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Automation Scenarios for a z/VM Cluster and Linux on System z Guests

SHARE Session 11809

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Agenda

- **Recommended practices**
- **Requirements for these scenarios**
- **Overview of product being used**
 - IBM Operations Manager for z/VM
 - Considerations for z/VM V6.2 SSI
 - Apply to many automation solutions
- **Automation scenarios**
 - Can be product agnostic
 - Live demos
 - Configuration options and sample code
- **Summary and reference information**

Managing z/VM and Linux on System z

- **Security**
 - RACF and zSecure Manager for z/VM
- **Performance monitoring**
 - OMEGAMON XE on z/VM and Linux
- **Automation and operational monitoring**
 - Operations Manager for z/VM
 - Including integration with existing monitoring and alert systems
- **Backup and recovery**
 - Backup and Restore Manager for z/VM
 - Tape Manager for z/VM
 - Tivoli Storage Manager

Recommended Practices – Operational Management

Generate alerts and/or automatically recover from

- Service machine disks approaching full
- Termination messages
- Abend messages
- Critical user IDs being logged off or entering error state
- Spool and page space approaching full

Schedule automated system maintenance procedures

- Spool cleanup based on policies
- Minidisk cleanup (from logs) – may include archiving
- Orderly shutdown and relocation of critical guests to another member in SSI cluster



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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**
- **Trigger an action if spool usage reaches a specified percent full**
 - Provide data about spool usage to the action
- **Trigger an action if page space usage reaches a specified percent full**
 - Provide data about page space usage to the action
- **Chain any actions (triggered by messages, schedules, etc.)**
- **Suspend and resume message rules, schedules, spool/page 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**
- **Suppress lines when viewing a console**



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Automating Operations

Operations Manager for z/VM

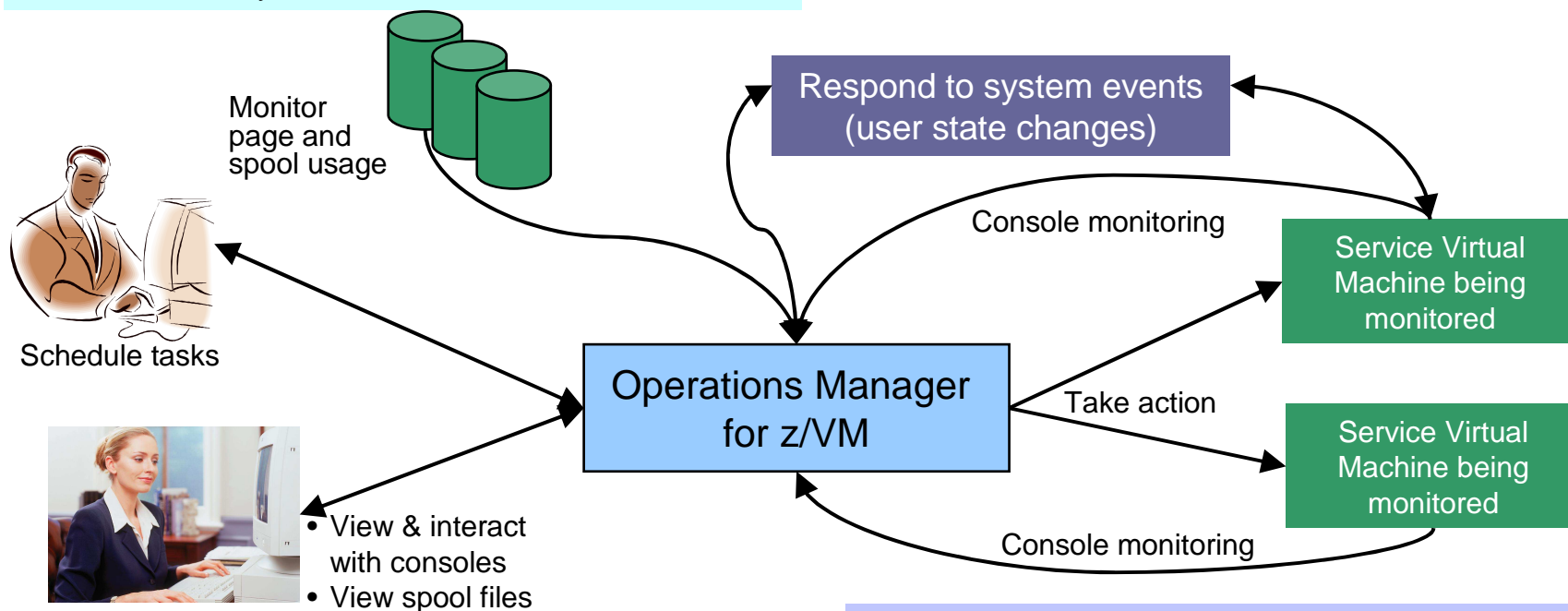
Operations Manager for z/VM

Increase productivity

- Authorized users to 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

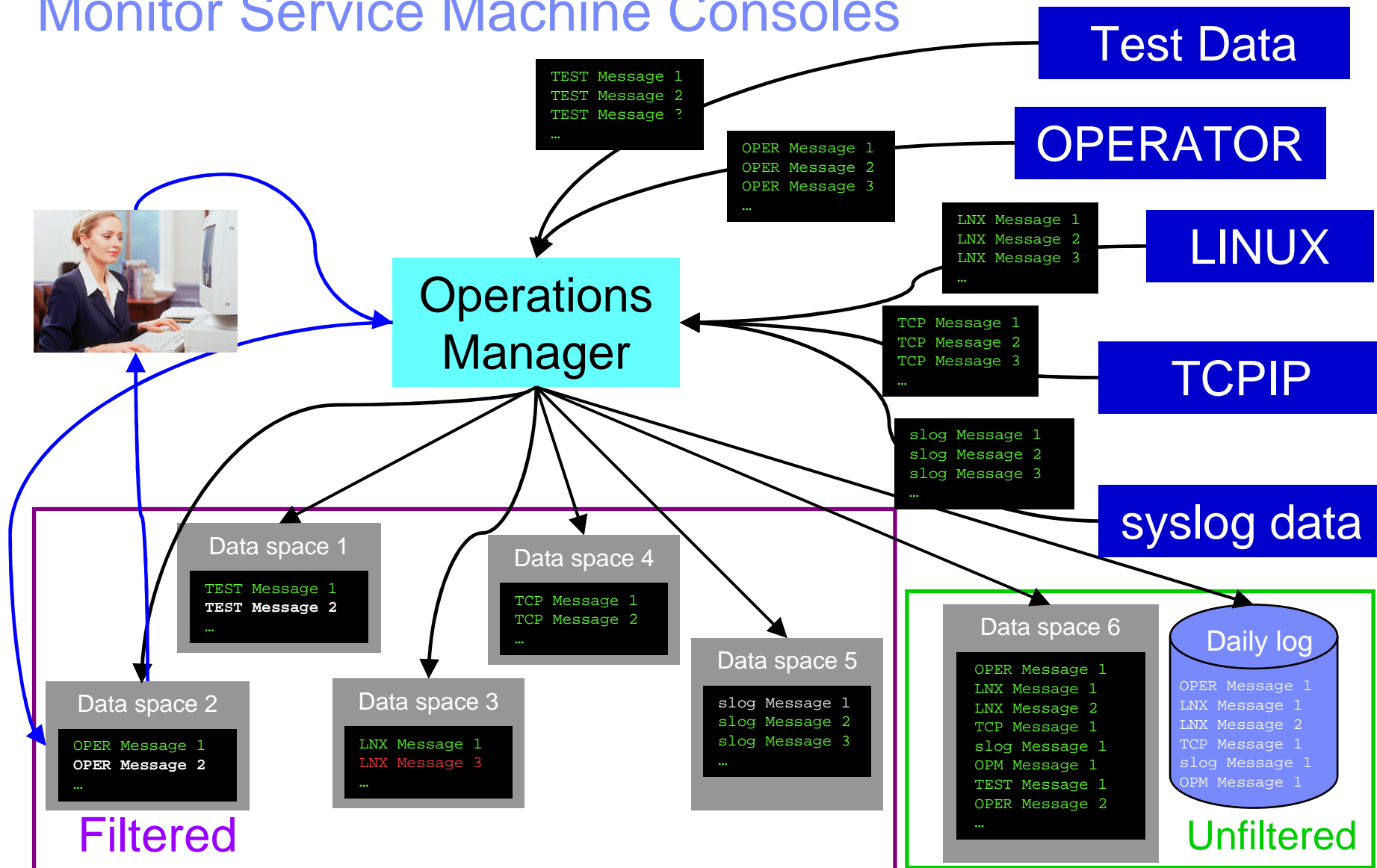
Integration

- Fulfill take action requests from performance monitoring products (e.g. OMEGAMON XE on z/VM and Linux)
- Send alerts to email, central event management systems (e.g. Netcool\OMNIBus), etc.

Features and Functions

- **Monitor service machine consoles**
- **Monitor page space and spool usage**
- **Monitor system events**
- **Schedule events/actions**
- **Take actions automatically based on monitoring results**
- **View and interact with monitored consoles from authorized user IDs**
- **Find and view spool files**
- **Dynamic configuration**
- **Separation of access control**

Monitor Service Machine Consoles



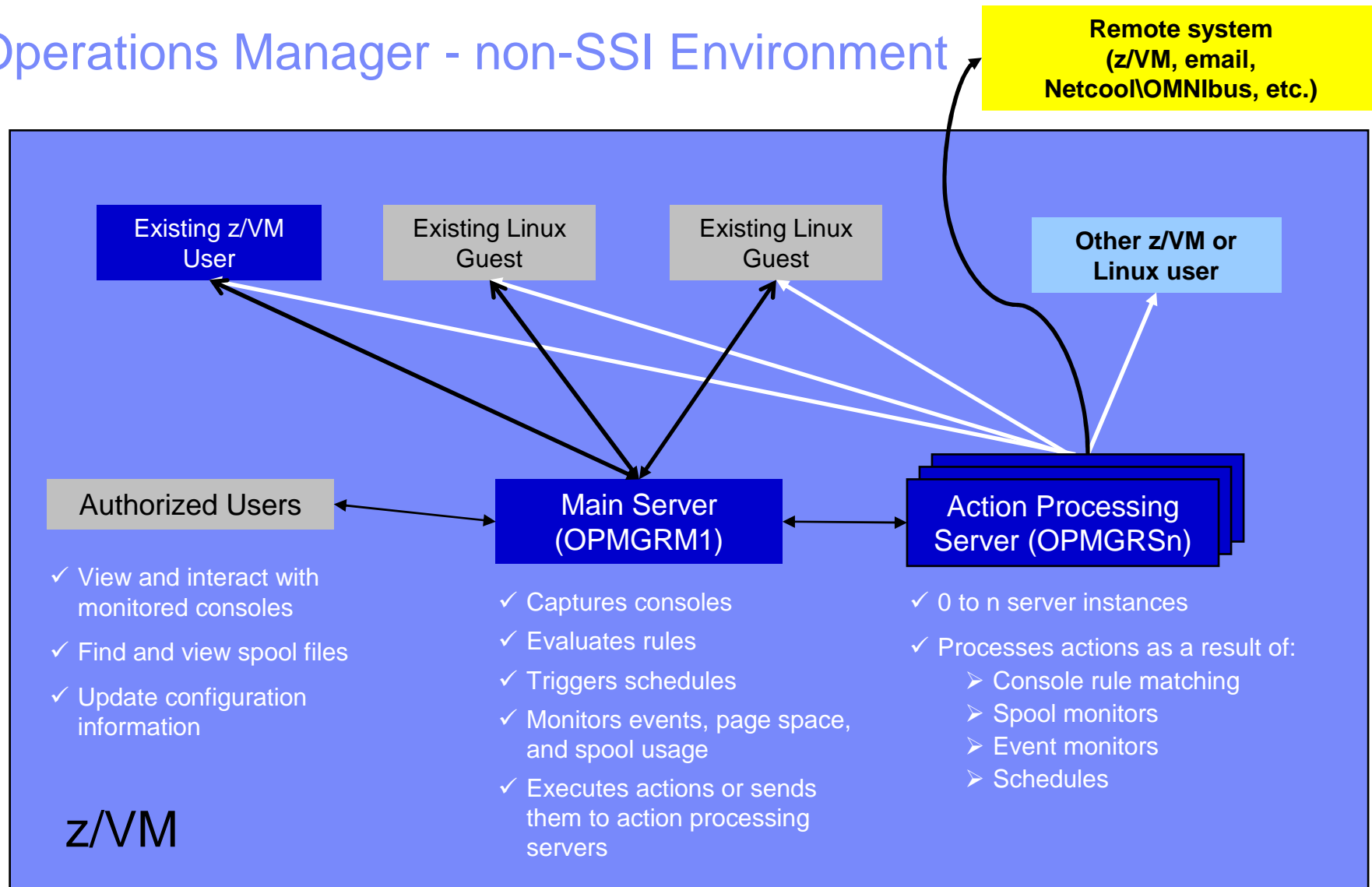
Monitor Service Machines

- **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
 - Change color, highlight, hold, or suppress a console message
 - CP or CMS commands
 - REXX EXECs
- **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
- **Take multiple actions based on one message**
 - Chain actions together
- **Rules apply to consoles received by local Operations Manager server**

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

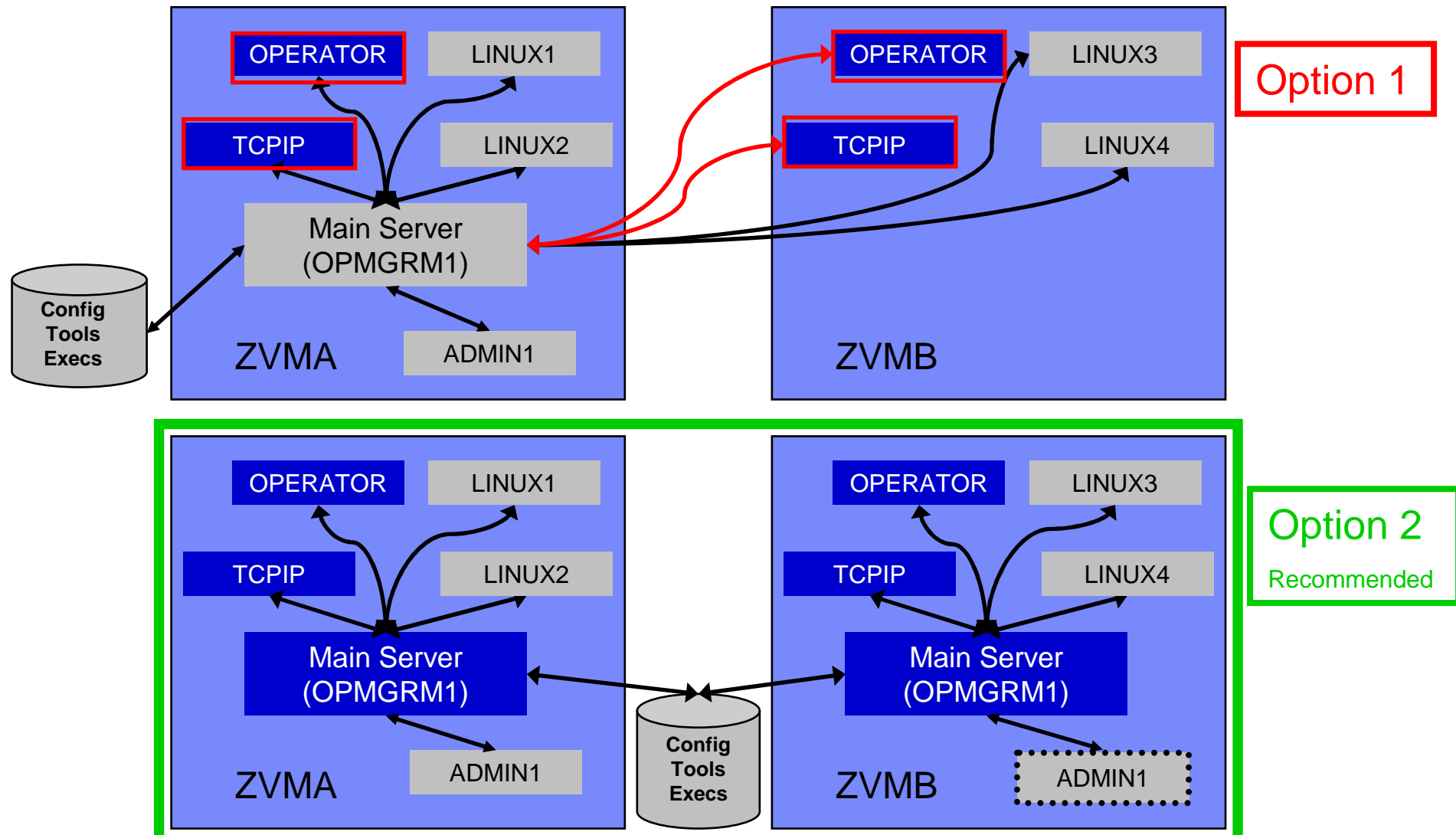
Operations Manager - non-SSI Environment



Single Config User

Multiconfig User

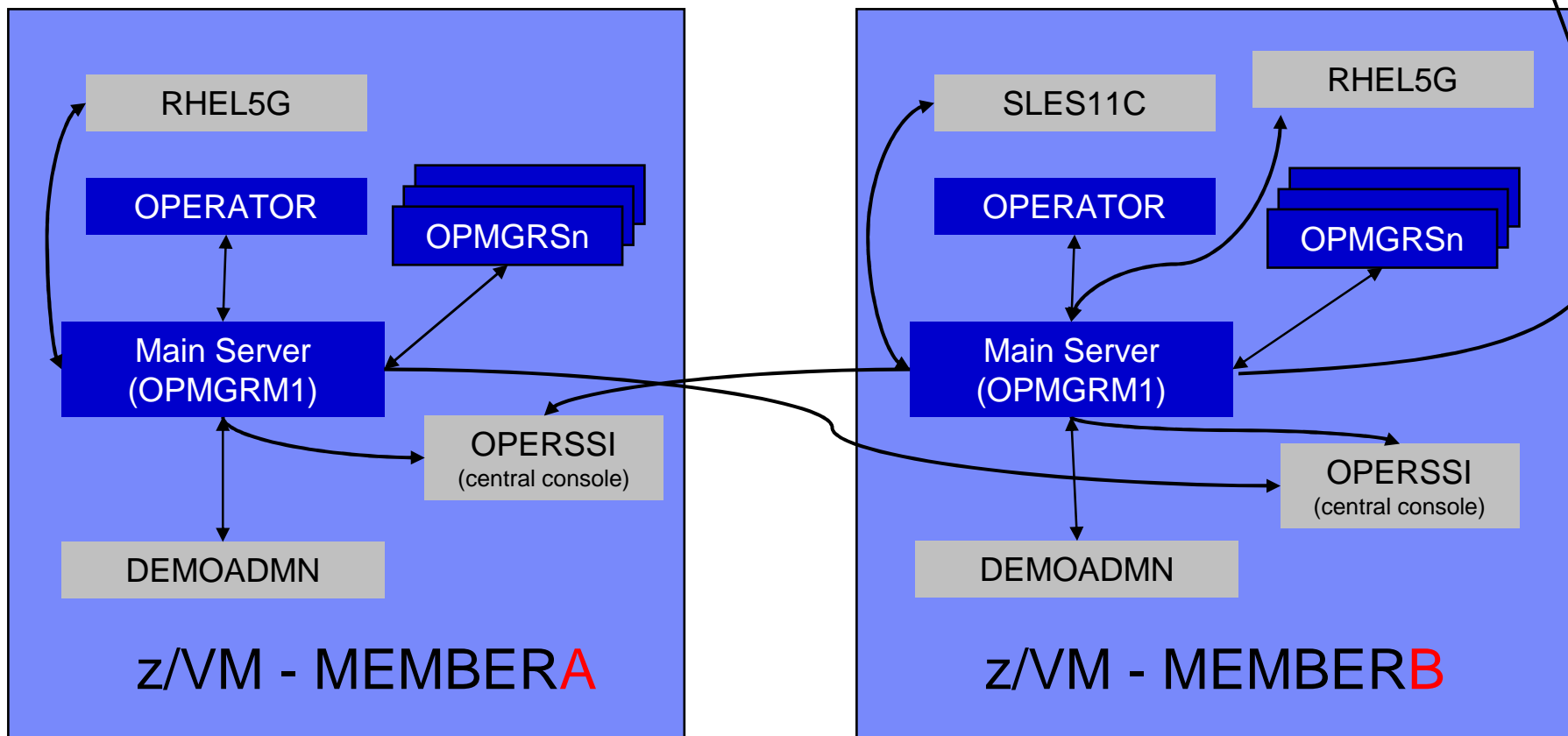
SSI Considerations for Console Monitoring



Operations Manager in SSI Cluster - Example

- Multiconfiguration users: OPMGRM1, OPMGRSn, OPERATOR, MAINT
- Single configuration users: RHEL5G, SLES11C, OPERSSI, DEMOADMN
 - Must “relocate” OPERSSI and DEMOADMN “manually”

Remote system
(z/VM, email,
Netcool\OMNibus, etc.)



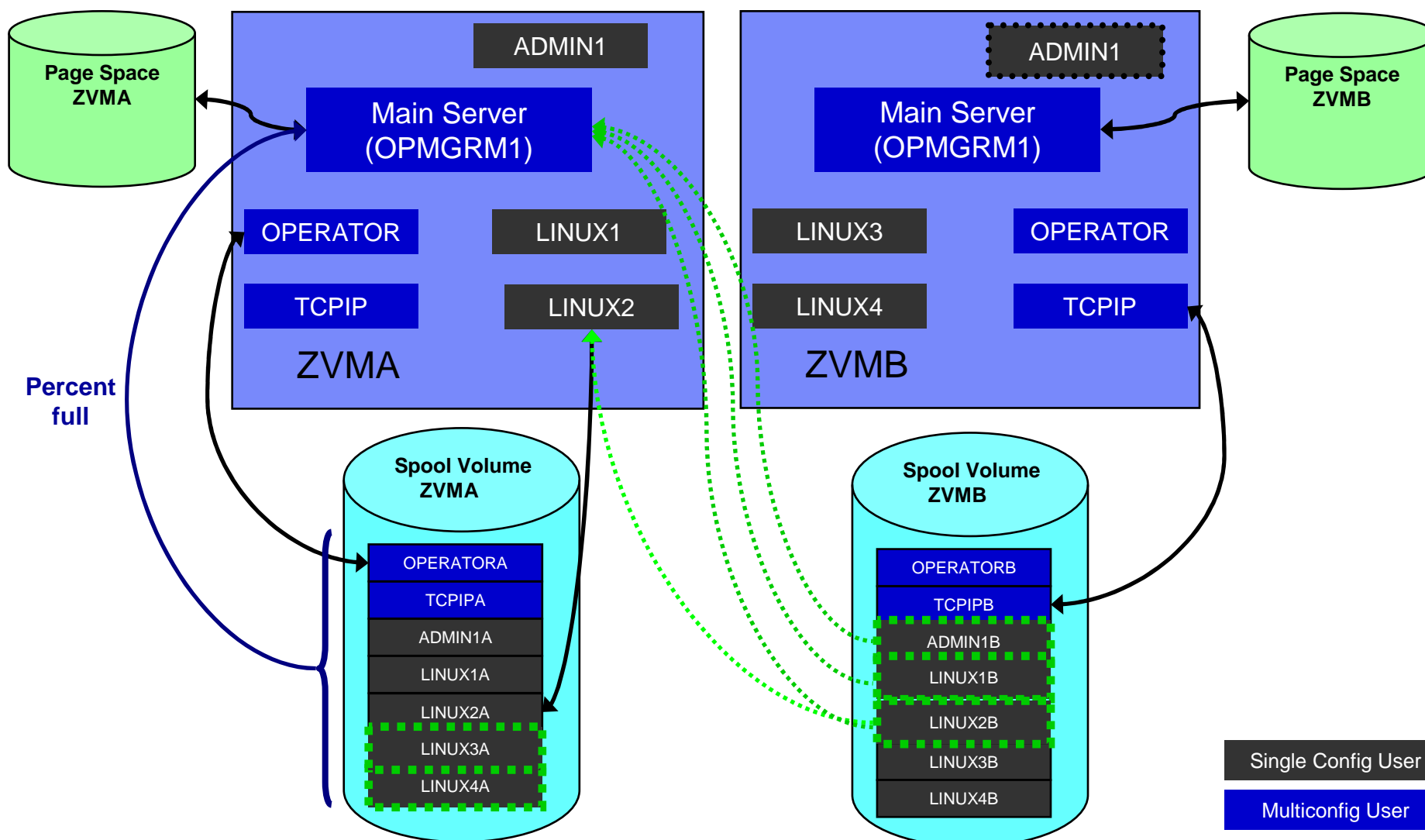
Monitor Service Machines - Considerations

- **Consoles received by Operations Manager via SECUSER or OBSERVER**
 - Prefer SECUSER
 - OBSERVER won't detect CP and VM READ messages
 - Output of actions on OBSERVED console may not be viewable in console
 - OBSERVER allows Operations Manager to receive console output even when user is logged on
- **Single System Image allows SECUSER and OBSERVER across members of cluster**
 - Content does not contain member name information
 - Rules, actions, and users wouldn't be able to distinguish between IDENTITY users on multiple members
 - Creates single point of failure on one member
- **Recommendation for z/VM V6.2 Single System Image Environments**
 - Have all consoles monitored by an Operations Manager server on the same member as the monitored guest
 - Requires action processing servers (OPMGRS_n) to be on same member as main server
 - Share configuration data on minidisk owned by single configuration user
 - For example: VMTOOLS 198
 - Master configuration file unique to each member
 - Imbed common file(s) used by all members

Monitor Page and Spool Usage, View Spool Files

- **Create page and spool space monitors to trigger actions when**
 - Percent of spool usage falls within a specified range
 - Percent of spool usage increases at a specified rate
 - Percent of page space usage falls within a specified range
 - Percent of page space usage increases at a specified rate
- **Actions triggered can be the same actions used by console monitoring**
- **For spool files, 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
 - Purge, transfer, or change a spool file

SSI Considerations for Spool and Page Space Monitoring



Spool and Page Space Monitoring - Considerations

- **Page space is local**
 - Separate space for each member and only visible to the local member
- **Spool data – visibility to authorized users**
 - Spool data for multiconfiguration users
 - Only files owned by the local instance of that user are visible on the local member
 - No visibility to spool files owned by other instances of that user on other members
 - Spool data for single users
 - Files created while logged onto that member are always visible on that member
 - Files owned by the user but created while logged onto another member are only visible to the local member when the user is logged on (or running disconnected) on the local member
- **Another way of putting it**
 - Spool data created on a member is always visible on that member
 - Whether the owning user is currently logged on or not
 - This includes
 - Files created by single configuration users while logged onto that member
 - Files created by multiconfiguration users with subconfig info for that member
 - Spool data owned by single configuration users is seen by the local member when the user is logged on (or running disconnected on) the local member
 - Even if data was originally created while logged onto another member of the cluster
- **Recommendation**
 - Have an Operations Manager server on each member to monitor spool and page space

Schedule Events and Actions

- **Define schedules**
 - Hourly, daily, weekly, monthly, or yearly, nth weekday of the month
 - 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
- **No impact from SSI**

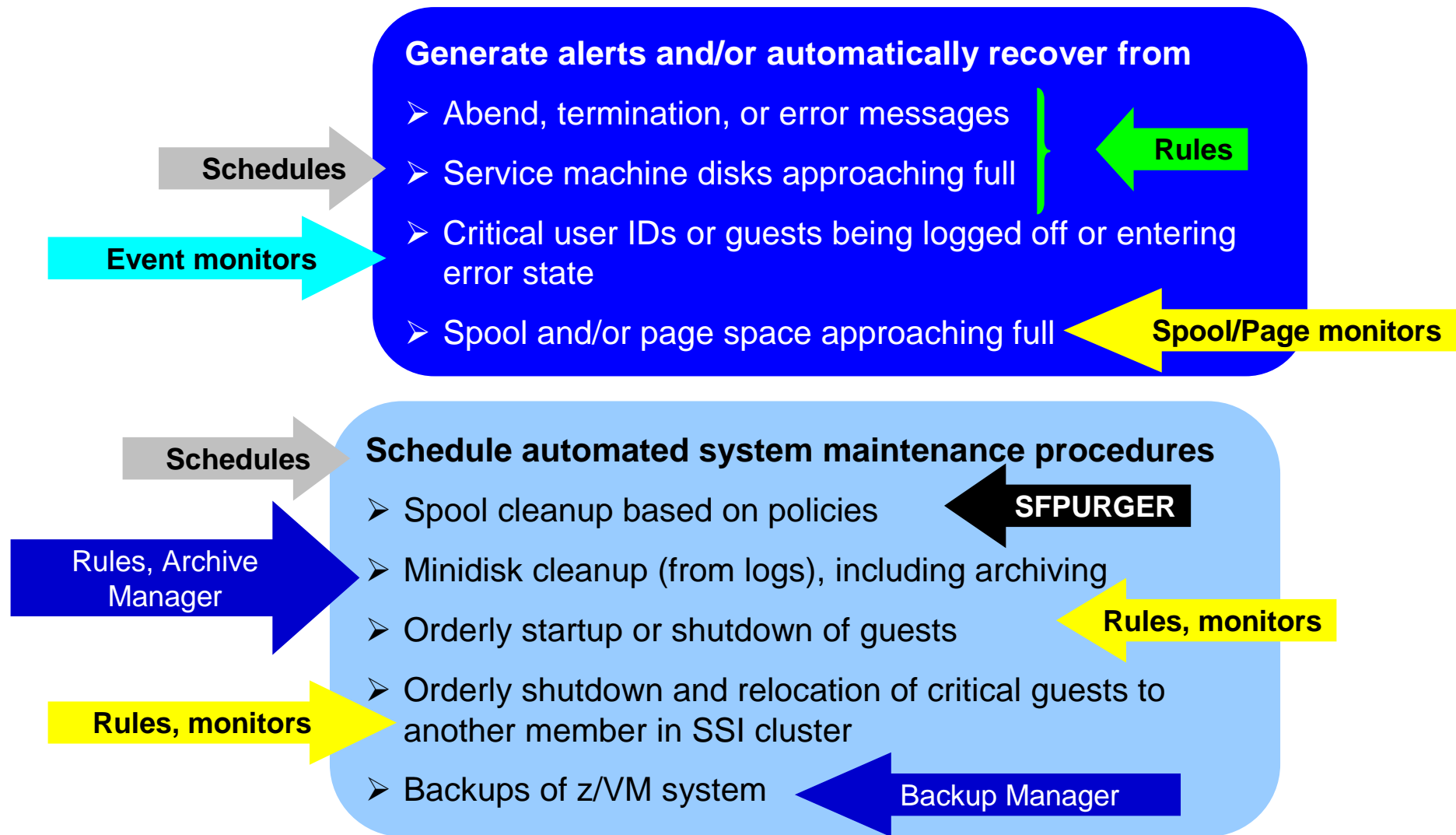
Respond to System Events

- **Create monitors for z/VM system events (*VMEVENT) related to user IDs**
 - Class 0
 - 0 - Logon
 - 1 - Logoff
 - 2 - Failure condition (typically CP READ)
 - 3 - Logoff timeout started
 - 4 - Forced sleep started
 - 5 - Runnable state entered (VM READ)
 - 6 - Free storage limit exceeded
 - 9 - Outbound relocation started
 - 10 - Inbound relocation started
 - 11 - Outbound relocation complete
 - 12 - Inbound relocation complete
 - 13 - Outbound relocation terminated
 - 14 - Inbound relocation terminated
 - 15 - Time bomb exploded
- **Additional classes also supported**
- **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

Dynamic Configuration

- **Initial configuration file loaded at startup**
 - May imbed other configuration files
- **Most configuration options can be updated while Operations Manager is running**
 - Add, delete, or change:
 - Rules, actions, monitors, schedules, holidays, groups, user authorization
 - Suspend or resume rules, monitors, schedules
- **Multiple methods**
 - CMS command interface
 - Load a new or updated configuration file
 - Commands in action routines
 - Request reload from user IDs on other members of a cluster
 - Use SMSG OPMGR1 at <member> CONFIG ...

Recommended Practices – Operational Management



Summary

- **Use Operations Manager to**
 - Automate daily operations
 - Integrate your z/VM and Linux on System z environment with existing enterprise monitoring and alerting
 - 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
 - Continue to monitor locally with improved management of clusters

Reference Information

- **Product Web site**
 - Start at <http://www.ibm.com/software/stormgmt/zvm/>
 - Product pages include
 - Publications
 - Pre-requisites
 - Announcements
 - Presentations
 - White papers
 - Support
- **e-mail**
 - Mike Sine, sine@us.ibm.com, Technical Marketing
 - Tracy Dean, tld1@us.ibm.com, Product Manager
- **White papers on Operations Manager website (Library page)**
 - Routing Linux syslog data
 - Sending alerts from Operations Manager to Netcool/OMNIBus
 - Using Shared File System to store Operations Manager configuration files and automation EXECs
 - Automatically logging on a user at Linux system boot time for easier console management
- **White paper and presentation on Backup and Restore Manager website (Library page)**
 - Getting Started with Installation, including SFS server creation and installation of Backup Mgr
 - Backing up z/VM and Linux on System z – Tivoli Storage Manager vs Backup Manager



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Demonstration Scenarios

Automation 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 an email if spool approaches full**
 - a. Send a message if spool usage is too high on any member of an SSI Cluster
 - b. Send an email if spool usage is too high on a single system
- 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**
 - a. When the systems are in an SSI cluster
 - b. When the systems are not in an SSI cluster
- 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. Send an email if page space approaches full**
- 14. Monitor SSI connectivity between 2 cluster members**
- 15. Suppress passwords on Linux consoles**



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Automation Scenarios

Scenario 1:

Send an Email if Abend or Fatal Message Occurs

- **Watch all monitored consoles for an error message that includes the word “fatal” or “abend”**
 - Message must also contain the word “mail” (for demo purposes only)
- **Send an email if one of the words appears on a console**
- **Dynamically include in the email**
 - Host name of z/VM system where the error occurred
 - User ID that received the error message
 - Indicator of whether the word was fatal or abend
 - Full text of the error message

Scenario 1: Detailed Steps

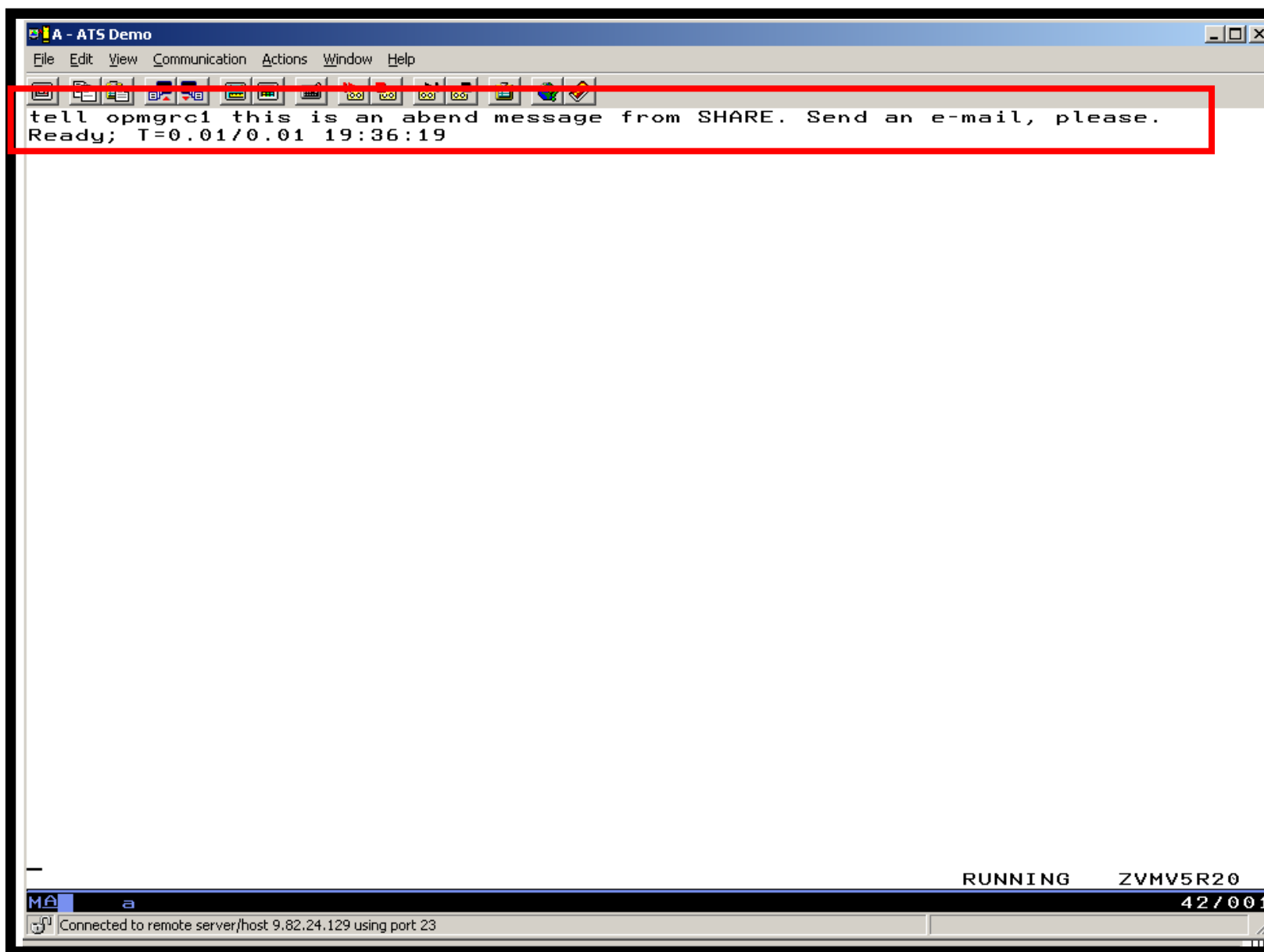
- **From any VM user ID:**

```
tell opmgrcl this is an abend message from SHARE. Send an e-mail, please.
```

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

```
gomcmd opmgrml viewcon user(opmgrcl)
```

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



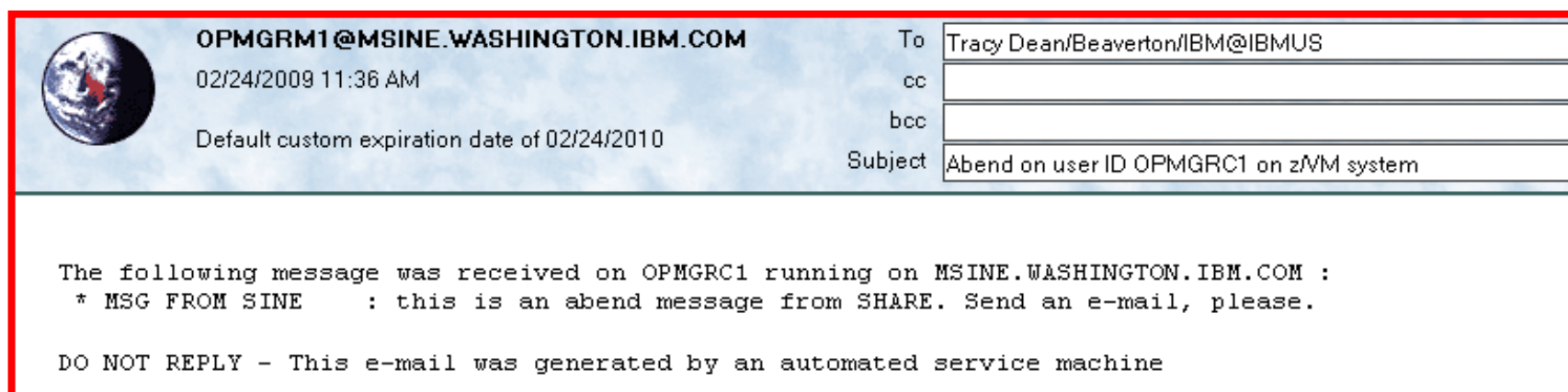
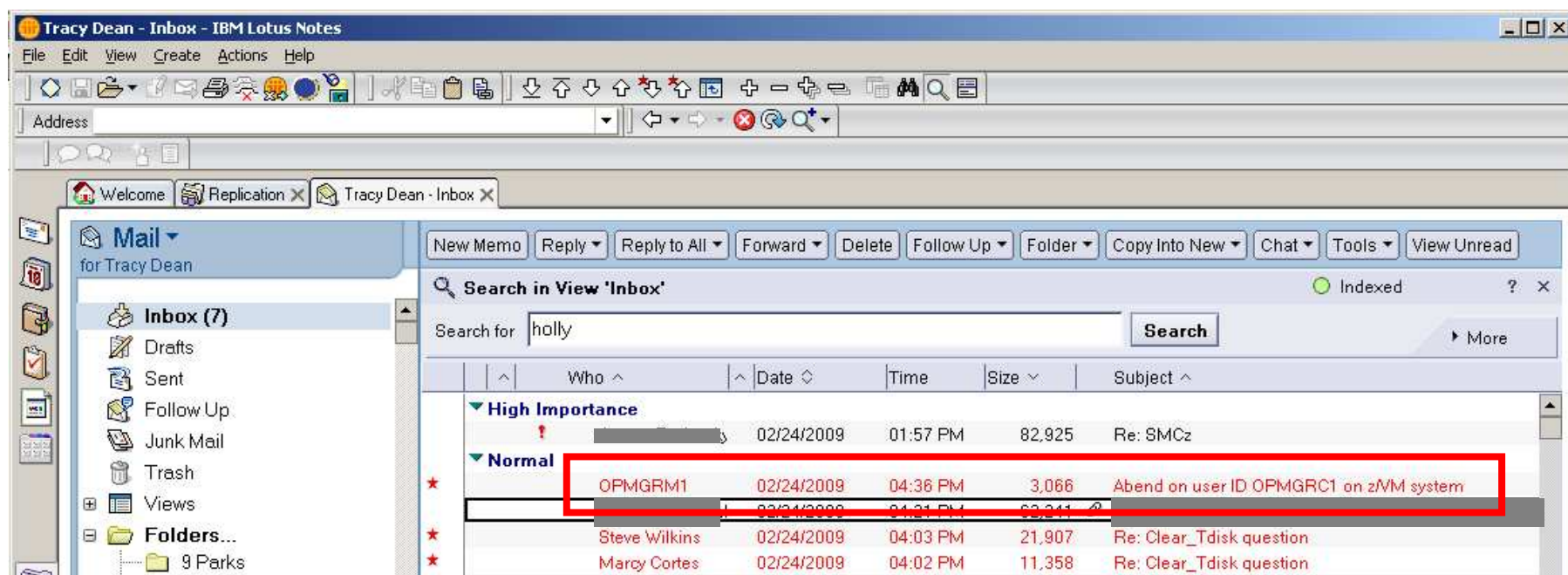
```

A - ATS Demo
File Edit View Communication Actions Window Help

23:59:59
00:00:00 HCPMID6001I  TIME IS 00:00:00 EST SUNDAY 02/22/09
00:00:00
00:00:03 HCPMID6001I  TIME IS 00:00:00 EST MONDAY 02/23/09
00:00:03
10:24:17 * MSG FROM SINE      : this is a fatal message
10:24:27 * MSG FROM SINE      : this is a fatal message please send an e-mail
10:24:27 * -- Operations Manager Action EMAIL      scheduled for execution -- *
10:25:29 * MSG FROM SINE      : this is a fatal message please tell omnibus
10:25:29 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
11:48:50 RDR FILE 0007 SENT FROM SINE      PUN WAS 0254 RECS 169K CPY 001 A NOH
12:03:07 RDR FILE 0008 SENT FROM SINE      PUN WAS 0256 RECS 169K CPY 001 A NOH
12:03:20 RDR FILE 0009 SENT FROM SINE      PUN WAS 0258 RECS 169K CPY 001 A NOH
00:00:01 HCPMID6001I  TIME IS 00:00:00 EST TUESDAY 02/24/09
00:00:01
00:51:58 * MSG FROM SINE      : test abend message for omnibus
00:51:58 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
00:55:15 * MSG FROM SINE      : test abend message for omnibus
00:55:15 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
00:55:41 * MSG FROM SINE      : test abend message for omnibus
00:55:41 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
00:56:25 * MSG FROM SINE      : test fatal message for omnibus
00:56:25 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
00:58:05 * MSG FROM SINE      : test fatal message for omnibus
00:58:05 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
01:01:47 * MSG FROM SINE      : test fatal message for omnibus
01:01:47 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
01:02:36 * MSG FROM SINE      : test fatal message for omnibus
01:02:36 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
01:03:31 * MSG FROM SINE      : test fatal message for omnibus
01:03:31 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
01:04:00 * MSG FROM SINE      : test abend error for omnibus
01:04:00 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
14:01:16 * MSG FROM SINE      : test fatal error for omnibus
14:01:16 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
14:05:33 * MSG FROM SINE      : test abend error for omnibus
14:05:33 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
14:13:43 * MSG FROM SINE      : test fatal error for omnibus
14:13:43 * -- Operations Manager Action ALRTOMNI scheduled for execution -- *
19:36:18 * MSG FROM SINE      : this is an abend message from SHARE. Send an e-m
19:36:18 * -- Operations Manager Action EMAIL      scheduled for execution -- *

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

```



Scenario 1: How Do You Do That?

