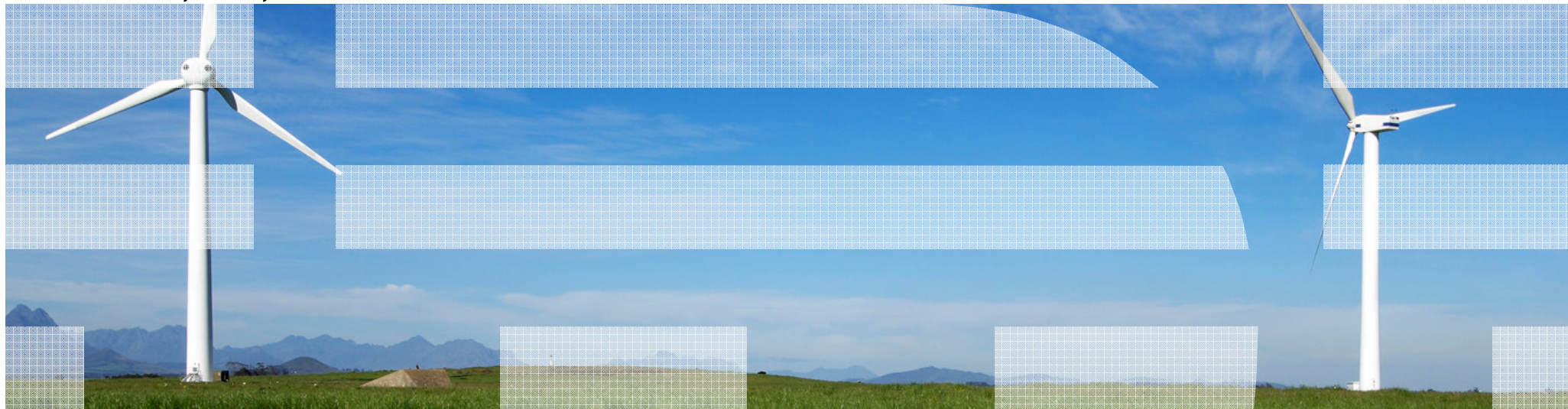


The Basics of Using z/VM

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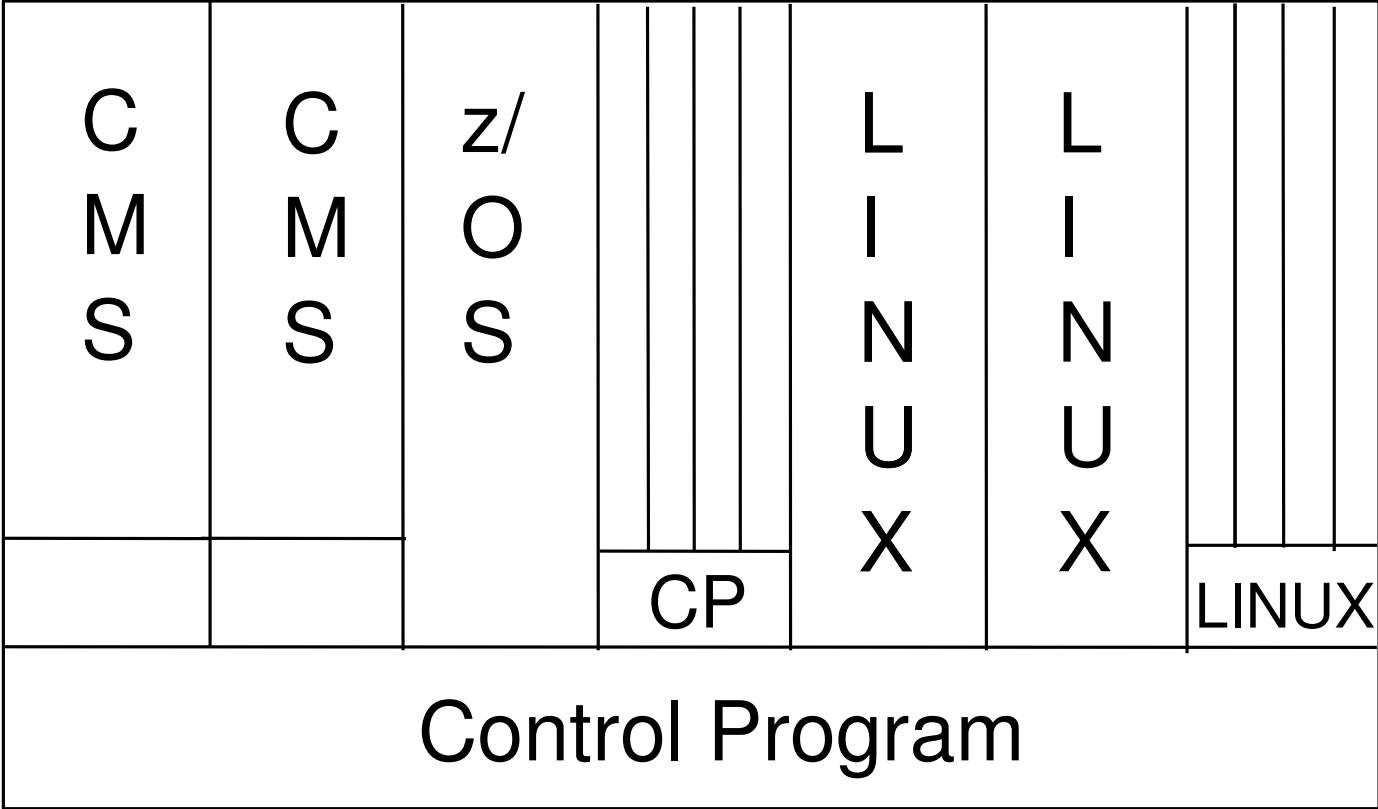
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Agenda

- An Overview of z/VM
- General Concepts
- Using CMS
 - ▶ Commands
 - ▶ CMS File System
 - ▶ XEDIT
 - ▶ Tailoring your environment
- For more information ...

Overview

- z/VM contains Two Basic Parts
 - ▶ CP - Control Program
 - ▶ CMS (or Guests LINUX, CP, z/OS, etc.)



CMS General Concepts

- CMS: Conversational Monitor System
- An interactive user interface that runs under the control of CP
- Provides an application programming and execution environment
 - ▶ Commands
 - ▶ EXECs (scripts) and pipelines
 - ▶ Xedit
 - ▶ Compilers
 - ▶ User programs
- Many tools available
 - ▶ Productivity Aids
 - ▶ REXX
 - ▶ Vendor programs

CMS Strengths

- **User-friendly**
 - English-like, extensible command language
 - Easy-to-use file system

- **Cooperates well with CP**
 - ▶ Commands to exploit CP function and devices
 - ▶ Exploits virtual machine concepts
 - ▶ Commands can be automatically passed to CP:
 - If not found in CMS, or directly by issuing #CP command

- **High performance**
 - ▶ Single-user orientation
 - ▶ Shared CMS Nucleus, DCSS (Discontiguous Saved Segment)
 - ▶ File system performance

Environments

■ CMS

- ▶ IPL CMS or Begin, run Profile Exec
- ▶ Linemode or Fullscreen mode

■ XEDIT Environment

- ▶ XEDIT *fn ft fm*, run Profile Xedit
- ▶ CMS Subset mode

■ Unix-like

- ▶ Open Extensions (Posix Shell & Utilities) *
- ▶ Byte File System, Network File System

