How to Automate Common z/VM and Linux on System z Tasks

Transforming IT Management

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Logging System Messages

> Challenge:

- Keep a daily log of all z/VM Messages, Commands, Responses and RCs
- Keep in the same daily log all Linux console and SYSLOGD or SYSLOG-NG messages for all my Linux servers
- Keep the log organized while managing spool or disk space
- Be able to review logs online for any date and time
- Retain logs on tape for as long as needed

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Logging System Messages

> Solution:

- CA VM:Operator
  - Maintains log of all messages, commands, responses and RCs
  - Maintains log of all Linux console, SYSLOGD or SYSLOG-NG messages
  - Maintains daily logs with easy access online
- CA VM:Backup
  - Automatically backup log files
  - Provides limited retention
- CA VM:Archiver
  - Automatically archive log files
  - Provides permanent retention
- CA VM:Schedule
  - Automatically schedule backups and archives

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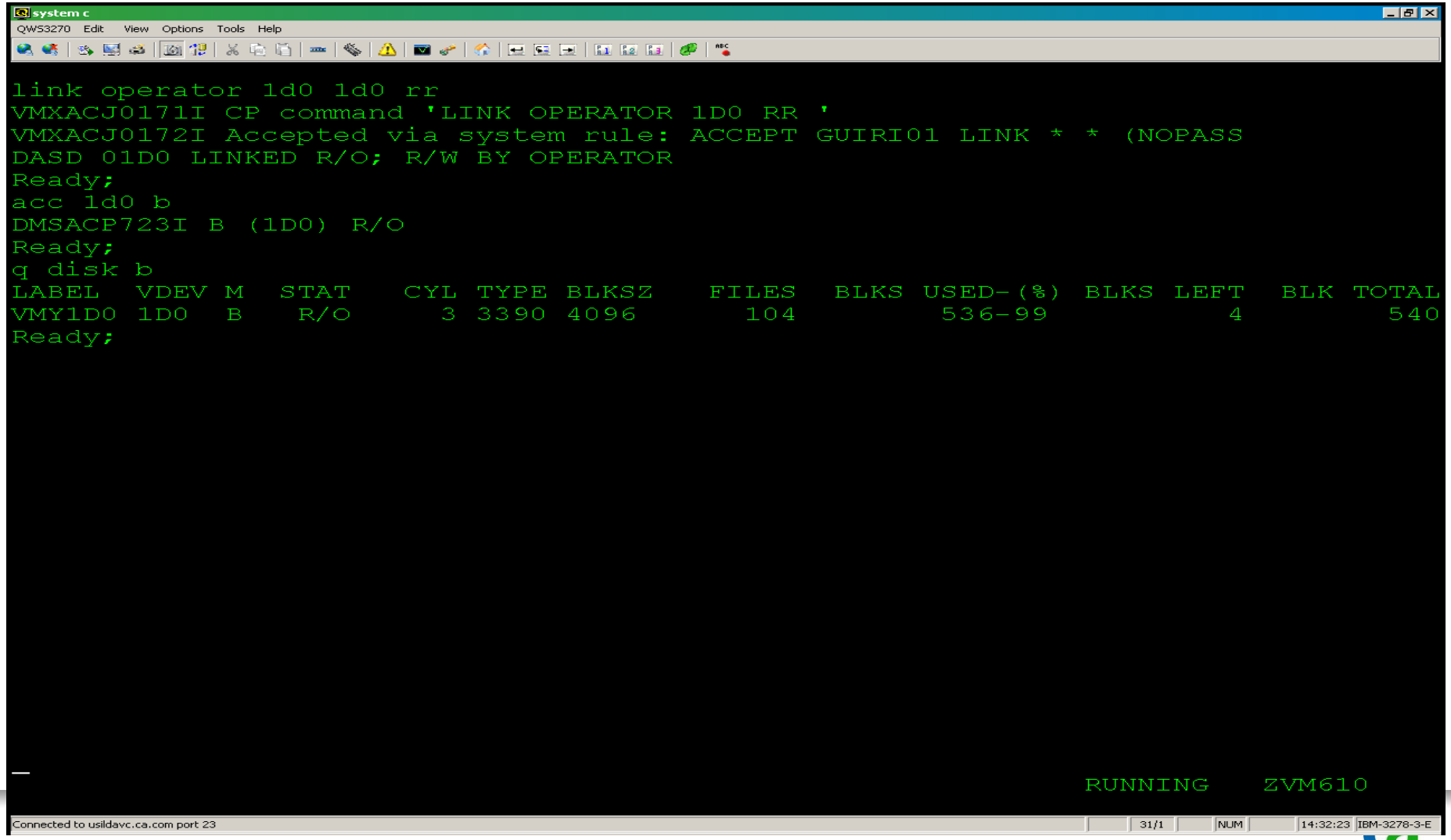
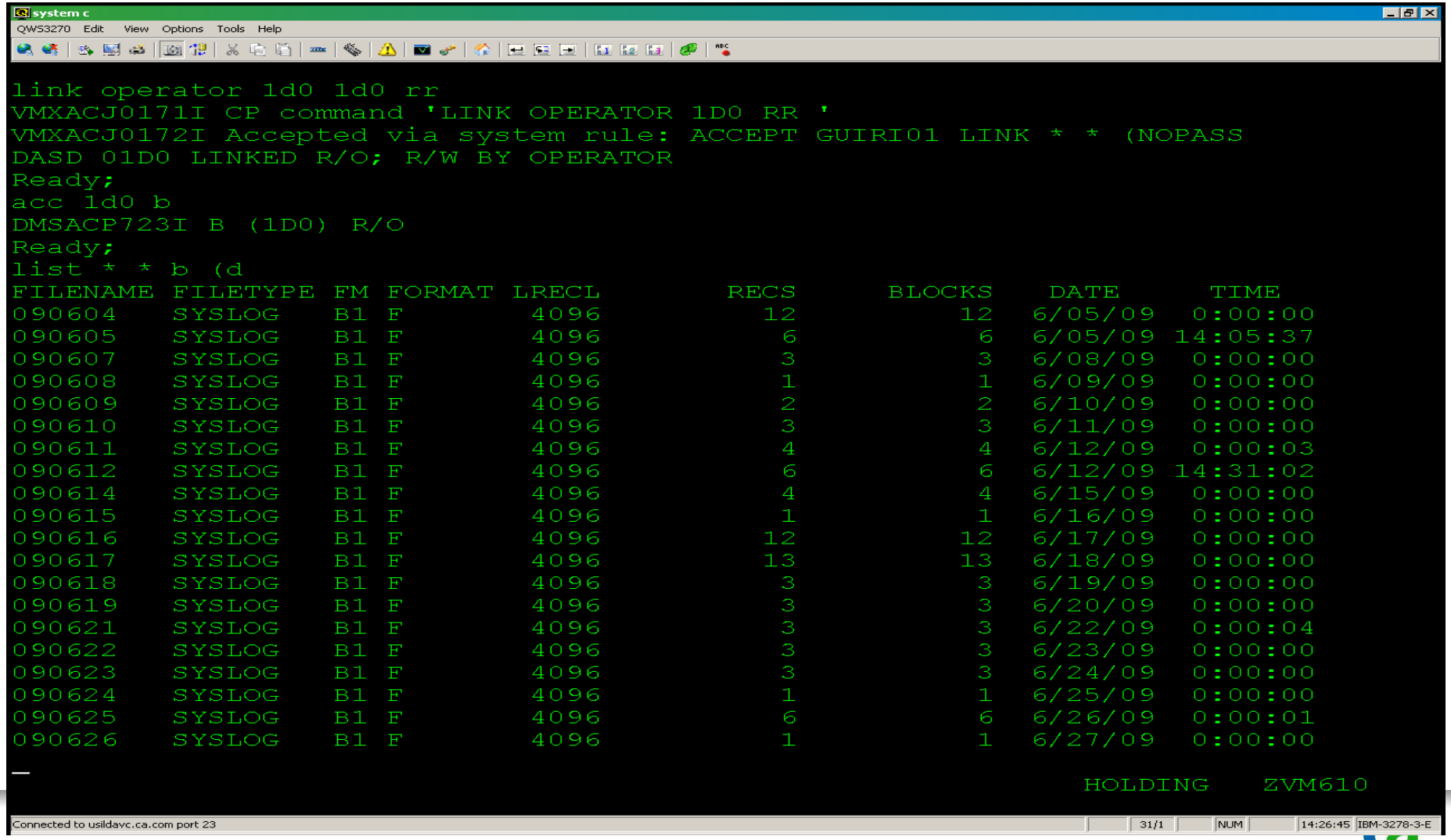
SYSLOG disk kept at 99%



SYSLOG files reside on OPERATOR 1D0



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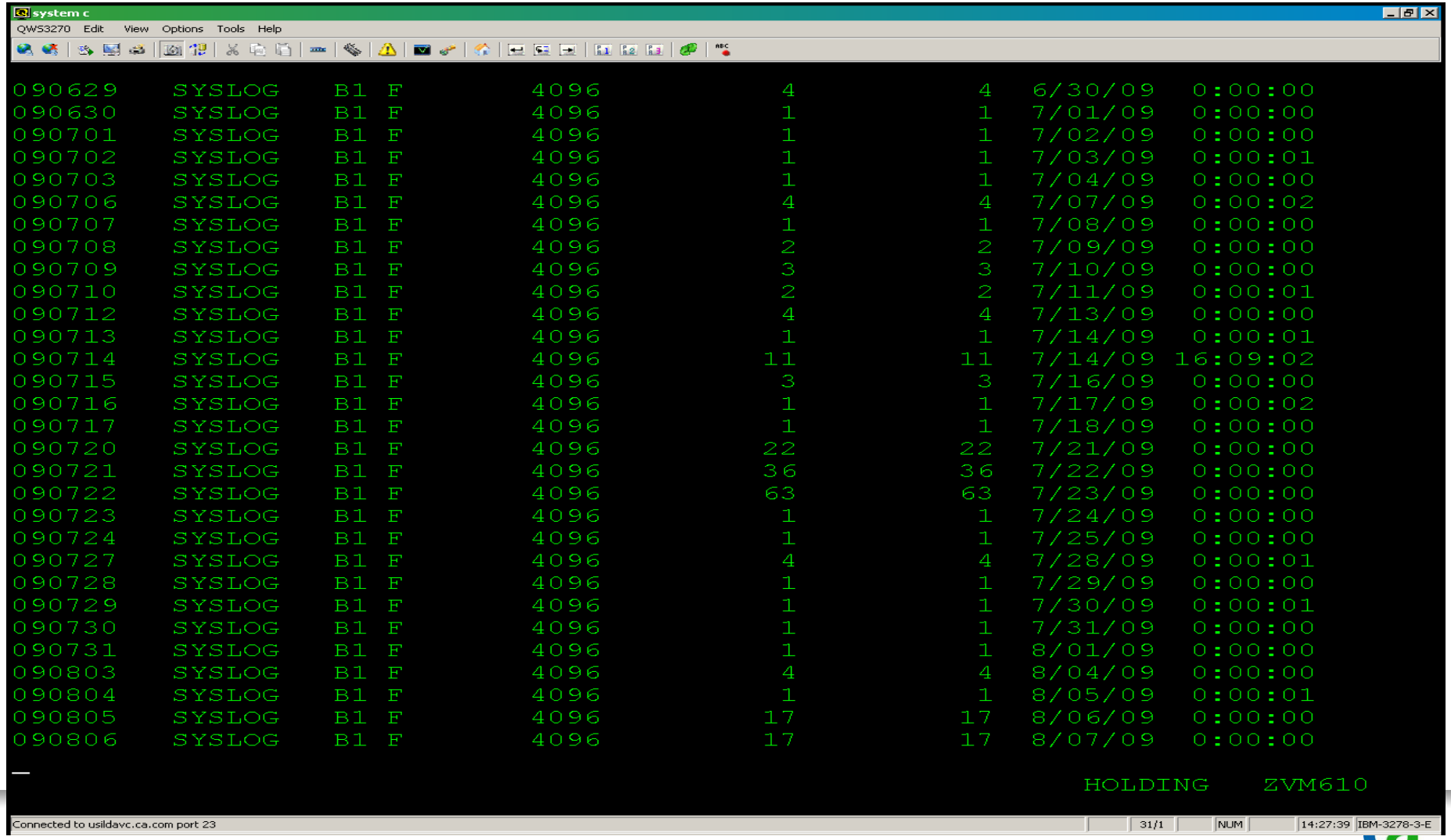

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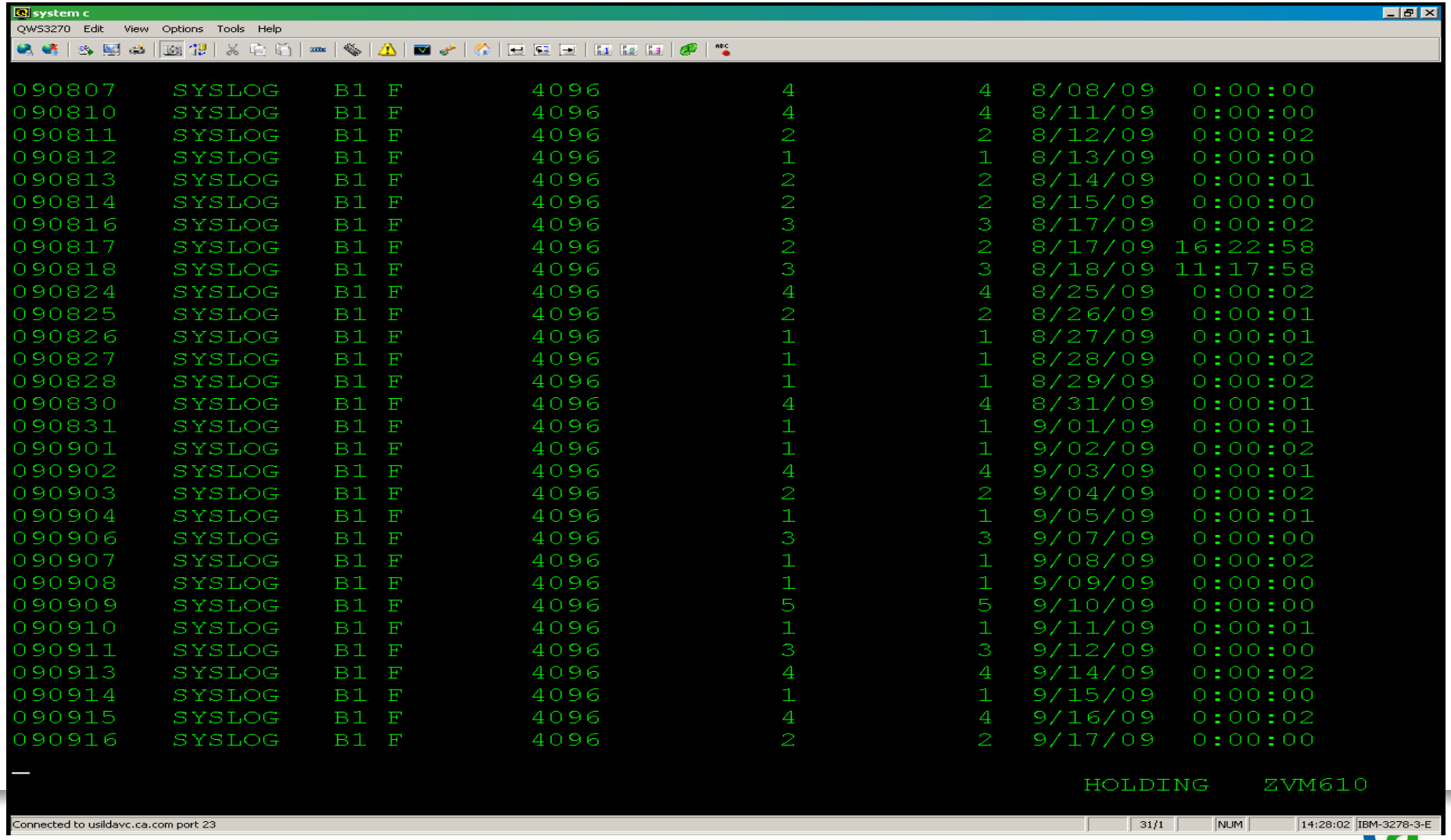