Rules in Operations Manager:

*
* Send an e-mail to someone if I see a message containing the word
* "fatal" on any monitored console

```
DEFRULE NAME(FATLMAIL),+  
  MATCH(*FATAL*mail*),+  
  EXUSER(ESMTS112),+  
  ACTION(EMAIL),+  
  PARM(FATAL)
```

*
* Send an e-mail to someone if I see a message containing the word
* "abend" on any monitored console

```
DEFRULE NAME(ABNDMAIL),+  
  MATCH(*ABEND*mail*),+  
  EXUSER(ESMTS112),+  
  ACTION(EMAIL),+  
  PARM(ABEND)
```

Scenario 1: How Do You Do That?

Action in Operations Manager:

*

* Replace "tld1 at us.ibm.com" with the e-mail address of the user that

* should receive the e-mail

* Leave &u, &p, and &t as-is. These represent the user ID that had the

* "fatal" message, the parameter passed (fatal orabend), and the

* text of the message. These will be included in the text of the

* e-mail.

```
DEFACTN NAME(EMAIL),+
```

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

```
  OUTPUT(LOG),+
```

```
  ENV(LVM)
```

Scenario 1: How Do You Do That?

SMTPNOTE EXEC (excerpts)

```
/* */
Parse arg mail_user 'AT' mail_node baduser errtype msgtext
if errtype = 'FATAL' then
    errtext = 'Fatal error on user ID' baduser 'on z/VM system'
else
    if errtype = 'ABEND' then
        errtext = 'Abend on user ID' baduser 'on z/VM system'
    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.6 = 'The following message was received on' baduser 'running on'
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 2a:

Send an Alert to OMNIbus – Using POSTZMSG

- **Watch all monitored consoles for an error message that includes the word “fatal” or “abend”**
 - Message must also contain the word “omni” (for demo purposes only)
- **Send an alert to OMNIbus if one of the words appears on a console**
 - Use POSTZMSG, running on Linux guest
 - Do not trigger the action if the message is on this guest
- **Dynamically include in the alert**
 - User ID that received the error message
 - Indicator of whether the word was fatal or abend

Scenario 2a: Detailed Steps

- **View “All Events” in OMNibus**

- **From any VM user ID:**

```
tell opmgrcl this user is abending at SHARE. Tell OMNIBUS.
```

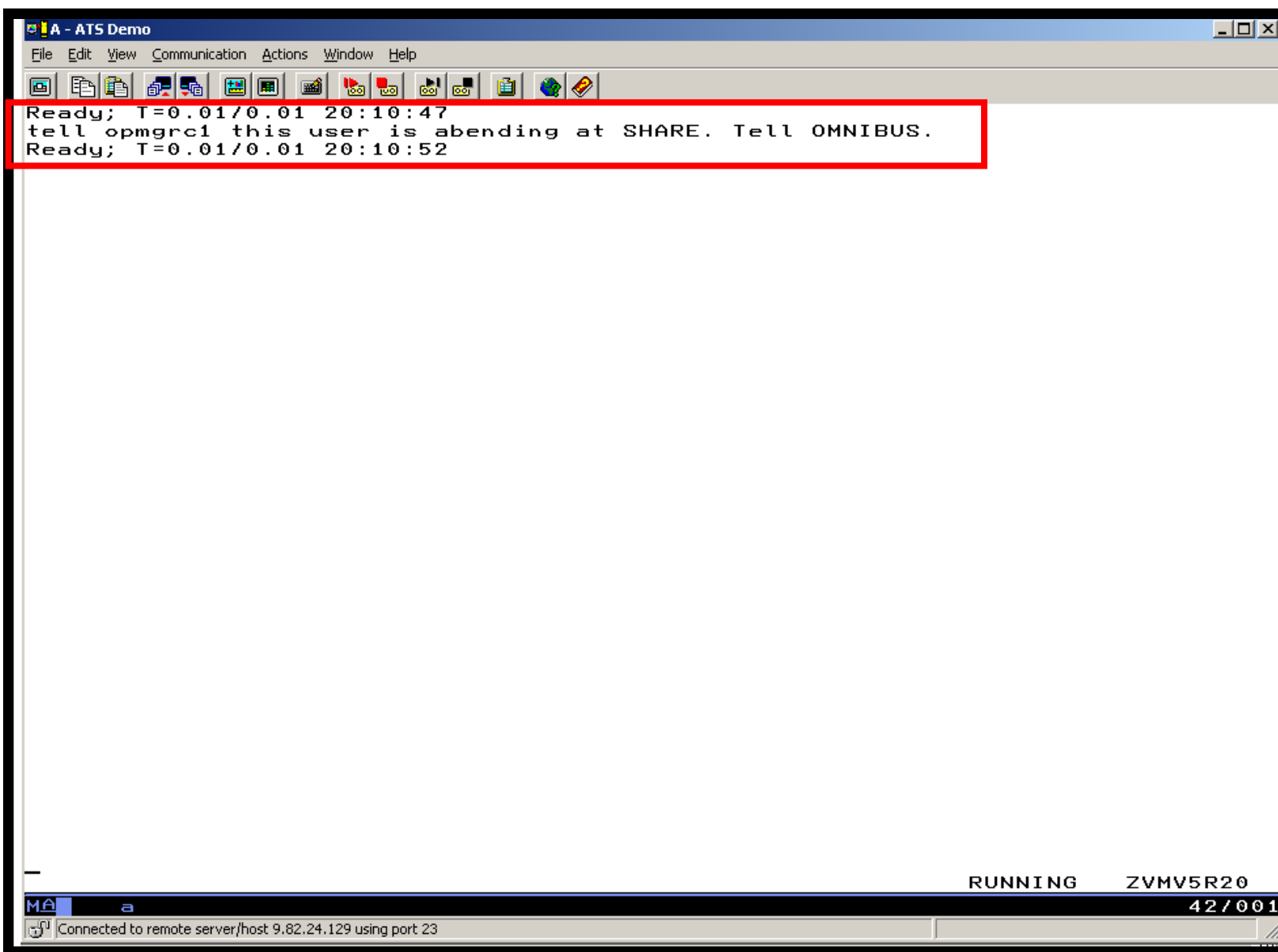
- **From an authorized VM user ID, view the console of OPMGRC1:**

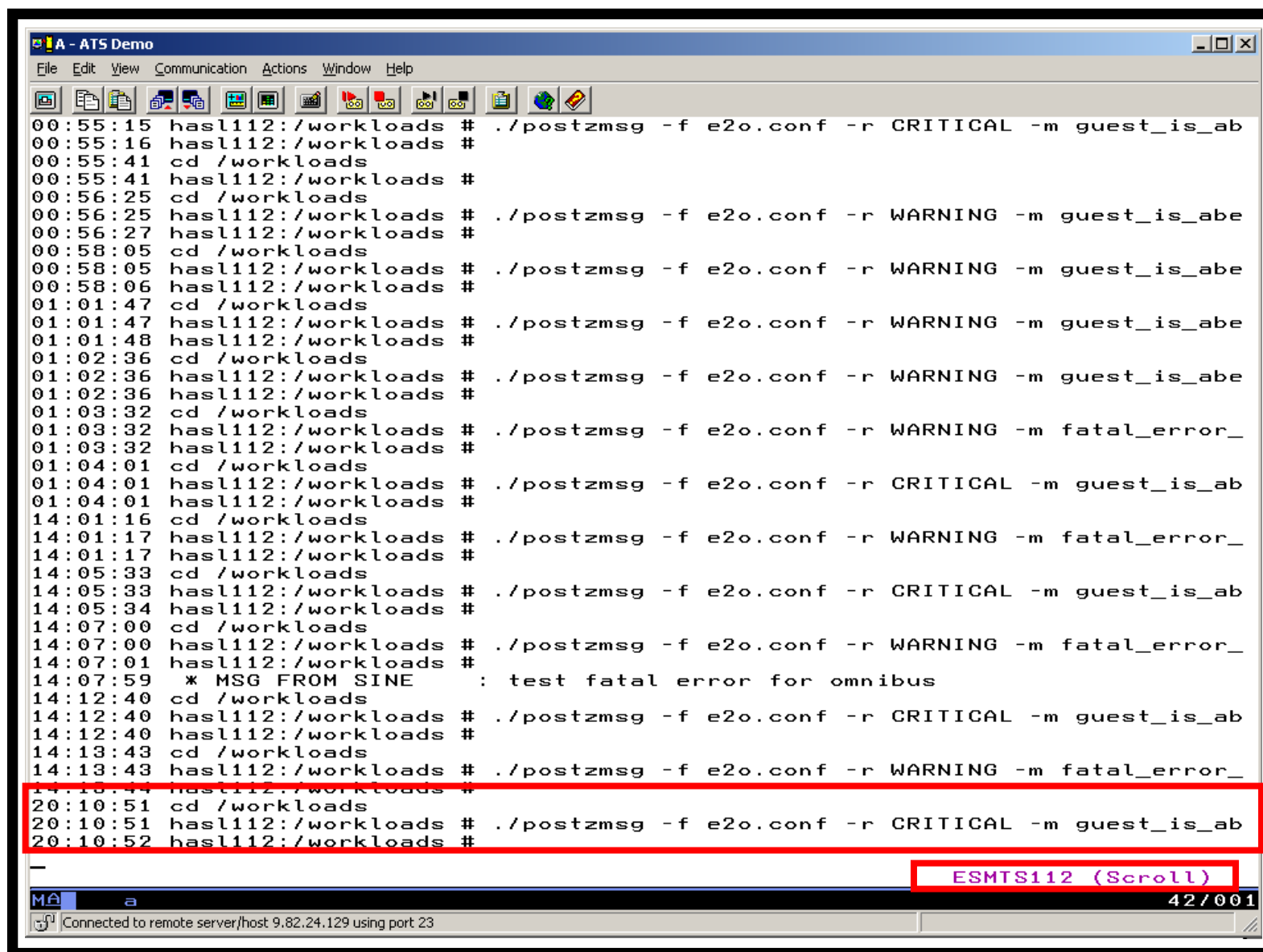
```
gomcmd opmgrml viewcon user(opmgrcl)
```

- **From an authorized VM user ID, view the console of the Linux guest that runs POSTZMSG:**

```
gomcmd opmgrml viewcon user(esmts112)
```

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





```
A - ATS Demo
File Edit View Communication Actions Window Help

00:55:15 hasl112:/workloads # ./postzmsg -f e2o.conf -r CRITICAL -m guest_is_ab
00:55:16 hasl112:/workloads #
00:55:41 cd /workloads
00:55:41 hasl112:/workloads #
00:56:25 cd /workloads
00:56:25 hasl112:/workloads # ./postzmsg -f e2o.conf -r WARNING -m guest_is_abe
00:56:27 hasl112:/workloads #
00:58:05 cd /workloads
00:58:05 hasl112:/workloads # ./postzmsg -f e2o.conf -r WARNING -m guest_is_abe
00:58:06 hasl112:/workloads #
01:01:47 cd /workloads
01:01:47 hasl112:/workloads # ./postzmsg -f e2o.conf -r WARNING -m guest_is_abe
01:01:48 hasl112:/workloads #
01:02:36 cd /workloads
01:02:36 hasl112:/workloads # ./postzmsg -f e2o.conf -r WARNING -m guest_is_abe
01:02:36 hasl112:/workloads #
01:03:32 cd /workloads
01:03:32 hasl112:/workloads # ./postzmsg -f e2o.conf -r WARNING -m fatal_error_
01:03:32 hasl112:/workloads #
01:04:01 cd /workloads
01:04:01 hasl112:/workloads # ./postzmsg -f e2o.conf -r CRITICAL -m guest_is_ab
01:04:01 hasl112:/workloads #
14:01:16 cd /workloads
14:01:17 hasl112:/workloads # ./postzmsg -f e2o.conf -r WARNING -m fatal_error_
14:01:17 hasl112:/workloads #
14:05:33 cd /workloads
14:05:33 hasl112:/workloads # ./postzmsg -f e2o.conf -r CRITICAL -m guest_is_ab
14:05:34 hasl112:/workloads #
14:07:00 cd /workloads
14:07:00 hasl112:/workloads # ./postzmsg -f e2o.conf -r WARNING -m fatal_error_
14:07:01 hasl112:/workloads #
14:07:59 * MSG FROM SINE : test fatal error for omnibus
14:12:40 cd /workloads
14:12:40 hasl112:/workloads # ./postzmsg -f e2o.conf -r CRITICAL -m guest_is_ab
14:12:40 hasl112:/workloads #
14:13:43 cd /workloads
14:13:43 hasl112:/workloads # ./postzmsg -f e2o.conf -r WARNING -m fatal_error_
14:13:44 hasl112:/workloads #
20:10:51 cd /workloads
20:10:51 hasl112:/workloads # ./postzmsg -f e2o.conf -r CRITICAL -m guest_is_ab
20:10:52 hasl112:/workloads #

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]

Host	Event Group	Summary	Last Occurrence	Count	Prob
OPMGR01	SCARY_EVENT	guest_is_abending	/24/2009 08:10:52 P	1	Prob
hasl112	TEST_EVENT	Test message from hasl112	/12/2009 02:15:45 P	3	Prob
mwbt61	Administrator	Attempt to login as root from host mwbt61 failed	/06/2009 06:19:51 P	1	Prob
hasl112	TEST_EVENT	Test message from hasl112	/12/2009 02:15:45 P	3	Prob
hasl112	MWBTEST	Test Message	/05/2009 05:36:58 P	2	Prob
hasle332	Unix Event List	A e@09522621@09522621:1.0 process e@09522621@09522621:1.0 running on ha	/24/2009 08:06:55 P	1	Prob
East	ATS_A_SrvGroup	Server1 experiencing problems	/20/2009 07:23:37 P	3	Prob
	Unix Event List	A e@OmnibusEventConnector process running on has connected as username	/19/2009 09:13:16 P	1	Prob
hasl112	TEST_EVENT	Test message from hasl112	/12/2009 02:19:52 P	1	Prob
	RAD:Impact	A RAD:Impact process running on has connected as username root	/12/2009 09:24:32 A	1	Prob
hasle332	JJELD	A JJELD process running on hasle332 has connected as username root	/05/2009 10:44:58 A	1	Prob
	RAD:Impact	A RAD:Impact process running on has connected as username root	/05/2009 10:44:19 A	1	Prob
hasl125	TESTEIF	test_message_from_eif_2	/19/2008 03:30:51 P	2	Prob
USIBMWZV.HSLV12	TBSMV3_SOURCE390		/25/2008 05:23:22 P	5	Prob
USIBMWZV.HSLV12	TBSMV3_SOURCE390		/25/2008 05:23:21 P	5	Prob
USIBMWZV.HSLV12	TBSMV3_SOURCE390		/05/2008 09:38:25 A	1	Prob
mwbt61	TEST	Test_Message	/10/2008 02:45:57 P	4	Prob

0 4 8 2 1 2 All Events

No rows selected. 02/24/2009 08:11:30 PM root NCOMS[PRI]

Scenario 2a: How Do You Do That?

Rules in Operations Manager:

*

* Send an alert to OMNIBUS for fatal errors on consoles

```
DEFRULE NAME(FATLOMNI),+  
    MATCH(*fatal*omni*),+  
    EXUSER(ESMTS112),+  
    ACTION(ALRTOMNI),+  
    PARM(FATAL)
```

*

* Send an alert to OMNIBUS for abends on consoles

```
DEFRULE NAME(ABNDOMNI),+  
    MATCH(*abend*omni*),+  
    EXUSER(ESMTS112),+  
    ACTION(ALRTOMNI),+  
    PARM(ABEND)
```

Scenario 2a: How Did You Do That?

Action in Operations Manager:

*

* Call POSTZMSG on a Linux guest to send alert to OMNIBUS

```
DEFACTN NAME(ALRTOMNI),+
```

```
  COMMAND(EXEC POSTZMSG &u &p),+
```

```
  OUTPUT(LOG),+
```

```
  ENV(LVM)
```

Scenario 2a: How Did You Do That?

POSTZMSG EXEC (excerpts)

```
/* */
Parse arg baduser errtype
if errtype = 'ABEND' then
  do
    zerrtype = 'CRITICAL'
    cmdpart2 = '-m guest_is_abending hostname='baduser
    cmdpart4 = 'sub_origin=tcp SCARY_EVENT OpsMgr'
  end
else
  do
    zerrtype = 'WARNING'
    cmdpart2 = '-m fatal_error_on_guest hostname='baduser
    cmdpart4 = 'sub_origin=tcp WARN_EVENT OpsMgr'
  end
cmdpart1 = './postzmsg -f e2o.conf -r' zerrtype
cmdpart3 = 'sub_source=postzmsg origin='baduser
'CP SEND ESMTS112 cd /workloads'
'CP SEND ESMTS112' cmdpart1 cmdpart2 cmdpart3 cmdpart4
```


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**
 - IP address of the z/VM system where the error occurred
 - User ID that received the error message
 - Text of the abend message

Scenario 2b: Detailed Steps

- **View “All Events” in OMNIbus**

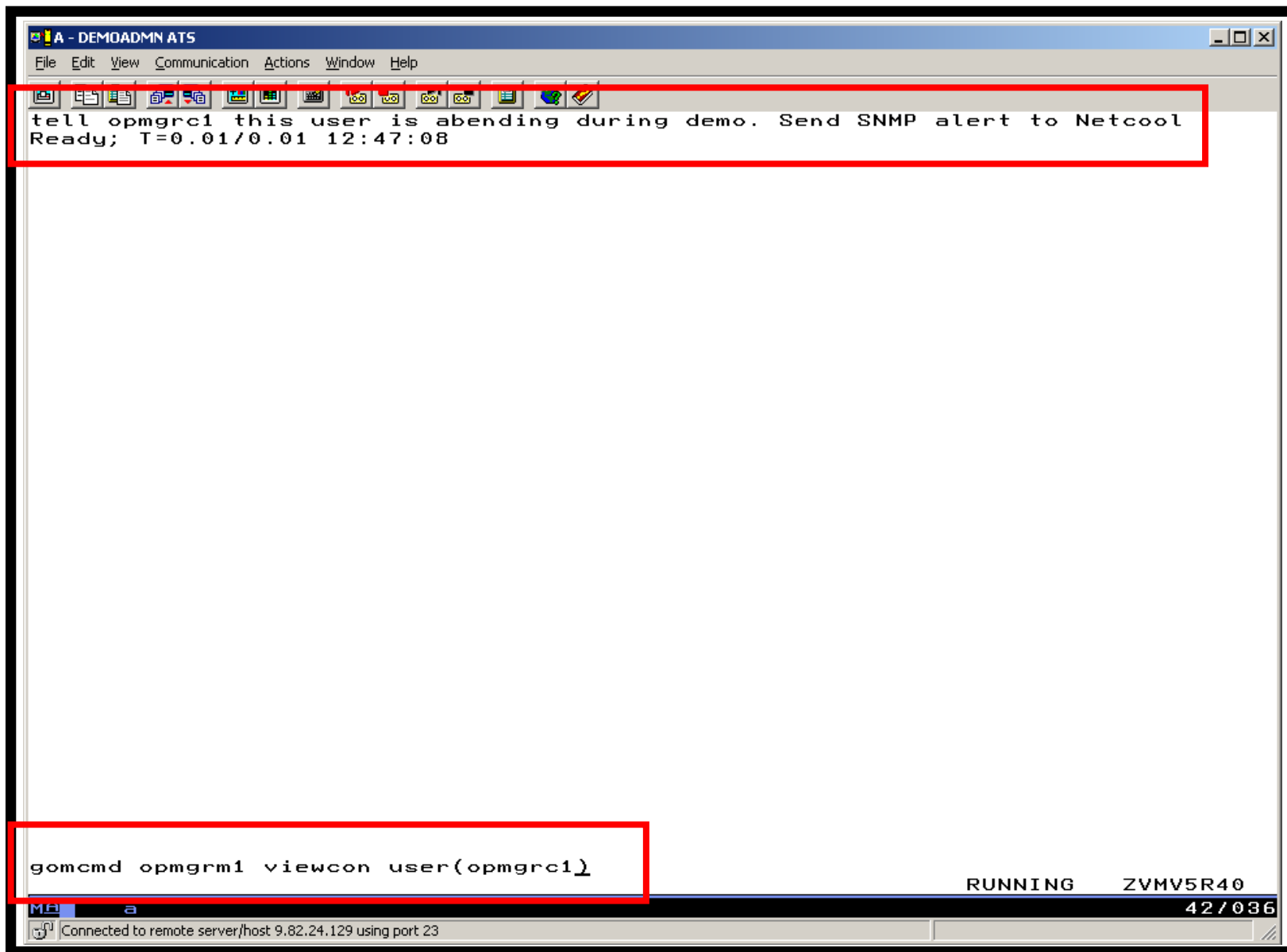
- **From any VM user ID:**

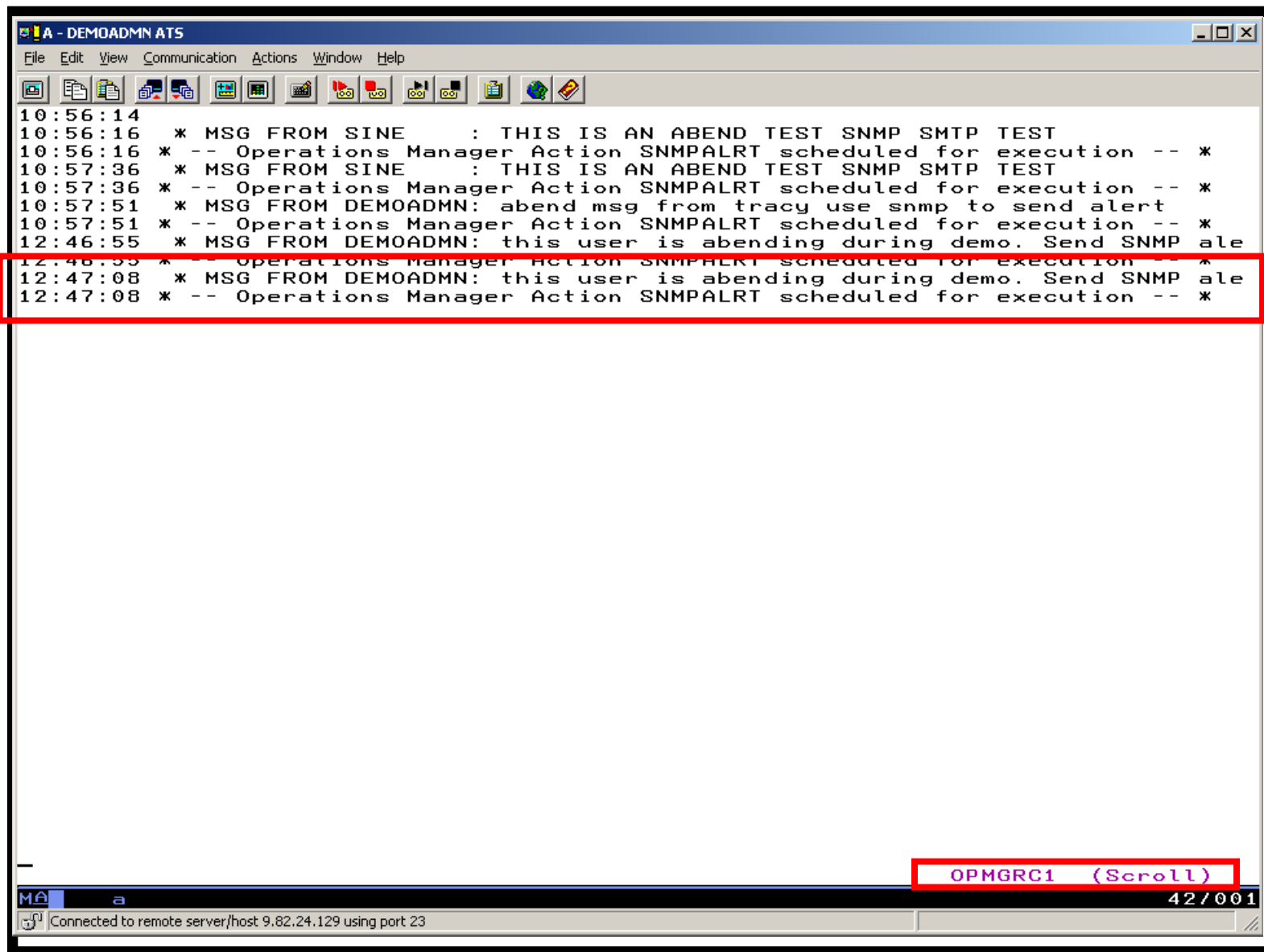
`tell opmgrcl this user is abending during demo. Send SNMP alert to Netcool`

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

`gomcmd opmgrml viewcon user(opmgrcl)`

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





```
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 DEMOADMIN: abend msg from tracy use snmp to send alert
10:57:51 * -- Operations Manager Action SNMPALRT scheduled for execution -- *
12:46:55 * MSG FROM DEMOADMIN: this user is abending during demo. Send SNMP ale
12:46:55 * -- Operations Manager Action SNMPALRT scheduled for execution -- *
12:47:08 * MSG FROM DEMOADMIN: this user is abending during demo. Send SNMP ale
12:47:08 * -- Operations Manager Action SNMPALRT scheduled for execution -- *
```

OPMGRC1 (Scroll)

42/001

Connected to remote server/host 9.82.24.129 using port 23

9.82.24.123	Generic	Authentication	03/12/2010 12:30:23 PM	1652	Type Not Set	Not Set	mttrapd
9.82.24.129	ZVM_SNMP	this user is abending during demo. Send	03/12/2010 12:46:23 PM	9	Problem	Not Set	mttrapd

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 3a:

Send a Message if Spool Usage is Too High on Any Member in an SSI Cluster

- **Operations Manager monitors the spool usage (percent full) on each member of a cluster**
- **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 ??% full
 - Must reactivate on each member of a cluster
- **Automatically send a message to a central console for the entire cluster**
- **Message includes the member name and % full**
- **For demo purposes, suspend (de-activate) the spool monitors when complete**
- **Demonstrate which spool files are visible on each member**

Scenario 3a: Detailed Steps

- **From an authorized VM user ID, see the spool usage on local member TEST7SSI:**

```
gomcmd opmgrm1 viewspl
```

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

```
gomcmd opmgrm1 resume spool(splfull)
```

```
smsg opmgrm1 at testcssi resume spool(splfull)
```

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

```
gomcmd opmgrm1 viewlog
```

- **View the central console for the cluster to see warning messages from each member:**

```
gomcmd opmgrm1 viewcon user(operssi)
```

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

```
gomcmd opmgrm1 suspend spool(splfull)
```

```
smsg opmgrm1 at testcssi suspend spool(splfull)
```

Scenario 3a: Detailed Steps

- From member TEST7SSI, send a spool file to a single configuration and a multiconfiguration user:

```
sendfile test7 file a demoadm op1
```

- From member TEST7SSI, send a spool file to a multiconfiguration user on another member:

```
sendfile testc file a op1 at testcssi
```

- From a user ID with Operations Manager privileges on TEST7SSI, view spool files on TEST7SSI:

```
gomcmd opmgrm1 viewspl
```

- From a user ID with Operations Manager privileges on TESTCSSI, view spool files on TESTCSSI:

```
gomcmd opmgrm1 viewspl
```

Scenario 3b:

Send an Email 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 3b: 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)
```

The screenshot shows a terminal window titled "B - DEMOADMN ATS". The window has a menu bar with "File", "Edit", "View", "Communication", "Actions", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main display area shows the following information:

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

Connected to remote server/host 9.82.24.129 using port 23

05/001


```
B - DEMOADMIN 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 BKRBKUP "BKRBK8510I 03/14/10 18:37:56 WAKEUP
03/14/2010 18:37:56 GOMCMD0216L BKRBKUP "BKRBK8512I 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 BKRBKUP "BKRBK8510I 03/14/10 18:52:56 WAKEUP
03/14/2010 18:52:56 GOMCMD0216L BKRBKUP "BKRBK8512I 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

```

[Show Details](#)

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

Scenario 3b: 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 3b: 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 4: Find and View Spool Files – Clean up the Spool

- **Authorized user specifies spool search criteria**
 - By user ID
 - By date
 - By file size
- **Result list presented**
 - Sort
 - Open/view a specific spool file
 - Purge, modify metadata, or transfer a file

Scenario 4: Detailed Steps

- **From an authorized VM user ID, view the spool files:**

```
gomcmd opmgrml viewspl
```

- **Sort by date**

- Put cursor on date column header and hit F6

- **Find the spool files just sent and type PURGE next to them**

- **From an authorized VM user ID, view the log to see that the spool monitor is no longer triggered:**

```
gomcmd opmgrml viewlog
```

MA - ATS Demo

File Edit View Communication Actions Window Help

System: ZVMV5R20

Spool: 85% Used Files: 0% Used 1 of 1075
Max: 4.8G Max: 1655640

Cmd	Owner	File	CLS	QUE	TYP	Size	Hold	Date	Time	Name	Type
	OPERATNS	0008	D	RDR	DMP	379M	NONE	10/12	16:58:40	CPDUMP	CPDUMP
	OPERATNS	0010	D	RDR	DMP	511M	NONE	05/20	21:04:24	CPDUMP	CPDUMP
	PERFSVM	0339	A	RDR	PRT	101M	NONE	01/04	15:00:28	BRSZVM44	DUMP
	PERFSVM	0690	A	RDR	PRT	8M	SYS	01/13	23:00:07		
	MAINT	0217	T	RDR	CON	16K	SYS	12/16	12:19:02		
	ESMTS109	0074	A	RDR	CON	8M	SYS	11/11	17:48:59		
	SLESA100	0003	A	RDR	PUN	10M	NONE	11/11	17:38:57	INITRD	BIN
	SLESA100	0001	A	RDR	PUN	7M	NONE	11/11	17:38:45	VMRDR	IKR
	SLESA100	0002	A	RDR	PUN	4K	NONE	11/11	17:38:52	PARM	FILE
	SLESA114	0007	A	RDR	PUN	7M	NONE	10/15	12:20:46	VMRDR	IKR
	SLESA114	0009	A	RDR	PUN	10M	NONE	10/15	12:20:50	INITRD	BIN
	RHAT104	0059	A	RDR	PUN	16M	NONE	09/10	11:01:13	INITRD	IMG
	SINE	0150	A	RDR	PUN	17M	NONE	09/10	10:55:21	INITRD	IMG
	ESMTS109	0072	A	RDR	CON	4K	NONE	10/27	15:20:07		
	ESMTS109	0071	A	RDR	CON	4K	NONE	10/27	09:33:25		
	ESMTS109	0070	A	RDR	CON	4K	NONE	10/27	09:26:57		
	ESMTS109	0069	A	RDR	CON	8K	NONE	10/27	07:44:46		
	TCPMAINT	0030	A	RDR	PRT	4K	NONE	10/23	18:27:58	TCPIP	MESSAGE
	OPERATOR	0039	A	RDR	PRT	4K	NONE	10/23	18:27:58	TCPIP	MESSAGE
	SLESA114	0006	A	RDR	CON	1M	NONE	10/15	12:20:39		
	SLESA114	0008	A	RDR	PUN	4K	NONE	10/15	12:20:50	PARM	FILE
	RHAT104	0057	A	RDR	PUN	4M	NONE	09/10	11:01:10	KERNEL	IMG
	RHAT100	0008	A	RDR	PUN	7M	NONE	08/29	10:00:41	VMRDR	IKR
	SINE	0145	A	RDR	PUN	5M	NONE	08/29	09:50:23	BKR120	SERVLINK
	SINE	0143	A	RDR	PUN	5M	NONE	08/29	09:48:36	BKR120	VMARC
	SINE	0117	A	RDR	PUN	16M	NONE	08/13	12:18:54	INITRD	IMG
	BKRADMIN	0021	T	RDR	CON	4K	NONE	09/23	13:29:27	WORKER	OUTPUT
	RHAT104	0060	A	RDR	PUN	4K	NONE	09/10	11:01:20	REDHAT	CONF
	RHAT104	0058	A	RDR	PUN	4K	NONE	09/10	11:01:13	GENERIC	PARM
	RHAT104	0055	A	RDR	CON	72K	NONE	09/10	10:42:30		
	SINE	0144	A	RDR	PUN	1M	NONE	08/29	09:50:18	UK27376	SERVLINK
	SINE	0142	A	RDR	PUN	1M	NONE	08/29	09:48:23	UK18212	VMARC
	SINE	0141	A	RDR	PUN	1M	NONE	08/29	09:46:20	UK31492	SERVLINK
	SINE	0140	A	RDR	PUN	1M	NONE	08/29	09:46:12	UK18212	SERVLINK
	SINE	0139	A	RDR	PUN	1M	NONE	08/29	09:46:11	UK19969	SERVLINK
	SINE	0138	A	RDR	PUN	988K	NONE	08/29	09:46:11	UK23333	SERVLINK
	ESMTS101	0010	A	RDR	PUN	7M	NONE	08/14	14:25:22	VMRDR	IKR
	ESMTS101	0012	A	RDR	PUN	10M	NONE	08/14	14:25:25	INITRD	BIN
	5697J06B	0003	T	RDR	CON	4K	NONE	08/18	14:11:31	VMFINS	CONSOLE

MA a 05/001

Connected to remote server/host 9.82.24.129 using port 23

MA a 05/001

System: ZVMV5R20 Spool: 85% Used Files: 0% Used 1 of 1075
Max: 4.8G Max: 1655640

Cmd	Owner	File	CLS	QUE	TYP	Size	Hold	Date	Time	Name	Type
purge	OPMGR1	0011	A	RDR	PUN	17M	NONE	02/24	20:40:23	INITRD	IMG
=	SINE	0267	A	RDR	PUN	17M	NONE	02/24	20:40:17	INITRD	IMG
=	OPMGR1	0010	A	RDR	PUN	17M	NONE	02/24	20:40:11	INITRD	IMG
=	SINE	0265	A	RDR	PUN	17M	NONE	02/24	20:40:03	INITRD	IMG
	MAINT	0241	T	RDR	CON	4K	NONE	02/24	14:10:31		
	SINE	0264	A	PRT	CON	12K	NONE	02/24	00:51:44		
	MAINT	0240	T	RDR	CON	4K	NONE	02/23	11:58:22		
	OPMGR1	0007	A	RDR	PUN	17M	NONE	02/23	11:48:44	INITRD	IMG
	SINE	0248	A	RDR	PUN	17M	NONE	02/23	11:46:14	INITRD	IMG
	SINE	0247	A	RDR	PUN	17M	NONE	02/23	11:45:38	INITRD	IMG
	SINE	0246	A	RDR	PUN	17M	NONE	02/23	11:45:08	INITRD	IMG
	SINE	0245	A	RDR	CON	12K	NONE	02/23	10:21:58		
	SINE	0244	A	RDR	CON	4K	NONE	02/20	23:10:25		
	SINE	0243	A	RDR	CON	4K	NONE	02/20	18:05:30		
	MAINT	0239	T	RDR	CON	4K	NONE	02/19	15:44:50		
	PERFSVM	0727	A	PRT	PRT	1M	NONE	02/19	00:00:39	FCOMMON	LISTING
	PERFSVM	0726	A	PRT	PRT	1M	NONE	02/18	00:00:39	FCOMMON	LISTING
	SINE	0241	A	RDR	CON	4K	NONE	02/17	09:37:41		
	SMTP	0015	T	PRT	CON	12K	NONE	02/17	08:44:08		
	RICHARD	0010	A	RDR	PUN	4K	NONE	02/17	08:41:39	SMTP	NOTE
	SINE	0240	A	RDR	PUN	4K	NONE	02/17	08:28:43	SMTP	NOTE
	SINE	0239	A	RDR	PUN	4K	NONE	02/17	08:28:43	SMTP	NOTE
	SINE	0238	A	RDR	PUN	4K	NONE	02/17	08:28:43	SMTP	NOTE
	SINE	0237	A	RDR	PUN	4K	NONE	02/17	08:28:43	SMTP	NOTE
	OPMGR1	0003	A	RDR	PUN	4K	NONE	02/17	08:28:43	SMTP	NOTE
	TCPMAINT	0038	T	RDR	CON	8K	NONE	02/17	08:28:43		
	TCPMAINT	0037	A	RDR	PRT	4K	NONE	02/17	08:28:36	TCPIP	MESSAGE
	OPERATOR	0046	A	RDR	PRT	4K	NONE	02/17	08:28:36	TCPIP	MESSAGE
	PERFSVM	0725	A	PRT	PRT	1M	NONE	02/17	00:00:39	FCOMMON	LISTING
	SINE	0236	A	RDR	CON	4K	NONE	02/16	18:04:33		
	BISHOP	0048	T	RDR	CON	4K	NONE	02/16	14:08:44		
	MAINT	0238	T	RDR	CON	4K	NONE	02/16	14:05:32		
	SINE	0235	A	RDR	CON	4K	NONE	02/16	09:43:25		
	PERFSVM	0724	A	PRT	PRT	1M	NONE	02/16	00:00:39	FCOMMON	LISTING
	PERFSVM	0723	A	PRT	PRT	1M	NONE	02/15	00:00:39	FCOMMON	LISTING
	OPERATOR	0045	T	PRT	CON	12K	NONE	02/14	18:06:32		
	RICHARD	0008	T	PRT	CON	8K	NONE	02/14	18:04:27		
	PERFSVM	0722	A	PRT	PRT	1M	NONE	02/14	00:00:39	FCOMMON	LISTING
	RICHARD	0007	A	RDR	PUN	4K	NONE	02/13	10:55:19	LNXXMSG	EXEC

MA a 08/002
Connected to remote server/host 9.82.24.129 using port 23

A - ATS Demo

File Edit View Communication Actions Window Help

System: ZVMV5R20 Spool: 84% Used Files: 0% Used 1 of 1071
Max: 4.8G Max: 1655640

Cmd	Owner	File	CLS	QUE	TYP	Size	Hold	Date	Time	Name	Type
	MAINT	0241	T	RDR	CON	4K	NONE	02/24	14:10:31		
	SINE	0264	A	PRT	CON	12K	NONE	02/24	00:51:44		
	MAINT	0240	T	RDR	CON	4K	NONE	02/23	11:58:22		
	OPMGR1	0007	A	RDR	PUN	17M	NONE	02/23	11:48:44	INITRD	IMG
	SINE	0248	A	RDR	PUN	17M	NONE	02/23	11:46:14	INITRD	IMG
	SINE	0247	A	RDR	PUN	17M	NONE	02/23	11:45:38	INITRD	IMG
	SINE	0246	A	RDR	PUN	17M	NONE	02/23	11:45:08	INITRD	IMG
	SINE	0245	A	RDR	CON	12K	NONE	02/23	10:21:58		
	SINE	0244	A	RDR	CON	4K	NONE	02/20	23:10:25		
	SINE	0243	A	RDR	CON	4K	NONE	02/20	18:05:30		
	MAINT	0239	T	RDR	CON	4K	NONE	02/19	15:44:50		
	PERFSVM	0727	A	PRT	PRT	1M	NONE	02/19	00:00:39	FCOMMON	LISTING
	PERFSVM	0726	A	PRT	PRT	1M	NONE	02/18	00:00:39	FCOMMON	LISTING
	SINE	0241	A	RDR	CON	4K	NONE	02/17	09:37:41		
	SMTP	0015	T	PRT	CON	12K	NONE	02/17	08:44:08		
	RICHARD	0010	A	RDR	PUN	4K	NONE	02/17	08:41:39	SMTP	NOTE
	SINE	0240	A	RDR	PUN	4K	NONE	02/17	08:28:43	SMTP	NOTE
	SINE	0239	A	RDR	PUN	4K	NONE	02/17	08:28:43	SMTP	NOTE
	SINE	0238	A	RDR	PUN	4K	NONE	02/17	08:28:43	SMTP	NOTE
	SINE	0237	A	RDR	PUN	4K	NONE	02/17	08:28:43	SMTP	NOTE
	OPMGR1	0003	A	RDR	PUN	4K	NONE	02/17	08:28:43	SMTP	NOTE
	TCPMAINT	0038	T	RDR	CON	8K	NONE	02/17	08:28:43		
	TCPMAINT	0037	A	RDR	PRT	4K	NONE	02/17	08:28:36	TCPIP	MESSAGE
	OPERATOR	0046	A	RDR	PRT	4K	NONE	02/17	08:28:36	TCPIP	MESSAGE
	PERFSVM	0725	A	PRT	PRT	1M	NONE	02/17	00:00:39	FCOMMON	LISTING
	SINE	0236	A	RDR	CON	4K	NONE	02/16	18:04:33		
	BISHOP	0048	T	RDR	CON	4K	NONE	02/16	14:08:44		
	MAINT	0238	T	RDR	CON	4K	NONE	02/16	14:05:32		
	SINE	0235	A	RDR	CON	4K	NONE	02/16	09:43:25		
	PERFSVM	0724	A	PRT	PRT	1M	NONE	02/16	00:00:39	FCOMMON	LISTING
	PERFSVM	0723	A	PRT	PRT	1M	NONE	02/15	00:00:39	FCOMMON	LISTING
	OPERATOR	0045	T	PRT	CON	12K	NONE	02/14	18:06:32		
	RICHARD	0008	T	PRT	CON	8K	NONE	02/14	18:04:27		
	PERFSVM	0722	A	PRT	PRT	1M	NONE	02/14	00:00:39	FCOMMON	LISTING
	RICHARD	0007	A	RDR	PUN	4K	NONE	02/13	10:55:19	LNMSG	EXEC
	PERFSVM	0721	A	PRT	PRT	1M	NONE	02/13	00:00:39	FCOMMON	LISTING
	PERFSVM	0720	A	PRT	PRT	1M	NONE	02/12	00:00:39	FCOMMON	LISTING
	ESMTS103	0020	A	PRT	CON	3M	NONE	02/11	20:08:57		
	PERFSVM	0719	A	PRT	PRT	1M	NONE	02/11	00:00:39	FCOMMON	LISTING

MA a 05/001

Connected to remote server/host 9.82.24.129 using port 23

