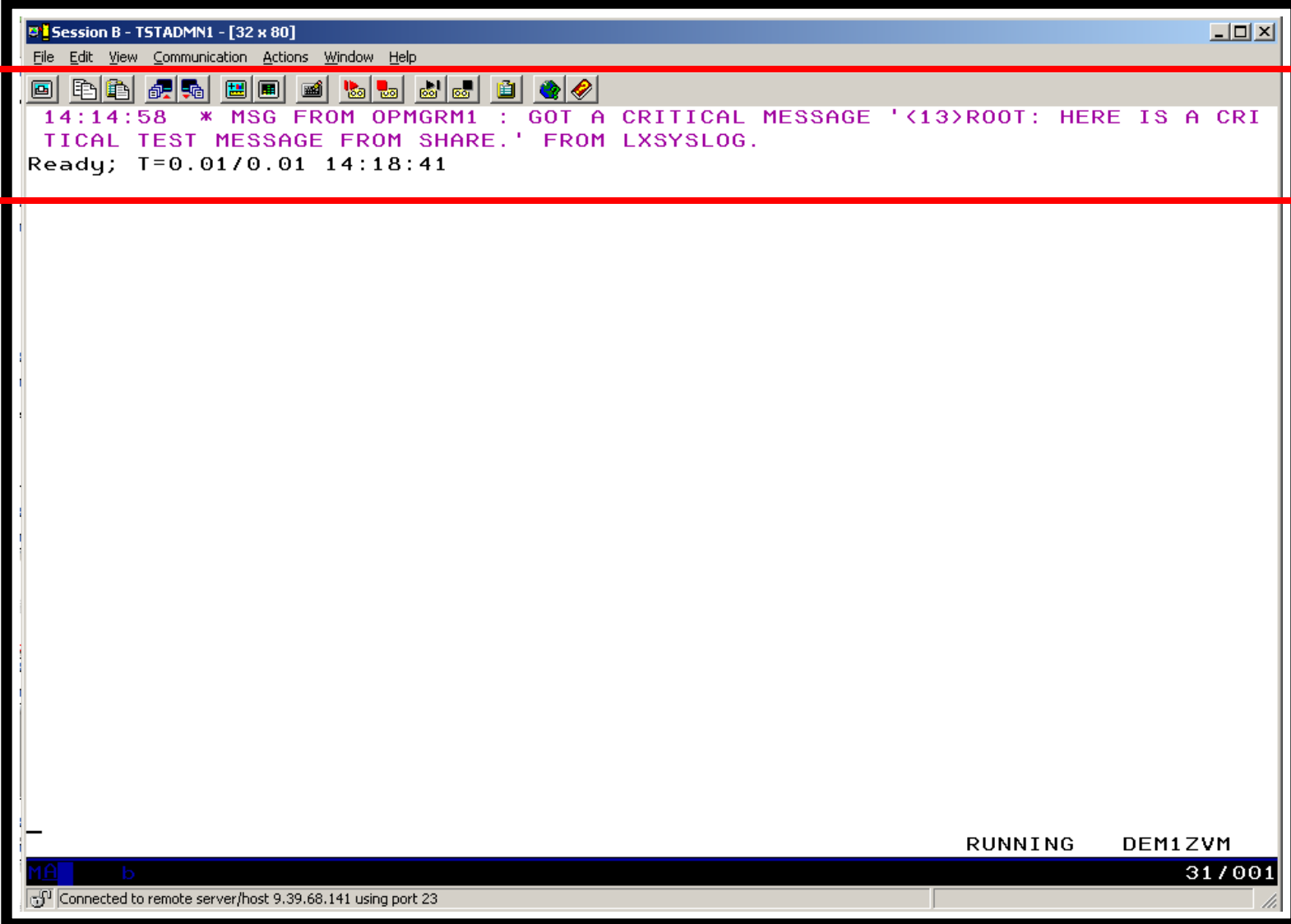


```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
14:59:47 <78>crond[17539]: (root) CMD (run-parts /etc/cron.hourly).
15:59:46 <78>crond[19771]: (root) CMD (run-parts /etc/cron.hourly).
16:59:46 <78>crond[21997]: (root) CMD (run-parts /etc/cron.hourly).
17:59:46 <78>crond[24224]: (root) CMD (run-parts /etc/cron.hourly).
18:59:47 <78>crond[26456]: (root) CMD (run-parts /etc/cron.hourly).
19:59:46 <78>crond[28682]: (root) CMD (run-parts /etc/cron.hourly).
20:59:46 <78>crond[30908]: (root) CMD (run-parts /etc/cron.hourly).
21:59:47 <78>crond[672]: (root) CMD (run-parts /etc/cron.hourly).
22:59:47 <78>crond[2945]: (root) CMD (run-parts /etc/cron.hourly).
23:59:47 <78>crond[5171]: (root) CMD (run-parts /etc/cron.hourly).
00:59:46 <78>crond[7397]: (root) CMD (run-parts /etc/cron.hourly).
01:59:46 <78>crond[9629]: (root) CMD (run-parts /etc/cron.hourly).
02:59:46 <78>crond[11855]: (root) CMD (run-parts /etc/cron.hourly).
03:00:46 <78>crond[11893]: (root) CMD (run-parts /etc/cron.daily).
03:00:46 <77>anacron[11897]: Updated timestamp for job `cron.daily' to 2009-03-
03:00:47 <22>sendmail[12016]: n239210V012016: from=root, size=1043, class=0, nr
03:00:48 <22>sendmail[12018]: n23921Dx012018: from=<root@hasl106.wsclab.washing
03:00:48 <22>sendmail[12016]: n239210V012016: to=root, ctladdr=root (0/0), dela
03:00:48 <22>sendmail[12019]: n23921Dx012018: to=<root@hasl106.wsclab.washingto
03:59:47 <78>crond[14346]: (root) CMD (run-parts /etc/cron.hourly).
04:59:46 <78>crond[16578]: (root) CMD (run-parts /etc/cron.hourly).
05:59:46 <78>crond[18804]: (root) CMD (run-parts /etc/cron.hourly).
06:59:46 <78>crond[21030]: (root) CMD (run-parts /etc/cron.hourly).
07:59:47 <78>crond[23256]: (root) CMD (run-parts /etc/cron.hourly).
08:59:47 <78>crond[25489]: (root) CMD (run-parts /etc/cron.hourly).
09:59:46 <78>crond[27715]: (root) CMD (run-parts /etc/cron.hourly).
10:59:47 <78>crond[29941]: (root) CMD (run-parts /etc/cron.hourly).
11:59:47 <78>crond[32167]: (root) CMD (run-parts /etc/cron.hourly).
12:59:46 <78>crond[1967]: (root) CMD (run-parts /etc/cron.hourly).
13:59:46 <78>crond[4204]: (root) CMD (run-parts /etc/cron.hourly).
-
LXSYSLOG (Scroll)
317001
Connected to remote server/host 9.39.68.141 using port 23
```



```
root@has1106:~  
login as: root  
root@9.82.56.106's password:  
Last login: Thu Feb 12 17:12:21 2009  
[root@has1106 ~]# logger here is a critical test message from share  
[root@has1106 ~]# █
```

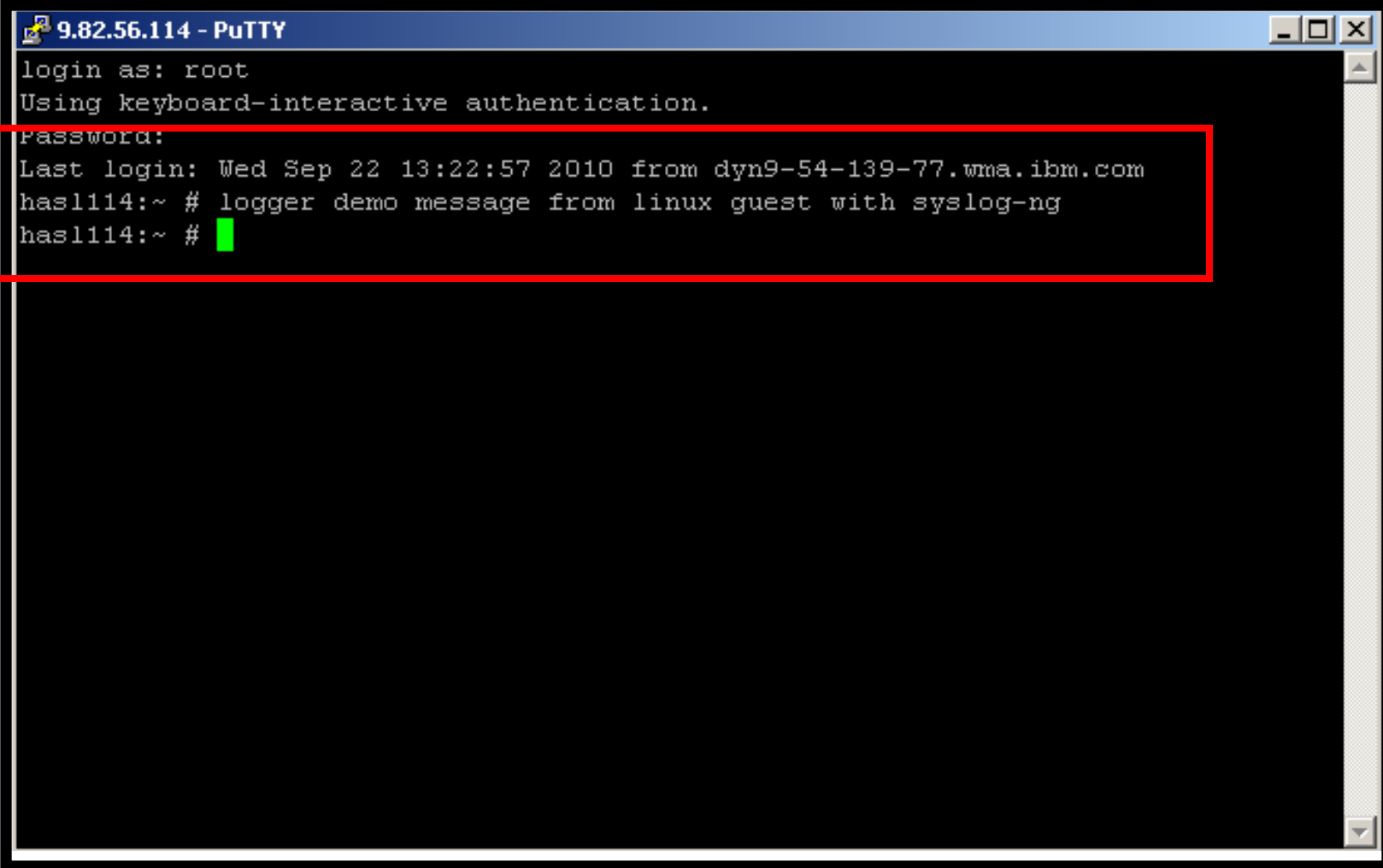
```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
18:59:47 <78>crond[26456]: (root) CMD (run-parts /etc/cron.hourly).
19:59:46 <78>crond[28682]: (root) CMD (run-parts /etc/cron.hourly).
20:59:46 <78>crond[30908]: (root) CMD (run-parts /etc/cron.hourly).
21:59:47 <78>crond[672]: (root) CMD (run-parts /etc/cron.hourly).
22:59:47 <78>crond[2945]: (root) CMD (run-parts /etc/cron.hourly).
23:59:47 <78>crond[5171]: (root) CMD (run-parts /etc/cron.hourly).
00:59:46 <78>crond[7397]: (root) CMD (run-parts /etc/cron.hourly).
01:59:46 <78>crond[9629]: (root) CMD (run-parts /etc/cron.hourly).
02:59:46 <78>crond[11855]: (root) CMD (run-parts /etc/cron.hourly).
03:00:46 <78>crond[11893]: (root) CMD (run-parts /etc/cron.daily).
03:00:46 <77>anacron[11897]: Updated timestamp for job `cron.daily' to 2009-03-
03:00:47 <22>sendmail[12016]: n239210V012016: from=root, size=1043, class=0, nr
03:00:48 <22>sendmail[12018]: n23921Dx012018: from=<root@hasl106.wsclab.washing
03:00:48 <22>sendmail[12016]: n239210V012016: to=root, ctladdr=root (0/0), dela
03:00:48 <22>sendmail[12019]: n23921Dx012018: to=<root@hasl106.wsclab.washingto
03:59:47 <78>crond[14346]: (root) CMD (run-parts /etc/cron.hourly).
04:59:46 <78>crond[16578]: (root) CMD (run-parts /etc/cron.hourly).
05:59:46 <78>crond[18804]: (root) CMD (run-parts /etc/cron.hourly).
06:59:46 <78>crond[21030]: (root) CMD (run-parts /etc/cron.hourly).
07:59:47 <78>crond[23256]: (root) CMD (run-parts /etc/cron.hourly).
08:59:47 <78>crond[25489]: (root) CMD (run-parts /etc/cron.hourly).
09:59:46 <78>crond[27715]: (root) CMD (run-parts /etc/cron.hourly).
10:59:47 <78>crond[29941]: (root) CMD (run-parts /etc/cron.hourly).
11:59:47 <78>crond[32167]: (root) CMD (run-parts /etc/cron.hourly).
12:59:46 <78>crond[1967]: (root) CMD (run-parts /etc/cron.hourly).
13:59:46 <78>crond[4204]: (root) CMD (run-parts /etc/cron.hourly).
14:14:13 <86>sshd[4731]: Accepted password for root from 9.49.128.169 port 2403
14:14:13 <86>sshd[4731]: pam_unix(sshd:session): session opened for user root b
14:14:58 <13>root: here is a critical test message from share.
14:14:58 * -- Operations Manager Action LXLOG scheduled for execution -- *
-
LXSYSLOG (Scroll)
MA b 31/001
Connected to remote server/host 9.39.68.141 using port 23
```