■ z/OS-like or VSE-like

- ▶ OS Simulation *
 - ▶ DOS Simulation *
- * not a full duplication of function

Establishing a VM Session

- VM Logo Screen
 - ▶ One at a time - 3270 emulation (PComm)
 - ▶ LOGON ... here -> move a signon to another session
 - ▶ LOGON ... by ... -> signon using another password

- Using CP to control the Virtual Machine
 - ▶ #CP IPL CMS - restart your entire CMS session
 - PROFILE EXEC exec runs to customize your session

 - ▶ #CP LOGOFF - logon xxx - sign off/on

Session B - [24 x 80]

File Edit View Communication Actions Window Help

z/VM ONLINE

Use Of This System Is For
IBM Management Approved Purposes Only

```
=====  =====  =====  =====  
=====  =====  =====  =====  
    ==  ==  ==  =====  =====  
    ==  =====  =====  =====  
    ==  =====  ==  =====  ==  
    ==  ==  ==  ==  =====  ==  
=====  =====  =====  ==  =====  
=====  =====  =====  =  =====
```

For help call the Customer Service Center:
888-IBM-HELP

VTAM Customers: To exit screen, enter VMEXIT

Fill in your USERID and PASSWORD and press ENTER
(Your password will not appear when you type it)

USERID ==>

PASSWORD ==> _

COMMAND ==>

RUNNING GDLVM7

MA b DOC ↓ 21/016

Connected to remote server/host gdlvm7.pok.ibm.com using port 23



Enter one of the following commands:

LOGON userid (Example: LOGON VMUSER1)
 DIAL userid (Example: DIAL VMUSER2)
 LOGOFF

CP READ GDLVM7

MA b

DOC ↓ 23/001

Execution Modes

- Status appears at the bottom right of screen
 - ▶ **CP Read** (CP is waiting for a command)
 - ▶ **VM Read** (CMS is waiting for a command)
 - ▶ **Running** (Ready for cmds or working on some)
 - ▶ **More...** (More info than can fit on the screen)
 - 50 seconds then beep then 10 seconds
 - Determine setting: Query Term
 - Page without waiting: Term More 0 0
 - ▶ **Holding** (Waiting for you to clear the screen)
 - ▶ **Not Accepted** (Too many commands in buffer; wait for executing command to complete)



Enter one of the following commands:

LOGON userid (Example: LOGON VMUSER1)
DIAL userid (Example: DIAL VMUSER2)
LOGOFF

1 hugen2

Enter your password,

or

To change your password, enter: ccc/nnn/nnn

where ccc = current password, and nnn = new password

ICH70001I HUGEN2 LAST ACCESS AT 07:59:00 ON THURSDAY, JUNE 10, 2010

z/VM Version 5 Release 4.0, Service Level 1001 (64-bit),

built on IBM Virtualization Technology

There is no logmsg data

FILES: 0006 RDR, NO PRT, NO PUN

LOGON AT 10:03:16 EDT THURSDAY 06/17/10

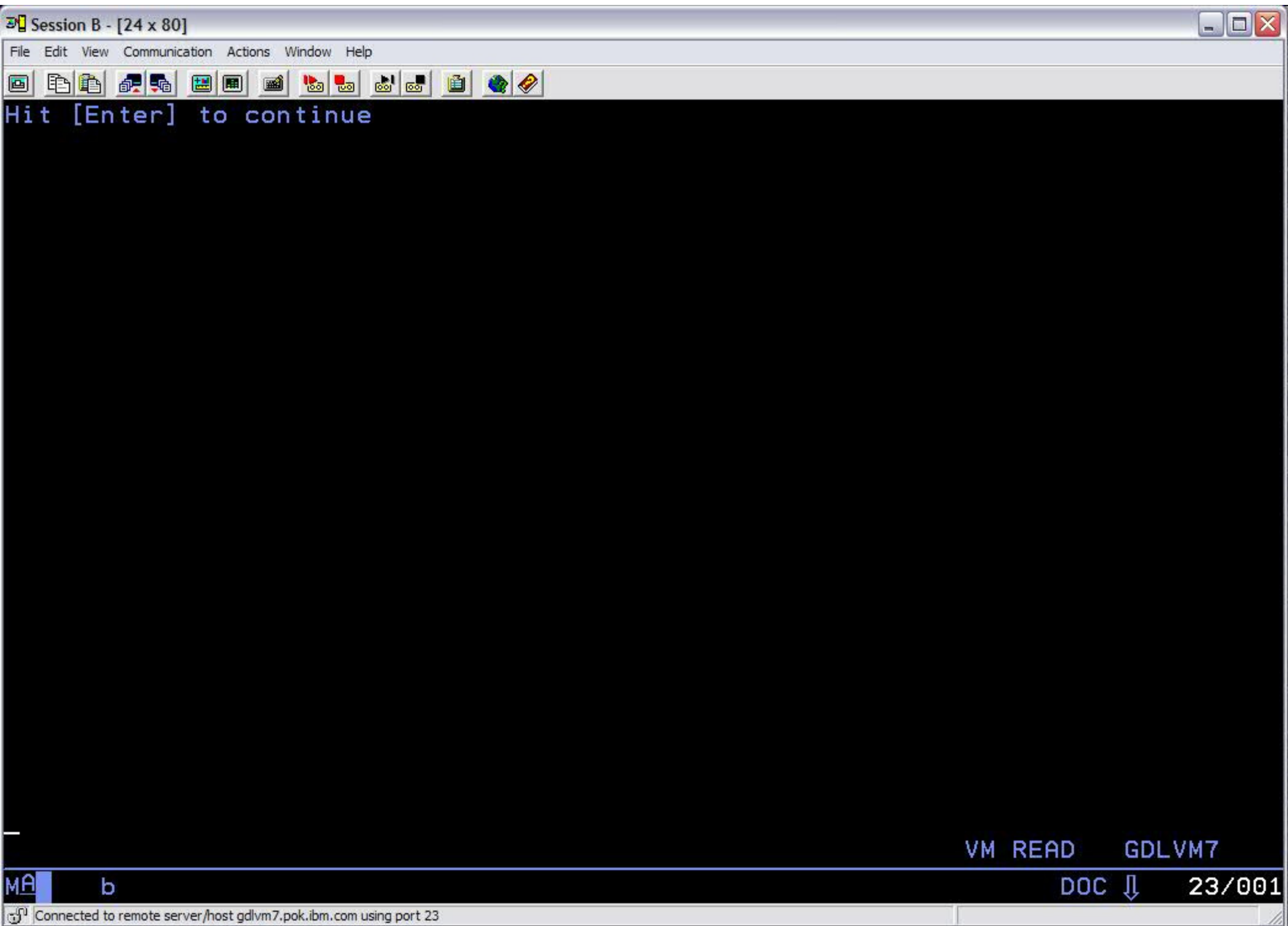
z/VM V5.4.0 2010-04-07 15:56

* Data classified as IBM CONFIDENTIAL may be processed on this system. *

HOLDING GDLVM7

MA b

DOC ↓ 23/001





HUGEN2 AT GDLVM7 VIA RSCS 06/17/10 10:03:58 EDT THURSDAY

CP LEVEL:

z/VM Version 5 Release 4.0, service level 1001 (64-bit)