```

A - ATS Demo
File Edit View Communication Actions Window Help
02/24/2009 20:52:48 GOMACT0267I ACTION SPL7 END RC=0 SERVER OPMGRM1
02/24/2009 20:52:48 GOMCMD0216L SMTP /* From SMTP: Received Spool File 006
02/24/2009 20:52:48 GOMCMD0216L SMTP /* From SMTP: Mail delivered to: TLD
02/24/2009 20:53:48 GOMSM00403I SPOOL ALERT: MONITOR SPL7 USAGE CONDITI
02/24/2009 20:53:48 GOMSM00401I SPOOL USE: MONITOR SPL7 SPACE 85 PERCENT,
02/24/2009 20:53:48 GOMSM00402I SPOOL CHG: MONITOR SPL7 SPACE 0 PERCENT, F
02/24/2009 20:53:48 GOMACT0260I SPOOL SPL7 ACTION SPL7 TRIGGERED BY
02/24/2009 20:53:48 GOMACT0262I ACTION SPL7 BEGIN FOR SPOOL SERVER OPMG
02/24/2009 20:53:48 GOMACT0269L COMMAND "EXEC SMTPNOTE TLD1 AT US.IBM.COM SPOO
02/24/2009 20:53:48 GOMACT0270L DMSXSU587I XEDIT:
02/24/2009 20:53:48 GOMACT0270L NOTE OPMGRM1 NOTE A1 sent to TLD1 at US.IBM.CO
02/24/2009 20:53:48 GOMACT0267I ACTION SPL7 END RC=0 SERVER OPMGRM1
02/24/2009 20:53:48 GOMCMD0216L SMTP /* From SMTP: Received Spool File 006
02/24/2009 20:53:48 GOMCMD0216L SMTP /* From SMTP: Mail delivered to: TLD
02/24/2009 20:54:48 GOMSM00403I SPOOL ALERT: MONITOR SPL7 USAGE CONDITI
02/24/2009 20:54:48 GOMSM00401I SPOOL USE: MONITOR SPL7 SPACE 85 PERCENT,
02/24/2009 20:54:48 GOMSM00402I SPOOL CHG: MONITOR SPL7 SPACE 0 PERCENT, F
02/24/2009 20:54:48 GOMACT0260I SPOOL SPL7 ACTION SPL7 TRIGGERED BY
02/24/2009 20:54:48 GOMACT0262I ACTION SPL7 BEGIN FOR SPOOL SERVER OPMG
02/24/2009 20:54:48 GOMACT0269L COMMAND "EXEC SMTPNOTE TLD1 AT US.IBM.COM SPOO
02/24/2009 20:54:48 GOMACT0270L DMSXSU587I XEDIT:
02/24/2009 20:54:48 GOMACT0270L NOTE OPMGRM1 NOTE A1 sent to TLD1 at US.IBM.CO
02/24/2009 20:54:48 GOMACT0267I ACTION SPL7 END RC=0 SERVER OPMGRM1
02/24/2009 20:54:48 GOMCMD0216L SMTP /* From SMTP: Received Spool File 007
02/24/2009 20:54:48 GOMCMD0216L SMTP /* From SMTP: Mail delivered to: TLD
02/24/2009 20:55:48 GOMSM00403I SPOOL ALERT: MONITOR SPL7 USAGE CONDITI
02/24/2009 20:55:48 GOMSM00401I SPOOL USE: MONITOR SPL7 SPACE 85 PERCENT,
02/24/2009 20:55:48 GOMSM00402I SPOOL CHG: MONITOR SPL7 SPACE 0 PERCENT, F
02/24/2009 20:55:48 GOMACT0260I SPOOL SPL7 ACTION SPL7 TRIGGERED BY
02/24/2009 20:55:48 GOMACT0262I ACTION SPL7 BEGIN FOR SPOOL SERVER OPMG
02/24/2009 20:55:48 GOMACT0269L COMMAND "EXEC SMTPNOTE TLD1 AT US.IBM.COM SPOO
02/24/2009 20:55:48 GOMACT0270L DMSXSU587I XEDIT:
02/24/2009 20:55:48 GOMACT0270L NOTE OPMGRM1 NOTE A1 sent to TLD1 at US.IBM.CO
02/24/2009 20:55:48 GOMACT0267I ACTION SPL7 END RC=0 SERVER OPMGRM1
02/24/2009 20:55:48 GOMCMD0216L SMTP /* From SMTP: Received Spool File 007
02/24/2009 20:55:48 GOMCMD0216L SMTP /* From SMTP: Mail delivered to: TLD
02/24/2009 20:56:41 GOMCMD0223I USER SINE ISSUED COMMAND "PURGE OPMGRM1 R
02/24/2009 20:56:41 GOMCMD0223I USER SINE ISSUED COMMAND "PURGE SINE R
02/24/2009 20:56:41 GOMCMD0223I USER SINE ISSUED COMMAND "PURGE OPMGRM1 R
02/24/2009 20:56:41 GOMCMD0223I USER SINE ISSUED COMMAND "PURGE SINE R
02/24/2009 20:58:59 GOMCMD0201L SINE "VIEWLOG" VID=SINE SRC=MASIUCV C
MASALOG (Scroll)
42/001
Connected to remote server/host 9.82.24.129 using port 23

```

Scenario 5: Automated Spool Clean Up

- **Use z/VM SFPURGER utility to manage spool files based on criteria, e.g.**
 - User ID
 - Days in spool
 - Class
 - Number of records
- **Automate SFPURGER execution**
 - Regularly scheduled using Operations Manager
 - Triggered by Operations Manager spool monitor

Scenario 5: Detailed Steps

- **From an authorized VM user ID, view the spool files for a specific user:**

```
gomcmd opmgrm1 viewspl user(tstadmin2)
```

- **Send a file to this user as class Z**

```
sendfile profile exec a tstadmin2 (class z
```

- **View spool files for this user again to see the new file**

```
gomcmd opmgrm1 viewspl user(tstadmin2)
```

- **Delete any existing schedules called DEMO**

```
gomcmd opmgrm1 delschd name(demo)
```

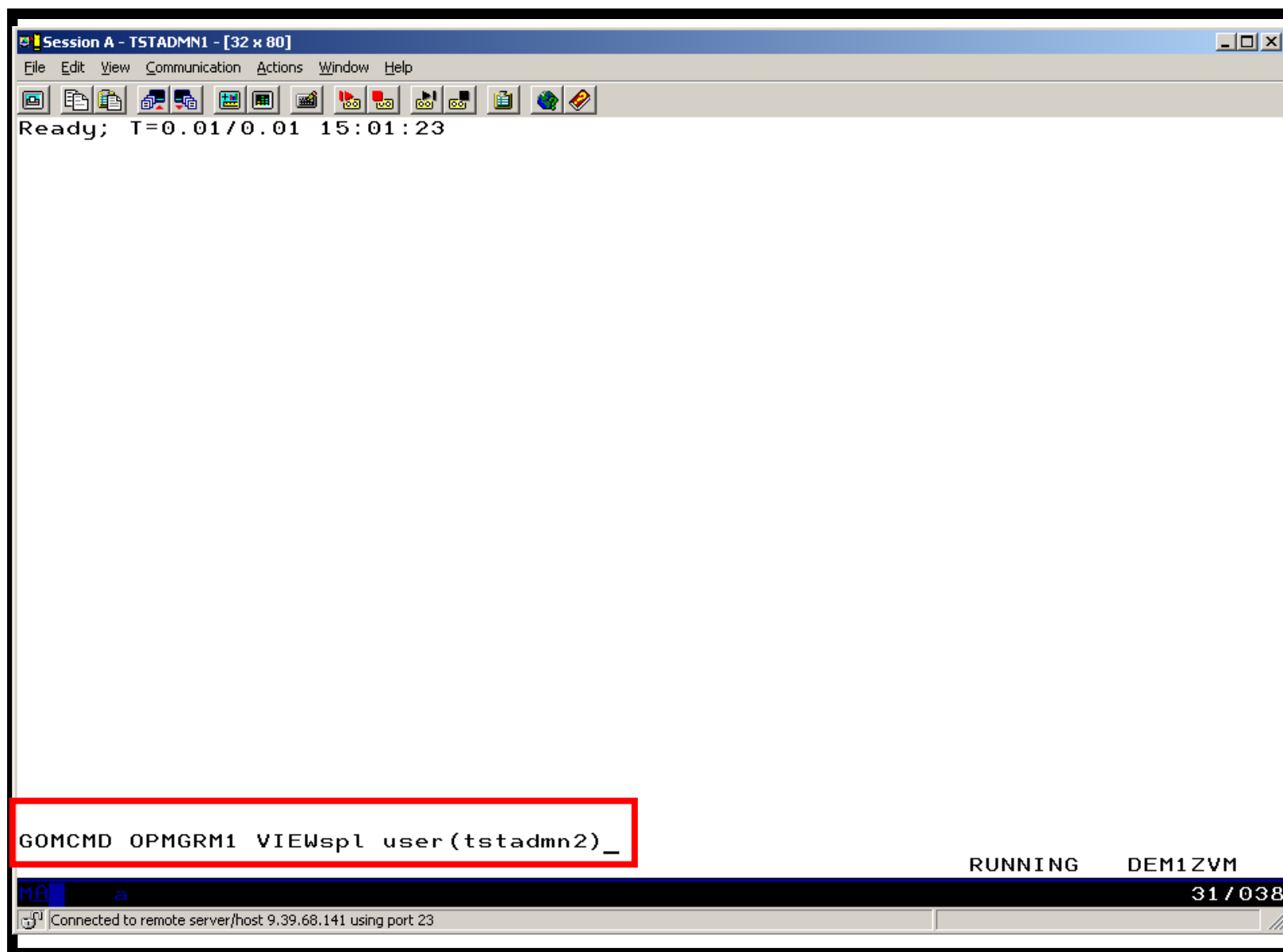
- **Schedule SFPURGER for execution**

- It will purge any files of class Z

```
gomcmd opmgrm1 defschr name(demo),action(sfpurger),WHEN(now)
```

- **View spool files for this user again to see the new file is gone**

```
gomcmd opmgrm1 viewspl user(tstadmin2)
```



Session A - TSTADMN1 - [32 x 80]

File Edit View Communication Actions Window Help

System: DEM1ZVM Spool: 5% Used Files: 0% Used 1 of 2
Max: 2.4G Max: 1655640

Cmd	Owner	File	CLS	QUE	TYP	Size	Hold	Date	Time	Name	Type
	TSTADMN2	0004	A	RDR	PUN	576K	NONE	04/20	04:55:56	AMV1004	BADARC
	TSTADMN2	0006	A	RDR	PUN	64K	NONE	08/25	11:07:21	TSTADMN1	NETLOG

MA a 05/001

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```
Session A - TSTADMN1 - [32 x 80]
File  Edit  View  Communication  Actions  Window  Help

sendfile profile exec a tstadm2 (class z
File PROFILE EXEC A1 sent to TSTADMN2 at DEM1ZVM on 09/27/09 15:23:11
Ready; T=0.01/0.01 15:23:11

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

Session A - TSTADMN1 - [32 x 80]

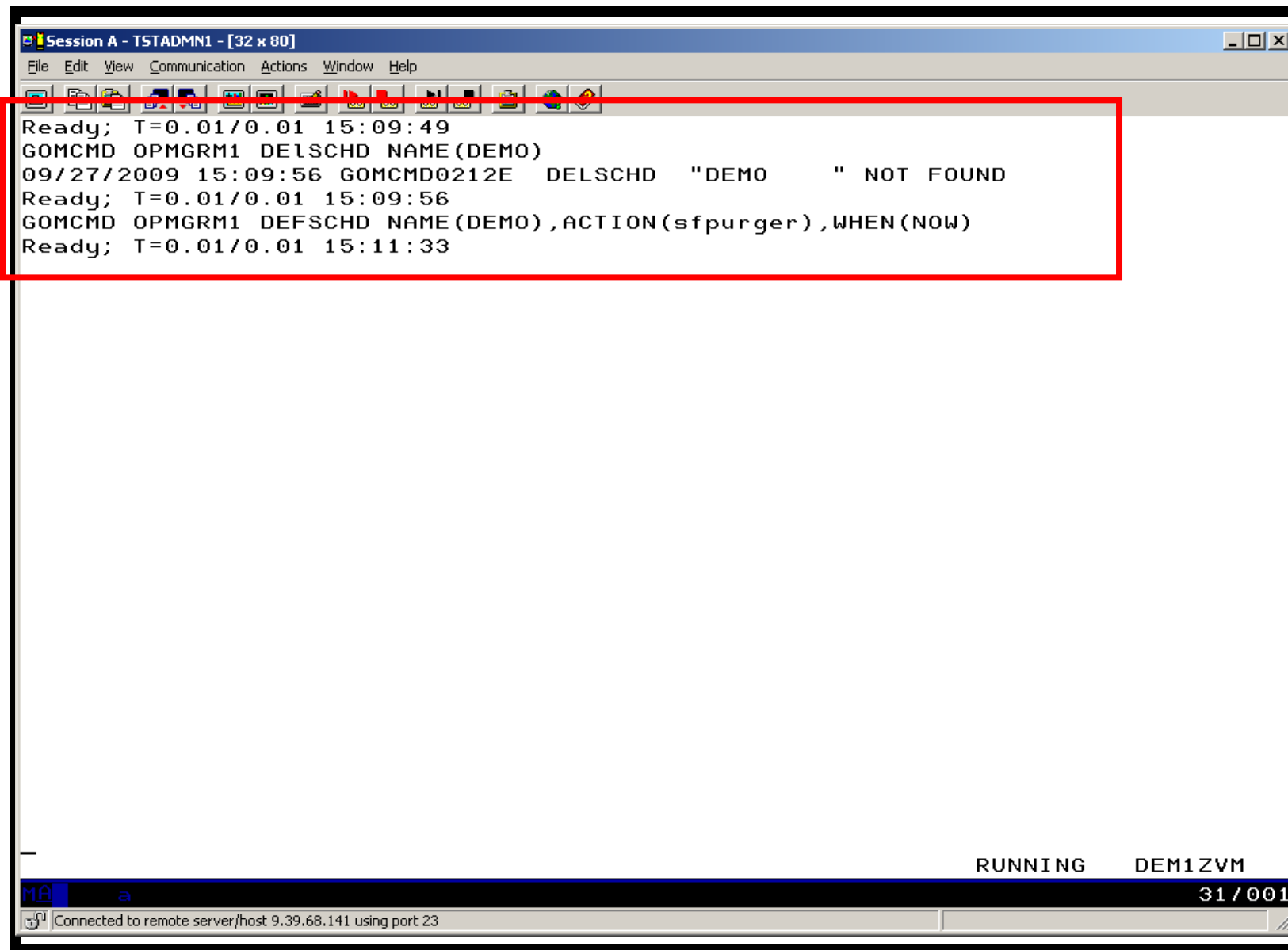
File Edit View Communication Actions Window Help

System: DEM1ZVM Spool: 5% Used Files: 0% Used 1 of 3
Max: 2.4G Max: 1655640

Owner	File	CLS	QUE	TYP	Size	Hold	Date	Time	Name	Type
TSTADMN2	0004	A	RDR	PUN	576K	NONE	04/20	04:55:56	AMV1004	BADARC
TSTADMN2	0006	A	RDR	PUN	64K	NONE	08/25	11:07:21	TSTADMN1	NETLOG
TSTADMN2	0009	Z	RDR	PUN	4K	NONE	09/27	15:23:11	PROFILE	EXEC

MA a 05/001

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 main text area contains the following output:

```
Ready; T=0.01/0.01 15:09:49
GOMCMD OPMGRM1 DELSCHD NAME(DEMO)
09/27/2009 15:09:56 GOMCMD0212E  DELSCHD  "DEMO    " NOT FOUND
Ready; T=0.01/0.01 15:09:56
GOMCMD OPMGRM1 DEFSCHD NAME(DEMO),ACTION(sfpurger),WHEN(NOW)
Ready; T=0.01/0.01 15:11:33
```

A red rectangular box highlights the first five lines of the terminal output. At the bottom of the window, there is a status bar with the text "RUNNING DEM1ZVM" and "31/001". Below the status bar, a small icon and the text "Connected to remote server/host 9.39.68.141 using port 23" are visible.

```

Session A - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
09/27/2009 15:26:29 GOMCMD0216L LVSYSLOG "/11>DB2[2000]: Open of log file "/ba
09/27/2009 15:26:37 GOMCMD0201L TSTADMN1 "DELSCHD NAME(DEMO)" VID=TSTADMN1 SRC
09/27/2009 15:26:49 GOMCMD0201L TSTADMN1 "DEFSCHD NAME(DEMO),ACTION(SFPURGER),
09/27/2009 15:26:59 GOMACT0260I TSTADMN1 "VIEWLOG" VID=TSTADMN1 SRC=MASIUCV C
09/27/2009 15:26:59 GOMACT0262I SCHEDULE DEMO ACTION SFPURGER TRIGGERED BY
09/27/2009 15:26:59 GOMACT0269L ACTION SFPURGER BEGIN FOR SCHEDULE SERVER OPMG
09/27/2009 15:26:59 GOMACT0270L COMMAND "EXEC SFPURGER FORCE"
09/27/2009 15:26:59 GOMACT0270L DMSCYS2452I SFPURGER OPTIONS file processed ..
09/27/2009 15:26:59 GOMACT0270L DMSCYS2453I SFPURGER starting at 15:26:59 on 2
09/27/2009 15:26:59 GOMACT0270L DMSCYS2453I Running in FORCE mode - RUN09270.
09/27/2009 15:26:59 GOMACT0270L DMSCYS2470I Using SFPURGER MODULE with SFPTRAC
09/27/2009 15:26:59 GOMACT0270L DMSCYS2456I Erasing old output files till 2009
09/27/2009 15:26:59 GOMACT0270L DMSCYS2496I Control card scan complete.
09/27/2009 15:26:59 GOMACT0270L DMSCYS2459I Examining output file ...
09/27/2009 15:26:59 GOMACT0270L DMSCYS2462I Spool file scanning begins ...
09/27/2009 15:26:59 GOMACT0270L DMSCYS2482I Executing: CP PURGE TSTADMN2 RDR 0
09/27/2009 15:26:59 GOMACT0270L 0000001 FILE PURGED
09/27/2009 15:26:59 GOMACT0270L DMSCYS2463I 1 of the 286 spool files HAVE been
09/27/2009 15:26:59 GOMACT0270L DMSCYS2485I 0 of the 286 spool files HAVE been
09/27/2009 15:26:59 GOMACT0270L DMSCYS2486I 0 of the 286 spool files HAVE been
09/27/2009 15:26:59 GOMACT0270L RDR FILE 0014 SENT FROM OPMGRM1 CON WAS 0014
09/27/2009 15:26:59 GOMACT0270L DMSCYS2466I Run terminating - Return code 0.
09/27/2009 15:26:59 GOMACT0270L DMSCYS2465I SFPURGER RUN09270 has ended.
09/27/2009 15:26:59 GOMACT0267I ACTION SFPURGER END RC=0 SERVER OPMGRM1
09/27/2009 15:26:59 GOMCMD0216L OPERATOR "OPMGRM1: DMSCYS2452I SFPURGER starti
09/27/2009 15:26:59 GOMCMD0216L OPERATOR "OPMGRM1: DMSCYS2453I Running in FORC
09/27/2009 15:26:59 GOMCMD0216L OPERATOR "OPMGRM1: DMSCYS2456I Erasing old out
09/27/2009 15:26:59 GOMCMD0216L OPERATOR "OPMGRM1: DMSCYS2459I Examining outpu

MASALOG
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

System: DEM1ZVM Spool: 5% Used Files: 0% Used 1 of 2
Max: 2.4G Max: 1655640

Cmd	Owner	File	CLS	QUE	TYP	Size	Hold	Date	Time	Name	Type
—	TSTADMN2	0004	A	RDR	PUN	576K	NONE	04/20	04:55:56	AMV1004	BADARC
	TSTADMN2	0006	A	RDR	PUN	64K	NONE	08/25	11:07:21	TSTADMN1	NETLOG

05/001

Connected to remote server/host 9.39.68.141 using port 23

Scenario 5: How Do You Do That?

Action in Operations Manager to call z/VM's SFPURGER EXEC

```
*  
DEFACTN NAME(SFPURGER),+  
  COMMAND(EXEC SFPURGER FORCE),+  
  OUTPUT(LOG),+  
  ENV(LVM)
```

SFPURGER OPTIONS file

```
* Send console log to user ID TSTADMN1 at demo node  
CONSOLE  TSTADMN1 DEM1ZVM  
* Erase LOG and RUN files that are more than 3 days old  
KEEPDAY  21  
* Set prime shift start and end times  
PRIMSHFT  07:30:00 16:30:00  
* Use defaults for the following:  
*  MSGTYPE  SORTMOD  SFPCNTL  SOSCNTL  SFPMOD  APPEND  
SFPCNTL  SFPTRACY
```

Scenario 5: How Do You Do That?

SFPTRACY CONTROL

* Ignore any spool files found in the NSS queue (privilege class E)

QUEUE NSS

ACTION IGNORE

*

* Purge any spool files found in class Z

CLASS Z

ACTION PURGE

Make sure OPMGRM1 links and accesses MAINT 193 disk for access to SFPURGER functions

Scenario 6: Detecting Disk Full Conditions of Logging IDs

- **Operations Manager monitors the console of a user ID that does logging**
 - DIRMAINT, for example
- **Disk full or early warning message triggers a rule/action in Operations Manager**
 - Quiesce or shut down DIRMAINT
 - Send the log files to a separate service machine
 - Erase the log files from DIRMAINT's logging disk
 - Restart DIRMAINT
 - Separately, other service machine automatically archives all files it receives (in Archive Manager for z/VM)
 - Log files are safely archived in Archive Manager and DIRMAINT is running with a clean log disk
- **Get a copy of the console for further review/debugging**

Scenario 6: Detailed Steps

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

```
gomcmd opmgrml viewcon user(dirmaint)
```

- **In the console view**

- Issue CMS commands to copy old (large) log files to DIRMAINT's log disk

```
cms copyfile dirmaint tlog0914 t = tlog0912 h
```

- Verify the logging disk is more than 75% full

```
cms q disk
```

- Run DIRMAINT's hourly processing now

```
exec dvhourly
```

- Verify the logging disk is less than 75% full

```
cms q disk
```

- **Exit the console view and find the files in the archive**

```
amvlist
```

- Type "archlogs" in the owner field and press ENTER

- **Request a copy of the console for further review/debugging**

```
gomcmd opmgrml viewcon user(dirmaint),mode(rdr)
```

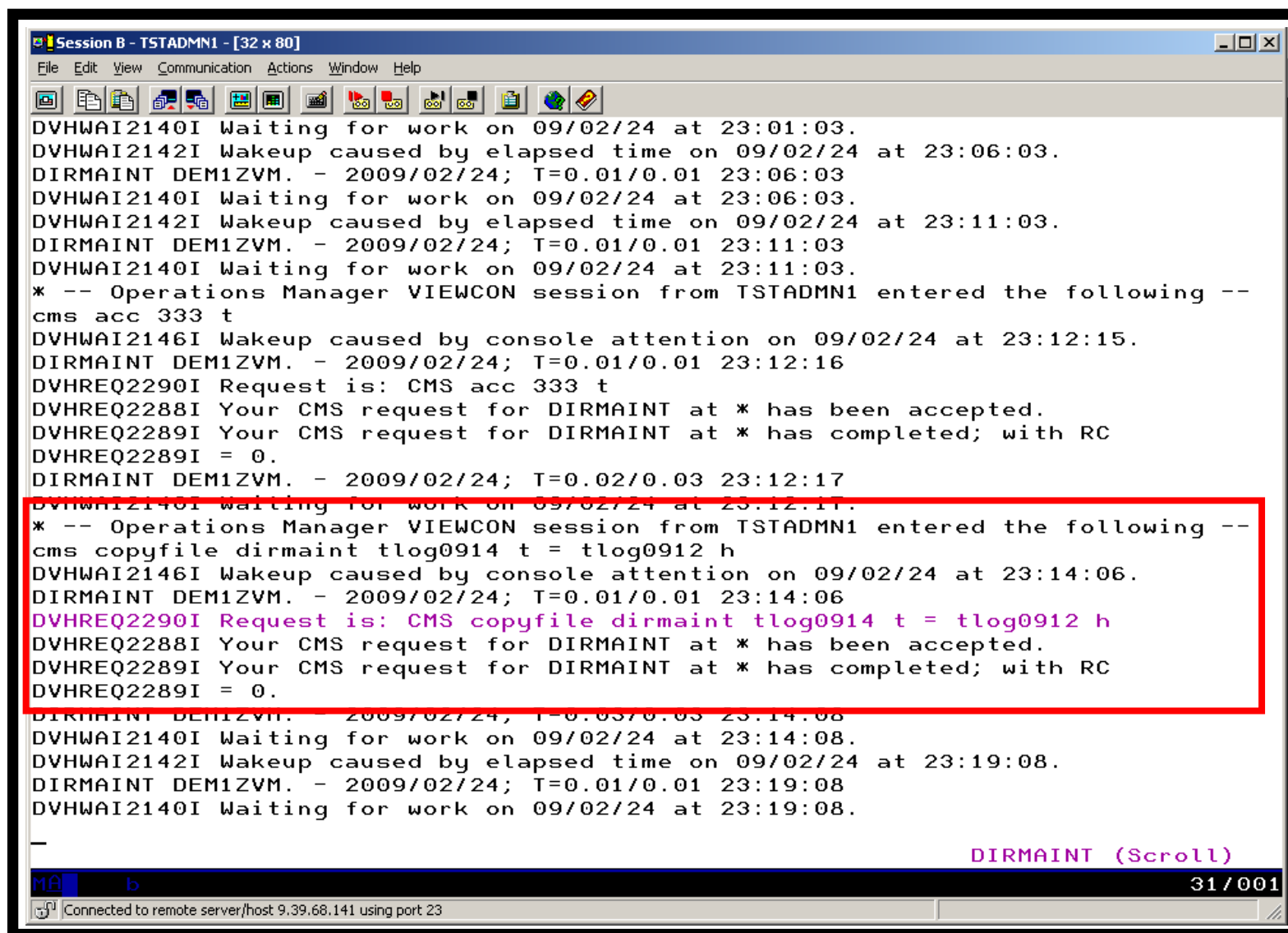
```
Session B - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help

DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 22:56:04
DVHWA12140I Waiting for work on 09/02/24 at 22:56:04.
DVHWA12143I Wakeup caused by timer file entry on 09/02/24 at 23:01:02.
DVHWA12143I Processing event number 00005 scheduled for ==/==/== at
DVHWA12143I +01:00:0.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.02/0.02 23:01:02
DVHREQ2290I Request is: CMS EXEC DVHOURLY
DVHREQ2288I Your CMS request for DIRMAINT at * has been accepted.
DVHRLY3886I Hourly processing started; with 0 log
DVHRLY3886I files.
DVHREQ2289I Your CMS request for DIRMAINT at * has completed; with RC
DVHREQ2289I = 0.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.03/0.03 23:01:03
DVHWA12140I Waiting for work on 09/02/24 at 23:01:03.
DVHWA12142I Wakeup caused by elapsed time on 09/02/24 at 23:06:03.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:06:03
DVHWA12140I Waiting for work on 09/02/24 at 23:06:03.
DVHWA12142I Wakeup caused by elapsed time on 09/02/24 at 23:11:03.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:11:03
DVHWA12140I Waiting for work on 09/02/24 at 23:11:03.
* -- Operations Manager VIEWCON session from TSTADMN1 entered the following --
cms acc 333 t
DVHWA12146I Wakeup caused by console attention on 09/02/24 at 23:12:15.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:12:16
DVHREQ2290I Request is: CMS acc 333 t
DVHREQ2288I Your CMS request for DIRMAINT at * has been accepted.
DVHREQ2289I Your CMS request for DIRMAINT at * has completed; with RC
DVHREQ2289I = 0.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.02/0.03 23:12:17
DVHWA12140I Waiting for work on 09/02/24 at 23:12:17.
cms copyfile dirmaint tlog0914 t = tlog0912 h_

DIRMAINT (Scroll)
```

MA b 31/346

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

DVHWA12140I Waiting for work on 09/02/24 at 23:01:03.
DVHWA12142I Wakeup caused by elapsed time on 09/02/24 at 23:06:03.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:06:03
DVHWA12140I Waiting for work on 09/02/24 at 23:06:03.
DVHWA12142I Wakeup caused by elapsed time on 09/02/24 at 23:11:03.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:11:03
DVHWA12140I Waiting for work on 09/02/24 at 23:11:03.
* -- Operations Manager VIEWCON session from TSTADMN1 entered the following --
cms acc 333 t
DVHWA12146I Wakeup caused by console attention on 09/02/24 at 23:12:15.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:12:16
DVHREQ2290I Request is: CMS acc 333 t
DVHREQ2288I Your CMS request for DIRMAINT at * has been accepted.
DVHREQ2289I Your CMS request for DIRMAINT at * has completed; with RC
DVHREQ2289I = 0.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.02/0.03 23:12:17
DVHWA12140I Waiting for work on 09/02/24 at 23:12:17.
* -- Operations Manager VIEWCON session from TSTADMN1 entered the following --
cms copyfile dirmaint tlog0914 t = tlog0912 h
DVHWA12146I Wakeup caused by console attention on 09/02/24 at 23:14:06.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:14:06
DVHREQ2290I Request is: CMS copyfile dirmaint tlog0914 t = tlog0912 h
DVHREQ2288I Your CMS request for DIRMAINT at * has been accepted.
DVHREQ2289I Your CMS request for DIRMAINT at * has completed; with RC
DVHREQ2289I = 0.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.03/0.03 23:14:08
DVHWA12140I Waiting for work on 09/02/24 at 23:14:08.
DVHWA12142I Wakeup caused by elapsed time on 09/02/24 at 23:19:08.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:19:08
DVHWA12140I Waiting for work on 09/02/24 at 23:19:08.

-
DIRMAINT (Scroll)
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

cms copyfile dirmaint tlog0914 t = tlog0910 h
DVHWAI2146I Wakeup caused by console attention on 09/02/24 at 23:24:42.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:24:42
DVHREQ2290I Request is: CMS copyfile dirmaint tlog0914 t = tlog0910 h
DVHREQ2288I Your CMS request for DIRMAINT at * has been accepted.
DVHREQ2289I Your CMS request for DIRMAINT at * has completed; with RC
DVHREQ2289I = 0.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.03/0.03 23:24:43
DVHWAI2140I Waiting for work on 09/02/24 at 23:24:43
* -- Operations Manager VIEWCON session from TSTADMN1 entered the following --
cms q disk
DVHWAI2146I Wakeup caused by console attention on 09/02/24 at 23:25:08.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:25:08
DVHREQ2290I Request is: CMS q disk
DVHREQ2288I Your CMS request for DIRMAINT at * has been accepted.

```

LABEL	VDEV	M	STAT	CYL	TYPE	BLKSZ	FILES	BLKS USED-(%)	BLKS LEFT	BLK TOTA
DIR155	155	A	R/W	9	3390	4096	12	80-05	1540	162
DRM491	191	C	R/W	15	3390	4096	250	1311-49	1389	270
DRM11F	11F	D	R/W	8	3390	4096	47	568-39	872	144
DIR1DF	1DF	E	R/W	9	3390	4096	124	265-16	1355	162
DIR1DB	1DB	C	R/W	9	3390	4096	10	144-00	1476	162
DIR1AA	1AA	H	R/W	9	3390	4096	10	1385-85	235	162
MNT190	190	S	R/O	100	3390	4096	687	14513-81	3487	1800
DIR333	333	T	R/W	5	3390	4096	2	505-56	395	90
MNT19E	19E	Y/S	R/O	250	3390	4096	1102	28088-62	16912	4500
DIR1FA	1FA	Z	R/W	9	3390	4096	0	7-00	1613	162

```

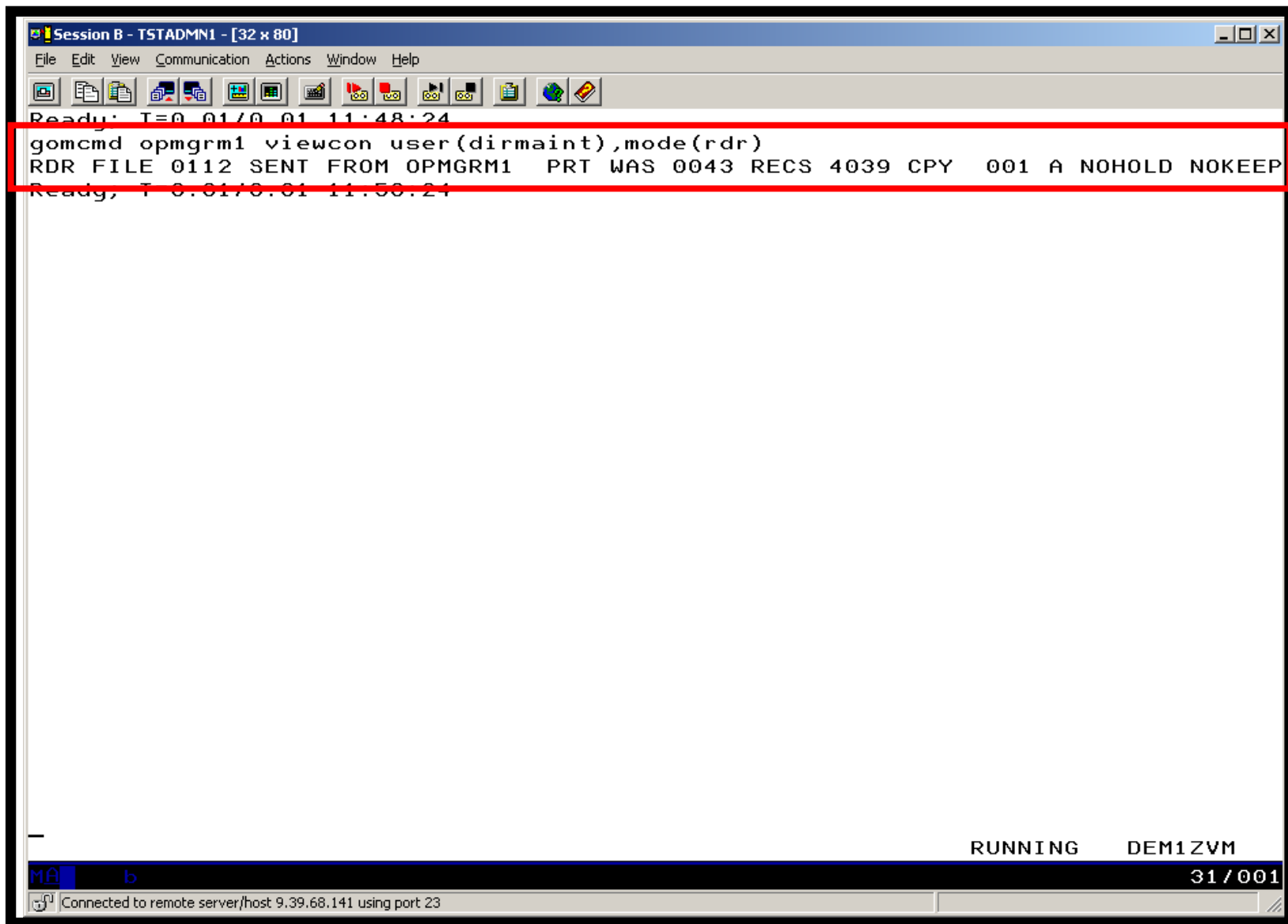
DVHREQ2289I Your CMS request for DIRMAINT at * has completed; with RC
DVHREQ2289I = 0.
DIRMAINT DEM1ZVM. - 2009/02/24; T=0.02/0.03 23:25:09
DVHWAI2140I Waiting for work on 09/02/24 at 23:25:09.
-
DIRMAINT (Scroll)
MA b 31/001
Connected to remote server/host 9.39.68.141 using port 23

```

```

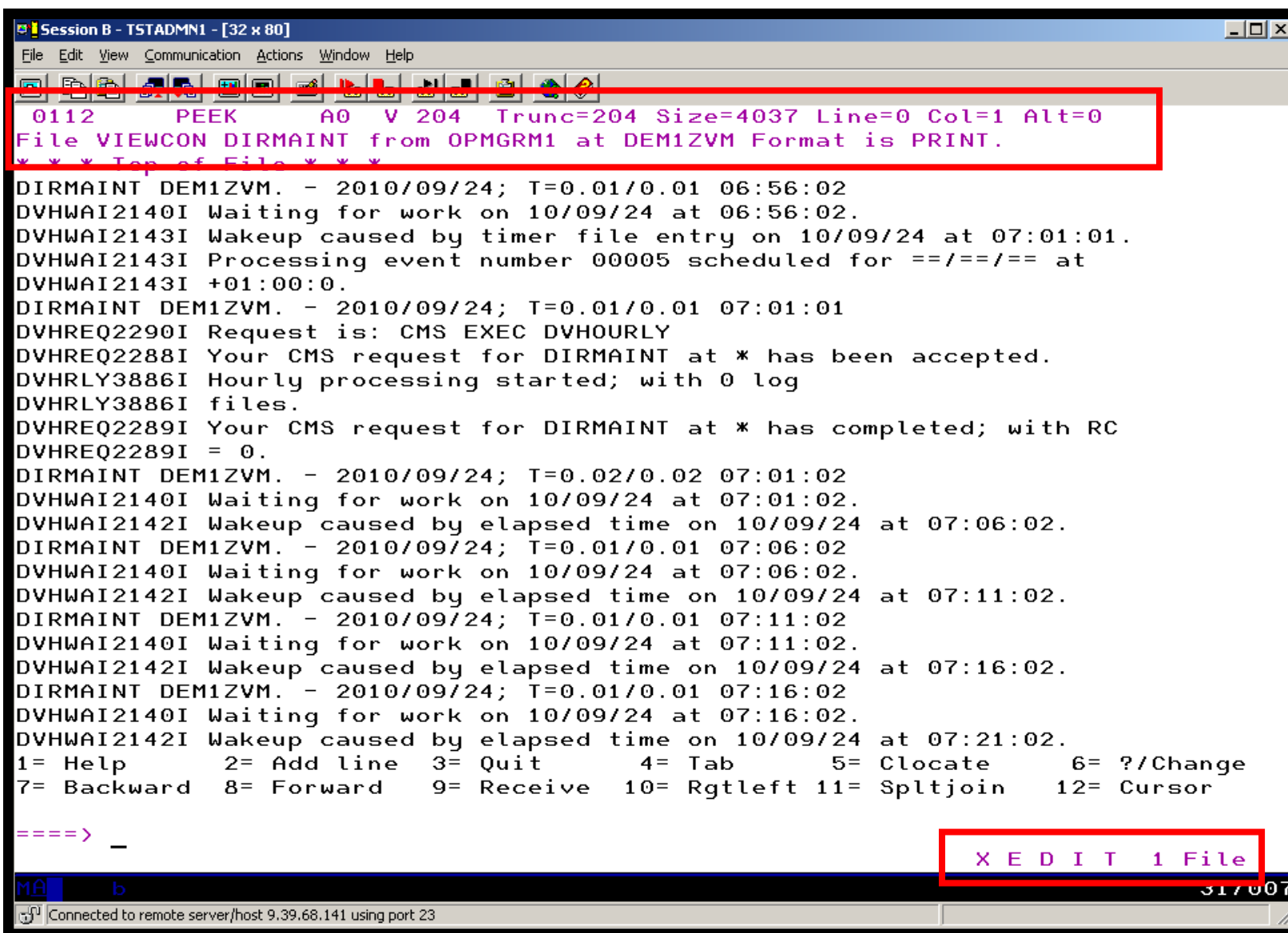
Session B - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
23:29:24 * -- Operations Manager VIEWCON session from TSTADMN1 entered the foll
23:29:24 cms exec dvhourly
23:29:24 DVHWA12148I Wakeup caused by console attention on 09/02/24 at 23:29:24
23:29:24 DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:29:24
23:29:25 DVHREQ2290I Request is: CMS exec dvhourly
23:29:25 DVHREQ2288I Your CMS request for DIRMAINT at * has been accepted
23:29:25 DVHRLY3895W Disk 01AA is 75% full, exceeding its
23:29:25 * -- Operations Manager Action DIRML0GB scheduled for execution -- *
23:29:33 DVHRLY3895W WARNING threshold of 75%.
23:29:33 DVHRLY3888I Hourly processing started, with 0 log
23:29:33 DVHRLY3886I files.
23:29:33 DVHREQ2289I Your CMS request for DIRMAINT at * has completed; with RC
23:29:33 DVHREQ2289I = 0.
23:29:33 DIRMAINT DEM1ZVM. - 2009/02/24; T=0.04/0.04 23:29:25
23:29:33 DVHWA12140I Waiting for work on 09/02/24 at 23:29:25.
23:29:33 DVHWA12141I Wakeup caused by *SMSG on 09/02/24 at 23:29:25 from OPMGRM
23:29:33 DIRMAINT DEM1ZVM. - 2009/02/24; T=0.01/0.01 23:29:25
23:29:33 DVHREQ2290I Request is: REQUEST 74 SHUTDOWN
23:29:33 DVHREQ2288I Your SHUTDOWN request for OPMGRM1 at * has been accepted.
23:29:33 DVHREQ2288I Your SHUTDOWN request for OPMGRM1 at * has been accepted
23:29:33 DVHSHU2193I A shutdown command has been issued by
23:29:33 DVHSHU2193I OPMGRM1 from DEM1ZVM.
23:29:33 DVHSHU2198A The DIRMAINT service machine is logging
23:29:33 DVHSHU2198A off.
23:29:33 CONNECT= 00:01:30 VIRTCPU= 000:00 40 TOTCPU= 000:00 47
23:29:33 LOGOFF AT 23:29:27 CST TUESDAY 02/24/09
23:29:33 PRI FILE 0791 SENT FROM DIRMAINT CON WAS 0791 RECS 0095 CPY 001 0 HOL
23:29:33 DASD 0191 LINKED R/W; R/O BY DATAMOVE
23:29:33 DASD 011F LINKED R/W; R/O BY DATAMOVE
23:29:33 .....
-
DIRMAINT
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
Ready: T=0.01/0.01 11:48:24
gomcmd opmgrm1 viewcon user(dirmaint),mode(rdr)
RDR FILE 0112 SENT FROM OPMGRM1 PRT WAS 0043 RECS 4039 CPY 001 A NOHOLD NOKEEP
Ready: T=0.01/0.01 11:50:24

RUNNING DEM1ZVM
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 - TSTADMN1 - [32 x 80]". The menu bar includes File, Edit, View, Communication, Actions, Window, and Help. A toolbar with various icons is located below the menu. The main text area displays the following content:

```
0112 PEEK A0 V 204 Trunc=204 Size=4037 Line=0 Col=1 Alt=0
File VIEWCON DIRMAINT from OPMGRM1 at DEM1ZVM Format is PRINT.
*** Top of File ***
DIRMAINT DEM1ZVM. - 2010/09/24; T=0.01/0.01 06:56:02
DVHWAI2140I Waiting for work on 10/09/24 at 06:56:02.
DVHWAI2143I Wakeup caused by timer file entry on 10/09/24 at 07:01:01.
DVHWAI2143I Processing event number 00005 scheduled for ==/==/== at
DVHWAI2143I +01:00:0.
DIRMAINT DEM1ZVM. - 2010/09/24; T=0.01/0.01 07:01:01
DVHREQ2290I Request is: CMS EXEC DVHOURLY
DVHREQ2288I Your CMS request for DIRMAINT at * has been accepted.
DVHRLY3886I Hourly processing started; with 0 log
DVHRLY3886I files.
DVHREQ2289I Your CMS request for DIRMAINT at * has completed; with RC
DVHREQ2289I = 0.
DIRMAINT DEM1ZVM. - 2010/09/24; T=0.02/0.02 07:01:02
DVHWAI2140I Waiting for work on 10/09/24 at 07:01:02.
DVHWAI2142I Wakeup caused by elapsed time on 10/09/24 at 07:06:02.
DIRMAINT DEM1ZVM. - 2010/09/24; T=0.01/0.01 07:06:02
DVHWAI2140I Waiting for work on 10/09/24 at 07:06:02.
DVHWAI2142I Wakeup caused by elapsed time on 10/09/24 at 07:11:02.
DIRMAINT DEM1ZVM. - 2010/09/24; T=0.01/0.01 07:11:02
DVHWAI2140I Waiting for work on 10/09/24 at 07:11:02.
DVHWAI2142I Wakeup caused by elapsed time on 10/09/24 at 07:16:02.
DIRMAINT DEM1ZVM. - 2010/09/24; T=0.01/0.01 07:16:02
DVHWAI2140I Waiting for work on 10/09/24 at 07:16:02.
DVHWAI2142I Wakeup caused by elapsed time on 10/09/24 at 07:21:02.
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

====> _
```

At the bottom right of the text area, the text "X E D I T 1 File" is displayed. The status bar at the bottom shows "MA b" on the left, "317007" on the right, and "Connected to remote server/host 9.39.68.141 using port 23" in the center.

Scenario 6: How Do You Do That?

Console rule and action in Operations Manager:

```
DEFRULE NAME(DIRMLOG) , +  
    MATCH(*DVHRLY3895*01AA*) , +  
    USER(DIRMAINT) , +  
    ACTION(DIRMLOG)  
*  
DEFACTN NAME(DIRMLOG) , +  
    INPUT(AHI) , +  
    NEXTACTN(DIRMLOGB)  
*  
DEFACTN NAME(DIRMLOGB) , +  
    COMMAND(EXEC DIRM1AA &U) , +  
    ENV(LVM)
```

Authorize Operations Manager to issue DIRM SHUTDOWN – from MAINT issue

```
DIRM AUTHFOR OPMGRM1 CMDLEVEL 150A CMDSET O
```


Scenario 6: How Do You Do That?

