

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

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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

# 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

# SYSLOG disk kept at 99%

```
system c
QW53270 Edit View Options Tools Help
link operator 1d0 1d0 rr
VMXACJ0171I CP command 'LINK OPERATOR 1D0 RR '
VMXACJ0172I Accepted via system rule: ACCEPT GUIRI01 LINK * * (NOPASS
DASD 01D0 LINKED R/O; R/W BY OPERATOR
Ready;
acc 1d0 b
DMSACP723I B (1D0) R/O
Ready;
q disk b
LABEL VDEV M STAT CYL TYPE BLKSZ FILES BLKS USED-(%) BLKS LEFT BLK TOTAL
VMY1D0 1D0 B R/O 3 3390 4096 104 536-99 4 540
Ready;
```

RUNNING ZVM610

Connected to usildavc.ca.com port: 23

31/1 NUM 14:32:23 IBM-3278-3-E



# SYSLOG files reside on OPERATOR 1D0

```
System c
QW53270 Edit View Options Tools Help

link operator 1d0 1d0 rr
VMXACJ0171I CP command 'LINK OPERATOR 1D0 RR '
VMXACJ0172I Accepted via system rule: ACCEPT GUIRI01 LINK * * (NOPASS
DASD 01D0 LINKED R/O; R/W BY OPERATOR
Ready;
acc 1d0 b
DMSACP723I B (1D0) R/O
Ready;
list * * b (d
FILENAME FILETYPE FM FORMAT LRECL RECS BLOCKS DATE TIME
090604 SYSLOG B1 F 4096 12 12 6/05/09 0:00:00
090605 SYSLOG B1 F 4096 6 6 6/05/09 14:05:37
090607 SYSLOG B1 F 4096 3 3 6/08/09 0:00:00
090608 SYSLOG B1 F 4096 1 1 6/09/09 0:00:00
090609 SYSLOG B1 F 4096 2 2 6/10/09 0:00:00
090610 SYSLOG B1 F 4096 3 3 6/11/09 0:00:00
090611 SYSLOG B1 F 4096 4 4 6/12/09 0:00:03
090612 SYSLOG B1 F 4096 6 6 6/12/09 14:31:02
090614 SYSLOG B1 F 4096 4 4 6/15/09 0:00:00
090615 SYSLOG B1 F 4096 1 1 6/16/09 0:00:00
090616 SYSLOG B1 F 4096 12 12 6/17/09 0:00:00
090617 SYSLOG B1 F 4096 13 13 6/18/09 0:00:00
090618 SYSLOG B1 F 4096 3 3 6/19/09 0:00:00
090619 SYSLOG B1 F 4096 3 3 6/20/09 0:00:00
090621 SYSLOG B1 F 4096 3 3 6/22/09 0:00:04
090622 SYSLOG B1 F 4096 3 3 6/23/09 0:00:00
090623 SYSLOG B1 F 4096 3 3 6/24/09 0:00:00
090624 SYSLOG B1 F 4096 1 1 6/25/09 0:00:00
090625 SYSLOG B1 F 4096 6 6 6/26/09 0:00:01
090626 SYSLOG B1 F 4096 1 1 6/27/09 0:00:00

HOLDING ZVM610
```



# SYSLOG files reside on OPERATOR 1D0

ID	SYSLOG	B1	F	4096	Count 1	Count 2	Date	Time
090629	SYSLOG	B1	F	4096	4	4	6/30/09	0:00:00
090630	SYSLOG	B1	F	4096	1	1	7/01/09	0:00:00
090701	SYSLOG	B1	F	4096	1	1	7/02/09	0:00:00
090702	SYSLOG	B1	F	4096	1	1	7/03/09	0:00:01
090703	SYSLOG	B1	F	4096	1	1	7/04/09	0:00:00
090706	SYSLOG	B1	F	4096	4	4	7/07/09	0:00:02
090707	SYSLOG	B1	F	4096	1	1	7/08/09	0:00:00
090708	SYSLOG	B1	F	4096	2	2	7/09/09	0:00:00
090709	SYSLOG	B1	F	4096	3	3	7/10/09	0:00:00
090710	SYSLOG	B1	F	4096	2	2	7/11/09	0:00:01
090712	SYSLOG	B1	F	4096	4	4	7/13/09	0:00:00
090713	SYSLOG	B1	F	4096	1	1	7/14/09	0:00:01
090714	SYSLOG	B1	F	4096	11	11	7/14/09	16:09:02
090715	SYSLOG	B1	F	4096	3	3	7/16/09	0:00:00
090716	SYSLOG	B1	F	4096	1	1	7/17/09	0:00:02
090717	SYSLOG	B1	F	4096	1	1	7/18/09	0:00:00
090720	SYSLOG	B1	F	4096	22	22	7/21/09	0:00:00
090721	SYSLOG	B1	F	4096	36	36	7/22/09	0:00:00
090722	SYSLOG	B1	F	4096	63	63	7/23/09	0:00:00
090723	SYSLOG	B1	F	4096	1	1	7/24/09	0:00:00
090724	SYSLOG	B1	F	4096	1	1	7/25/09	0:00:00
090727	SYSLOG	B1	F	4096	4	4	7/28/09	0:00:01
090728	SYSLOG	B1	F	4096	1	1	7/29/09	0:00:00
090729	SYSLOG	B1	F	4096	1	1	7/30/09	0:00:01
090730	SYSLOG	B1	F	4096	1	1	7/31/09	0:00:00
090731	SYSLOG	B1	F	4096	1	1	8/01/09	0:00:00
090803	SYSLOG	B1	F	4096	4	4	8/04/09	0:00:00
090804	SYSLOG	B1	F	4096	1	1	8/05/09	0:00:01
090805	SYSLOG	B1	F	4096	17	17	8/06/09	0:00:00
090806	SYSLOG	B1	F	4096	17	17	8/07/09	0:00:00

HOLDING ZVM610

Connected to usildavc.ca.com port 23

31/1 NUM 14:27:39 IBM-3278-3-E

# SYSLOG files reside on OPERATOR 1D0

```
system c
QW53270 Edit View Options Tools Help

090807  SYSLOG  B1 F  4096  4  4  8/08/09  0:00:00
090810  SYSLOG  B1 F  4096  4  4  8/11/09  0:00:00
090811  SYSLOG  B1 F  4096  2  2  8/12/09  0:00:02
090812  SYSLOG  B1 F  4096  1  1  8/13/09  0:00:00
090813  SYSLOG  B1 F  4096  2  2  8/14/09  0:00:01
090814  SYSLOG  B1 F  4096  2  2  8/15/09  0:00:00
090816  SYSLOG  B1 F  4096  3  3  8/17/09  0:00:02
090817  SYSLOG  B1 F  4096  2  2  8/17/09  16:22:58
090818  SYSLOG  B1 F  4096  3  3  8/18/09  11:17:58
090824  SYSLOG  B1 F  4096  4  4  8/25/09  0:00:02
090825  SYSLOG  B1 F  4096  2  2  8/26/09  0:00:01
090826  SYSLOG  B1 F  4096  1  1  8/27/09  0:00:01
090827  SYSLOG  B1 F  4096  1  1  8/28/09  0:00:02
090828  SYSLOG  B1 F  4096  1  1  8/29/09  0:00:02
090830  SYSLOG  B1 F  4096  4  4  8/31/09  0:00:01
090831  SYSLOG  B1 F  4096  1  1  9/01/09  0:00:01
090901  SYSLOG  B1 F  4096  1  1  9/02/09  0:00:02
090902  SYSLOG  B1 F  4096  4  4  9/03/09  0:00:01
090903  SYSLOG  B1 F  4096  2  2  9/04/09  0:00:02
090904  SYSLOG  B1 F  4096  1  1  9/05/09  0:00:01
090906  SYSLOG  B1 F  4096  3  3  9/07/09  0:00:00
090907  SYSLOG  B1 F  4096  1  1  9/08/09  0:00:02
090908  SYSLOG  B1 F  4096  1  1  9/09/09  0:00:00
090909  SYSLOG  B1 F  4096  5  5  9/10/09  0:00:00
090910  SYSLOG  B1 F  4096  1  1  9/11/09  0:00:01
090911  SYSLOG  B1 F  4096  3  3  9/12/09  0:00:00
090913  SYSLOG  B1 F  4096  4  4  9/14/09  0:00:02
090914  SYSLOG  B1 F  4096  1  1  9/15/09  0:00:00
090915  SYSLOG  B1 F  4096  4  4  9/16/09  0:00:02
090916  SYSLOG  B1 F  4096  2  2  9/17/09  0:00:00

HOLDING  ZVM610

Connected to usildavc.ca.com port 23 31/1 NUM 14:28:02 IBM-3278-3-E
```





# SYSLOG files reside on OPERATOR 1D0

```
system c
QW53270 Edit View Options Tools Help

090917  SYSLOG  B1 F      4096      1          1  9/18/09  0:00:00
090918  SYSLOG  B1 F      4096      3          3  9/19/09  0:00:00
090920  SYSLOG  B1 F      4096      3          3  9/21/09  0:00:01
090921  SYSLOG  B1 F      4096      4          4  9/22/09  0:00:02
090922  SYSLOG  B1 F      4096      5          5  9/23/09  0:00:01
090923  SYSLOG  B1 F      4096      7          7  9/24/09  0:00:04
090924  SYSLOG  B1 F      4096      1          1  9/25/09  0:00:01
090925  SYSLOG  B1 F      4096      8          8  9/26/09  0:00:00
090928  SYSLOG  B1 F      4096      4          4  9/29/09  0:00:00
090929  SYSLOG  B1 F      4096      1          1  9/30/09  0:00:01
090930  SYSLOG  B1 F      4096      3         10/01/09  0:00:00
091001  SYSLOG  B1 F      4096      3         10/02/09  0:00:00
091002  SYSLOG  B1 F      4096      7         10/03/09  0:00:00
091004  SYSLOG  B1 F      4096      5         10/05/09  0:00:01
091005  SYSLOG  B1 F      4096      2         10/06/09  0:00:00
091006  SYSLOG  B1 F      4096      7         10/07/09  0:00:02
091007  SYSLOG  B1 F      4096      2         10/08/09  0:00:00
091008  SYSLOG  B1 F      4096      1         10/09/09  0:00:01
091009  SYSLOG  B1 F      4096      1         10/10/09  0:00:00
091011  SYSLOG  B1 F      4096      3         10/12/09  0:00:00
091012  SYSLOG  B1 F      4096      1         10/13/09  0:00:00
091013  SYSLOG  B1 F      4096      5         10/14/09  0:00:00
091014  SYSLOG  B1 F      4096      1         10/15/09  0:00:00
091015  SYSLOG  B1 F      4096      9         10/15/09 13:55:07
Ready;
```