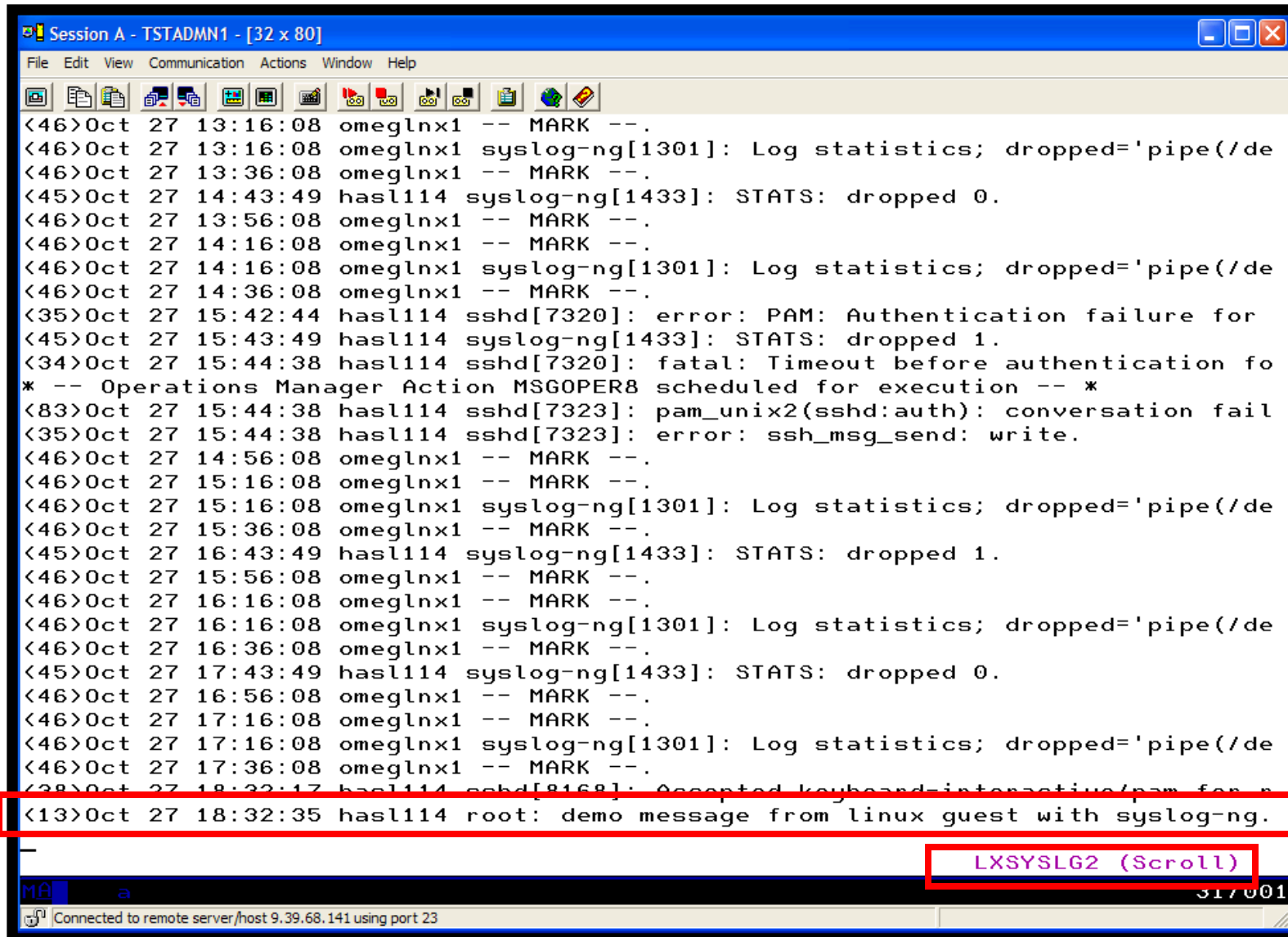
The screenshot shows a terminal window titled "Session B - TSTADMIN1 - [32 x 80]". The window has a menu bar with "File", "Edit", "View", "Communication", "Actions", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main area of the terminal displays the following text:

```
14:14:58 * MSG FROM OPMGRM1 : GOT A CRITICAL MESSAGE '<13>ROOT: HERE IS A CRI  
TICAL TEST MESSAGE FROM SHARE.' FROM LXSYSLOG.  
Ready; T=0.01/0.01 14:18:41
```

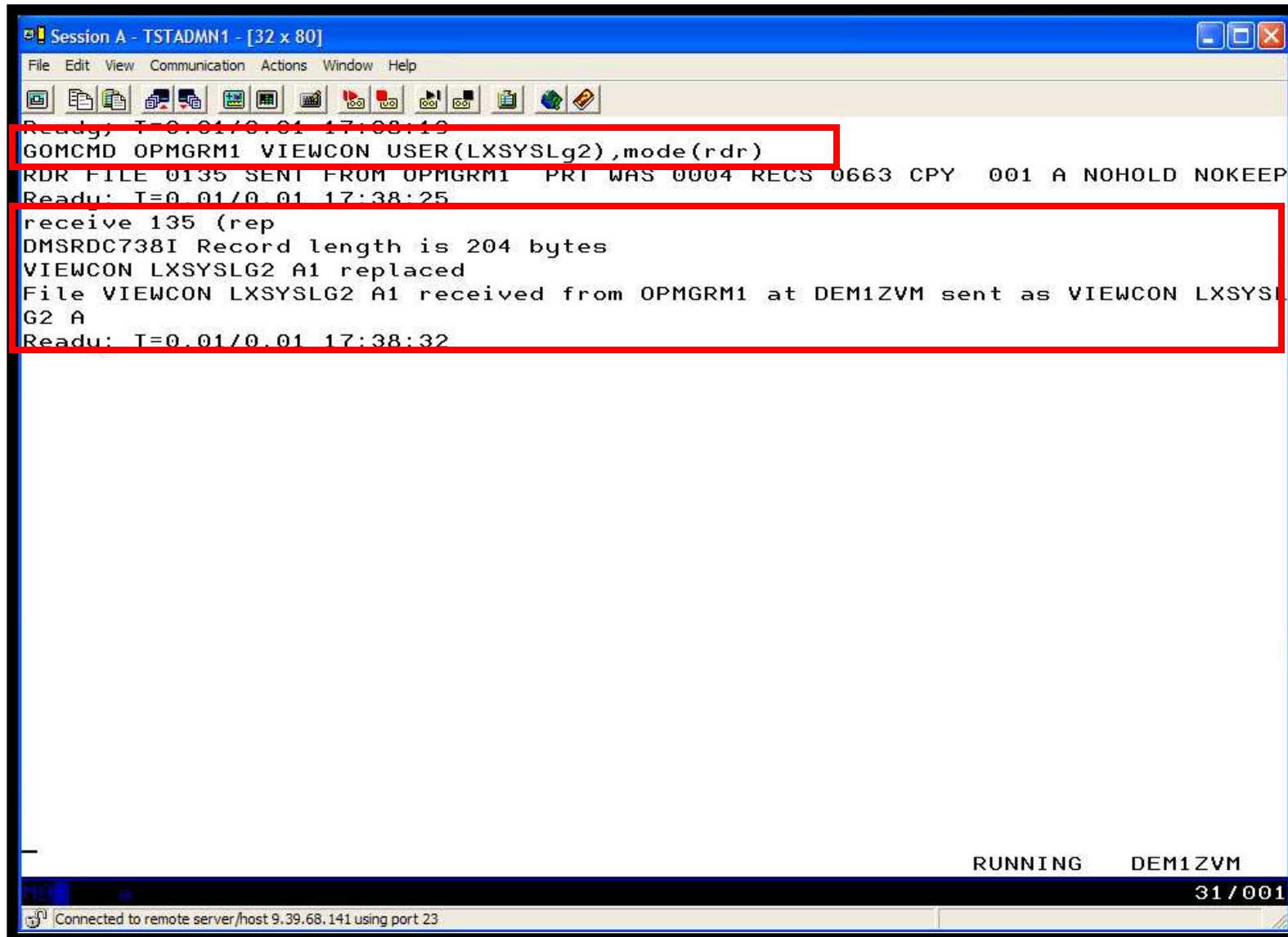
The text is highlighted with a red rectangular box. At the bottom of the terminal window, the status bar shows "RUNNING DEM1ZVM" and "31/001". The system prompt "b" is visible on the left side of the status bar. The bottom-most status bar indicates "Connected to remote server/host 9.39.68.141 using port 23".



```
9.82.56.114 - PuTTY
login as: root
Using keyboard-interactive authentication.
Password:
Last login: Wed Sep 22 13:22:57 2010 from dyn9-54-139-77.wma.ibm.com
has114:~ # logger demo message from linux guest with syslog-ng
has114:~ # █
```



```
Session A - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
<46>Oct 27 13:16:08 omeqlnx1 -- MARK --.
<46>Oct 27 13:16:08 omeqlnx1 syslog-ng[1301]: Log statistics; dropped='pipe(/de
<46>Oct 27 13:36:08 omeqlnx1 -- MARK --.
<45>Oct 27 14:43:49 hasl114 syslog-ng[1433]: STATS: dropped 0.
<46>Oct 27 13:56:08 omeqlnx1 -- MARK --.
<46>Oct 27 14:16:08 omeqlnx1 -- MARK --.
<46>Oct 27 14:16:08 omeqlnx1 syslog-ng[1301]: Log statistics; dropped='pipe(/de
<46>Oct 27 14:36:08 omeqlnx1 -- MARK --.
<35>Oct 27 15:42:44 hasl114 sshd[7320]: error: PAM: Authentication failure for
<45>Oct 27 15:43:49 hasl114 syslog-ng[1433]: STATS: dropped 1.
<34>Oct 27 15:44:38 hasl114 sshd[7320]: fatal: Timeout before authentication fo
* -- Operations Manager Action MSGOPER8 scheduled for execution -- *
<83>Oct 27 15:44:38 hasl114 sshd[7323]: pam_unix2(sshd:auth): conversation fail
<35>Oct 27 15:44:38 hasl114 sshd[7323]: error: ssh_msg_send: write.
<46>Oct 27 14:56:08 omeqlnx1 -- MARK --.
<46>Oct 27 15:16:08 omeqlnx1 -- MARK --.
<46>Oct 27 15:16:08 omeqlnx1 syslog-ng[1301]: Log statistics; dropped='pipe(/de
<46>Oct 27 15:36:08 omeqlnx1 -- MARK --.
<45>Oct 27 16:43:49 hasl114 syslog-ng[1433]: STATS: dropped 1.
<46>Oct 27 15:56:08 omeqlnx1 -- MARK --.
<46>Oct 27 16:16:08 omeqlnx1 -- MARK --.
<46>Oct 27 16:16:08 omeqlnx1 syslog-ng[1301]: Log statistics; dropped='pipe(/de
<46>Oct 27 16:36:08 omeqlnx1 -- MARK --.
<45>Oct 27 17:43:49 hasl114 syslog-ng[1433]: STATS: dropped 0.
<46>Oct 27 16:56:08 omeqlnx1 -- MARK --.
<46>Oct 27 17:16:08 omeqlnx1 -- MARK --.
<46>Oct 27 17:16:08 omeqlnx1 syslog-ng[1301]: Log statistics; dropped='pipe(/de
<46>Oct 27 17:36:08 omeqlnx1 -- MARK --.
<38>Oct 27 18:32:35 hasl114 sshd[8168]: Accepted keyboard-interactive/pam for r
<13>Oct 27 18:32:35 hasl114 root: demo message from linux guest with syslog-ng.
-
MA a LXSYSLG2 (Scroll) 317001
Connected to remote server/host 9.39.68.141 using port 23
```



The screenshot shows a terminal window titled "Session A - TSTADMN1 - [32 x 80]". The window has a menu bar with "File", "Edit", "View", "Communication", "Actions", "Window", and "Help". Below the menu bar is a toolbar with various icons. The terminal output is as follows:

```
Ready: T=0.01/0.01 17:38:19
GOMCMD OPMGRM1 VIEWCON USER(LXSYSLG2),mode(rdr)
RDR FILE 0135 SENT FROM OPMGRM1 PRT WAS 0004 RECS 0663 CPY 001 A NOHOLD NOKEEP
Ready: T=0.01/0.01 17:38:25
receive 135 (rep
DMSRDC738I Record length is 204 bytes
VIEWCON LXSYSLG2 A1 replaced
File VIEWCON LXSYSLG2 A1 received from OPMGRM1 at DEM1ZVM sent as VIEWCON LXSYSL
G2 A
Ready: T=0.01/0.01 17:38:32
```