Generated at 04/14/10 15:11:35 EDT

IPL at 04/17/10 10:05:57 EDT

CMS LEVEL:

z/VM Version 5 Release 4.0

STORAGE = 32M

Adjunct Status: UNAVAILABLE

FILES: 0006 RDR, 0001 PRT, NO PUN

Ready; T=0.07/0.09 10:03:58

RUNNING GDLVM7

MA b

DOC ↓ 23/001

CMS Commands

- Handles a system of files: (create, modify, debug)
- Many language processors/compiler can run under CMS
- Commands are blank-delimited
- Input accepted in ANY case
 - ▶ CMS will automatically uppercase and pass to command parser

CMS Commands

- ▶ General syntax:

Command name [operand(s)...] [(options.... [)]]

- ▶ Examples:

```
copy Profile Exec A = = C
LISTFILE ( Date
Rdrlist
```

- SET DOS ON command simulates a VSE (DOS) environment

CMS Commands

- Command Search Order -- when a command is entered, CMS has to locate it
 - ▶ Search for an EXEC with the specified command name
 - EXECs in storage
 - Command name with Filetype EXEC on accessed disk or directory (A-Z)
 - ▶ Search for translation or synonym
 - ▶ Search for a module with the specified command name
 - Nucleus extension, transient area, nucleus resident, on accessed disk/directory
 - ▶ If Command not found in CMS, it will be passed to CP for execution unless SET IMPCP is OFF (Implied CP)

CMS Commands

- Immediate Commands
 - ▶ Can be entered while another command is running
 - ▶ Interrupts the running command and executes immediately
 - ▶ 10 system immediate commands:
HB, HI, HO, HT, HX, RT, RO, SO, TE, TS
 - ▶ Users can define their own immediate commands
 - IMMCMD Macro from an Assembler program
 - IMMCMD Command from an EXEC
 - IMMCMD option on NUCXLOAD command



HUGEN2 AT GDLVM7 VIA RSCS 06/17/10 10:03:58 EDT THURSDAY

CP LEVEL:

z/VM Version 5 Release 4.0, service level 1001 (64-bit)

Generated at 04/14/10 15:11:35 EDT

IPL at 04/17/10 10:05:57 EDT

CMS LEVEL:

z/VM Version 5 Release 4.0

STORAGE = 32M

Adjunct Status: UNAVAILABLE

FILES: 0006 RDR, 0001 PRT, NO PUN

Ready; T=0.07/0.09 10:03:58

filelist * * a _

RUNNING GDLVM7

MA b

DOC ↓ 23/015



HUGEN2 FILELIST A0 V 169 Trunc=169 Size=25 Line=1 Col=1 Alt=0

Cmd	Filename	Filetype	Fm	Format	Lrecl	Records	Blocks	Date	Time
	RACF	DATA	A1	V	75	1	1	6/17/10	10:03:38
	HUGEN2	NETLOG	A0	V	108	5	1	5/18/10	6:20:35
	TEMP	FILE	A1	F	132	188	7	5/18/10	6:20:34
	PROFILE	EXEC	A2	V	50	58	1	5/18/10	4:48:19
	TDISK	EXEC	A1	V	28	7	1	5/18/10	4:47:21
	PROFILE	XEDIT	A1	V	72	14	1	4/29/10	13:26:01
	PROF2	XEDIT	A1	V	72	58	1	4/29/10	13:24:05
	GSKMAN02	FMT-TRC	A1	F	1024	417	105	2/08/10	14:48:44
	IUCVCHAT	ASSEMBLE	A1	F	80	369	8	11/05/09	14:59:28
	LASTING	GLOBALV	A1	V	271	86	1	10/06/09	13:09:00
	PFDISP	EXEC	A0	V	72	17	1	10/06/09	1:03:00
	PFSET	EXEC	A1	V	42	17	1	10/06/09	1:02:51
	HUGEN2	SYNONYM	A1	F	80	17	1	10/06/09	0:58:25
	HUGEN2	DIRECT	A1	V	80	19	1	10/06/09	0:41:58
	FOREVER	EXEC	A1	V	51	5	1	10/06/09	0:32:50
	THENEWS	ForaView	A1	F	68	1	1	9/30/09	9:34:31
	PROFILE	PITS	A1	F	80	1	1	4/15/09	12:17:47

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

MA b

DOC ↓ 03/001

```

Session B - [24 x 80]
File Edit View Communication Actions Window Help
HUGEN2  RDRLIST  A0  V 164  Trunc=164  Size=6  Line=1  Col=1  Alt=0
Cmd  Filename  Filetype  Class  User  at Node  Hold  Records  Date  Time
SSL540  VMARC  PUN A  HUGENBRU  GDLVM7  NONE  3074  2/18  10:47:11
VMSSL  CODEREV  PUN A  HUGENBRU  GDLVM7  NONE  90  2/18  10:47:58
GSKSSL  GSK-ENTS  PUN A  HUGENBRU  GDLVM7  NONE  175  2/18  10:47:58
SSL-ESP  SETUP  PUN A  HUGENBRU  GDLVM7  NONE  133  2/18  10:47:58
(none)  (none)  CON T  HUGEN2  GDLVM7  NONE  67  5/18  4:49:05
(none)  (none)  CON T  HUGEN2  GDLVM7  NONE  27  6/10  7:59:02

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 DOC ↓ 03/001
Connected to remote server/host gdlvm7.pok.ibm.com using port 23

```



Ready; T=0.01/0.01 10:07:41

forever

This exec will print the same line forever.
 This exec will print the same line forever.
 This exec will print the same line forever.
 This exec will print the same line forever.
 This exec will print the same line forever.
 This exec will print the same line forever.
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 This exec will print the same line forever.
 This exec will print the same line forever.
 This exec will print the same line forever.
 This exec will print the same line forever.
 This exec will print the same line forever.

hx_

MORE... GDLVM7

MA b

DOC ↓ 23/003

Session B - [24 x 80]

File Edit View Communication Actions Window Help

This exec will print the same line forever.
hx
CMS

VM READ GDLVM7
MA b DOC ↓ 23/001

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Session B - [24 x 80]

File Edit View Communication Actions Window Help

This exec will print the same line forever.

hx

CMS

b

Ready; T=0.01/0.01 10:08:18

RUNNING GDLVM7

MA b DOC ↓ 23/001

Connected to remote server/host gdlvm7.pok.ibm.com using port 23

CMS File System

- CMS files are unique and generally cannot be read or written by other operating systems

- Files are named using a file identifier (file ID) consisting of 3 fields:
 - ▶ File name (FN)
 - ▶ File type (FT)
 - ▶ File mode (FM) or Directory name (dirname)
 - file mode letter A-Z where minidisk or directory resides, established by ACCESS command
 - file mode number 0-6 assigned when file is created or renamed (default = 1), used to identify or operate on a subset of files

CMS File System

- Files can be stored in several ways:
 - ▶ On Minidisks (fn ft fm)
 - Standard file modes: A - user's disk, S - system disk, Y/S - installed programs
 - ▶ In an SFS (Shared File System) filespace: (GPLSRV2:HUGENBRU.REXX.)
 - ▶ On the BFS (Byte File System) (/home/userid/...)
 - hierarchical file structure
 - ▶ In NFS (Network File System)