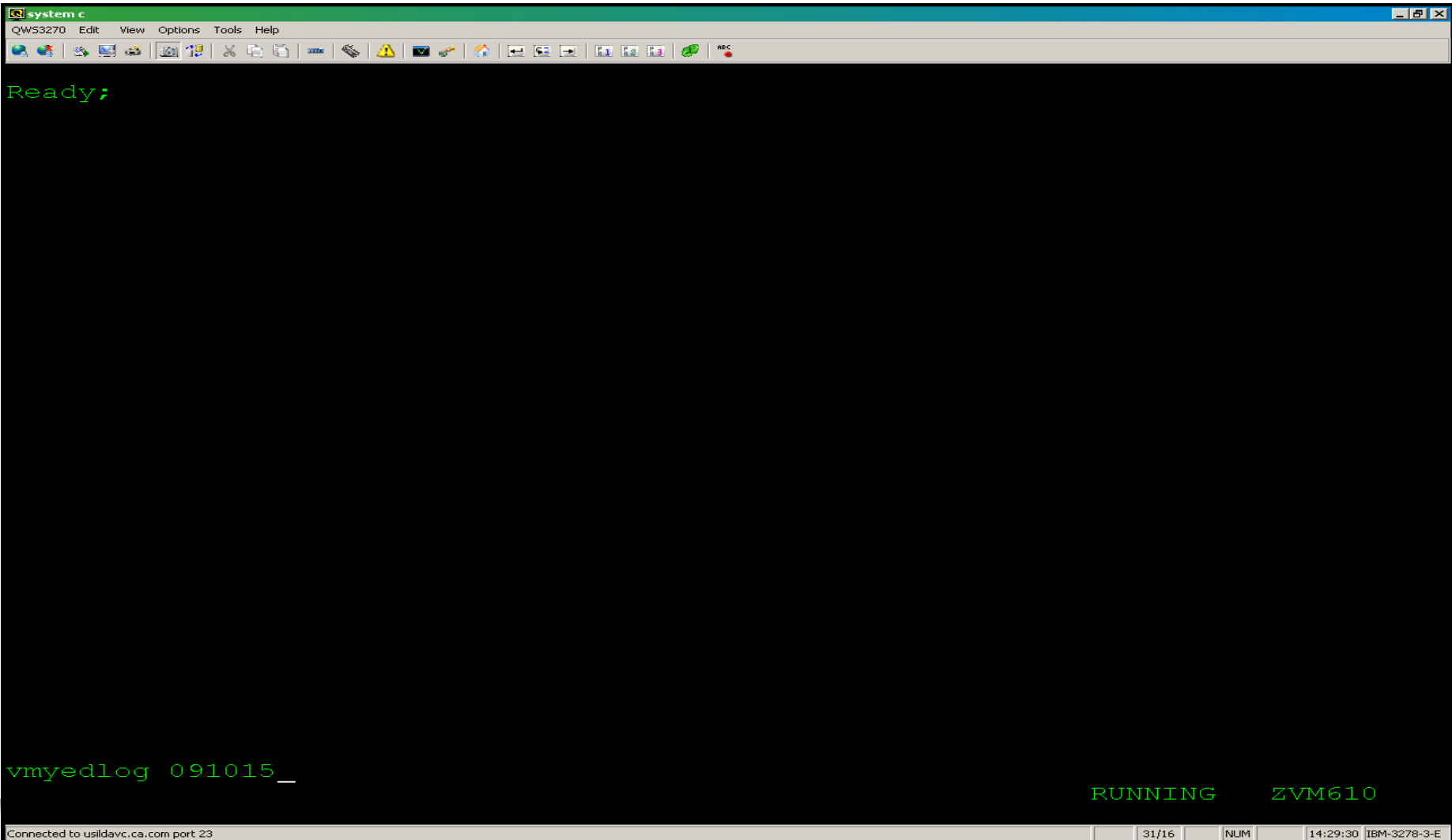
RUNNING ZVM610

Connected to usildavc.ca.com port: 23

31/1 NUM 14:28:38 IBM-3278-3-E



# VMYEDLOG to view any SYSLOG (1)



# VMYEDLOG to view any SYSLOG

```
system c
QW53270 Edit View Options Tools Help

GUIRI01 FILELIST A0 V 169 Trunc=169 Size=104 Line=1 Col=1 Alt=9
Cmd  Filename Filetype Fm Format Lrecl  Records  Blocks  Date  Time
091015  SYSLOG  B1 F  4096  9  9 10/15/09 13:55:07
091014  SYSLOG  B1 F  4096  1  1 10/15/09  0:00:00
vmyedlog /  SYSLOG  B1 F  4096  5  5 10/14/09  0:00:00
091012  SYSLOG  B1 F  4096  1  1 10/13/09  0:00:00
091011  SYSLOG  B1 F  4096  3  3 10/12/09  0:00:00
091009  SYSLOG  B1 F  4096  1  1 10/10/09  0:00:00
091008  SYSLOG  B1 F  4096  1  1 10/09/09  0:00:01
091007  SYSLOG  B1 F  4096  2  2 10/08/09  0:00:00
091006  SYSLOG  B1 F  4096  7  7 10/07/09  0:00:02
091005  SYSLOG  B1 F  4096  2  2 10/06/09  0:00:00
091004  SYSLOG  B1 F  4096  5  5 10/05/09  0:00:01
091002  SYSLOG  B1 F  4096  7  7 10/03/09  0:00:00
091001  SYSLOG  B1 F  4096  3  3 10/02/09  0:00:00
090930  SYSLOG  B1 F  4096  3  3 10/01/09  0:00:00
090929  SYSLOG  B1 F  4096  1  1  9/30/09  0:00:01
090928  SYSLOG  B1 F  4096  4  4  9/29/09  0:00:00
090925  SYSLOG  B1 F  4096  8  8  9/26/09  0:00:00
090924  SYSLOG  B1 F  4096  1  1  9/25/09  0:00:01
090923  SYSLOG  B1 F  4096  7  7  9/24/09  0:00:04
090922  SYSLOG  B1 F  4096  5  5  9/23/09  0:00:01
090921  SYSLOG  B1 F  4096  4  4  9/22/09  0:00:02
090920  SYSLOG  B1 F  4096  3  3  9/21/09  0:00:01
090918  SYSLOG  B1 F  4096  3  3  9/19/09  0:00:00
090917  SYSLOG  B1 F  4096  1  1  9/18/09  0:00:00
090916  SYSLOG  B1 F  4096  2  2  9/17/09  0:00:00

1= Help      2= Refresh   3= Quit      4= Sort(type)  5= Sort(date)  6= Sort(size)
7= Backward  8= Forward   9= FL /n    10=           11= XEDIT/LIST 12= Cursor

====>

X E D I T  1 File

Connected to usildavc.ca.com port 23
5/13 NUM 14:58:02 IBM-3278-3-E
```

