



IBM Software

SHARE Session 7138

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

Tracy Dean, IBM
tld1@us.ibm.com

August 2010

Agenda

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



IBM Software

Requirements

Implementing these Scenarios

Automation requirements for z/VM system

- **Take an action based on a message on a console**
 - Provide data from the message to the action
- **Send commands to Linux guests**
- **Schedule an action to occur immediately**
 - Or on a regular schedule
- **Trigger an action if spool usage reaches a specified percent full**
- **Find and purge spool files**
- **Take an action based on a “message” in a test file**
- **Take an action based on a message in the Linux syslog**
- **Chain any actions (triggered by messages, schedules, etc.)**
- **Suspend and resume message rules, schedules, spool monitors, etc.**
- **Issue commands real-time on a service machine console**

Backup requirements for z/VM system

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



IBM Software

Automating Operations

Operations Manager for z/VM

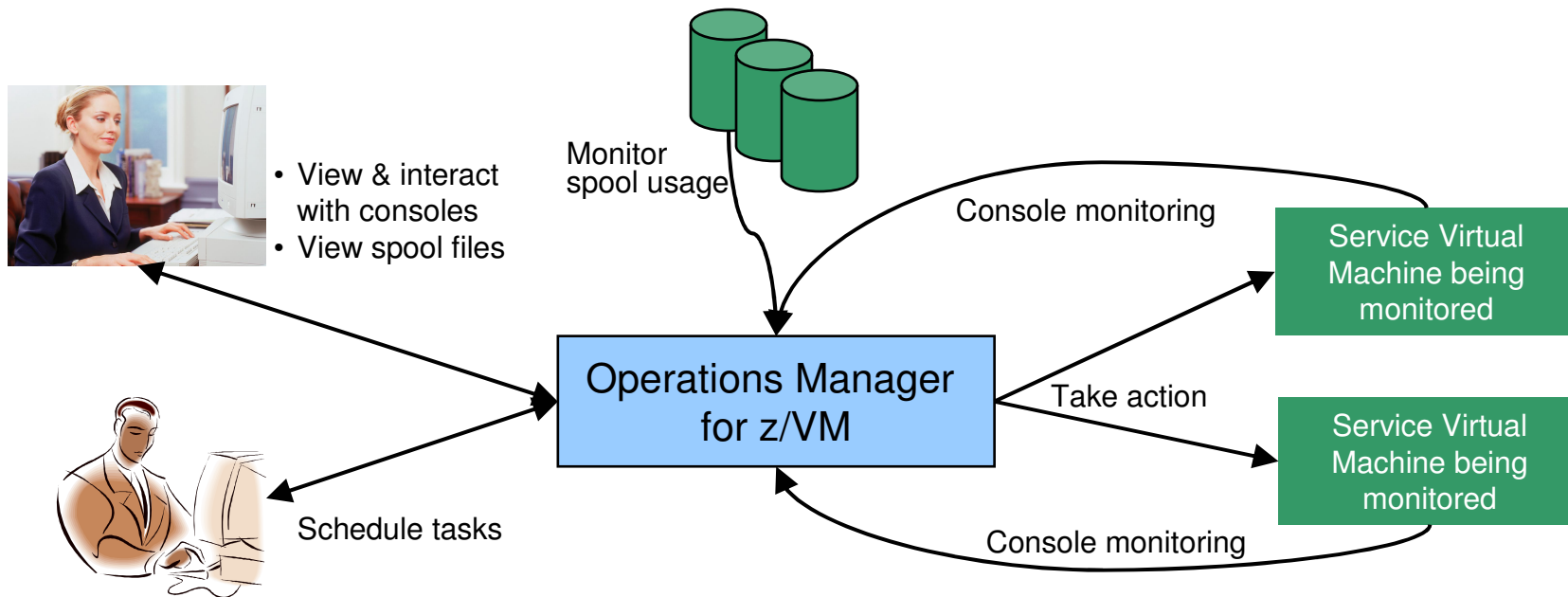
Operations Manager for z/VM

Increase productivity

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