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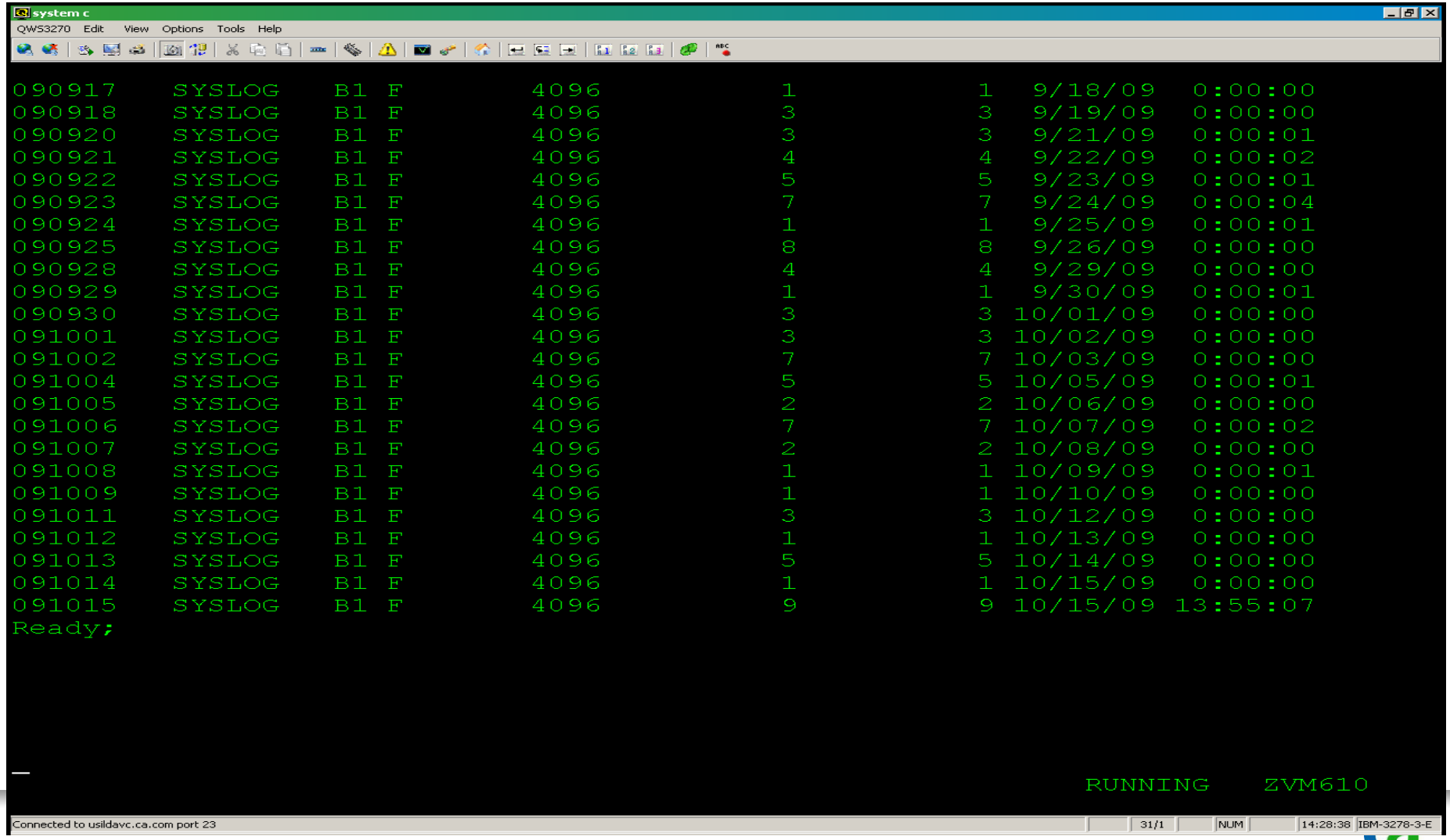
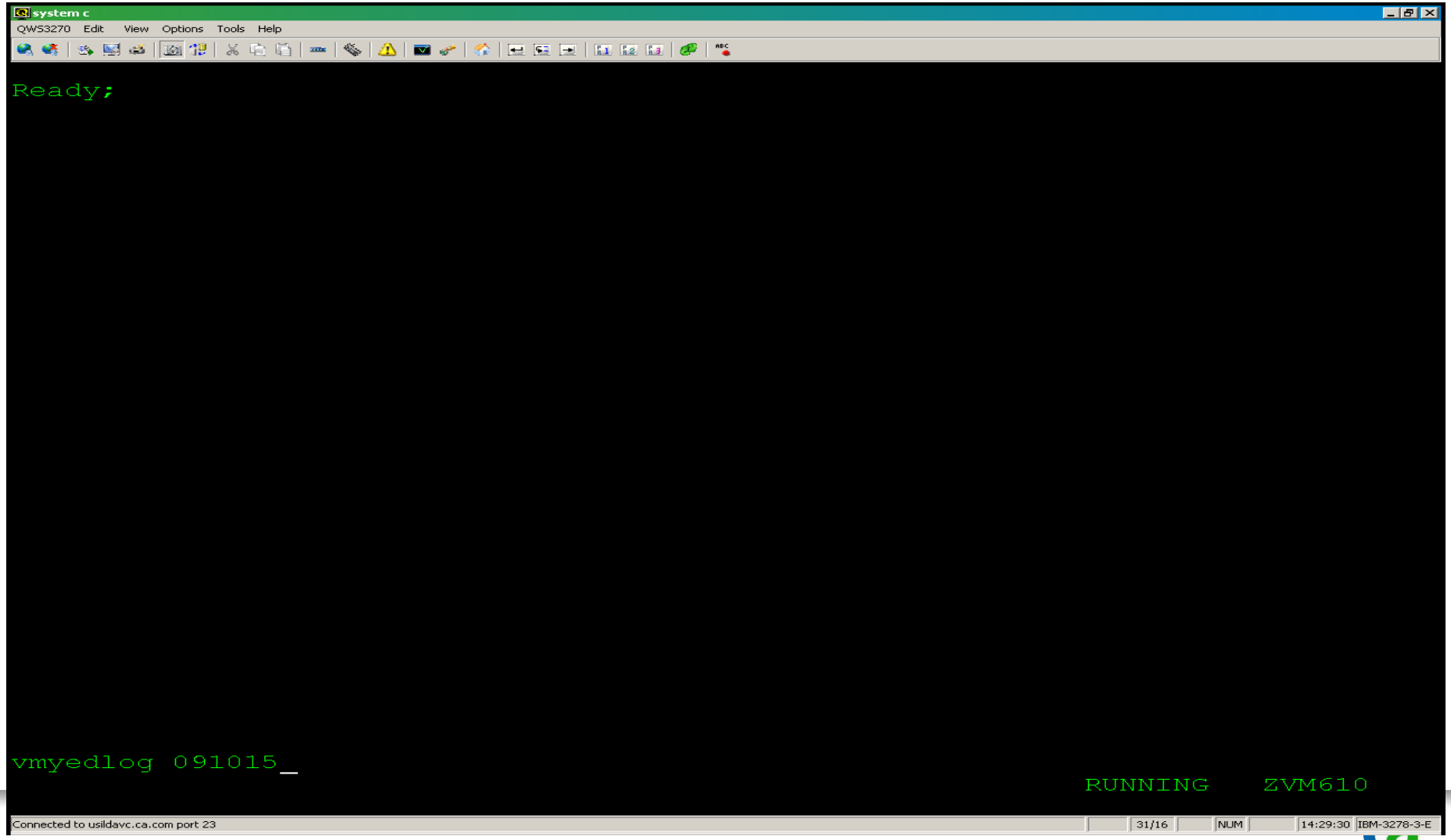


VMYEDLOG to view any SYSLOG (1)



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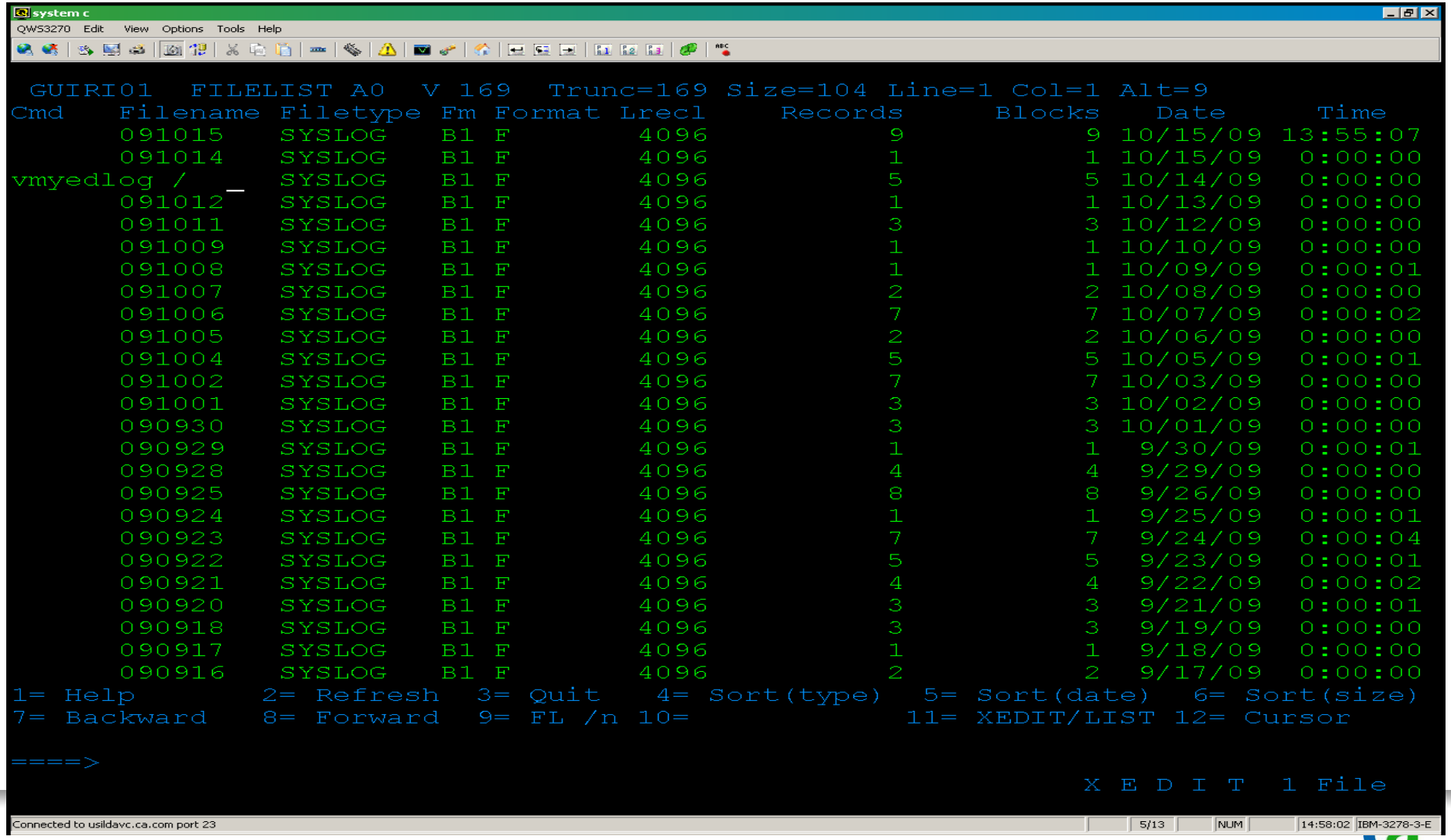

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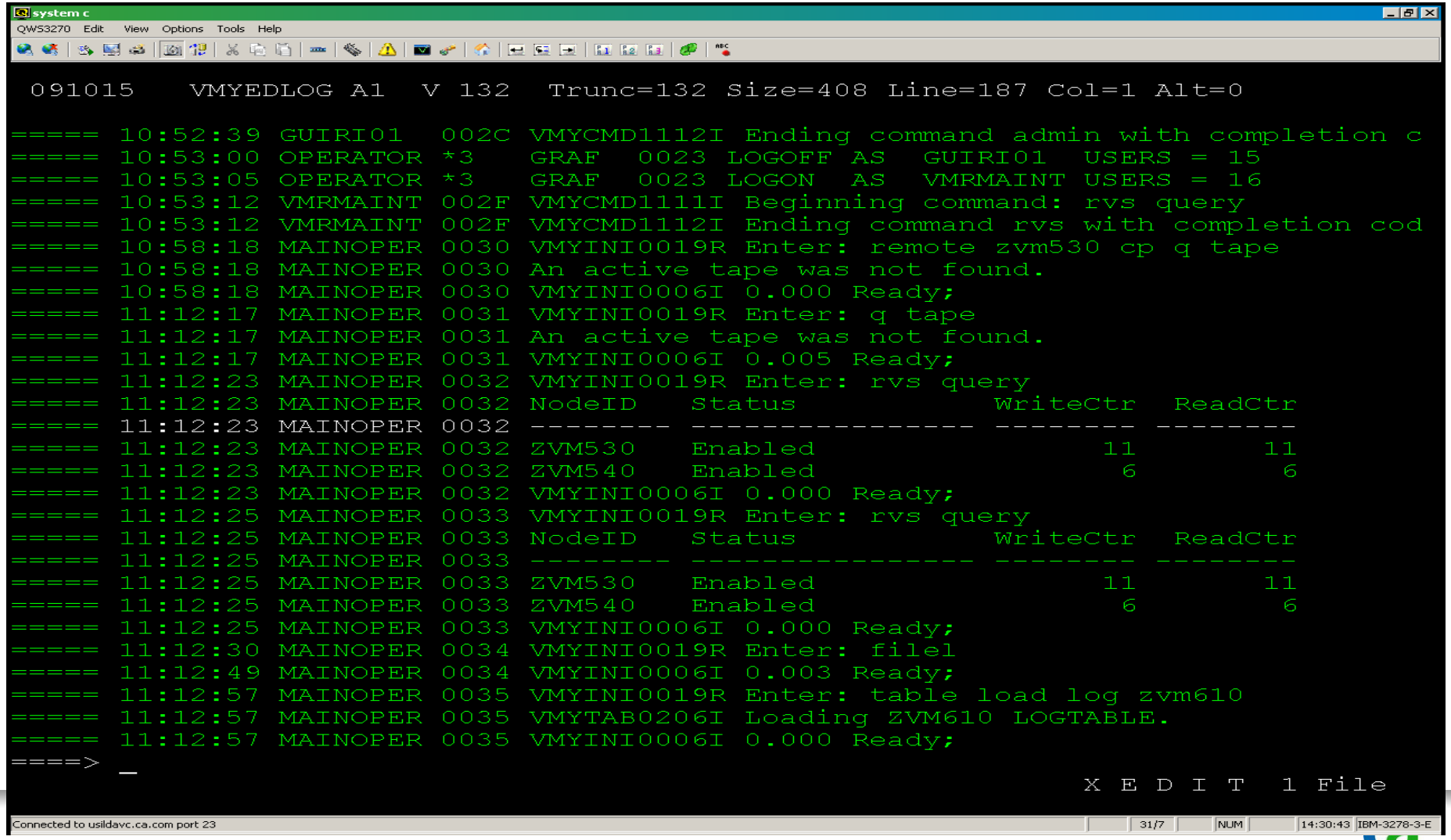
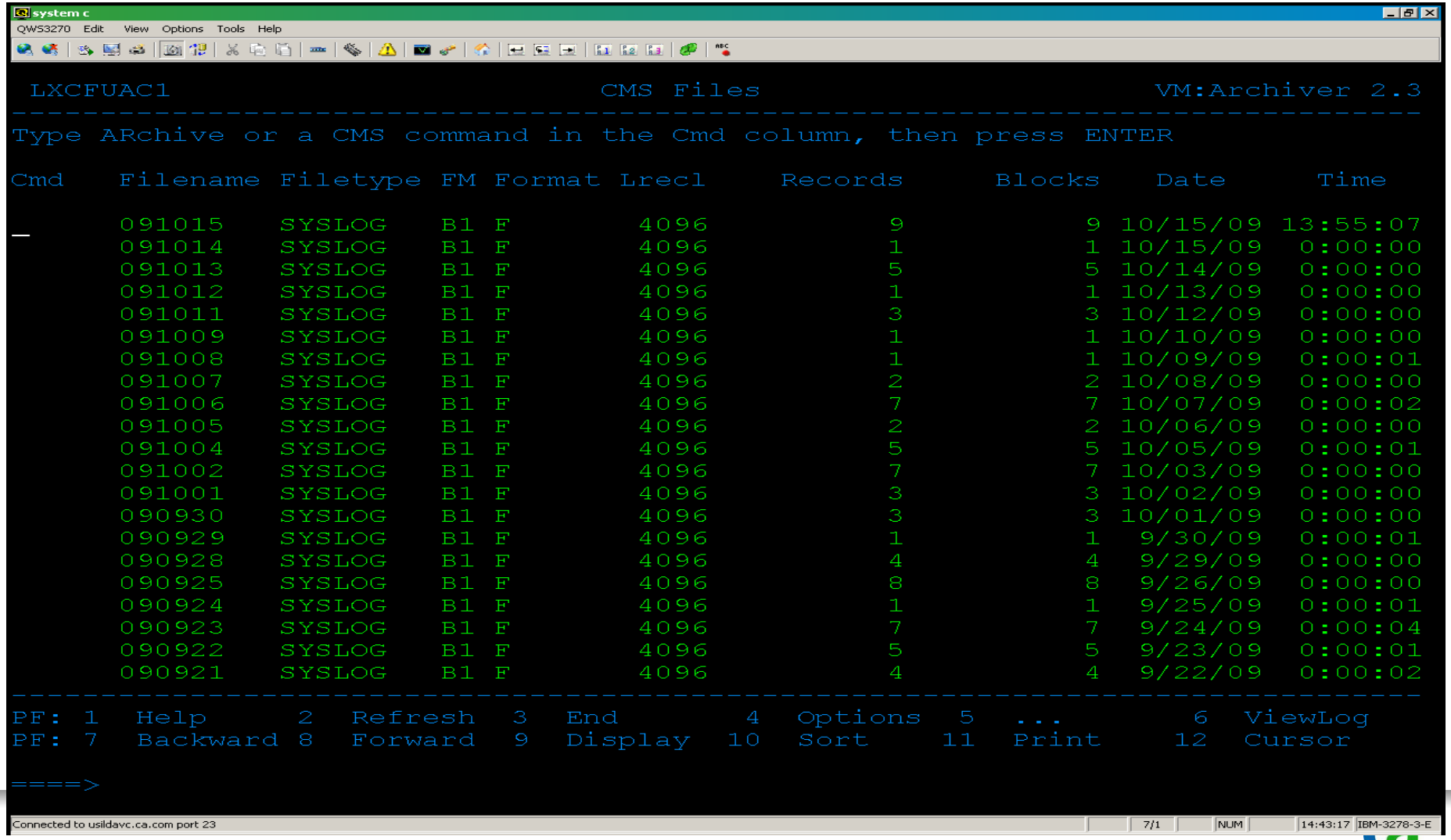
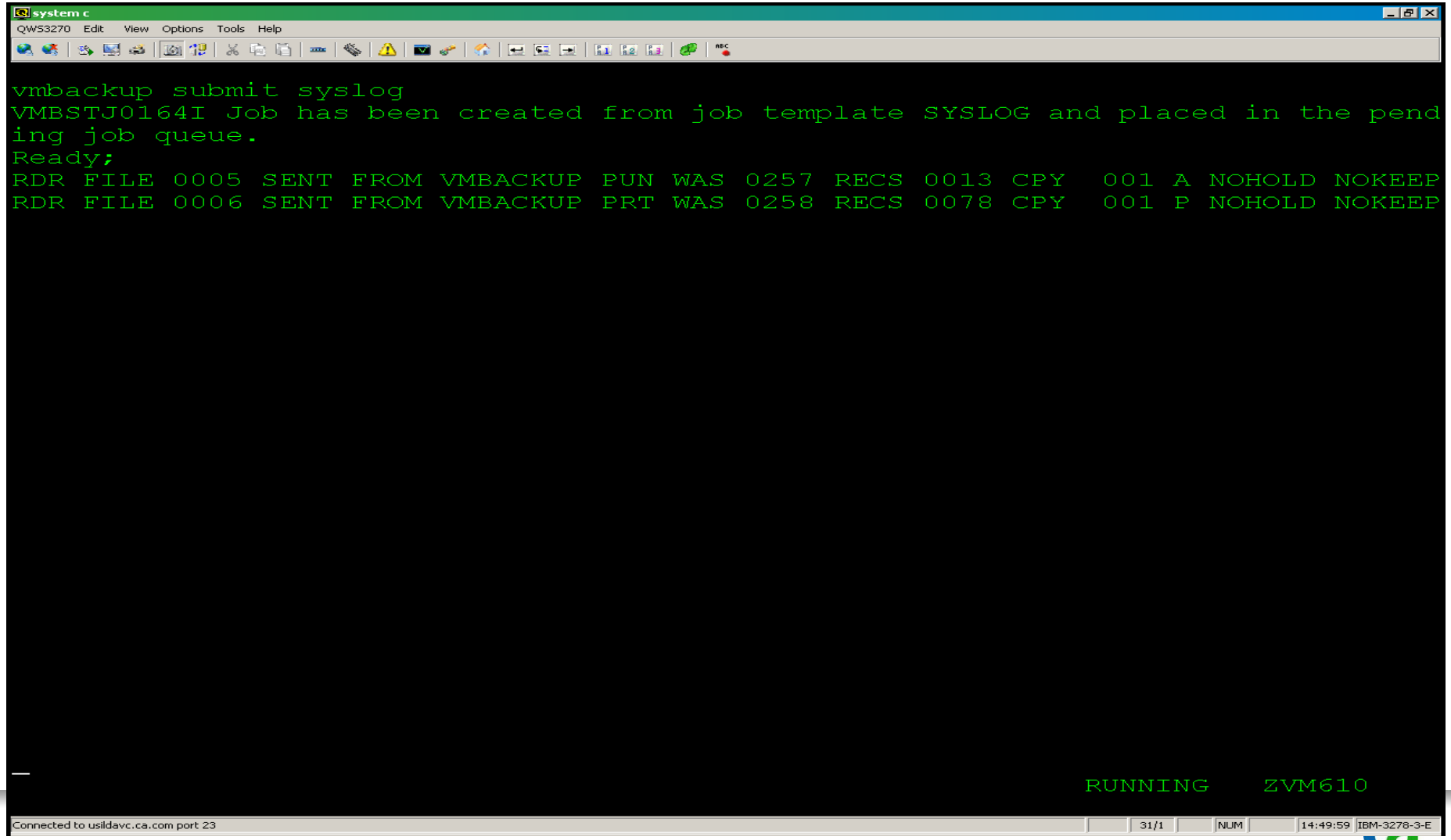