# VMYEDLOG to view any SYSLOG

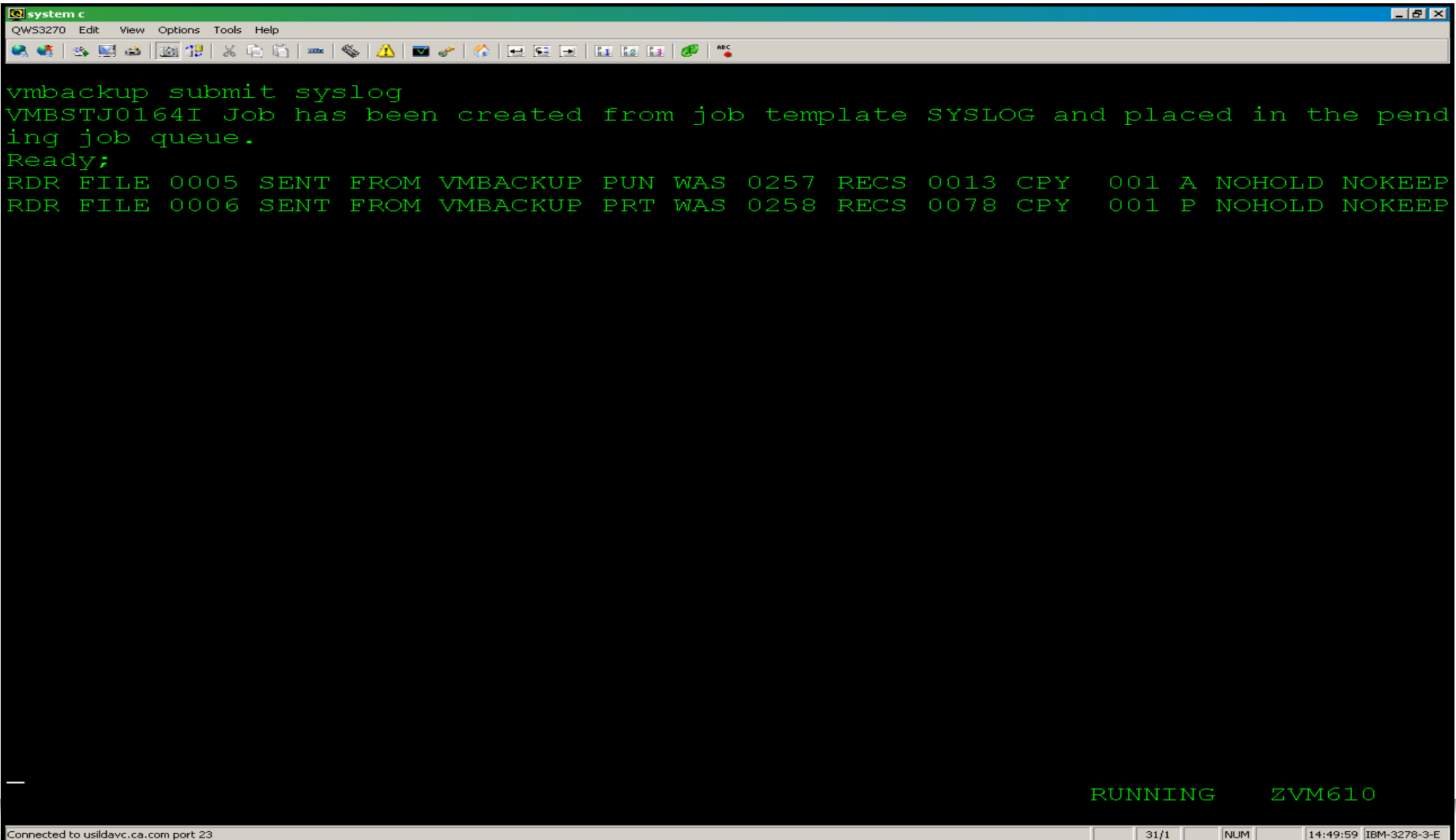
```
system c
QW53270 Edit View Options Tools Help
091015 VMYEDLOG A1 V 132 Trunc=132 Size=408 Line=187 Col=1 Alt=0
===== 10:52:39 GUIRI01 002C VMYCMD1112I Ending command admin with completion c
===== 10:53:00 OPERATOR *3 GRAF 0023 LOGOFF AS GUIRI01 USERS = 15
===== 10:53:05 OPERATOR *3 GRAF 0023 LOGON AS VMRMANT USERS = 16
===== 10:53:12 VMRMANT 002F VMYCMD1111I Beginning command: rvs query
===== 10:53:12 VMRMANT 002F VMYCMD1112I Ending command rvs with completion cod
===== 10:58:18 MAINOPER 0030 VMYINI0019R Enter: remote zvm530 cp q tape
===== 10:58:18 MAINOPER 0030 An active tape was not found.
===== 10:58:18 MAINOPER 0030 VMYINI0006I 0.000 Ready;
===== 11:12:17 MAINOPER 0031 VMYINI0019R Enter: q tape
===== 11:12:17 MAINOPER 0031 An active tape was not found.
===== 11:12:17 MAINOPER 0031 VMYINI0006I 0.005 Ready;
===== 11:12:23 MAINOPER 0032 VMYINI0019R Enter: rvs query
===== 11:12:23 MAINOPER 0032 NodeID Status WriteCtr ReadCtr
===== 11:12:23 MAINOPER 0032 -----
===== 11:12:23 MAINOPER 0032 ZVM530 Enabled 11 11
===== 11:12:23 MAINOPER 0032 ZVM540 Enabled 6 6
===== 11:12:23 MAINOPER 0032 VMYINI0006I 0.000 Ready;
===== 11:12:25 MAINOPER 0033 VMYINI0019R Enter: rvs query
===== 11:12:25 MAINOPER 0033 NodeID Status WriteCtr ReadCtr
===== 11:12:25 MAINOPER 0033 -----
===== 11:12:25 MAINOPER 0033 ZVM530 Enabled 11 11
===== 11:12:25 MAINOPER 0033 ZVM540 Enabled 6 6
===== 11:12:25 MAINOPER 0033 VMYINI0006I 0.000 Ready;
===== 11:12:30 MAINOPER 0034 VMYINI0019R Enter: file1
===== 11:12:49 MAINOPER 0034 VMYINI0006I 0.003 Ready;
===== 11:12:57 MAINOPER 0035 VMYINI0019R Enter: table load log zvm610
===== 11:12:57 MAINOPER 0035 VMYTAB0206I Loading ZVM610 LOGTABLE.
===== 11:12:57 MAINOPER 0035 VMYINI0006I 0.000 Ready;
=====>
X E D I T 1 File
Connected to usildavc.ca.com port 23
31/7 NUM 14:30:43 IBM-3278-3-E
```

# CA VM:Archiver list of SYSLOG files to archive

```
system c
QW53270 Edit View Options Tools Help
-----
LXCFUAC1 CMS Files VM:Archiver 2.3
-----
Type Archive or a CMS command in the Cmd column, then press ENTER
-----
Cmd      Filename  Filetype  FM  Format  Lrecl  Records  Blocks  Date      Time
-----
091015   SYSLOG   B1 F      4096   9        9  10/15/09  13:55:07
091014   SYSLOG   B1 F      4096   1        1  10/15/09  0:00:00
091013   SYSLOG   B1 F      4096   5        5  10/14/09  0:00:00
091012   SYSLOG   B1 F      4096   1        1  10/13/09  0:00:00
091011   SYSLOG   B1 F      4096   3        3  10/12/09  0:00:00
091009   SYSLOG   B1 F      4096   1        1  10/10/09  0:00:00
091008   SYSLOG   B1 F      4096   1        1  10/09/09  0:00:01
091007   SYSLOG   B1 F      4096   2        2  10/08/09  0:00:00
091006   SYSLOG   B1 F      4096   7        7  10/07/09  0:00:02
091005   SYSLOG   B1 F      4096   2        2  10/06/09  0:00:00
091004   SYSLOG   B1 F      4096   5        5  10/05/09  0:00:01
091002   SYSLOG   B1 F      4096   7        7  10/03/09  0:00:00
091001   SYSLOG   B1 F      4096   3        3  10/02/09  0:00:00
090930   SYSLOG   B1 F      4096   3        3  10/01/09  0:00:00
090929   SYSLOG   B1 F      4096   1        1   9/30/09  0:00:01
090928   SYSLOG   B1 F      4096   4        4   9/29/09  0:00:00
090925   SYSLOG   B1 F      4096   8        8   9/26/09  0:00:00
090924   SYSLOG   B1 F      4096   1        1   9/25/09  0:00:01
090923   SYSLOG   B1 F      4096   7        7   9/24/09  0:00:04
090922   SYSLOG   B1 F      4096   5        5   9/23/09  0:00:01
090921   SYSLOG   B1 F      4096   4        4   9/22/09  0:00:02
-----
PF: 1  Help      2  Refresh  3  End      4  Options  5  ...      6  ViewLog
PF: 7  Backward  8  Forward  9  Display 10  Sort     11 Print   12 Cursor
=====>
```



# CA VM:Backup job backing up SYSLOG files to DASDtape



The screenshot shows a terminal window titled "system c" with a menu bar (QW53270, Edit, View, Options, Tools, Help) and a toolbar. The terminal output is as follows:

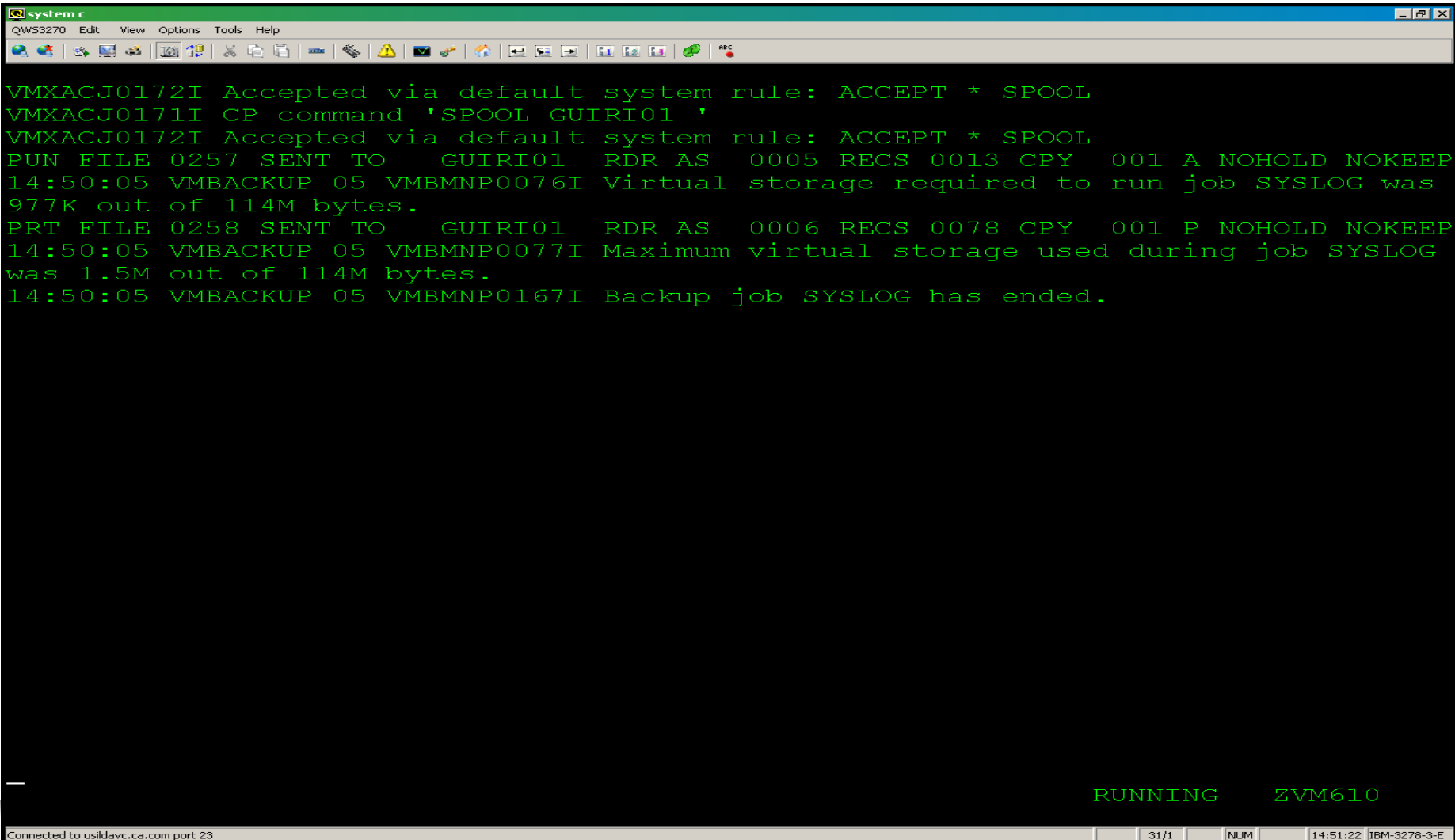
```
vmbackup submit syslog
VMBSTJ0164I Job has been created from job template SYSLOG and placed in the pending job queue.
Ready;
RDR FILE 0005 SENT FROM VMBACKUP PUN WAS 0257 RECS 0013 CPY 001 A NOHOLD NOKEEP
RDR FILE 0006 SENT FROM VMBACKUP PRT WAS 0258 RECS 0078 CPY 001 P NOHOLD NOKEEP
```