Session B - [24 x 80]

File Edit View Communication Actions Window Help

This exec will print the same line forever.

hx

CMS

b

Ready; T=0.01/0.01 10:08:18

q disk

LABEL	VDEV	M	STAT	CYL	TYPE	BLKSZ	FILES	BLKS USED-(%)	BLKS LEFT	BLK TOTAL
HUG191	191	A	R/W	100	3390	4096	25	172-01	17828	18000
TCP592	592	B	R/O	154	3390	4096	1024	11505-42	16215	27720
BWHDSK	292	D	R/W	1	3390	4096	0	7-04	173	180
GPL1A1	1A1	F	R/O	100	3390	4096	792	14339-80	3661	18000
IUOGEN	19A	P	R/O	400	3390	4096	4899	56082-78	15918	72000
TOOLSU	121	Q	R/O	250	3390	4096	3382	22048-49	22952	45000
WWTEST	120	R	R/O	75	3390	4096	143	1179-09	12321	13500
CMS24	190	S	R/O	130	3390	4096	701	19880-85	3520	23400
USNBOB	19F	V	R/O	100	3390	4096	544	3774-21	14226	18000
WWBOBX	19B	X	R/O	300	3390	4096	4368	40624-75	13376	54000
YDISK	19E	Y/S	R/O	400	3390	4096	1700	60617-84	11383	72000

Ready; T=0.01/0.01 10:08:46

RUNNING GDLVM7

MA b DOC ↓ 23/001

Connected to remote server/host gdlvm7.pok.ibm.com using port 23



HUGEN2 DIRLIST A0 V 319 Trunc=319 Size=2 Line=1 Col=1 Alt=0

```

Cmd  Fm Directory Name
-    GPLSRV2:HUGENBRU.REXX
-    GPLSRV2:HUGENBRU.SSL

```

```

1= Help      2= Refresh  3= Quit     4= Sort(fm)  5= Sort(dir)  6= Auth
7= Backward  8= Forward  9=          10=          11= Filelist  12= Cursor

```

====>

X E D I T 1 File

MA b

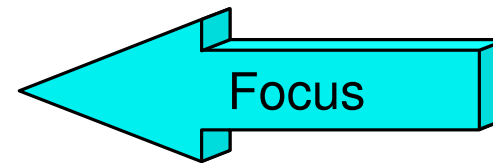
DOC ↓ 03/001

The Virtual Machine

- You're logged onto a VM, but where did it come from?
- What defines it? What can it do?
- The USER DIRECTORY is the answer for all of these
 - Defines all the virtual machines on a system
 - Controls access to minidisks
 - Controls what commands a user can issue

Sample User Directory

**USER IBMUSER IBMUSER 16M 16M G
ACCOUNT SYSTEMS
MACH XA
IPL CMS**



**CONSOLE 009 3215
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A**

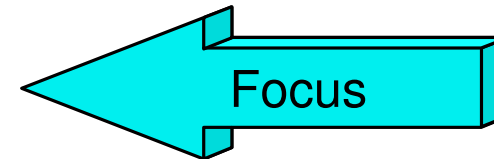
**LINK MAINT 0190 0190 RR * CMS system disk
LINK MAINT 019E 019E RR * Product code disk
LINK 5767002P 29E 29E RR
LINK 5767002P 505 305 RR
LINK 5767002P 191 192 RR
MDISK 191 3390 1535 001 510RES MR READ WRITE MULTIPLE**

Sample User Directory

**USER IBMUSER IBMUSER 16M 16M G
ACCOUNT SYSTEMS
MACH XA
IPL CMS**

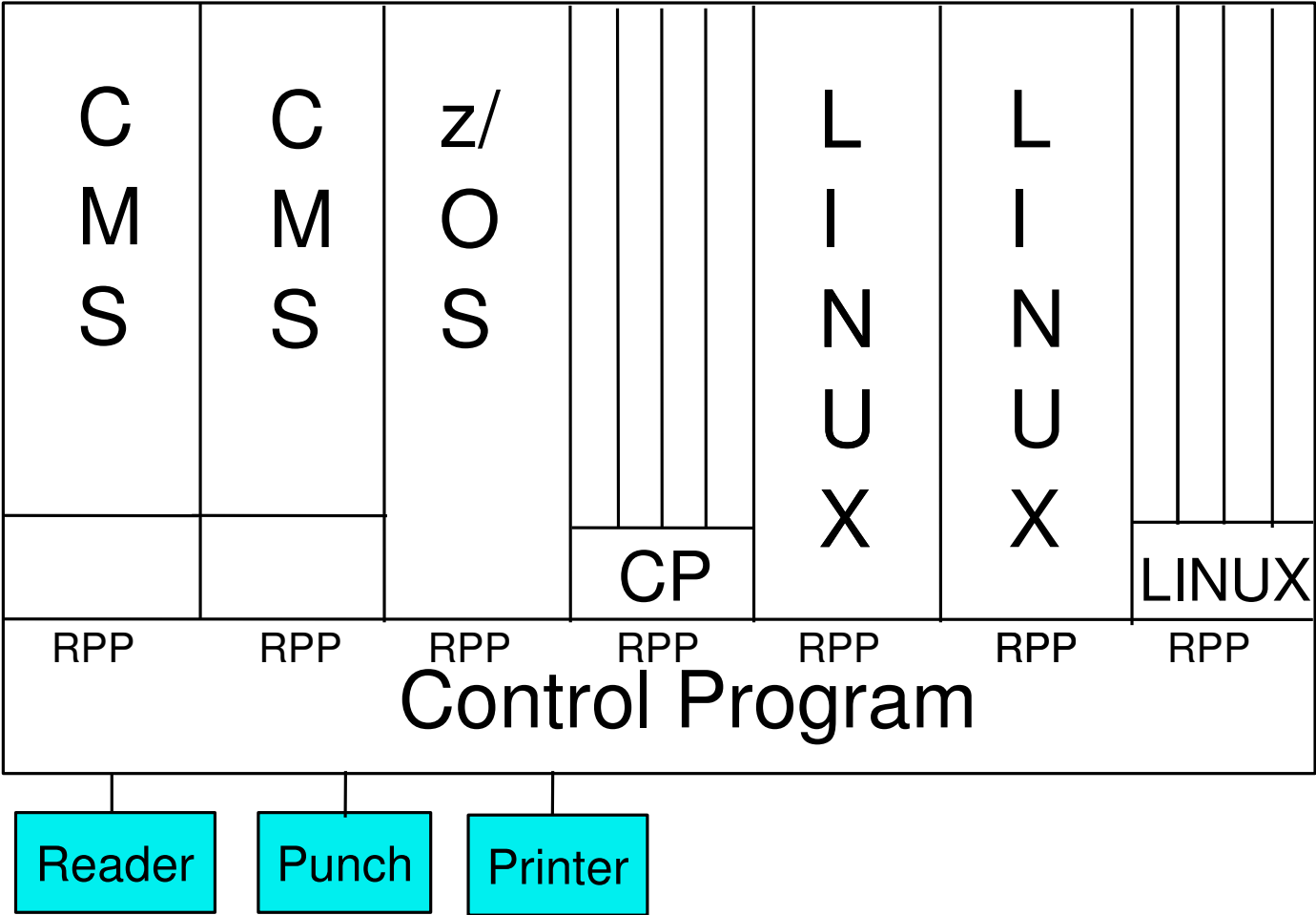
**CONSOLE 009 3215
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A**