DIRM1AA EXEC (excerpts):

```
Parse Upper Arg Tuser . ;
/* Try to shut DIRMAINT down. */
Say 'DIRM1AA - Issuing DIRM SHUTDOWN ....';
Address CMS 'DIRM SHUTDOWN';

Address Command 'CP LINK' Tuser '1AA' Dev 'MR';
Address CMS 'ACCESS' Dev Fm;

Address Command 'PIPE CMS LISTFILE DIRMAINT *LOG*' Fm '( NOHEADER',
'| STEM FILES.';
Do I = 1 to Files.0;
  Parse Upper Var Files.I Fn Ft .;
  Address CMS 'SENDFILE' Fn Ft Fm 'TO ARCHLOGS';
  If Rc = 0 then Do;
    Sent = Sent+1;
    Address CMS 'ERASE' Fn Ft Fm;
  End
End

Address Command 'CP XAUTOLOG' Tuser;
```

Scenario 7: Process a File of Test Messages as a Console

- **Create a file containing lines of test messages**
 - Test rules and actions without creating critical conditions
- **Use Operations Manager to send the file for processing**
 - Treat it as the console of one user
 - Send it again treating it as the console of another user
 - Notice triggered rules and actions are different
- **View the “consoles” of these two users**

Scenario 7: Detailed Steps

- **Create or view a file of test messages**

```
xedit test consdata a
```

- Notice the “hello” message in the file

- **From a z/VM user ID, send the test file to Operations Manager**

- Send it twice, specifying two different “owning” user IDs. One generates a message and one doesn’t:

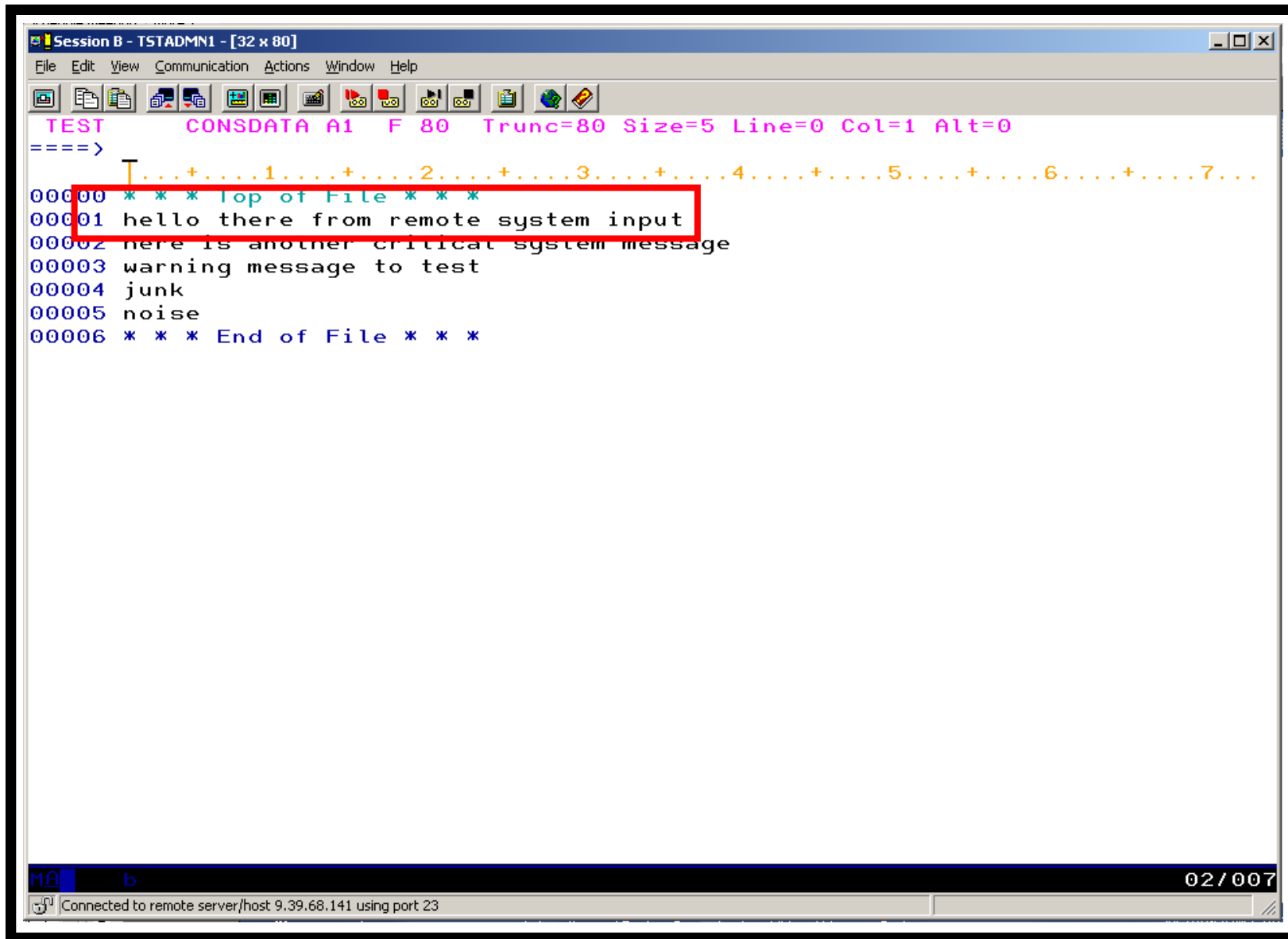
```
gomrsif test consdata a 9.39.64.72 63000 tstadm8
```

```
gomrsif test consdata a 9.39.64.72 63000 tstuser8
```

- **From an authorized z/VM user ID, view the consoles of the owning user IDs:**

```
gomcmd opmgrm1 viewcon user(tstadm8)
```

```
gomcmd opmgrm1 viewcon user(tstuser8)
```



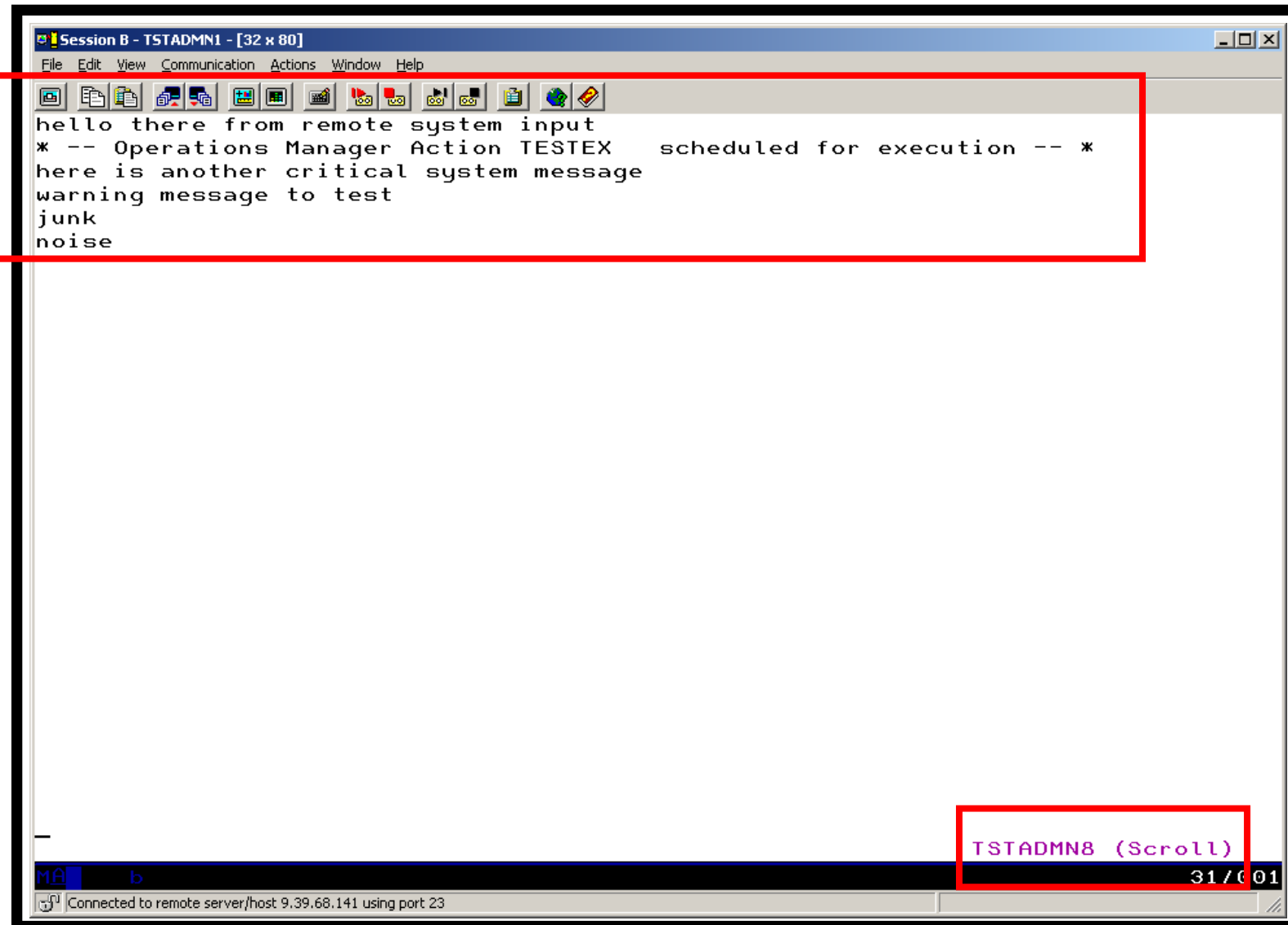
```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help

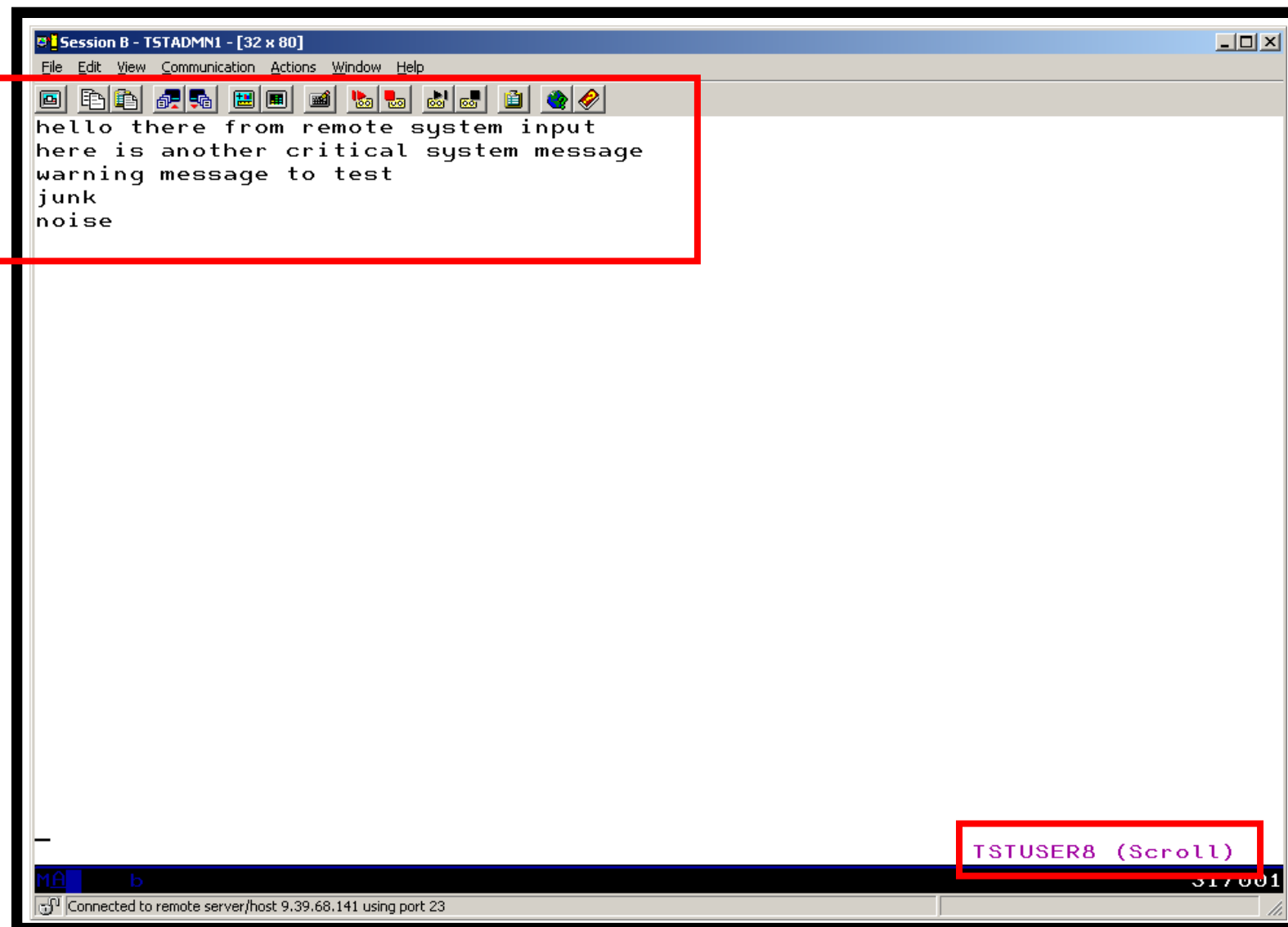
TEST CONSDATA A1 F 80 Trunc=80 Size=5 Line=0 Col=1 Alt=0
====>
T...+....1....+....2....+....3....+....4....+....5....+....6....+....7...
00000 * * * Top of File * * *
00001 hello there from remote system input
00002 here is another critical system message
00003 warning message to test
00004 junk
00005 noise
00006 * * * End of File * * *

MA b 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
Ready; T=0.01/0.01 13:38:15
gomrsif test consdata a 9.39.68.141 63000 tstadm8
Connecting to 9.39.68.141
Sending TEST CONSDATA A to 9.39.68.141
13:39:12 * MSG FROM OPMGRM1 : HELLO BACK FROM TSTADMN8.
Ready; T=0.01/0.01 13:39:12
gomrsif test consdata a 9.39.68.141 63000 tstuser8
Connecting to 9.39.68.141
Sending TEST CONSDATA A to 9.39.68.141
Ready; T=0.01/0.01 13:39:18

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





Scenario 7: How Do You Do That?

Console rule and action in Operations Manager:

*

```
DEFRULE NAME (TESTEX) , +
```

```
    MATCH ( *HELLO* ) , +
```

```
    MCOL ( 001 : 030 ) , +
```

```
    ACTION ( TESTEX ) , +
```

```
    EXGROUP ( TSTUSERS )
```

*

```
DEFACTN NAME (TESTEX) , +
```

```
    COMMAND ( CP MSG TSTADMIN1 HELLO BACK FROM &U. ) , +
```

```
    OUTPUT ( LOG ) , +
```

```
    ENV ( LVM )
```


Scenario 7: How Do You Do That?

Set up TCP/IP listener for test data and define group of consoles:

*

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

*

```
DEFGROUP NAME (TSTUSERS) , +  
    USER (TSTUSER*)
```

Update TCP/IP configuration to allow Operations Manager to listen on the specified port

Scenario 8: Process Linux Syslog Data as a Console

- **Route syslog data from a Linux guest to Operations Manager for z/VM**
 - Supports syslogd, syslog-ng, rsyslog
 - syslog-ng and rsyslog include 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

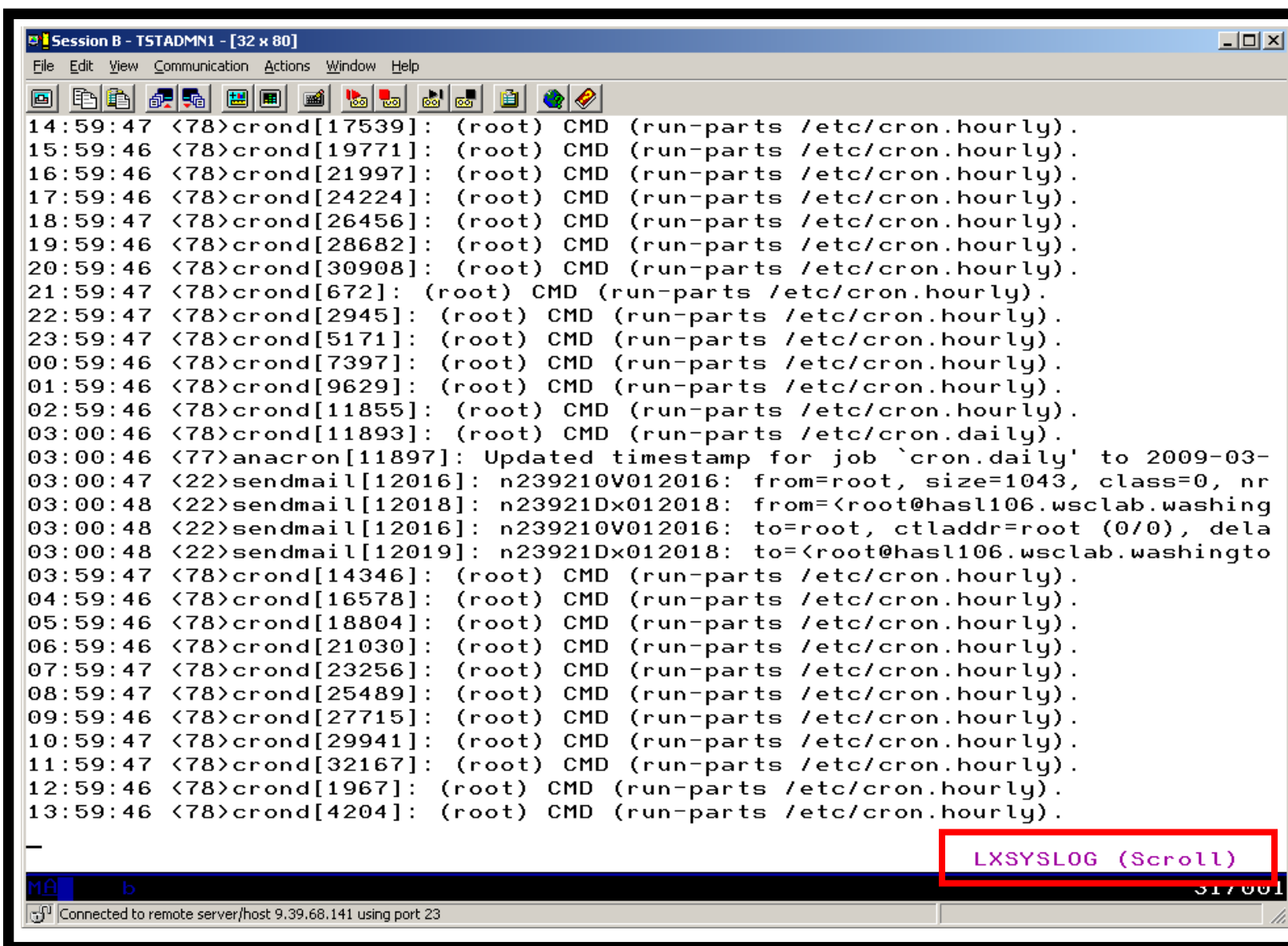
- **From an authorized z/VM user ID, view any syslog data already received**

```
gomcmd opmgrml 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
```

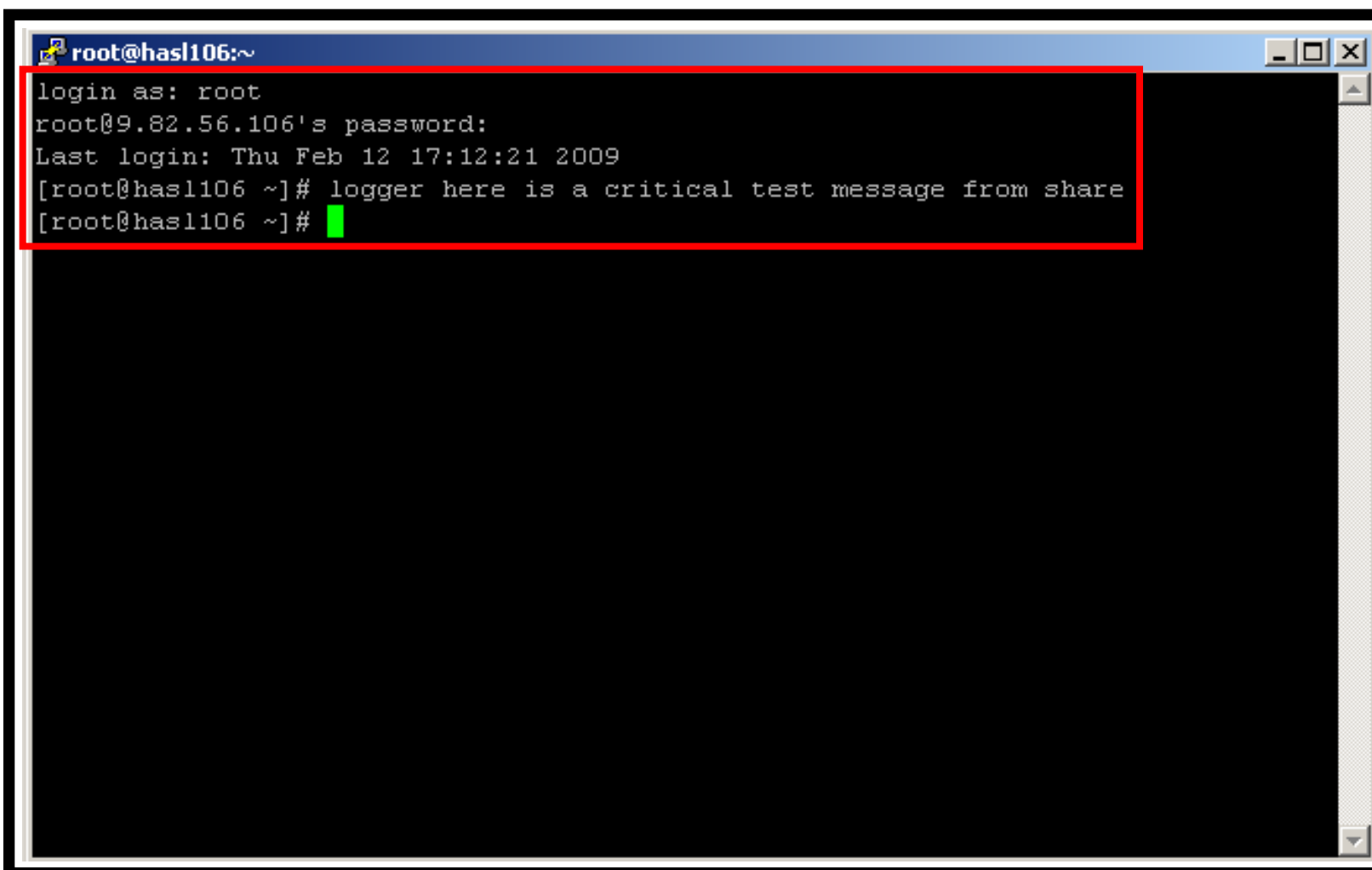
- **Return to the VIEWCON session**
 - See the message in the syslog “console”
 - Using syslog, so no hostname or IP address
- **Repeat from a different Linux guest that uses syslog-ng**



```
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
```



A terminal window titled 'root@has1106:~' with standard window controls. The terminal output is as follows:

```
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 ~]#
```

The first four lines of the terminal output are enclosed in a red rectangular box. A green cursor is visible on the line following the last command.

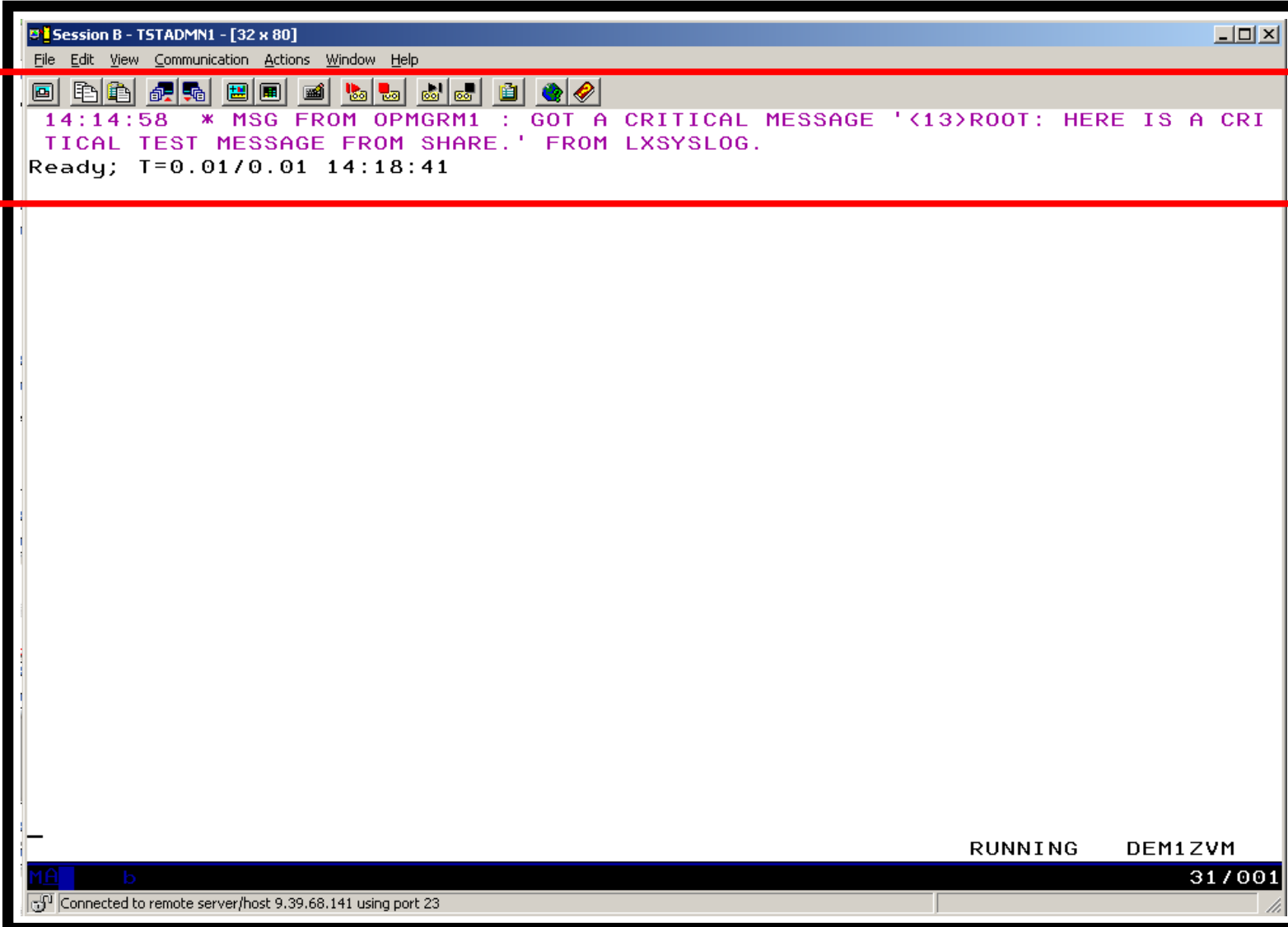
```

Session B - TSTADMN1 - [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 -- *

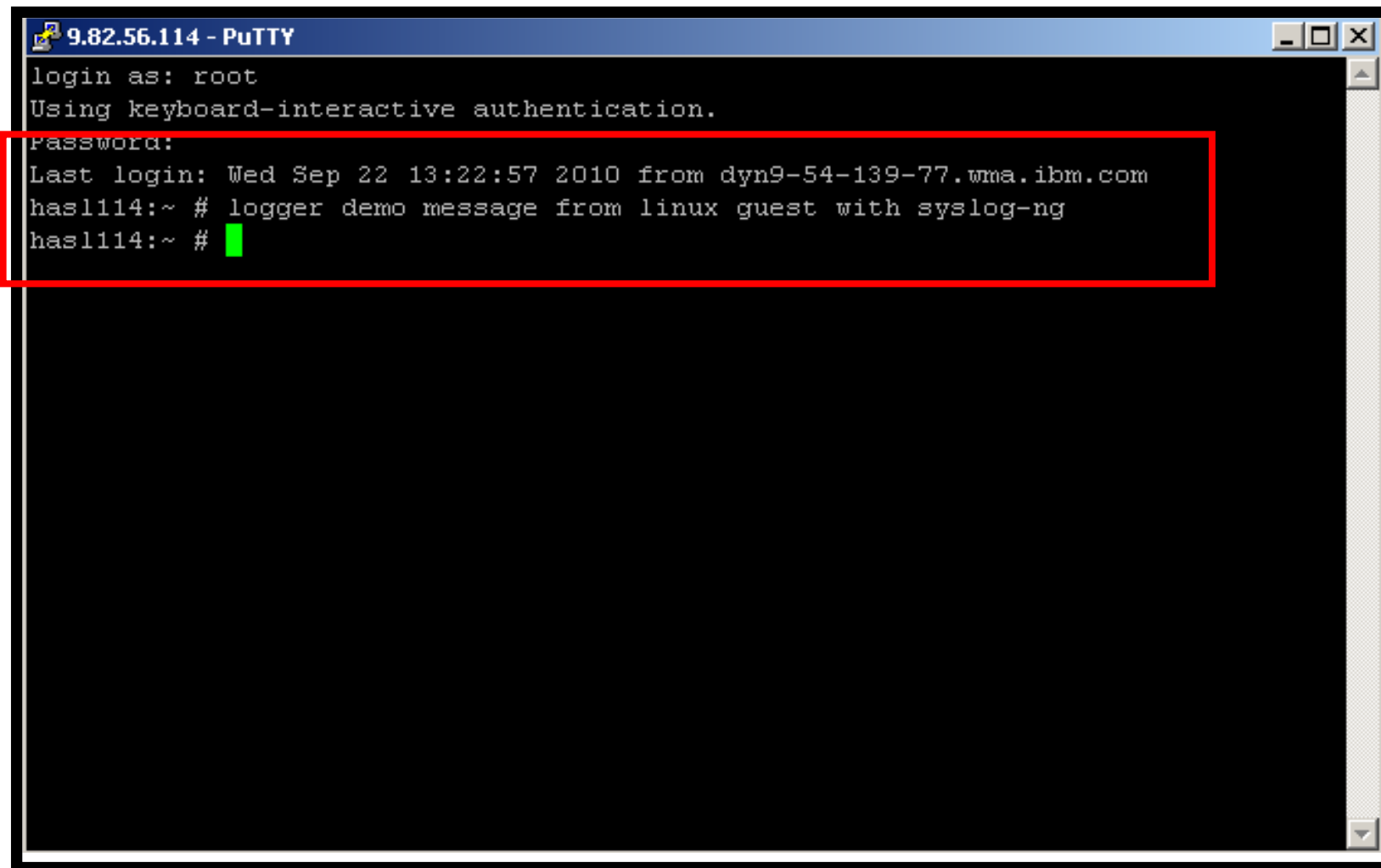
LXSYSLOG (Scroll)
317001
Connected to remote server/host 9.39.68.141 using port 23

```



```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
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

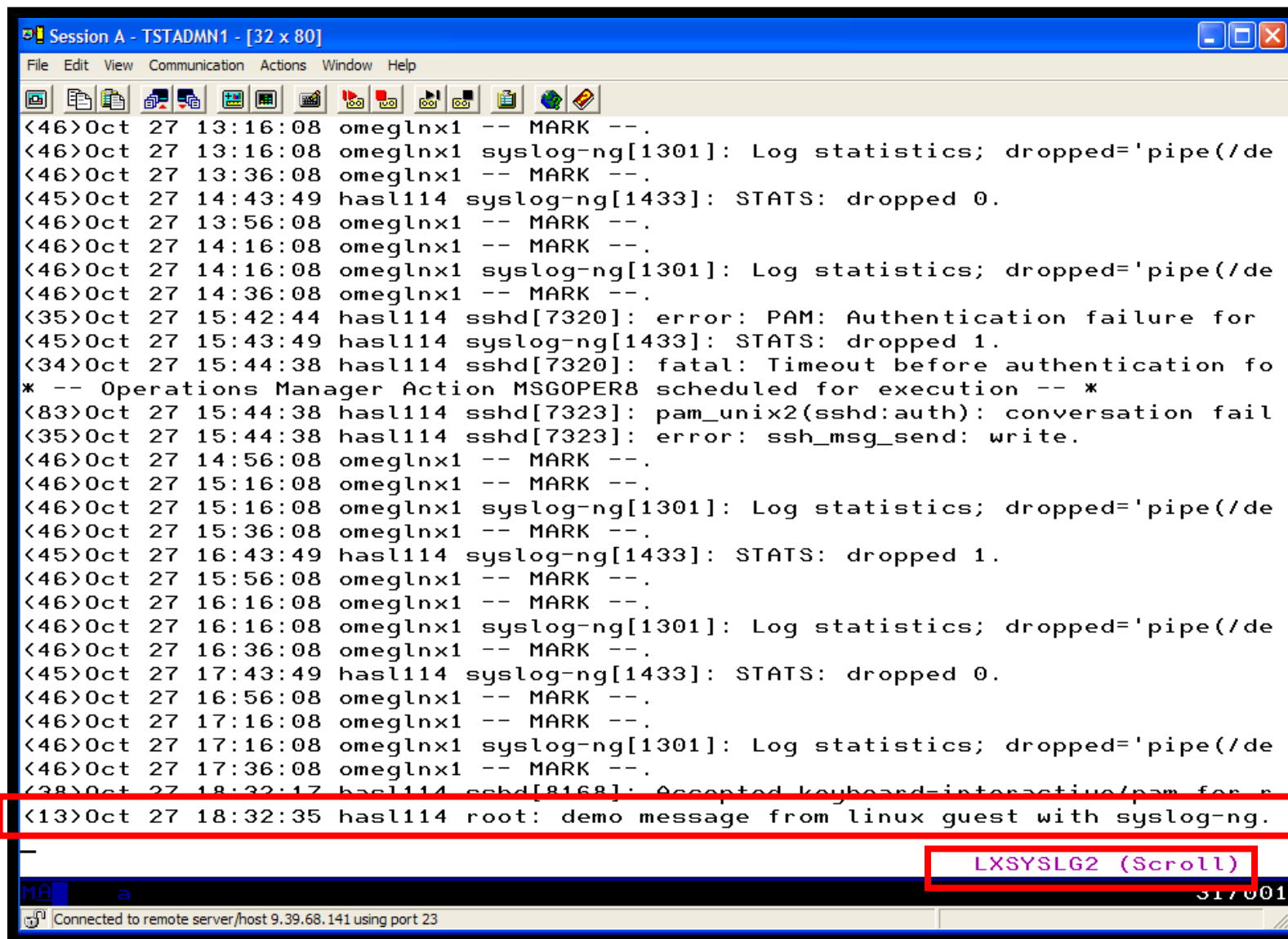
RUNNING DEM1ZVM
31/001
Connected to remote server/host 9.39.68.141 using port 23
```



A screenshot of a PuTTY terminal window titled "9.82.56.114 - PuTTY". The terminal shows a login sequence for the user 'root' on the host '9.82.56.114'. The text displayed is as follows:

```
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
hasl114:~ # logger demo message from linux guest with syslog-ng
hasl114:~ #
```

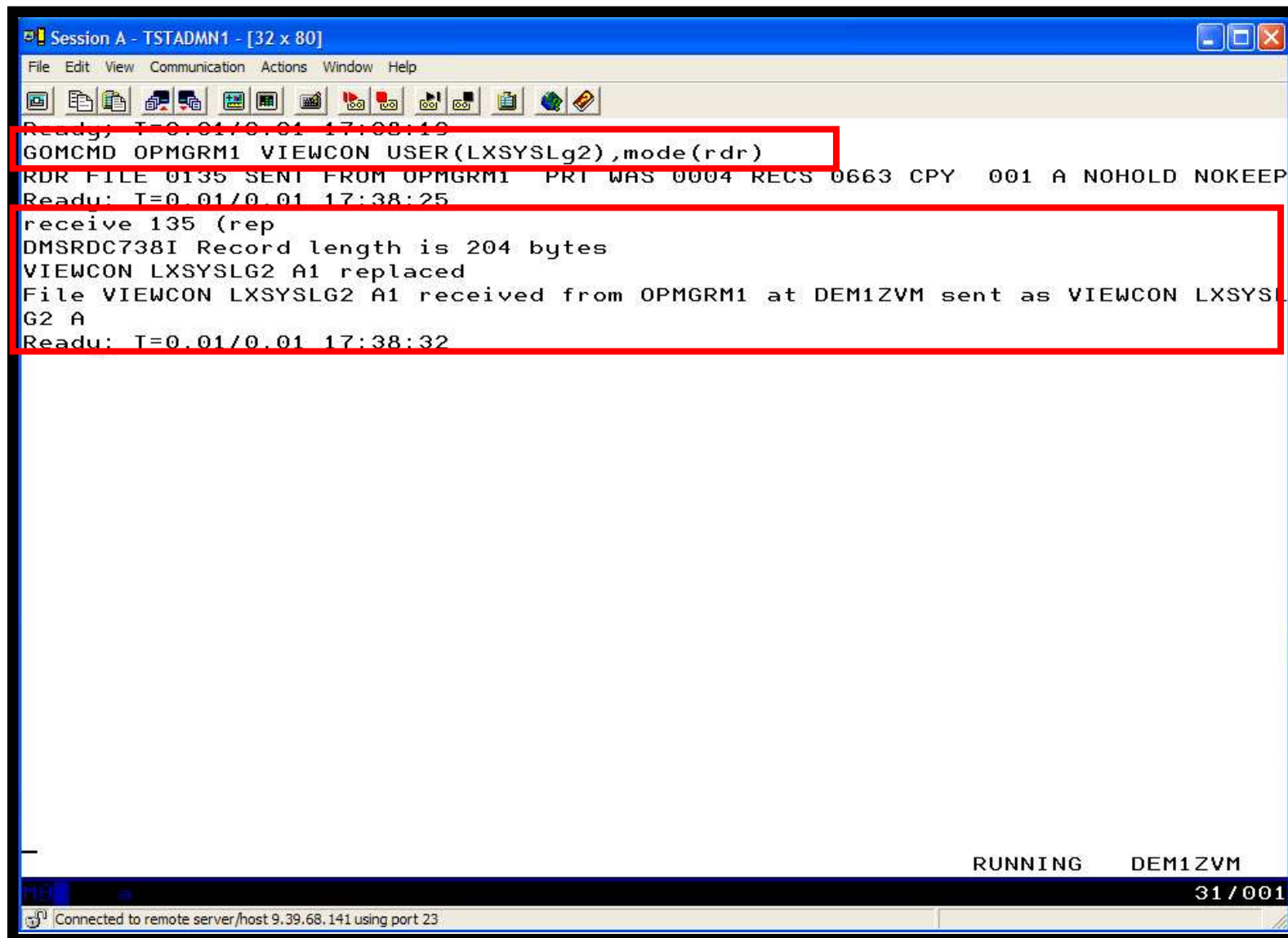
The last two lines of the terminal output are enclosed in a red rectangular box. A green cursor is visible at the end of the final prompt line.



```
Session A - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help

<46>Oct 27 13:16:08 omeqlinx1 -- MARK --.
<46>Oct 27 13:16:08 omeqlinx1 syslog-ng[1301]: Log statistics; dropped='pipe(/de
<46>Oct 27 13:36:08 omeqlinx1 -- MARK --.
<45>Oct 27 14:43:49 hasl114 syslog-ng[1433]: STATS: dropped 0.
<46>Oct 27 13:56:08 omeqlinx1 -- MARK --.
<46>Oct 27 14:16:08 omeqlinx1 -- MARK --.
<46>Oct 27 14:16:08 omeqlinx1 syslog-ng[1301]: Log statistics; dropped='pipe(/de
<46>Oct 27 14:36:08 omeqlinx1 -- 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 omeqlinx1 -- MARK --.
<46>Oct 27 15:16:08 omeqlinx1 -- MARK --.
<46>Oct 27 15:16:08 omeqlinx1 syslog-ng[1301]: Log statistics; dropped='pipe(/de
<46>Oct 27 15:36:08 omeqlinx1 -- MARK --.
<45>Oct 27 16:43:49 hasl114 syslog-ng[1433]: STATS: dropped 1.
<46>Oct 27 15:56:08 omeqlinx1 -- MARK --.
<46>Oct 27 16:16:08 omeqlinx1 -- MARK --.
<46>Oct 27 16:16:08 omeqlinx1 syslog-ng[1301]: Log statistics; dropped='pipe(/de
<46>Oct 27 16:36:08 omeqlinx1 -- MARK --.
<45>Oct 27 17:43:49 hasl114 syslog-ng[1433]: STATS: dropped 0.
<46>Oct 27 16:56:08 omeqlinx1 -- MARK --.
<46>Oct 27 17:16:08 omeqlinx1 -- MARK --.
<46>Oct 27 17:16:08 omeqlinx1 syslog-ng[1301]: Log statistics; dropped='pipe(/de
<46>Oct 27 17:36:08 omeqlinx1 -- MARK --.
<38>Oct 27 18:32:17 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.