At the bottom right of the terminal, the status "RUNNING ZVM610" is displayed. The bottom status bar shows "Connected to usildavc.ca.com port 23", "31/1", "NUM", "14:49:59", and "IBM-3278-3-E".

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

```
system c
QW53270 Edit View Options Tools Help
14:46:46 GUIRI01 01 VMBCMD0011I Beginning command: VERSION
14:46:46 GUIRI01 01 VMBCMD0012I Ending command VERSION with completion code 0.
14:46:48 GUIRI01 02 VMBCMD0011I Beginning command: VMBACKUP
14:49:21 GUIRI01 02 VMBCMD0012I Ending command VMBACKUP with completion code 0.
14:49:33 GUIRI01 03 VMBCMD0011I Beginning command: VMBACKUP
14:49:50 GUIRI01 03 VMBCMD0012I Ending command VMBACKUP with completion code 0.
14:49:59 GUIRI01 04 VMBCMD0011I Beginning command: SUBMIT SYSLOG
14:50:01 GUIRI01 04 VMBSTJ0164I Job has been created from job template SYSLOG a
nd placed in the pending job queue.
14:50:01 GUIRI01 04 VMBCMD0012I Ending command SUBMIT with completion code 0.
VMXACJ0171I CP command 'SPOOL GUIRI01 '
VMXACJ0172I Accepted via default system rule: ACCEPT * SPOOL
14:50:01 VMBACKUP 05 VMBMNP0166I Backup job SYSLOG has been started.
14:50:01 VMBACKUP 00 VMBDTP0710I DASDtape 1E5003 on tape disk 01E5 has been moun
ted on 0310 for job SYSLOG.
14:50:01 VMBACKUP 05 VMBTUP0604I Mount on 0310 for volume 1E5003 has completed s
uccessfully.
14:50:05 VMBACKUP 00 VMBDTP0712I DASDtape 1E5003 on tape disk 01E5 has been demo
unted from 0310 for job SYSLOG.
14:50:05 VMBACKUP 05 VMBMMP0308I Stream 1 for job SYSLOG has completed.
14:50:05 VMBACKUP 05 VMBCME0863I Catalog 00000000 was created on catalog minidis
k 01B0.
14:50:05 VMBACKUP 05 VMBCME0433I Updating catalog index files for 00000000 DUMPJ
OB
14:50:05 VMBACKUP 05 VMBCME0434I Catalog index files for 00000000 DUMPJOB have b
een updated
14:50:05 VMBACKUP 05 VMBCME0864I Maximum space used on catalog minidisk 01B0 dur
ing the job was 17 blocks of 5940 (0%).
14:50:05 VMBACKUP 05 VMBFCC0860I 00000000 DETAIL was verified.
VMXACJ0171I CP command 'SPOOL GUIRI01 '
HOLDING ZVM610
Connected to usildavc.ca.com port: 23
31/1 NUM 14:50:36 IBM-3278-3-E
```

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



```
system c
QW53270 Edit View Options Tools Help

VMXACJ0172I Accepted via default system rule: ACCEPT * SPOOL
VMXACJ0171I CP command 'SPOOL GUIRI01 '
VMXACJ0172I Accepted via default system rule: ACCEPT * SPOOL
PUN FILE 0257 SENT TO GUIRI01 RDR AS 0005 RECS 0013 CPY 001 A NOHOLD NOKEEP
14:50:05 VMBACKUP 05 VMBMNP0076I Virtual storage required to run job SYSLOG was
977K out of 114M bytes.
PRT FILE 0258 SENT TO GUIRI01 RDR AS 0006 RECS 0078 CPY 001 P NOHOLD NOKEEP
14:50:05 VMBACKUP 05 VMBMNP0077I Maximum virtual storage used during job SYSLOG
was 1.5M out of 114M bytes.
14:50:05 VMBACKUP 05 VMBMNP0167I Backup job SYSLOG has ended.
```

Connected to usildavc.ca.com port 23

31/1 NUM 14:51:22 IBM-3278-3-E

RUNNING ZVM610



# CA VM:Backup list of SYSLOG files to restore

```
system c
QW53270 Edit View Options Tools Help
-----
SFMRABC1          Select Files Backed Up For Userid OPERATOR          VM:Backup
-----

Type R next to each file you want to restore, or type R* to restore a minidisk
or a directory.  Then press PF9.

  Req  Filename      Filetype  Vaddr  Last Revised      Records Backup Date/Time Att
  ---  -
   090604  SYSLOG      01D0    06/05/09  00:00             12 10/15/09  14:53  -
   090605  SYSLOG      01D0    06/05/09  14:05              6 10/15/09  14:53  -
   090607  SYSLOG      01D0    06/08/09  00:00              3 10/15/09  14:53  -
   090608  SYSLOG      01D0    06/09/09  00:00              1 10/15/09  14:53  -
   090609  SYSLOG      01D0    06/10/09  00:00              2 10/15/09  14:53  -
   090610  SYSLOG      01D0    06/11/09  00:00              3 10/15/09  14:53  -
   090611  SYSLOG      01D0    06/12/09  00:00              4 10/15/09  14:53  -
   090612  SYSLOG      01D0    06/12/09  14:31              6 10/15/09  14:53  -
   090614  SYSLOG      01D0    06/15/09  00:00              4 10/15/09  14:53  -
   090615  SYSLOG      01D0    06/16/09  00:00              1 10/15/09  14:53  -
   090616  SYSLOG      01D0    06/17/09  00:00             12 10/15/09  14:53  -
   090617  SYSLOG      01D0    06/18/09  00:00             13 10/15/09  14:53  -
-----

PF: 1  Help      2  Seename  3  End      4  Stype    5  Sdate    6  Sname
PF: 7  Backward  8  Forward  9  Submit  10  ...     11  Print    12  Cursor

===>
```



# 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

# 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

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

```
testcp7 with lnxibmids
QW53270 Edit View Options Tools Help
SYSTEM      000%      29 Users  VM:Operator on OPERATOR(TESTCP7)  Thu 15Oct09  13:05
VMYINI0087I Starting system process: REVERT 120 SYSTEM
VMYINI0087I Starting system process: TAPEMGR HILIGHT ALARM ELAPSED
VMYINI0087I Starting system process: SECUSER LNXIBMDS SECTABLE LNXIBMDS
VMYSEC0176I LNXIBMDS routing table loaded for LNXIBMDS window on MAINOPER consol
VMYINI0087I Starting system process: TAPEMGR RDYMSG HILIGHT DISPLAY 8
VMYINI0087I Starting system process: SESSIONS 8 SYSREQ PF2 PF1 PF3
VMYINI0087I Starting system process: REVIEW * TIMEOUT 180
VMYLGX0268I Session LINUX DIALOG processing has completed.
VMYINI0088I Ending SESSION, RC= 0, VirtCPU=0.000
VMYINI0087I Starting system process: REVIEW LNXIBMDS TIMEOUT 120
13:04:48 HCPCQU045E LNXIBMDS not logged on
VMYCFG0023I Initialization complete at 13:04:48 on 15Oct09.
Logging on SESSION1 as NEWID
Logging on SESSION2 as NEWID1
VMYPPI0147E Service virtual machine VMTAPE not available.
13:04:50 From VMSPool : VMLSYS040W Spool space is 67.78% full, increasing at
8.28% per minute.
13:04:50 From VMSPool : VMLSYS043W Spool space is projected to reach 85% full in
2 minutes.
Logon Reconnect of NEWID took 3.53
VMYLGX0268I Session SESSION1 DIALOG processing has completed.
Logon Reconnect of NEWID1 took 3.54
VMYLGX0268I Session SESSION2 DIALOG processing has completed.
rdrl
VMYINI0006I 0.005 Ready;
13:05:20 From VMSPool : VMLSYS186I Spool space is 55.36% full, now below
threshold value.
----- SYSTEM Window -----
1= ViewNext      2= Review      3= ViewPrev    4= RemvLine    5= Remv All    6= Retrieve
7=              8=              9= Repeat     10= Print     11= Expand    12= Remv Top
===> _____ MAINOPER
```