At the bottom right of the terminal, the text "RUNNING DEM1ZVM" is displayed. At the bottom center, "31 / 001" is shown. At the bottom left, a status bar indicates "Connected to remote server/host 9.39.68.141 using port 23".

```

Session A - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
VIEWCON LXSYSLG2 A1 F 204 Trunc=204 Size=663 Line=0 Col=1 Alt=0
====>
T...+...1...+...2...+...3...+...4...+...5...+...6...+...7..

==== * * * Top of File * * *
==== 10/22/2010 11:39:59 <43>Oct 22 12:34:53 hasl114 syslog-ng[1433]: Connect
==== 10/22/2010 11:47:31 <45>Oct 22 12:43:25 hasl114 syslog-ng[1433]: STATS:
==== 10/22/2010 11:57:08 <46>Oct 22 11:56:07 omeglnx1 -- MARK --.
==== 10/22/2010 11:57:08 <43>Oct 22 11:56:07 omeglnx1 syslog-ng[1301]: I/O er
==== 10/22/2010 11:57:08 <43>Oct 22 11:56:07 omeglnx1 syslog-ng[1301]: Connec
==== 10/22/2010 12:05:21 <12>Oct 22 13:01:15 hasl114 zmd: ShutdownManager (WA
==== 10/22/2010 12:05:21 <12>Oct 22 13:01:15 hasl114 zmd: ShutdownManager (WA
==== 10/22/2010 12:16:08 <46>Oct 22 12:16:07 omeglnx1 -- MARK --.
==== 10/22/2010 12:16:08 <46>Oct 22 12:16:07 omeglnx1 syslog-ng[1301]: Log st
==== 10/22/2010 12:36:08 <46>Oct 22 12:36:07 omeglnx1 -- MARK --.
==== 10/22/2010 12:47:31 <45>Oct 22 13:43:25 hasl114 syslog-ng[1433]: STATS:
==== 10/22/2010 12:56:08 <46>Oct 22 12:56:07 omeglnx1 -- MARK --.
==== 10/22/2010 13:16:08 <46>Oct 22 13:16:07 omeglnx1 -- MARK --.
==== 10/22/2010 13:16:08 <46>Oct 22 13:16:07 omeglnx1 syslog-ng[1301]: Log st
==== 10/22/2010 13:36:08 <46>Oct 22 13:36:07 omeglnx1 -- MARK --.
==== 10/22/2010 13:47:31 <45>Oct 22 14:43:25 hasl114 syslog-ng[1433]: STATS:
==== 10/22/2010 13:56:08 <46>Oct 22 13:56:07 omeglnx1 -- MARK --.
==== 10/22/2010 14:16:08 <46>Oct 22 14:16:07 omeglnx1 -- MARK --.
==== 10/22/2010 14:16:08 <46>Oct 22 14:16:07 omeglnx1 syslog-ng[1301]: Log st
==== 10/22/2010 14:36:08 <46>Oct 22 14:36:07 omeglnx1 -- MARK --.
==== 10/22/2010 14:47:31 <45>Oct 22 15:43:25 hasl114 syslog-ng[1433]: STATS:
==== 10/22/2010 14:56:08 <46>Oct 22 14:56:07 omeglnx1 -- MARK --.
==== 10/22/2010 15:16:08 <46>Oct 22 15:16:07 omeglnx1 -- MARK --.
==== 10/22/2010 15:16:08 <46>Oct 22 15:16:07 omeglnx1 syslog-ng[1301]: Log st
==== 10/22/2010 15:36:08 <46>Oct 22 15:36:07 omeglnx1 -- MARK --.
==== 10/22/2010 15:47:31 <45>Oct 22 16:43:26 hasl114 syslog-ng[1433]: STATS:

```

Scenario 8: How Do You Do That?

Console rule and action in Operations Manager:

*

```
DEFRULE NAME(LXLOG),+  
  MATCH(*critical test message*),+  
  ACTION(LXLOG),+  
  USER(LXSYSLOG)
```

*

```
DEFACTN NAME(LXLOG),+  
  COMMAND(CP MSG TSTADMN1 Got a critical message '&T' from &U.),+  
  OUTPUT(LOG),+  
  ENV(LVM)
```

Scenario 8: How Do You Do That?

- **Set up TCP/IP listener for syslog data**

*

```
DEFTCPA NAME(LNXSYSLG),+  
  TCPUSER(TCPIP),+  
  TCPAPPL(GOMRSYL),+  
  TCPADDR(000.000.000.000),+  
  TCPPORT(00514),+  
  PARM(LXSYSLOG03330417UTF8)
```

*

```
DEFTCPA NAME(LNXSYSL2),+  
  TCPUSER(TCPIP),+  
  TCPAPPL(GOMRSYL),+  
  TCPADDR(000.000.000.000),+  
  TCPPORT(00515),+  
  PARM(LXSYSLG203330417UTF8)
```

- **Update TCP/IP configuration to allow Operations Manager to listen for UDP traffic on the specified port(s)**

- Ports 514 and 515 used here

- **Update the Linux guest to send its syslog data to the IP address and port of your z/VM system**

Scenario 10:

Create a Central Operations Console across multiple z/VM systems

- **Use Operations Manager to watch for error, warning, fatal messages on service machine consoles**
 - OPERATOR, DIRMAINT, TCP/IP, RACF, etc.
 - Linux guests
 - Linux syslog
- **Route these messages to a central operations console on another z/VM system**
- **Operations staff watches operations console on one z/VM system for signs of trouble across multiple z/VM systems**
 - View individual service machine consoles on each system for more details when needed

Scenario 10: Detailed Steps

- **On System B (DEM1ZVM) put an “error” message on the OPERATOR console**
 - Must contain the text “remote error”

```
msgnoh operator here is a remote error message
```

- **View the “Operations Console” on System A (ZVMV5R40) to see the message**

```
gomcmd opmgrm1 viewcon user(opmgrc1)
```

- **Note the message received on OPMGRC1 on ZVMV5R40 from OPERATOR on DEM1ZVM**

The screenshot shows a terminal window titled "Session C - TSTADMN1 - [32 x 80]". The window has a menu bar with "File", "Edit", "View", "Communication", "Actions", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main content area displays the output of an 'id' command: "id", "TSTADMN1 AT DEM1ZVM VIA RSCS 01/12/11 09:36:12 CST WEDNESDAY", and "Ready; T=0.01/0.01 09:36:12". A red box highlights the first two lines of this output. At the bottom of the terminal, a message from the MSGNOH operator is displayed: "msgnoh operator here is a remote error message". To the right of this message, the text "RUNNING DEM1ZVM" is visible. The bottom status bar shows "MA c" on the left, "31 / 001" on the right, and "Connected to remote server/host 9.39.68.141 using port 23" at the very bottom.

```
id
TSTADMN1 AT DEM1ZVM VIA RSCS 01/12/11 09:36:12 CST WEDNESDAY
Ready; T=0.01/0.01 09:36:12

msgnoh operator here is a remote error message
RUNNING DEM1ZVM
MA c 31 / 001
Connected to remote server/host 9.39.68.141 using port 23
```

```
B - DEMOADMN ATS
File Edit View Communication Actions Window Help
id
DEMOADMN AT ZVMV5R40 VIA RSCS      01/12/11 11:15:16 EDT      WEDNESDAY
Ready: T=0 01/12/11 11:15:16

gomcmd opmgrm1 viewcon user(opmgrc1)_
RUNNING      ZVMV5R40
MA b
31/037
Connected to remote server/host 9.82.24.129 using port 23
```

```

B - DEMOADMN ATS
File Edit View Communication Actions Window Help
00:00:00 HCPMID6001I TIME IS 00:00:00 EDT TUESDAY 01/04/11
00:00:00
00:00:00 HCPMID6001I TIME IS 00:00:00 EDT WEDNESDAY 01/05/11
00:00:00
00:00:00 HCPMID6001I TIME IS 00:00:00 EDT THURSDAY 01/06/11
00:00:00
00:00:00 HCPMID6001I TIME IS 00:00:00 EDT FRIDAY 01/07/11
00:00:00
00:00:00 HCPMID6001I TIME IS 00:00:00 EDT SATURDAY 01/08/11
00:00:00
00:00:00 HCPMID6001I TIME IS 00:00:00 EDT SUNDAY 01/09/11
00:00:00
00:00:00 HCPMID6001I TIME IS 00:00:00 EDT MONDAY 01/10/11
00:00:00
00:00:00 HCPMID6001I TIME IS 00:00:00 EDT TUESDAY 01/11/11
00:00:00
21:56:42 hello there from remote system input
21:56:42 * -- Operations Manager Action TESTEX2 scheduled for execution -- *
21:56:42 hello there from remote system input
21:56:42 * -- Operations Manager Action TESTEX scheduled for execution -- *
21:56:42 here is another critical system message
21:56:42 warning message to test
21:56:42 junk
21:56:42 noise
00:00:00 HCPMID6001I TIME IS 00:00:00 EDT WEDNESDAY 01/12/11
00:00:00
10:36:13 FROM DEM1ZVM: * MSG FROM TSTADMN1: error message on dem1zvm
11:23:21 FROM DEM1ZVM: ERROR MESSAGE ON DEM1ZVM
11:30:20 FROM OPERATOR ON DEM1ZVM: MSGNOH OPERATOR HERE IS A REMOTE ERROR MESSA
11:32:55 FROM OPERATOR ON DEM1ZVM: HERE IS A REMOTE ERROR MESSAGE
-
OPMGRC1 (Scroll)
MA b 31/001
Connected to remote server/host 9.82.24.129 using port 23
    
```

Scenario 10: How Do You Do That?

Console rule in Operations Manager on System B:

*

```
DEFRULE NAME(OPERMSGS),+  
  MATCH(*remote error*),+  
  USER(OPERATOR),+  
  ACTION(MSG2GBRG)
```

Action in Operations Manager on System B:

*

```
DEFACTN NAME(MSG2GBRG),+  
  COMMAND(EXEC MSG2OPS OPMGRC1 From &u on DEM1ZVM: &t),+  
  OUTPUT(LOG),+  
  ENV(LVM)
```

Scenario 10: How Do You Do That?

MSG2OPS EXEC on System B:

```
/* Send a message to a console in Ops Mgr on another system */
/* */
trace r
Address Command
Parse arg cons_user msgtext
'PIPE var msgtext | > TEMP NOTE A'
'EXEC GOMRSIF TEMP NOTE A 9.82.24.129 63000' cons_user
Exit
```

Scenario 10: How Do You Do That?

TCP/IP listener definition in Operations Manager on System A:

*

```
DEFTCPA NAME( TESTDATA ), +  
  TCPUSER( TCPIP ), +  
  TCPAPPL( GOMRSIF ), +  
  TCPADDR( 000.000.000.000 ), +  
  TCPPORT( 63000 )
```

- **May also need to update TCPIP on System A to allow Operations Manager to listen on port 63000**
- **Can alternatively use TELL (instead of GOMRSIF) to send messages from System B to System A, but requires RSCS**