Improve system availability

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



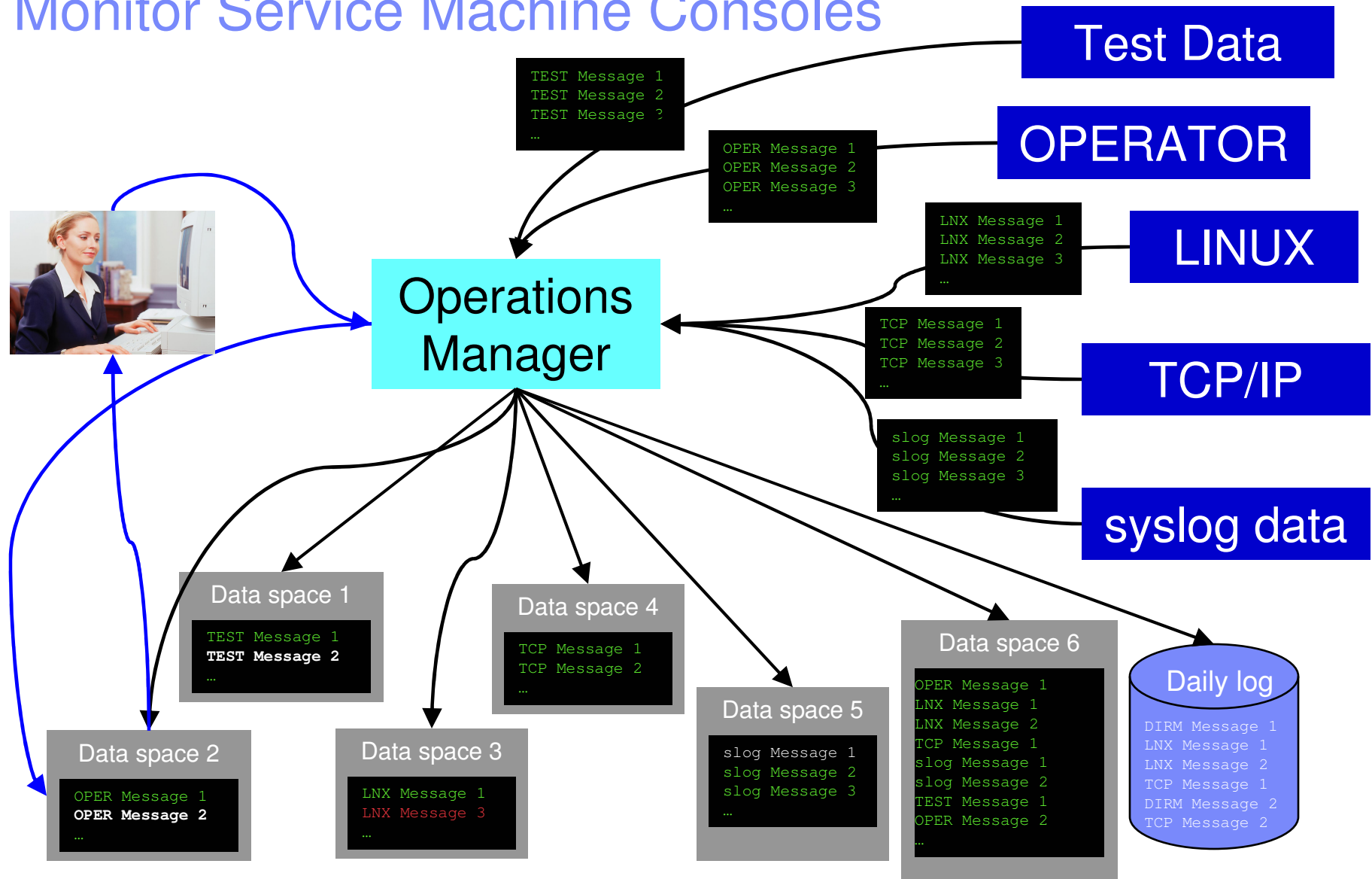
Automation

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

Integration

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

Monitor Service Machine Consoles



Monitor Service Machines

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

View and Interact with Consoles

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

Monitor and View Spool Files

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

Schedule Events and Actions

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

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

Respond to System Events

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

Summary

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



IBM Software

Managing Backup and Recovery

Backup and Restore Manager for z/VM

Product Overview

▪ Backup

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

▪ Restore

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

▪ Integration with Tape Manager for z/VM

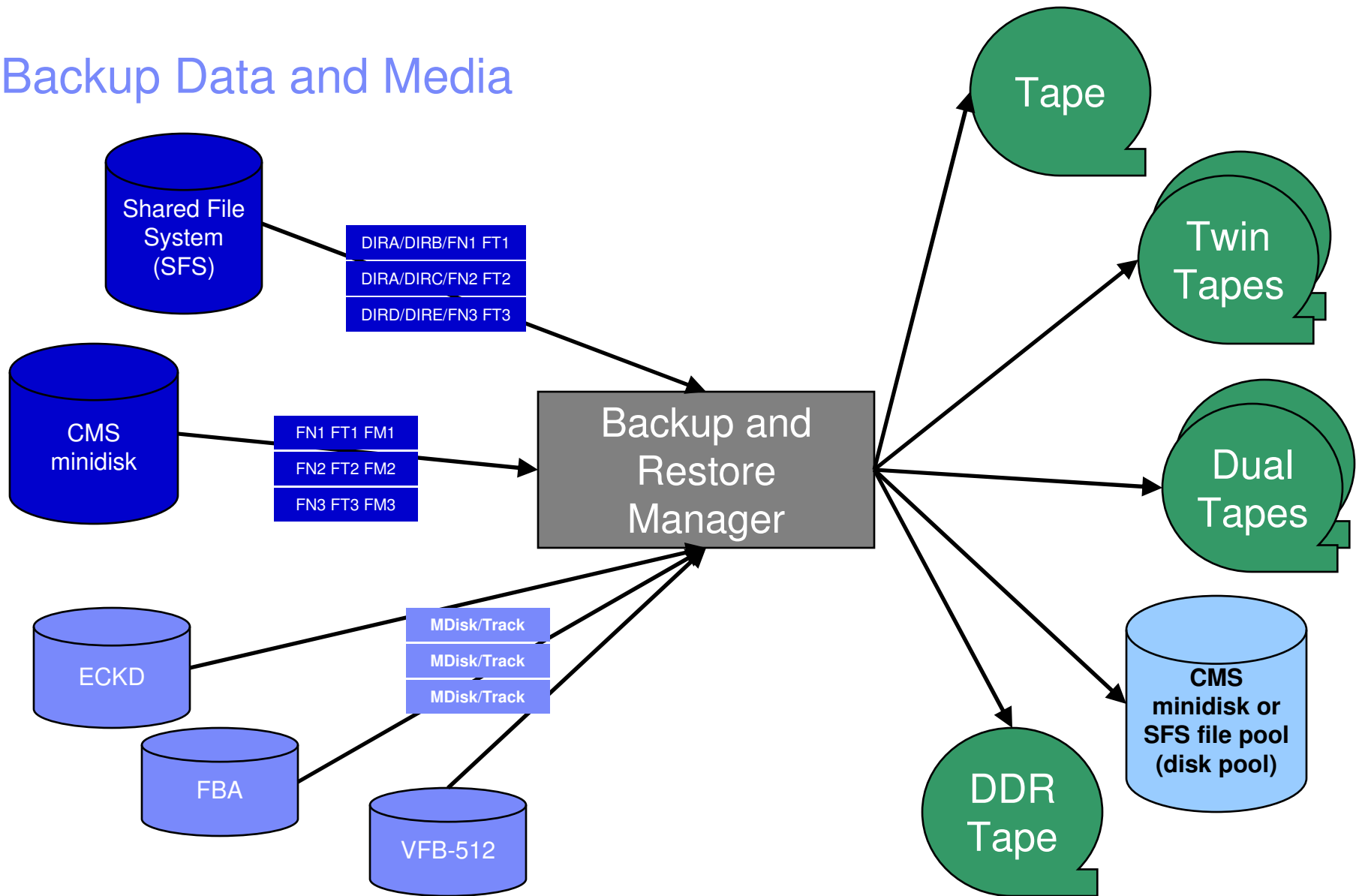
▪ Optional compression of data during backup