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

```
testcp7 with lnxibmbs
QW53270 Edit View Options Tools Help
SYSTEM 000% 29 Users VM:Operator on OPERATOR(TESTCP7) Thu 15Oct09 14:12
13:04:48 HCPCQU045E LNXIBMDS not logged on
VMYPPI0147E Service virtual machine VMTAPE not available.
14:12:16 From VMSECURE: 13:41:15 VMXSER0568I Servant VMX$0004 has been deleted.
14:12:16 From VMSECURE: 13:41:16 VMXAIE1261I Agent TESTTCP11 has connected.
14:12:16 From VMSECURE: 13:41:16 VMXAIE1261I Agent TESTTCP10 has connected.
14:12:16 From VMSECURE: 13:41:22 VMXCFG0023I VM:Secure initialization complete
on 10/15/09.
14:12:16 From VMSECURE: VMXSYS0487W Unable to autolog AUTOLOG2, CP return code
59.
14:12:16 USER DSC LOGOFF AS AUTOLOG2 USERS = 29 FORCED BY SYSTEM
14:12:16 GRAF 0024 DISCONNECT VMSECURE USERS = 29
14:12:16 From VMSECURE: 13:58:04 VMXRXB0739I A dynamic REBUILD has started.
Directory maintenance activity is suspended until complete.
14:12:16 From VMSECURE: 13:58:04 VMXRXB0065I Directory contains 193 users, 9
profiles and 6 pool members on 94 pages.
14:12:16 From VMSECURE: 13:58:04 VMXRXB0294I The directory contains 1260 total
pages. 1166 pages are available for use.
14:12:16 From VMSECURE: 13:58:04 VMXRXB0740I The dynamic REBUILD has completed.
Directory maintenance activity will now resume.
14:12:16 From VMSECURE: 14:02:58 VMXRXB0739I A dynamic REBUILD has started.
Directory maintenance activity is suspended until complete.
14:12:16 From VMSECURE: 14:02:59 VMXRXB0065I Directory contains 193 users, 10
profiles and 6 pool members on 94 pages.
14:12:16 From VMSECURE: 14:02:59 VMXRXB0294I The directory contains 1260 total
pages. 1166 pages are available for use.
14:12:16 From VMSECURE: 14:02:59 VMXRXB0740I The dynamic REBUILD has completed.
Directory maintenance activity will now resume.
-----
SYSTEM Window
1= ViewNext 2= Review 3= ViewPrev 4= RemvLine 5= Remv All 6= Retrieve
7= 8= 9= Repeat 10= Print 11= Expand 12= Remv Top
===> MAINOPER
```



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

```
testcp7 with Inxibmbs
QW53270 Edit View Options Tools Help
REVIEW 000% 29 Users VM:Operator on OPERATOR(TESTCP7) Thu 15Oct09 14:14
VMYREV0119I Reviewing: 091015 SYSLOG Forward scrolling.
14:12:16 OPERATOR *3 GRAF L0040 LOGOFF AS VMRPAM USERS = 29
14:12:16 VMSECURE *1 14:02:58 VMXRXB0739I A dynamic REBUILD has started. Direc
14:12:16 VMSECURE .... e.
14:12:16 VMSECURE *1 14:02:59 VMXRXB0065I Directory contains 193 users, 10 pro
14:12:16 VMSECURE *1 14:02:59 VMXRXB0294I The directory contains 1260 total pa
14:12:16 VMSECURE *1 14:02:59 VMXRXB0740I The dynamic REBUILD has completed. D
14:12:16 OPERATOR *3 GRAF L0041 LOGON AS VMRPAM USERS = 30
14:12:16 OPERATOR *3 GRAF L0041 LOGOFF AS VMRPAM USERS = 29
14:12:41 OPERATOR *3 GRAF L0042 LOGON AS VMRPAM USERS = 30
14:12:41 OPERATOR *3 GRAF L0042 LOGOFF AS VMRPAM USERS = 29
14:12:50 OPERATOR *3 GRAF L0043 LOGON AS VMRPAM USERS = 30
14:12:51 OPERATOR *3 GRAF L0043 LOGOFF AS VMRPAM USERS = 29
VMYREV0121I End-of-File

PF set 1 ----- System Review -----
1= Top 2= Refresh 3= Return 4= PrevHour 5= NextHour 6= Retrieve
7= Backward 8= Forward 9= Extract 10= AltPFkey 11= Left 12= Right
VMYREV0120R Enter search string: _ MAINOPER

Connected to testcp7.ca.com port 23 32/34 NUM 14:13:44 IBM-3278-3-E
```

# MAINOPER SYSTABLE definitions for LOGON and LOGOFF messages

```
testcp7 with Inxibmbs
QW53270 Edit View Options Tools Help

MAINOPER SYSTABLE A1 V 80 Trunc=80 Size=66 Line=20 Col=1 Alt=0

==== * * * Top of File * * *
====
==== * Suppress displaying various CP LOGON, AUTOLOG, DIALED, DROPPED,
==== * DISCONNECT, RECONNECT and LOGOFF (except when forced) messages.
==== IGNORE MSG * *3 * @10.3 ='LOGON AS'
==== IGNORE MSG * *3 * ='AUTO LOGON '
==== IGNORE MSG * *3 * @10.3 ='DIALED TO'
==== IGNORE MSG * *3 * @10.3 ='DROP FROM'
==== IGNORE MSG * *3 * @10.3 ='DISCONNECT'
==== IGNORE MSG * *3 * @10.3 ='RECONNECT'
==== IGNORE MSG * *3 * @10.3 ='LOGOFF AS' .30 -'FORCE'
====
==== * * * End of File * * *

====> _

X E D I T 1 File
```



# 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



# 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

# Operator Consoles

---

## > Challenge:

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

# 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

# SYSTEM window showing Linux startup messages

```
testcp7 with lnxibmbs
QW53270 Edit View Options Tools Help
SYSTEM 000% 27 Users VM:Operator on OPERATOR(TESTCP7) Thu 15Oct09 12:00
VMYINI0006I 0.001 Ready;
12:00:33 LNXIBMDS: z/VM V5.4.0 2009-01-20 16:05
12:00:33 LNXIBMDS: VMXACJ0098I CP command 'SPOOL SCUWI01 ' accepted by NORULE
default.
12:00:33 LNXIBMDS: There is no rule governing this request.
12:00:33 LNXIBMDS: DMSACP112S Z(200) device error
12:00:33 LNXIBMDS: DMSFOR603R FORMAT will erase all files on disk Z(200). Do you
wish to continue? Enter 1 (YES) or 0 (NO).
12:00:33 LNXIBMDS: DMSFOR605R Enter disk label:
12:00:33 LNXIBMDS: DMSFOR733I Formatting disk Z
12:00:33 LNXIBMDS: DMSFOR732I 409600 FB-512 blocks formatted on Z(200)
12:00:33 LNXIBMDS: Just one moment...
12:00:33 LNXIBMDS: HCPDTV040E Device 00CA does not exist
12:00:33 LNXIBMDS: 0190 0191 019D 019E DETACHED
12:00:34 LNXIBMDS: zIPL v1.8.0 interactive boot menu
12:00:34 LNXIBMDS:
12:00:34 LNXIBMDS: 0. default (Linux)
12:00:34 LNXIBMDS:
12:00:34 LNXIBMDS: 1. Linux
12:00:34 LNXIBMDS: 2. ipl
12:00:34 LNXIBMDS: 3. Failsafe
12:00:34 LNXIBMDS:
12:00:34 LNXIBMDS: Note: VM users please use '#cp vi vmmsg <number>
<kernel-parameters>'
12:00:34 LNXIBMDS:
12:00:34 LNXIBMDS: Please choose (default will boot in 10 seconds):
12:00:44 LNXIBMDS: Booting default (Linux)...
----- SYSTEM Window -----
1= ViewNext 2= Review 3= ViewPrev 4= RemvLine 5= Remv All 6= Retrieve
7= 8= 9= Repeat 10= Print 11= Expand 12= Remv Top
==>
MAINOPER
Connected to testcp7.ca.com port 23 5/11 NUM 12:00:36 IBM-3278-3-E
```

# SYSTEM window showing Linux startup messages

```
testcp7 with lnxibmbs
QW53270 Edit View Options Tools Help
SYSTEM 000% 28 Users VM:Operator on OPERATOR(TESTCP7) Thu 15Oct09 12:01
12:01:14 LNXIBMDS: Freeing unused kernel memory: 196k freed
12:01:14 LNXIBMDS: doing fast boot
12:01:15 LNXIBMDS: Creating device nodes with udev
12:01:15 LNXIBMDS: udevd version 128 started
12:01:16 LNXIBMDS: dasd(eckd): 0.0.0201: 3390/0C(CU:3990/01) Cyl:3338 Head:15
Sec:224
12:01:16 LNXIBMDS: dasd(eckd): 0.0.0201: (4kB blks): 2403360kB at 48kB/trk linux
disk layout
12:01:16 LNXIBMDS: dasda:CMS1/ SLES11: dasdal
12:01:17 LNXIBMDS: Boot logging started on /dev/ttyS0(/dev/console) at Thu Oct
15 16:01:12 2009
12:01:17 LNXIBMDS: Waiting for device /dev/disk/by-path/ccw-0.0.0201-part1 to
appear: ok
12:01:17 LNXIBMDS: fsck 1.41.1 (01-Sep-2008)
12:01:17 LNXIBMDS: [/sbin/fsck.ext3 (1) -- /] fsck.ext3 -a
/dev/disk/by-path/ccw-0.0.0201-part1
12:01:17 LNXIBMDS: /dev/disk/by-path/ccw-0.0.0201-part1: clean, 7024/150480
files, 75657/600837 blockskjournald starting. Commit interval 5 seconds
12:01:17 LNXIBMDS: EXT3 FS on dasdal, internal journal
12:01:17 LNXIBMDS: EXT3-fs: mounted filesystem with ordered data mode.
12:01:17 LNXIBMDS:
12:01:17 LNXIBMDS: fsck succeeded. Mounting root device read-write.
12:01:17 LNXIBMDS: Mounting root /dev/disk/by-path/ccw-0.0.0201-part1
12:01:17 LNXIBMDS: mount -o rw,acl,user_xattr -t ext3
/dev/disk/by-path/ccw-0.0.0201-part1 /root
12:01:18 LNXIBMDS: mount: can't find /root/proc in /etc/fstab or /etc/mtab
12:01:18 LNXIBMDS: INIT: version 2.86 booting
-----
SYSTEM Window
1= ViewNext 2= Review 3= ViewPrev 4= RemvLine 5= Remv All 6= Retrieve
7= 8= 9= Repeat 10= Print 11= Expand 12= Remv Top
===> MAINOPER
```