**LINK MAINT 0190 0190 RR * CMS system disk
LINK MAINT 019E 019E RR * Product code disk
LINK 5767002P 29E 29E RR
LINK 5767002P 505 305 RR
LINK 5767002P 191 192 RR
MDISK 191 3390 1535 001 510RES MR READ WRITE MULTIPLE**



Sample User Directory

- Spool Devices:
Reader, Printer, Punch

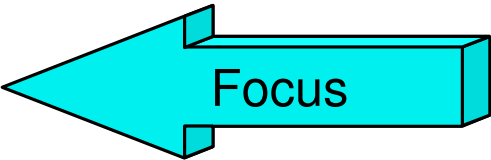


Sample User Directory

**USER IBMUSER IBMUSER 16M 16M G
ACCOUNT SYSTEMS
MACH XA
IPL CMS**

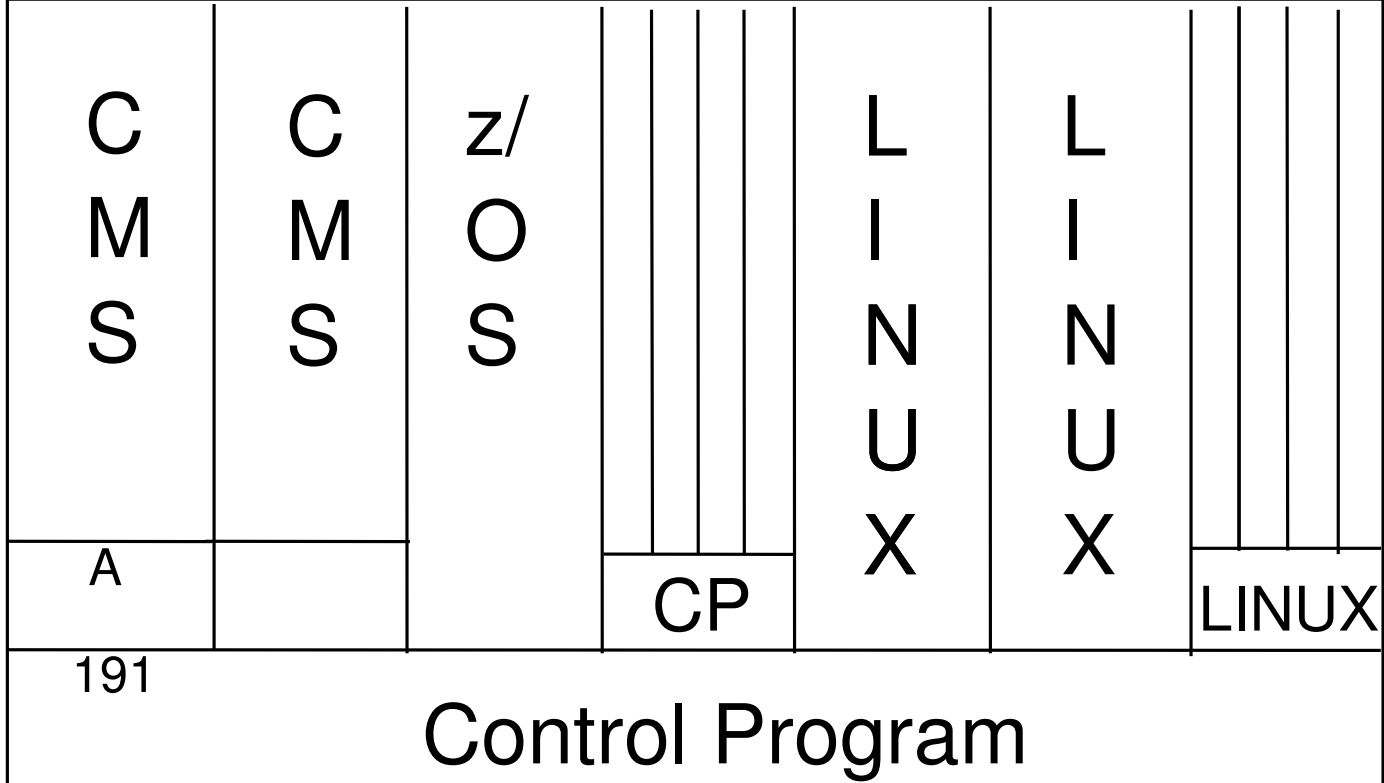
**CONSOLE 009 3215
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A**

**LINK MAINT 0190 0190 RR * CMS system disk
LINK MAINT 019E 019E RR * Product code disk
LINK 5767002P 29E 29E RR
LINK 5767002P 505 305 RR
LINK 5767002P 191 192 RR
MDISK 191 3390 1535 001 510RES MR READ WRITE MULTIPLE**



CMS Minidisks

- CMS User, Link 191 minidisk, Access as A



File system - Minidisks

- A location on real DASD which has been allocated for storage of a user's files

- Three (3) types of minidisks:
 - ▶ Permanent
 - lasts across sessions (logons); defined in directory

 - ▶ Temporary (T-disks)
 - are destroyed at logoff
 - use CP DEFINE command or attach by operator

 - ▶ Virtual disks in storage (V-disks)
 - temporary simulations of minidisks in system storage
 - not allocated on real DASD; avoids I/O overhead

File system – Minidisk Commands

■ CP DEFINE, CP LINK, CMS ACCESS

- ▶ Defines a virtual device or virtual disk in storage

```
-- DEFINE T3390 as 291 cyl 10
```

- ▶ Link to other user's minidisks to share files

```
-- LINK HUGENBRU 191 291 rr
```

- ▶ Once linked, a disk can be accessed

```
-- ACCESS 291 C
```

■ FORMAT

- ▶ **Minidisks must be formatted before using the first time**

```
-- FORMAT 291 C
```

File system – Minidisk Commands

■ RELEASE, CP DETACH

- ▶ Release frees an accessed disk

-- Release C

- ▶ Detach removes the device from your VM configuration

-- Detach 291 **-or-** Release c (detach

■ CP QUERY DASD

- ▶ Shows what you have linked; displays status

■ Q ACCESSED, Q DISK, Q SEARCH

- ▶ Shows various status information for accessed disks/directories

■ LISTFILE, FILELIST

- ▶ Lists the files on an accessed minidisk or directory

Session B - [24 x 80]

File Edit View Communication Actions Window Help

q accessed

Mode	Stat	Files	Vdev	Label/Directory
A	R/W	25	191	HUG191
B	R/O	1024	592	TCP592
D	R/W	0	292	BWHDSK
F	R/O	792	1A1	GPL1A1
P	R/O	4899	19A	IUOGEN
Q	R/O	3382	121	TOOLSU
R	R/O	143	120	WWTEST
S	R/O	701	190	CMS24
V	R/O	544	19F	USNBOB
X	R/O	4368	19B	WWBOBX
Y/S	R/O	1700	19E	YDISK