- Call your own compression algorithm
- Use IBM provided routine

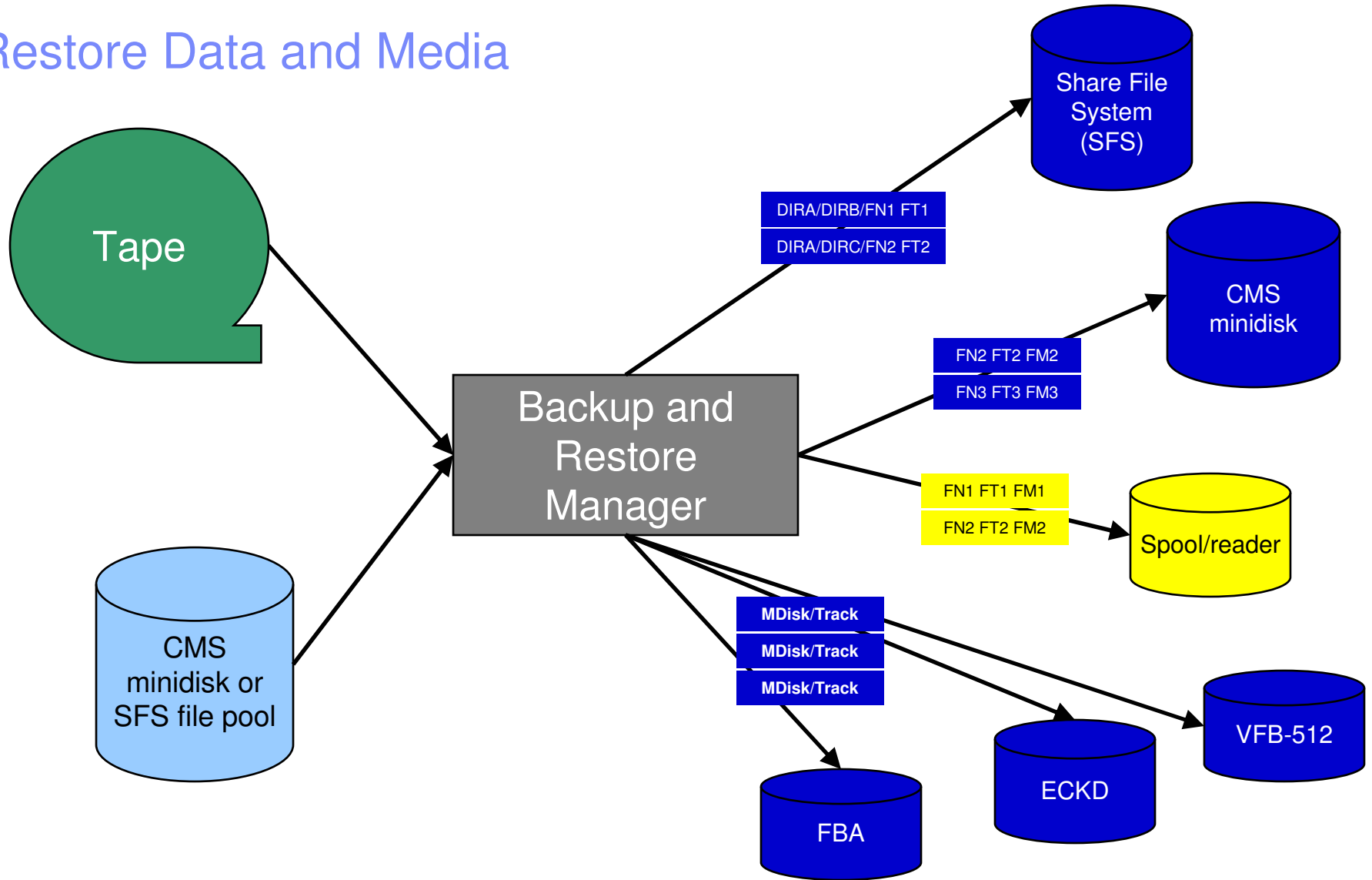
▪ Encryption exits available

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

Backup Data and Media



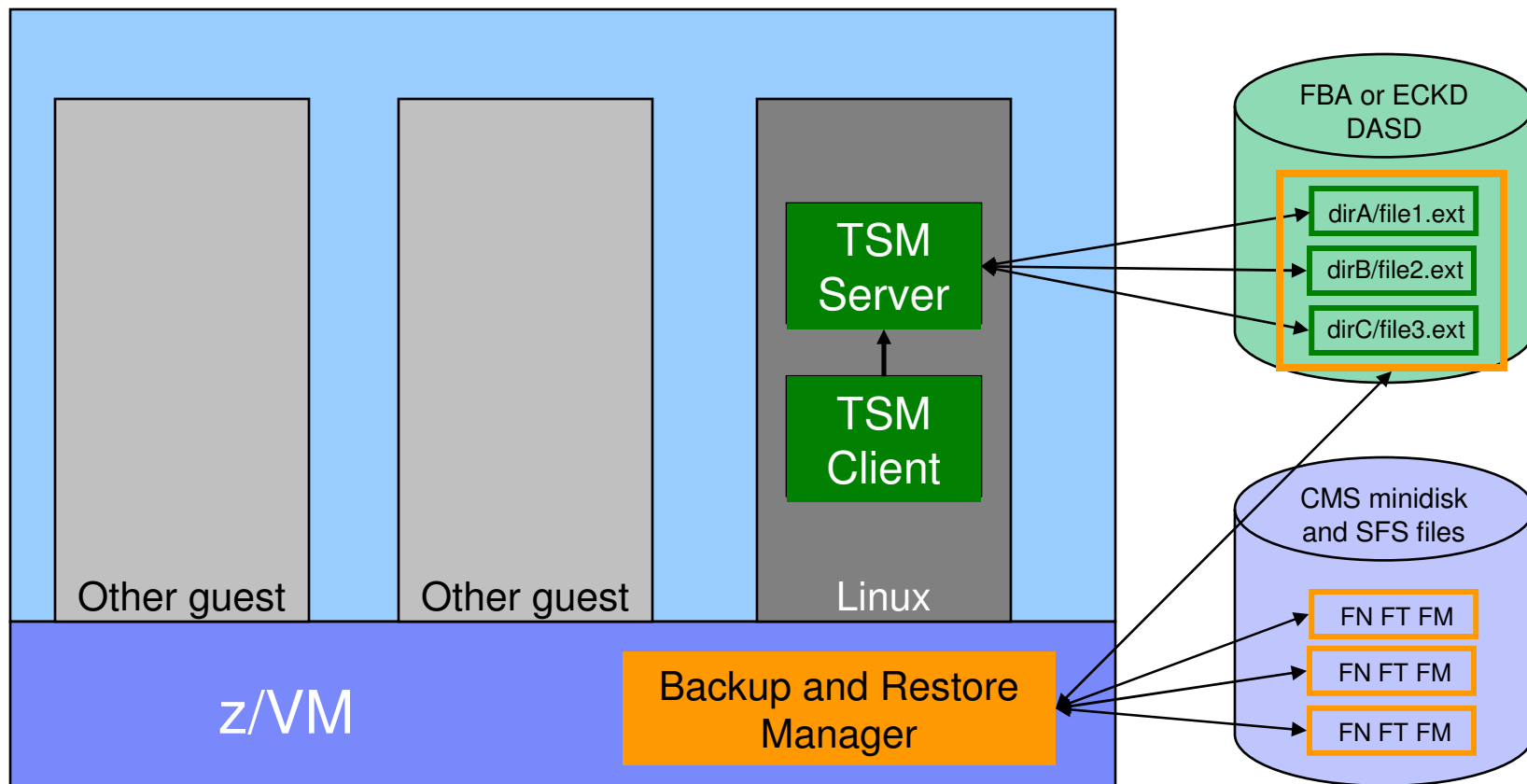
Restore Data and Media



Backup and Restore Manager and Linux Guests

Using Backup and Restore Manager with Tivoli Storage Manager

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



Key Benefits

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

Key Benefits Cont...

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

Summary

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

Demos Available

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



IBM Software

Automation Scenarios

Scenario 2b:

Send an Alert to OMNIbus – Using SNMP

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

Scenario 2b: Detailed Steps

- **View “All Events” in OMNIbus**

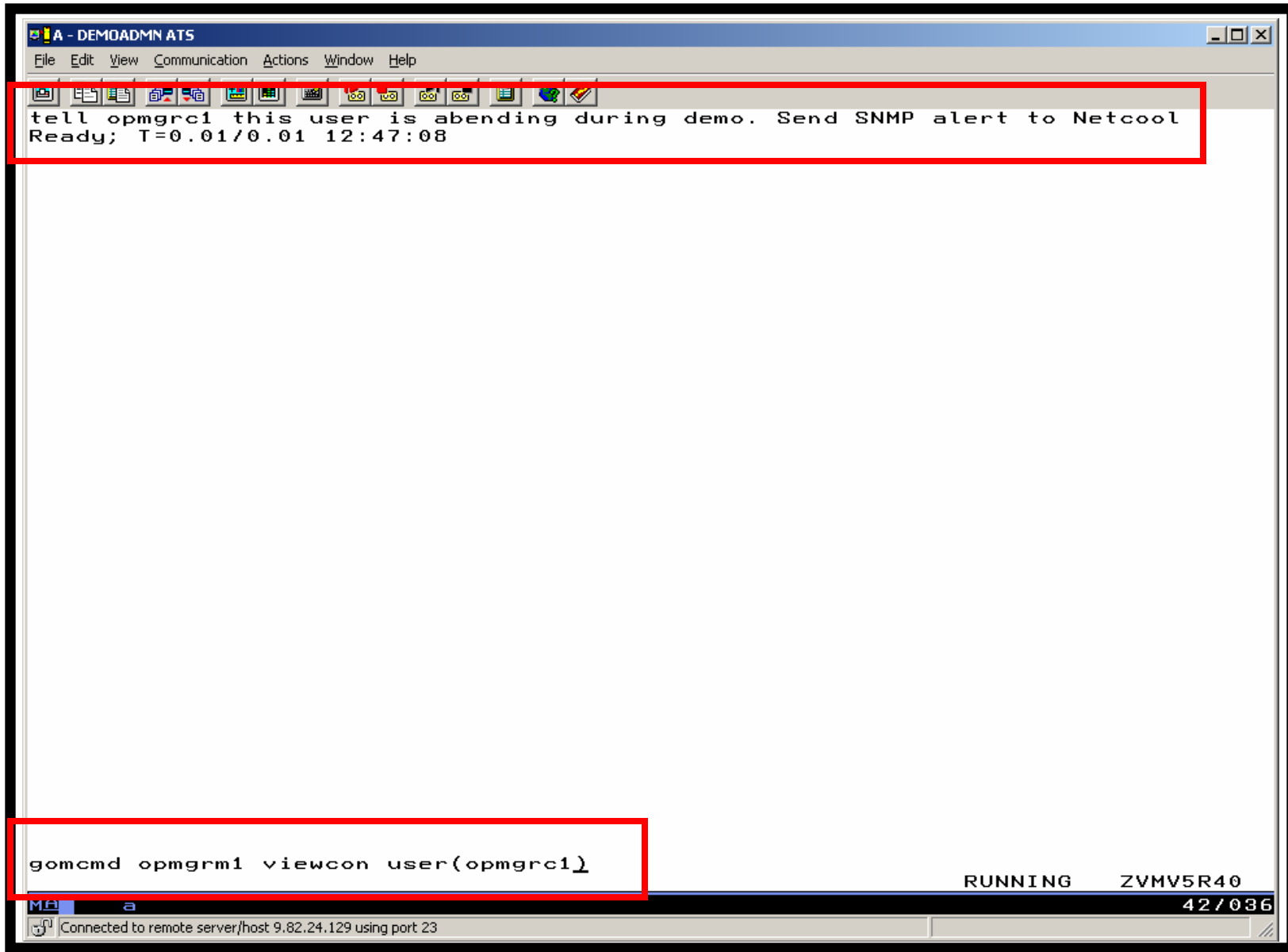
- **From any VM user ID:**

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

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

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

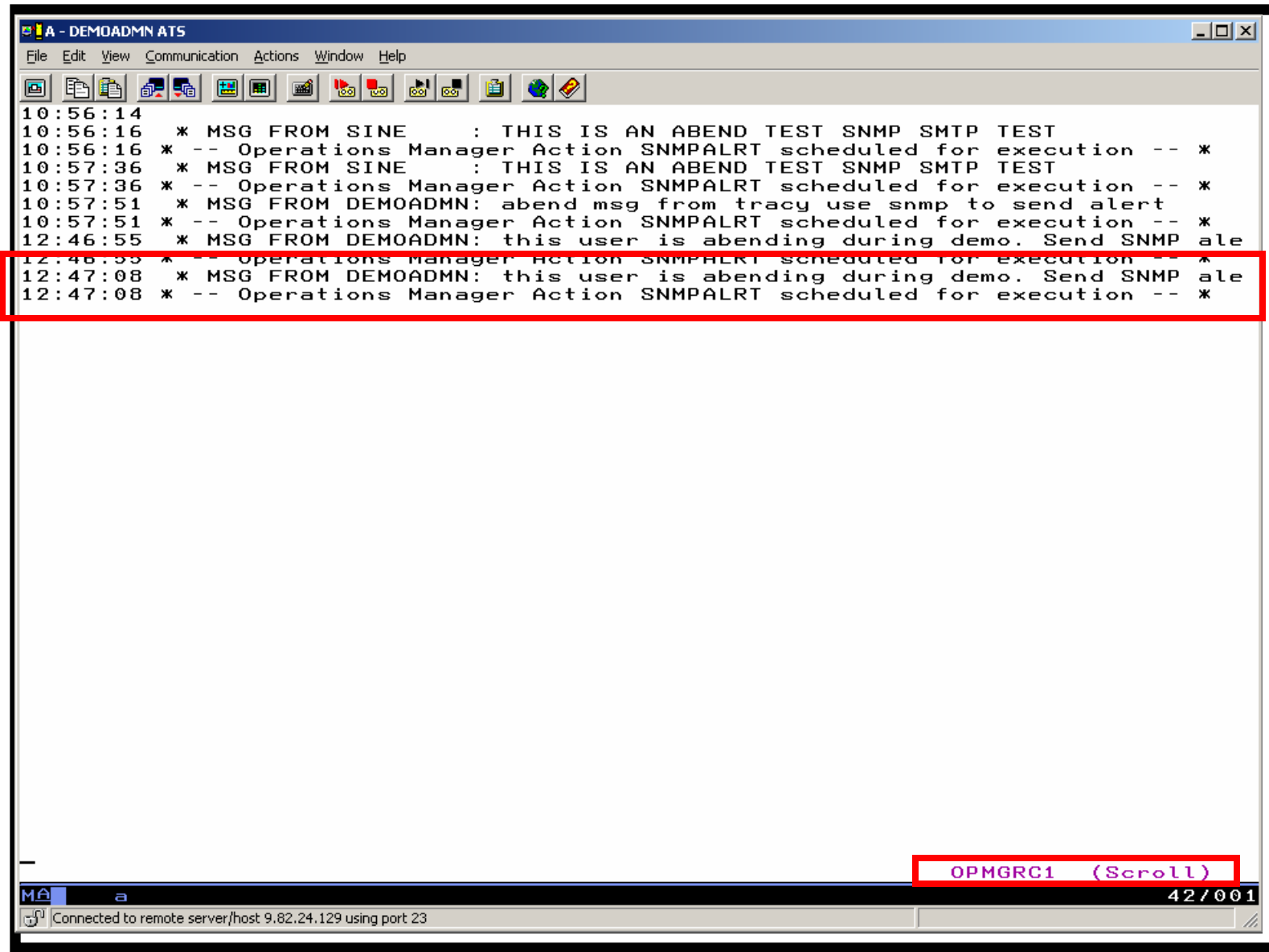
- **View the OMNIbus console to see the alert**



```
A - DEMOADMIN ATS
File Edit View Communication Actions Window Help
tell opmgrc1 this user is abending during demo. Send SNMP alert to Netcool
Ready; T=0.01/0.01 12:47:08

gomcmd opmgrm1 viewcon user(opmgrc1)

RUNNING ZVMV5R40
42/036
Connected to remote server/host 9.82.24.129 using port 23
```



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

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

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

File Edit View Alerts Tools Help

All Events Default Top [OFF]

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

0 4 12 2 1 2 All Events

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

Scenario 2b: How Do You Do That?

Rule and action in Operations Manager:

*

* Send an alert to OMNIbus using SNMP for abend

* msgs on consoles

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

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

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

```
  PARM (ABEND)
```

*

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

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

```
  ENV (SVM)
```

Scenario 2b: How Did You Do That?