Scenario 12:
Monitor Service Machines for LOGOFF Status – and AUTOLOG them

- **Monitor specific service machines to make sure they stay logged on**
 - Demo will monitor TSTADMN2 user ID
 - If it changes from logged on to logged off status, then restart it
- **Dynamically pass the user ID to the action**
 - Re-use action for multiple user IDs


```
id
MAINT AT DEM1ZVM VIA RSCS 10/27/10 17:14:43 CDT WEDNESDAY
Ready; T=0.01/0.01 17:14:43
q tstadm2
TSTADMN2 - DSC
Ready; T=0.01/0.01 17:15:18
force tstadm2
USER DSC LOGOFF AS TSTADMN2 USERS = 37 FORCED BY MAINT
Ready; T=0.01/0.01 17:15:23
q tstadm2
TSTADMN2 - DSC
Ready; T=0.01/0.01 17:18:34

RUNNING DEM1ZVM
31 / 001
Connected to remote server /host 9.39.68.141 using port 23
```

```

Session A - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
TSTADMN2 "CONNECT= 00:55:46 VIRTCPU= 000:00.00 TOTCPU= 000:00.00" VID=*MSG
TSTADMN2 "LOGOFF AT 17:15:23 CDT WEDNESDAY 10/27/10 BY MAINT" VID=*MSG SRC
OPERATOR "USER DSC LOGOFF AS TSTADMN2 USERS = 37 FORCED BY MAINT" VID=*M
TSTADMN2 EVENT TYPE 1 VID=*VMEVENT SRC=MASIUCV CLS=1
EVENT ADMIN2 ACTION AUTOLOG1 TRIGGERED BY _GOMEMON
ACTION AUTOLOG1 BEGIN FOR _GOMEMON SERVER OPMGRS1
COMMAND "CP SLEEP 3 SEC"
ACTION AUTOLOG1 END RC=0 SERVER OPMGRS1
EVENT ADMIN2 ACTION AUTOLOG2 TRIGGERED BY _GOMEMON
ACTION AUTOLOG2 BEGIN FOR _GOMEMON SERVER OPMGRS1
COMMAND "CP XAUTOLOG TSTADMN2"
OPERATOR "AUTO LOGON *** TSTADMN2 USERS = 38 BY OPMGRS1" VID=*MSG
TSTADMN2 EVENT TYPE 0 VID=*VMEVENT SRC=MASIUCV CLS=0
Command accepted
AUTO LOGON *** TSTADMN2 USERS = 38
ACTION AUTOLOG2 END RC=0 SERVER OPMGRS1
TSTADMN2 EVENT TYPE 5 VID=*VMEVENT SRC=MASIUCV CLS=5
TSTADMN2 "z/VM V5.4.0 2009-09-23 15:29" VID=*MSG SRC=MASIUCV CLS=8
TSTADMN2 "DMSACP723I C (198) R/O" VID=*MSG SRC=MASIUCV CLS=8
TSTADMN2 "Ready; T=0.01/0.01 17:15:26" VID=*MSG SRC=MASIUCV CLS=8
OPMGRM1 "HCPQCS150A User TSTADMN2 has issued a VM read" VID=*MSG SRC=MASI
DIRMAINT "DVHWAI2142I Wakeup caused by elapsed time on 10/10/27 at 17:16:02."
DIRMAINT "DIRMAINT DEM1ZVM. - 2010/10/27; T=0.01/0.01 17:16:02" VID=*MSG S
DIRMAINT "DVHWAI2140I Waiting for work on 10/10/27 at 17:16:02." VID=*MSG
LXSYSLG2 "<46>Oct 27 17:16:08 omeglrx1 -- MARK --." VID=LXSYSLG2 SRC=MASRSYL
LXSYSLG2 "<46>Oct 27 17:16:08 omeglrx1 syslog-ng[1301]: Log statistics; droppe
BKRCATLG "BKRCAT8510I 10/27/10 17:16:45 WAKEUP exited on a timer interrupt." V
BKRCATLG " " VID=*MSG SRC=MASIUCV CLS=8
BKRCATLG "BKRCAT8512I The stack contains 0 entries. There are 0 lines on the c
TSTADMN1 "VIEWLOG" VID=TSTADMN1 SRC=MASIUCV CLS=99
GOMALOG (Scroll)
31/001
Connected to remote server/host 9.39.68.141 using port 23

```

Scenario 12: How Do You Do That?

Console rule and action in Operations Manager:

*

```
DEFEMON NAME(ADMIN2),+  
  TYPE(1),+  
  USER(TSTADMN2),+  
  ACTION(AUTOLOG1)
```

*

```
DEFACTN NAME(AUTOLOG1),+  
  COMMAND(CP SLEEP 3 SEC),+  
  NEXTACTN(AUTOLOG2),+  
  OUTPUT(LOG),+  
  ENV(OPMGRS1)
```

*

```
DEFACTN NAME(AUTOLOG2),+  
  COMMAND(CP XAUTOLOG &3),+  
  OUTPUT(LOG),+  
  ENV(OPMGRS1)
```



| IBM Software

Backup and Recovery Scenarios *Including Automation*

Scenario 13: Performing an Incremental Backup

- **Administrator previously performed a full backup**
- **Incremental job defined, using last full backup as its base**
- **Change a file on user's A-disk**
- **Submit incremental job for review**
- **Submit incremental job for backup processing**
- **Use Operations Manager to monitor backup servers**

Scenario 13: Detailed Steps

- **From a z/VM user ID, change a file**

```
xedit b b a
```

- **From an authorized z/VM user ID, submit a backup job for review**

```
smsg bkrbkup review increm01
```

- **Review the resulting files in the reader (LINKFAIL and JOB files)**

- **From an authorized z/VM user ID, submit a backup job for backup processing**

```
smsg bkrbkup submit increm01
```

- **View the console of the backup servers to see the processing**

```
gomcmd opmgrml viewcon user(backup)
```

```

Session A - TSTUSER1 - [32 x 80]
File Edit View Communication Actions Window Help
B B A1 V 80 Trunc=80 Size=42 Line=29 Col=1 Alt=2
====>
00029 Change made at 15:53pm eastern time April 19, 2008
00030 Change made at 14:44 cet May 5, 2008
00031 Change made at 08:45 pt July 3, 2008
00032 Change made at 08:56am pt July 11, 2008
00033 Change made at 11:04am pt July 15, 2008
00034 Change made at 10:16am pt August 4, 2008
00035 Change made at 08:10am pt Sept 11, 2008
00036 Change made at 09:12am pt Sept 18, 2008
00037 Change made at 2:00pm pt Oct 23, 2008
00038 Change made at 16:27pm Brasil Nov 11, 2008
00039 Change made at 11:31am et Dec 9, 2008
00040 Change made at 11:00am et Dec 20, 2008
00041 Change made at 15:45 ct Jan 14, 2009
00042 Change made at 12:45 pt Mar 3, 2009
00043 * * * End of File * * *
MA a 02/007
Connected to remote server/host 9.39.68.141 using port 23
    
```

```
Session B - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
smsg bkrbkup review increm01
Ready: T=0 01/0 01 14:48:54
BKRBAK8529I Processing REVIEW INCREM01 command for TSTADMN1.
RDR FILE 0050 SENT FROM BKRBAKUP PUN WAS 0007 RECS 0006 CPY 001 A NOHOLD NOKEEP
RDR FILE 0051 SENT FROM BKRBAKUP PUN WAS 0008 RECS 0081 CPY 001 A NOHOLD NOKEEP
RDR FILE 0052 SENT FROM BKRBAKUP PUN WAS 0009 RECS 0082 CPY 001 A NOHOLD NOKEEP
File INCREM01 LINKFAIL D1 sent to TSTADMN1 at DEM1ZVM on 03/03/09 14:48:58
BKRMMAK9102W 2 minidisks were selected by INCLUDE/EXCLUDE processing but could
not be CP LINKed.
BKRMMAK8559I INCLUDE / EXCLUDE processing for job INCREM01 selected 149 objects
BKRMMAK8559I for backup processing.
BKRMMAK8563I Worker count for job INCREM01 has been set to 2.
BKRMMAK8568I CMS files will be filtered against file mask "* * *".
BKRMMAK8566I SFS files will be filtered with path mask "*".
BKRMMAK8583I Sending results to TSTADMN1 for review.
File INCREM00 JOB D1 sent to TSTADMN1 at DEM1ZVM on 03/03/09 14:48:58
File INCREM01 JOB D1 sent to TSTADMN1 at DEM1ZVM on 03/03/09 14:48:58
Return code "0" from command REVIEW INCREM01 at 03/03/09 14:48:58.

RUNNING DEM1ZVM
MA b 31/001
Connected to remote server/host 9.39.68.141 using port 23
```


Session B - TSTADMN1 - [32 x 80]

File Edit View Communication Actions Window Help

Cmd	Filename	Filetype	Class	User	at Node	Hold	Records	Date	Time
-	INCREM01	LINKFAIL	PUN A	BKRKBUP	DEM1ZVM	NONE	6	3/03	14:48:58
-	INCREM00	JOB	PUN A	BKRKBUP	DEM1ZVM	NONE	81	3/03	14:48:58
-	INCREM01	JOB	PUN A	BKRKBUP	DEM1ZVM	NONE	82	3/03	14:48:58

1= Help 2= Refresh 3= Quit 4= Sort(type) 5= Sort(date) 6= Sort(user)
 7= Backward 8= Forward 9= Receive 10= 11= Peek 12= Cursor