LXSYSLG2 (Scroll)
```



```
Session A - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
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 LXSYS
G2 A
Ready: T=0.01/0.01 17:38:32

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
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:
=====
02/007
Connected to remote server/host 9.39.68.141 using port 23

```

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 TSTADMIN1 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)
```

*

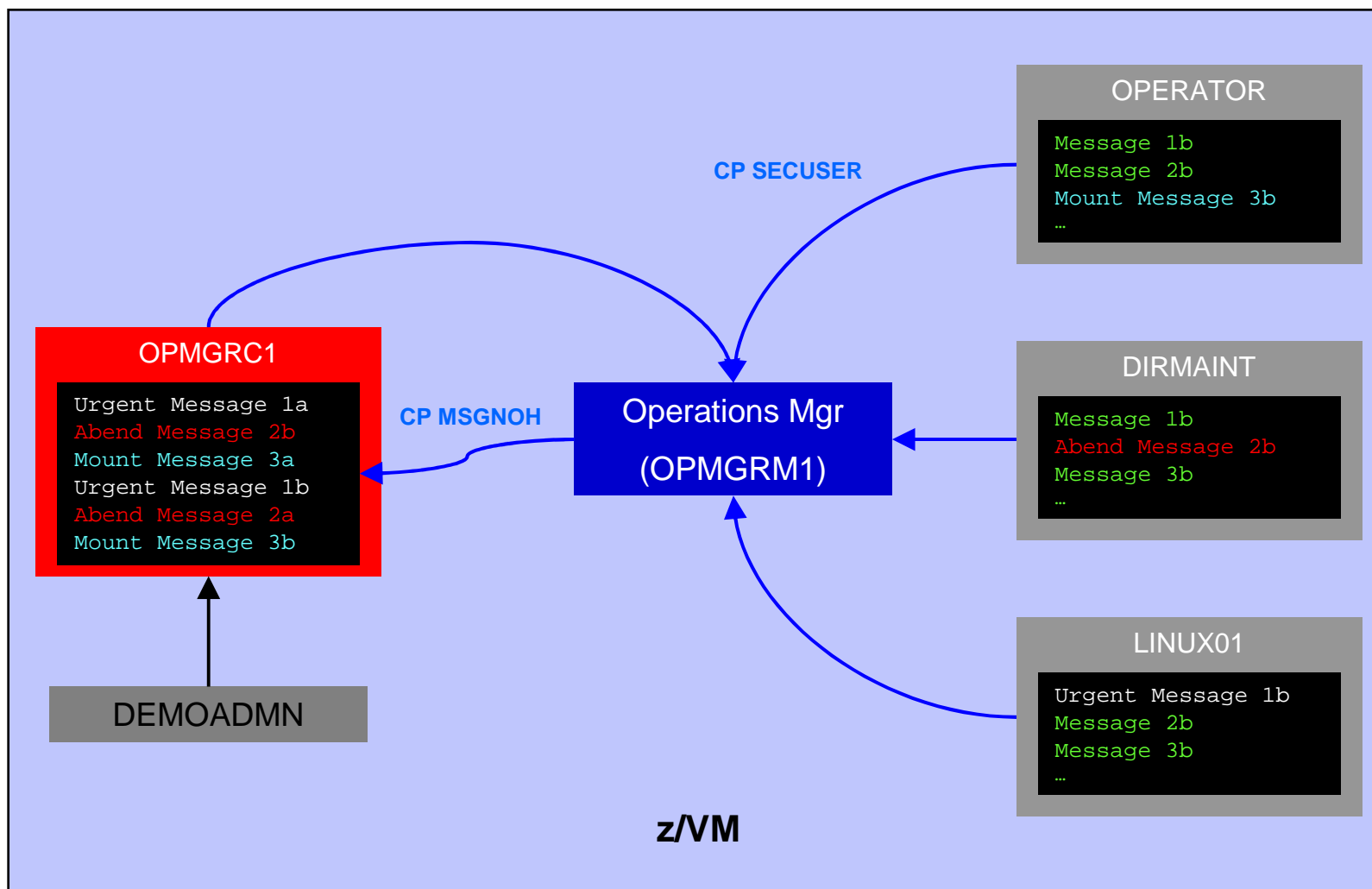
```
DEFTCPA NAME(LNXSYSL2),+  
  TCPUSER(TCPIP),+  
  TCPAPPL(GOMRSYL),+  
  TCPADDR(000.000.000.000),+  
  TCPPORT(00515),+  
  PARM(LXSYSLG203330417UTF8)
```

- **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 9: Create a Central Operations Console on One z/VM System

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

Creating a Central Console on One z/VM System



Scenario 9: Detailed Steps

- From an authorized z/VM user ID, put “abend”, “fatal”, and error messages on DIRMAINT console

```
msgnoh dirmaint this is a test abend message
```

```
msgnoh dirmaint this is a fake fatal message
```

```
msgnoh dirmaint DMSxxxxxxxxxE here is a made-up CMS error msg
```

- View the “Operations Console” to see the messages

```
gomcmd opmgrm1 viewcon user(oper8)
```

- Note the fatal message is red and abend message is highlighted and will be held when other messages come in

Scenario 9: Detailed Steps

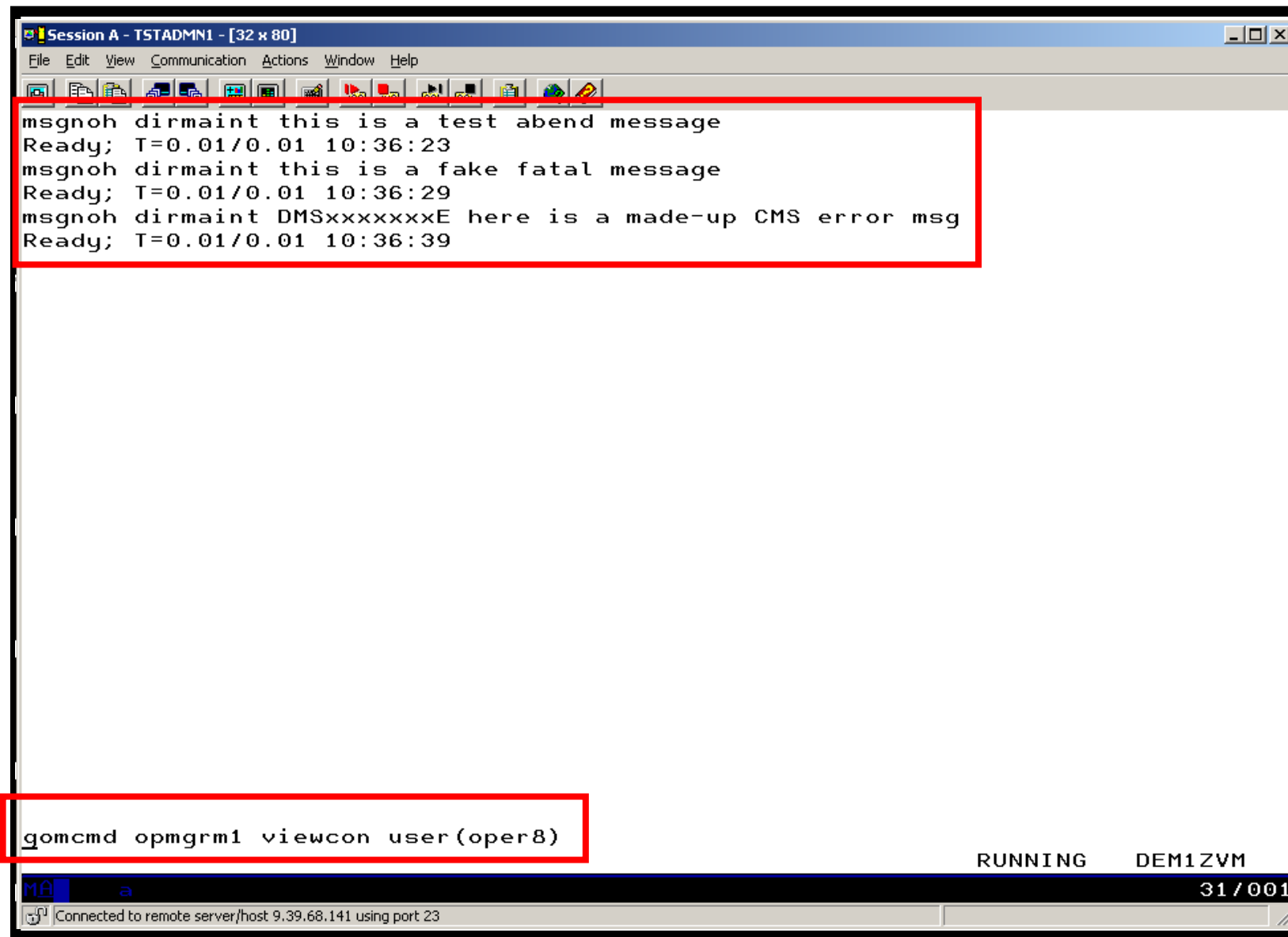
- From another user ID, run an EXEC to send multiple messages to the Operations Console

`lotsmsgs`

- View the “Operations Console” to see the messages

`gomcmd opmgrm1 viewcon user(oper8)`

- Watch the scrolling, held messages, etc.

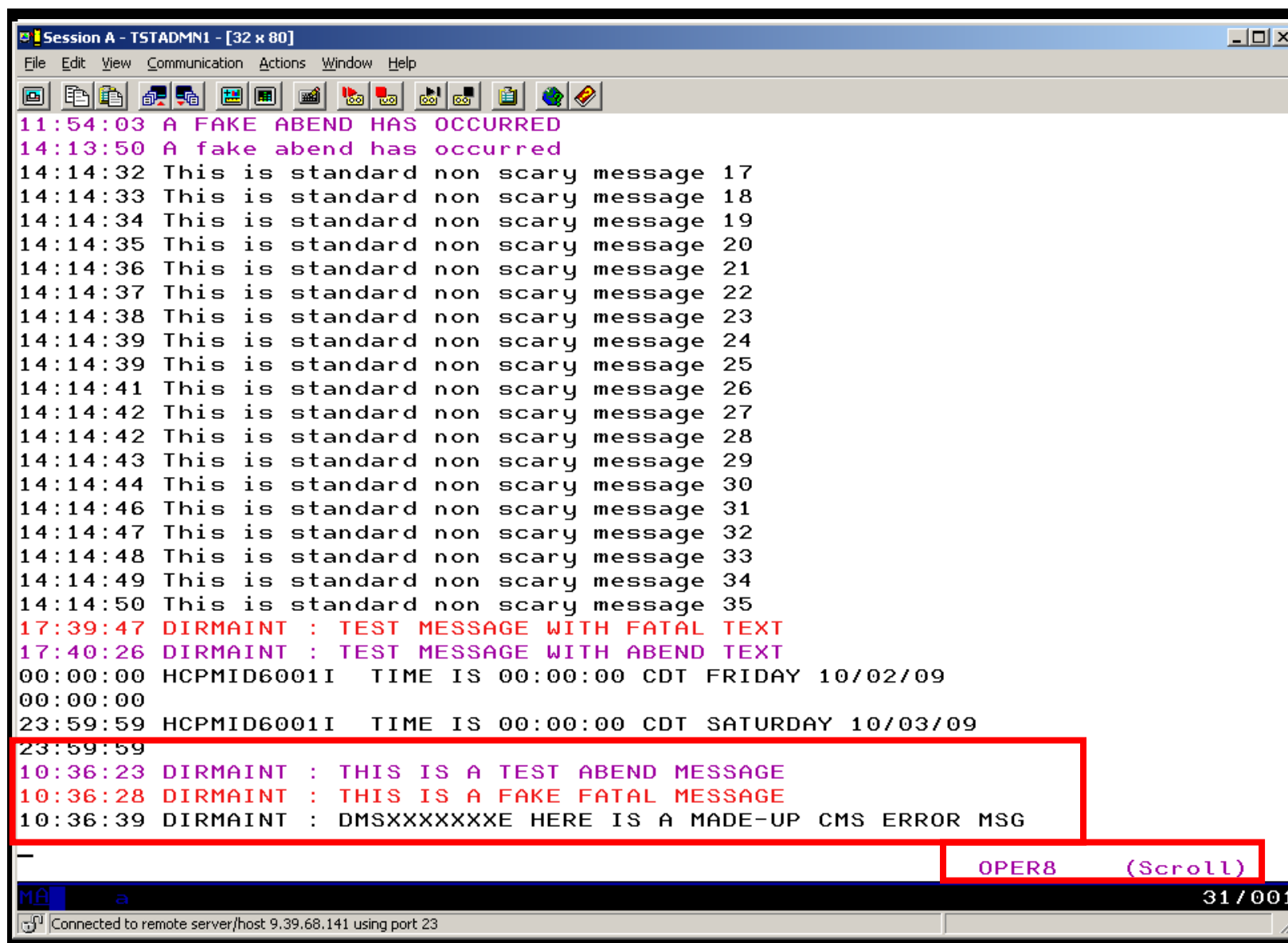


```
Session A - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help

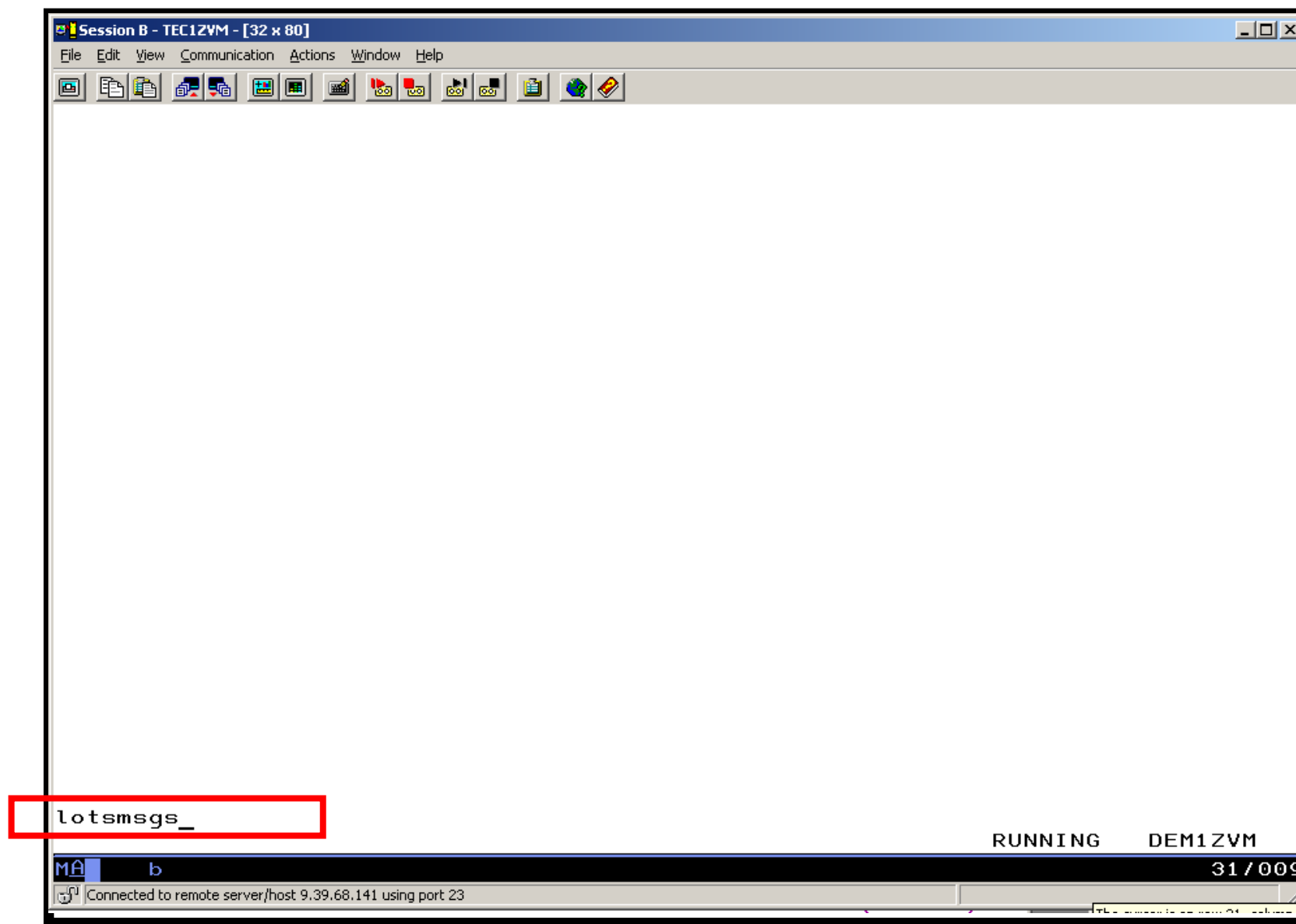
msgnoh dirmaint this is a test abend message
Ready; T=0.01/0.01 10:36:23
msgnoh dirmaint this is a fake fatal message
Ready; T=0.01/0.01 10:36:29
msgnoh dirmaint DMSxxxxxxxE here is a made-up CMS error msg
Ready; T=0.01/0.01 10:36:39

gomcmd opmgrm1 viewcon user(oper8)

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



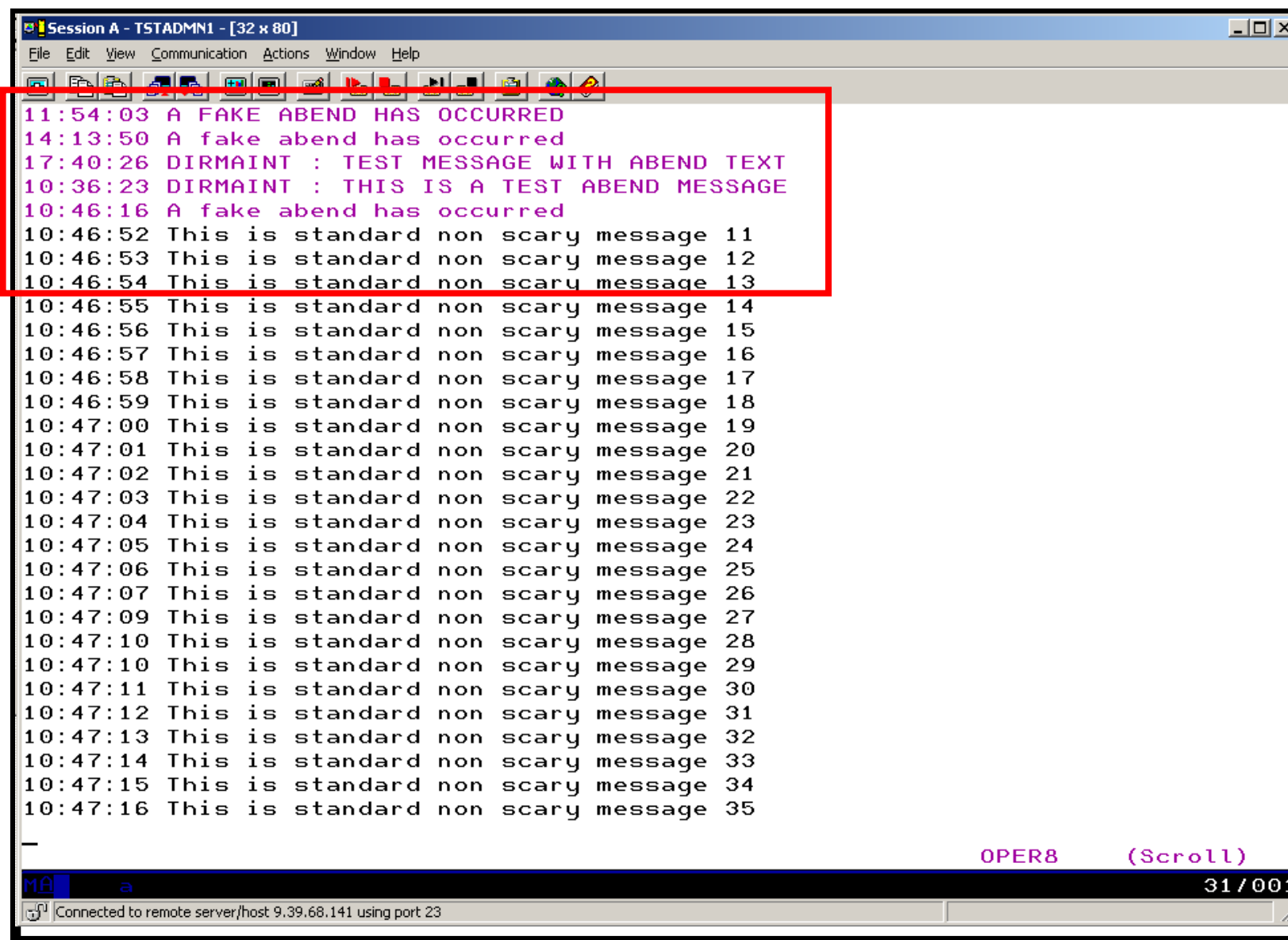
```
Session A - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
11:54:03 A FAKE ABEND HAS OCCURRED
14:13:50 A fake abend has occurred
14:14:32 This is standard non scary message 17
14:14:33 This is standard non scary message 18
14:14:34 This is standard non scary message 19
14:14:35 This is standard non scary message 20
14:14:36 This is standard non scary message 21
14:14:37 This is standard non scary message 22
14:14:38 This is standard non scary message 23
14:14:39 This is standard non scary message 24
14:14:39 This is standard non scary message 25
14:14:41 This is standard non scary message 26
14:14:42 This is standard non scary message 27
14:14:42 This is standard non scary message 28
14:14:43 This is standard non scary message 29
14:14:44 This is standard non scary message 30
14:14:46 This is standard non scary message 31
14:14:47 This is standard non scary message 32
14:14:48 This is standard non scary message 33
14:14:49 This is standard non scary message 34
14:14:50 This is standard non scary message 35
17:39:47 DIRMAINT : TEST MESSAGE WITH FATAL TEXT
17:40:26 DIRMAINT : TEST MESSAGE WITH ABEND TEXT
00:00:00 HCPMID6001I  TIME IS 00:00:00 CDT FRIDAY 10/02/09
00:00:00
23:59:59 HCPMID6001I  TIME IS 00:00:00 CDT SATURDAY 10/03/09
23:59:59
10:36:23 DIRMAINT : THIS IS A TEST ABEND MESSAGE
10:36:28 DIRMAINT : THIS IS A FAKE FATAL MESSAGE
10:36:39 DIRMAINT : DMSXXXXXXE HERE IS A MADE-UP CMS ERROR MSG
-
OPER8 (Scroll)
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

11:54:03 A FAKE ABEND HAS OCCURRED
14:13:50 A fake abend has occurred
17:40:26 DIRMAINT : TEST MESSAGE WITH ABEND TEXT
10:36:23 DIRMAINT : THIS IS A TEST ABEND MESSAGE
10:46:16 A fake abend has occurred
10:46:23 This is standard non scary message 8
10:46:25 This is standard non scary message 9
10:46:26 This is standard non scary message 10
10:46:26 This is standard non scary message 11
10:46:27 This is standard non scary message 12
10:46:28 This is standard non scary message 13
10:46:29 This is standard non scary message 14
10:46:30 This is standard non scary message 15
10:46:31 This is standard non scary message 16
10:46:32 This is standard non scary message 17
10:46:33 This is standard non scary message 18
10:46:34 This is standard non scary message 19
10:46:35 This is standard non scary message 20
10:46:36 This is standard non scary message 21
10:46:37 This is standard non scary message 22
10:46:38 This is standard non scary message 23
10:46:39 This is standard non scary message 24
10:46:40 This is standard non scary message 25
10:46:41 A fake fatal message
10:46:42 This is standard non scary message 1
10:46:43 This is standard non scary message 2
10:46:44 This is standard non scary message 3
10:46:45 This is standard non scary message 4
10:46:47 This is standard non scary message 5
10:46:48 This is standard non scary message 6

-
OPER8 (Scroll)
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
11:54:03 A FAKE ABEND HAS OCCURRED
14:13:50 A fake abend has occurred
17:40:26 DIRMAINT : TEST MESSAGE WITH ABEND TEXT
10:36:23 DIRMAINT : THIS IS A TEST ABEND MESSAGE
10:46:16 A fake abend has occurred
10:46:52 This is standard non scary message 11
10:46:53 This is standard non scary message 12
10:46:54 This is standard non scary message 13
10:46:55 This is standard non scary message 14
10:46:56 This is standard non scary message 15
10:46:57 This is standard non scary message 16
10:46:58 This is standard non scary message 17
10:46:59 This is standard non scary message 18
10:47:00 This is standard non scary message 19
10:47:01 This is standard non scary message 20
10:47:02 This is standard non scary message 21
10:47:03 This is standard non scary message 22
10:47:04 This is standard non scary message 23
10:47:05 This is standard non scary message 24
10:47:06 This is standard non scary message 25
10:47:07 This is standard non scary message 26
10:47:09 This is standard non scary message 27
10:47:10 This is standard non scary message 28
10:47:10 This is standard non scary message 29
10:47:11 This is standard non scary message 30
10:47:12 This is standard non scary message 31
10:47:13 This is standard non scary message 32
10:47:14 This is standard non scary message 33
10:47:15 This is standard non scary message 34
10:47:16 This is standard non scary message 35
-
OPER8 (Scroll)
31 / 001
Connected to remote server/host 9.39.68.141 using port 23
```

Scenario 9: How Do You Do That?

Console rules in Operations Manager:

```
*  
DEFRULE NAME(ABEND),+  
    MATCH(*abend*),+  
    EXUSER(OPER8),+  
    ACTION(MSGOPER8)  
*  
DEFRULE NAME(FATAL),+  
    MATCH(*fatal*),+  
    EXUSER(OPER8),+  
    ACTION(MSGOPER8)  
*  
DEFRULE NAME(EMSGS),+  
    MATCH(DMS*E),+  
    MCOL(001:011),+  
    EXUSER(OPER8),+  
    ACTION(MSGOPER8)
```

Action in Operations Manager:

```
*  
DEFACTN NAME(MSGOPER8),+  
    COMMAND(CP MSGNOH OPER8 &U : &T),+  
    OUTPUT(LOG),+  
    ENV(LVM)
```

Scenario 9: How Do You Do That?

Console rules in Operations Manager:

```
*  
DEFRULE NAME (ABENDHLT) , +  
    MATCH ( *abend* ) , +  
    USER ( OPER8 ) , +  
    ACTION ( HLTHOLD )  
*  
DEFRULE NAME ( FATALRED ) , +  
    MATCH ( *fatal* ) , +  
    USER ( OPER8 ) , +  
    ACTION ( RED )
```

Actions in Operations Manager:

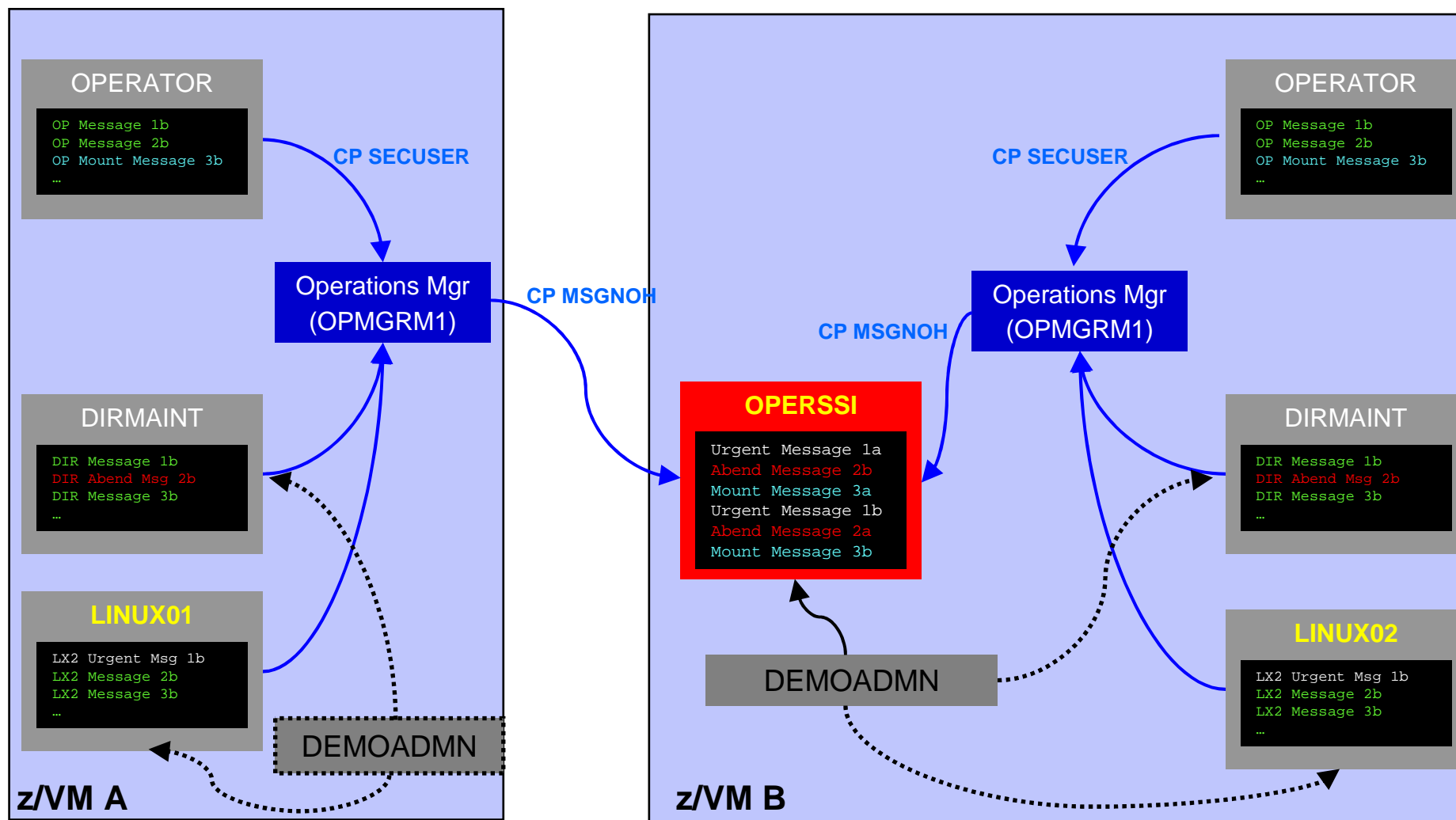
```
*  
DEFACTN NAME ( HLTHOLD ) , +  
    INPUT ( AHI , HLD )  
*  
DEFACTN NAME ( HILITE ) , +  
    INPUT ( AHI )  
*  
DEFACTN NAME ( RED ) , +  
    INPUT ( CRE )
```


Scenario 10a:

Create a Central Operations Console across multiple z/VM systems that are **in an SSI cluster**

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

Creating a Central Console Across Multiple Members of SSI Cluster



Single Configuration Users: LINUX01, LINUX02, OPERSSI, DEMOADMN
Multiconfiguration (IDENTITY) Users: OPERATOR, DIRMAINT, OPMGRM1

Scenario 10a: Detailed Steps

- On System B (TEST7SSI), view the “Operations Console” (user ID OPERSSI)

```
gomcmd opmgrml viewcon user(operssi)
```

- On System A (TESTCSSI), find a Linux guest running disconnected locally and relocate it

```
q names
```

```
VMRELOCATE MOVE USER RHEL5G TO TEST7SSI
```

- Note the messages received on OPERSSI on TEST7SSI from OPERATOR on both TESTCSSI and TEST7SSI

B - DEMOADMN SSI7 - [24 x 80]

File Edit View Communication Actions Window Help

Host: 9.60.86.71 Port: 23 LU Name: Disconnect

```
id
DEMOADMN AT TEST7SSI VIA RSCS      08/07/12 15:20:24 EDT      TUESDAY
Ready; T=0.01/0.01 15:20:24
```

GOMCMD OPMGRM1 VIEWCON USER(OPERSSI)

Running TEST7SSI

23/037

Connected to remote server/host 9.60.86.71 using port 23

```
B - DEMOADMN SSI7 - [24 x 80]
File Edit View Communication Actions Window Help
Host: 9.60.86.71 Port: 23 LU Name: Disconnect

From TEST7SSI : Outbound relocation for RHEL5G on TESTCSSI started
From OPERATOR on TEST7SSI : RHEL5G has been relocated from TEST7SSI to TESTCSSI
From OPERATOR on TESTCSSI : RHEL5G has been relocated from TEST7SSI to TESTCSSI
From TEST7SSI : Inbound relocation for RHEL5G on TESTCSSI started
From TESTCSSI : Outbound relocation for RHEL5G on TEST7SSI started
From OPERATOR on TESTCSSI : RHEL5G has been relocated from TESTCSSI to TEST7SSI
From OPERATOR on TEST7SSI : RHEL5G has been relocated from TESTCSSI to TEST7SSI
From TEST7SSI : Outbound relocation for RHEL5G on TESTCSSI started
From TESTCSSI : Inbound relocation for RHEL5G on TEST7SSI started
From OPERATOR on TESTCSSI : RHEL5G has been relocated from TEST7SSI to TESTCSSI
From OPERATOR on TEST7SSI : RHEL5G has been relocated from TEST7SSI to TESTCSSI

Page space is 0% full on TESTCSSI
Page space is 0% full on TESTCSSI
Page space is 0% full on TESTCSSI
Page space is 0% full on TEST7SSI
HCPMID6001I TIME IS 00:00:00 EDT TUESDAY 08/07/12

PF01= SCROLL PF02= PF03= END PF04= PF05= HOLD PF06= FORMAT
PF07= UP PF08= DOWN PF09= PF10= LEFT PF11= RIGHT PF12= RECALL

OPERSSI (Scroll)
MA B 23/001
Connected to remote server/host 9.60.86.71 using port 23
```

```
C - DEMOADM2 SSIC - [24 x 80]
File Edit View Communication Actions Window Help
Host: 9.60.86.170 Port: 23 LU Name: Disconnect
q names
DEMOADMN - SSI , BKRSVSFS - SSI , VMSEVRP - SSI , ATSSERV - SSI
IPGATE - SSI , LINUXSRV - SSI , LOGS - SSI , MONGRID - SSI
TOOLS - SSI , DIRMAINT - SSI , DATAMOVE - SSI , SLES11C - SSI
OPERSSI - SSI
RHEL5G - DSC , OPMGRS4 - DSC , OPMGRS3 - DSC , OPMGRS2 - DSC
OPMGRS1 - DSC , OPMGRM1 - DSC , SLES11D - DSC , DIRMSAT2 - DSC
VMSEVR - DSC , DATAMOV2 - DSC , RSCS - DSC , PVM - DSC
PERFSVM - DSC , GCS - DSC , FTPSERVE - DSC , SMTP - DSC
TCPIP - DSC , DTCVSW2 - DSC , DTCVSW1 - DSC , OPERATNS - DSC
VMSEVRU - DSC , VMSEVR - DSC , RACFVM - DSC , OPERSYMP - DSC
DISKACNT - DSC , EREP - DSC , OPERATOR - DSC , DEMOADM2 - L0004
VSM - TCPIP
Ready; T=0.01/0.01 15:26:10
VMRELOCATE MOVE USER RHEL5G TO TEST7SSI
Running TESTCSSI
23/041
Connected to remote server/host 9.60.86.170 using port 23
```



```
B - DEMOADMN SSI7 - [24 x 80]
File Edit View Communication Actions Window Help
Host: 9.60.86.71 Port: 23 LU Name: Disconnect

From TESTCSSI : Outbound relocation for RHEL5G on TEST7SSI started
From OPERATOR on TESTCSSI : RHEL5G has been relocated from TESTCSSI to TEST7SSI
From OPERATOR on TEST7SSI : RHEL5G has been relocated from TESTCSSI to TEST7SSI
From TEST7SSI : Outbound relocation for RHEL5G on TESTCSSI started
From TESTCSSI : Inbound relocation for RHEL5G on TEST7SSI started
From OPERATOR on TESTCSSI : RHEL5G has been relocated from TEST7SSI to TESTCSSI
From OPERATOR on TEST7SSI : RHEL5G has been relocated from TEST7SSI to TESTCSSI
Spool is 7% full on TESTCSSI
Spool is 7% full on TESTCSSI
Spool is 7% full on TESTCSSI
Page space is 0% full on TESTCSSI
Page space is 0% full on TESTCSSI
Page space is 0% full on TESTCSSI
Page space is 0% full on TEST7SSI
HCPMID6001I  TIME IS 00:00:00 EDT TUESDAY 08/07/12

From TEST7SSI : Inbound relocation for RHEL5G on TESTCSSI started
From TESTCSSI : Outbound relocation for RHEL5G on TEST7SSI started
From OPERATOR on TESTCSSI : RHEL5G has been relocated from TESTCSSI to TEST7SSI
From OPERATOR on TEST7SSI : RHEL5G has been relocated from TESTCSSI to TEST7SSI
PF01= SCROLL PF02= PF03= END PF04= PF05= HOLD PF06= FORMAT
PF07= UP PF08= DOWN PF09= PF10= LEFT PF11= RIGHT PF12= RECALL

OPERSSI (Scroll)
23/001
Connected to remote server/host 9.60.86.71 using port 23
```

Scenario 10a: How Do You Do That?

Event monitor in Operations Manager:

```
*  
*** Notify OPERSSI console when relocations started  
DEFEMON NAME(RELOC),+  
    TYPE(9,10),+  
    ACTION(RELOC)
```

Action in Operations Manager:

```
*  
DEFACTN NAME(RELOC),+  
    COMMAND(EXEC MSG2OPER &u &3 &4 &5 junk),+  
    ENV(LVM)
```


Scenario 10a: How Do You Do That?

MSG2OPER EXEC (excerpts):

```
/* Send a message to a central console OPERSSI for SSI cluster */
/*                                                                    */
trace r
Address Command
Parse arg userid euser event sourcesys msgtext

/* Get local TCP/IP hostname */
parse value Search_TCPIP_Data("hostname") with getrc tcphostname .
if getrc > 4 then tcphostname = "unknown_host_name"

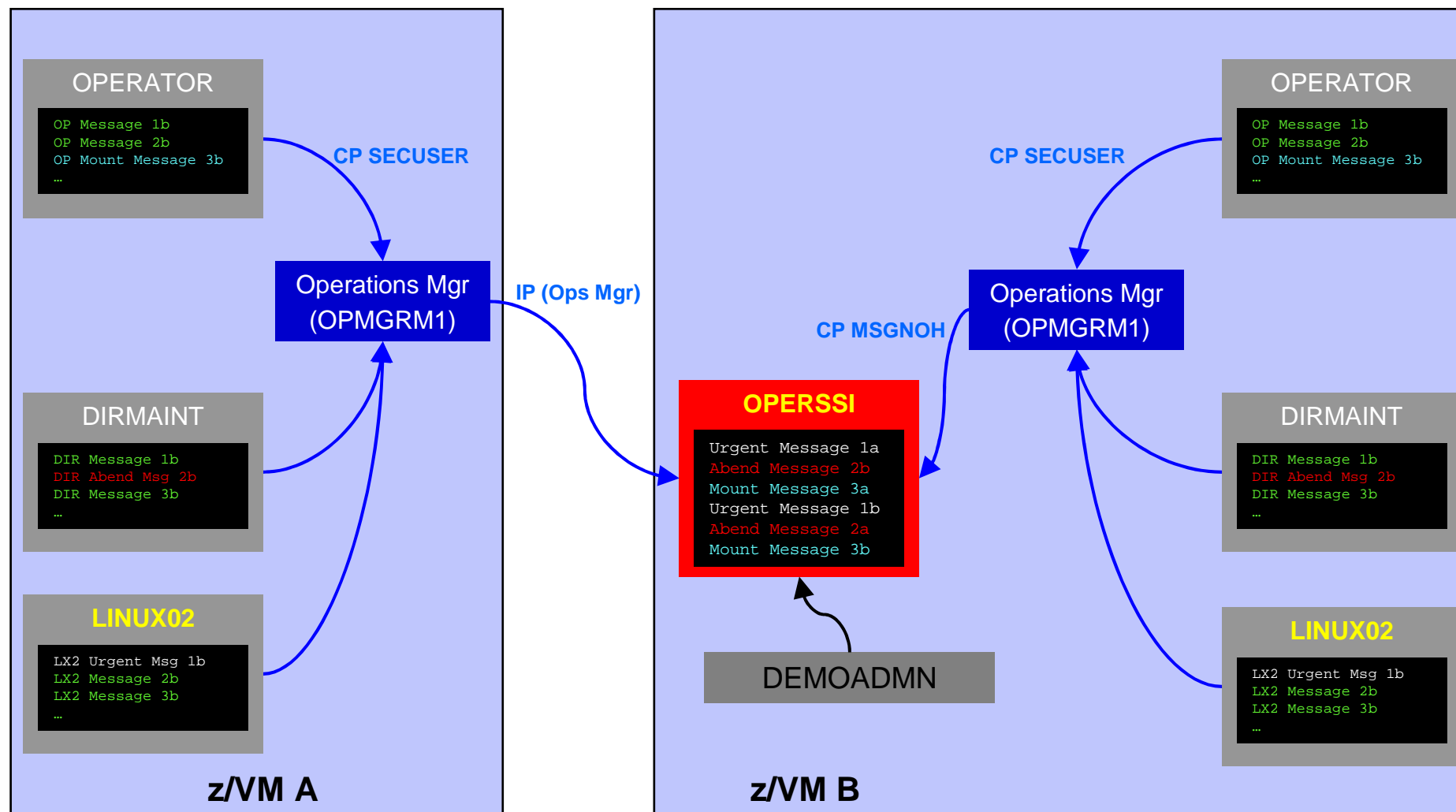
if userid = '_GOMEMON' then
do
  if event = 9 then
    msgtext = 'Outbound relocation for' euser 'on' sourcesys 'started'
  else
    msgtext = 'Inbound relocation for' euser 'on' sourcesys 'started'
  'CP MSGNOH OPERSSI AT TEST7SSI From' tcphostname ':' msgtext
end
```

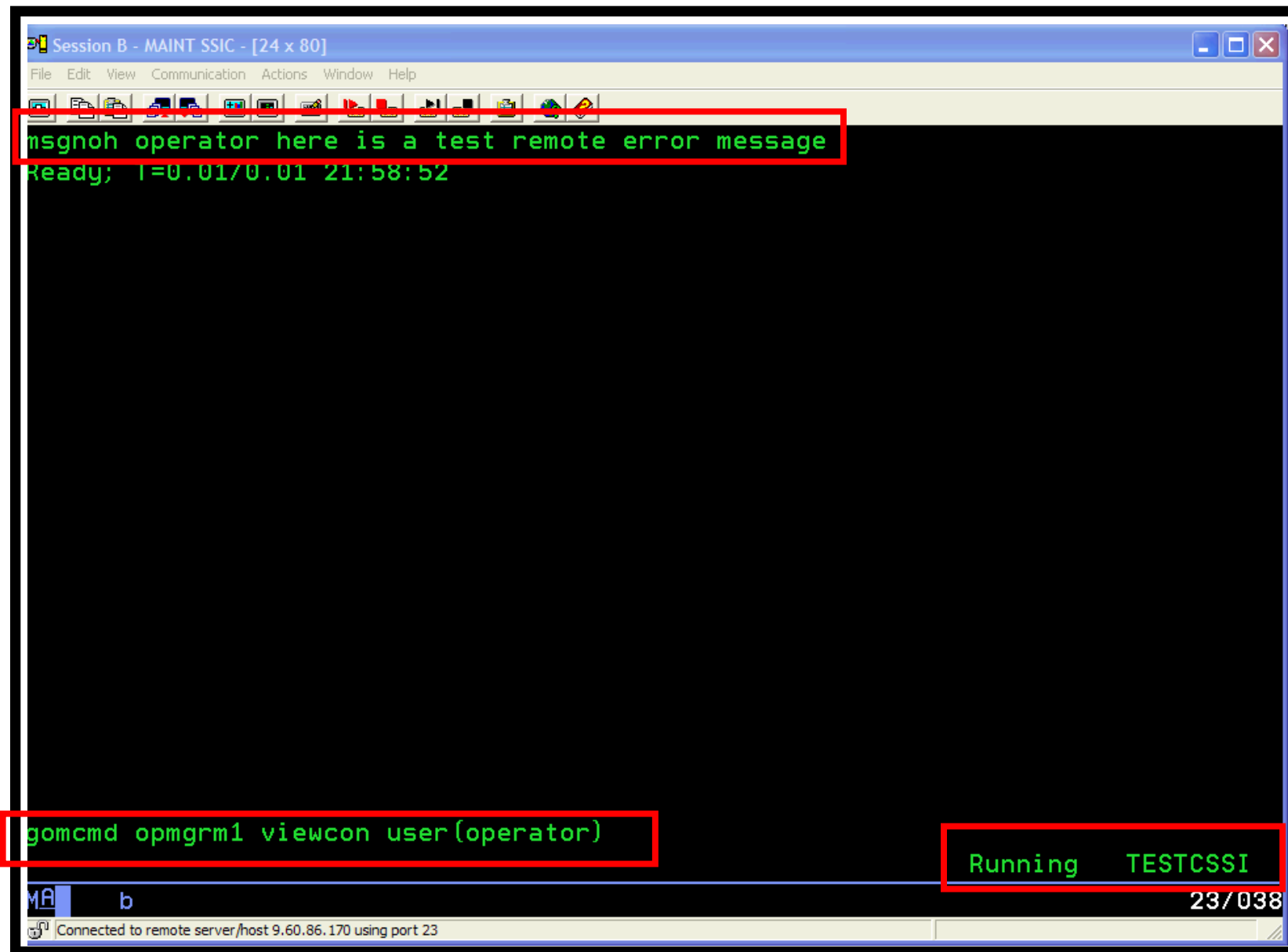
Scenario 10b:

Create a Central Operations Console across multiple z/VM systems that are **not** in an SSI cluster

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

Creating a Central Console Across Multiple LPARS





The screenshot shows a terminal window with a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The main area is black with green text. A red box highlights the first line of text: "msgnoh operator here is a test remote error message". Below it, the text "Ready; T=0.01/0.01 21:58:52" is visible. Another red box highlights the command "gomcmd opmgrm1 viewcon user(operator)". A third red box highlights the status "Running TESTCSSI". At the bottom, there is a status bar with "b" and "23/038". A small icon and text "Connected to remote server/host 9.60.86.170 using port 23" are at the very bottom.