SNMP2OMN EXEC

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

Scenario 2b: Additional Steps Required on z/VM

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

Scenario 2b: Additional Steps Required on OMNibus

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

Scenario 3: Send a Message or E-mail if Spool Usage is Too High

- **Operations Manager monitors the spool usage (percent full)**
- **Usage exceeds the specified limit**
 - For demo purposes, we'll dynamically resume (re-activate) an existing spool monitor that requires the spool 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 done

Scenario 3: Detailed Steps

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

```
gomcmd opmgrm1 viewspl
```

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

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

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

```
gomcmd opmgrm1 viewlog
```

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

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

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

B - DEMOADMN ATS

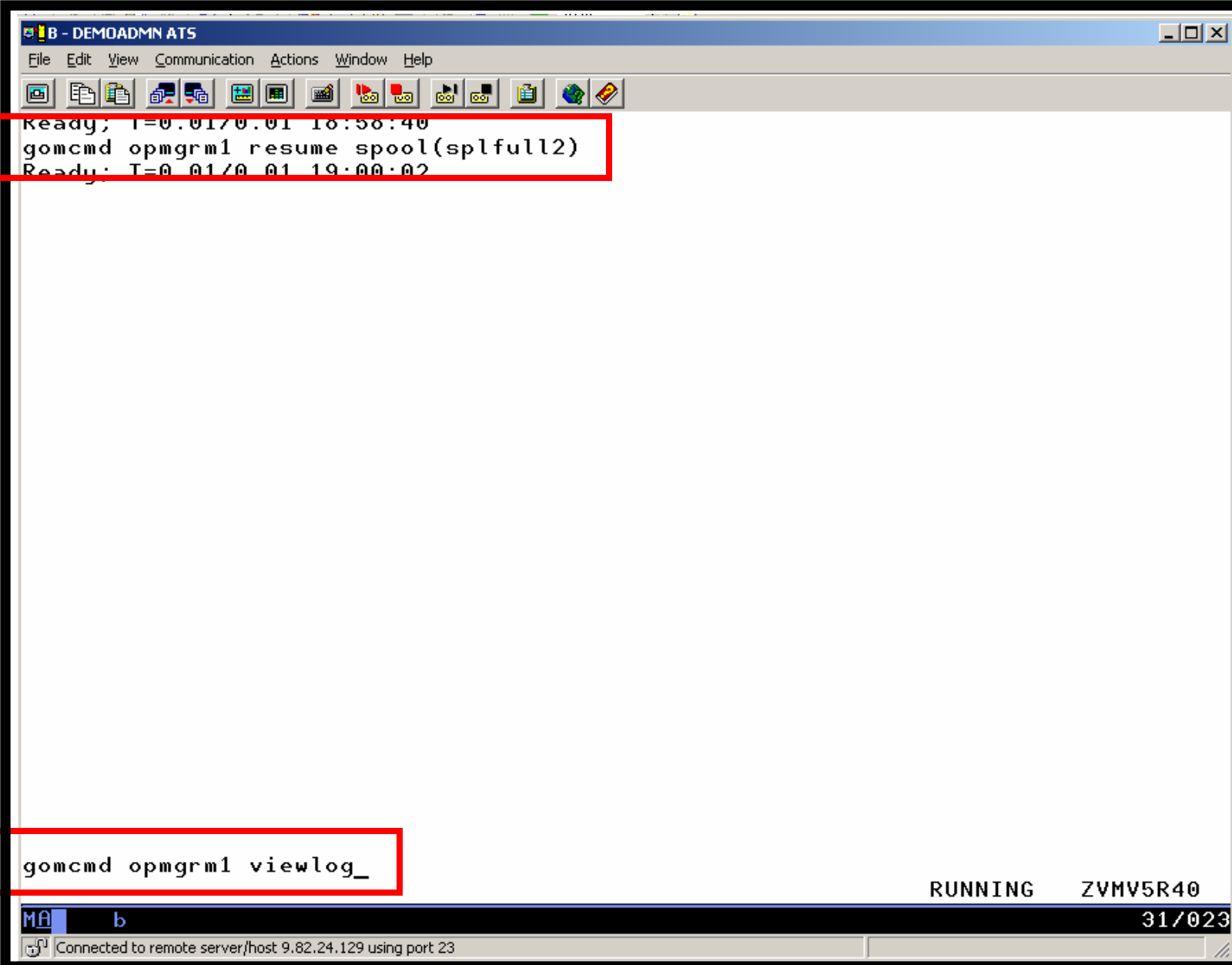
File Edit View Communication Actions Window Help

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

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

MA b 05/001

Connected to remote server/host 9.82.24.129 using port 23



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

gomcmd opmgrm1 viewlog_

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

```

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

```

Tracy Dean - Inbox - IBM Lotus Notes

File Edit View Create Actions Tools Help

Home Replicatio... x Tracy Dea... x CP Workfl... x 1H2010 R... x Publicatio... x Publicatio... x Re: appro... x CP Wor... x Ops Mg... x Update... x

Mail for Tracy Dean

Inbox (9)
 Drafts
 Sent
 Follow Up
 All Documents
 Junk
 Trash
 Chat History
 Views
 Folders...
 9 Parks
 All Notes Sent (8)
 APDC
 APDF

New Message Reply Reply to All Forward View All View Unread

Search in View 'Inbox' Indexed

Search for lucie Search Search tips More

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

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

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

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

Scenario 3: How Do You Do That?

Spool monitor and action in Operations Manager:

*
*

```
DEFMON NAME (SPLFULL2) , +  
  USAGE (025-099) , +  
  ACTION (SPLEMAIL) , +  
  PARM (SPOOL)
```

*

```
DEFACTN NAME (SPLEMAIL) , +  
  COMMAND (EXEC SMTPNOTE tld1 at us.ibm.com &4 &p) , +  
  ENV (LVM)
```


Scenario 3: How Do You Do That?

SMTPNOTE EXEC (excerpts)

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

Scenario 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 and corresponding 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

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

```

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 01/04/06
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
[Icons]
DVHWAI2140I Waiting for work on 09/02/24 at 23:01:03.
DVHWAI2142I 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
DVHWAI2140I Waiting for work on 09/02/24 at 23:06:03.
DVHWAI2142I 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
DVHWAI2140I Waiting for work on 09/02/24 at 23:11:03.
* -- Operations Manager VIEWCON session from TSTADMN1 entered the following --
cms acc 333 t
DVHWAI2146I 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
DVHWAI2140I 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
DVHWAI2146I 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
DVHWAI2140I Waiting for work on 09/02/24 at 23:14:08.
DVHWAI2142I 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
DVHWAI2140I 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
DVHWA12146I 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
DVHWA12140I Waiting for work on 09/02/24 at 23:24:43
* -- Operations Manager VIEWCON session from TSTADMN1 entered the following --
cms q disk
DVHWA12148I 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
DIR1DP	1DP	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
DVHWA12140I 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 8 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 *MSG 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 PRT 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
```

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)
```


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
Address Command 'CP XAUTOLOG' Tuser;
```



IBM Software

Backup Scenarios

Scenario 11: 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 11: 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**

- **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 opmgrm1 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 * * *

```

```
Session B - TSTADMN1 - [32 x 80]
File Edit View Communication Actions Window Help
smsg bkrbkup review increm01
Ready: T=0 01/0 01 14:48:54
BKRBAK8529I Processing REVIEW INCREM01 command for TSTADMN1.
RDR FILE 0050 SENT FROM BKRBKUP PUN WAS 0007 RECS 0006 CPY 001 A NOHOLD NOKEEP
RDR FILE 0051 SENT FROM BKRBKUP PUN WAS 0008 RECS 0081 CPY 001 A NOHOLD NOKEEP
RDR FILE 0052 SENT FROM BKRBKUP PUN WAS 0009 RECS 0082 CPY 001 A NOHOLD NOKEEP
File INCREM01 LINKED 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.