====>

X E D I T 1 File

MA b 03/001

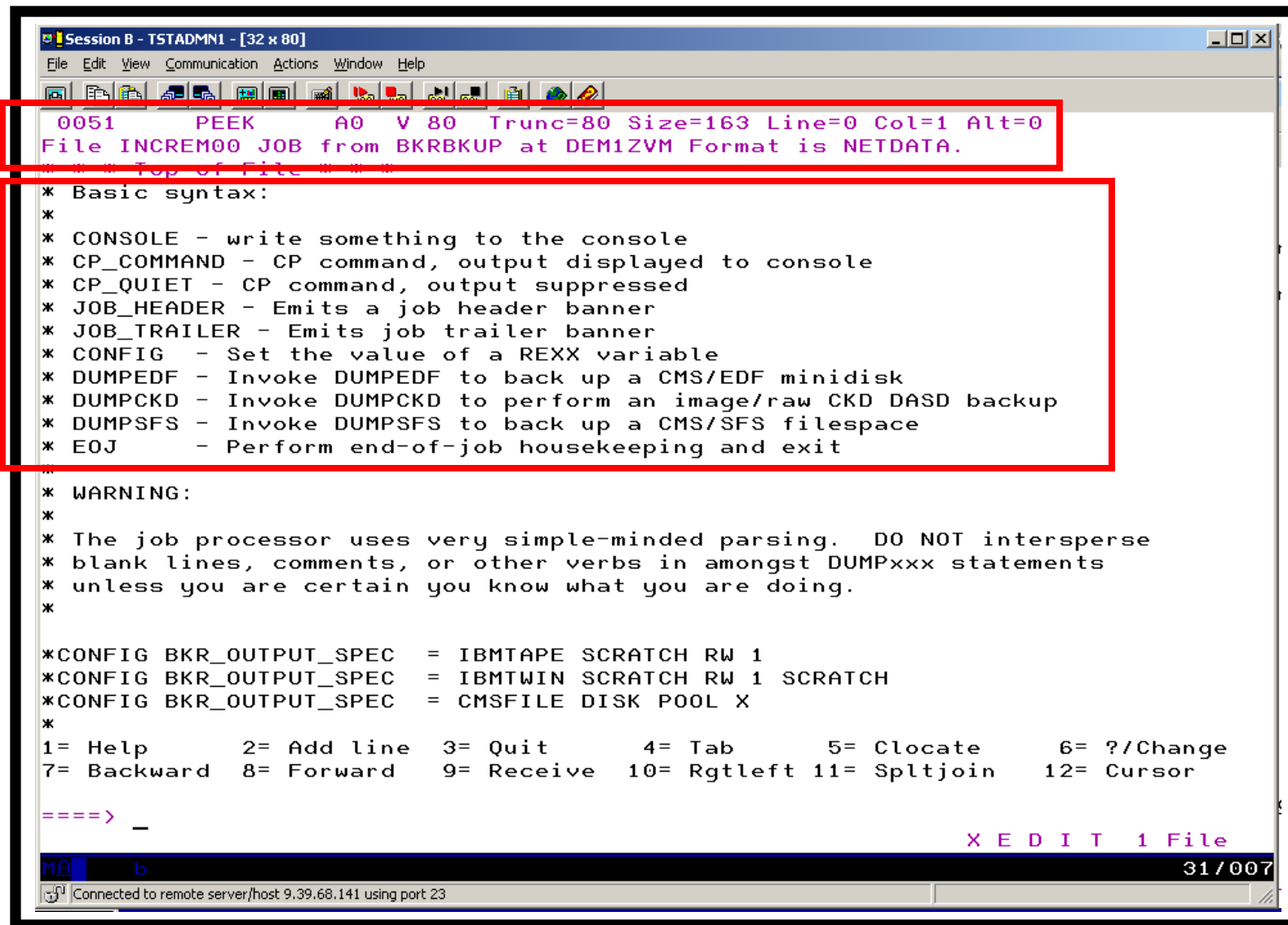
Connected to remote server/host 9.39.68.141 using port 23

```

Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
0050      PEEK      A0  V 87  Trunc=87 Size=2 Line=0 Col=1 Alt=0
File INCREM01 LINKFAIL from BKRKBUP at DEM1ZVM Format is NETDATA.
*** Top of File ***
DATAMOVE 05F0      108 "HCPLNM108E DATAMOVE 05F0 not linked; volid $$$$$$ not m
ounted"
DATAMOVE 05FF      108 "HCPLNM108E DATAMOVE 05FF not linked; volid $$$$$$ not m
ounted"
*** End of File ***

1= Help      2= Add line  3= Quit    4= Tab     5= Clocate   6= ?/Change
7= Backward  8= Forward  9= Receive 10= Rgtleft 11= Spltjoin 12= Cursor

====> _
X E D I T  1 File
MA b 31/007
Connected to remote server/host 9.39.68.141 using port 23
    
```



```
Session B - TSTADMNI - [32 x 80]
File Edit View Communication Actions Window Help
0051      PEEK      A0  V 80  Trunc=80 Size=163 Line=0 Col=1 Alt=0
File INCREM00 JOB from BKRBKUP at DEM1ZVM Format is NETDATA.
*** Top of File ***
* Basic syntax:
*
* CONSOLE - write something to the console
* CP_COMMAND - CP command, output displayed to console
* CP_QUIET - CP command, output suppressed
* JOB_HEADER - Emits a job header banner
* JOB_TRAILER - Emits job trailer banner
* CONFIG - Set the value of a REXX variable
* DUMPEDF - Invoke DUMPEDF to back up a CMS/EDF minidisk
* DUMPCKD - Invoke DUMPCKD to perform an image/raw CKD DASD backup
* DUMPSFS - Invoke DUMPSFS to back up a CMS/SFS filespace
* EOJ - Perform end-of-job housekeeping and exit
*
* WARNING:
*
* The job processor uses very simple-minded parsing. DO NOT intersperse
* blank lines, comments, or other verbs in amongst DUMPxxx statements
* unless you are certain you know what you are doing.
*
*CONFIG BKR_OUTPUT_SPEC = IBMTAPE SCRATCH RW 1
*CONFIG BKR_OUTPUT_SPEC = IBMTWIN SCRATCH RW 1 SCRATCH
*CONFIG BKR_OUTPUT_SPEC = CMSFILE DISK POOL X
*
1= Help      2= Add line  3= Quit      4= Tab      5= Clocate   6= ?/Change
7= Backward  8= Forward   9= Receive  10= Rgtright 11= Spltjoin 12= Cursor

====> _
XEDIT 1 File
MA b 31/007
Connected to remote server/host 9.39.68.141 using port 23
```

```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
0051      PEEK      A0 V 80 Trunc=80 Size=163 Line=32 Col=1 Alt=0
File INCREM00 JOB from BKRBKUP at DEM1ZVM Format is NETDATA.
CONFIG BKR_OUTPUT_SPEC = CMSFILE INCREM01 DISKPOOL *
* Next two lines override default system tape pool set in BKRSYSTEM CONFIG
* CONFIG BKR_JOB_EUM_POOL_OWNER = xxxxxxxxx
* CONFIG BKR_JOB_EUM_POOL_NAME = xxxxxxxxx
CP_COMMAND TERM MORE 50 10
CP_COMMAND TERM HOLD ON
CP_COMMAND SPOOL CONSOLE TO BKRADMIN CLASS T TERM START NAME INCREM01 20090303
CP_COMMAND TERM LINES 255
CONFIG BKR_JOB_WORKERS = 2
CONFIG BKR_JOB_NAME     = INCREM01
CONFIG BKR_JOB_INSTANCE = $$INST$$
CONFIG BKR_JOB_OWNER    = BKRADMIN
CONFIG BKR_JOB_MASTER   = BKRBKUP
CONFIG BKR_JOB_TOKEN    = 20090303
CONFIG BKR_JOB_CMS_FILEMASK = * * *
CONFIG BKR_JOB_SFS_PATHMASK = *
CONFIG BKR_JOB_BACKUP_RESERVED_AS_IMAGE = NO
CONFIG BKR_JOB_SUPPRESS_IMAGE = YES
CONFIG BKR_JOB_CATALOG = Y
1= Help      2= Add line  3= Quit      4= Tab      5= Clocate   6= ?/Change
7= Backward  8= Forward  9= Receive 10= Rgtright 11= Spltjoin 12= Cursor
====> _
X E D I T 1 File
31/007
Connected to remote server/host 9.39.68.141 using port 23
```

```

Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
0051      PEEK      A0  V 80  Trunc=80 Size=163 Line=76 Col=1 Alt=0
File INCREM00 JOB from BKR BKUP at DEM1ZVM Format is NETDATA.
JOB HEADER
DUMPCKD $ALLOC$ 0A02 $$$DRIVER$$$
DUMPCKD $DIRECT$ 0A04 $$$DRIVER$$$
DUMPCKD AMVADMIN 0191 $$$DRIVER$$$
DUMPEDF AMVWRK01 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPCKD AMVWRK03 0191 $$$DRIVER$$$
DUMPEDF ARCHLOGS 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF AUTOLOG1 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF AVSVM 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF BKR BKUP 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF BKRCATLG 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF BKRWRK02 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPCKD BKRWRK04 0191 $$$DRIVER$$$
DUMPEDF BLDNUC 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF BLDSEG 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF CFCONSOL 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF CNTRLCON 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF DATAMOVE 01AA $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF DATAMOVE 02AA $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF DIRMAINT 01AA $$$FMASK$$$ $$$DRIVER$$$
DUMPCKD DIRMAINT 01DE $$$DRIVER$$$
DUMPEDF DIRMAINT 0155 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF DIRMAINT 01DB $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF DIRMAINT 02DB $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF DIRMSAT 0155 $$$FMASK$$$ $$$DRIVER$$$
1= Help      2= Add line  3= Quit      4= Tab      5= Clocate      6= ?/Change
7= Backward  8= Forward  9= Receive 10= Rgtright 11= Spltjoin   12= Cursor
====> _
X E D I T  1 File
MA  b 31/007
Connected to remote server/host 9.39.68.141 using port 23
    
```

```

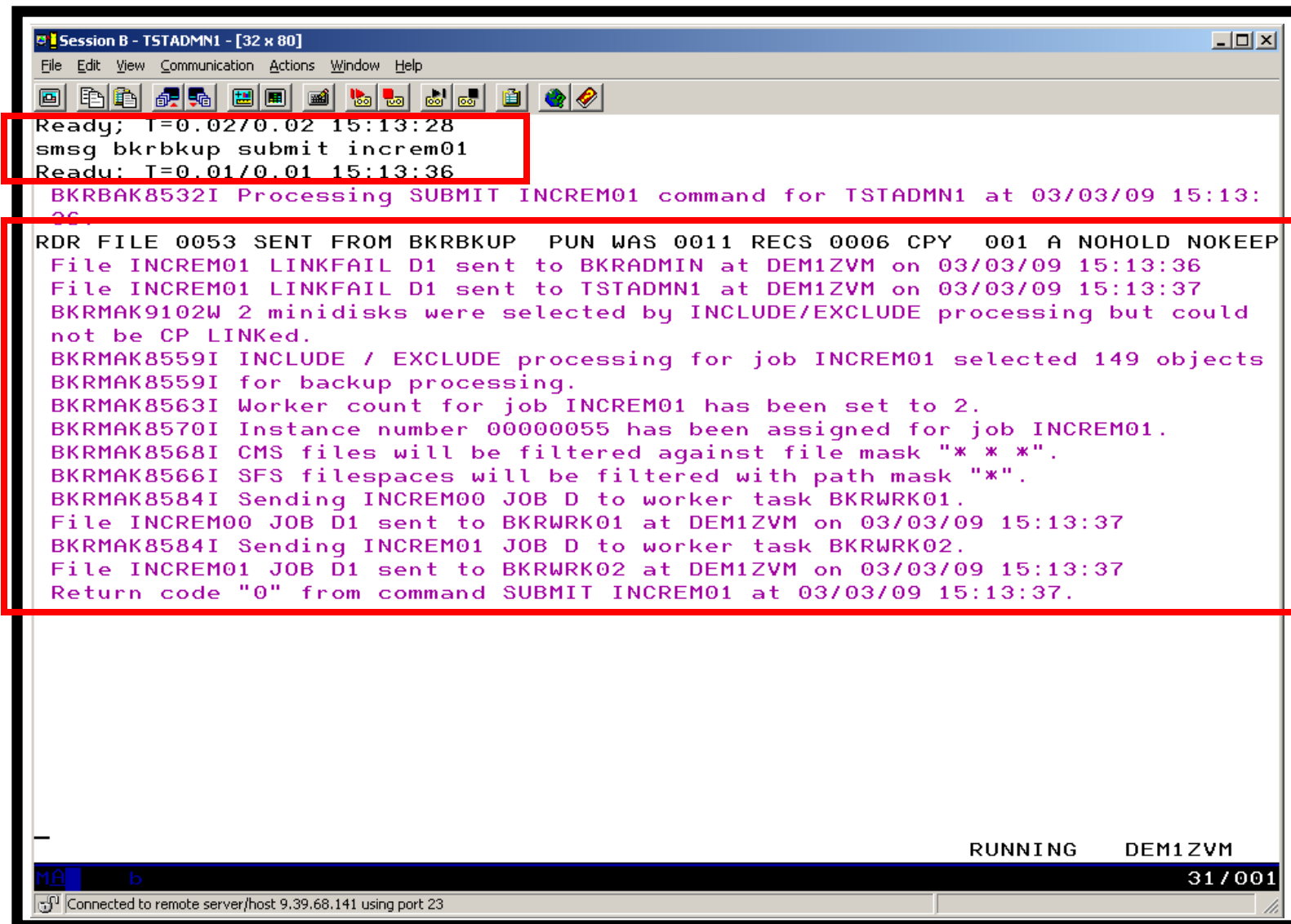
Session B - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
0051      PEEK      A0  V 80  Trunc=80 Size=163 Line=139 Col=1 Alt=0
File INCREM00 JOB from BKRBKUP at DEM1ZVM Format is NETDATA.
DUMPCKD TMTMM 0210 $$$DRIVER$$$
DUMPEDF TSTADMN1 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF TSTADMN3 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF TSTUSER1 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF TSTUSER3 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF VMKERB 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF VMRMADMN 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF X25IPI 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF 40SASF40 02B2 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF 40SASF40 02A6 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF 40SASF40 0100 $$$FMASK$$$ $$$DRIVER$$$
CONSOLE *** Could not LINK DATAMOVE 05F0 during INCLUDE/EXCLUDE; skipped.
JOB_TRAILER

* Retain catalog content for 30 days from date of job completion...
CONFIG BKR_CATALOG_RETENTION = 30
CP_COMMAND QUERY TIME
CONSOLE *
CONSOLE * INCREM01 INCREMENTAL BACKUP GENERATED 06/18/2007
CONSOLE * JOB IMAGE GENERATED 03/03/09 14:48:58
CONSOLE *

CP_QUIET SPOOL CONSOLE CLOSE NAME INCREM01 20090303
CP_QUIET SPOOL CONSOLE NAME WORKER OUTPUT
EOJ
1= Help      2= Add line  3= Quit    4= Tab      5= Locate   6= ?/Change
7= Backward  8= Forward  9= Receive 10= Rgtleft 11= Spltjoin 12= Cursor

====> _
X E D I T 1 File
MA b 31/007
Connected to remote server/host 9.39.68.141 using port 23

```



```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
Ready; T=0.02/0.02 15:13:28
smsg bkrbkup submit increm01
Ready; T=0.01/0.01 15:13:36
BKRBAK8532I Processing SUBMIT INCREM01 command for TSTADMIN1 at 03/03/09 15:13:
36.
RDR FILE 0053 SENT FROM BKRBKUP PUN WAS 0011 RECS 0006 CPY 001 A NOHOLD NOKEEP
File INCREM01 LINKFAIL D1 sent to BKRADMIN at DEM1ZVM on 03/03/09 15:13:36
File INCREM01 LINKFAIL D1 sent to TSTADMIN1 at DEM1ZVM on 03/03/09 15:13:37
BKRMMAK9102W 2 minidisks were selected by INCLUDE/EXCLUDE processing but could
not be CP LINKed.
BKRMMAK8559I INCLUDE / EXCLUDE processing for job INCREM01 selected 149 objects
BKRMMAK8559I for backup processing.
BKRMMAK8563I Worker count for job INCREM01 has been set to 2.
BKRMMAK8570I Instance number 00000055 has been assigned for job INCREM01.
BKRMMAK8568I CMS files will be filtered against file mask "* * *".
BKRMMAK8566I SFS filespace will be filtered with path mask "*".
BKRMMAK8584I Sending INCREM00 JOB D to worker task BKRWRK01.
File INCREM00 JOB D1 sent to BKRWRK01 at DEM1ZVM on 03/03/09 15:13:37
BKRMMAK8584I Sending INCREM01 JOB D to worker task BKRWRK02.
File INCREM01 JOB D1 sent to BKRWRK02 at DEM1ZVM on 03/03/09 15:13:37
Return code "0" from command SUBMIT INCREM01 at 03/03/09 15:13:37.

RUNNING DEM1ZVM
MA b 31/001
Connected to remote server/host 9.39.68.141 using port 23
```

```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
15:13:54 BKRWRK02 -----
15:13:54 BKRWRK02 -----
15:13:54 BKRWRK02 -----
15:13:54 BKRWRK02 BKRRVB9014I Job completed at 15:13:55 on 03/03/09.
15:13:54 BKRWRK02 BKRRVB9005I Executing CP command "QUERY TIME"
15:13:54 BKRWRK02 TIME IS 15:13:55 CST TUESDAY 03/03/09
15:13:54 BKRWRK02 CONNECT= 00:00:17 VIRTCPU= 000:00.42 TOTCPU= 000:00.56
15:13:54 BKRWRK02 BKRRVB9006I CP return code 0
15:13:54 BKRWRK02 *
15:13:54 BKRWRK02 * INCREM01 INCREMENTAL BACKUP GENERATED 06/18/2007
15:13:54 BKRWRK02 * JOB IMAGE GENERATED 03/03/09 15:13:37
15:13:54 BKRCATLG RDR FILE 0134 SENT FROM BKRWRK01 PUN WAS 0066 RECS 0013 CPY
15:13:54 BKRWRK02 *
15:13:54 BKRWRK02 BKRRVB9005I Executing CP command "SPOOL CONSOLE CLOSE NAME IN
15:13:54 BKRWRK02 BKRRVB9006I CP return code 0
15:13:54 BKRWRK02 BKRRVB9005I Executing CP command "SPOOL CONSOLE NAME WORKER 0
15:13:54 BKRWRK02 BKRRVB9006I CP return code 0
15:13:54 BKRWRK02 *****
15:13:54 BKRWRK02 *** End-of-Job Summary:
15:13:54 BKRWRK02 ***
15:13:54 BKRWRK02 *** Start time: 03/03/09 15:13:41
15:13:54 BKRWRK02 *** Ended time: 03/03/09 15:13:55
15:13:54 BKRWRK02 ***
15:13:54 BKRWRK02 *** DUMPCKD tasks, Max RC: 0, 0
15:13:54 BKRWRK02 *** DUMPFBA tasks, Max RC: 0, 0
15:13:54 BKRWRK02 *** DUMPEDF tasks, Max RC: 67, 4
15:13:54 BKRWRK02 *** DUMPSFS tasks, Max RC: 0, 0
15:13:54 BKRWRK02 *** RESTORE tasks, Max RC: 0, 0
15:13:54 BKRWRK02 ***
15:13:54 BKRCATLG 0000001 FILE PURGED
-
BACKUP
MA b 31/001
Connected to remote server/host 9.39.68.141 using port 23
```