Ready; T=0.01/0.01 10:12:03

release d

Ready; T=0.01/0.01 10:12:06

detach 292

DASD 0292 DETACHED

Ready; T=0.01/0.01 10:12:09

RUNNING GDLVM7

MA b DOC ↓ 23/001

Connected to remote server/host gdlvm7.pok.ibm.com using port 23



q disk

LABEL	VDEV	M	STAT	CYL	TYPE	BLKSZ	FILES	BLKS USED-(%)	BLKS LEFT	BLK TOTAL
HUG191	191	A	R/W	100	3390	4096	25	172-01	17828	18000
TCP592	592	B	R/O	154	3390	4096	1024	11505-42	16215	27720
GPL1A1	1A1	F	R/O	100	3390	4096	792	14339-80	3661	18000
IUOGEN	19A	P	R/O	400	3390	4096	4899	56082-78	15918	72000
TOOLSU	121	Q	R/O	250	3390	4096	3382	22048-49	22952	45000
WWTEST	120	R	R/O	75	3390	4096	143	1179-09	12321	13500
CMS24	190	S	R/O	130	3390	4096	701	19880-85	3520	23400
USNBOB	19F	V	R/O	100	3390	4096	544	3774-21	14226	18000
WWBOBX	19B	X	R/O	300	3390	4096	4368	40624-75	13376	54000
YDISK	19E	Y/S	R/O	400	3390	4096	1700	60617-84	11383	72000

Ready; T=0.01/0.01 10:12:41

vdisk

DASD 0021 DEFINED

DMSFOR603R FORMAT will erase all files on disk C(021). Do you wish to continue?

Enter 1 (YES) or 0 (NO).

DMSFOR605R Enter disk label:

DMSFOR733I Formatting disk C

DMSFOR732I 100000 FB-512 blocks formatted on C(021)

Ready; T=0.01/0.01 10:12:44

RUNNING GDLVM7

MA b DOC ↓ 23/001



LABEL	VDEV	M	STAT	CYL	TYPE	BLKSZ	FILES	BLKS USED-(%)	BLKS LEFT	BLK TOTAL
HUG191	191	A	R/W	100	3390	4096	25	172-01	17828	18000
TCP592	592	B	R/O	154	3390	4096	1024	11505-42	16215	27720
TMPBWH	021	C	R/W	FB	9336	4096	0	6-00	12494	12500
GPL1A1	1A1	F	R/O	100	3390	4096	792	14339-80	3661	18000
IUOGEN	19A	P	R/O	400	3390	4096	4899	56082-78	15918	72000
TOOLSU	121	Q	R/O	250	3390	4096	3382	22048-49	22952	45000
WWTEST	120	R	R/O	75	3390	4096	143	1179-09	12321	13500
CMS24	190	S	R/O	130	3390	4096	701	19880-85	3520	23400
USNBOB	19F	V	R/O	100	3390	4096	544	3774-21	14226	18000
WWBOBX	19B	X	R/O	300	3390	4096	4368	40624-75	13376	54000
YDISK	19E	Y/S	R/O	400	3390	4096	1700	60617-84	11383	72000

Ready; T=0.01/0.01 10:13:21

RUNNING GDLVM7

MA b

DOC ↓ 23/001

Session B - [24 x 80]

File Edit View Communication Actions Window Help

link hugenbru 191 291 rr

RPIMGR032E YOU ARE NOT AUTHORIZED TO LINK TO HUGENBRU.191

HCPLNM298E HUGENBRU 0191 not linked; request denied

Ready(00298); T=0.01/0.01 10:13:53

RUNNING GDLVM7

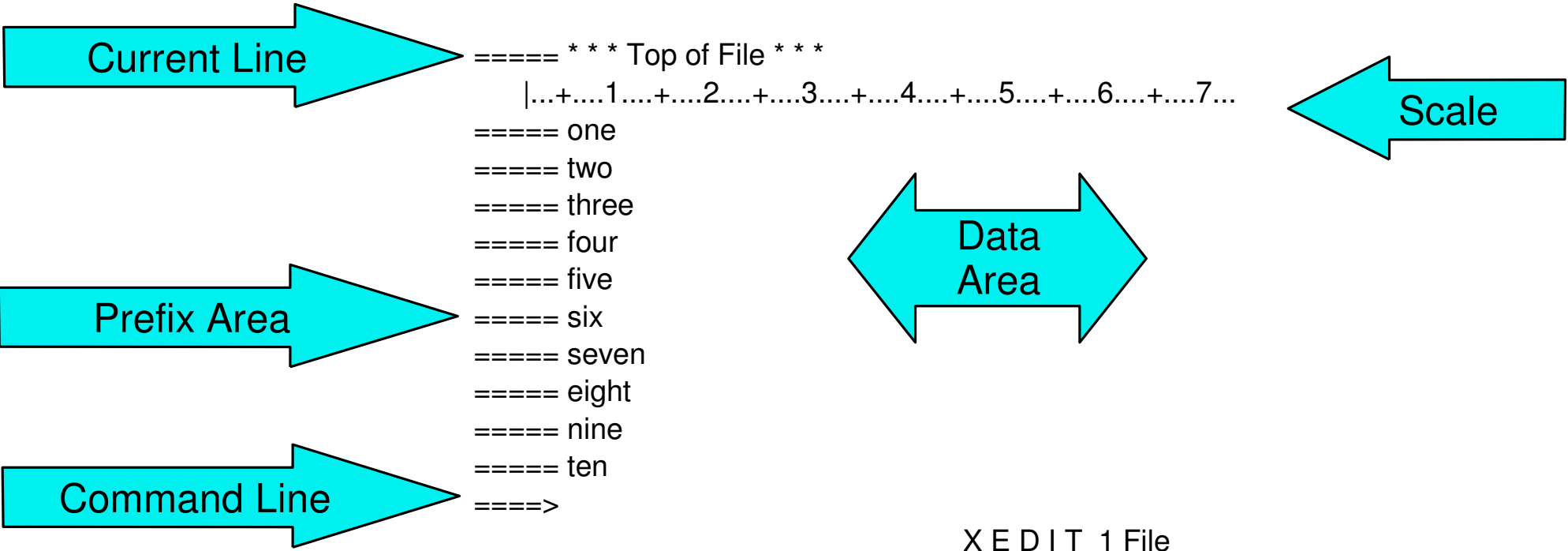
MA b DOC ↓ 23/001

Connected to remote server/host gdlvm7.pok.ibm.com using port 23

XEDIT

- Command: `Xedit fn ft fm`
- Each line is a record
- Screen Layout:

```
TEST  FILE  A1  F 80  Trunc=80  Size=45  Line=0  Col=1  Alt=0
```



XEDIT

- Prefix Commands (subset)
 - m, mm mm - move
 - c, cc cc - copy
 - f - following
 - p - preceding
 - a - add
 - si - sequential insert
 - d, dd dd - delete
 - ", "" "" - repeat

XEDIT

- Command-line commands
 - ▶ screen format
 - ▶ change /xxx/yyy/ * *
 - ▶ /zzz/ (find zzz in text)
 - ▶ all /zzz/ (find all zzz at once)

- Exiting the program
 - ▶ QQuit - leave and doesn't save changes
 - ▶ SAVE - doesn't leave, but does save changes
 - ▶ FILE - leave and save changes

XEDIT

- Write your own XEDIT commands
 - ▶ Name: yourcmdn XEDIT
 - ▶ Write using REXX
 - ▶ Can use Pipelines

XEDIT

■ Default Program Function Keys

- PF1 BEFORE HELP MENU
- PF2 BEFORE SOS LINEADD
- PF3 BEFORE QUIT
- PF4 BEFORE TABKEY
- PF5 BEFORE SCHARGE 6
- PF6 ONLY ?
- PF7 BEFORE BACKWARD
- PF8 BEFORE FORWARD
- PF9 ONLY =
- PF10 BEFORE RGTLEFT
- PF11 BEFORE SPLTJOIN
- PF12 BEFORE CURSOR HOME

XEDIT

- PROFILE XEDIT runs when XEDIT is invoked
- Sample: PROFILE XEDIT

```
/* PROFILE XEDIT */  
'SET VERIFY OFF 1 72'  
'SET NUMBER ON'  
'SET PREFIX NULL'  
'SET CASE MIXED IGNORE'  
'SET CURLINE ON 4'  
'SET SCALE OFF'  
'SET AUTOSAVE 1'
```

- Note: Xedit is very tailorable !