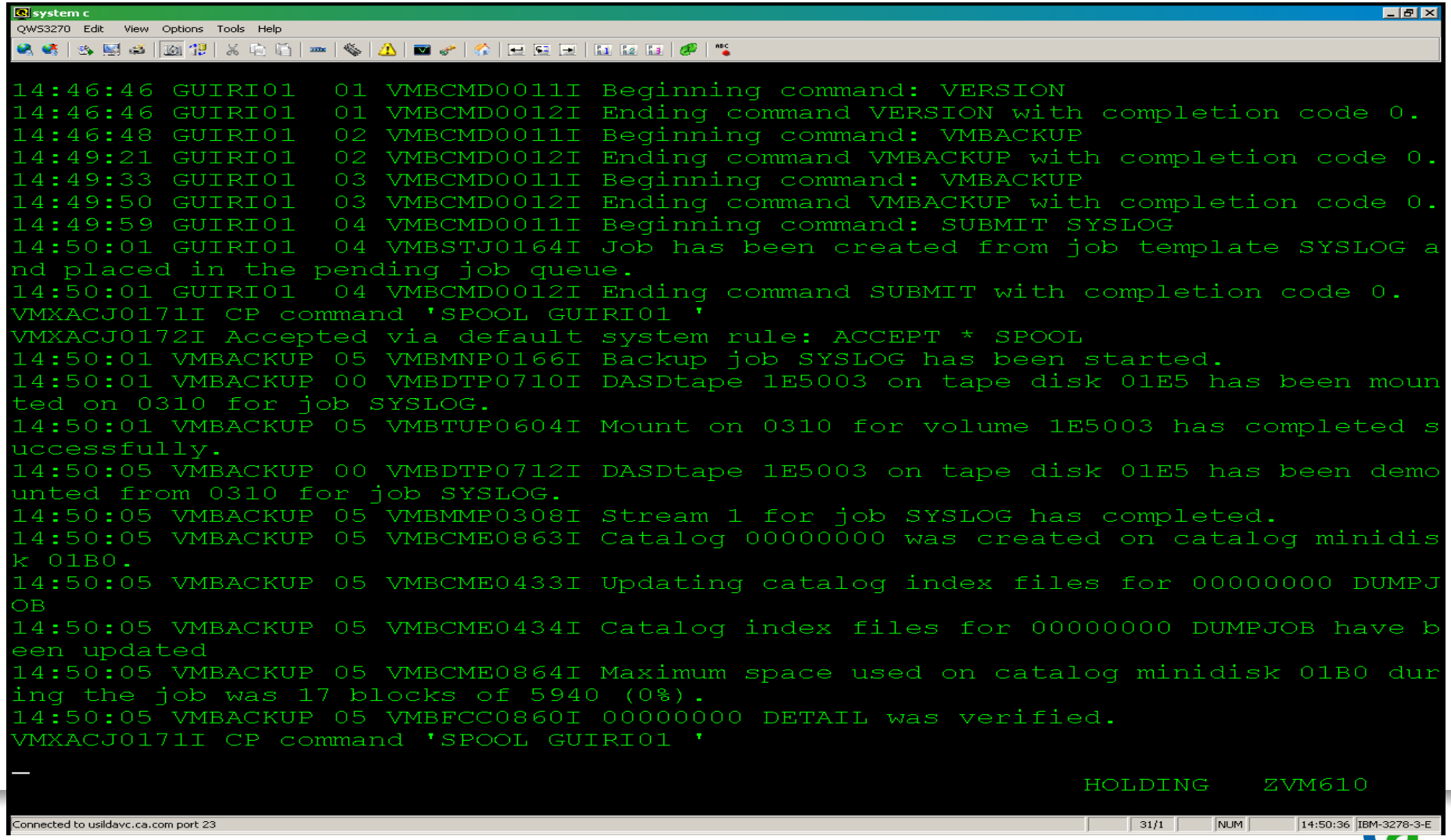
CA VM:Archiver list of SYSLOG files to archive



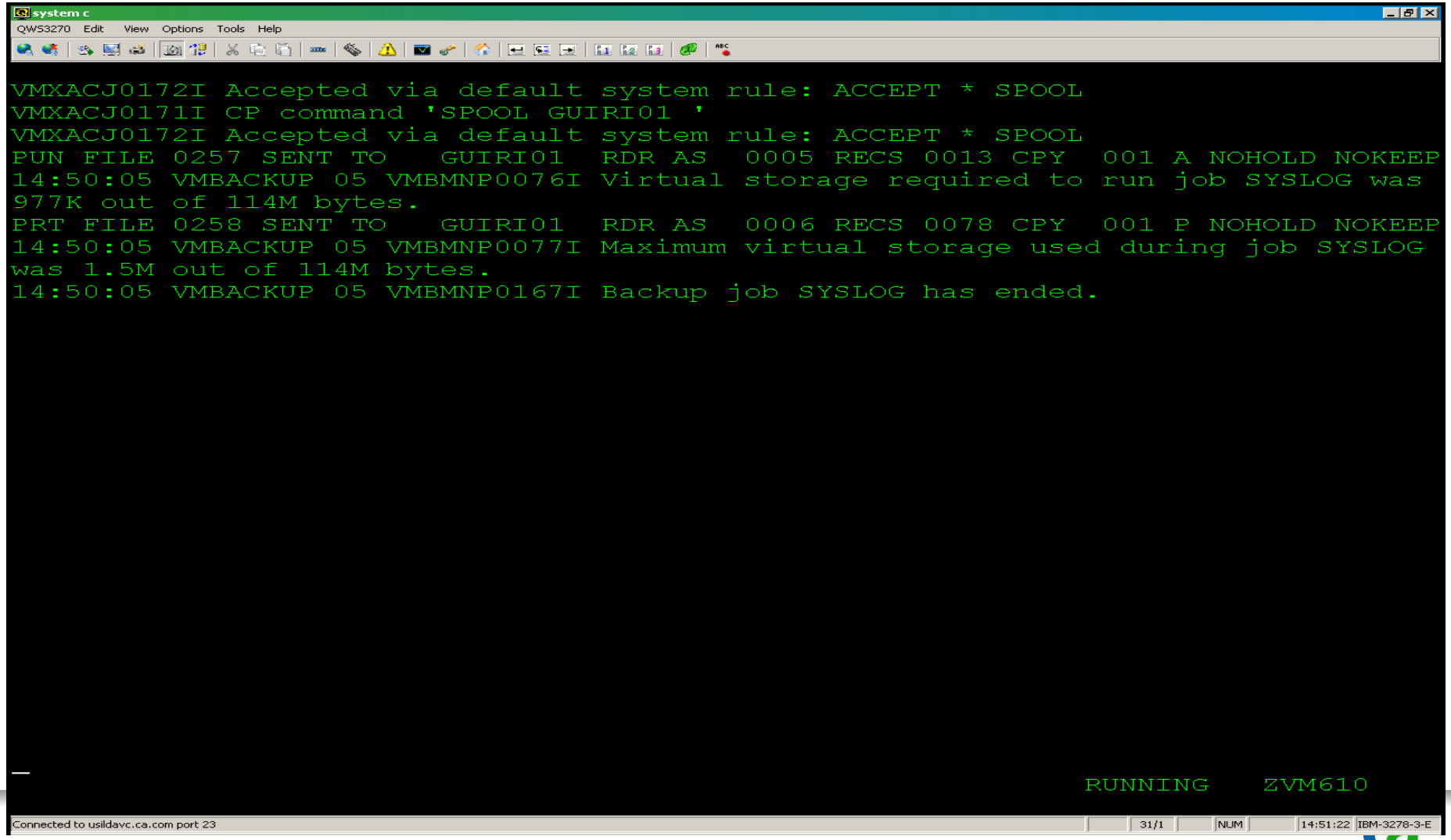
CA VM:Backup job backing up SYSLOG files to DASDtape



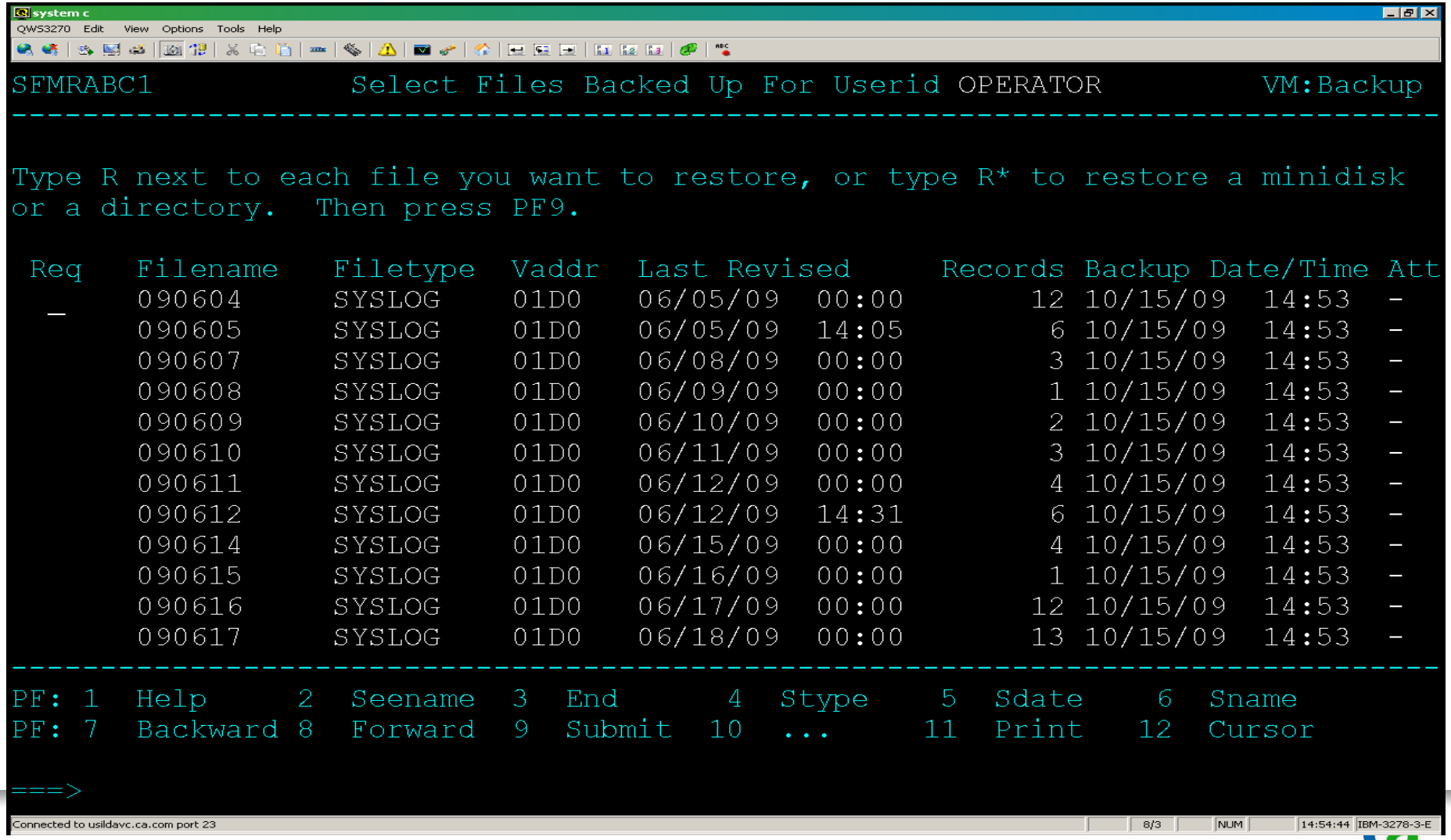
CA VM:Backup console showing backup of SYSLOG files to DASDtape



CA VM:Backup console showing backup of SYSLOG files to DASDtape



CA VM:Backup list of SYSLOG files to restore



Message Filtering

> Challenge:

- Missing important messages on OPERATOR console
- Messages scroll off the OPERATOR console too fast
- Most messages are noise and not critical to operations

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Message Filtering

> Solution:

- CA VM:Operator Routing Tables
  - Maps console messages to actions
  - Actions control how message is displayed or processed
- Additionally CA VM:Operator can
  - Filter common noise messages
  - Provide special display for important messages
- Keep critical messages on the screen