Scenario 14: Restoring Files from Backup

- **Full and incremental backups performed previously**
- **User accidentally erases or corrupts a file**
- **User restores the file from backup**
 - Full screen interface to see all files available in backup
 - Including multiple “versions” of the same file
 - Filters and sorting available to easily find the needed file
 - Request restore directly to disk or to reader
- **No administrator intervention required**

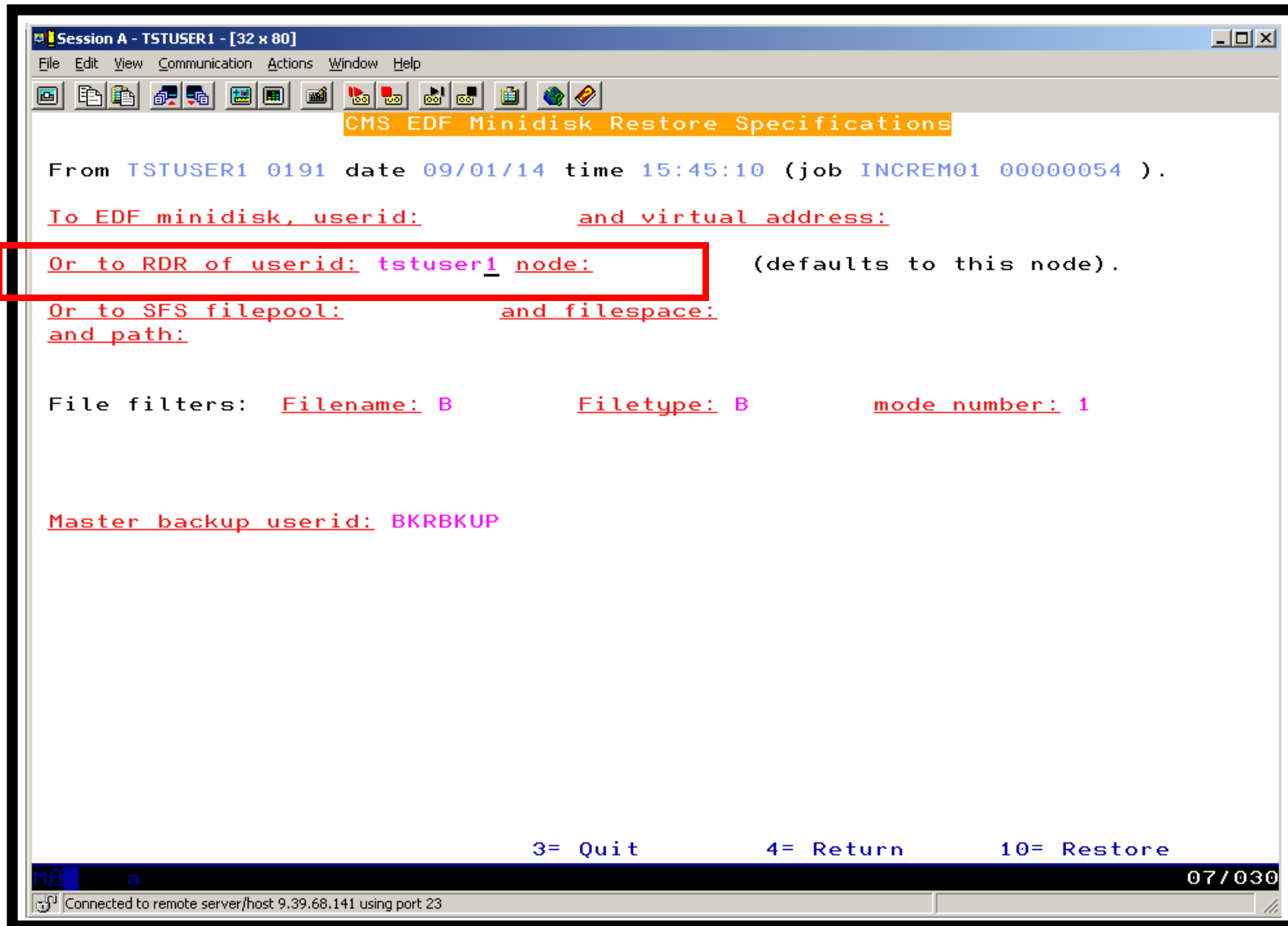
Scenario 14: Detailed Steps

- **From a z/VM user ID, view all catalog data you own**
`bkrlist`
- **Use the filters to find the file you want to restore**
- **Put the cursor on the file and hit F10**
- **Specify the user ID to whom the file should be sent and hit F10**
- **Look at the reader of that user ID to see the restored file and a copy of the console during the restore processing**

`rdrlist`

- **View the contents of the file to verify it's the correct version**

`peek`



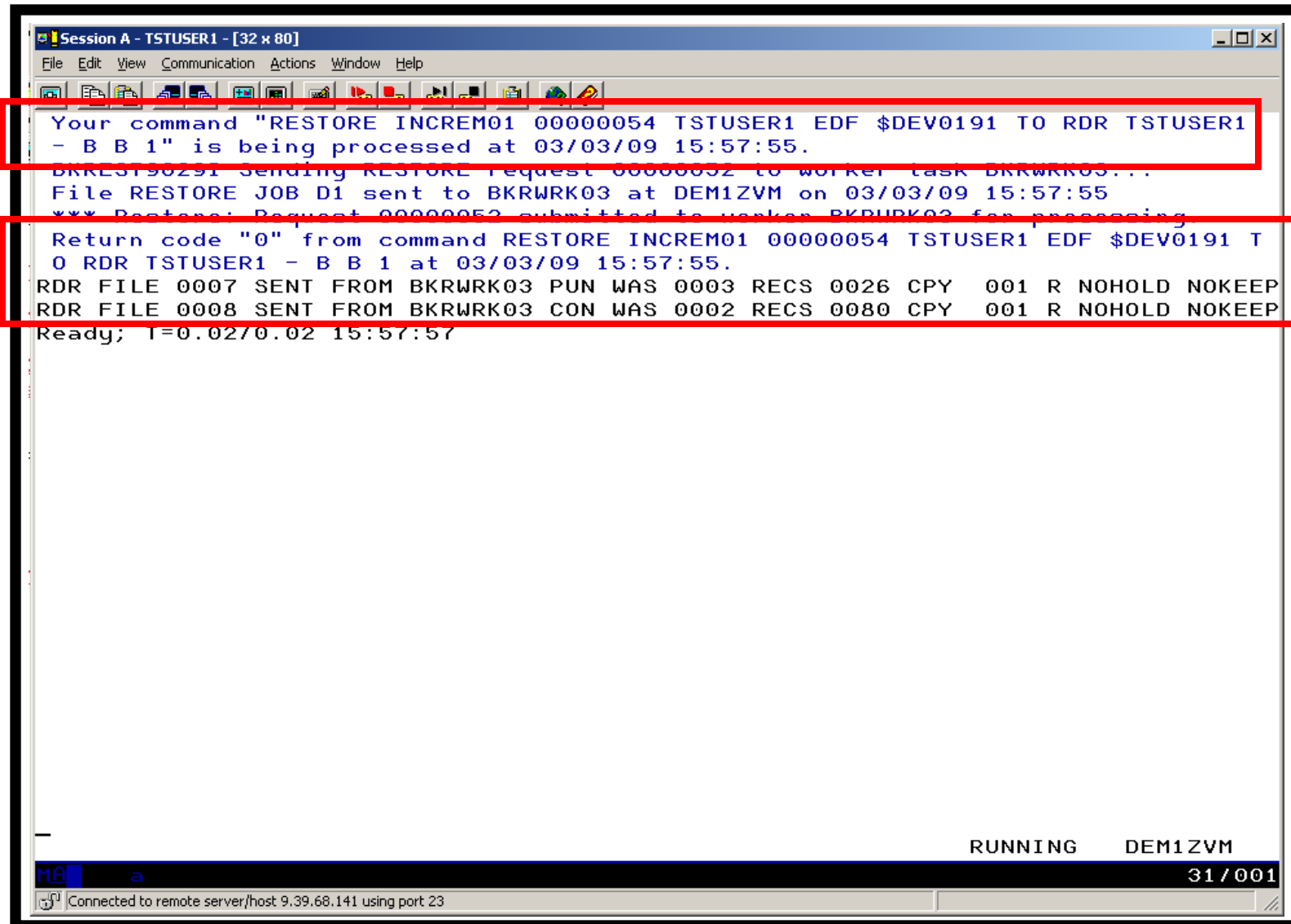
```
Session A - TSTUSER1 - [32 x 80]
File Edit View Communication Actions Window Help
CMS EDF Minidisk Restore Specifications
From TSTUSER1 0191 date 09/01/14 time 15:45:10 (job INCREM01 00000054 ).
To EDF minidisk, userid:          and virtual address:
Or to RDR of userid: tstuser1_node: (defaults to this node).
Or to SFS filepool:          and filespace:
and path:

File filters:  Filename: B      Filetype: B      mode number: 1

Master backup userid: BKRKBUP

3= Quit      4= Return      10= Restore

Mâ a 07/030
Connected to remote server/host 9.39.68.141 using port 23
```



```
Session A - TSTUSER1 - [32 x 80]
File Edit View Communication Actions Window Help

Your command "RESTORE INCREM01 00000054 TSTUSER1 EDF $DEV0191 TO RDR TSTUSER1
- B B 1" is being processed at 03/03/09 15:57:55.
BKREST90291 Sending RESTORE request 00000052 to worker task BKRWRK03...
File RESTORE JOB D1 sent to BKRWRK03 at DEM1ZVM on 03/03/09 15:57:55
*** Request: Request 00000052 submitted to worker BKRWRK03 for processing

Return code "0" from command RESTORE INCREM01 00000054 TSTUSER1 EDF $DEV0191 T
O RDR TSTUSER1 - B B 1 at 03/03/09 15:57:55.
RDR FILE 0007 SENT FROM BKRWRK03 PUN WAS 0003 RECS 0026 CPY 001 R NOHOLD NOKEEP
RDR FILE 0008 SENT FROM BKRWRK03 CON WAS 0002 RECS 0080 CPY 001 R NOHOLD NOKEEP
Ready; T=0.0270.02 15:57:57

RUNNING DEM1ZVM
31/001
Connected to remote server/host 9.39.68.141 using port 23
```

Session A - TSTUSER1 - [32 x 80]

File Edit View Communication Actions Window Help

TSTUSER1: DDPLIST - 00 - V 164 - Trans=164 - Size=0 - Line=1 - Col=1 - Alt=28

Cmd	Filename	Filetype	Class	User	at Node	Hold	Records	Date	Time
-	RESTORE	00000052	CON R	BKRWRK03	DEM1ZVM	NONE	80	3/03	15:57:55
-	B	B	PUN R	BKRWRK03	DEM1ZVM	NONE	26	3/03	15:57:56

1= Help 2= Refresh 3= Quit 4= Sort(type) 5= Sort(date) 6= Sort(user)