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

Session B - TSTADMN1 - [32 x 80]

File Edit View Communication Actions Window Help

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	LINKFILE	PUN A	BKRBRUP	DEM1ZVM	NONE	8	3/03	14:48:58
	INCREM00	JOB	PUN A	BKRBRUP	DEM1ZVM	NONE	81	3/03	14:48:58
	INCREM01	JOB	PUN A	BKRBRUP	DEM1ZVM	NONE	82	3/03	14:48:58

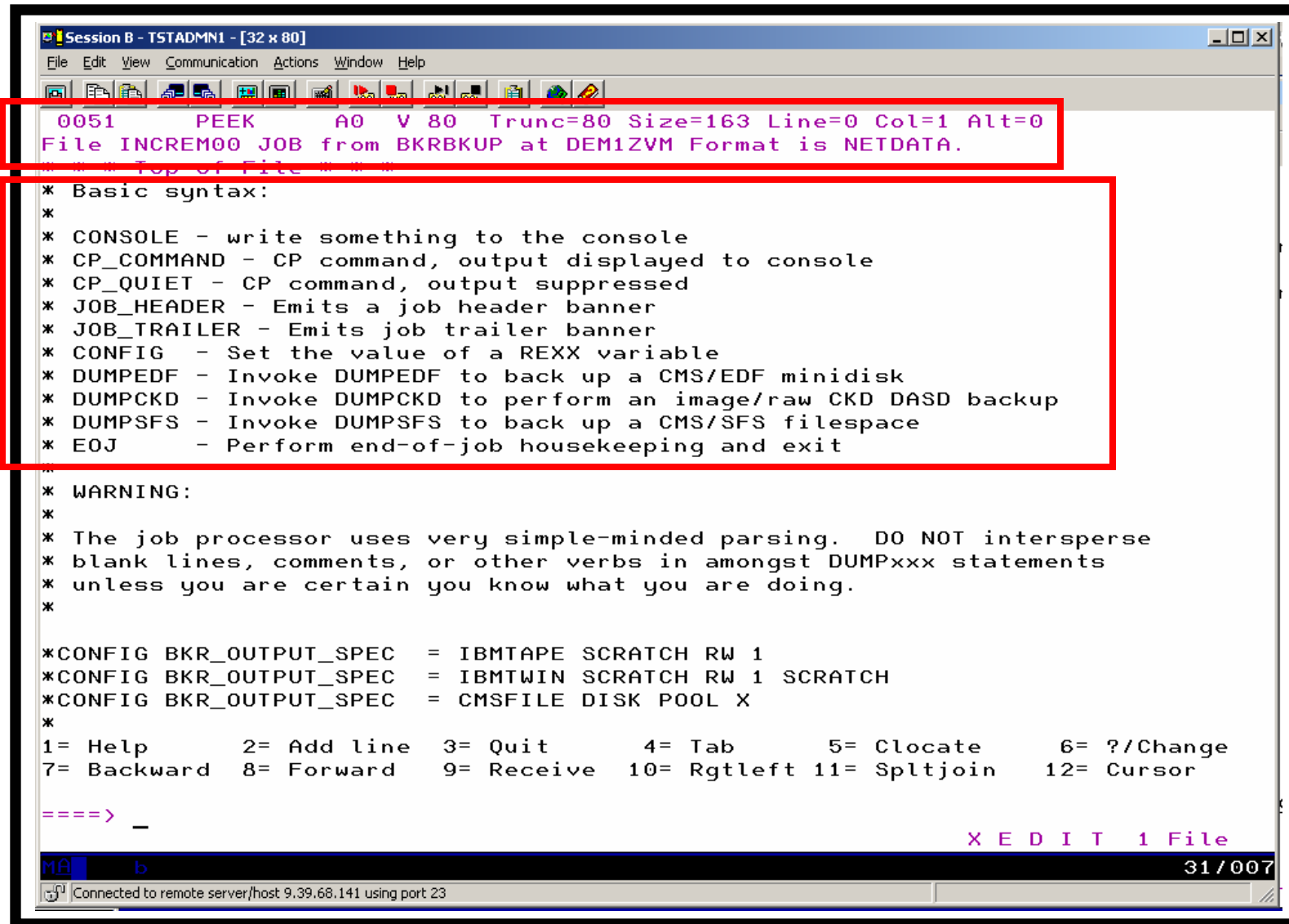
1= Help 2= Refresh 3= Quit 4= Sort(type) 5= Sort(date) 6= Sort(user)
 7= Backward 8= Forward 9= Receive 10= 11= Peek 12= Cursor

====>

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

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



```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
0051      PEEK      A0  V 80  Trunc=80 Size=163 Line=32 Col=1 Alt=0
File INCREM00 JOB from BKRBKUP at DEM1ZVM Format is NETDATA.
CONFIG BKR_OUTPUT_SPEC = CMSFILE INCREM01 DISKPOOL *
* Next two lines override default system tape pool set in BKRSYSTEM CONFIG
* CONFIG BKR_JOB_EUM_POOL_OWNER = xxxxxxxxx
* CONFIG BKR_JOB_EUM_POOL_NAME = xxxxxxxxx
CP_COMMAND TERM MORE 50 10
CP_COMMAND TERM HOLD ON
CP_COMMAND SPOOL CONSOLE TO BKRADMIN CLASS T TERM START NAME INCREM01 20090303
CP_COMMAND TERM LINES 255
CONFIG BKR_JOB_WORKERS = 2
CONFIG BKR_JOB_NAME     = INCREM01
CONFIG BKR_JOB_INSTANCE = $$INST$$
CONFIG BKR_JOB_OWNER    = BKRADMIN
CONFIG BKR_JOB_MASTER   = BKRBKUP
CONFIG BKR_JOB_TOKEN    = 20090303
CONFIG BKR_JOB_CMS_FILEMASK = * * *
CONFIG BKR_JOB_SFS_PATHMASK = *
CONFIG BKR_JOB_BACKUP_RESERVED_AS_IMAGE = NO
CONFIG BKR_JOB_SUPPRESS_IMAGE = YES
CONFIG BKR_JOB_CATALOG = Y
1= Help      2= Add line  3= Quit      4= Tab      5= Clocate   6= ?/Change
7= Backward  8= Forward  9= Receive 10= Rgtright 11= Spltjoin 12= Cursor
====> _
X E D I T 1 File
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=76 Col=1 Alt=0
File INCREM00 JOB from BKR BKUP at DEM1ZVM Format is NETDATA.
JOB HEADER
DUMPCKD $ALLOC$ 0A02 $$$DRIVER$$
DUMPCKD $DIRECT$ 0A04 $$$DRIVER$$
DUMPCKD AMVADMIN 0191 $$$DRIVER$$
DUMPEDF AMVWRK01 0191 $$$FMASK$$ $$$DRIVER$$
DUMPCKD AMVWRK03 0191 $$$DRIVER$$
DUMPEDF ARCHLOGS 0191 $$$FMASK$$ $$$DRIVER$$
DUMPEDF AUTOLOG1 0191 $$$FMASK$$ $$$DRIVER$$
DUMPEDF AVSVM 0191 $$$FMASK$$ $$$DRIVER$$
DUMPEDF BKR BKUP 0191 $$$FMASK$$ $$$DRIVER$$
DUMPEDF BKRCATLG 0191 $$$FMASK$$ $$$DRIVER$$
DUMPEDF BKRWRK02 0191 $$$FMASK$$ $$$DRIVER$$
DUMPCKD BKRWRK04 0191 $$$DRIVER$$
DUMPEDF BLDNUC 0191 $$$FMASK$$ $$$DRIVER$$
DUMPEDF BLDSEG 0191 $$$FMASK$$ $$$DRIVER$$
DUMPEDF CFCONSOL 0191 $$$FMASK$$ $$$DRIVER$$
DUMPEDF CNTRLCON 0191 $$$FMASK$$ $$$DRIVER$$
DUMPEDF DATAMOVE 01AA $$$FMASK$$ $$$DRIVER$$
DUMPEDF DATAMOVE 02AA $$$FMASK$$ $$$DRIVER$$
DUMPEDF DIRMAINT 01AA $$$FMASK$$ $$$DRIVER$$
DUMPCKD DIRMAINT 01DE $$$DRIVER$$
DUMPEDF DIRMAINT 0155 $$$FMASK$$ $$$DRIVER$$
DUMPEDF DIRMAINT 01DB $$$FMASK$$ $$$DRIVER$$
DUMPEDF DIRMAINT 02DB $$$FMASK$$ $$$DRIVER$$
DUMPEDF DIRMSAT 0155 $$$FMASK$$ $$$DRIVER$$
1= Help 2= Add line 3= Quit 4= Tab 5= Clocate 6= ?/Change
7= Backward 8= Forward 9= Receive 10= Rgtright 11= Spltjoin 12= Cursor
====> _
X E D I T 1 File
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 BKRBKUP 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= Locate   6= ?/Change
7= Backward  8= Forward  9= Receive 10= Rgtright 11= Spltjoin 12= Cursor

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