```
Session B - MAINT SSIC - [24 x 80]
File Edit View Communication Actions Window Help
msgnoh operator here is a test remote error message
Ready; T=0.01/0.01 21:58:52

gomcmd opmgrm1 viewcon user(operator)

Running TESTCSSI
b 23/038
Connected to remote server/host 9.60.86.170 using port 23
```

```
Session B - MAINT SSIC - [24 x 80]
File Edit View Communication Actions Window Help
[Icons]
AUTO LOGON *** OPMGRS1 USERS = 22 BY OPMGRM1
AUTO LOGON *** OPMGRS2 USERS = 23 BY OPMGRM1
AUTO LOGON *** OPMGRS3 USERS = 24 BY OPMGRM1
AUTO LOGON *** OPMGRS4 USERS = 25 BY OPMGRM1
GRAF L0006 LOGOFF AS MAINT620 USERS = 24
GRAF L0005 LOGON AS MAINT USERS = 25 FROM 9.65.151.67
TESTING A REMOTE ERROR
* -- Operations Manager Action MSG2SSI scheduled for execution -- *
HERE IS A TEST REMOTE ERROR MESSAGE
* -- Operations Manager Action MSG2SSI scheduled for execution -- *

OPERATOR (Scroll)
23/001
MA b
Connected to remote server/host 9.60.86.170 using port 23
```

Scenario 10b: Detailed Steps

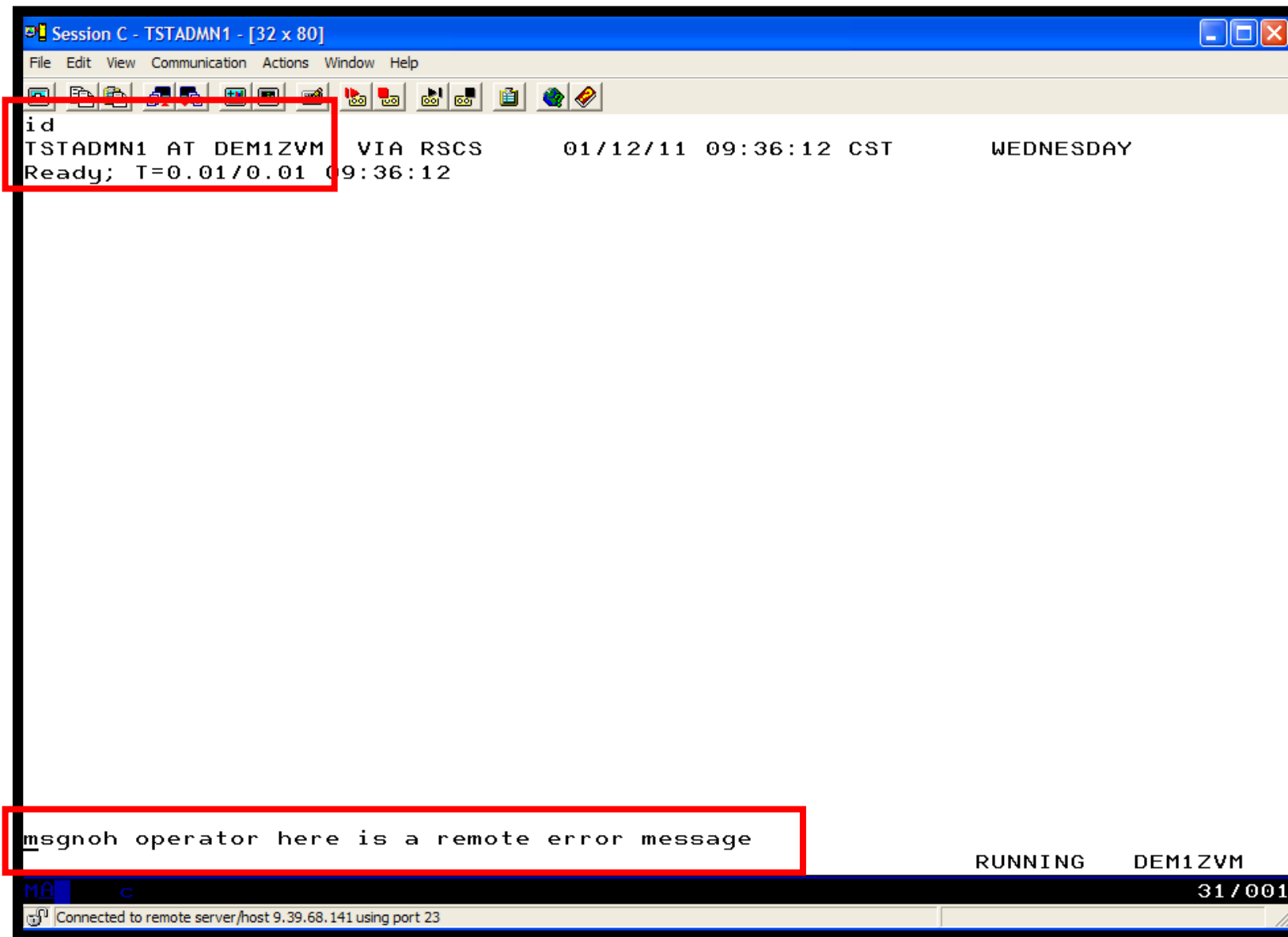
- **On System A (DEM1ZVM) put an “error” message on the OPERATOR console**
 - Must contain the text “remote error”

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

- **View the “Operations Console” (user ID OPMGRC1) on System B (ZVMV5R40) to see the message**

```
gomcmd opmgrml viewcon user(opmgrcl)
```

- **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 (File, Edit, View, Communication, Actions, Window, Help) and a toolbar with various icons. The main display area contains the following text:

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

A red rectangle highlights the first three lines of the output. At the bottom of the window, there is a status bar with the text "msgnoh operator here is a remote error message" on the left, "RUNNING DEM1ZVM" in the center, and "31/001" on the right. Below the status bar, a small icon and text indicate "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=0.01/0.01.1:15:16

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: MSGNOM 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 10b: How Do You Do That?

Console rule in Operations Manager on System A:

*

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

Action in Operations Manager on System A:

*

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

Scenario 10b: How Do You Do That?

MSG2OPS EXEC on System A:

```
/* 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
```

Central Console (OPMGRC1)

IP address of System B

Scenario 10b: How Do You Do That?

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

*

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

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

Scenario 11

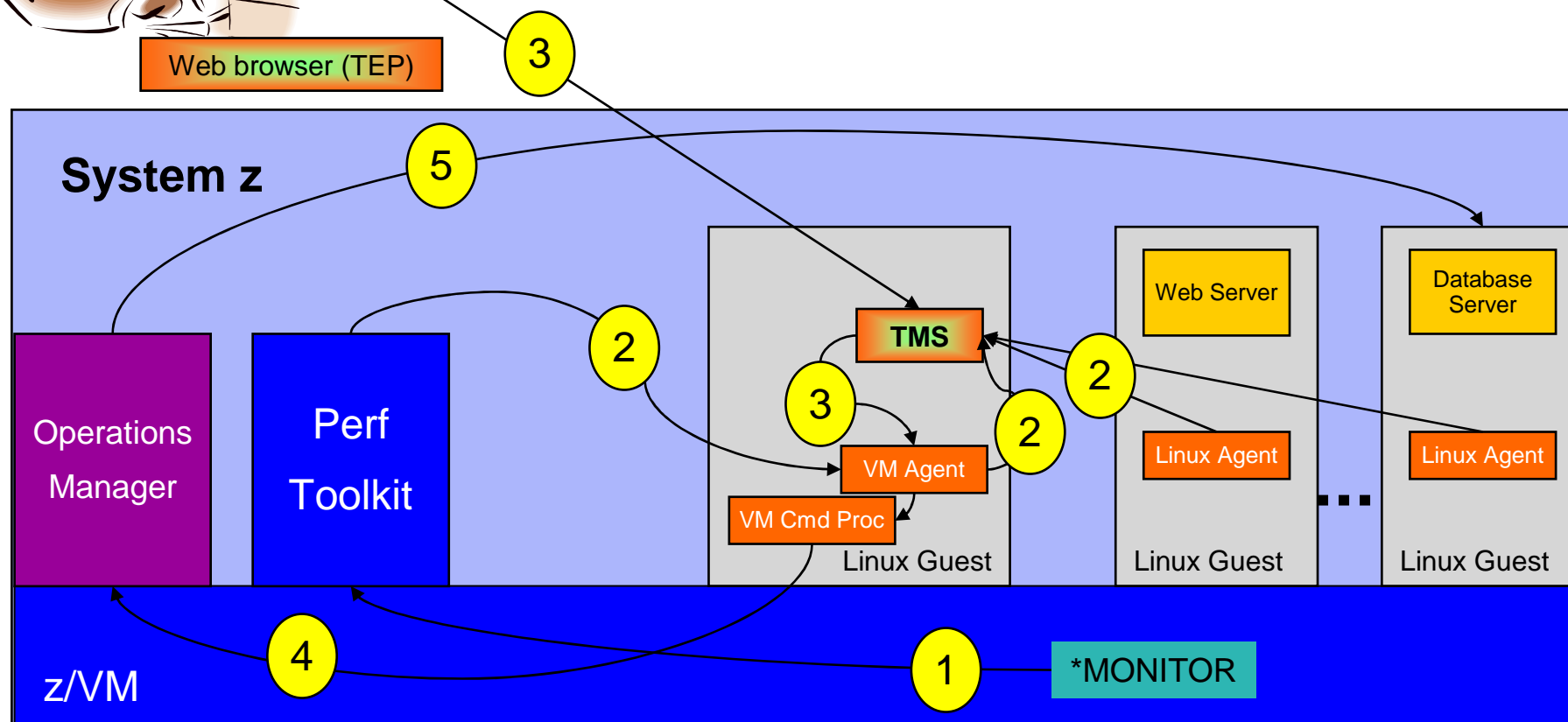
Integration with OMEGAMON XE on z/VM and Linux

- **Use Operations Manager to take action based on a triggered situation in OMEGAMON XE on z/VM and Linux**
- **Virtual CPU consumption is high for a Linux guest**
- **OMEGAMON detects the situation, creates an event, and sends message to Operations Manager**
- **Action is triggered by a rule in Operations Manager**
- **Operations Manager checks SHARE status of guest and issues CP commands to tune the guest**
 - SET QUICKDSP
 - SET SHARE
- **Event is resolved in OMEGAMON when virtual CPU consumption of guest is back down**

OMEGAMON XE and Operations Manager for z/VM

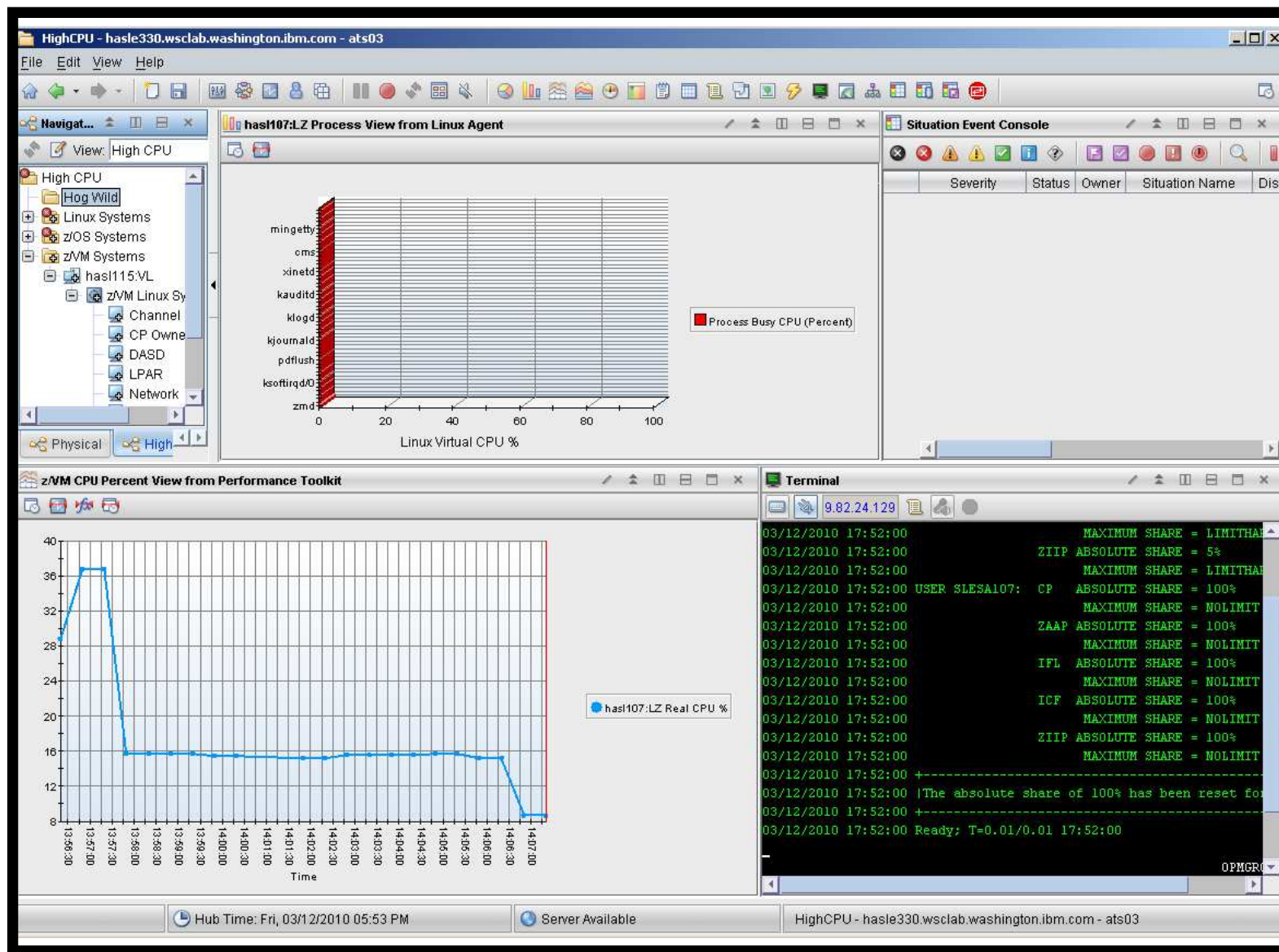


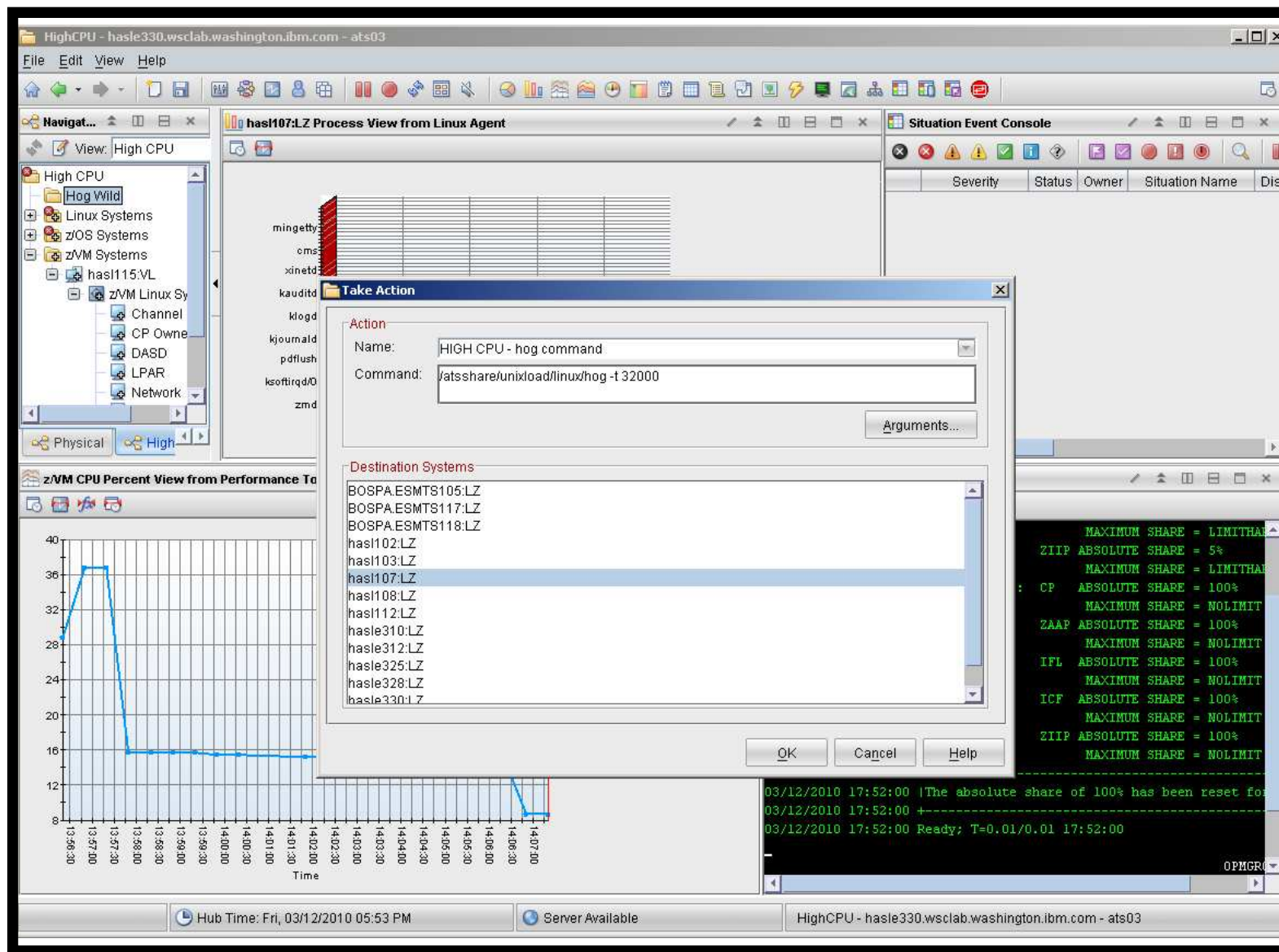
Process Flow

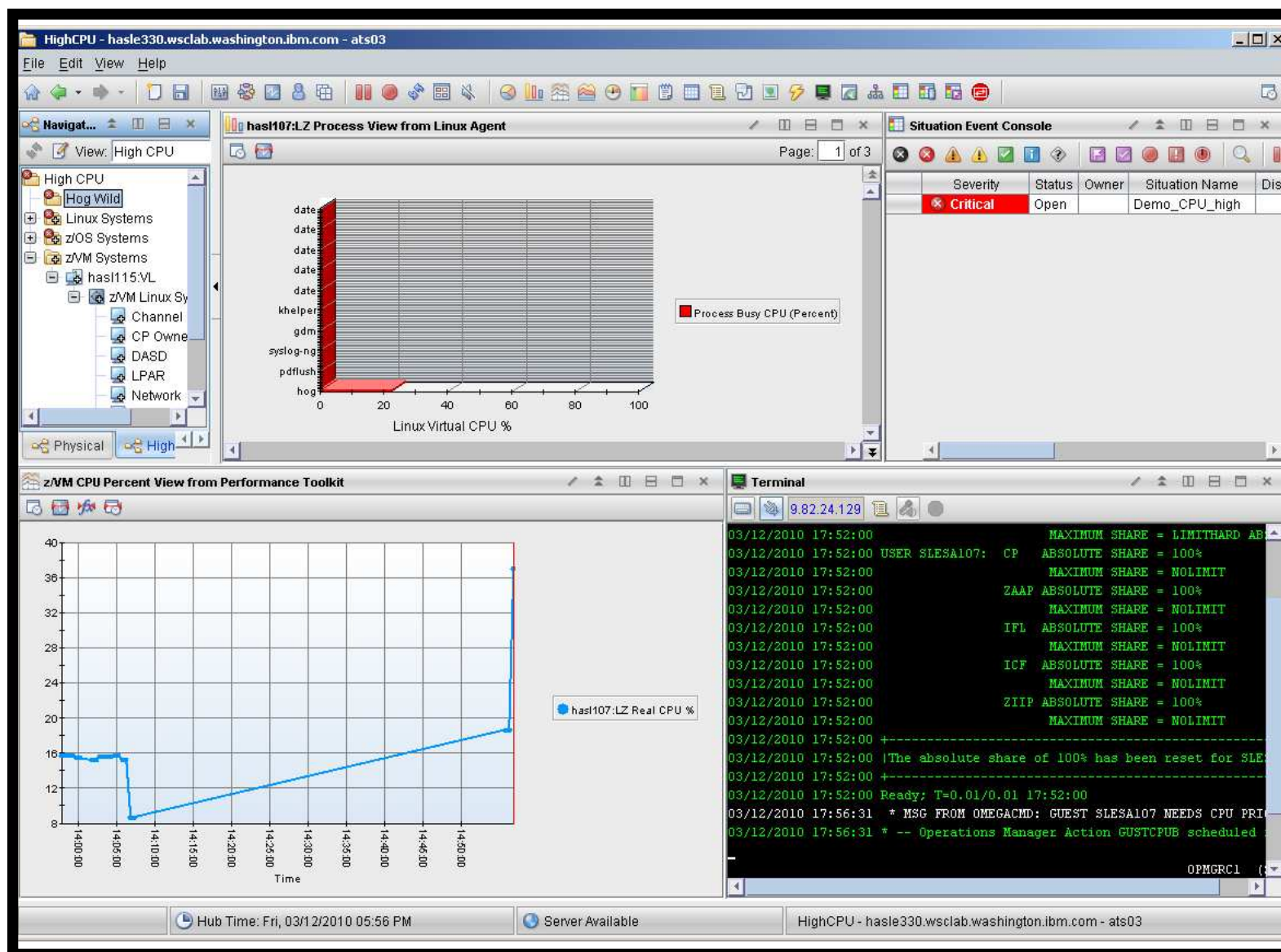


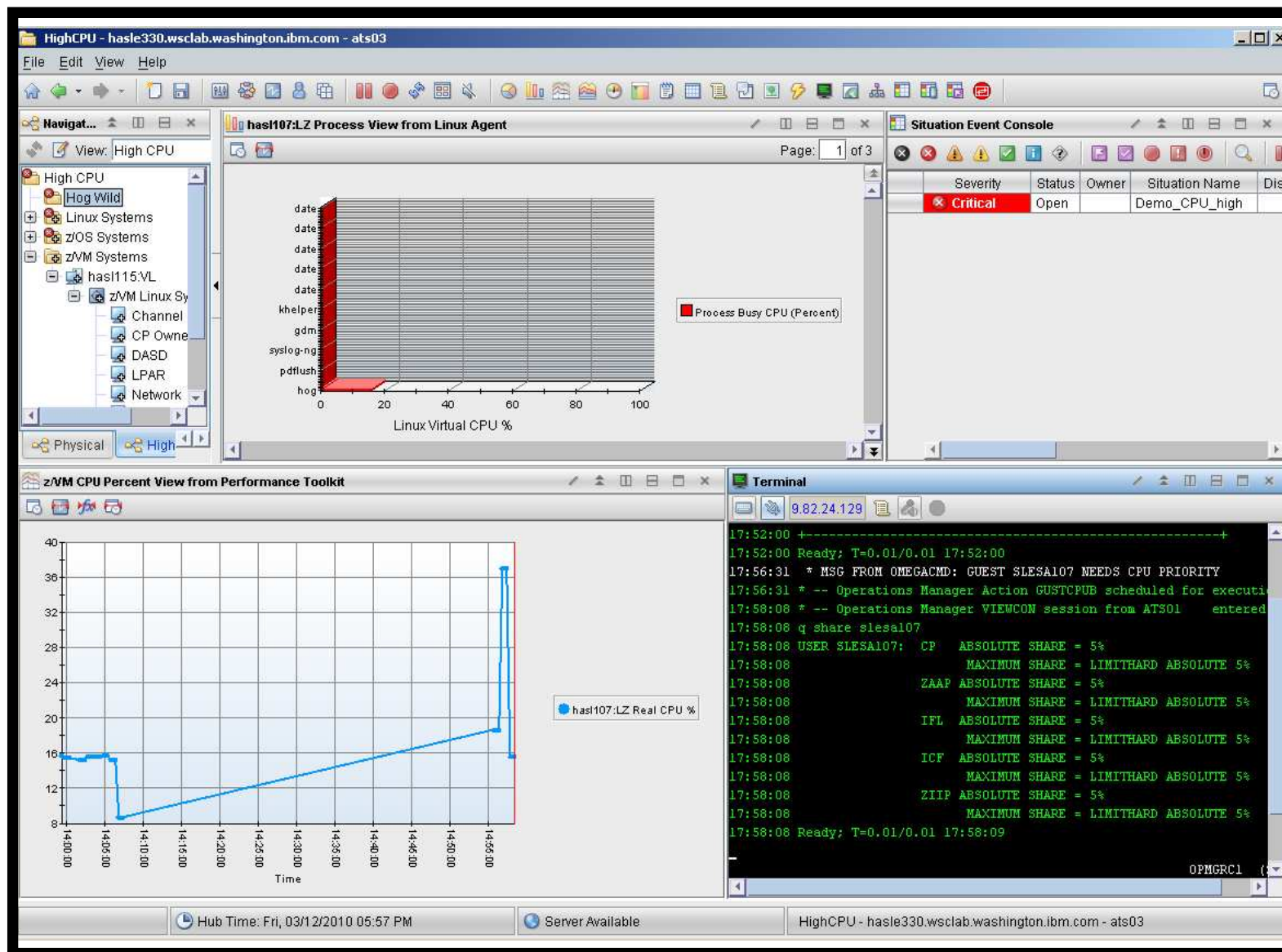
Scenario 11: Detailed Steps

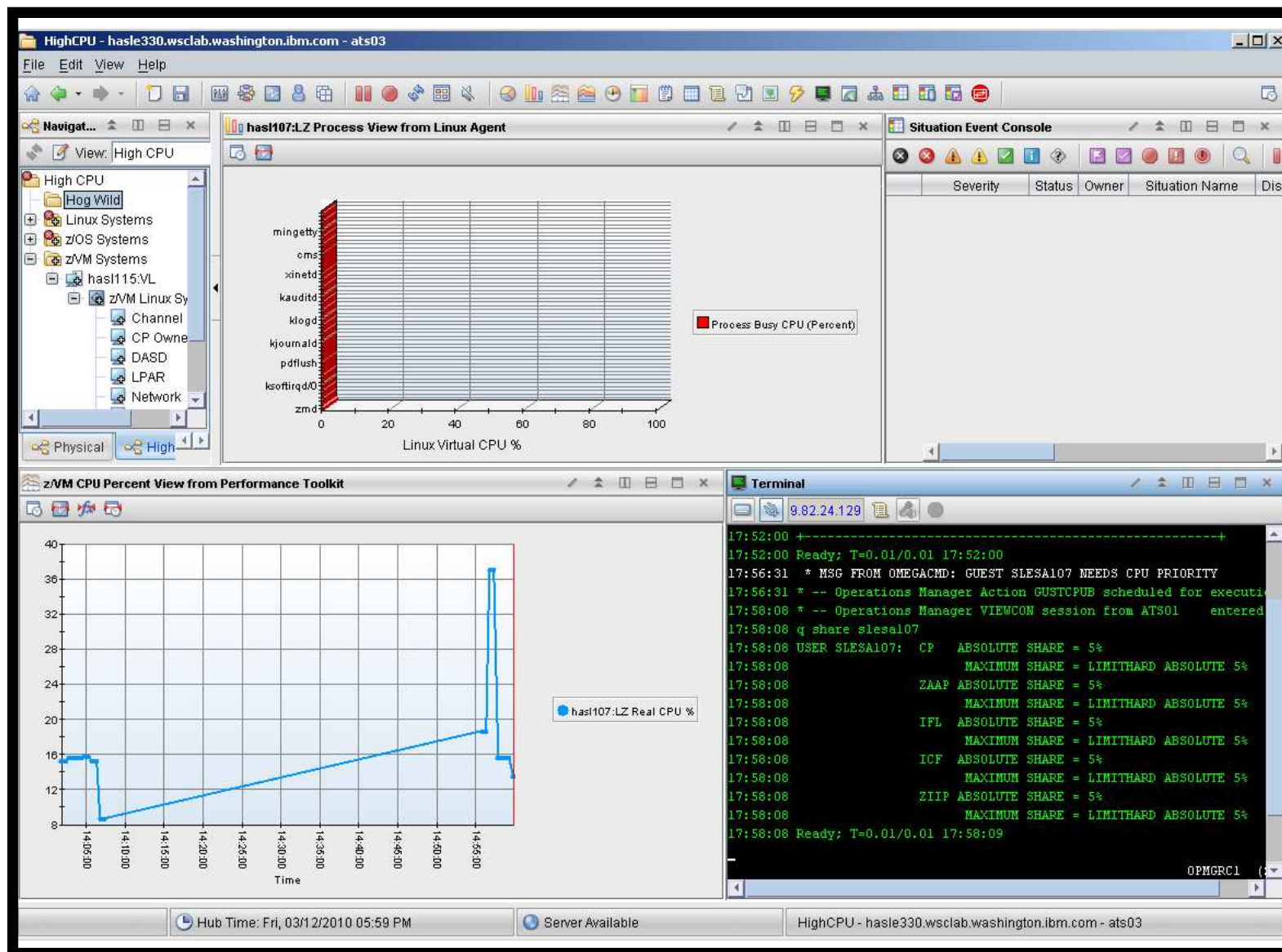
- **Create and start an application on a Linux guest that uses more than 20% of virtual CPU**
 - HOG command on our demo system
- **Updates to Tivoli Enterprise Portal**
 - z/VM CPU graph shows guest CPU % as it runs the application
 - Event pops up on situation event console to say higher than 20%
- **Use Operations Manager to watch z/VM user console used by OMEGAMON**
 - Message receive from OMEGAMON to address high CPU on the guest
 - Message from Operations Manager indicating action is triggered
- **Updates on Tivoli Enterprise Portal**
 - CPU used by that guest decreases below 20%
 - Event closed (removed from the event console)









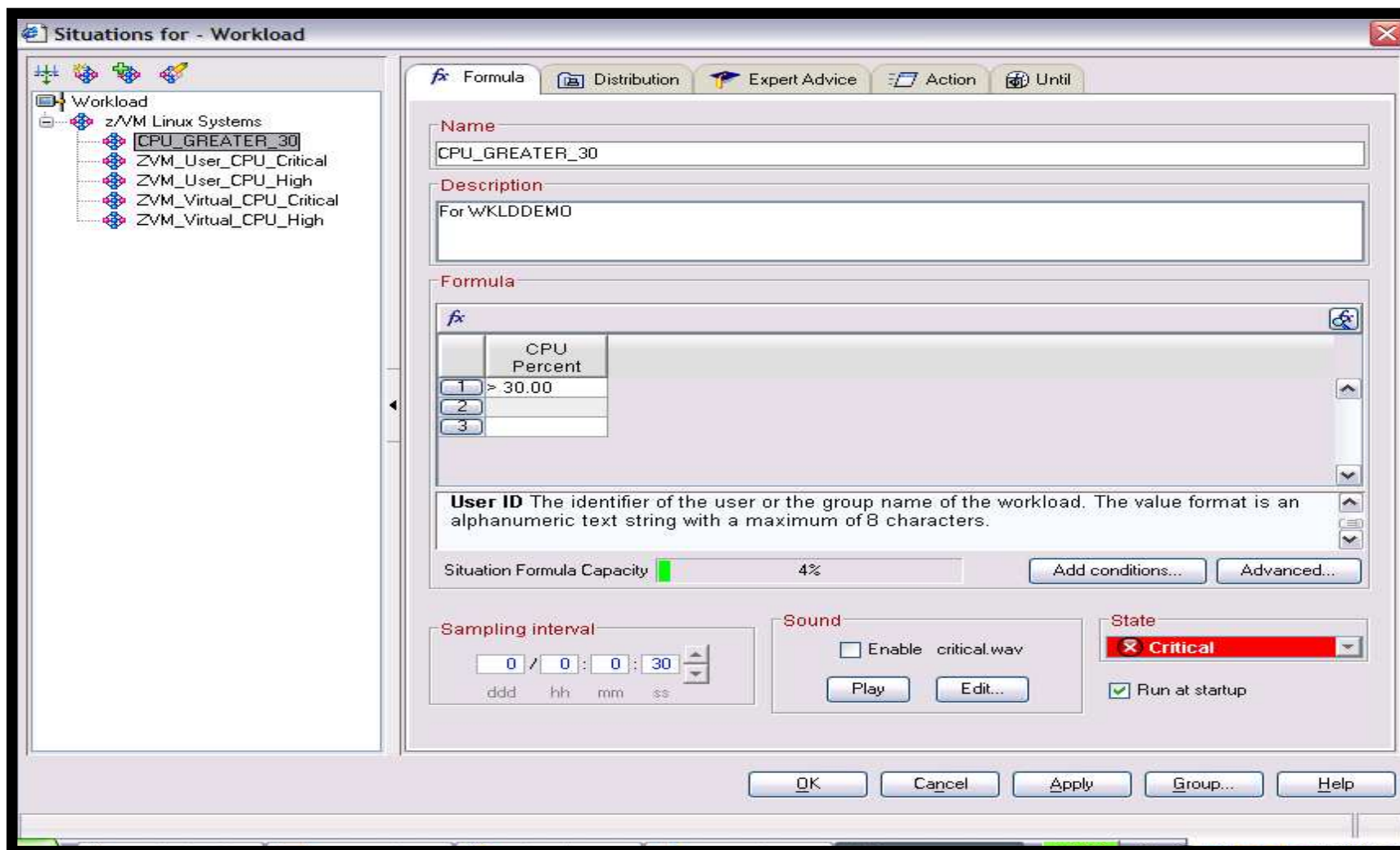


Scenario 11: How Do You Do That?

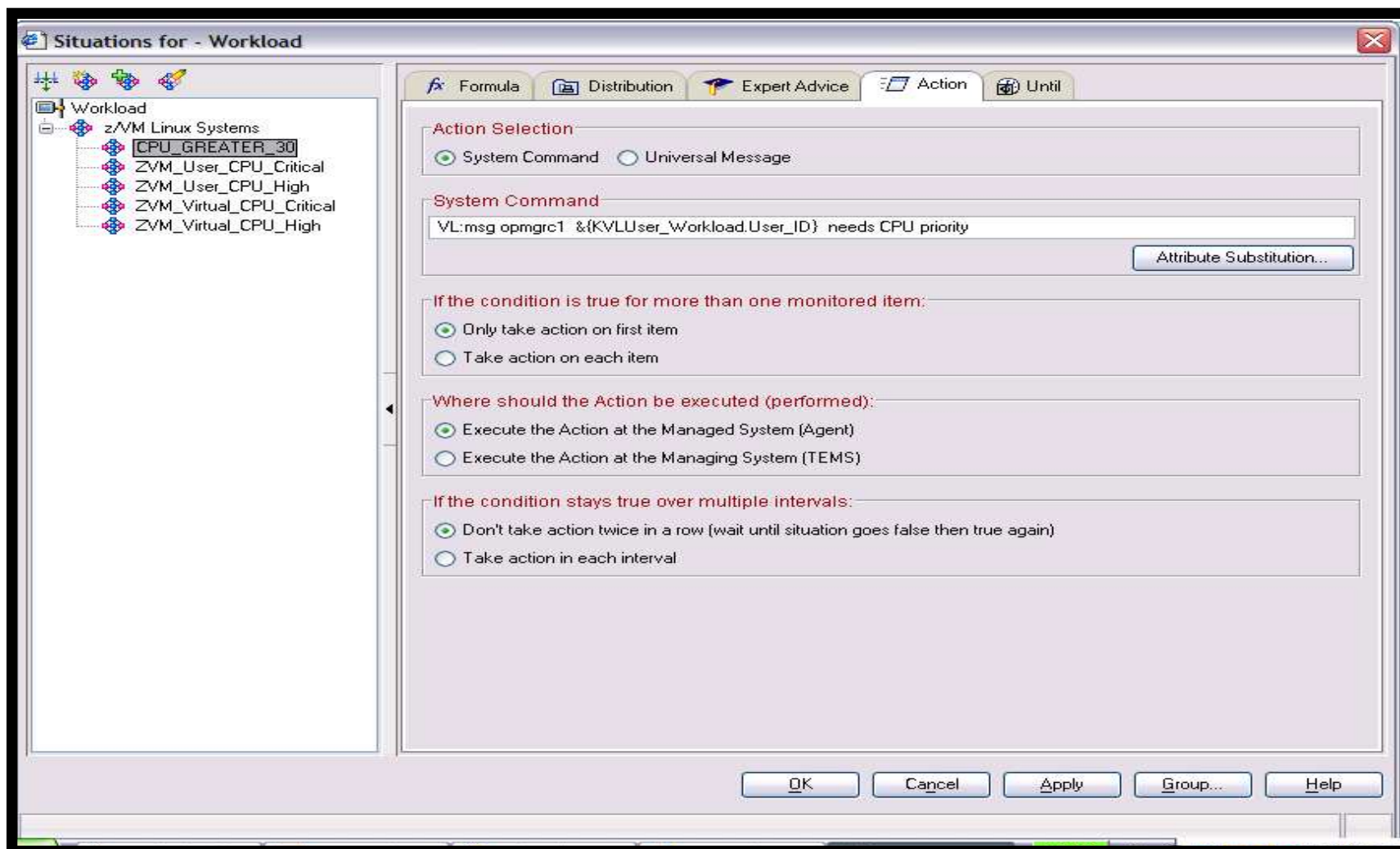
Rules in Operations Manager:

```
*  
* Adjust SHARE of Linux guest if CPU usage is too high  
* Watch for message from OMEGAMON  
DEFRULE NAME(GUSTCPU),+  
    MATCH(*NEEDS CPU PRIORITY*),+  
    ACTION(GUESTCPU)  
  
*  
* Highlight message from OMEGAMON and call EXEC to check and adjust  
* SHARE of Linux guest  
DEFACTN NAME(GUESTCPU),+  
    INPUT(AHI),+  
    NEXTACTN(GUSTCPUB)  
  
*  
DEFACTN NAME(GUSTCPUB),+  
    COMMAND(EXEC VCPU &4),+  
    ENV(LVM),+  
    OUTPUT(LOG)
```

Scenario 11: Detailed Steps OMEGAMON Configuration



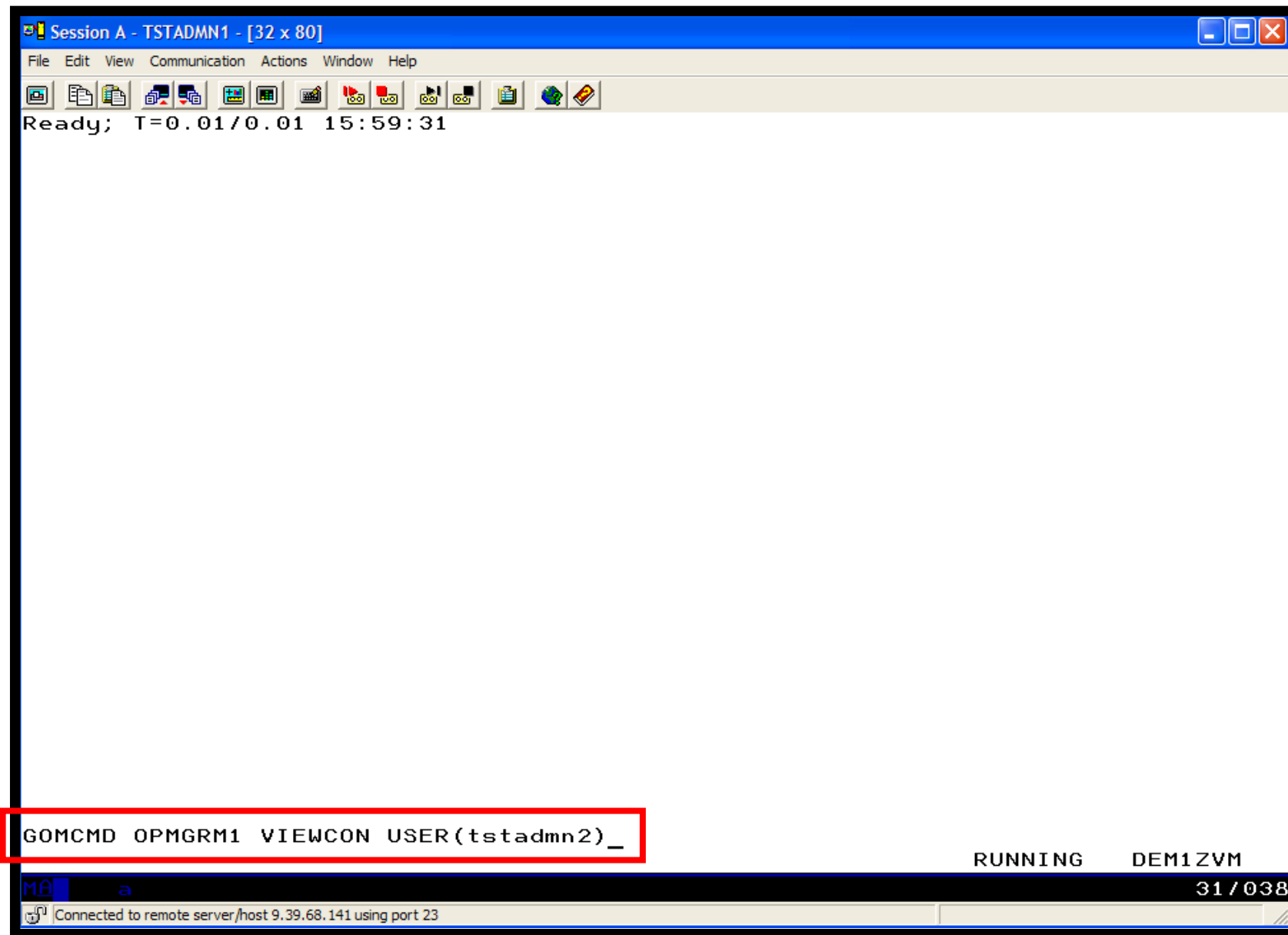
Scenario 11: Detailed Steps OMEGAMON Configuration



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



```
Session A - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
11:57:57 z/VM V5.4.0      2009-09-23 15:29
11:57:57 DMSACP723I C (198) R/O
11:57:57 Ready; T=0.01/0.01 11:57:57
11:58:08 CONNECT= 00:00:10 VIRTCPU= 000:00.00 TOTCPU= 000:00.00
11:58:08 LOGOFF AT 11:58:08 CST TUESDAY 03/01/11 BY MAINT
11:58:12 z/VM V5.4.0      2009-09-23 15:29
11:58:12 DMSACP723I C (198) R/O
11:58:12 Ready; T=0.01/0.01 11:58:12
11:59:35 * -- Operations Manager VIEWCON session from TSTADMN1 entered the foll
11:59:35 id
11:59:35 TSTADMN2 AT DEM1ZVM  VIA RSCS      03/01/11 11:59:35 CST      TUESDAY
11:59:35 Ready; T=0.01/0.01 11:59:35
00:00:00 HCPMID6001I  TIME IS 00:00:00 CST WEDNESDAY 03/02/11
00:00:00
00:00:00 HCPMID6001I  TIME IS 00:00:00 CST THURSDAY 03/03/11
00:00:00
TSTADMN2 (Scroll)
31/001
Connected to remote server/host 9.39.68.141 using port 23
```

```
id
MAINT      AT DEM1ZVM  VIA RSCS      03/03/11 16:02:56 CST      THURSDAY
Ready; T=0.01/0.01 16:02:56
q tstadmn2
TSTADMN2 - DSC
Ready; T=0.01/0.01 16:04:05
force tstadmn2
USER DSC   LOGOFF AS  TSTADMN2 USERS = 32      FORCED BY MAINT
Ready; T=0.01/0.01 16:04:10
q tstadmn2
TSTADMN2 - DSC
Ready; T=0.01/0.01 16:04:18

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
11:57:57 z/VM V5.4.0      2009-09-23 15:29
11:57:57 DMSACP723I C (198) R/O
11:57:57 Ready; T=0.01/0.01 11:57:57
11:58:08 CONNECT= 00:00:10 VIRTCPU= 000:00.00 TOTCPU= 000:00.00
11:58:08 LOGOFF AT 11:58:08 CST TUESDAY 03/01/11 BY MAINT
11:58:12 z/VM V5.4.0      2009-09-23 15:29
11:58:12 DMSACP723I C (198) R/O
11:58:12 Ready; T=0.01/0.01 11:58:12
11:59:35 * -- Operations Manager VIEWCON session from TSTADMN1 entered the foll
11:59:35 id
11:59:35 TSTADMN2 AT DEM1ZVM  VIA RSCS      03/01/11 11:59:35 CST      TUESDAY
11:59:35 Ready; T=0.01/0.01 11:59:35
00:00:00 HCPMID6001I  TIME IS 00:00:00 CST WEDNESDAY 03/02/11
00:00:00
00:00:00 HCPMID6001I  TIME IS 00:00:00 CST THURSDAY 03/03/11
00:00:00
16:04:10 CONNECT= 52:05:57 VIRTCPU= 000:00.00 TOTCPU= 000:00.00
16:04:10 LOGOFF AT 16:04:10 CST THURSDAY 03/03/11 BY MAINT
16:04:13 z/VM V5.4.0      2009-09-23 15:29
16:04:13 DMSACP723I C (198) R/O
16:04:13 Ready; T=0.01/0.01 16:04:13

TSTADMN2 (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)
```

Scenario 13: Monitor Page Space – Send Email if Full

- **Operations Manager monitors the page space usage (percent full)**
- **Usage exceeds the specified limit**
 - For demo purposes, we'll dynamically resume (re-activate) an existing page space monitor that requires the spool to only be 10% full
- **Automatically send an e-mail to someone who can evaluate and take action**
- **For demo purposes, suspend (de-activate) the page space monitor when complete**

Scenario 13: Detailed Steps

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

