



Configuring, Customizing and Modifying Your VM System (Without an IPL)

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John Franciscovich
z/VM Development
Endicott, NY
francisj@us.ibm.com

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Topics

- *The Basics*
- *Using the Stand Alone Program Loader*
- *Defining and Modifying the System Configuration*
 - ▶ Configuration File Statements and CP Commands
- *Logos*
- *More Configuration File Statements*

Configuring z/VM: The Basics

CP Configurability

Change system-wide definitions and defaults without IPL

- ▶ timezone
- ▶ system operator
- ▶ log messages
- ▶ security features
- ▶ paging and spooling areas
- ▶ command class restructure
- ▶ CP Exits and extensions to CP such as user Diagnose codes

Change definitions without rebuilding the system

- ▶ Checkpoint and Warmstart locations and size
- ▶ Size of CP Trace Table

Add new devices without an IPL

- ▶ no need to update configuration files

Dynamic I/O Configuration

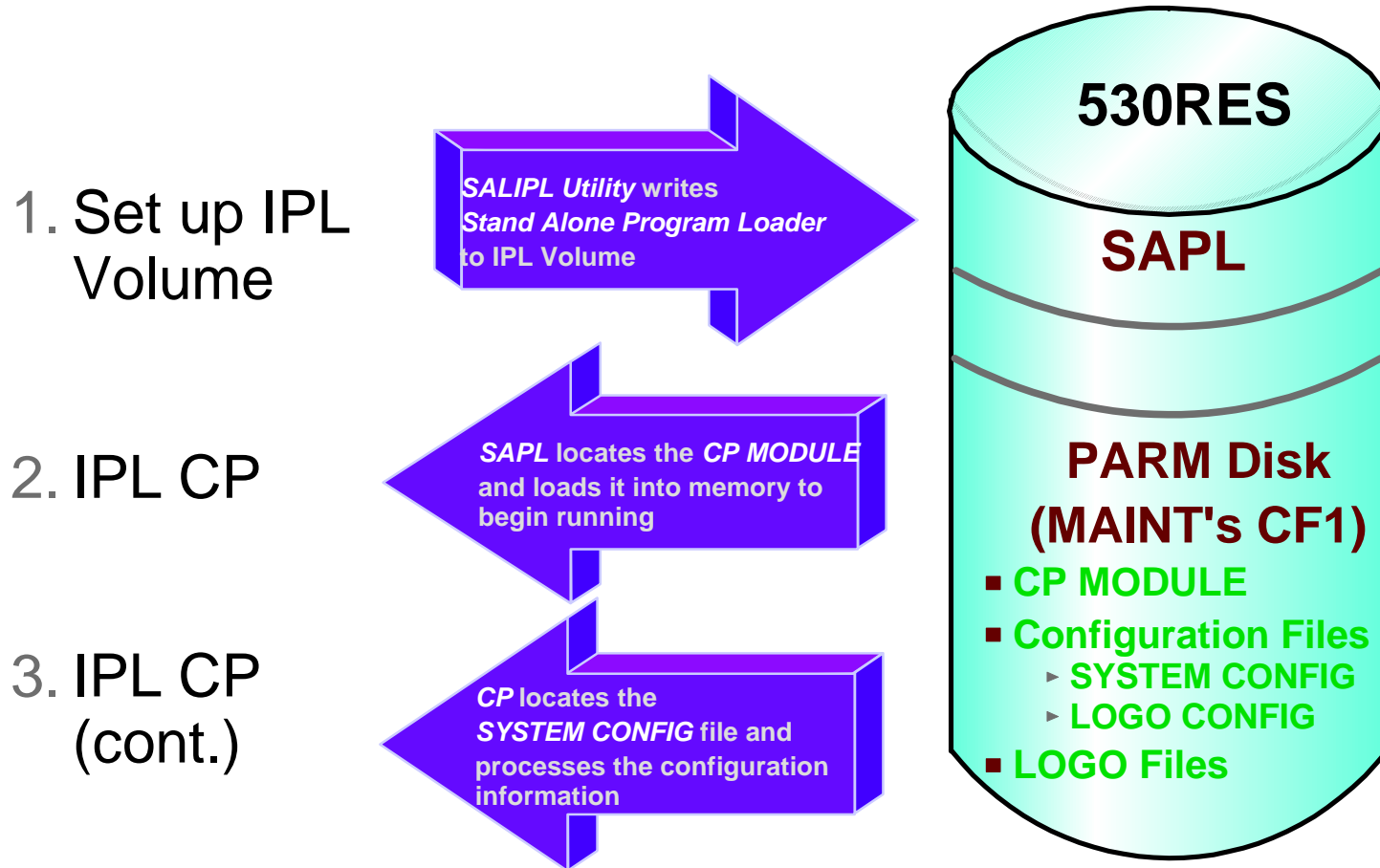
Modify the hardware I/O definitions (IOCDs) without an outage