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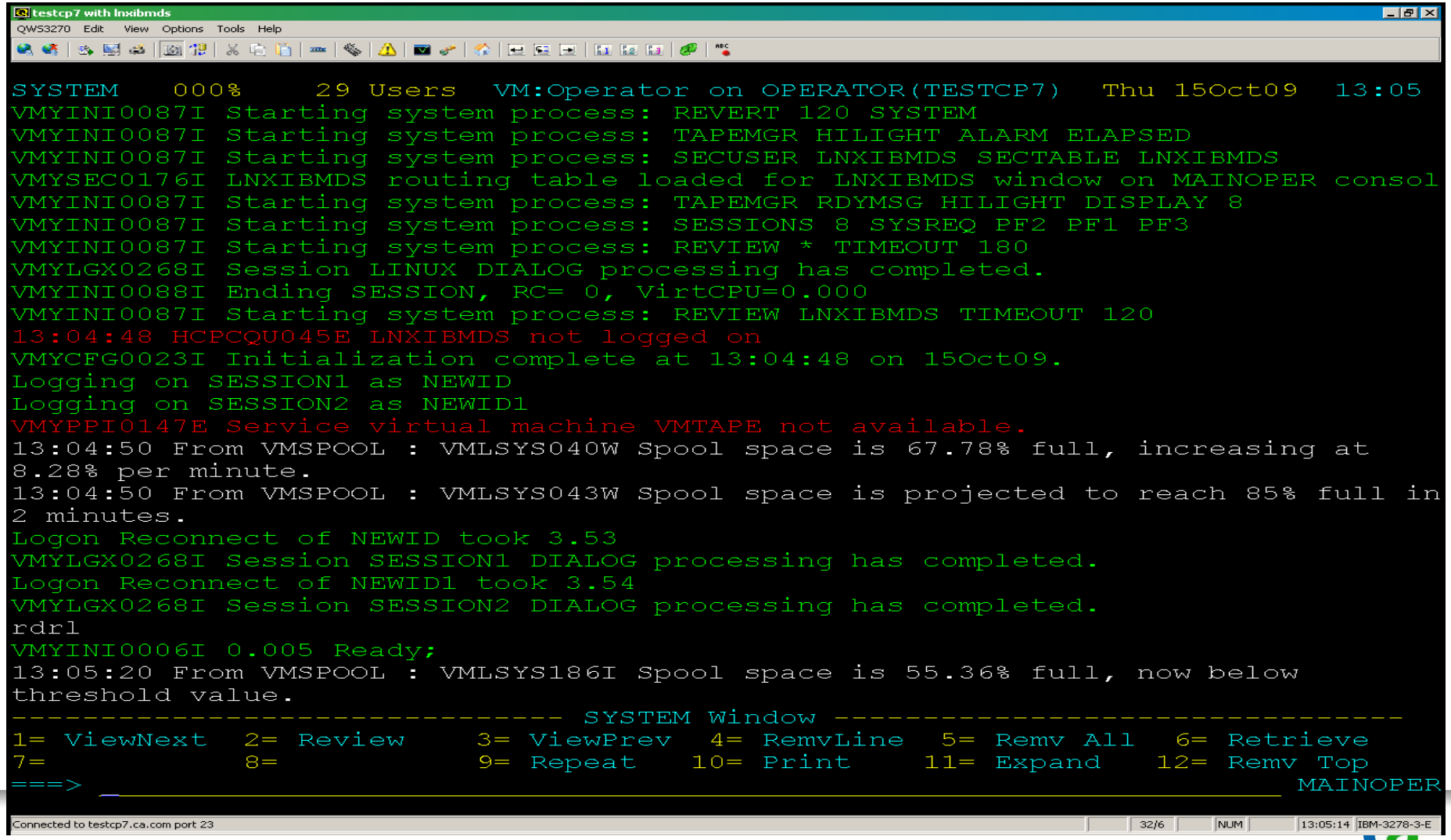
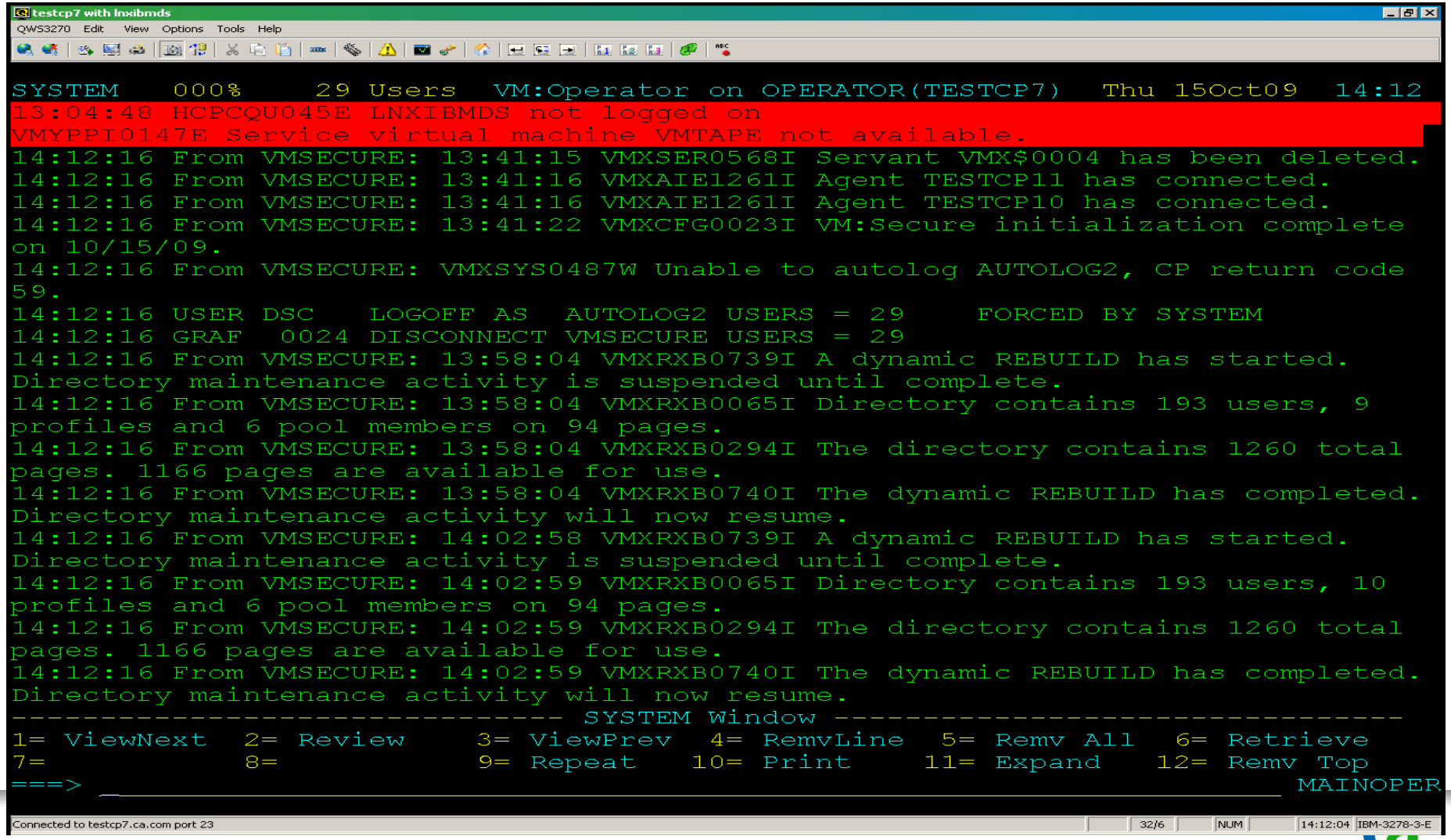
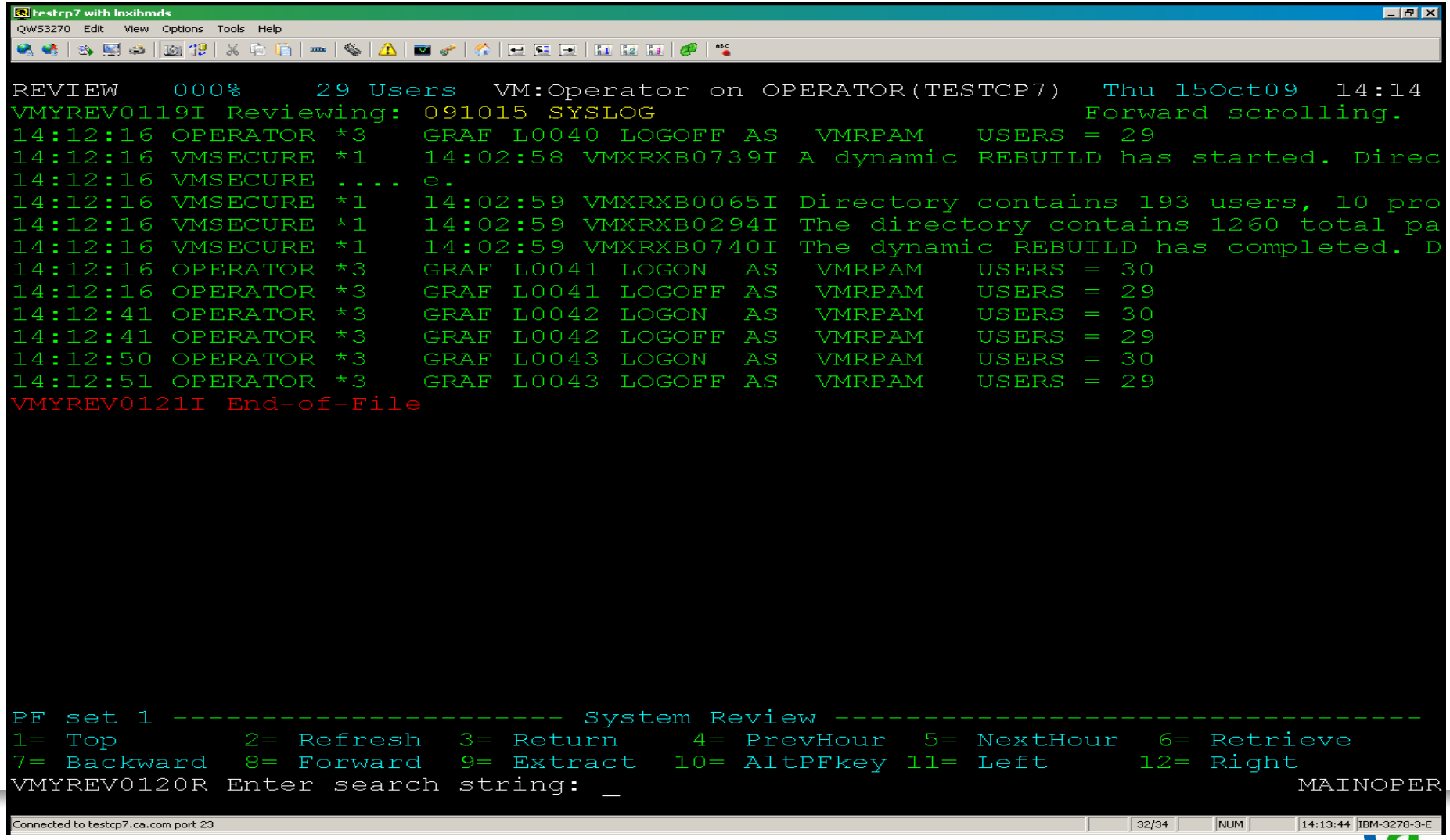
SYSTEM window showing important messages (1) in red and white



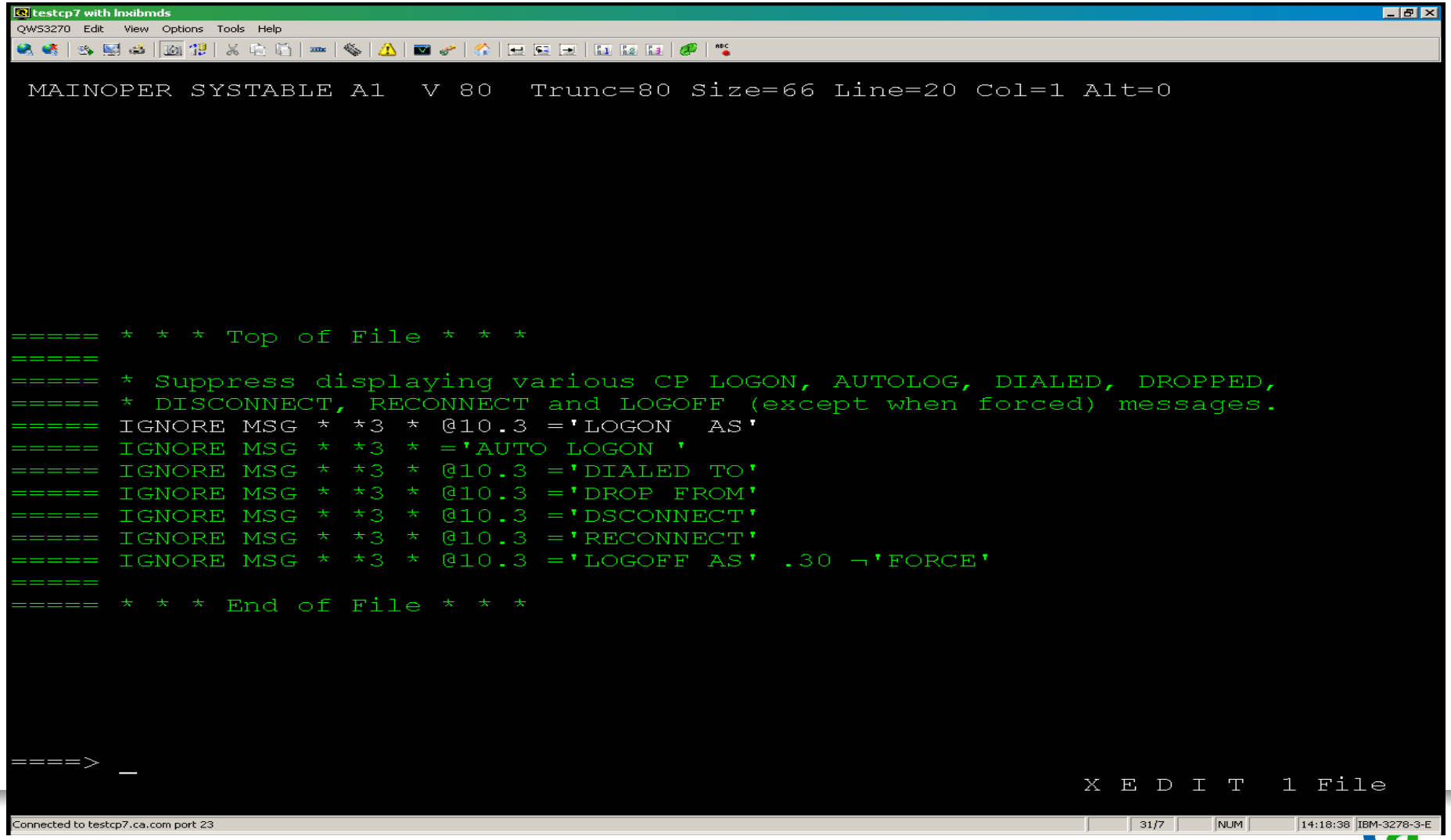
SYSTEM window showing important messages red got held, white rolled off



Review window shows LOGON/LOGOFF messages logged that are not displayed in SYSTEM window



MAINOPER SYSTABLE definitions for LOGON and LOGOFF messages



Multiple Consoles

> Challenge:

- Need for customizable console based on role
- Tape Operators need console for tape messages
- z/VM System Programmers need an OPERATOR console
- Linux Administrators need a Linux console

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Multiple Consoles

> Solution:

- With CA VM:Operator you can:
  - Define multiple consoles
  - Define what should run on the consoles
  - Define processes associated with a console
  - Define spool and printer used by the console
- Define temporary operator consoles
  - View activity and enter operator commands from own terminal
- Share common console definitions including:
  - Processes
  - Program function key settings
  - Color settings
  - Reserved window text lines
- Operator and Linux consoles discussed more in next sections

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Operator Consoles

> Challenge:

- Need to watch message activity and enter commands for several different user IDs from one console.

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Operator Consoles

> Solution:

- CA VM:Operator can simultaneously use any number of consoles
- Using CA VM:Operator, multiple windows are usually defined to run on consoles
- Using CA VM:Operator SECUSER windows, monitor and control activity on disconnected virtual machines

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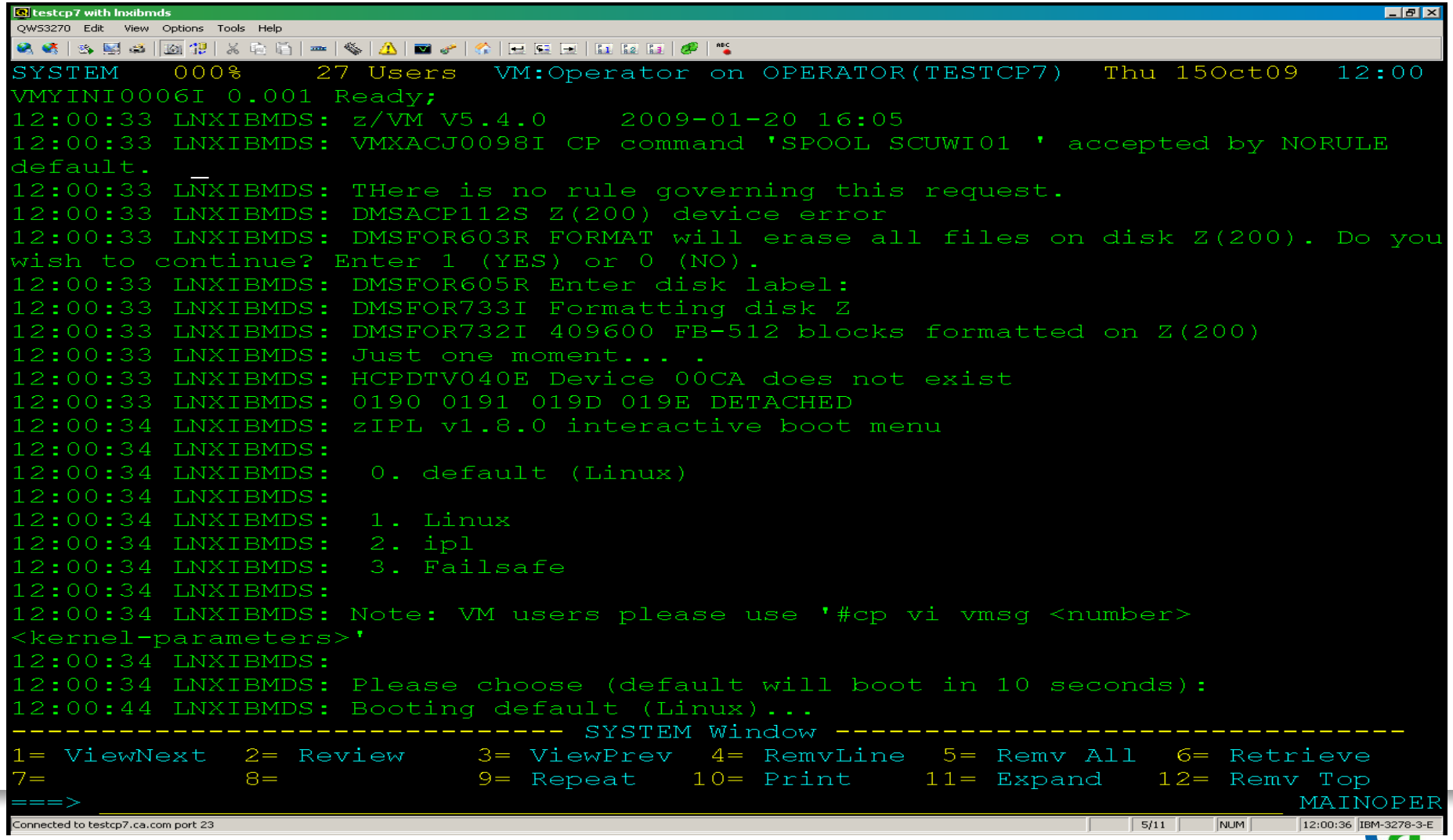
SYSTEM window showing Linux startup messages