```
q alloc page
```

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

```
gomcmd opmgrml resume page(pgfull)
```

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

```
gomcmd opmgrml viewlog
```

- **Check the inbox of the appropriate person to see the email**

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

```
gomcmd opmgrml suspend page(pgfull)
```

A - DEMOADMN ATS

File Edit View Communication Actions Window Help

Host: 9.82.24.129 Port: 23 LU Name: Disconnect

id
DEMOADMN AT ZVMV5R40 VIA RSCS 08/07/12 15:10:02 EST TUESDAY

Ready; T=0.017/0.01 15:10:02

q alloc page

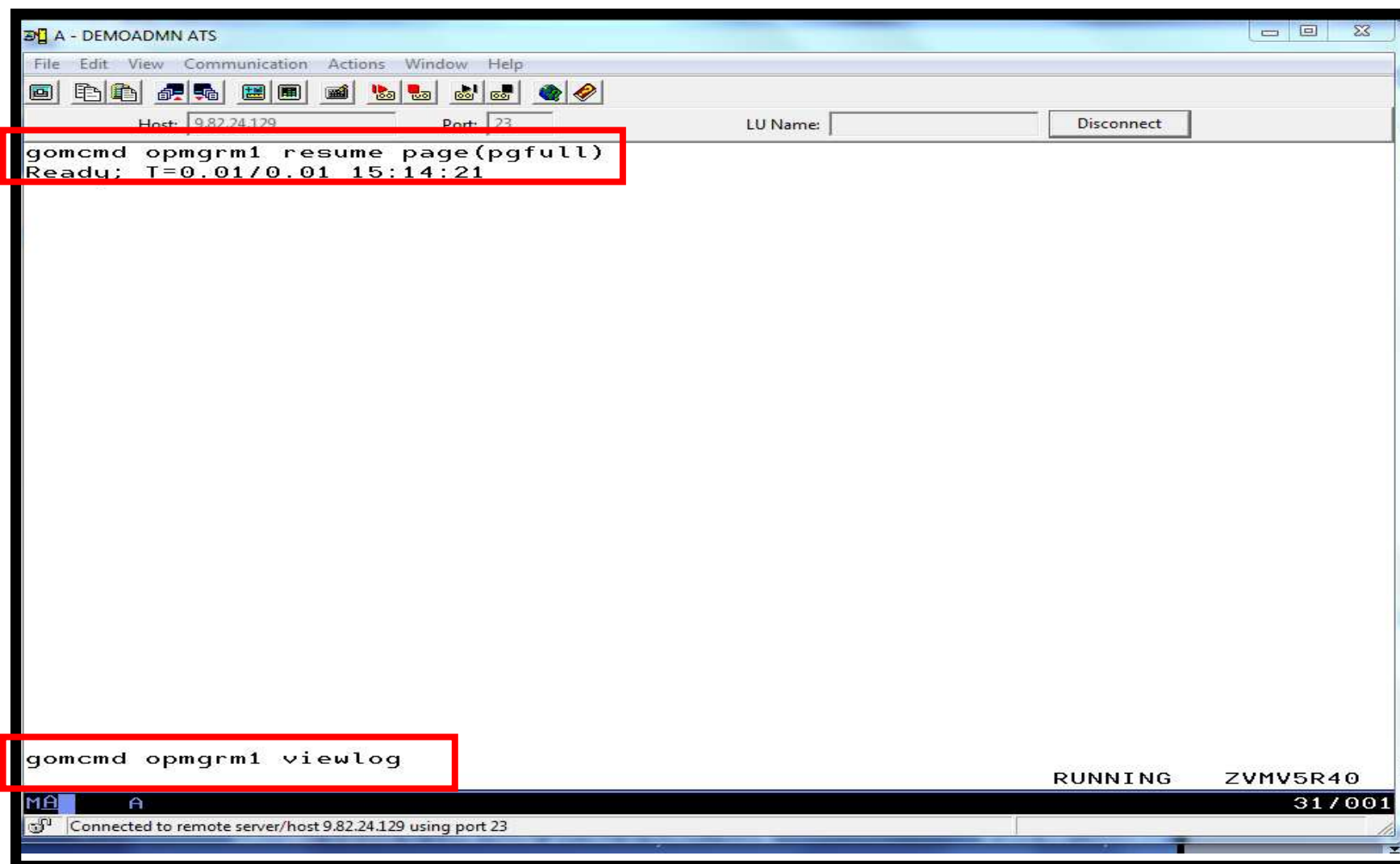
VOLID	RDEV	EXTENT START	EXTENT END	TOTAL PAGES	PAGES IN USE	HIGH PAGE	% USED
540PAG	6B04	1	3338	600840	106231	141895	17%
ZVMPG1	6B05	1	3338	600840	107778	145533	17%
ZVMPG2	6B06	1	3338	600840	107866	142859	17%
ZVMPG3	6B07	1	3338	600840	105872	143574	17%
ZVMPG4	6B10	0	3338	601020	109341	146486	18%
ZVMPG5	6B0B	0	3338	601020	100116	135962	16%
ZVMPG6	6B0C	0	3338	601020	107786	147454	17%
PG6B0A	6B0A	0	10016	1761K	111151	149402	6%
SUMMARY				5869K	856141		14%
USABLE				5869K	856141		14%

Ready; T=0.017/0.01 15:10:06

RUNNING ZVMV5R40

MA A 31/001

Connected to remote server/host 9.82.24.129 using port 23



```

A - DEMOADMN ATS
File Edit View Communication Actions Window Help
Host: 9.82.24.129 Port: 23 LU Name: Disconnect
08/07/2012 15:15:27 GOMPM00451I PAGE USE: MONITOR PGFULL SPACE 14 PERCENT
08/07/2012 15:15:27 GOMPM00452I PAGE CHG: MONITOR PGFULL SPACE 0 PERCENT
08/07/2012 15:15:27 GOMACT0260I PAGE PGFULL ACTION PAGEMAIL TRIGGERED BY _GO
08/07/2012 15:15:27 GOMACT0262I ACTION PAGEMAIL BEGIN FOR _GOMPMON SERVER OPMG
08/07/2012 15:15:27 GOMACT0269L COMMAND "EXEC SMTPPG TLD1 AT US.IBM.COM 14"
08/07/2012 15:15:27 GOMACT0270L DMSXSU587I XEDIT:
08/07/2012 15:15:27 GOMACT0270L NOTE OPMGRM1 NOTE A1 sent to TLD1 at US.IBM.CO
08/07/2012 15:15:27 GOMACT0267I ACTION PAGEMAIL END RC=0 SERVER OPMGRM1
08/07/2012 15:15:27 GOMCMD0216L SMTP "* From SMTP: Received Spool File 005
08/07/2012 15:15:28 GOMCMD0216L SMTP "* From SMTP: Mail delivered to: <TLD
08/07/2012 15:16:20 GOMCMD0216L USSYSLOG "<30>snmpdY1425": Connection from UDP
08/07/2012 15:16:20 GOMCMD0216L LXSYSLOG "<30>snmpdY1425": Connection from UDP
08/07/2012 15:16:27 GOMPM00453I PAGE ALERT: MONITOR PGFULL USAGE CONDITIO
08/07/2012 15:16:27 GOMPM00451I PAGE USE: MONITOR PGFULL SPACE 14 PERCENT
08/07/2012 15:16:27 GOMPM00452I PAGE CHG: MONITOR PGFULL SPACE 0 PERCENT
08/07/2012 15:16:27 GOMACT0260I PAGE PGFULL ACTION PAGEMAIL TRIGGERED BY _GO
08/07/2012 15:16:27 GOMACT0262I ACTION PAGEMAIL BEGIN FOR _GOMPMON SERVER OPMG
08/07/2012 15:16:27 GOMACT0269L COMMAND "EXEC SMTPPG TLD1 AT US.IBM.COM 14"
08/07/2012 15:16:27 GOMACT0270L DMSXSU587I XEDIT:
08/07/2012 15:16:27 GOMACT0270L NOTE OPMGRM1 NOTE A1 sent to TLD1 at US.IBM.CO
08/07/2012 15:16:27 GOMACT0267I ACTION PAGEMAIL END RC=0 SERVER OPMGRM1
08/07/2012 15:16:27 GOMCMD0216L SMTP "* From SMTP: Received Spool File 005
08/07/2012 15:16:33 GOMCMD0216L SMTP "* From SMTP: Mail delivered to: <TLD
08/07/2012 15:17:13 GOMCMD0201L DEMOADMN VIEWLOG VID=DEMOADMN SRC=HAS10CV C
08/07/2012 15:17:27 GOMPM00453I PAGE ALERT: MONITOR PGFULL USAGE CONDITIO
08/07/2012 15:17:27 GOMPM00451I PAGE USE: MONITOR PGFULL SPACE 14 PERCENT
08/07/2012 15:17:27 GOMPM00452I PAGE CHG: MONITOR PGFULL SPACE 0 PERCENT
08/07/2012 15:17:27 GOMPM00455I PAGE MONITOR "PGFULL " EXECUTION LIMIT EXCEED
PF01= SCROLL PF02= PF03= END PF04= PF05= HOLD PF06=
PF07= UP PF08= DOWN PF09= PF10= LEFT PF11= RIGHT PF12= RECALL
_GOMALOG (Scroll)
31/001
Connected to remote server/host 9.82.24.129 using port 23

```

Scenario 13: How Do You Do That?

■ Console rule and action in Operations Manager:

*

```
DEFPMON NAME(PGFULL),+  
  USAGE(010-100),+  
  INTERVAL(1),+  
  LIMIT(3,3600),+  
  ACTION(PAGEMAIL),+  
  PARM(SPOOL)
```

*

```
SUSPEND PAGE(PGFULL)
```

*

```
DEFACTN NAME(PAGEMAIL),+  
  COMMAND(EXEC SMTPPG tld1 at us.ibm.com &4),+  
  OUTPUT(LOG),+  
  ENV(LVM)
```

Scenario 13: How Do You Do That?

SMTPPG EXEC (excerpts)

```
/* */
Parse arg mail_user dummyat mail_node pgpct

errtext = 'Page space is' pgpct'% full on z/VM system'

/* Get local TCP/IP hostname */
parse value Search_TCPIP_Data("hostname") with getrc tcphostname .
if getrc > 4 then tcphostname = "unknown_host_name"
parse value Search_TCPIP_Data("domainorigin") with getrc tcpdomain .
if getrc > 4 then tcpdomain = "unknown_domain_name"

fqdomain_name = tcphostname '.' tcpdomain

/* 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 'on' fqdomain_name
line.6 = 'DO NOT REPLY - This e-mail was generated by an automated service machine'
line.7 = ' '
line.8 = msgtext
line.0 = 8

'PIPE stem line. | > TEMP NOTE A'

'EXEC SENDFILE TEMP NOTE A (NOTE SMTP'
```

Scenario 14: Monitor SSI Connectivity between Two Members of a Cluster

- **Create a schedule to query ISLINKs between two members of a cluster**
- **If less than 4 links up, send message to consolidated SSI console (OPERSSI)**
 - For demo purposes, we'll dynamically deactivate a link then reactivate it when done

Scenario 14: Detailed Steps

- **From an authorized VM user ID, see the currently available ISLINKs:**

```
q islink node testcssi
```

- **Deactivate one of the links:**

```
deactivate islink 0d01
```

- **Using Operations Manager, view the central operations console to see the alert:**

```
gomcmd opmgrml viewcon user(operssi)
```

- **Schedule is triggered every 2 minutes, so wait 2 minutes and see the messages again**
- **Reactivate the link:**

```
activate islink 0d01
```

Scenario 14: How Do You Do That?

■ Schedule and action in Operations Manager:

*** Check every 10 minutes for any IS links being down

```
DEFSCHD NAME(ISLINK1),+
```

```
EVERY(00:02),+
```

```
ACTION(QISLINK),+
```

```
PARM(TESTCSSI)
```

```
*
```

```
DEFACTN NAME(QISLINK),+
```

```
COMMAND(EXEC QISLINK TEST7SSI &p),+
```

```
ENV(SVM)
```

Scenario 14: How Do You Do That?

■ QISLINK EXEC:

```
/* Find the number of IS Links available to another node */
/* If less than 4, then send message to OPERSSI */
trace o
Address command
Parse Arg thisnode othernode
'PIPE CP QUERY ISLINK NODE' othernode '| find ____State:____Up| COUNT LINES | VAR numlinks'
If numlinks < 4
  Then 'CP MSGNOH OPERSSI AT TEST7SSI From' thisnode': Number of ISLINKs to' othernode 'is' numlinks
Exit 0
```


Scenario 15: Suppress Passwords on Linux Consoles

- **TN3270 login to Linux guest displays password**
 - Password on separate line from password prompt
 - Password captured in console and viewable in Operations Manager VIEWCON
- **Use a rule in Operations Manager to suppress the password**
 - I.e. the line following the “password:” prompt
- **Can be expanded to suppress multiple lines following matching text**

Scenario 15: Detailed Steps

- **Use Operations Manager to view the console of a Linux guest:**

```
gomcmd opmgrml viewcon user(omeglinx1)
```

- **Enter the login command:**

```
login root
```

- **Enter the password**
 - Note that it's not displayed

Scenario 15: How Do You Do That?

■ Rule and action in Operations Manager:

```
*
* Change password prompt to red.
* Suppress the password when logging onto OMEGLNX1.
* Have to suppress next 2 lines to include the line Ops Mgr adds
* indicating the user entered a "command"
*
DEFRULE NAME(OMEGPW),+
  MATCH(Password:*) ,+
  USER(OMEGLN1) ,+
  ACTION(SUPPW) ,+
  SUPNEXT(2)
*
DEFACTN NAME(SUPPW) ,+
  INPUT(CRE)
```



IBM Software

Backup and Recovery Scenarios *Including Automation*

Scenario 16: 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 16: 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)

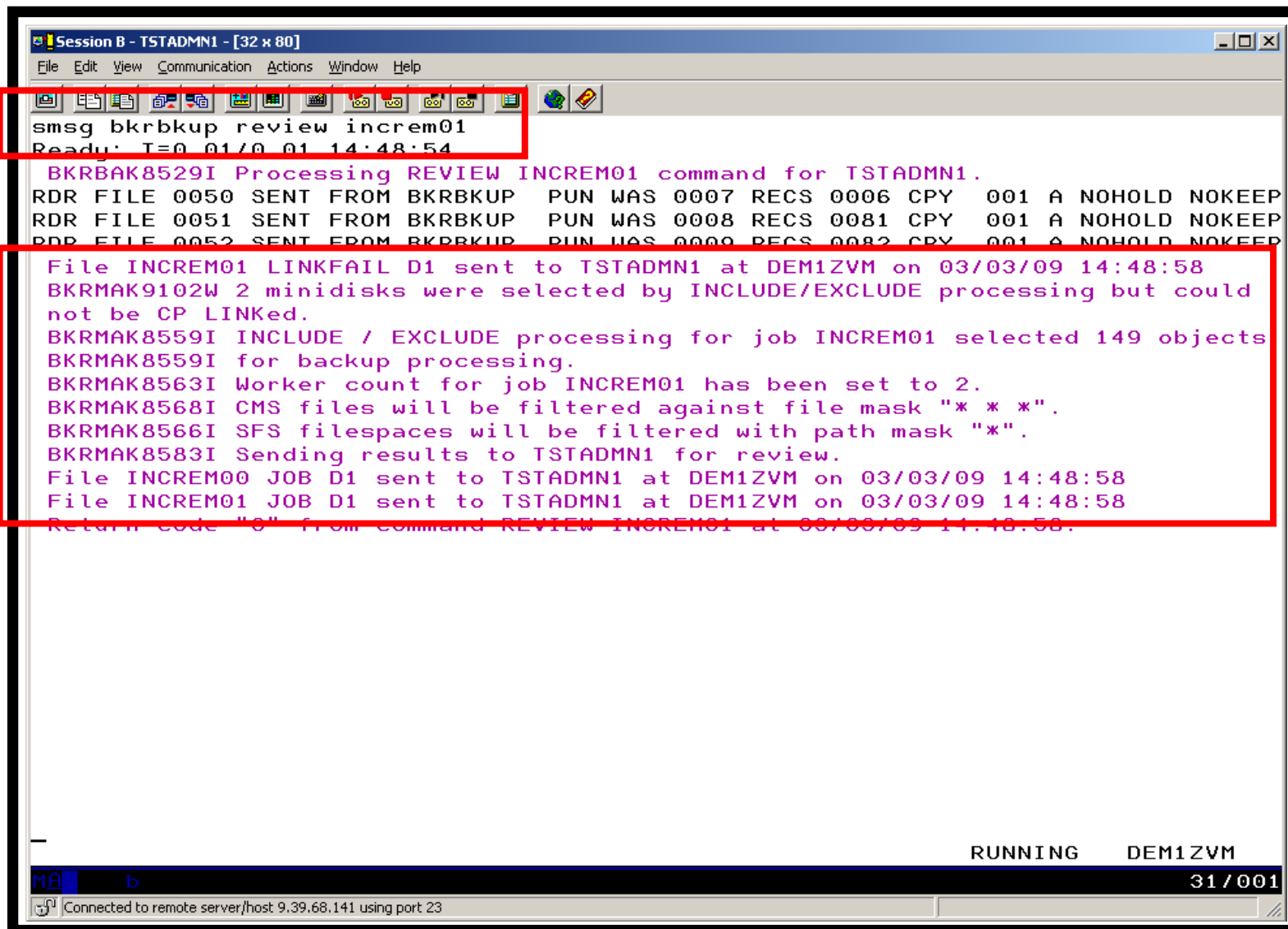
- From an authorized z/VM user ID, submit a backup job for backup processing

```
smsg bkrbkup submit increm01
```

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

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

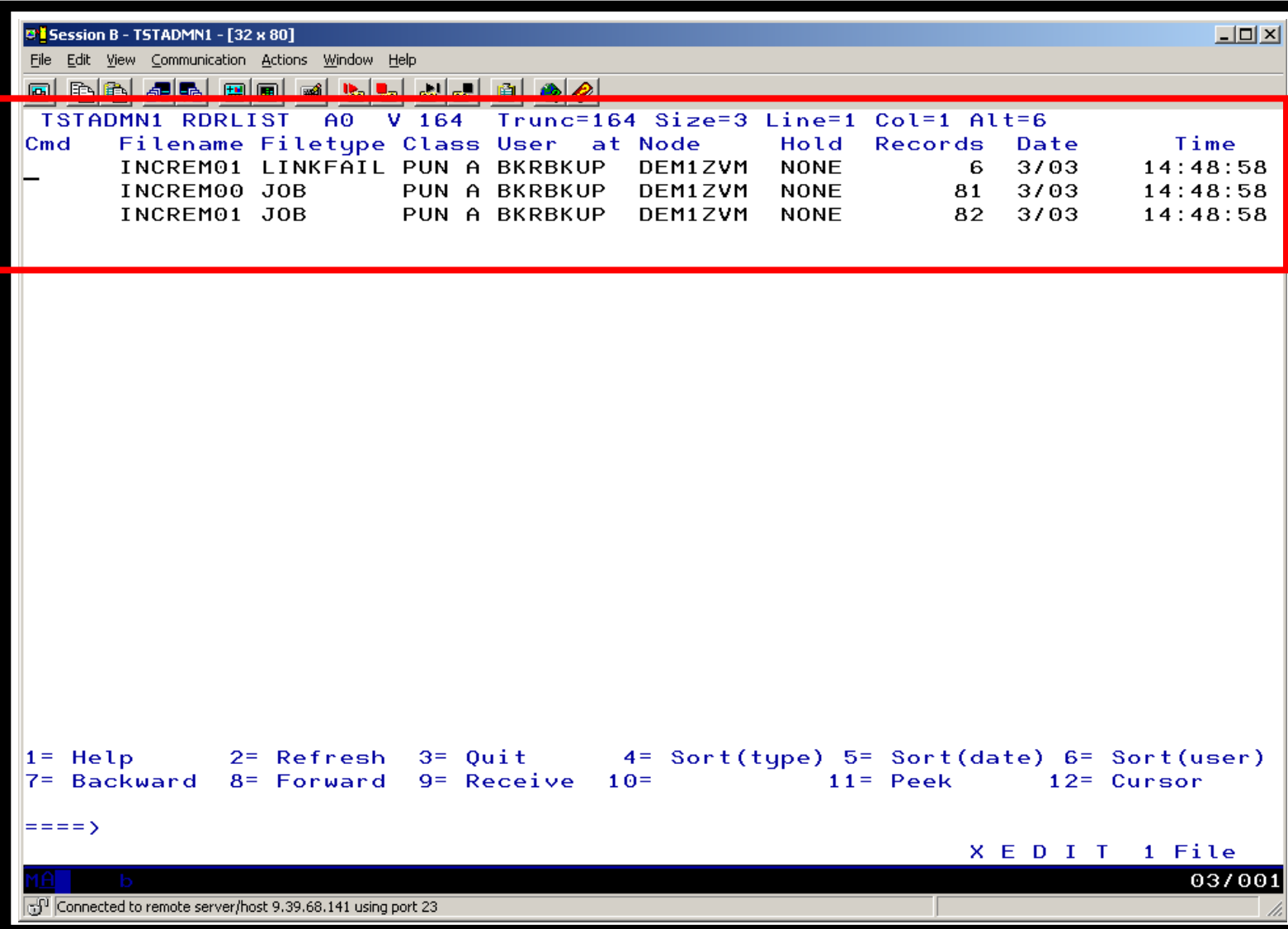
```
Session A - TSTUSER1 - [32 x 80]
File Edit View Communication Actions Window Help
B B A1 V 80 Trunc=80 Size=42 Line=29 Col=1 Alt=2
====>
00029 Change made at 15:53pm eastern time April 19, 2008
00030 Change made at 14:44 cet May 5, 2008
00031 Change made at 08:45 pt July 3, 2008
00032 Change made 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
```



The screenshot shows a terminal window titled "Session B - TSTADMN1 - [32 x 80]". The window has a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The main text area displays the following output:

```
msg 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
BKRMAK9102W 2 minidisks were selected by INCLUDE/EXCLUDE processing but could
not be CP LINKED.
BKRMAK8559I INCLUDE / EXCLUDE processing for job INCREM01 selected 149 objects
BKRMAK8559I for backup processing.
BKRMAK8563I Worker count for job INCREM01 has been set to 2.
BKRMAK8568I CMS files will be filtered against file mask "* * *".
BKRMAK8566I SFS files will be filtered with path mask "*".
BKRMAK8583I 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.
```

At the bottom of the window, there is a status bar showing "RUNNING DEM1ZVM" and "31/001". A small icon and text at the bottom left indicate "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

TSTADMN1 RDRLIST A0 V 164 Trunc=164 Size=3 Line=1 Col=1 Alt=6

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

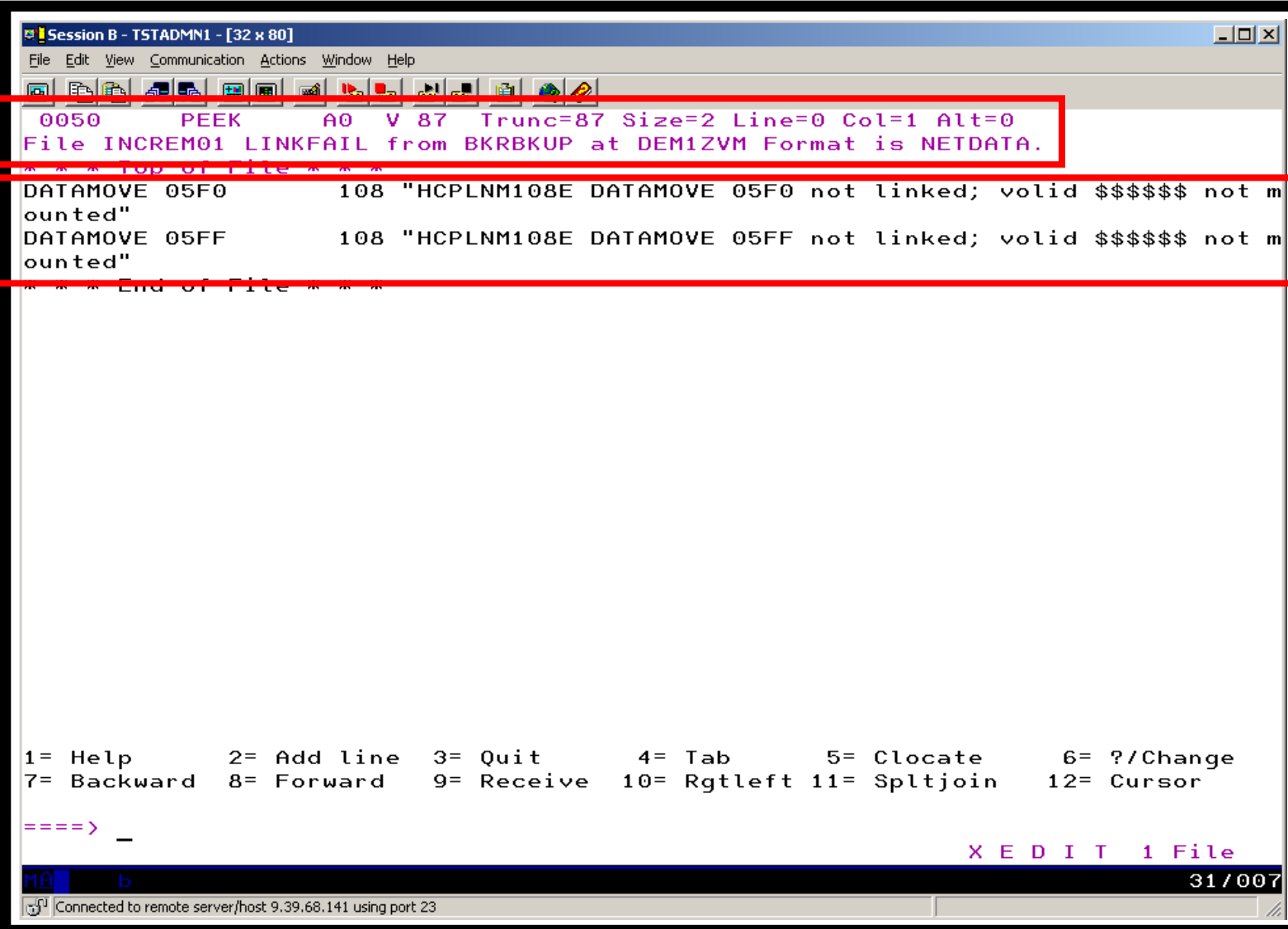
1= Help 2= Refresh 3= Quit 4= Sort(type) 5= Sort(date) 6= Sort(user)
7= Backward 8= Forward 9= Receive 10= 11= Peek 12= Cursor

====>

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 - TSTADMN1 - [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 BKRBKUP at DEM1ZVM Format is NETDATA.
*** Top of File ***
DATAMOVE 05F0      108 "HCPLNM108E DATAMOVE 05F0 not linked; valid $$$$$$ not m
ounted"
DATAMOVE 05FF      108 "HCPLNM108E DATAMOVE 05FF not linked; valid $$$$$$ 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
```

The screenshot shows a terminal window titled "Session B - TSTADMIN1 - [32 x 80]". The window has a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The main content area displays the output of a PEEK command. A red rectangle highlights the first two lines of the output: "0051 PEEK A0 V 80 Trunc=80 Size=163 Line=0 Col=1 Alt=0" and "File INCREM00 JOB from BKRBACKUP at DEM1ZVM Format is NETDATA." Another red rectangle highlights a list of commands and their descriptions, starting with "* Basic syntax:" and ending with "EOJ - Perform end-of-job housekeeping and exit". Below this, there is a "WARNING:" section and a list of configuration options for BKR_OUTPUT_SPEC. At the bottom, there is a status bar showing "MA b" and "31/007", and a connection status bar indicating "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=0 Col=1 Alt=0
File INCREM00 JOB from BKRBACKUP 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.
*

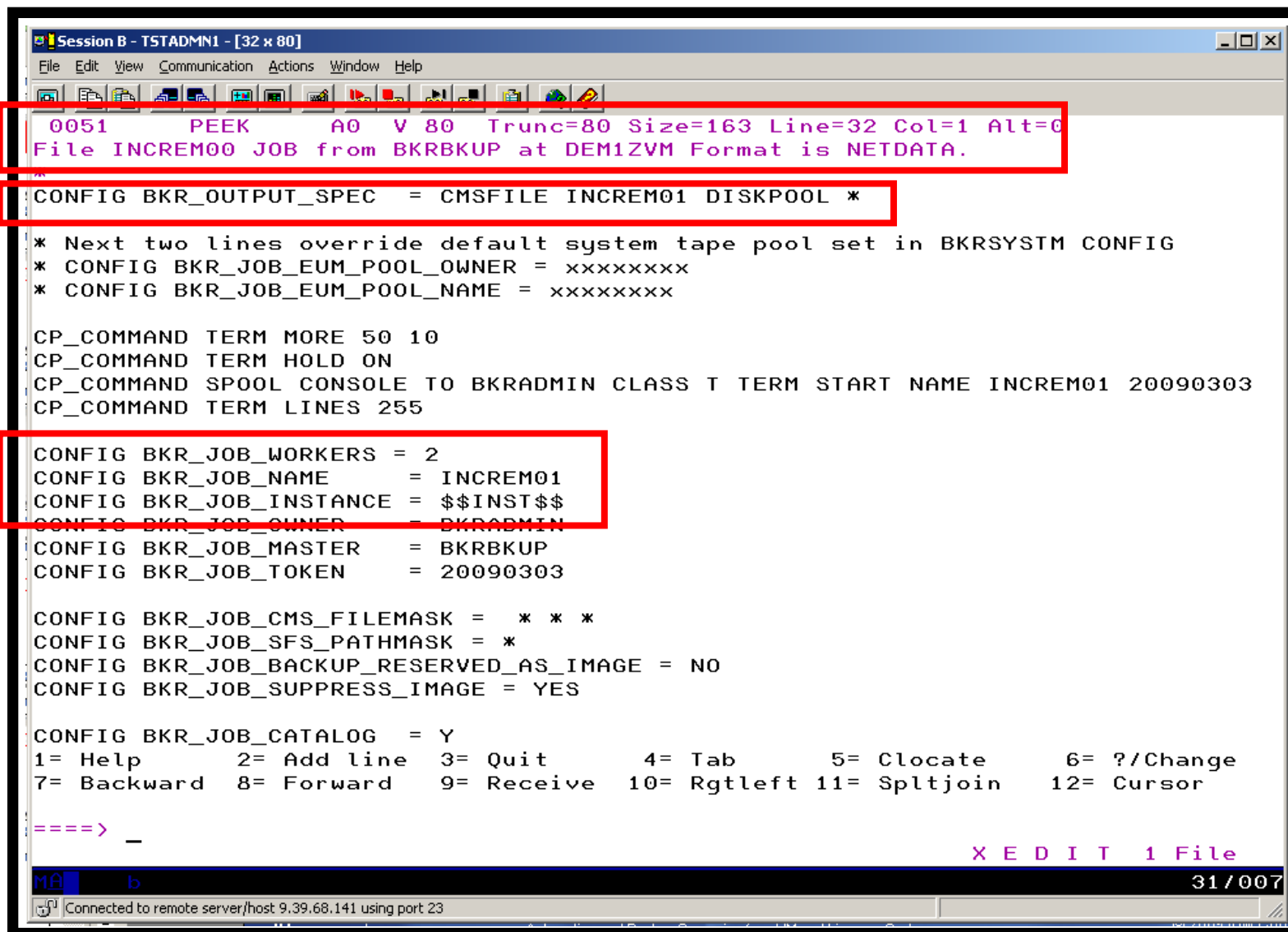
*CONFIG BKR_OUTPUT_SPEC = IBMTAPE SCRATCH RW 1
*CONFIG BKR_OUTPUT_SPEC = IBMTWIN SCRATCH RW 1 SCRATCH
*CONFIG BKR_OUTPUT_SPEC = CMSFILE DISK POOL X
*

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

====> _

X E D I T 1 File

MA b 31/007
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 contains a series of configuration commands and status messages. Two specific lines are highlighted with red boxes: "0051 PEEK A0 V 80 Trunc=80 Size=163 Line=32 Col=1 Alt=0 File INCREM00 JOB from BKRBACKUP at DEM1ZVM Format is NETDATA." and "CONFIG BKR_OUTPUT_SPEC = CMSFILE INCREM01 DISKPOOL *". Another set of four lines is also highlighted: "CONFIG BKR_JOB_WORKERS = 2", "CONFIG BKR_JOB_NAME = INCREM01", "CONFIG BKR_JOB_INSTANCE = \$\$INST\$\$", and "CONFIG BKR_JOB_OWNER = BKRADMIN". The terminal also displays various system commands like "CP_COMMAND TERM MORE 50 10" and "CP_COMMAND SPOOL CONSOLE TO BKRADMIN CLASS T TERM START NAME INCREM01 20090303". At the bottom, there is a status bar showing "XEDIT 1 File" and "31/007".

```
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 BKRBACKUP 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 = BKRBACKUP
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= Rgtleft 11= Spltjoin 12= Cursor

====> _

XEDIT 1 File
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=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= 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

0051      PEEK      A0  V 80  Trunc=80 Size=163 Line=139 Col=1 Alt=0
File INCREM00 JOB from BKRBACKUP at DEM1ZVM Format is NETDATA.
DUMPCKD TMTMM 0210 $$$DRIVER$$$
DUMPEDF TSTADMIN1 0191 $$$FMASK$$$ $$$DRIVER$$$
DUMPEDF TSTADMIN3 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 *

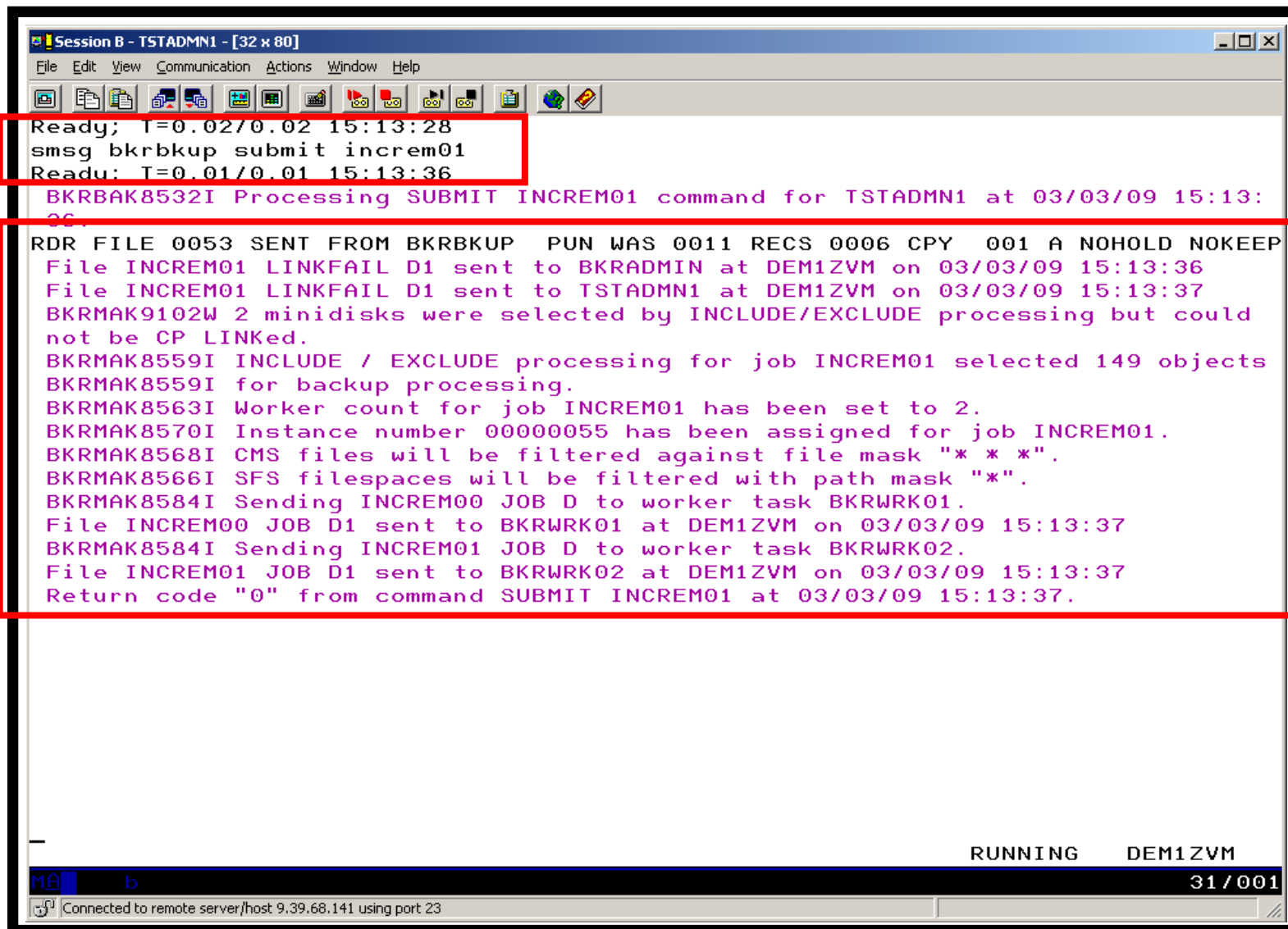
CP_QUIET SPOOL CONSOLE CLOSE NAME INCREM01 20090303
CP_QUIET SPOOL CONSOLE NAME WORKER OUTPUT
EOJ

1= Help      2= Add line  3= Quit    4= Tab      5= Close    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

```



The screenshot shows a terminal window titled "Session B - TSTADMN1 - [32 x 80]". The window has a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar with various icons. The main text area displays the following log entries:

```
Ready; T=0.02/0.02 15:13:28
smgs bkrbkup submit increm01
Ready; T=0.01/0.01 15:13:36
BKRBAK8532I Processing SUBMIT INCREM01 command for TSTADMN1 at 03/03/09 15:13:
36.
RDR FILE 0053 SENT FROM BKRBAKUP 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 TSTADMN1 at DEM1ZVM on 03/03/09 15:13:37
BKRMak9102W 2 minidisks were selected by INCLUDE/EXCLUDE processing but could
not be CP LINKed.
BKRMak8559I INCLUDE / EXCLUDE processing for job INCREM01 selected 149 objects
BKRMak8559I for backup processing.
BKRMak8563I Worker count for job INCREM01 has been set to 2.
BKRMak8570I Instance number 00000055 has been assigned for job INCREM01.
BKRMak8568I CMS files will be filtered against file mask "* * *".
BKRMak8566I SFS filespace will be filtered with path mask "*".
BKRMak8584I Sending INCREM00 JOB D to worker task BKRWRK01.
File INCREM00 JOB D1 sent to BKRWRK01 at DEM1ZVM on 03/03/09 15:13:37
BKRMak8584I 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.
```

At the bottom of the window, there is a status bar showing "RUNNING DEM1ZVM" and "31/001". Below the status bar, a small icon and text indicate "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 *** DUMPKD 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 17: 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 17: 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

Files for owner(s): *

Selection: Name: * Type: * Mode: * 48 of 48 shown

Current filters: Name: * Type: * Mode: * Owner: *

Owner	Filename	Filetype	Fm	Date	Time	Device or Path
TSTUSER1	A	A	1	08/11/07	12:18:04	0191
TSTUSER1	A	AX	1	06/09/20	18:21:58	0191
TSTUSER1	ABC	XEDIT	1	06/09/19	02:24:28	0191
TSTUSER1	AMV1004	VMARC	1	06/09/16	03:29:28	0191
TSTUSER1	B	B	1	08/11/07	18:52:40	0191
TSTUSER1	BAAAAA	XEDIT	1	06/09/16	03:40:47	0191
TSTUSER1	BBBBBB	XEDIT	1	06/09/16	03:40:37	0191
TSTUSER1	BCCCCC	XEDIT	1	06/09/16	03:41:01	0191
TSTUSER1	BDDDDD	XEDIT	1	06/09/16	03:41:34	0191
TSTUSER1	BEEEEEE	XEDIT	1	06/09/16	03:41:38	0191
TSTUSER1	BFFFFFF	XEDIT	1	06/09/16	03:41:43	0191
TSTUSER1	BGGGGG	XEDIT	1	06/09/16	03:41:49	0191
TSTUSER1	BHHHHH	XEDIT	1	06/09/16	03:41:59	0191
TSTUSER1	BIIIII	XEDIT	1	06/09/16	03:42:03	0191
TSTUSER1	B00000	XEDIT	1	06/09/16	03:42:10	0191
TSTUSER1	BKKKKK	XEDIT	1	06/09/16	03:42:25	0191
TSTUSER1	BLLLLL	XEDIT	1	06/09/16	03:42:30	0191
TSTUSER1	C	C	1	08/04/19	17:24:35	0191
TSTUSER1	CLAUDE	CLAUDE	1	08/11/07	18:26:04	0191
TSTUSER1	CLAUDE1	CLAUDE1	1	07/01/04	14:55:00	0191
TSTUSER1	D	D	1	06/09/16	03:50:32	0191
TSTUSER1	DCREQS	HTML	1	06/09/16	03:39:26	0191
TSTUSER1	DEF	XEDIT	1	06/09/19	02:24:28	0191

1= Help 3= Quit 4= Return 5= Sort Up
6= Sort Down 7= Backward 8= Forward 10= Restore 11= Details

MA a 03/025

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

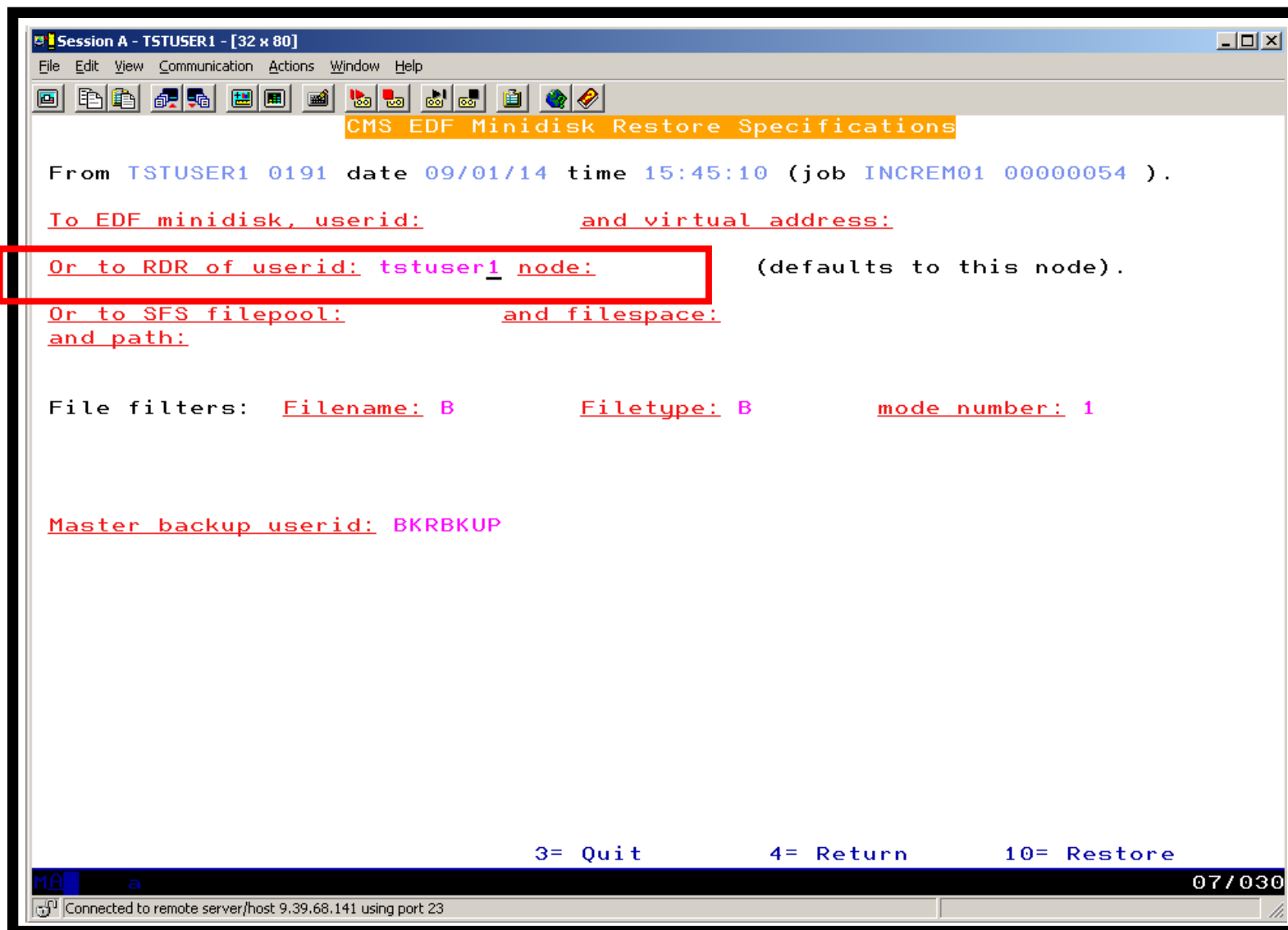
Selection: Name: * Type: * Mode: * 18 of 48 shown
 Current filters: Name: B* Type: * Mode: * Owner: *

Owner	Filename	Filetype	Fm	Date	Time	Device or Path
TSTUSER1	B	B	1	09/03/03	14:47:52	0191
TSTUSER1	BJJJJJ	XEDIT	1	09/02/18	10:40:42	0191
TSTUSER1	B	B	1	09/01/14	15:45:10	0191
TSTUSER1	B	B	1	08/12/30	11:08:27	0191
TSTUSER1	B	B	1	08/12/09	10:30:25	0191
TSTUSER1	B	B	1	08/11/07	18:52:40	0191
TSTUSER1	BLLLLL	XEDIT	1	06/09/16	03:42:30	0191
TSTUSER1	BKKKKK	XEDIT	1	06/09/16	03:42:25	0191
TSTUSER1	BJJJJJ	XEDIT	1	06/09/16	03:42:10	0191
TSTUSER1	BIIIII	XEDIT	1	06/09/16	03:42:03	0191
TSTUSER1	BHHHHH	XEDIT	1	06/09/16	03:41:59	0191
TSTUSER1	BGGGGG	XEDIT	1	06/09/16	03:41:49	0191
TSTUSER1	BFFFFFF	XEDIT	1	06/09/16	03:41:43	0191
TSTUSER1	BEEEEEE	XEDIT	1	06/09/16	03:41:38	0191
TSTUSER1	BDDDDD	XEDIT	1	06/09/16	03:41:34	0191
TSTUSER1	BCCCCC	XEDIT	1	06/09/16	03:41:01	0191
TSTUSER1	BAAAAA	XEDIT	1	06/09/16	03:40:47	0191
TSTUSER1	BBBBBB	XEDIT	1	06/09/16	03:40:37	0191

1= Help 3= Quit 4= Return 5= Sort Up
 6= Sort Down 7= Backward 8= Forward 10= Restore 11= Details

MA a 08/032

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

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).