Session B - [24 x 80]

File Edit View Communication Actions Window Help

HUGEN2 FILELIST A0 V 169 Trunc=169 Size=3 Line=1 Col=1 Alt=0

Cmd	Filename	Filetype	Fm	Format	Lrecl	Records	Blocks	Date	Time
	PROFILE	XEDIT	A1	V	72	14	1	4/29/10	13:26:01
	PROFILE	XEDIT	V1	V	70	26	1	4/26/07	18:20:45
	PROFILE	XEDIT	P1	V	76	138	3	8/01/94	14:06:40

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

====>

X E D I T 1 File

MA b DOC ↓ 03/001

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PROFILE XEDIT A1 V 255 Trunc=255 Size=14 Line=0 Col=1 Alt=0

```
0 * * * Top of File * * *
1 /* PROFILE XEDIT */
2 'SET VERIFY OFF 1 72'
3 'SET NUMBER ON'
4 'SET PREFIX ON LEFT' /* Place prefix area at left side of screen */
5 'SET PREFIX NULL'
6 'SET NULLS ON'
7 'SET CASE MIXED IGNORE'
8 'SET CURLINE ON 4'
9 'SET SCALE OFF'
10 'SET AUTOSAVE 1'
11
12 'SET COLOR PREFIX BLUE' /* To make Pref area distinct from filearea */
13 'SET COLOR ARROW WHITE' /* Color of command line arrow is white */
14 'SET COLOR FILEAREA GREEN' /* To ensure filearea is diff from prefix */
15 * * * End of File * * *
```

====>

_

X E D I T 1 File

MA b DOC ↓ 23/007

```

Session B - [24 x 80]
File Edit View Communication Actions Window Help
PROFILE XEDIT A1 V 255 Trunc=255 Size=14 Line=0 Col=1 Alt=0
*** Top of File ***
1 /* PROFILE XEDIT */
2 'SET VERIFY OFF 1 72'
3 'SET NUMBER ON'
4 'SET PREFIX ON LEFT' /* Place prefix area at left side of screen */
5 'SET PREFIX NULL'
6 'SET NULLS ON'
7 'SET CASE MIXED IGNORE'
8 'SET CURLINE ON 4'
9 'SET SCALE OFF'
10 'SET AUTOSAVE 1'
11
12 'SET COLOR PREFIX BLUE'/* To make Pref area distinct from filearea */
13 'SET COLOR ARROW WHITE'/* Color of command line arrow is white */
14 'SET COLOR FILEAREA GREEN'/* To ensure filearea is diff from prefix */
15 *** End of File ***
=> _
XEDIT 1 File
MA b DOC 23/007
Connected to remote server/host gdlvm7.pok.ibm.com using port 23

```

XEDIT

■ ISPF prefixes - PROFILE XEDIT

```
/* to mimic ISPF          */  
'SET PREFIX SYNONYM B P   '  
'SET PREFIX SYNONYM A F   '  
'SET PREFIX SYNONYM R "   '  
'SET PREFIX SYNONYM RR ""  '
```

REXX and EXECs

- File types: EXEC, EXEC2, and REXX

- Quick notes on REXX:
 - ▶ `/*` always starts with a comment `*/`
 - ▶ Contains Variables and Stemmed Arrays
 - Stores Strings and Numbers as strings
 - ▶ Has 'flow control'
 - do and do...while
 - If...then, else, select
 - ▶ Allows Functions and Procedures
 - ▶ Allows for Pipelines
 - ▶ Issues CP/CMS commands (in quotes)

REXX and EXECs

- PROFILE EXEC runs when you sign on
- Contains all the tailoring and configuration desired for this virtual machine
- Can also issue commands at start-up



PROFILE EXEC A2 V 130 Trunc=130 Size=55 Line=0 Col=1 Alt=0

```
0 * * * Top of File * * *
1 /* profile exec for HUGEN2 at GDLVM7 */
2
3 Signal on NOVALUE
4
5 'SYNONYM HUGEN2 SYNONYM A'
6
7 'spool console to * start'
8 'CP SCREEN CPOUT WHITE '
9 'CP SCREEN VMOUT BLUE '
10 'CP SCREEN INREDISP GREEN '
11 'CP SET LINEDIT ON'
12 'CP SET RETRIEVE MAX'
13 'CP TERM HILIGHT ON
14 'CP SET EMSG ON'
15 'globalv init'
16
17 'EXEC PFSET'
18
```

====>

_

XEDIT 1 File

MA b

DOC ↓ 23/007


```
Session B - [24 x 80]
File Edit View Communication Actions Window Help
PROFILE EXEC A2 V 130 Trunc=130 Size=36 Line=19 Col=1 Alt=0
18 'EXEC RAC PWQ' /* query password expiration */
19 'EXEC BRACKET'
20
21 say 'Hit [Enter] to continue'
22 pull .
23 'VMFCLEAR'
24 /* */
25 /* Start-Up User Information */
26 /* */
27 'ID'
28 say 'CP LEVEL:'
29 'Q CPLEVEL'
30 say 'CMS LEVEL:'
31 'Q CMSREL'
32 'Q V STOR'
33 say 'Adjunct Status: ' adjstatus
34
35 'CP QUERY FILES'
36 Exit
37 * * * End of File * * *
====>
_
X E D I T 1 File
MA b DOC ↓ 23/007
Connected to remote server/host gdlvm7.pok.ibm.com using port 23
```



HUGEN2 SYNONYM A1 F 80 Trunc=80 Size=10 Line=0 Col=1 Alt=0

```

0 * * * Top of File * * *
1 BROWSE    BR            2
2 COPYFILE COPY          4
3 DISCARD   DIS          3
4 ERASE     ER           2
5 FILELIST  FILEL        1
6 FILELIST  LS           2
7 RDRLIST   RL           2
8 RENAME    MV           2
9 SENDFILE  SF           2
10 SENDRDR  SENDR        5
11 * * * End of File * * *

```

====> _

X E D I T 1 File

MA b

DOC ↓ 23/007



TDISK EXEC A1 V 130 Trunc=130 Size=7 Line=0 Col=1 Alt=0

```

0 * * * Top of File * * *
1 /* creates a tdisk */
2
3 'DEFINE T3390 AS 0292 CYL 1'
4
5 queue '1'
6 queue 'BWHDSK'
7 'FORMAT 0292 D'
8 * * * End of File * * *