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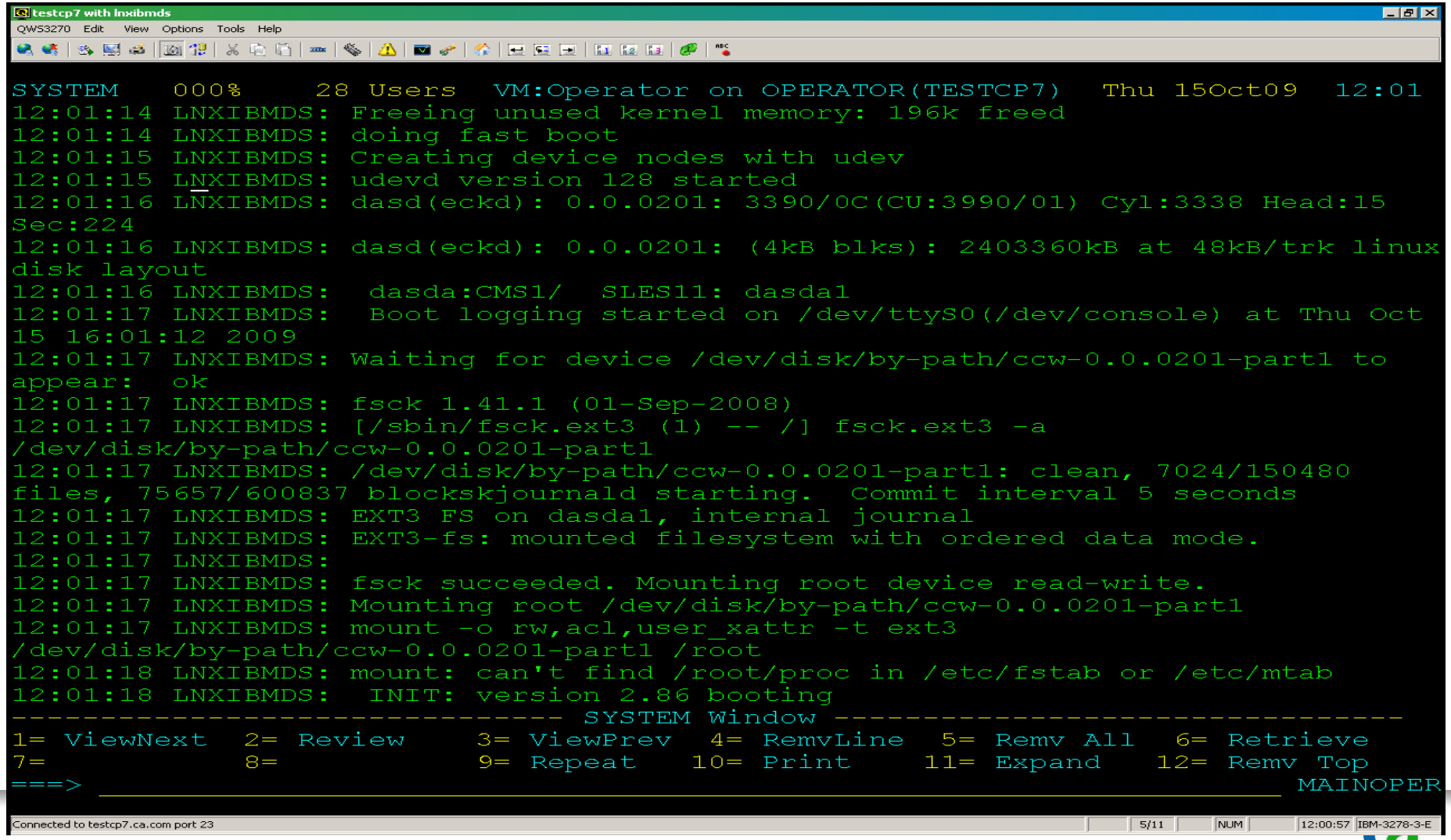
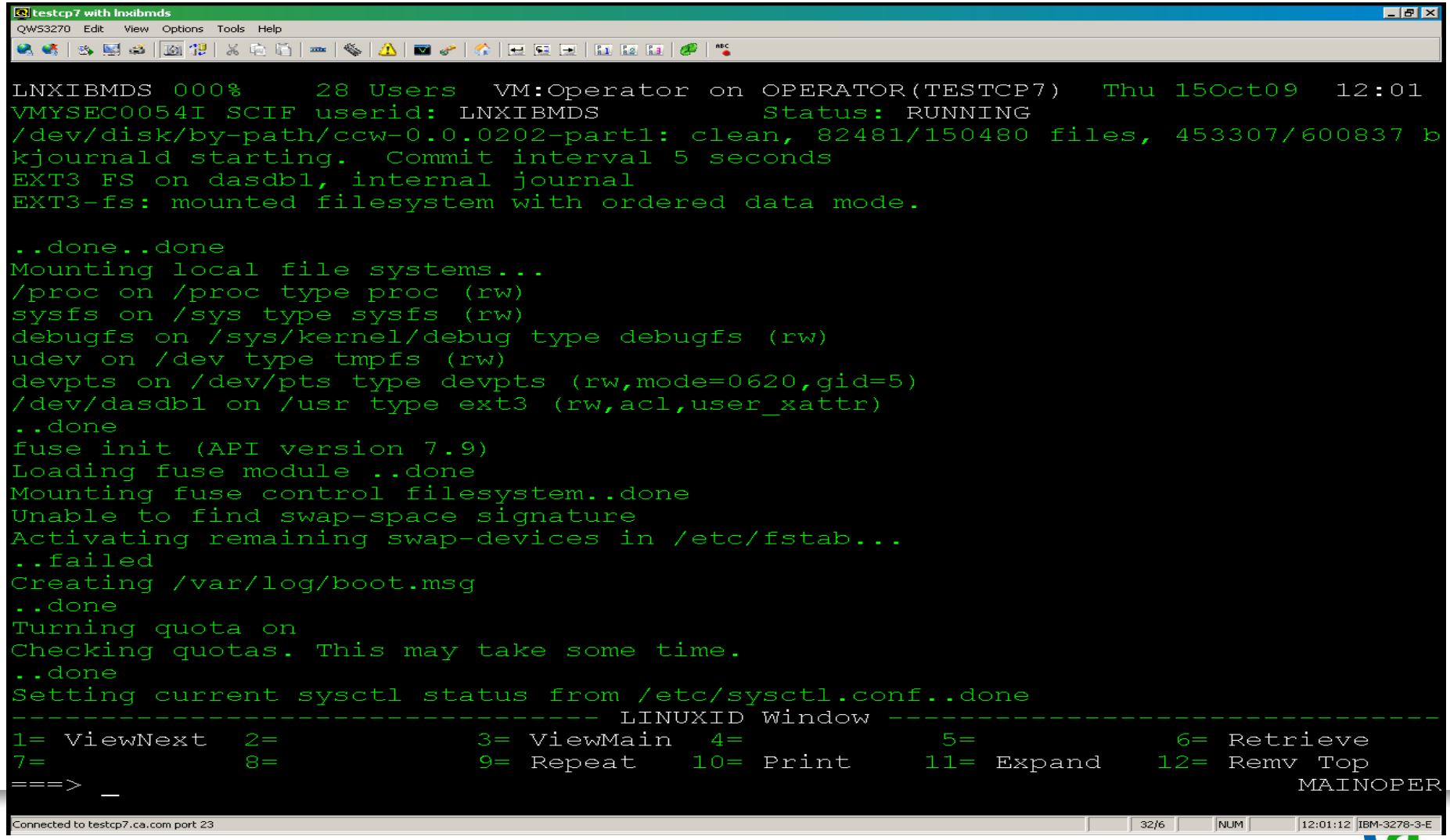


SECUSER window showing Linux startup messages



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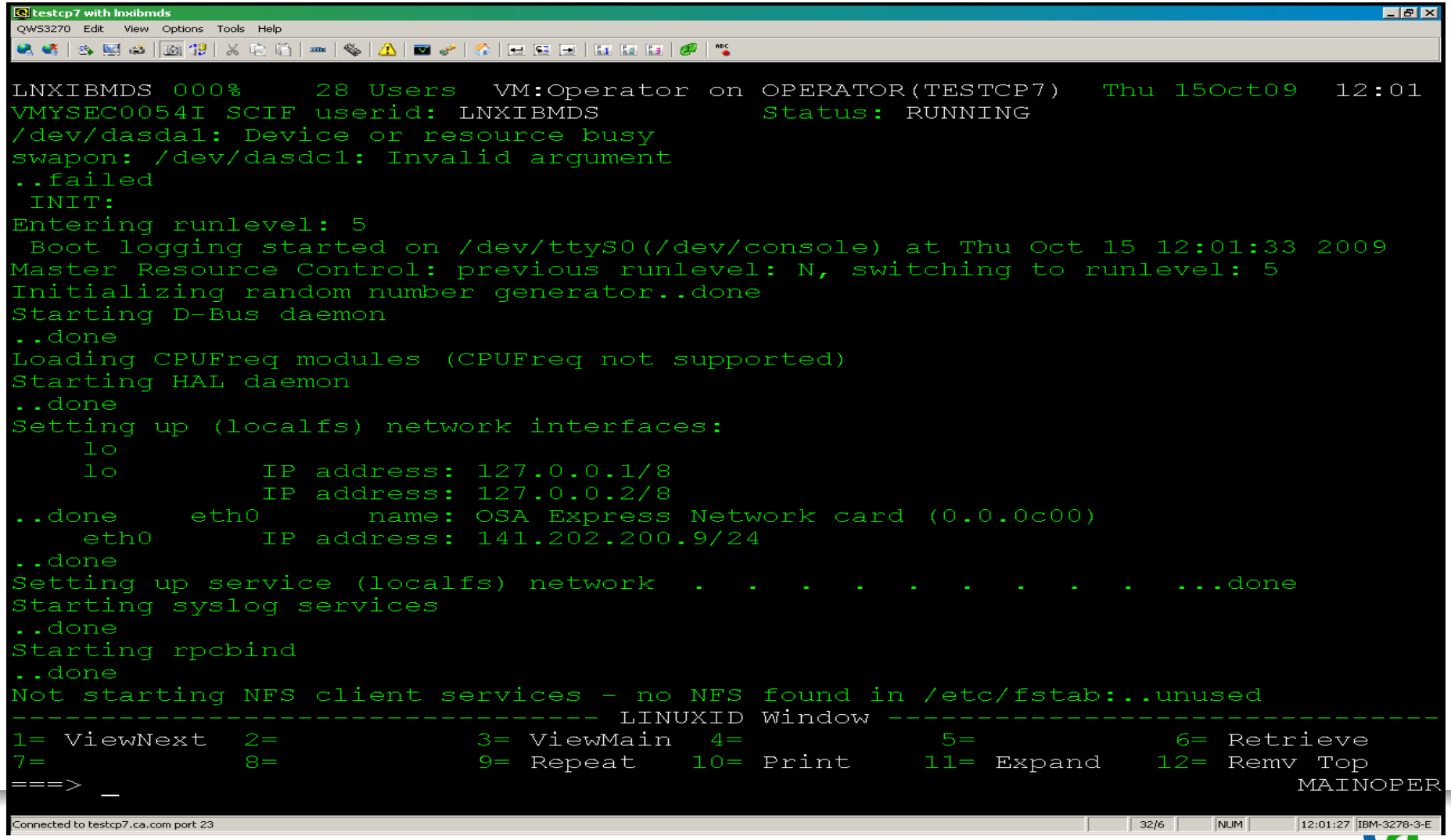

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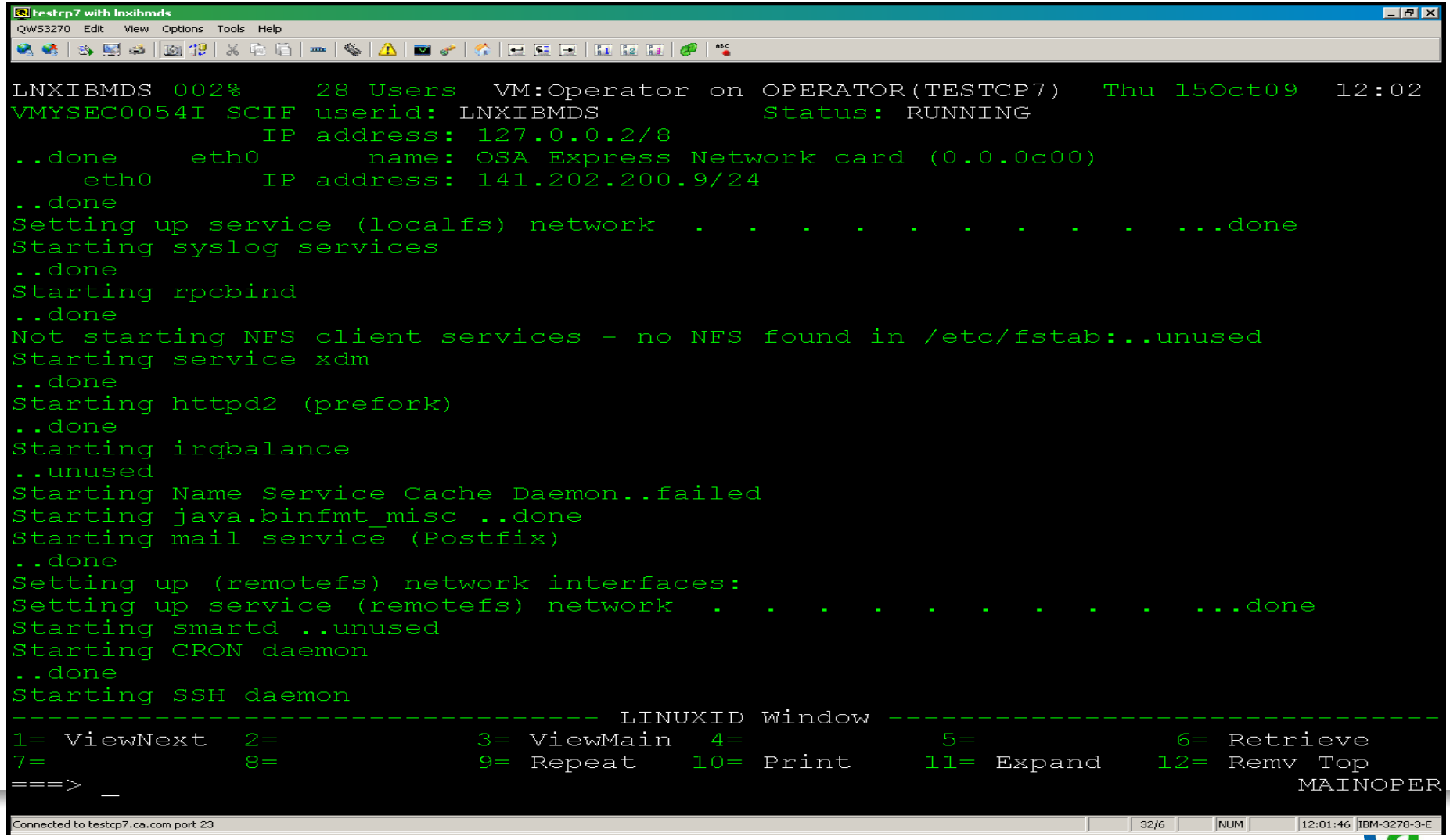

Linux Consoles

> Challenge:

- Need to view console activity for Linux guests
- Need to enter commands to Linux guests
- Need to login to a Linux user IDs without revealing passwords on screen or system log

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Linux Consoles

> Solution:

- Use CA VM:Operator SECUSER windows to manage your disconnected Linux guest
- Send commands to disconnected Linux machines
- When a SECUSER window is defined for a Linux virtual machine, you can login to root or other Linux user
- SECUSER windows can suppress password display and logging