```

```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
Ready; T=0.02/0.02 15:13:28
msg bkrbkup submit increm01
Ready; T=0.01/0.01 15:13:36
BKRBAK8532I Processing SUBMIT INCREM01 command for TSTADMIN1 at 03/03/09 15:13:36.
RDR FILE 0053 SENT FROM BKRBKUP PUN WAS 0011 RECS 0006 CPY 001 A NOHOLD NOKEEP
File INCREM01 LINKFAIL D1 sent to BKRADMIN at DEM1ZVM on 03/03/09 15:13:36
File INCREM01 LINKFAIL D1 sent to TSTADMIN1 at DEM1ZVM on 03/03/09 15:13:37
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.

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

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

Scenario 12: 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 12: Detailed Steps

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

`rdrlist`

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

`peek`


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

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

Master backup userid: BKRKBUP

3= Quit          4= Return          10= Restore

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.
BKREST190291 Sending RESTORE request 00000052 to worker task BKRWRK03...
File RESTORE JOB D1 sent to BKRWRK03 at DEM1ZVM on 03/03/09 15:57:55
*** Request: Request 00000052 submitted to worker BKRWRK03 for processing

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

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

Session A - TSTUSER1 - [32 x 80]

File Edit View Communication Actions Window Help

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

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

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

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

====>

X E D I T 1 File

MA a 03/001

Connected to remote server/host 9.39.68.141 using port 23

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

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

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

Scenario 13: Scheduling Image Backups of Linux Guests

- **Initiated or scheduled by Operations Manager**
 - Schedule defined in Operations Manager to initiate backups at specific times/intervals
 - May include multiple schedules to allow quiescing/backing up one guest at a time
 - 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
 - Operations Manager watches for backup complete message
 - Restarts Linux guest
 - Guest is down for minimum time required for backup

Scenario 13: Detailed Steps

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

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

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

```
gomcmd opmgrm1 viewlog
```

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

```
gomcmd opmgrm1 viewcon user(omeglrx1)
```

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

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

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

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

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

```
gomcmd opmgrm1 viewcon user(omeglrx1)
```

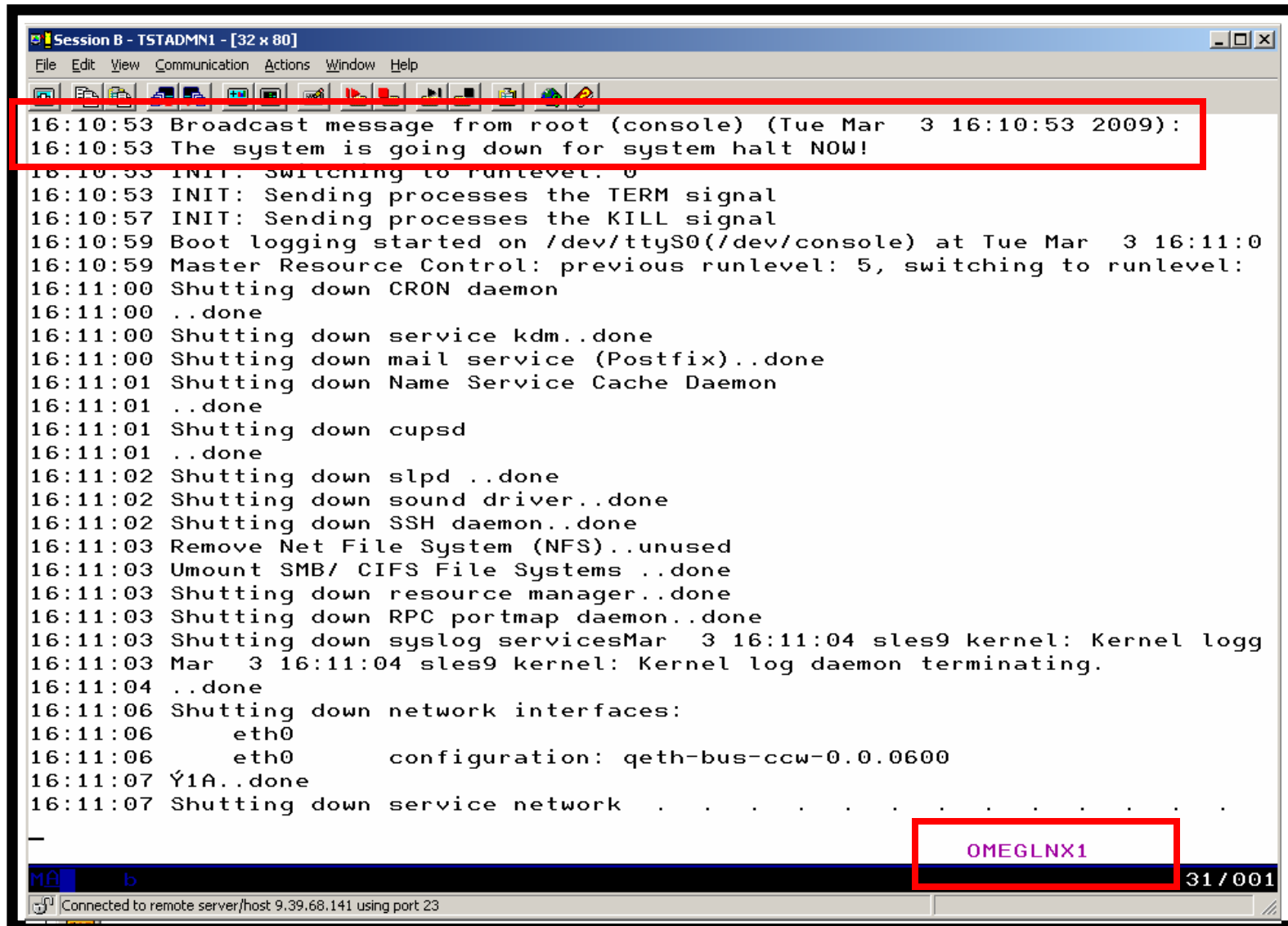
- **View the backup catalog to see the completed job**