7= Backward 8= Forward 9= Receive 10= 11= Peek 12= Cursor

====>

X E D I T 1 File

MA a 03/001

Connected to remote server/host 9.39.68.141 using port 23

```
Session A - TSTUSER1 - [32 x 80]
File Edit View Communication Actions Window Help
0007 PEEK A0 V 80 Trunc=80 Size=41 Line=24 Col=1 Alt=0
File B B from *BACKUP* at DEM1ZVM Format is NETDATA.
Change made at 11:37am central time Sept 17, 2007
Change made at 12:31am eastern time Sept 25, 2007
Change made at 2:06pm mountain standard time Oct 9, 2007
Change made at 11:14am pacific time March 3, 2008
Change made at 9:20am central time March 4, 2008
Change made at 15:53pm eastern time April 19, 2008
Change made at 14:44 cet May 5, 2008
Change made at 08:45 pt July 3, 2008
Change made at 08:56am pt July 11, 2008
Change made at 11:04am pt July 15, 2008
Change made at 10:16am pt August 4, 2008
Change made at 08:10am pt Sept 11, 2008
Change made at 09:12am pt Sept 18, 2008
Change made at 2:00pm pt Oct 23, 2008
Change made at 16:27pm Brasil Nov 11, 2008
Change made at 11:01am ct Dec 9, 2008
Change made at 11:09am ct Dec 30, 2008
Change made at 15:45 ct Jan 14, 2009
*** End of File ***

1= Help 2= Add line 3= Quit 4= Tab 5= Clocate 6= ?/Change
7= Backward 8= Forward 9= Receive 10= Rgtright 11= Spltjoin 12= Cursor

====> _
X E D I T 1 File
MA a 31/007
Connected to remote server/host 9.39.68.141 using port 23
```


Scenario 15: Scheduling Image Backups of Linux Guests

- **Initiated or scheduled by Operations Manager**
 - Schedule defined in Operations Manager to initiate backups at specific times/intervals
 - Action associated with each schedule
 - Linux guest is shut down
 - Operations Manager watches for shutdown complete
 - Sends request to Backup and Restore Manager to back up the specific DASD/minidisks associated with the guest
 - Alternatively use FLASHCOPY to copy DASD, restart guest, then perform backup of copy of DASD.
 - Operations Manager watches for backup complete message
 - Restarts Linux guest
 - Guest is down for minimum time required for backup

Scenario 15: Detailed Steps

- **Define a schedule to start the automated backup process**

```
gomcmd opmgrm1 defschd name(demo),action(stoplxx),when(now)
```

- **View the Operations Manager log to see the schedule trigger**

```
gomcmd opmgrm1 viewlog
```

- **View the console of the Linux guest to see it shut down**

```
gomcmd opmgrm1 viewcon user(omeglxx1)
```

- **View the console of the backup server to see the backup start**

```
gomcmd opmgrm1 viewcon user(bkrbkup)
```

- **Find the worker that has been assigned and view its console**

```
gomcmd opmgrm1 viewcon user(bkrwrkxx)
```

- **View the console of the Linux guest to see it restart**

```
gomcmd opmgrm1 viewcon user(omeglxx1)
```

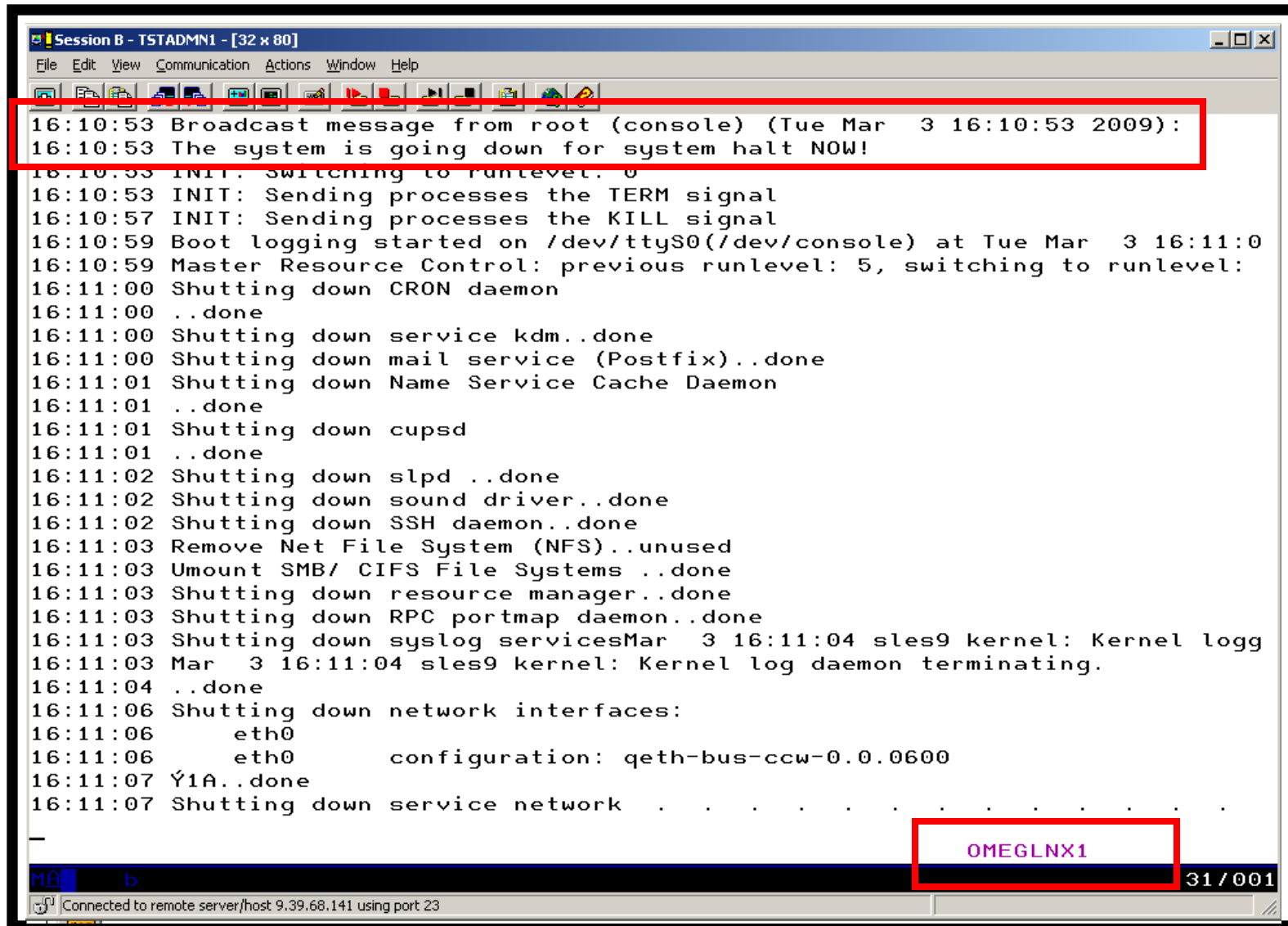
- **View the backup catalog to see the completed job**

```
bkrjob
```

```

Session B - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
03/03/2009 16:10:31 GOMCMD0201L "TSTADMN1 DEFSCHD NAME(DEMO),ACTION(STOPLNX),W
03/03/2009 16:10:44 GOMCMD0201L "TSTADMN1 VIEWLOG" VID=TSTADMN1 SRC=MASIUCV C
03/03/2009 16:10:53 GOMACT0260I SCHEDULE DEMO ACTION STOPLNX TRIGGERED BY
03/03/2009 16:10:53 GOMACT0262I ACTION STOPLNX BEGIN FOR SCHEDULE SERVER OPMG
03/03/2009 16:10:53 GOMACT0269L COMMAND "RESUME RULE(LNXDOWN)"
03/03/2009 16:10:53 GOMCMD0201L "OPMGRM1 RESUME RULE(LNXDOWN)" VID=OPMGRM1 S
03/03/2009 16:10:53 GOMACT0267I ACTION STOPLNX END RC=0 SERVER OPMGRM1
03/03/2009 16:10:53 GOMACT0260I SCHEDULE DEMO ACTION STOPLNXA TRIGGERED BY
03/03/2009 16:10:53 GOMACT0262I ACTION STOPLNXA BEGIN FOR SCHEDULE SERVER OPMG
03/03/2009 16:10:53 GOMACT0269L COMMAND "CP SET SECUSER OMEGLNX1 OPMGRM1"
03/03/2009 16:10:53 GOMACT0270L HCPCFX6768I SECUSER of OMEGLNX1 initiated.
03/03/2009 16:10:53 GOMACT0267I ACTION STOPLNXA END RC=0 SERVER OPMGRM1
03/03/2009 16:10:53 GOMACT0260I SCHEDULE DEMO ACTION STOPLNXB TRIGGERED BY
03/03/2009 16:10:53 GOMACT0262I ACTION STOPLNXB BEGIN FOR SCHEDULE SERVER OPMG
03/03/2009 16:10:53 GOMACT0269L COMMAND "CP SIGNAL SHUTDOWN OMEGLNX1 WITHIN 90
03/03/2009 16:10:53 GOMACT0267I ACTION STOPLNXB END RC=0 SERVER OPMGRM1
03/03/2009 16:10:53 GOMCMD0216L "OMEGLNX1 Broadcast message from root (console
03/03/2009 16:10:53 GOMCMD0216L "OMEGLNX1 The system is going down for system
03/03/2009 16:10:54 GOMCMD0216L "OMEGLNX1 INIT: Switching to runlevel: 0" VID=
03/03/2009 16:10:54 GOMCMD0216L "OMEGLNX1 INIT: Sending processes the TERM sig
03/03/2009 16:10:58 GOMCMD0216L "OMEGLNX1 INIT: Sending processes the KILL sig
03/03/2009 16:11:00 GOMCMD0216L "OMEGLNX1 Boot logging started on /dev/ttyS0(/
03/03/2009 16:11:00 GOMCMD0216L "OMEGLNX1 Master Resource Control: previous ru
03/03/2009 16:11:00 GOMCMD0216L "OMEGLNX1 Shutting down CRON daemon" VID=*MSG
03/03/2009 16:11:00 GOMCMD0216L "OMEGLNX1 ..done" VID=*MSG SRC=MASIUCV CL
03/03/2009 16:11:01 GOMCMD0216L "OMEGLNX1 Shutting down service kdm..done" VID
03/03/2009 16:11:01 GOMCMD0216L "OMEGLNX1 Shutting down mail service (Postfix)
03/03/2009 16:11:01 GOMCMD0216L "OMEGLNX1 Shutting down Name Service Cache Dae
03/03/2009 16:11:01 GOMCMD0216L "OMEGLNX1 ..done" VID=*MSG SRC=MASIUCV CL
03/03/2009 16:11:01 GOMCMD0216L "OMEGLNX1 Shutting down cupsd" VID=*MSG SR
MASALOG
MA b 31/001
Connected to remote server/host 9.39.68.141 using port 23

```



The image shows a terminal window titled "Session B - TSTADMIN1 - [32 x 80]". The window contains a series of system messages indicating a shutdown process. Two lines at the top are highlighted with a red box: "16:10:53 Broadcast message from root (console) (Tue Mar 3 16:10:53 2009):" and "16:10:53 The system is going down for system halt NOW!". Below these, the terminal shows the shutdown of various services like CRON, kdm, mail, and network interfaces. At the bottom right, the text "OMEGLNX1" is highlighted with a red box. The terminal status bar at the bottom shows "MA b" and "31/001".

```
16:10:53 Broadcast message from root (console) (Tue Mar 3 16:10:53 2009):
16:10:53 The system is going down for system halt NOW!
16:10:53 INIT: Switching to runlevel: 0
16:10:53 INIT: Sending processes the TERM signal
16:10:57 INIT: Sending processes the KILL signal
16:10:59 Boot logging started on /dev/ttyS0(/dev/console) at Tue Mar 3 16:11:0
16:10:59 Master Resource Control: previous runlevel: 5, switching to runlevel:
16:11:00 Shutting down CRON daemon
16:11:00 ..done
16:11:00 Shutting down service kdm..done
16:11:00 Shutting down mail service (Postfix)..done
16:11:01 Shutting down Name Service Cache Daemon
16:11:01 ..done
16:11:01 Shutting down cupsd
16:11:01 ..done
16:11:02 Shutting down slpd ..done
16:11:02 Shutting down sound driver..done
16:11:02 Shutting down SSH daemon..done
16:11:03 Remove Net File System (NFS)..unused
16:11:03 Umount SMB/ CIFS File Systems ..done
16:11:03 Shutting down resource manager..done
16:11:03 Shutting down RPC portmap daemon..done
16:11:03 Shutting down syslog servicesMar 3 16:11:04 sles9 kernel: Kernel logg
16:11:03 Mar 3 16:11:04 sles9 kernel: Kernel log daemon terminating.
16:11:04 ..done
16:11:06 Shutting down network interfaces:
16:11:06 eth0
16:11:06 eth0 configuration: qeth-bus-ccw-0.0.0600
16:11:07 Y1A..done
16:11:07 Shutting down service network . . . . .
-
MA b
31/001
Connected to remote server/host 9.39.68.141 using port 23
```