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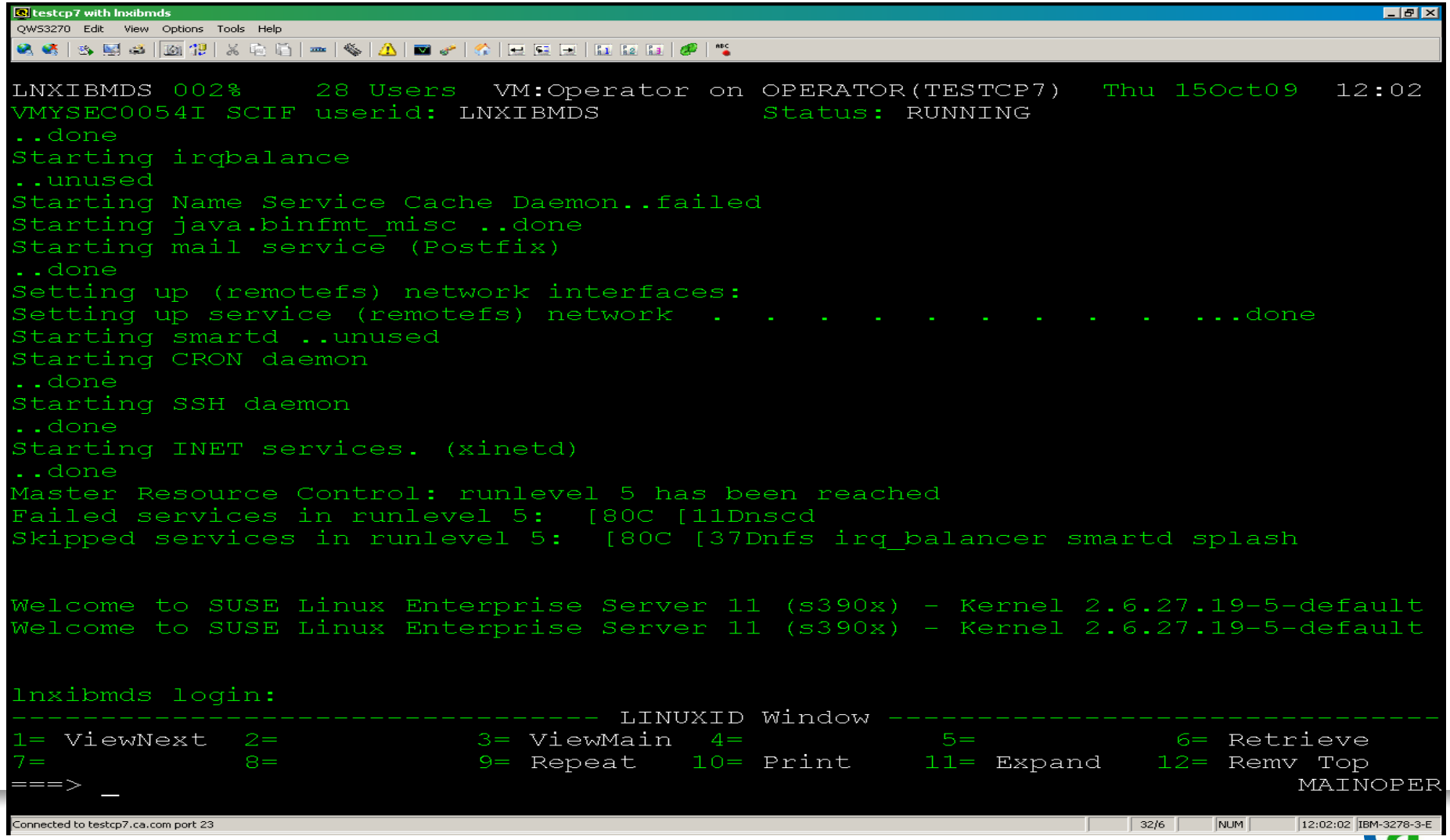
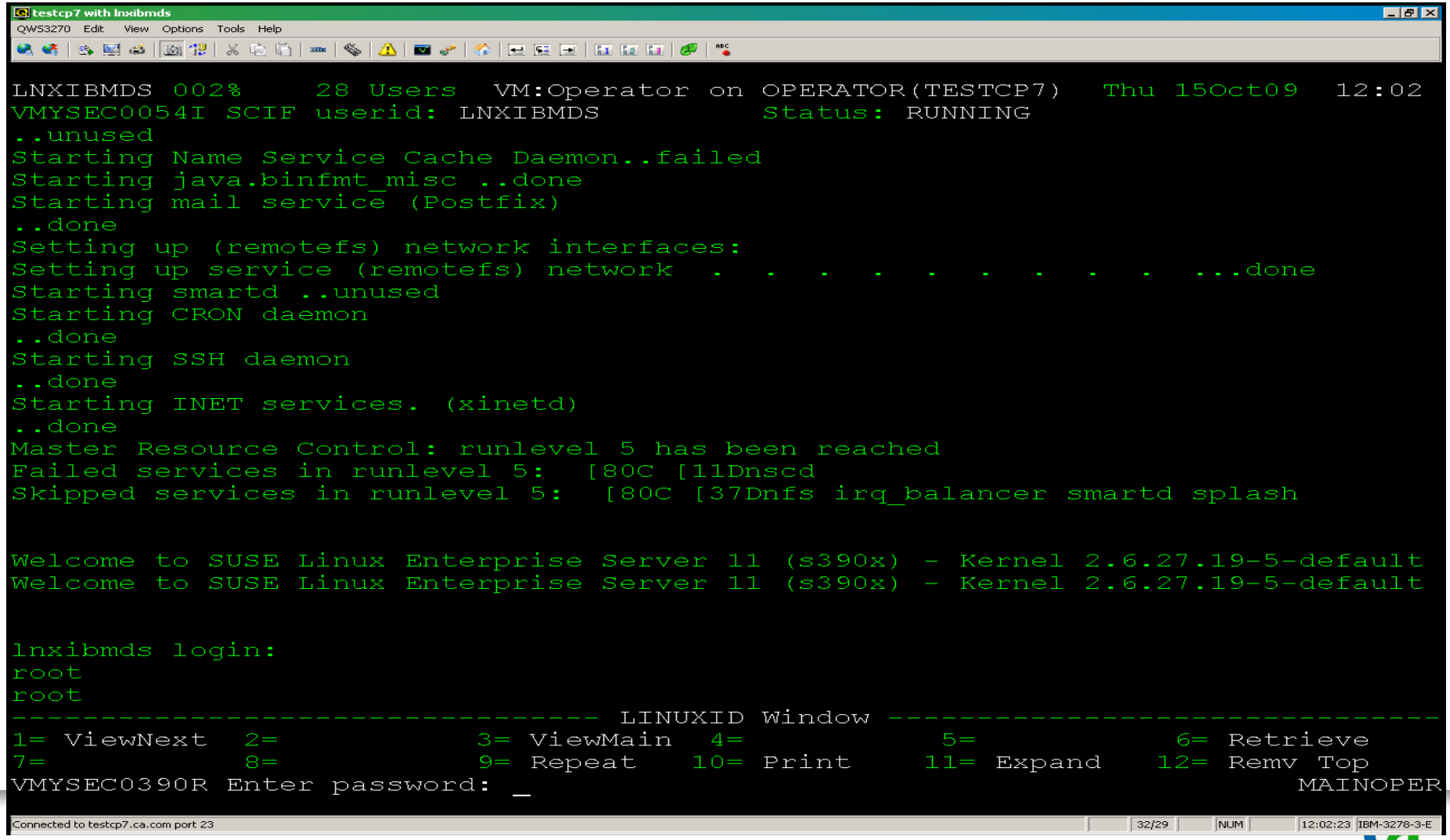
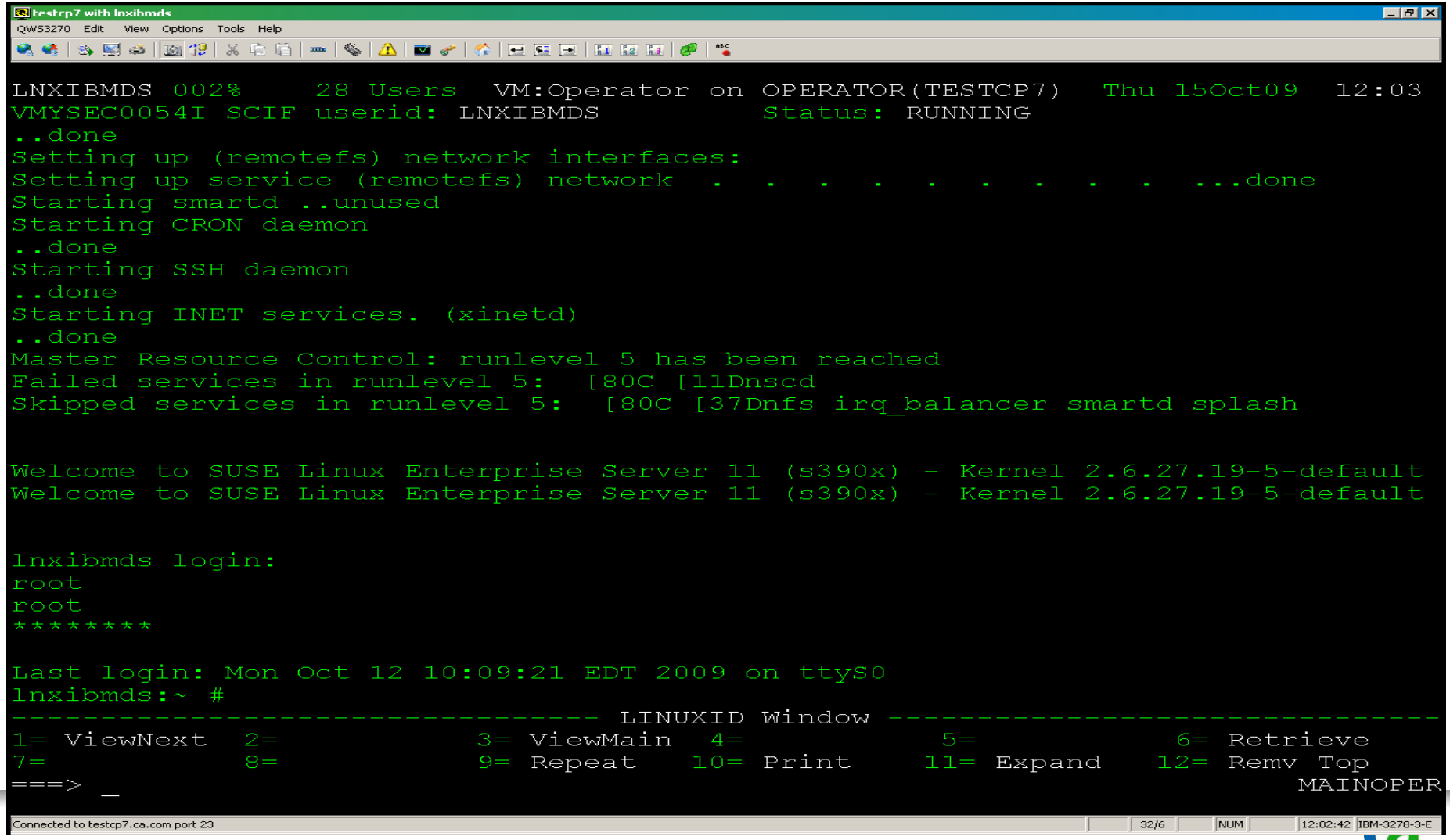
SECUSER window showing Linux startup messages at initial Login:



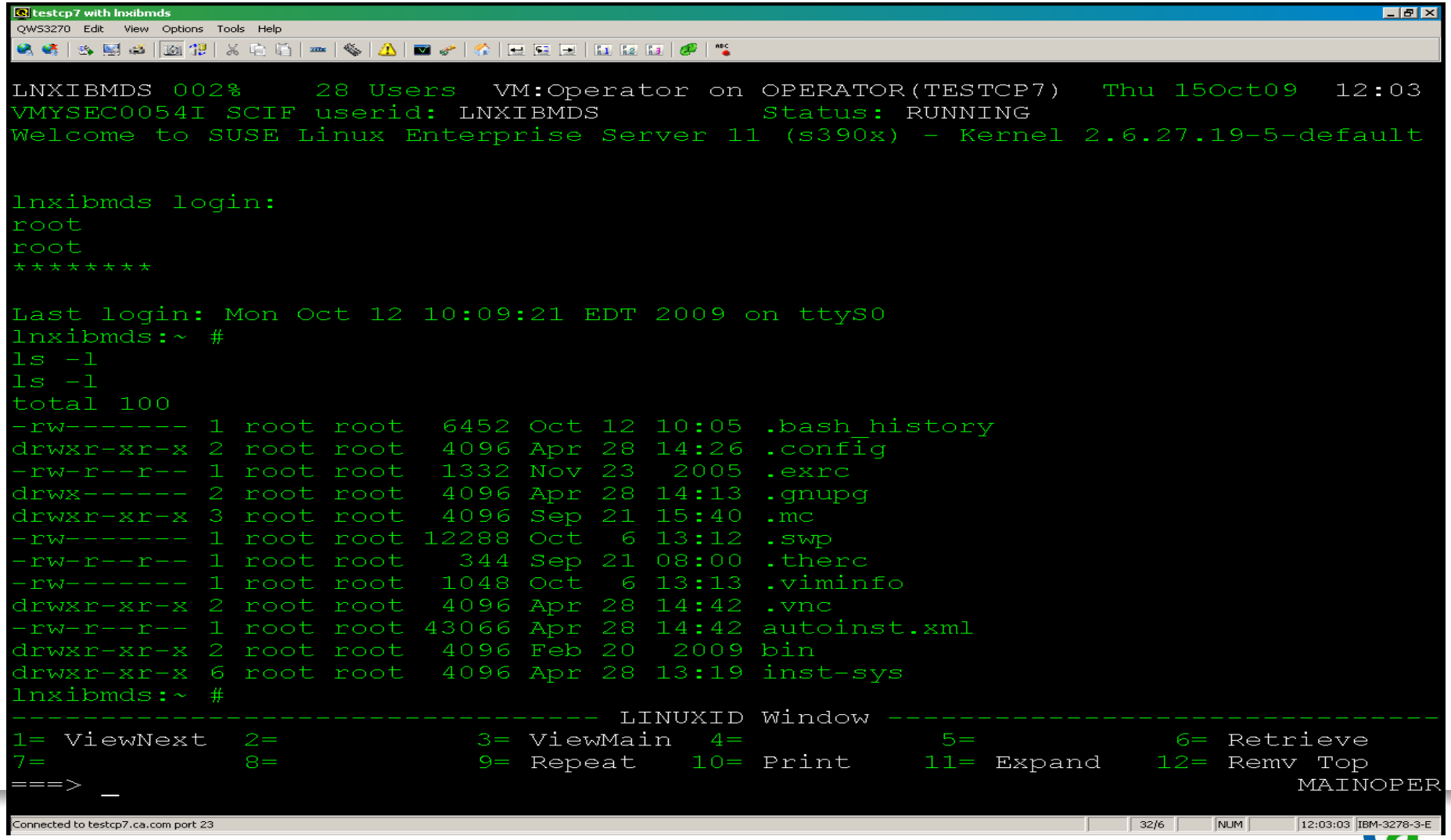
SECUSER window for Linux ID: Logging into root with VM:Operator password prompt



SECUSER window for Linux ID: Logging into root Password masked with *****



SECUSER window for Linux ID: Entering Linux command on root



Temporary Operator Consoles

> Challenge:

- System Programmers spread across the country and they need to access the system console
- Cost prohibitive and impractical for systems programmers to go the data center
- Doesn’t make sense to hire systems programmers that are located locally

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Temporary Operator Consoles

> Solution:

- CA VM:Operator's 'I AM OPERATOR' (VMYIAMOP)
  - View activity and issue operator commands
  - No need to go to data center
- Provides access to all CA VM:Operator windows from CMS user console
- All commands and responses recorded in system log