```

====> _

XEDIT 1 File

MA b

DOC ↓ 23/007



FOREVER EXEC A1 V 130 Trunc=130 Size=4 Line=0 Col=1 Alt=0

```

0 * * * Top of File * * *
1 /* */
2 do forever
3   say 'This exec will print the same line forever.'
4 end
5 * * * End of File * * *

```

====>

XEDIT 1 File

MA b

DOC ↓ 23/007

Debugging

■ Record your console

- spool console to * start (to start recording)
- ... (do work here)
- spool console stop close (punch console to reader)
- query reader all (to get the spool id)
 - rdrlist
- peek {spool id} (for * (to look at the console)
- receive {spool id} fn ft fm (to save console in a file)



Ready; T=0.01/0.01 10:18:21

SPOOL CONSOLE STOP CLOSE

RDR FILE 0079 SENT FROM HUGEN2 CON WAS 0079 RECS 0151 CPY 001 T NOHOLD NOKEEP

Ready; T=0.01/0.01 10:18:32

RUNNING GDLVM7

MA b

DOC ↓ 23/001

Session B - [24 x 80]

File Edit View Communication Actions Window Help

HUGEN2 RDRLIST A0 V 164 Trunc=164 Size=7 Line=1 Col=1 Alt=0

Cmd	Filename	Filetype	Class	User	at Node	Hold	Records	Date	Time
	SSL540	VMARC	PUN A	HUGENBRU	GDLVM7	NONE	3074	2/18	10:47:11
	VMSSL	CODEREV	PUN A	HUGENBRU	GDLVM7	NONE	90	2/18	10:47:58
	GSKSSL	GSK-ENTS	PUN A	HUGENBRU	GDLVM7	NONE	175	2/18	10:47:58
	SSL-ESP	SETUP	PUN A	HUGENBRU	GDLVM7	NONE	133	2/18	10:47:58
	(none)	(none)	CON T	HUGEN2	GDLVM7	NONE	67	5/18	4:49:05
	(none)	(none)	CON T	HUGEN2	GDLVM7	NONE	27	6/10	7:59:02
	(none)	(none)	CON T	HUGEN2	GDLVM7	NONE	151	6/17	10:03:37

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 DOC ↓ 09/001

Connected to remote server/host gdlvm7.pok.ibm.com using port 23

0079 PEEK A0 V 133 Trunc=133 Size=151 Line=48 Col=1 Alt=0

File (none) (none) from HUGEN2 at GDLVM7 Format is CONSOLE.

This exec will print the same line forever.

This exec will print the same line forever.

This exec will print the same line forever.

hx

CMS

b

Ready; T=0.01/0.01 10:08:18

q disk

LABEL	VDEV	M	STAT	CYL	TYPE	BLKSZ	FILES	BLKS USED-(%)	BLKS LEFT	B
HUG191	191	A	R/W	100	3390	4096	25	172-01	17828	
TCP592	592	B	R/O	154	3390	4096	1024	11505-42	16215	
BWHDSK	292	D	R/W	1	3390	4096	0	7-04	173	
GPL1A1	1A1	F	R/O	100	3390	4096	792	14339-80	3661	
IUOGEN	19A	P	R/O	400	3390	4096	4899	56082-78	15918	
TOOLSU	121	Q	R/O	250	3390	4096	3382	22048-49	22952	
WVTEST	120	R	R/O	75	3390	4096	143	1179-09	12321	
CMS24	190	S	R/O	130	3390	4096	701	19880-85	3520	

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

====> _



```
0079      PEEK      A0  V 133  Trunc=133  Size=151  Line=136  Col=1  Alt=0
```

```
File (none) (none) from HUGEN2 at GDLVM7 Format is CONSOLE.
```

```
CMS24  190  S   R/O   130 3390 4096      701      19880-85      3520
```

```
USNBOB 19F  V   R/O   100 3390 4096      544      3774-21      14226
```

```
WWBOBX 19B  X   R/O   300 3390 4096     4368     40624-75     13376
```

```
YDISK  19E  Y/S R/O   400 3390 4096     1700     60617-84     11383
```

```
Ready; T=0.01/0.01 10:13:21
```

```
link hugenbru 191 291 rr
```

```
RPIMGR032E YOU ARE NOT AUTHORIZED TO LINK TO HUGENBRU.191
```

```
HCPLNM298E HUGENBRU 0191 not linked; request denied
```

```
Ready(00298); T=0.01/0.01 10:13:53
```

```
filel profile xedit *
```

```
Ready; T=0.01/0.01 10:15:44
```

```
filel profile exec *
```

```
Ready; T=0.01/0.01 10:17:12
```

```
filel * exec a
```

```
Ready; T=0.01/0.01 10:18:21
```

```
SPOOL CONSOLE STOP CLOSE
```

```
* * * 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 b
```

```
DOC ↓ 23/007
```

Debugging

■ Tracing

- trace i r12345.10
 - trace instructions @ location 12345 for x'10' bytes
- display g (display general registers)
- d t12345.20 (display translated storage for x20)
- b (begin execution)
- trace end (end tracing)

■ Dumps

- VMDUMP
- VM Dump Tool

Help!

- **HELP Facility**
 - ▶ HELP command
 - ▶ HELP msg DMSxxxE
 - ▶ CP Link MAINT 19D 19D rr
 - link for HELP disk



COMMANDS LINK Brief Help Information line 1 of 11

LINK

The LINK command lets you look at another person's files.

FORMAT: LINK userid vdev1 vdev2 mode password

EXAMPLE: To link to Pat's 191 disk as your 196 disk, enter:

link pat 191 196 rr share

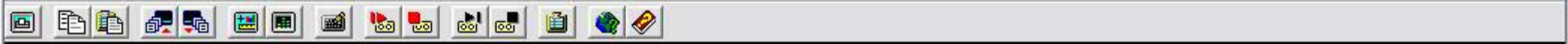
PF1= All	2= Top	3= Quit	4= Return	5= Clocate	6= ?
PF7= Backward	8= Forward	9= PFkeys	10=	11=	12= Cursor

====> _

Macro-read 1 File

MA b

DOC ↓ 23/007



COMMANDS LINK All Help Information line 1 of 608

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LINK

```

                                     .-RR---.
>>--LINK-- .----. --. --userid-. --vdev1-- .----. --vdev2-- +-----+----->
          '-TO-'   '-*-----'          '-AS-'          '-mode-'
>-----><
|                                     (1) |
|-----|
| .----. --password-----|
|'-PASS=-'|

```

Note:
(1) The password operand is not accepted if password suppression is active.

Authorization

PF1= Brief	2= Top	3= Quit	4= Return	5= Clocate	6= ?
PF7= Backward	8= Forward	9= PFkeys	10=	11=	12= Cursor

====> _

Macro-read 1 File

Further Reference

- **Speaker:** Brian Hugenbruch
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 - Web: <http://www.vm.ibm.com/devpages/hugenbru>
 - Phone: USA 607.429.3660

- **Web sites:**
 - <http://www.vm.ibm.com/> -- zVM on the Web
 - <http://www.vm.ibm.com/library> -- the online zVM Library
 - <http://www.vm.ibm.com/education> -- presentations, classes and information

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