# SECUSER window showing Linux startup messages

```
testcp7 with lnxibmids
QW53270 Edit View Options Tools Help
LNXIBMDS 000%      28 Users  VM:Operator on OPERATOR(TESTCP7)  Thu 15Oct09  12:01
VMYSEC0054I SCIF userid: LNXIBMDS      Status: RUNNING
/dev/disk/by-path/ccw-0.0.0202-part1: clean, 82481/150480 files, 453307/600837 b
kjournald starting.  Commit interval 5 seconds
EXT3 FS on dasdbl, internal journal
EXT3-fs: mounted filesystem with ordered data mode.

..done..done
Mounting local file systems...
/proc on /proc type proc (rw)
sysfs on /sys type sysfs (rw)
debugfs on /sys/kernel/debug type debugfs (rw)
udev on /dev type tmpfs (rw)
devpts on /dev/pts type devpts (rw,mode=0620,gid=5)
/dev/dasdbl on /usr type ext3 (rw,acl,user_xattr)
..done
fuse init (API version 7.9)
Loading fuse module ..done
Mounting fuse control filesystem..done
Unable to find swap-space signature
Activating remaining swap-devices in /etc/fstab...
..failed
Creating /var/log/boot.msg
..done
Turning quota on
Checking quotas. This may take some time.
..done
Setting current sysctl status from /etc/sysctl.conf..done
----- LINUXID Window -----
1= ViewNext      2=          3= ViewMain    4=          5=          6= Retrieve
7=             8=          9= Repeat     10= Print   11= Expand   12= Remv Top
===> _
MAINOPER
Connected to testcp7.ca.com port 23
32/6 NUM 12:01:12 IBM-3278-3-E
```

# SECUSER window showing Linux startup messages

```
testcp7 with lnxibmids
QW53270 Edit View Options Tools Help
LNXIBMDS 000%      28 Users  VM:Operator on OPERATOR(TESTCP7)  Thu 15Oct09  12:01
VMYSEC0054I SCIF userid: LNXIBMDS      Status: RUNNING
/dev/dasda1: Device or resource busy
swapon: /dev/dasdc1: Invalid argument
..failed
INIT:
Entering runlevel: 5
Boot logging started on /dev/ttyS0(/dev/console) at Thu Oct 15 12:01:33 2009
Master Resource Control: previous runlevel: N, switching to runlevel: 5
Initializing random number generator..done
Starting D-Bus daemon
..done
Loading CPUFreq modules (CPUFreq not supported)
Starting HAL daemon
..done
Setting up (localfs) network interfaces:
  lo
  lo      IP address: 127.0.0.1/8
         IP address: 127.0.0.2/8
..done   eth0      name: OSA Express Network card (0.0.0c00)
         eth0    IP address: 141.202.200.9/24
..done
Setting up service (localfs) network . . . . .done
Starting syslog services
..done
Starting rpcbind
..done
Not starting NFS client services - no NFS found in /etc/fstab:..unused
----- LINUXID Window -----
1= ViewNext   2=          3= ViewMain  4=          5=          6= Retrieve
7=          8=          9= Repeat   10= Print   11= Expand  12= Remv Top
===> _
MAINOPER
```

Connected to testcp7.ca.com port 23

32/6 NUM 12:01:27 IBM-3278-3-E



# SECUSER window showing Linux startup messages

```
testcp7 with lnxibmids
QW53270 Edit View Options Tools Help
LNXIBMDS 002%      28 Users  VM:Operator on OPERATOR(TESTCP7) Thu 15Oct09 12:02
VMYSEC0054I SCIF userid: LNXIBMDS      Status: RUNNING
                IP address: 127.0.0.2/8
..done eth0      name: OSA Express Network card (0.0.0c00)
                eth0      IP address: 141.202.200.9/24
..done
Setting up service (localfs) network . . . . . ..done
Starting syslog services
..done
Starting rpcbind
..done
Not starting NFS client services - no NFS found in /etc/fstab:..unused
Starting service xdm
..done
Starting httpd2 (prefork)
..done
Starting irqbalance
..unused
Starting Name Service Cache Daemon..failed
Starting java.binfmt_misc ..done
Starting mail service (Postfix)
..done
Setting up (remotefs) network interfaces:
Setting up service (remotefs) network . . . . . ..done
Starting smartd ..unused
Starting CRON daemon
..done
Starting SSH daemon
----- LINUXID Window -----
1= ViewNext 2=          3= ViewMain 4=          5=          6= Retrieve
7=          8=          9= Repeat 10= Print 11= Expand 12= Remv Top
===> _ MAINOPER
Connected to testcp7.ca.com port 23 32/6 NUM 12:01:46 IBM-3278-3-E
```





# 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

# 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

# SECUSER window showing Linux startup messages at initial Login:

```
testcp7 with lnxibmnds
QW53270 Edit View Options Tools Help
LNXIBMDS 002%      28 Users  VM:Operator on OPERATOR(TESTCP7)  Thu 15Oct09  12:02
VMYSEC0054I SCIF userid: LNXIBMDS      Status: RUNNING
..done
Starting irqbalance
..unused
Starting Name Service Cache Daemon..failed
Starting java.binfmt_misc ..done
Starting mail service (Postfix)
..done
Setting up (remotefs) network interfaces:
Setting up service (remotefs) network . . . . .done
Starting smartd ..unused
Starting CRON daemon
..done
Starting SSH daemon
..done
Starting INET services. (xinetd)
..done
Master Resource Control: runlevel 5 has been reached
Failed services in runlevel 5:  [80C [11Dnsd
Skipped services in runlevel 5:  [80C [37Dnfs irq_balancer smartd splash

Welcome to SUSE Linux Enterprise Server 11 (s390x) - Kernel 2.6.27.19-5-default
Welcome to SUSE Linux Enterprise Server 11 (s390x) - Kernel 2.6.27.19-5-default

lnxibmnds login:
----- LINUXID Window -----
1= ViewNext      2=          3= ViewMain     4=          5=          6= Retrieve
7=              8=          9= Repeat       10= Print   11= Expand   12= Remv Top
===> _
MAINOPER
```



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

```
testcp7 with lnxibmids
QW53270 Edit View Options Tools Help
Starting Name Service Cache Daemon..failed
Starting java.binfmt_misc ..done
Starting mail service (Postfix)
..done
Setting up (remotefs) network interfaces:
Setting up service (remotefs) network . . . . .done
Starting smartd ..unused
Starting CRON daemon
..done
Starting SSH daemon
..done
Starting INET services. (xinetd)
..done
Master Resource Control: runlevel 5 has been reached
Failed services in runlevel 5: [80C [11Dnscd
Skipped services in runlevel 5: [80C [37Dnfs irq_balancer smartd splash

Welcome to SUSE Linux Enterprise Server 11 (s390x) - Kernel 2.6.27.19-5-default
Welcome to SUSE Linux Enterprise Server 11 (s390x) - Kernel 2.6.27.19-5-default

lnxibmids login:
root
root
----- LINUXID Window -----
1= ViewNext 2= 3= ViewMain 4= 5= 6= Retrieve
7= 8= 9= Repeat 10= Print 11= Expand 12= Remv Top
VMYSEC0390R Enter password: _ MAINOPER

Connected to testcp7.ca.com port 23 32/29 NUM 12:02:23 IBM-3278-3-E
```



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

```
testcp7 with lnxibmids
QW53270 Edit View Options Tools Help
LNXIBMDS 002%      28 Users  VM:Operator on OPERATOR (TESTCP7)  Thu 15Oct09  12:03
VMYSEC0054I SCIF userid: LNXIBMDS      Status: RUNNING
..done
Setting up (remotefs) network interfaces:
Setting up service (remotefs) network . . . . .done
Starting smartd ..unused
Starting CRON daemon
..done
Starting SSH daemon
..done
Starting INET services. (xinetd)
..done
Master Resource Control: runlevel 5 has been reached
Failed services in runlevel 5:  [80C [11Dnscd
Skipped services in runlevel 5:  [80C [37Dnfs irq_balancer smartd splash

Welcome to SUSE Linux Enterprise Server 11 (s390x) - Kernel 2.6.27.19-5-default
Welcome to SUSE Linux Enterprise Server 11 (s390x) - Kernel 2.6.27.19-5-default

lnxibmids login:
root
root
*****

Last login: Mon Oct 12 10:09:21 EDT 2009 on ttyS0
lnxibmids:~ #
----- LINUXID Window -----
1= ViewNext      2=          3= ViewMain    4=          5=          6= Retrieve
7=              8=          9= Repeat     10= Print   11= Expand   12= Remv Top
===> _
MAINOPER
```