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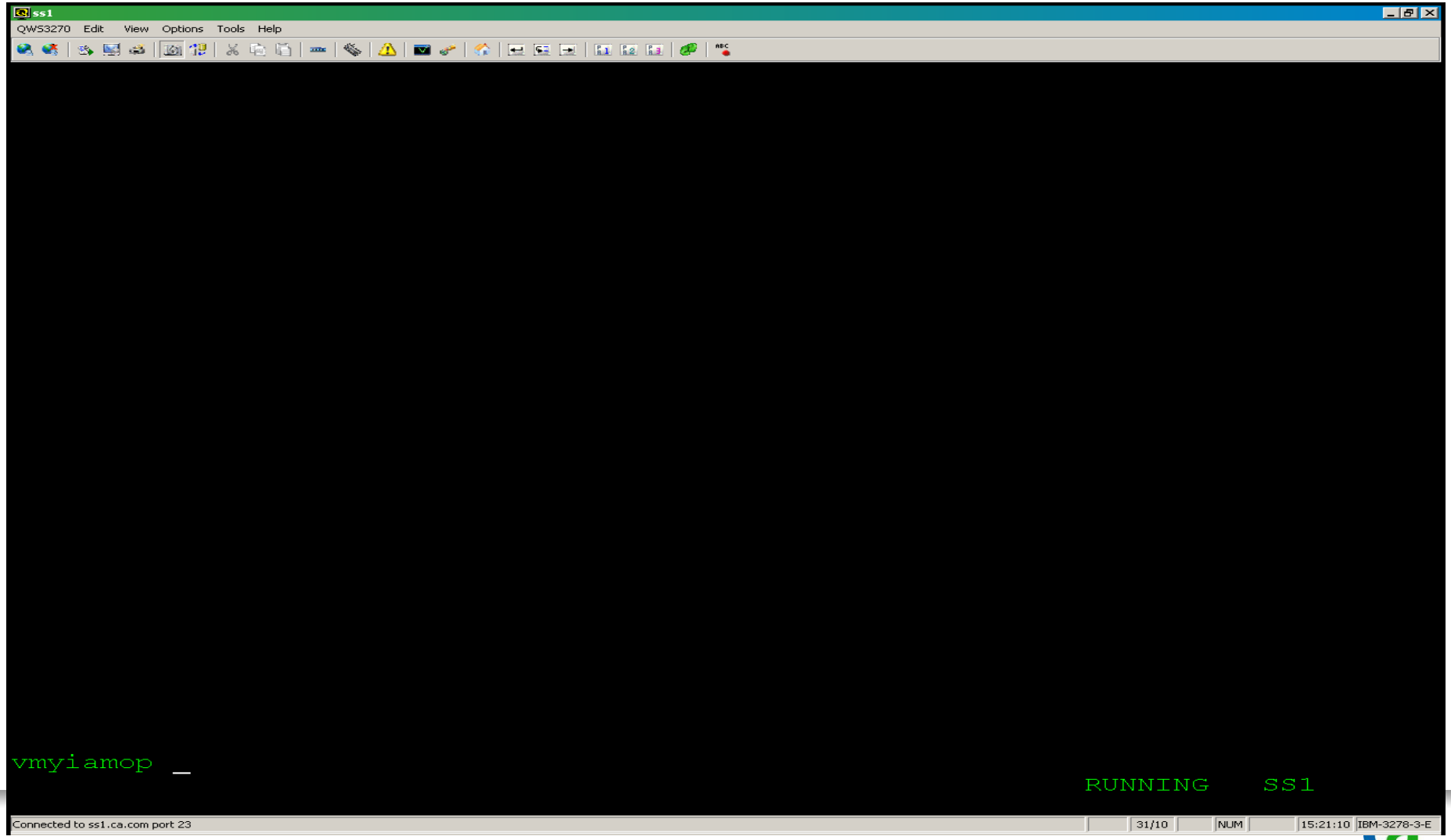
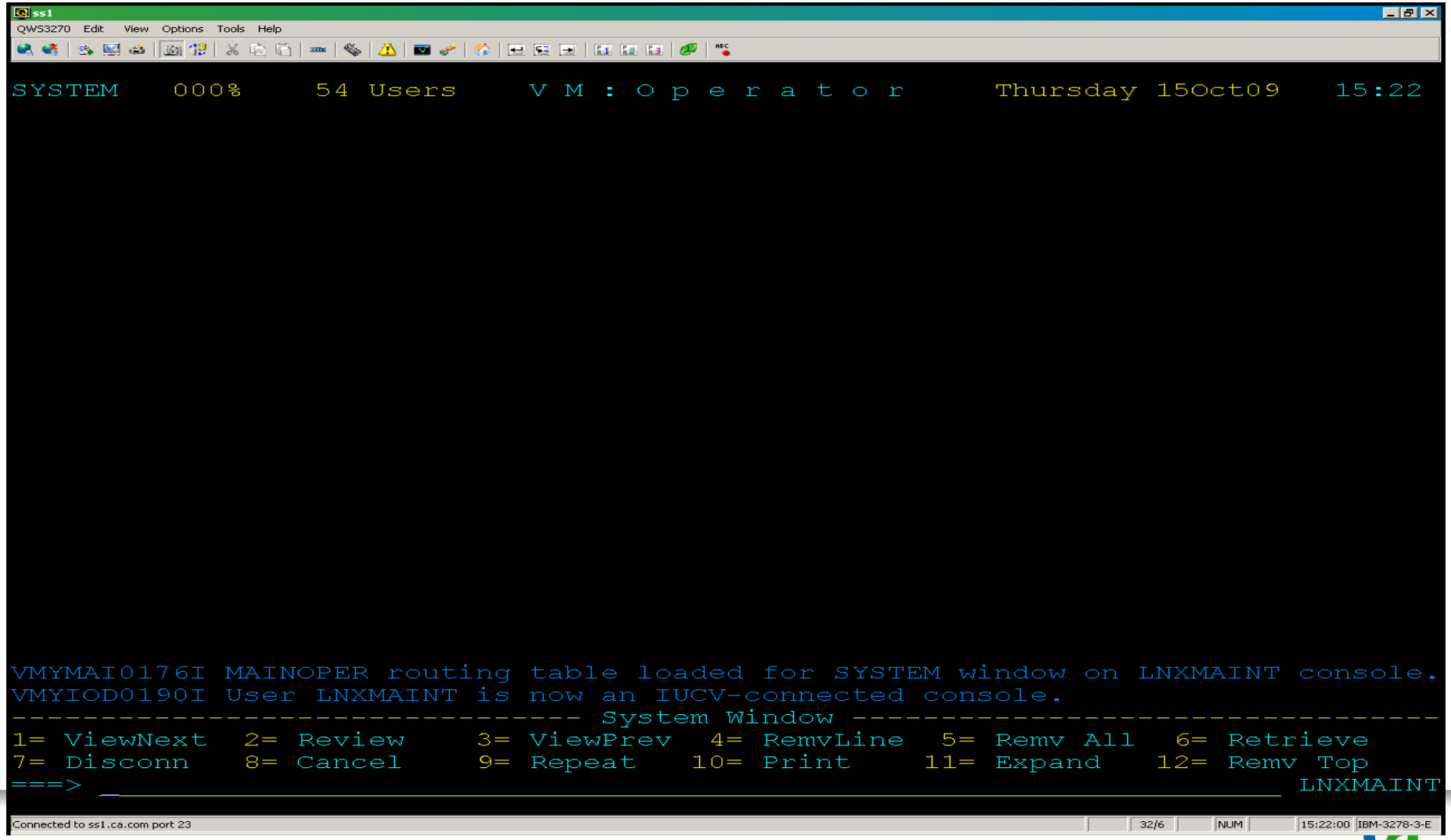
I AM OPERATOR (VMYIAMOP)



I AM OPERATOR



Automation

> Challenge:

- Need for z/VM and Linux automation
  - Take automated action or response for events
- Need to automate repetitive tasks
  - Eliminate human error
- Notification such as emails for serious events
  - Linux guest unexpectedly reboots
  - Disk space fills up because a mail queue on Linux was not cleared
  - Denial-of-service attack has been detected
  - Backup failed
  - Tape mount was never satisfied

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Automation

> Solution:

- CA VM:Operator Action Routines
- Action routines perform a specific action when a message is received
  - routines can be REXX EXECs, macros, modules, etc.
- These routines can:
  - issue commands (CP, CMS, Linux, email, etc)
  - trap and examine messages
  - perform a variety of complex functions
  - spawn or call other action routines
- Action routines complete z/VM and Linux automation

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Access Multiple Sessions

> Challenge:
  - Need to logon to a user ID from my z/VM 3270 session.
  - Need to log on and off many user IDs
  - Impractical to use a 3270 emulator window for each user ID

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Access Multiple Session

> Solution:

- CA VM:Operators's Session Support Facility provides access to multiple user IDs or 3270 applications from a single console
- Prevents having to use another terminal
- The Session Support Facility lets you:
  - Switch between sessions just by pressing a PF key or issuing a command
  - Notify operators of important messages received on a session
  - Watch events occurring on a session being displayed on another console
  - Simulate actions of keyboard and control session without human intervention
  - Run commands on another session that may be disruptive to operator console

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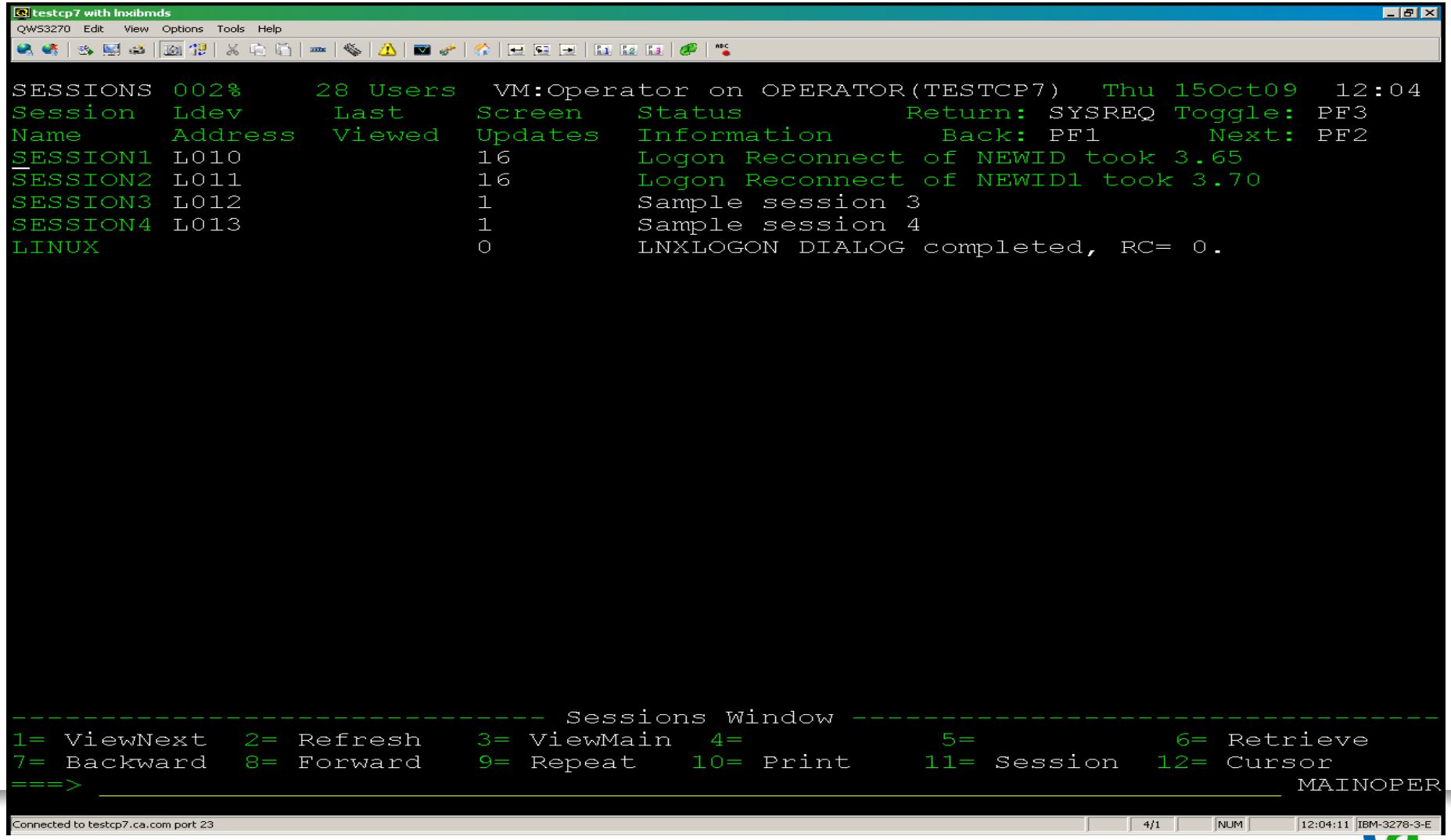
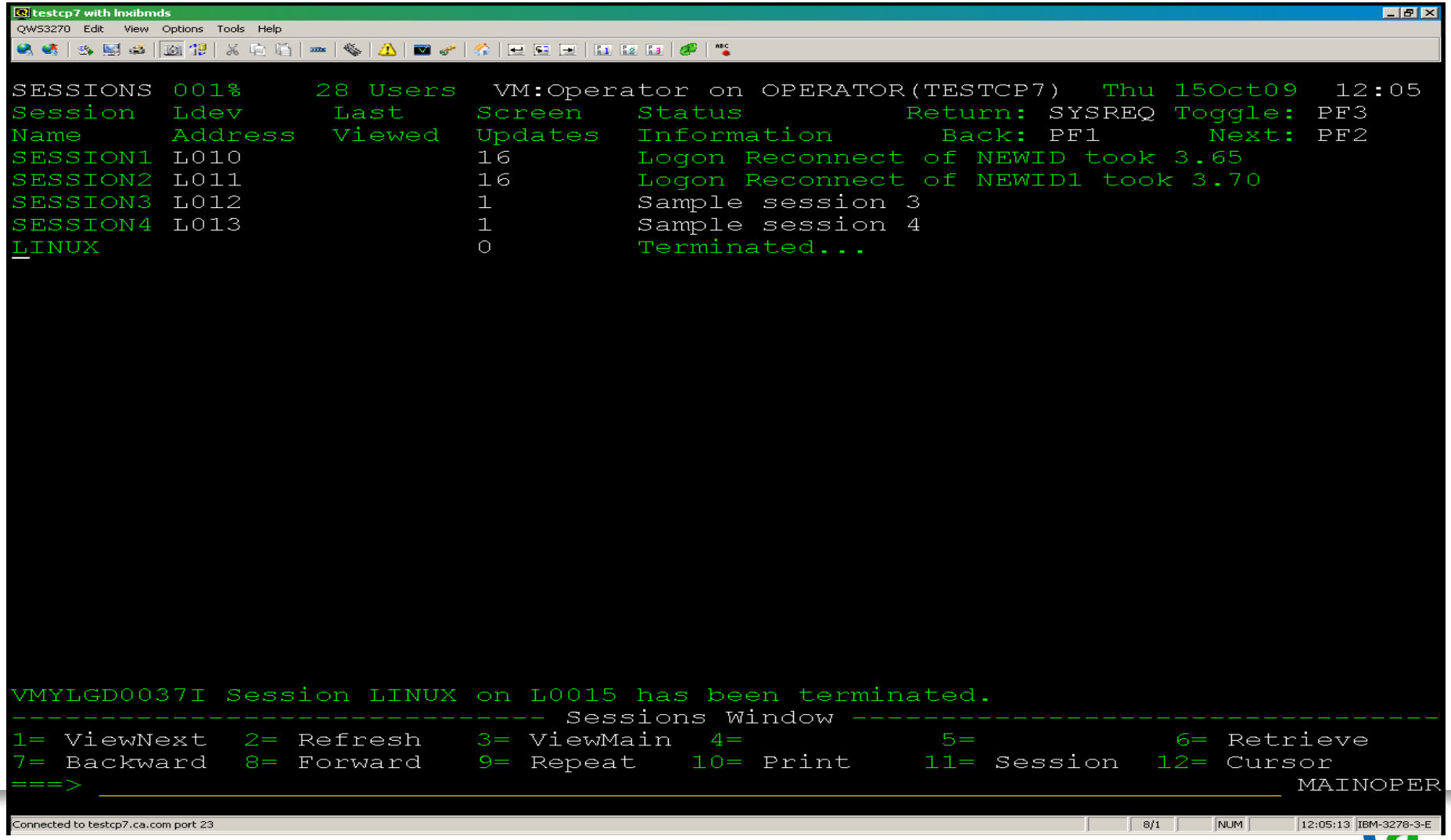
SESSIONS screen



SESSIONS screen



Linux Syslogd and Syslog-ng Support

> Challenge:

- Need to consolidate messages from SYSLOGD, SYSLOG-NG and z/VM into a single log
- Need messages stored on Linux or z/VM
- Need proper formatting of messages

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Linux Syslogd and Syslog-ng Support

> Solution:

- CA VM:Operator can interoperate with the Linux SYSLOGD or SYSLOG-NG
- CA VM:Operator can send selected messages to a specific Linux host running a central collecting SYSLOGD
- CA VM:Operator acts as a SYSLOGD collector by receiving SYSLOGD or SYSLOG-NG messages from other Linux hosts
- Messages are modified to conform to CA VM:Operator formatting standards

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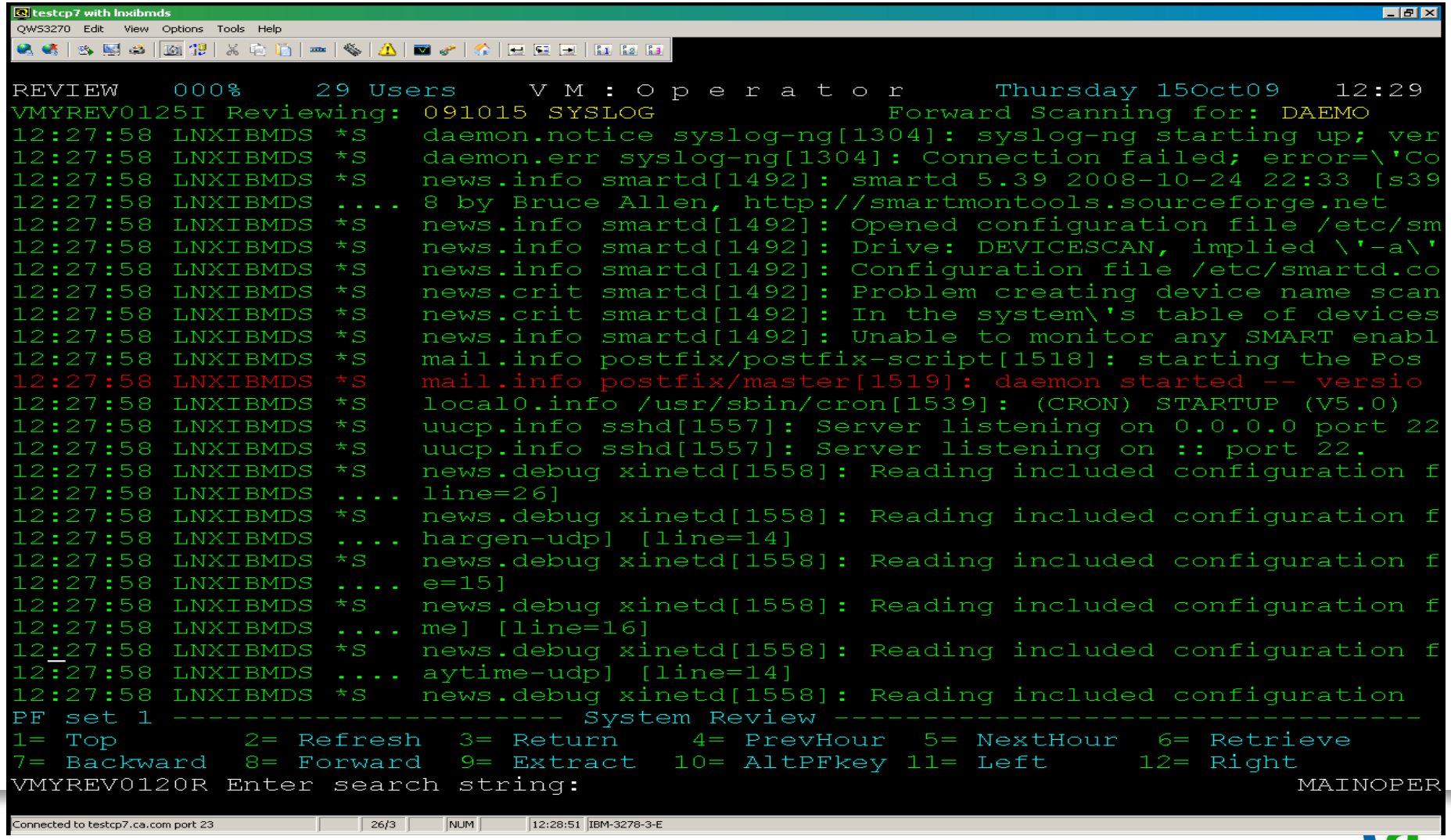
Review window showing syslog-ng messages collected by VM:Operator