```
bkrjob
```

```

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

```

```
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 . . . . .
-
MA b
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
16:11:09 ..done
16:11:09 disabling Hotplug ..done
16:11:09 Saving random seed..done
16:11:09 Running /etc/init.d/halt.local
16:11:09 Y1A..doneSending all processes the TERM signal...
16:11:09 ..done
16:11:16 Sending all processes the KILL signal...
16:11:16 ..done
16:11:16 ..missing
16:11:16 Turning off swap
16:11:17 Y1A..done
16:11:17 Restore device permissions..done
16:11:17 Unmounting file systems
16:11:17 /dev/dasdc1 umounted
16:11:17 devpts umounted
16:11:17 tmpfs umounted
16:11:17 /dev/dasda1 umounted
16:11:17 Y1A..done..done
16:11:18 proc umounted
16:11:19 Y10;440"
16:11:19 The system will be halted immediately.
16:11:19
16:11:21 md: stopping all md devices.
16:11:21 md: md0 switched to read-only mode.
16:11:22 Power down.
16:11:22 HCPGIR450W CP entered; disabled wait PSW 00020001 80000000 00000000 00
16:11:34 dasd(eckd): 0.0.0102: (4KB BTKS): 1211520KB at 48KB/TRK compatible dis
16:11:34 dasdc:VOL1/ 0X0102: dasdc1
16:11:34 : done
16:11:34 Waiting for device /dev/dasda1 to appear: ok

OMEGLNx1
31/001
Connected to remote server/host 9.39.68.141 using port 23
```

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

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

```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
16:11:22 Power down
16:11:22 HCPGIR450W CP entered; disabled wait PSW 00020001 80000000 00000000 00
16:11:34 dasd(eckd): 0.0.0102: (4kB blks): 7211520kB at 48kB/trk compatible dis
16:11:34 dasdc:VOL1/ 0X0102: dasdc1
16:11:34 : done
16:11:34 Waiting for device /dev/dasda1 to appear: ok
16:11:34 rootfs: major=94 minor=1 devn=24065
16:11:34 umount: invalid option -n
16:11:34 umount: invalid option -n
16:11:34 kjournald starting. Commit interval 5 seconds
16:11:34 EXT3-fs: mounted filesystem with ordered data mode.
16:11:34 VFS: Mounted root (ext3 filesystem) readonly.
16:11:34 Trying to move old root to /initrd ... failed
16:11:34 Unmounting old root
16:11:34 Trying to free ramdisk memory ... failed
16:11:34 Freeing unused kernel memory: 108k freed
16:11:34 INIT: version 2.85 booting
16:11:36 System Boot Control: Running /etc/init.d/boot
16:11:36 Mounting /proc filesystem
16:11:36 ..done
16:11:36 Mounting sysfs on /sys..done
16:11:36 Mounting /dev/pts..done
16:11:37 Boot logging started on /dev/ttyS0(/dev/console) at Tue Mar 3 16:11:3
16:11:37 Mounting shared memory FS on /dev/shm..done
16:11:37 Checking root file system...
16:11:37 fsck 1.34 (25-Jul-2003)
16:11:37 Ý/sbin/fsck.ext3 (1) -- /" fsck.ext3 -a /dev/dasda1
16:11:37 /dev/dasda1: clean, 148182/903168 files, 1162186/1802856 blocks
16:11:37 Ý1A..doneEXT3 FS on dasda1, internal journal
16:11:37 md: Autodetecting RAID arrays.
-
ME b 31/001
Connected to remote server/host 9.39.68.141 using port 23
```

OMEGLNX1

```
Session B - TSTADMIN1 - [32 x 80]
File Edit View Communication Actions Window Help
16:11:57 Mar  3 16:11:57 sles9 kernel: eth0: no IPv6 routers present
16:11:57 JBD: barrier-based sync failed on dasdc1 - disabling barriers
16:11:57 Mar  3 16:11:57 sles9 kernel: JBD: barrier-based sync failed on dasdc1
16:11:58 Master Resource Control: runlevel 5 has been reached
16:11:58 Failed services in runlevel 5: Ý80CÝ10Dkbd
16:11:58 Skipped services in runlevel 5: Ý80CÝ23Dsmbfs nfs splash
16:11:59 sles9 login:
16:11:59 * -- Operations Manager Action LOGINLNX scheduled for execution -- *
16:12:02 root
16:12:02 Password:
16:12:02
16:12:02 You have new mail in /var/mail/root.
16:12:02 Last login: Thu Feb 26 19:08:10 on ttyS0
16:12:02 * -- Operations Manager Action SECLINUX scheduled for execution -- *
16:12:02 * -- Operations Manager Action DELBKUP scheduled for execution -- *
16:12:02 sles9:~ #
16:12:02 HCPCFX6768I Your SECUSER set to OMEGACMD by OPMGRM1.

OMEGA b A 31/001
Connected to remote server/host 9.39.68.141 using port 23
```

OMEGLNX1

Scenario 13: How Do You Do That?

Console rule in Operations Manager:

*

* Watch for shutdown complete message on Linux guest

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

```
  MATCH(*HCPSIG211%I User OMEGLNX1*),+
```

```
  ACTION(LNXBKUP)
```

* Turn off the rule in general

```
SUSPEND RULE(LNXDOWN)
```

Scenario 13: 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 13: How Do You Do That?

Chain of actions and rules in Operations Manager:

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

```
DEFACTN NAME(LNXBKUP),+  
  INPUT(AHI),+  
  NEXTACTN(LNXBKUPB)
```

*

```
DEFACTN NAME(LNXBKUPB),+  
  COMMAND(CP SMSG BKRBKUP SUBMIT BKUPLNX1),+  
  ENV(LVM)
```

*

* Define all Backup Manager workers as a group

```
DEFGROUP NAME(BKRWRKRS),+  
  USER(BKRWRK0*)
```

*

* Restart Linux guest when Backup is complete

```
DEFRULE NAME(BKUPDONE),+  
  MATCH(*BACKUP COMPLETE - OMEGLNX1*),+  
  GROUP(BKRWRKRS),+  
  ACTION(STRTLNX)
```

Scenario 13: How Do You Do That?

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

* Suspend rule for backing up Linux guest

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

Reference Information

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

धन्यवाद

Hindi

多謝

Traditional Chinese

감사합니다

Korean

Спасибо

Russian

Gracias

Spanish

شكراً

Arabic

Thank You

English

Obrigado

Brazilian Portuguese

Grazie

Italian

Danke

German

多谢

Simplified Chinese

Merci

French

நன்றி

Tamil

ありがとうございました

Japanese

ขอบคุณ

Thai