# SECUSER window for Linux ID: Entering Linux command on root

```
testcp7 with lnxibmids
QW53270 Edit View Options Tools Help

LNXIBMDS 002%      28 Users  VM:Operator on OPERATOR(TESTCP7)  Thu 15Oct09  12:03
VMYSEC0054I SCIF userid: LNXIBMDS      Status: RUNNING
Welcome to SUSE Linux Enterprise Server 11 (s390x) - Kernel 2.6.27.19-5-default

lnxibmids login:
root
root
*****

Last login: Mon Oct 12 10:09:21 EDT 2009 on ttyS0
lnxibmids:~ #
ls -l
ls -l
total 100
-rw----- 1 root root 6452 Oct 12 10:05 .bash_history
drwxr-xr-x 2 root root 4096 Apr 28 14:26 .config
-rw-r--r-- 1 root root 1332 Nov 23 2005 .exrc
drwx----- 2 root root 4096 Apr 28 14:13 .gnupg
drwxr-xr-x 3 root root 4096 Sep 21 15:40 .mc
-rw----- 1 root root 12288 Oct 6 13:12 .swp
-rw-r--r-- 1 root root 344 Sep 21 08:00 .therc
-rw----- 1 root root 1048 Oct 6 13:13 .viminfo
drwxr-xr-x 2 root root 4096 Apr 28 14:42 .vnc
-rw-r--r-- 1 root root 43066 Apr 28 14:42 autoinst.xml
drwxr-xr-x 2 root root 4096 Feb 20 2009 bin
drwxr-xr-x 6 root root 4096 Apr 28 13:19 inst-sys
lnxibmids:~ #
----- LINUXID Window -----
1= ViewNext      2=          3= ViewMain     4=          5=          6= Retrieve
7=              8=          9= Repeat      10= Print   11= Expand   12= Remv Top
===> _
MAINOPER
```



# 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

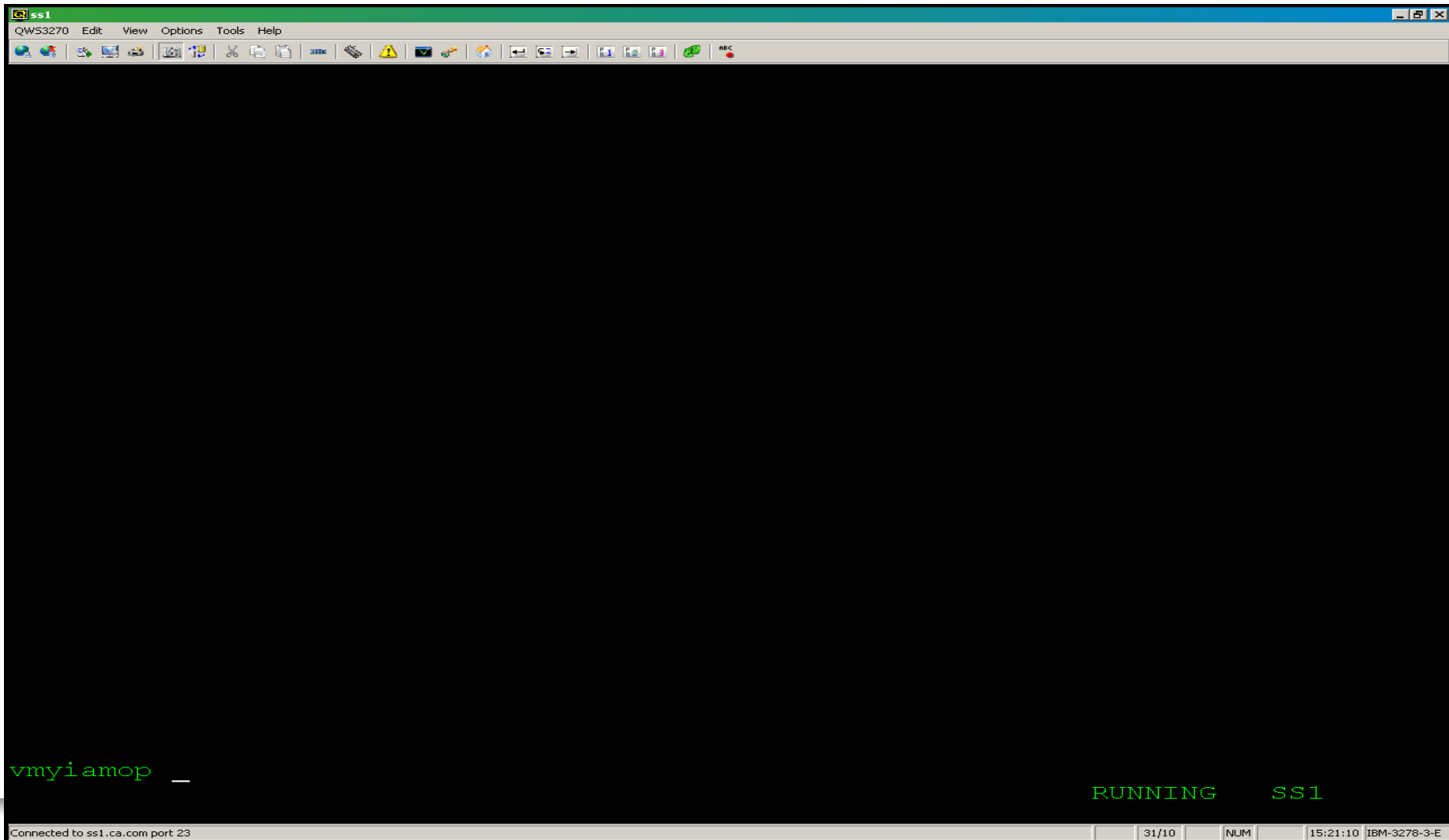
# Temporary Operator Consoles

## > 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



# I AM OPERATOR (VMYIAMOP)



# I AM OPERATOR

```
ss1
QW53270 Edit View Options Tools Help
SYSTEM      000%      54 Users      V M : O p e r a t o r      Thursday 15Oct09      15:22

VMYMAI0176I MAINOPER routing table loaded for SYSTEM window on LNXMAINT console.
VMYIOD0190I User LNXMAINT is now an IUCV-connected console.
----- System Window -----
1= ViewNext   2= Review    3= ViewPrev  4= RemvLine  5= Remv All  6= Retrieve
7= Disconn   8= Cancel    9= Repeat   10= Print    11= Expand   12= Remv Top
===> LNXMAINT

Connected to ss1.ca.com port 23 32/6 NUM 15:22:00 IBM-3278-3-E
```



# 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

# 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

# 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

# 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

# SESSIONS screen

```
testcp7 with Inxibmds
QW53270 Edit View Options Tools Help
SESSIONS 002%      28 Users   VM:Operator on OPERATOR(TESTCP7) Thu 15Oct09 12:04
Session Ldev      Last      Screen    Status    Return: SYSREQ Toggle: PF3
Name     Address    Viewed    Updates   Information Back: PF1    Next: PF2
SESSION1 L010      16        16        Logon Reconnect of NEWID took 3.65
SESSION2 L011      16        16        Logon Reconnect of NEWID1 took 3.70
SESSION3 L012      1         1         Sample session 3
SESSION4 L013      1         1         Sample session 4
LINUX    0         0         LNXLOGON DIALOG completed, RC= 0.

----- Sessions Window -----
1= ViewNext  2= Refresh  3= ViewMain  4=          5=          6= Retrieve
7= Backward  8= Forward  9= Repeat    10= Print   11= Session 12= Cursor
====>
MAINOPER
```



# SESSIONS screen

```
testcp7 with Inxibmds
QW53270 Edit View Options Tools Help
SESSIONS 001%      28 Users   VM:Operator on OPERATOR(TESTCP7)  Thu 15Oct09 12:05
Session Ldev      Last      Screen   Status   Return: SYSREQ Toggle: PF3
Name     Address   Viewed   Updates Information Back: PF1 Next: PF2
SESSION1 L010     16       16       Logon Reconnect of NEWID took 3.65
SESSION2 L011     16       16       Logon Reconnect of NEWID1 took 3.70
SESSION3 L012     1        1        Sample session 3
SESSION4 L013     1        1        Sample session 4
LINUX    0        0        Terminated...

VMYLGD0037I Session LINUX on L0015 has been terminated.
----- Sessions Window -----
1= ViewNext  2= Refresh  3= ViewMain 4=          5=          6= Retrieve
7= Backward 8= Forward  9= Repeat   10= Print  11= Session 12= Cursor
====>
MAINOPER
```





# 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

# 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

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

```
testcp7 with lnxbmbs
QW53270 Edit View Options Tools Help
REVIEW 000% 29 Users VM:Operator Thursday 15Oct09 12:29
VMYREV0125I Reviewing: 091015 SYSLOG Forward Scanning for: DAEMO
12:27:58 LNXIBMDS *S daemon.notice syslog-ng[1304]: syslog-ng starting up; ver
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error='\Co
12:27:58 LNXIBMDS *S news.info smartd[1492]: smartd 5.39 2008-10-24 22:33 [s39
12:27:58 LNXIBMDS .... 8 by Bruce Allen, http://smartmontools.sourceforge.net
12:27:58 LNXIBMDS *S news.info smartd[1492]: Opened configuration file /etc/sm
12:27:58 LNXIBMDS *S news.info smartd[1492]: Drive: DEVICESCAN, implied \'-a\'
12:27:58 LNXIBMDS *S news.info smartd[1492]: Configuration file /etc/smartd.co
12:27:58 LNXIBMDS *S news.crit smartd[1492]: Problem creating device name scan
12:27:58 LNXIBMDS *S news.crit smartd[1492]: In the system\'s table of devices
12:27:58 LNXIBMDS *S news.info smartd[1492]: Unable to monitor any SMART enabl
12:27:58 LNXIBMDS *S mail.info postfix/postfix-script[1518]: starting the Pos
12:27:58 LNXIBMDS *S mail.info postfix/master[1519]: daemon started -- versio
12:27:58 LNXIBMDS *S local0.info /usr/sbin/cron[1539]: (CRON) STARTUP (V5.0)
12:27:58 LNXIBMDS *S uucp.info sshd[1557]: Server listening on 0.0.0.0 port 22
12:27:58 LNXIBMDS *S uucp.info sshd[1557]: Server listening on :: port 22.
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS .... line=26]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... hargen-udp] [line=14]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS .... e=15]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS .... me] [line=16]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... ayttime-udp] [line=14]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration
PF set 1 ----- System Review -----
1= Top 2= Refresh 3= Return 4= PrevHour 5= NextHour 6= Retrieve
7= Backward 8= Forward 9= Extract 10= AltPFkey 11= Left 12= Right
VMYREV0120R Enter search string: MAINOPER
Connected to testcp7.ca.com port 23 26/3 NUM 12:28:51 IBM-3278-3-E
```