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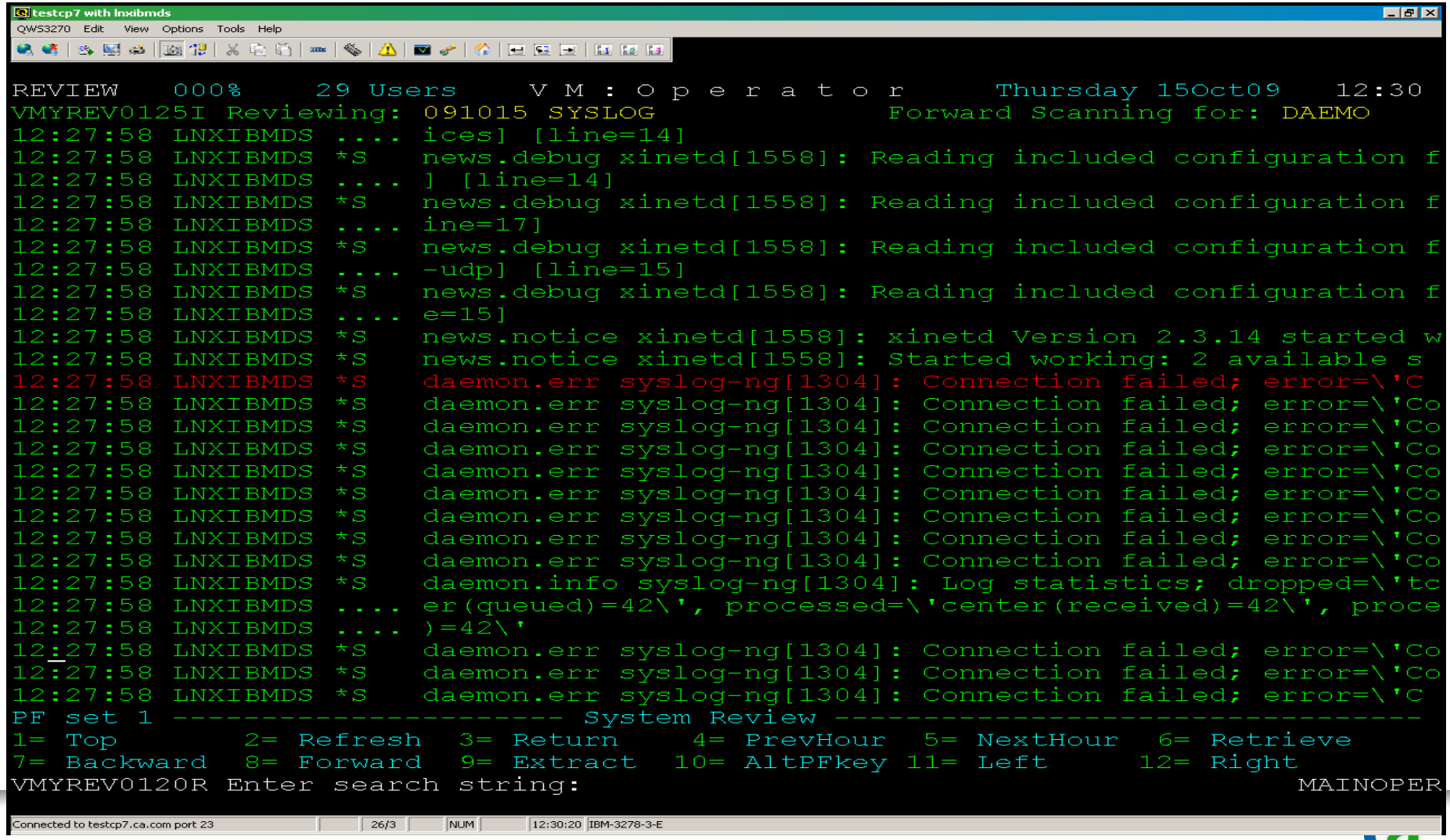

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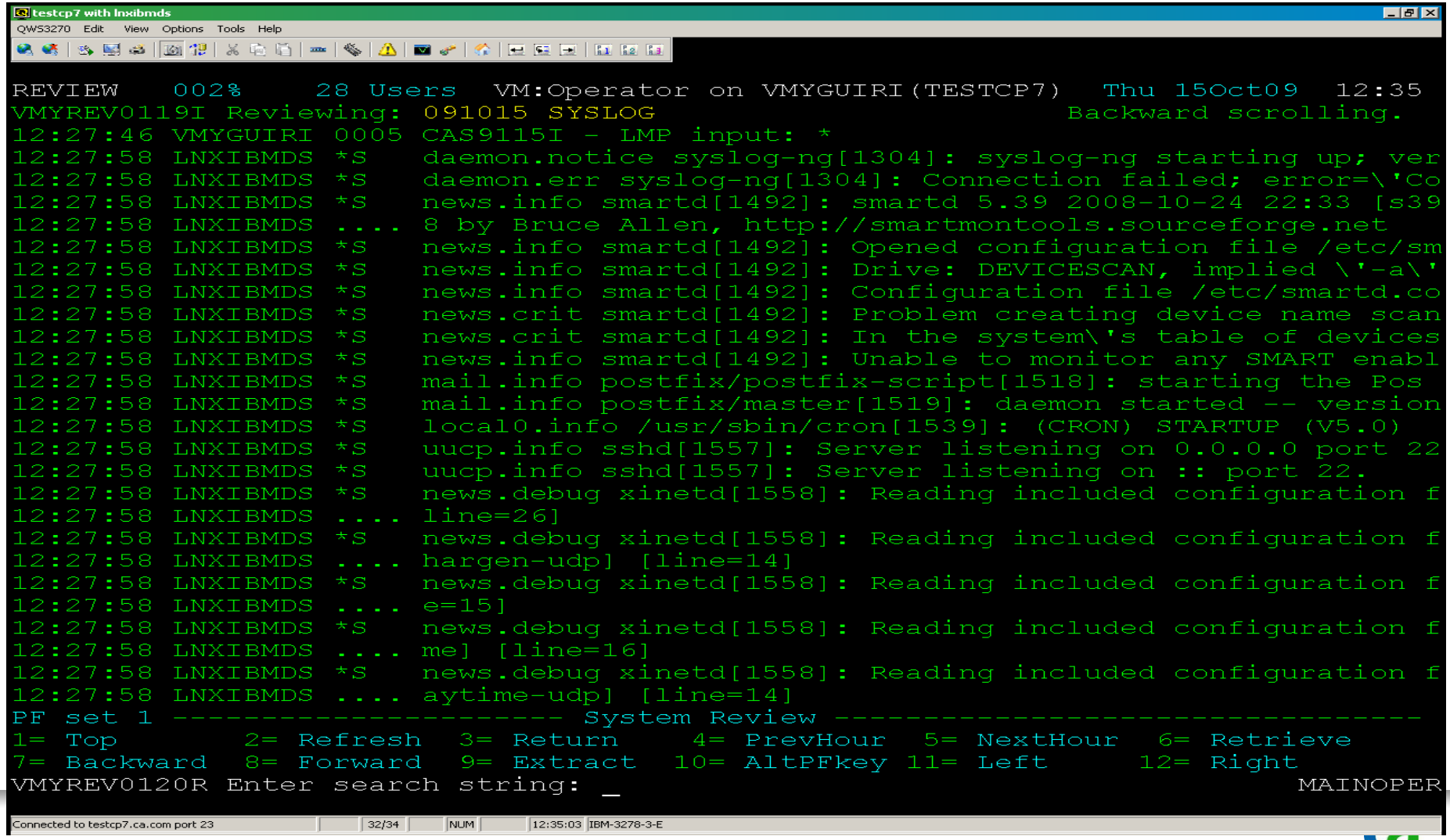

Remote z/VM Systems

> Challenge:

- Need to issue operator commands to a number of remote z/VM systems
- Need to issue remote operator commands at the same time
- Need to issue remote operator commands from one place
- Need to route messages to remote systems

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Remote z/VM Systems

> Solution:

- Remote CA VM:Operator Support (RVS) can issue commands on remote z/VM systems
- Commands respond and behave as if they are being issued locally
- Messages can be routed to specific CA VM:Operator systems for processing

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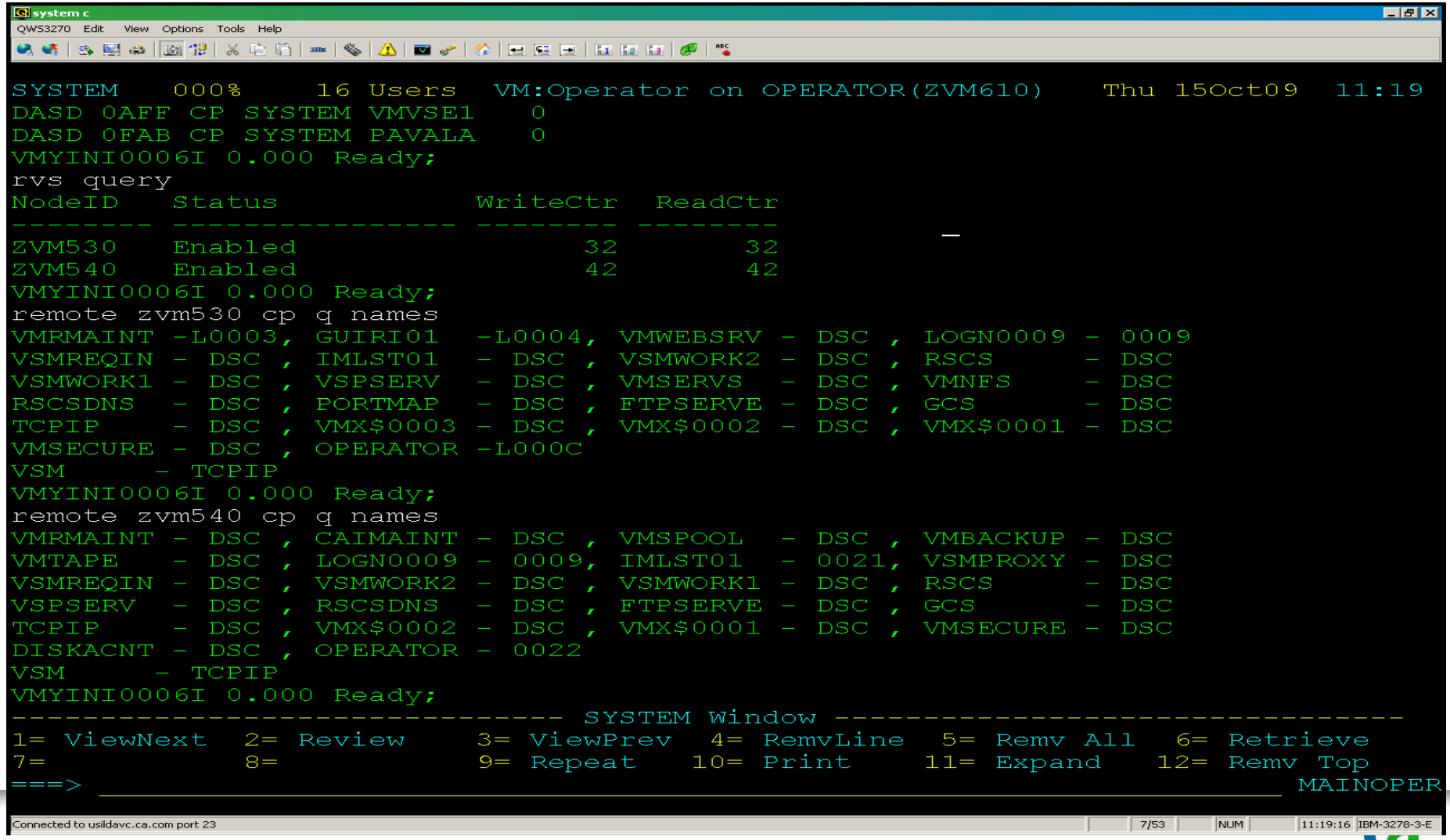
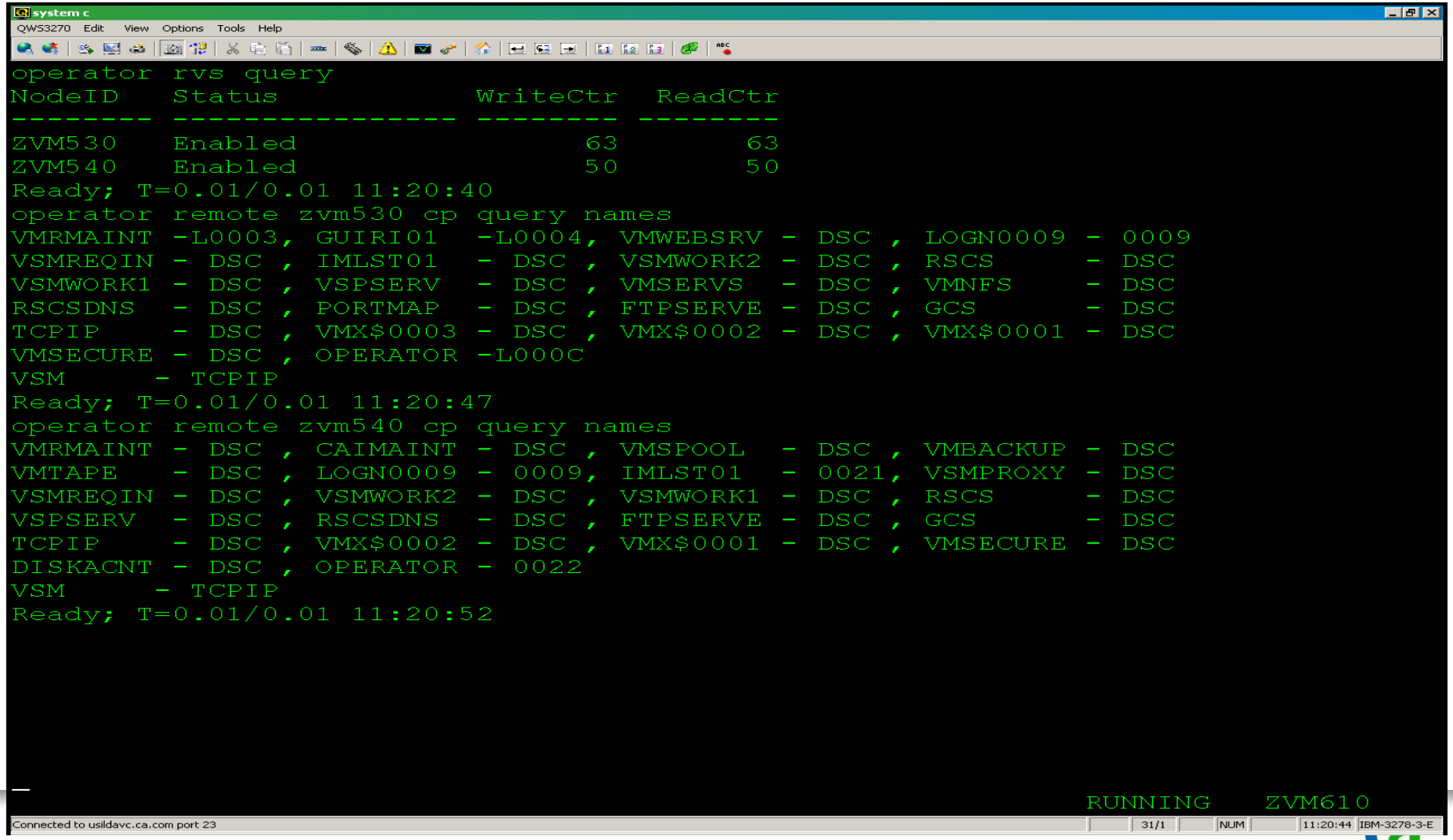
RVS: REMOTE command from CA VM:Operator SYSTEM WINDOW



Using REMOTE commands from a user



Conclusion

VM:Operator™ DELIVERS

> Increased Productivity

> Increased Efficiency

> Improved Auditablity

Event Automation for z/VM and Linux

PROVEN TECHNOLOGY

> Automated Actions

> Message Filtering

> Multiple Consoles

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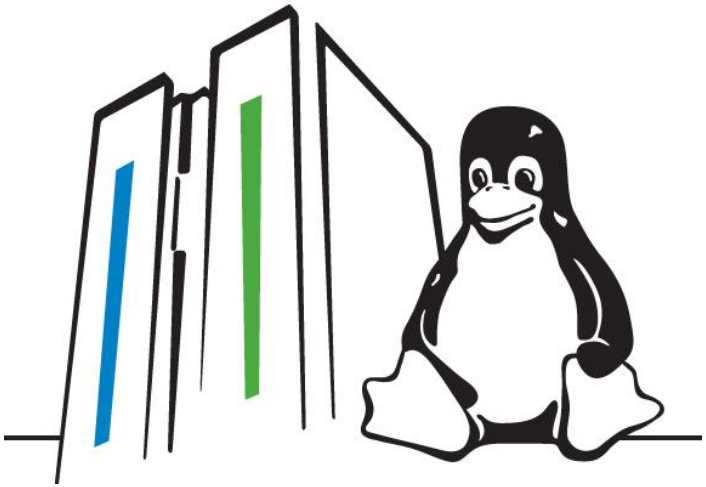
Questions and Answers



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