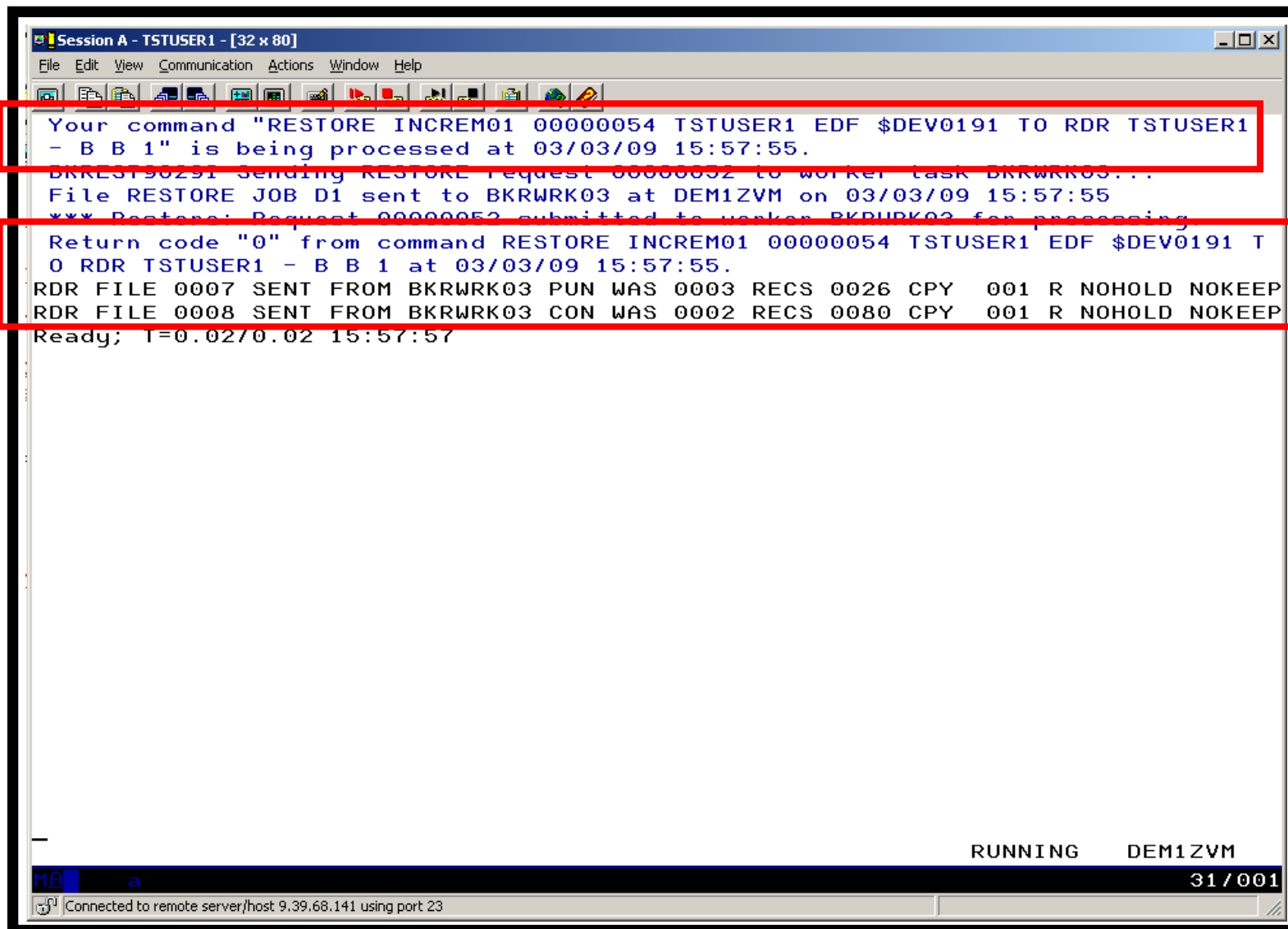
Or to SFS filepool:          and file space:
and path:

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

Master backup userid: BKRKBUP

3= Quit          4= Return          10= Restore

MA 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.
BKREST98291 Sending RESTORE Request 00000052 to worker task BKRWRK03...
File RESTORE JOB D1 sent to BKRWRK03 at DEM1ZVM on 03/03/09 15:57:55
*** Restore: 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=0.02/0.02 15:57:57

RUNNING DEM1ZVM
31/001
MA a
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

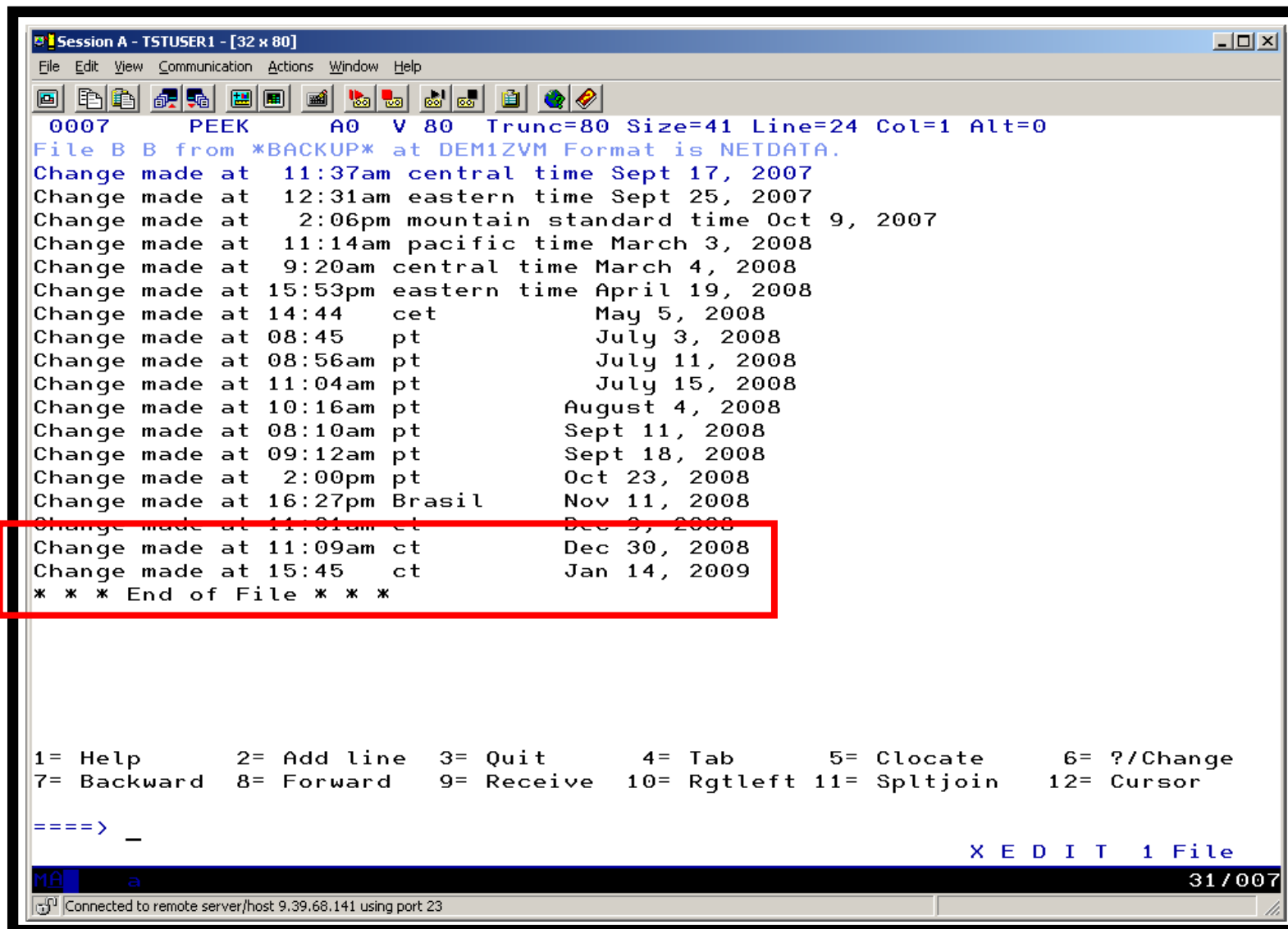
TSTUSER1: DDRLIST 00 V 164 Trunc=164 Size=2 Line=1 Col=1 Alt=28

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 18: Backup and Restore Single and Multiconfiguration Users in SSI

- **Two member SSI cluster**
 - TEST7SSI, TESTCSSI
- **Three backup jobs for full backups**
 - USERFULL – all single configuration users across the SSI cluster
 - Always run from TEST7SSI (for consistency)
 - IDSSI7FL – all multiconfiguration users on TEST7SSI
 - Always run from TEST7SSI (required)
 - IDSSICFL - all multiconfiguration users on TESTCSSI
 - Always run from TESTCSSI (required)
- **Three similar jobs for incremental**
- **Restore files in multiple ways**
 - Single configuration users
 - Restore to disk or reader from any member of the cluster
 - Multiconfiguration users
 - Restore to disk from the local member
 - Restore CMS files to reader from any member

Scenario 18: Detailed Steps

- **From a Backup Manager admin ID (DEMOADMN) on TEST7SSI, view all catalog data for multiconfiguration user OP1**

bkruser

- **Use the filters to find all files for OP1's 191 disk**
 - Note files exist from both TEST7SSI and TESTCSSI
- **F4 to return and then find all files for single configuration user DEMOADMN**
 - Note files only exist in the USERxxxx jobs – not member specific

- **Update a file on OP1 191 disk**

link opl 191 333 mr

acc 333 z

x test opl z

Add a new line to the file

file

rel z (det

- **Similarly update a file on DEMOADMN 191 disk**

x test demoadm a

- **Perform a review of the incremental backup for multiconfiguration users on TEST7SSI**

smsg bkrbkup review idss7in

Scenario 18: Detailed Steps

- **Perform a backup for multiconfiguration users on TEST7SSI**

`smsg bkrbkup submit idss7in`

- **View the console of the worker(s) assigned**

`Gomcmd opmgrml viewcon user(bkrwrkxx)`

- **Perform a backup for single configuration users in the TEST7SSI and TESTCSSI cluster**

`smsg bkrbkup submit userincr`

- **When jobs are complete find the updated test files for OP1 and DEMOADMN in the catalog**

`bkrlist`

- **Once a file is chosen, use F10 to restore the file to the reader**

- **View the files in the reader**

`rdrlist`

- **Logoff DEMOADMN (do not disconnect – must logoff)**

`logoff`

Scenario 18: Detailed Steps

- **Logon DEMOADMN on the other member of the cluster TESTCSSI**
- **Fine the test files for DEMOADMN in the catalog**
`bkrlist`
- **Once a file is chosen, use F10 to restore the file to the reader**
- **View the files in the reader**
`rdrlist`
- **Notice you can restore files for DEMOADMN from either member of the cluster**

Scenario 19: 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 19: Detailed Steps

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

```
gomcmd opmgrml defschd name(demo),action(stoplnx),when(now)
```

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

```
gomcmd opmgrml viewlog
```

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

```
gomcmd opmgrml viewcon user(omeglinx1)
```

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

```
gomcmd opmgrml viewcon user(bkrbkup)
```

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

```
gomcmd opmgrml viewcon user(bkrwrkxx)
```

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

```
gomcmd opmgrml viewcon user(omeglinx1)
```

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

```
bkrjob
```

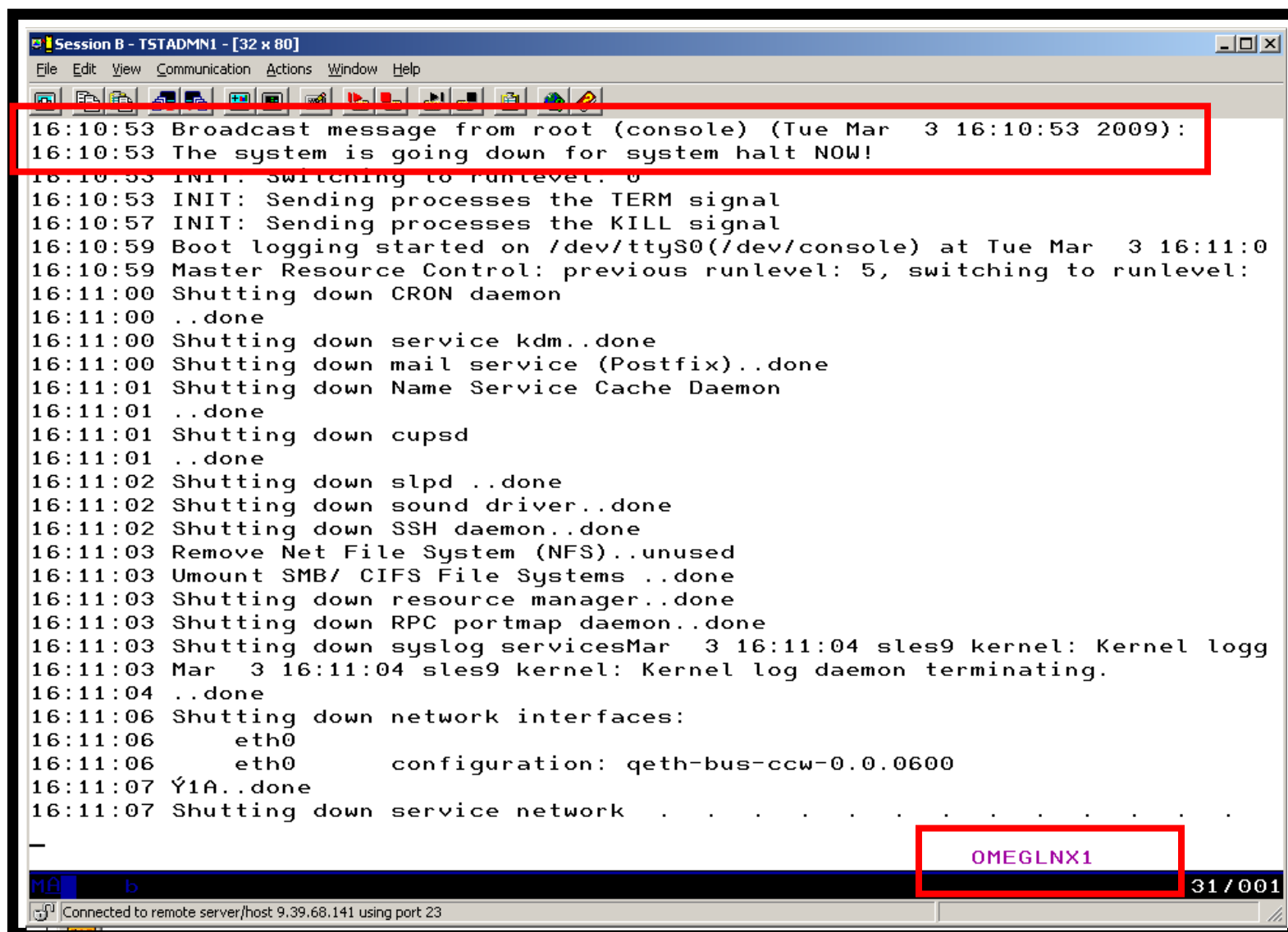
```

Session B - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help

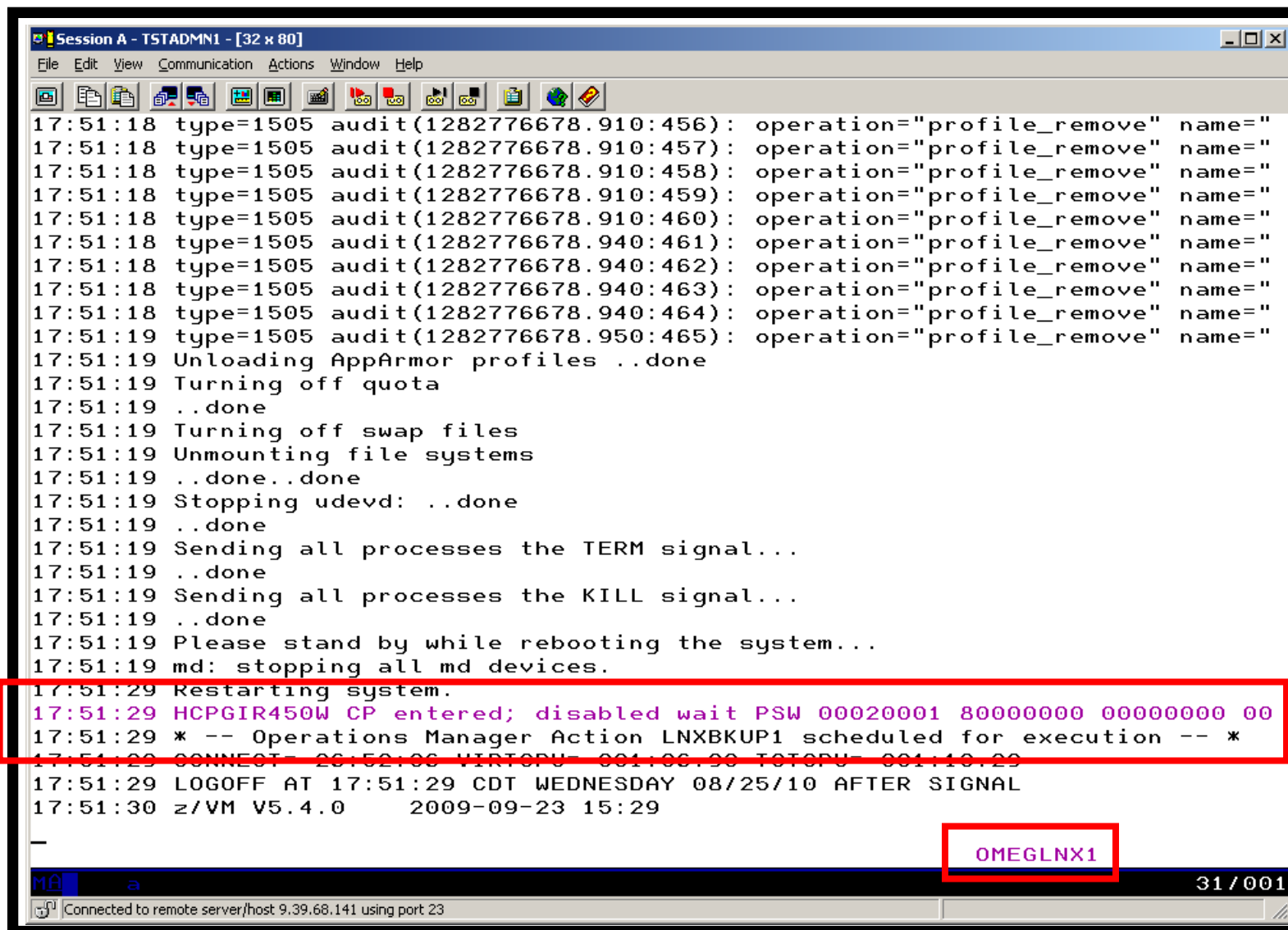
03/03/2009 16:10:31 GOMCMD0201L "TSTADMN1 DEFSCHD NAME(DEMO),ACTION(STOPLNX),W
03/03/2009 16:10:44 GOMCMD0201L "TSTADMN1 VIEWLOG" VID=TSTADMN1 SRC=MASIUCV CL
03/03/2009 16:10:53 GOMACT0260I SCHEDULE DEMO ACTION STOPLNX TRIGGERED BY
03/03/2009 16:10:53 GOMACT0262I ACTION STOPLNX BEGIN FOR SCHEDULE SERVER 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
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
16:10:53 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 . . . . .
-
OMEGLNX1
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

17:51:18 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= 26:52:06 VIRTSPU= 001:06:00 TSTSPU= 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

-
MA a
OMEGLNX1
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

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 filespace will be filtered with path
16:11:22 BKRMAK8566I SFS filespace will be filtered with path mask "*".
16:11:22 Output line 7 : BKRMAK8584I Sending BKUPLNX1 JOB D to worker task BKRWRK01.
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 03/03/09 16:11:23
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.

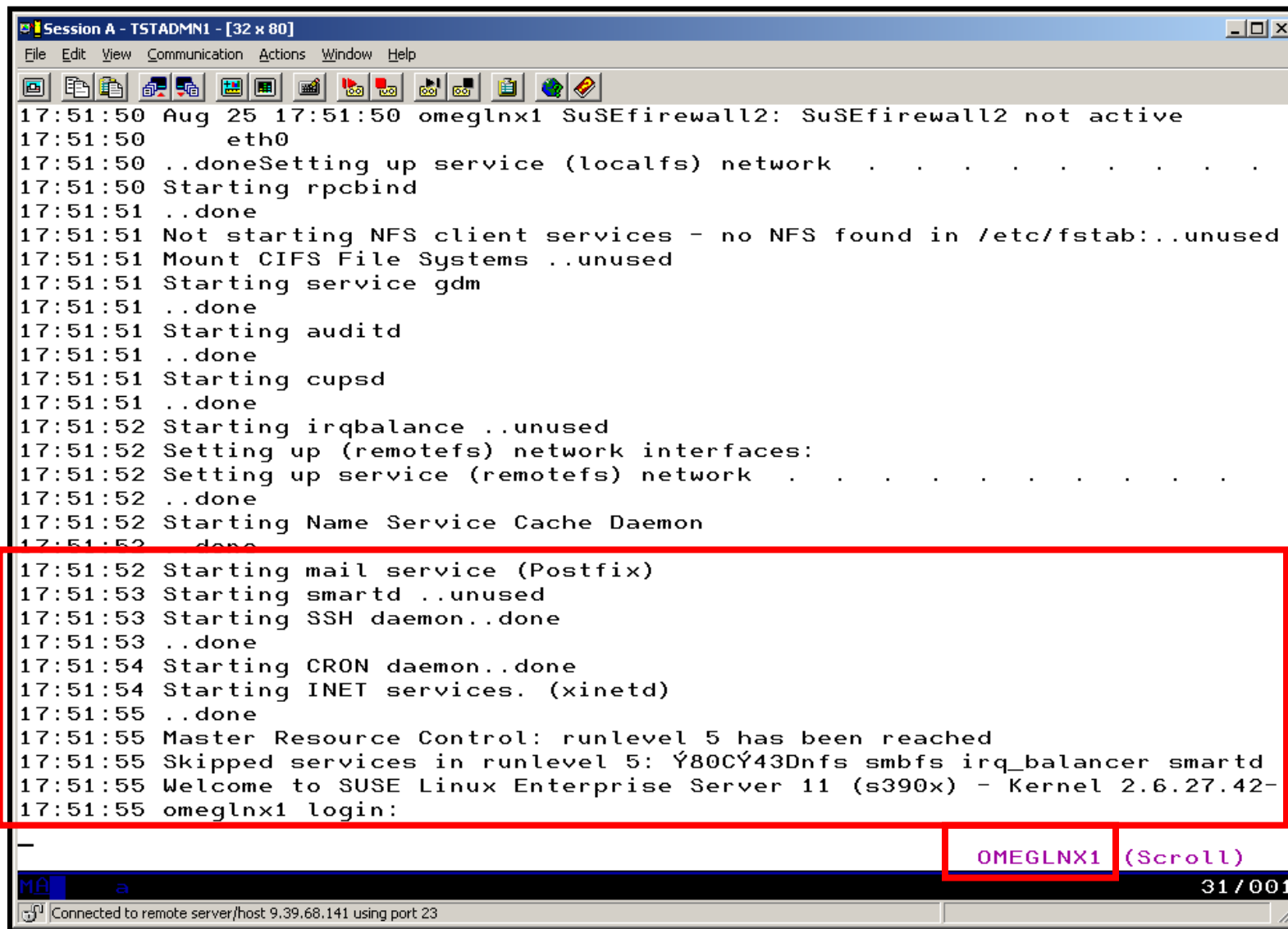
-
MA b
31/001
Connected to remote server/host 9.39.68.141 using port 23
```

BKRWRK01

```

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 03 23 15:23
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 - 0000000005FFFFFFF
17:51:30 100M.412M 0000000006400000 - 000000001FFFFFFFF
17:51:30 Storage cleared - system reset.
17:51:30 zIPL v1.8.0 interactive boot menu
17:51:30
17:51:30 0. default (LinuxV2)
17:51:30
17:51:30 1. LinuxV2
17:51:30 2. ipl
17:51:30
17:51:30 Note: VM users please use '#cp vi vmmsg <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
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

17:51:50 Aug 25 17:51:50 omeqlnx1 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 omeqlnx1 login:

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

Scenario 19: 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 19: 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 19: 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 BKRBACKUP 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 19: 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)
```

Scenario 20: Reviewing a Disaster Recovery Backup

- **Create a backup job based on sample provided**
- **Perform image backup of DASD volumes for Disaster Recovery (DR) purposes**
 - Can include z/VM and Linux guests
- **Output of backup is a DDR tape**
 - Compatible with DDR for restore at recovery site
- **Submit DR job for review**
- **Review output of review processing**

Scenario 20: Detailed Steps

- From an authorized z/VM user ID, copy the sample DDR template from the sample disk to a new backup job

- Edit the new job and make necessary changes

```
xedit ddrdemo template c
```

- If not using SFS for templates disk, tell Backup Manager to reaccess the disk

```
smsg bkrbkup cms acc 199 e/e
```

- From an authorized z/VM user ID, submit the backup job for review processing

```
smsg bkrbkup review ddrdemo
```

- View the file(s) returned to you by Backup Manager

```
peek <rdrfile>
```

Session B - TSTADMN1 - [32 x 80]

File Edit View Communication Actions Window Help

q disk

LABEL	VDEV	M	STAT	CYL	TYPE	BLKSZ	FILES	BLKS	USED-(%)	BLKS	LEFT	BLK	TOTAL
ADM191	191	A	R/W	10	3390	4096	53		245-14		1555		1800
ADM193	193	B	R/W	50	3390	4096	3		7927-88		1073		9000
06B199	199	C	R/W	5	3390	4096	9		31-03		869		900
06B202	202	D	R/O	2	3390	4096	37		113-31		247		360
06B592	592	G	R/O	5	3390	4096	24		145-16		755		900
J05592	593	H	R/O	5	3390	4096	15		82-09		818		900
06B198	198	I	R/O	2	3390	4096	5		14-04		346		360
10C400	400	J	R/W	5	3390	4096	20		124-14		776		900
J05198	197	K	R/W	2	3390	4096	6		16-04		344		360
J10401	401	L	R/W	3	3390	4096	7		18-03		522		540
TCM592	692	M	R/O	67	3390	4096	885		8526-71		3534		12060
MNT190	190	S	R/O	100	3390	4096	687		14513-81		3487		18000
MNT19E	19E	Y/S	R/O	250	3390	4096	1102		28088-62		16912		45000
MNT19D	19D	Z/Z	R/O	146	3390	1024	14855		53765-74		18505		72270

Ready; T=0.01/0.01 19:36:52

x ddrdemo template c_

RUNNING DEM1ZVM

31/021

Connected to remote server/host 9.39.68.141 using port 23

```

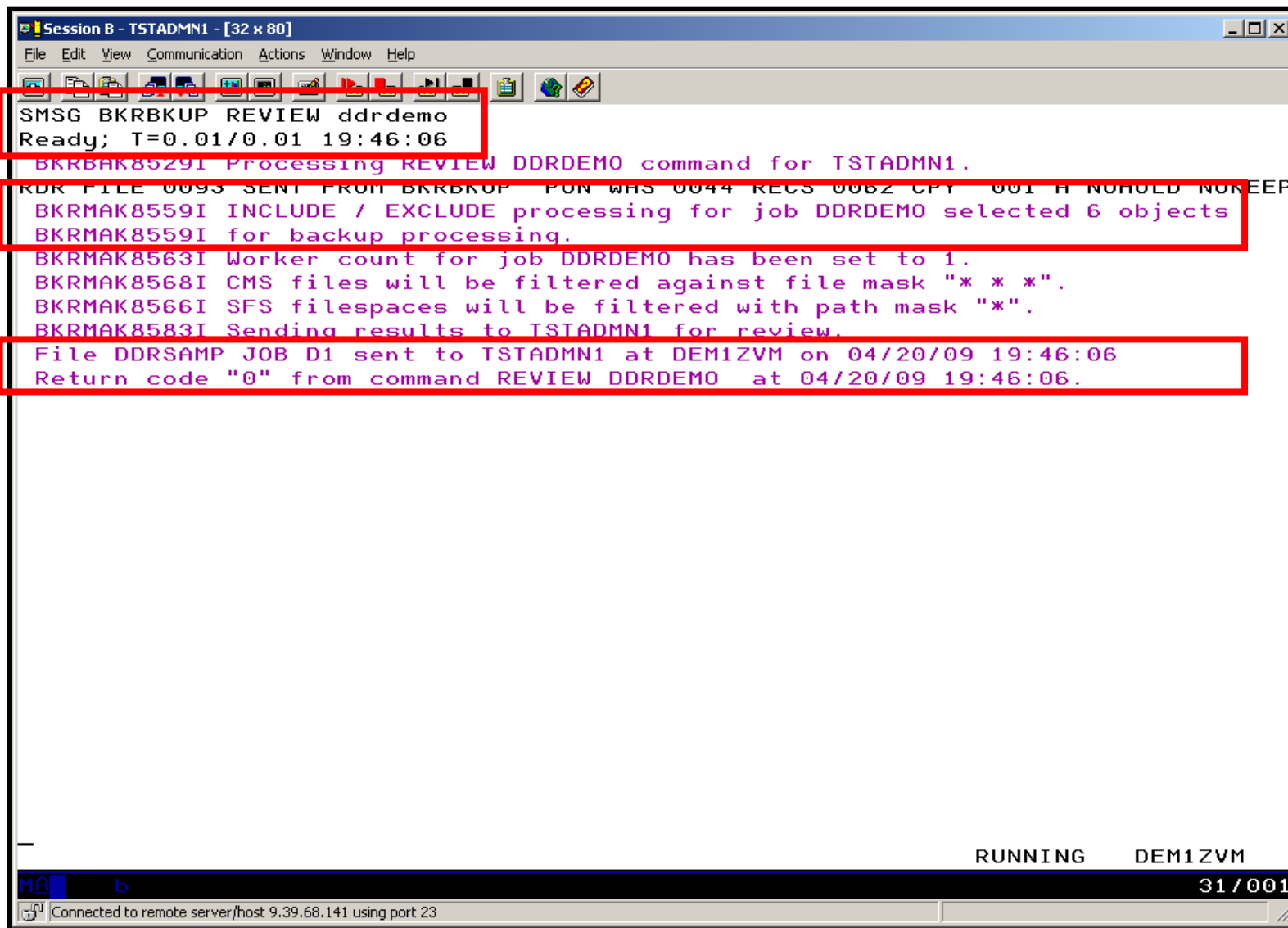
Session B - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
DDRDEMO TEMPLATE C2 V 112 Trunc=112 Size=156 Line=0 Col=1 Alt=0
=====
T...+...1...+...2...+...3...+...4...+...5...+...6...+...7...
00000 * * * Top of File * * *
00001 * IBM Backup and Restore Manager for z/VM - 5697-J06 - 1.2.0
00002 *
00003 * Sample backup job template - DDRSAMP
00004 *
00005 * This file includes records longer than 80 characters. A screen width o
00006 * (327x model 5 or equivalent) is recommended when viewing or customizing
00007 * sample file for local use.
00008 *
00009 * SAMPDDR is an example of a full backup job definition. Output is direc
00010 * to single-copy tape via the IBMTAPE output handler.
00011 *
00012 * Backup type      : Full backup; no incremental backup processing will
00013 *                  (See SAMPINCR TEMPLATE for an incremental backup j
00014 *
00015 * Output destination: Single-copy tape, DASD Dump Restore (DDR) format,
00016 *                  (BKR_Output_Spec)
00017 *
00018 * Number of workers : 1; to increase bandwidth on larger systems, add ad
00019 *                  (BKR_Job_Workers)
00020 *
00021 * Instance tracking : Automatic; this is the recommended setting.
00022 *                  (BKR_Job_Instance = $$INST$$)
00023 *
00024 * Catalog content   : Enabled; results of this job will be transmitted t
00025 *                  (BKR_Job_Catalog)
00026 *
00027 * CMS file filtering: None; all files and SFS directories will be includ
00028 *                  (BKR_Job_CMS_FileMask, BKR_Job_SFS_PathMask)
MA b 02/007
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
DDRDEMO TEMPLATE C2 V 112 Trunc=112 Size=156 Line=117 Col=1 Alt=1
====> file_
|...+.1...+.2...+.3...+.4...+.5...+.6...+.7...
00117 /*****
00118
00119 |-----|-----|-----|---|-----|-----|-----|---|-----|---|
00120 | FUNCTION  MEDIATYPE  OWNER  = * * * * = * * * * =
00121 | EXCLUDE    MINIDISK   *      = * * * * =
00122 | INCLUDE    RDEVVOL   520*   = * * * * =
00123 | INCLUDE    RDEVICE   0128   = * * * * =
00124
00125
00126 * Job_Trailer terminates the INCLUDE / EXCLUDE / SELECT definition sectio
00127 * post-backup processing specifications.
00128
00129 Job_Trailer
00130
00131 * Tell the catalog service virtual machine to retain catalog contents and
00132 * for a period of 30 days. The output from CP QUERY TIME provides a reco
00133 * to process this backup. Output from INDICATE USER provides additional
00134 * worker virtual machine resource consumption.
00135
00136 Config BKR_Catalog_Retention = 30
00137 CP_Command QUERY TIME
00138 CP_Command INDICATE USER
00139
00140 Console *
00141 Console * Sample DDRTAPE backup template created 5/10/2007.
00142 Console * Job image generated $$UPDATE$$ $$TIME$$
00143 Console *
00144
00145 * Close the console log; this will deliver the job history to the backup
MA b 02/011
Connected to remote server/host 9.39.68.141 using port 23

```



The screenshot shows a terminal window titled "Session B - TSTADMN1 - [32 x 80]". The window has a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The main text area displays several messages in magenta. Four specific lines of text are highlighted with red rectangular boxes:

- MSG BKR BKUP REVIEW ddrdemo
Ready; T=0.01/0.01 19:46:06
- BKRBAK8529I Processing REVIEW DDRDEMO command for TSTADMN1.
- RDR FILE 0093 SENT FROM BKR BKUP PUN WAS 0044 RECS 0062 CPT 001 H NOHOLD NOKEEP
BKRM AK8559I INCLUDE / EXCLUDE processing for job DDRDEMO selected 6 objects
BKRM AK8559I for backup processing.
- File DDRSAMP JOB D1 sent to TSTADMN1 at DEM1ZVM on 04/20/09 19:46:06
Return code "0" from command REVIEW DDRDEMO at 04/20/09 19:46:06.

At the bottom of the window, the status bar shows "RUNNING DEM1ZVM" and "31/001". A small icon and text at the bottom left indicate "Connected to remote server/host 9.39.68.141 using port 23".

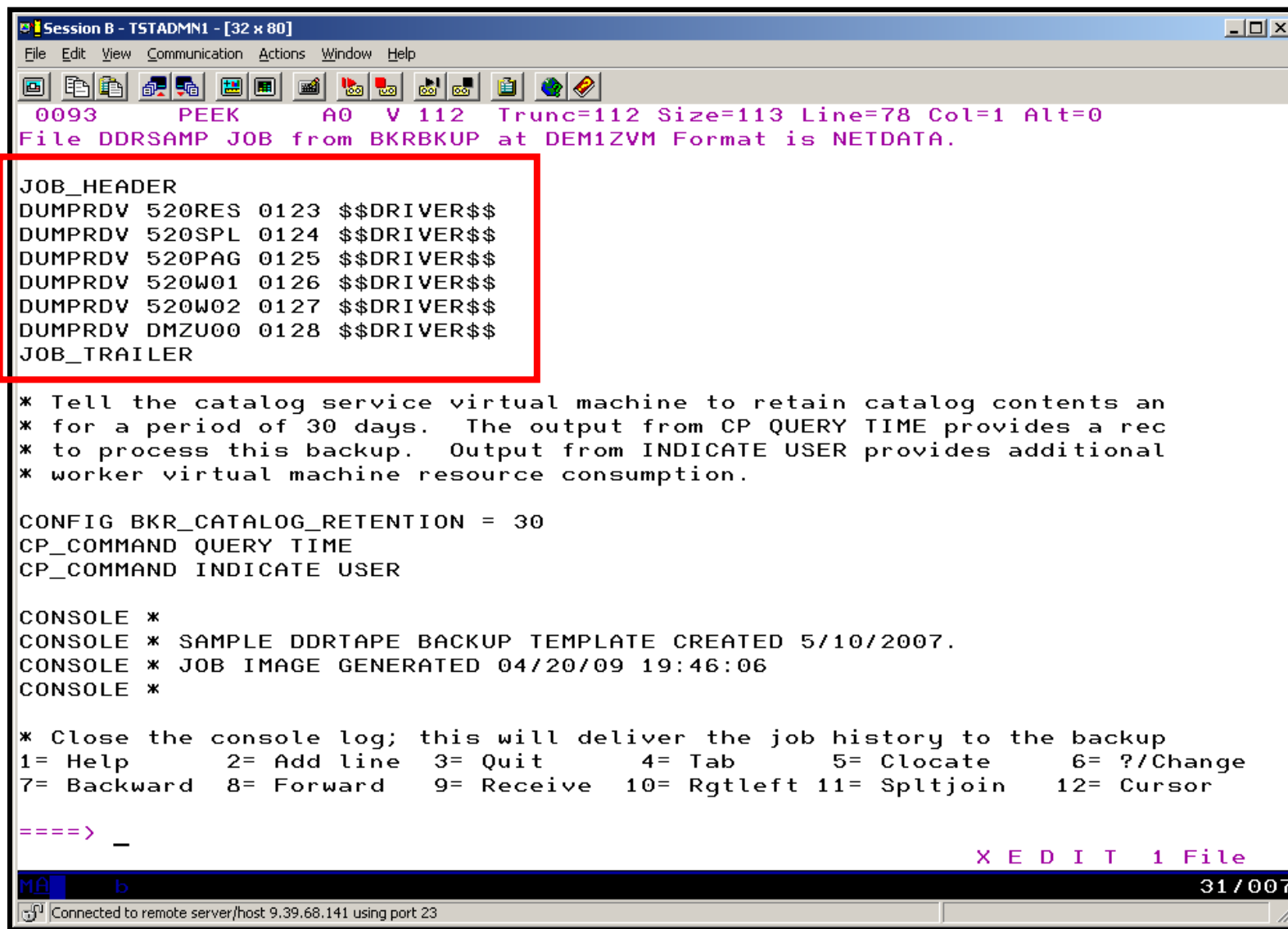
```

Session B - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
0093      PEEK      A0  V 112  Trunc=112 Size=113 Line=0 Col=1 Alt=0
File DDRSAMP JOB from BKRBKUP at DEM1ZVM Format is NETDATA.
*** Top of File ***
* IBM Backup and Restore Manager for z/VM - 5697-J06 - 1.2.0
*
* Sample backup job template - DDRSAMP
*
* This file includes records longer than 80 characters.  A screen width
* (327x model 5 or equivalent) is recommended when viewing or customizin
* sample file for local use.
*
* SAMPDDR is an example of a full backup job definition.  Output is dire
* to single-copy tape via the IBMTAPE output handler.
*
* Backup type          : Full backup; no incremental backup processing wil
*                        (See SAMPINCR TEMPLATE for an incremental backup
*
* Output destination:  Single-copy tape, DASD Dump Restore (DDR) format,
*                        (BKR_Output_Spec)
*
* Number of workers   : 1; to increase bandwidth on larger systems, add a
*                        (BKR_Job_Workers)
*
* Instance tracking    : Automatic; this is the recommended setting.
*                        (BKR_Job_Instance = $$INST$$)
*
* Catalog content     : Enabled; results of this job will be transmitted
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
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

0093      PEEK      A0  V 112  Trunc=112 Size=113 Line=78 Col=1 Alt=0
File DDRSAMP JOB from BKRBACKUP at DEM1ZVM Format is NETDATA.

JOB_HEADER
DUMPRDV 520RES 0123 $$$DRIVER$$
DUMPRDV 520SPL 0124 $$$DRIVER$$
DUMPRDV 520PAG 0125 $$$DRIVER$$
DUMPRDV 520W01 0126 $$$DRIVER$$
DUMPRDV 520W02 0127 $$$DRIVER$$
DUMPRDV DMZU00 0128 $$$DRIVER$$
JOB_TRAILER

* Tell the catalog service virtual machine to retain catalog contents an
* for a period of 30 days. The output from CP QUERY TIME provides a rec
* to process this backup. Output from INDICATE USER provides additional
* worker virtual machine resource consumption.

CONFIG BKR_CATALOG_RETENTION = 30
CP_COMMAND QUERY TIME
CP_COMMAND INDICATE USER

CONSOLE *
CONSOLE * SAMPLE DDRTAPE BACKUP TEMPLATE CREATED 5/10/2007.
CONSOLE * JOB IMAGE GENERATED 04/20/09 19:46:06
CONSOLE *

* Close the console log; this will deliver the job history to the backup
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
```

Scenario 21: Reviewing data in the Backup catalog for recovery

- **Various backup jobs have previously been submitted and completed**
- **Full screen interfaces available for searching the backup catalog and finding data available for recovery**
 - BKRLIST
 - Useful when looking for a specific file or set of files owned by a specific user ID
 - Users with ADMIN authority beware of size
 - Use parameters to narrow the search
 - BKRUSER
 - Useful when looking for backup jobs associated with a specific user ID
 - BKRJOB
 - Useful when looking for backup jobs by job name
 - BKRVOL
 - Useful when looking for backup jobs associated with a specific DASD volume

Scenario 21: Detailed Steps

- **From an authorized z/VM user ID, issue one of the following commands to browse the catalog**

`bkrlist`

`bkruser`

`bkrjob`

`bkrvol`

- **Use F11 to drill down through details**
- **Use F10 to restore data**

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