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

```
testcp7 with lnxbmnds
QW53270 Edit View Options Tools Help

REVIEW      000%      29 Users      V M : O p e r a t o r      Thursday 15Oct09      12:30
VMYREV0125I Reviewing: 091015 SYSLOG      Forward Scanning for: DAEMO
12:27:58 LNXIBMDS ... ices] [line=14]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... ] [line=14]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... ine=17]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... -udp] [line=15]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... e=15]
12:27:58 LNXIBMDS *S news.notice xinetd[1558]: xinetd Version 2.3.14 started w
12:27:58 LNXIBMDS *S news.notice xinetd[1558]: Started working: 2 available s
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'C
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'Co
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'Co
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'Co
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'Co
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'Co
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'Co
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'Co
12:27:58 LNXIBMDS *S daemon.info syslog-ng[1304]: Log statistics; dropped=\ 'tc
12:27:58 LNXIBMDS ... er(queued)=42\ ', processed=\ 'center(received)=42\ ', proce
12:27:58 LNXIBMDS ... )=42\ '
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'Co
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'Co
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error=\ 'C
PF set 1 ----- System Review -----
1= Top      2= Refresh  3= Return   4= PrevHour  5= NextHour  6= Retrieve
7= Backward 8= Forward  9= Extract 10= AltPFkey 11= Left     12= Right
VMYREV0120R Enter search string: MAINOPER

Connected to testcp7.ca.com port 23      26/3      NUM      12:30:20      IBM-3278-3-E
```



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

```
testcp7 with lnxbmbs
QW53270 Edit View Options Tools Help
REVIEW 002% 28 Users VM:Operator on VMYGUIRI (TESTCP7) Thu 15Oct09 12:35
VMYREV0119I Reviewing: 091015 SYSLOG Backward scrolling.
12:27:46 VMYGUIRI 0005 CAS9115I - LMP input: *
12:27:58 LNXIBMDS *S daemon.notice syslog-ng[1304]: syslog-ng starting up; ver
12:27:58 LNXIBMDS *S daemon.err syslog-ng[1304]: Connection failed; error='\Co
12:27:58 LNXIBMDS *S news.info smartd[1492]: smartd 5.39 2008-10-24 22:33 [s39
12:27:58 LNXIBMDS ... 8 by Bruce Allen, http://smartmontools.sourceforge.net
12:27:58 LNXIBMDS *S news.info smartd[1492]: Opened configuration file /etc/sm
12:27:58 LNXIBMDS *S news.info smartd[1492]: Drive: DEVICESCAN, implied \'-a\'
12:27:58 LNXIBMDS *S news.info smartd[1492]: Configuration file /etc/smartd.co
12:27:58 LNXIBMDS *S news.crit smartd[1492]: Problem creating device name scan
12:27:58 LNXIBMDS *S news.crit smartd[1492]: In the system\'s table of devices
12:27:58 LNXIBMDS *S news.info smartd[1492]: Unable to monitor any SMART enabl
12:27:58 LNXIBMDS *S mail.info postfix/postfix-script[1518]: starting the Pos
12:27:58 LNXIBMDS *S mail.info postfix/master[1519]: daemon started -- version
12:27:58 LNXIBMDS *S local0.info /usr/sbin/cron[1539]: (CRON) STARTUP (V5.0)
12:27:58 LNXIBMDS *S uucp.info sshd[1557]: Server listening on 0.0.0.0 port 22
12:27:58 LNXIBMDS *S uucp.info sshd[1557]: Server listening on :: port 22.
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... line=26]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... hargen-udp] [line=14]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... e=15]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... me] [line=16]
12:27:58 LNXIBMDS *S news.debug xinetd[1558]: Reading included configuration f
12:27:58 LNXIBMDS ... aytime-udp] [line=14]
PF set 1 ----- System Review -----
1= Top 2= Refresh 3= Return 4= PrevHour 5= NextHour 6= Retrieve
7= Backward 8= Forward 9= Extract 10= AltPFkey 11= Left 12= Right
VMYREV0120R Enter search string: _ MAINOPER
Connected to testcp7.ca.com port 23 32/34 NUM 12:35:03 IBM-3278-3-E
```



# 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

# 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

# RVS: REMOTE command from CA VM:Operator SYSTEM WINDOW

```
system c
QW53270 Edit View Options Tools Help

SYSTEM      000%      16 Users      VM:Operator on OPERATOR(ZVM610)      Thu 15Oct09  11:19
DASD 0AFF CP SYSTEM VMVSE1      0
DASD 0FAB CP SYSTEM PAVALA      0
VMYINI0006I 0.000 Ready;
rvs query
NodeID      Status              WriteCtr      ReadCtr
-----
ZVM530      Enabled              32             32
ZVM540      Enabled              42             42
VMYINI0006I 0.000 Ready;
remote zvm530 cp q names
VMRMAINT -L0003, GUIRI01 -L0004, VMWEBSRV - DSC , LOGN0009 - 0009
VSMREQIN - DSC , IMLST01 - DSC , VSMWORK2 - DSC , RSCS - DSC
VSMWORK1 - DSC , VSPSERV - DSC , VMSEKVS - DSC , VMNFS - DSC
RSCSDNS - DSC , PORTMAP - DSC , FTPSERVE - DSC , GCS - DSC
TCPIP - DSC , VMX$0003 - DSC , VMX$0002 - DSC , VMX$0001 - DSC
VMSECURE - DSC , OPERATOR -L000C
VSM - TCPIP
VMYINI0006I 0.000 Ready;
remote zvm540 cp q names
VMRMAINT - DSC , CAIMAIN - DSC , VMSPOOL - DSC , VMBACKUP - DSC
VMTAPE - DSC , LOGN0009 - 0009, IMLST01 - 0021, VSMPROXY - DSC
VSMREQIN - DSC , VSMWORK2 - DSC , VSMWORK1 - DSC , RSCS - DSC
VSPSERV - DSC , RSCSDNS - DSC , FTPSERVE - DSC , GCS - DSC
TCPIP - DSC , VMX$0002 - DSC , VMX$0001 - DSC , VMSECURE - DSC
DISKACNT - DSC , OPERATOR - 0022
VSM - TCPIP
VMYINI0006I 0.000 Ready;
----- SYSTEM Window -----
1= ViewNext      2= Review      3= ViewPrev    4= RemvLine    5= Remv All    6= Retrieve
7=               8=            9= Repeat     10= Print     11= Expand    12= Remv Top
====>
MAINOPER
```





# Using REMOTE commands from a user

```
system c
QW53270 Edit View Options Tools Help
operator rvs query
NodeID      Status          WriteCtr  ReadCtr
-----
ZVM530      Enabled          63        63
ZVM540      Enabled          50        50
Ready; T=0.01/0.01 11:20:40
operator remote zvm530 cp query names
VMRMAINT -L0003, GUIRI01 -L0004, VMWEBSRV - DSC , LOGN0009 - 0009
VSMREQIN - DSC , IMLST01 - DSC , VSMWORK2 - DSC , RSCS - DSC
VSMWORK1 - DSC , VSPSERV - DSC , VMSERVS - DSC , VMNFS - DSC
RSCSDNS - DSC , PORTMAP - DSC , FTPSERVE - DSC , GCS - DSC
TCPPIP - DSC , VMX$0003 - DSC , VMX$0002 - DSC , VMX$0001 - DSC
VMSECURE - DSC , OPERATOR -L000C
VSM - TCPPIP
Ready; T=0.01/0.01 11:20:47
operator remote zvm540 cp query names
VMRMAINT - DSC , CAIMAIN - DSC , VMSPOOL - DSC , VMBACKUP - DSC
VMTAPE - DSC , LOGN0009 - 0009, IMLST01 - 0021, VSMPROXY - DSC
VSMREQIN - DSC , VSMWORK2 - DSC , VSMWORK1 - DSC , RSCS - DSC
VSPSERV - DSC , RSCSDNS - DSC , FTPSERVE - DSC , GCS - DSC
TCPPIP - DSC , VMX$0002 - DSC , VMX$0001 - DSC , VMSECURE - DSC
DISKACNT - DSC , OPERATOR - 0022
VSM - TCPPIP
Ready; T=0.01/0.01 11:20:52
```



# Conclusion

## VM:Operator™ DELIVERS

- > Increased Productivity
- > Increased Efficiency
- > Improved Auditability

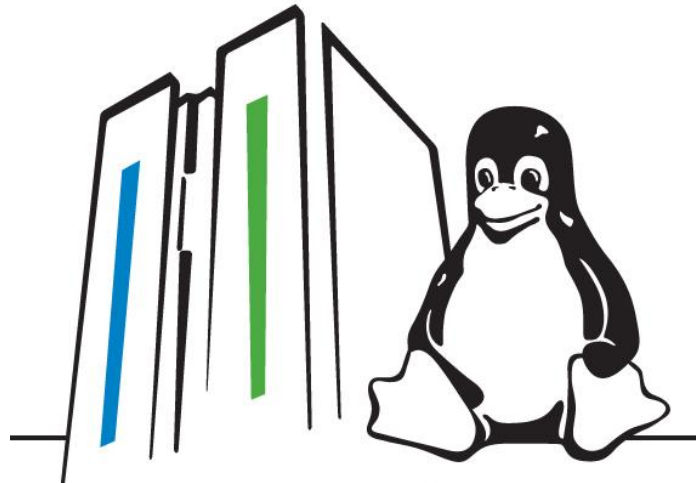
## Event Automation for z/VM and Linux

## PROVEN TECHNOLOGY

- > Automated Actions
- > Message Filtering
- > Multiple Consoles

# Questions and Answers

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