OMEGLNX1

```

Session A - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
17:51:18 type=1505 audit(1282776678.910:456): operation="profile_remove" name=""
17:51:18 type=1505 audit(1282776678.910:457): operation="profile_remove" name=""
17:51:18 type=1505 audit(1282776678.910:458): operation="profile_remove" name=""
17:51:18 type=1505 audit(1282776678.910:459): operation="profile_remove" name=""
17:51:18 type=1505 audit(1282776678.910:460): operation="profile_remove" name=""
17:51:18 type=1505 audit(1282776678.940:461): operation="profile_remove" name=""
17:51:18 type=1505 audit(1282776678.940:462): operation="profile_remove" name=""
17:51:18 type=1505 audit(1282776678.940:463): operation="profile_remove" name=""
17:51:18 type=1505 audit(1282776678.940:464): operation="profile_remove" name=""
17:51:19 type=1505 audit(1282776678.950:465): operation="profile_remove" name=""
17:51:19 Unloading AppArmor profiles ..done
17:51:19 Turning off quota
17:51:19 ..done
17:51:19 Turning off swap files
17:51:19 Unmounting file systems
17:51:19 ..done..done
17:51:19 Stopping udevd: ..done
17:51:19 ..done
17:51:19 Sending all processes the TERM signal...
17:51:19 ..done
17:51:19 Sending all processes the KILL signal...
17:51:19 ..done
17:51:19 Please stand by while rebooting the system...
17:51:19 md: stopping all md devices.
17:51:29 Restarting system.
17:51:29 HCPGIR450W CP entered; disabled wait PSW 00020001 80000000 00000000 00
17:51:29 * -- Operations Manager Action LNXBKUP1 scheduled for execution -- *
17:51:29 CONNECT - 20:52:00 VIRT0PU - 001:00:00 TST0PU - 001:10:29
17:51:29 LOGOFF AT 17:51:29 CDT WEDNESDAY 08/25/10 AFTER SIGNAL
17:51:30 z/VM V5.4.0 2009-09-23 15:29

-
OMEGLNX1
31/001
Connected to remote server/host 9.39.68.141 using port 23
    
```

```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
16:11:22 ***
16:11:22 *SMSG OPMGRM1 SUBMIT BKUPLNX1
16:11:22 BKRBAK8515I Queued command #1: "*SMSG OPMGRM1 SUBMIT BKUPLNX1"
16:11:22 BKRBAK8532I Processing SUBMIT BKUPLNX1 command for OPMGRM1 at 03/03/09
16:11:22 BKRBAK8532I Processing SUBMIT BKUPLNX1 command for OPMGRM1 at 03/03/09
16:11:22 AUTO LOGON *** BKRWRK01 USERS = 18
16:11:22 HCPCLS6056I XAUTOLOG information for BKRWRK01: The IPL command is veri
16:11:22 Output line 1 : BKRMAK8559I INCLUDE / EXCLUDE processing for job BKUPL
16:11:22 ed 1 objects
16:11:22 BKRMAK8559I INCLUDE / EXCLUDE processing for job BKUPLNX1 selected 1 o
16:11:22 Output line 2 : BKRMAK8559I for backup processing.
16:11:22 BKRMAK8559I for backup processing.
16:11:22 Output line 3 : BKRMAK8563I Worker count for job BKUPLNX1 has been set
16:11:22 BKRMAK8563I Worker count for job BKUPLNX1 has been set to 1.
16:11:22 Output line 4 : BKRMAK8570I Instance number 00000073 has been assigned
16:11:22 KUPLNX1.
16:11:22 BKRMAK8570I Instance number 00000073 has been assigned for job BKUPLNX
16:11:22 Output line 5 : BKRMAK8568I CMS files will be filtered against file ma
16:11:22 .
16:11:22 BKRMAK8568I CMS files will be filtered against file mask "* * *".
16:11:22 Output line 6 : BKRMAK8566I SFS filespaces will be filtered with path
16:11:22 BKRMAK8566I SFS filespaces will be filtered with path mask "*".
16:11:22 Output line 7 : BKRMAK8584I Sending BKUPLNX1 JOB D to worker task BKR
16:11:22 BKRMAK8584I Sending BKUPLNX1 JOB D to worker task BKRWRK01.
16:11:22 Output line 8 : File BKUPLNX1 JOB D1 sent to BKRWRK01 at DEM1ZVM on 03
16:11:22 11:23
16:11:22 File BKUPLNX1 JOB D1 sent to BKRWRK01 at DEM1ZVM on 03/03/09 16:11:23
16:11:22 Return code "0" from command SUBMIT BKUPLNX1 at 03/03/09 16:11:23.
16:11:23 BKRBAK8510I 03/03/09 16:11:23 WAKEUP exited on a VMCF interrupt.
-
BKRBAKUP
31/001
Connected to remote server/host 9.39.68.141 using port 23
```

```

Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
16:11:23 -----
16:11:23
16:11:23 BKRRVB9011I Job name: BKUPLNX1, instance identifier 00000073 starting
16:11:23 BKRRVB9011I Job owner: BKRADMIN
16:11:23 BKRRVB9011I Master backup server: BKBBKUP; worker virtual machine BKBU
16:11:23 BKRRVB9011I Job token value is 20090303.
16:11:23 BKRRVB9012I Catalog content creation is ENABLED.
16:11:23 BKRRVB9012I Catalog content will be delivered to backup catalog server
16:11:23 BKRRVB9012I Temporary catalog granule data will be generated in CMS fi
16:11:23 -----
16:11:23 -----
16:11:23
16:11:23 BKRRVB9161I Scanning DISKPOOL "LNXBKUP DISKPOOL" for a volume with at
16:11:23 BKRRVB9162I DISKPOOL volume AMVCATLG 333 has 23968 4K blocks free.
16:11:23 BKRRVB9163I Continuing backup with output to AMVCATLG 333
16:11:31 OMEGLNX1 0191 RR EDF 4096 0X1191 00009000 00003977 00000050 00000050
16:11:31 -----
16:11:31 -----
16:11:31
16:11:31 BKRRVB9014I Job completed at 16:11:31 on 03/03/09.
16:11:31 BKRRVB9005I Executing CP command "QUERY TIME"
16:11:31 TIME IS 16:11:31 CST TUESDAY 03/03/09
16:11:31 CONNECT= 00:00:08 VIRTCPU= 000:00.05 TOTCPU= 000:00.10
16:11:31 BKRRVB9006I CP return code 0
16:11:31 *
16:11:31 * BACKUP COMPLETE - OMEGLNX1 LINUX GUEST
16:11:31 * -- Operations Manager Action STRTLNXB scheduled for execution -- *
16:11:31 * -- Operations Manager Action STRTLNXC scheduled for execution -- *
-----
BKRWRK01
31/001
Connected to remote server/host 9.39.68.141 using port 23

```

```

Session A - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
17:51:29 HCPGIR450W CP entered; disabled wait PSW 00020001 80000000 00000000 00
17:51:29 * -- Operations Manager Action LNXBKUP1 scheduled for execution -- *
17:51:29 CONNECT= 26:52:36 VIRTCPU= 001:06.93 TOTCPU= 001:13.29
17:51:29 LOGOFF AT 17:51:29 CDT WEDNESDAY 08/25/10 AFTER SIGNAL
17:51:30 z/VM V5.4.0 2009 09 23 15:29
17:51:30 DMSST002E File SYN SYNONYM * not found
17:51:30 STORAGE = 508M
17:51:30 Storage Configuration:
17:51:30 0.96M 100M.412M
17:51:30 Extent Specification Address Range
17:51:30 -----
17:51:30 0.96M 000000000000000000 - 0000000005FFFFFF
17:51:30 100M.412M 0000000006400000 - 000000001FFFFFFF
17:51:30 Storage cleared - system reset.
17:51:30 zIPL v1.8.0 interactive boot menu
17:51:30 0. default (LinuxV2)
17:51:30 1. LinuxV2
17:51:30 2. ipl
17:51:30 Note: VM users please use '#cp vi vmsg <number> <kernel-parameters>'
17:51:30 Please choose (default will boot in 10 seconds):
17:51:40 Booting default (LinuxV2)...
17:51:41 Initializing cgroup subsys cpuset
17:51:41 Initializing cgroup subsys cpu
17:51:41 Linux version 2.6.27.42-0.1-default (geeko@buildhost) (gcc version 4.3
17:51:41 setup.1a06a7: Linux is running as a z/VM quest operating system in 64-
17:51:41 Zone PFN ranges:
-
-
OMEGLN1
MA a 31/001
Connected to remote server/host 9.39.68.141 using port 23

```



```

Session A - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
17:51:50 Aug 25 17:51:50 omeglrx1 SuSEfirewall2: SuSEfirewall2 not active
17:51:50 eth0
17:51:50 ..doneSetting up service (localfs) network . . . . .
17:51:50 Starting rpcbind
17:51:51 ..done
17:51:51 Not starting NFS client services - no NFS found in /etc/fstab:..unused
17:51:51 Mount CIFS File Systems ..unused
17:51:51 Starting service gdm
17:51:51 ..done
17:51:51 Starting auditd
17:51:51 ..done
17:51:51 Starting cupsd
17:51:51 ..done
17:51:52 Starting irqbalance ..unused
17:51:52 Setting up (remotefs) network interfaces:
17:51:52 Setting up service (remotefs) network . . . . .
17:51:52 ..done
17:51:52 Starting Name Service Cache Daemon
17:51:52 ..done
17:51:52 Starting mail service (Postfix)
17:51:53 Starting smartd ..unused
17:51:53 Starting SSH daemon..done
17:51:53 ..done
17:51:54 Starting CRON daemon..done
17:51:54 Starting INET services. (xinetd)
17:51:55 ..done
17:51:55 Master Resource Control: runlevel 5 has been reached
17:51:55 Skipped services in runlevel 5: Ý80CÝ43Dnfs smbfs irq_balancer smartd
17:51:55 Welcome to SUSE Linux Enterprise Server 11 (s390x) - Kernel 2.6.27.42-
17:51:55 omeglrx1 login:
-
OMEGLNX1 (Scroll)
31 / 001
Connected to remote server/host: 9.39.68.141 using port 23
    
```

Scenario 15: How Do You Do That?

Console rule in Operations Manager:

*

* Watch for shutdown complete message on Linux guest

```
DEFRULE NAME(LNXDOWN),+
```

```
  MATCH(*HCPGIR450%*),+
```

```
  USER(OMEGLNX1),+
```

```
  ACTION(LNXBKUP)
```

* Turn off the rule in general

```
SUSPEND RULE(LNXDOWN)
```

Scenario 15: How Do You Do That?

Chain of actions in Operations Manager, triggered by schedule

*

* Start of guest backup scenario, resume rule for guest shutdown msg

```
DEFACTN NAME(STOPLNX),+  
  COMMAND('RESUME RULE(LNXDOWN)'),+  
  ENV(GOM),+  
  NEXTACTN(STOPLNXA)
```

*

* Change SECUSER to Operations Manager before shutting it down

```
DEFACTN NAME(STOPLNXA),+  
  COMMAND(CP SET SECUSER OMEGLNX1 OPMGRM1),+  
  ENV(LVM),+  
  NEXTACTN(STOPLNXB)
```

*

* Action to shut down Linux guest in prep for backup

```
DEFACTN NAME(STOPLNXB),+  
  COMMAND(CP SIGNAL SHUTDOWN OMEGLNX1 WITHIN 90),+  
  ENV(LVM)
```

Scenario 15: How Do You Do That?

Chain of actions and rules in Operations Manager:

* Highlight message and submit backup job for a specific Linux guest

```
DEFACTN NAME(LNXBKUP),+
```

```
  INPUT(AHI),+
```

```
  NEXTACTN(LNXBKUPB)
```

*

```
DEFACTN NAME(LNXBKUPB),+
```

```
  COMMAND(CP SMSG BKRBKUP SUBMIT BKUPLNX1),+
```

```
  ENV(LVM)
```

*

* Define all Backup Manager workers as a group

```
DEFGROUP NAME(BKRWRKRS),+
```

```
  USER(BKRWRK0*)
```

*

* Restart Linux guest when Backup is complete

```
DEFRULE NAME(BKUPDONE),+
```

```
  MATCH(*BACKUP COMPLETE - OMEGLNX1*),+
```

```
  GROUP(BKRWRKRS),+
```

```
  ACTION(STRTLNX)
```

Scenario 15: How Do You Do That?

Suspend rule in Operations Manager (don't back up the guest every time it is shut down)

* Suspend rule for backing up Linux guest

```
DEFACTN NAME(DELBKUP),+  
    COMMAND(SUSPEND RULE(LNXDOWN)),+  
    ENV(GOM)
```

Reference Information

- **Product Web site**
 - Start at <http://www.ibm.com/software/sysmgmt/zvm/operations/>
 - Product pages include
 - Publications
 - Pre-requisites
 - Announcements
 - Presentations
 - White papers
 - Support
- **e-mail**
 - Tracy Dean, tld1@us.ibm.com, Product Manager
 - Mike Sine, sine@us.ibm.com, Technical Marketing
- **White paper for routing Linux syslog data**
 - <http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101379>
- **White paper for sending alerts from Operations Manager to Netcool/OMNibus**
 - <http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101492>

धन्यवाद

Hindi

多謝

Traditional Chinese

감사합니다

Korean

Спасибо

Russian

Gracias

Spanish

شكراً

Arabic

Thank You

English

Obrigado

Brazilian Portuguese

Grazie

Italian

Danke

German

多谢

Simplified Chinese

Merci

French

நன்றி

Tamil

ありがとうございました

Japanese

ขอบคุณ

Thai