- ▶ Add, change, delete
 - CHPID
 - CNTLUNIT
 - IODEVICE
- ▶ Manage I/O definitions for all LPARs on a processor
- ▶ Commands based on hardware requirements

Modify the software view of I/O definitions

- ▶ Reset I/O control blocks
 - Devices that do not support Sense commands
 - Clear control blocks of devices with errors

CP Configurability - The Big Picture



The PARM Disk

A CMS-formatted disk that CP uses during initialization

- ▶ Default PARM disks:
 - MAINT CF1 (Primary)
 - MAINT CF2 (Test)
 - MAINT CF3 (Backup)

Usually on the IPL volume

- ▶ Multiple PARM extents may be defined on the IPL and other volumes
- ▶ IPLPARMS may be used to locate the PARM disk by
 - Address of device containing PARM disk
 - Cylinder offset
 - Number of PARM extent

Contains

- ▶ System and logo configuration files
- ▶ CP module to be IPLed (usually)

The PARM Disk...

- *PARM disks may be accessed by CP after IPL*
 - ▶ CP_ACCESS statement in system configuration file
 - ▶ CPACCESS command
 - ▶ CPRELEASE command releases disk accessed by CP

- *Files may be cached by CP to reduce I/O to parm disk*
 - ▶ CPCACHE command for specific files
 - ▶ List in file CPCACHE FILES
 - Read into storage when parm disk is CPACCESSEd
 - Sample:

*	CONFIG
*	LOGMS*
*	LOGO
INPTAREA	DEFAULT

Changing Files on a CPACCESSed Disk

To change files on a CPACCESSed disk:

1. QUERY CPDISKS
 - Determine what mode CP is accessing the disk
2. CPRELEASE fm
 - Release the disk from CP
3. LINK/ACCESS the disk in R/W mode
4. Update files as required
 - Logo Files
 - Configuration Files
5. RELEASE/DETACH disk
6. LINK to disk in R/O mode
7. CPACCESS owner vdev fm mode
 - CP will read updated files

Using the Stand Alone Program Loader

Stand Alone Program Loader (SAPL)

Loads CP module from IPL disk

- ▶ Can be used to load programs other than your default CP module
 - DDR Stand-alone DDR
 - DIRECTXA Stand-alone DIRECTXA
 - ICKSADSF Stand-alone ICKDSF

Allows you to specify or modify

- ▶ IPL information
 - CP module location (minidisk extent or offset)
 - CP MODULE name
- ▶ IPL parameters
 - Console address
 - PARM disk location
 - System configuration filename and filetype
 - Whether to PROMPT for date/time and warm/cold start
 - Amount of available real memory to be used by CP

SALIPL Utility...

Writes SAPL to cylinder zero of IPL volume (default)

- ▶ Starting on block 5 of FBA volume

Allows SAPL defaults to be altered

- ▶ Module name
- ▶ Load origin address
- ▶ Location of CMS minidisk containing load module

IPL parameters may be specified

Up to 4 lines of operator instructions may be specified

```
salipl 123 (extent 1 module cpnew comments ? iplparms fn=syszvm
HCPSAL6803I ENTER UP TO 4 LINES OF COMMENTS
Use the CPNEW module to IPL the newest release of z/VM
```

```
HCPSAL6798I VOLUME ID IS 520RES
HCPSAL6797I MINIDISK VOLID AT OFFSET 5 IS IPLDSK
Ready;
```

SAPL Panel

- *May be displayed using LOADPARAM option*
- *Allows all saved SAPL settings to be changed*
 - ▶ **IPL 123 LOADPARAM 0009**

```
STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 2.0

DEVICE NUMBER:  0123      MINIDISK OFFSET:  00000000  EXTENT:  1
MODULE NAME:    CPNEW     LOAD ORIGIN:      1000

-----IPL PARAMETERS-----
fn=syszvm

-----COMMENTS-----
Use the CPNEW module to IPL the newest release of z/VM

-----
9= FILELIST  10= LOAD  11= TOGGLE EXTENT/OFFSET
```

SAPL Filelist Example

```

STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 2.0
FILENAME FILETYPE FORMAT LRECL   RECORDS     BLOCKS     DATE       TIME
PARM     DISK1     V         20         1           1 2006/09/12 22:09:49
CPNEW    MODULE     V        65535       265        4217 2006/09/12 22:07:57
SYSZVM   CONFIG     F         80        289         6 2006/09/12 11:00:58
CPLOAD   MODULE     V        65535       224        3561 2006/09/12 10:45:45
LASTING  GLOBALV    V         22         4           1 2006/09/12 10:45:21
DV       CONFIG     F         80        297         6 2006/01/11 17:02:41
INPTAREA SAMPLE     F         78         6           1 2005/06/17 16:28:42
LOGO     CONFIG     F         80        35           1 2005/06/17 16:28:33
VM72ND   CONFIG     F         80        214         5 2005/06/15 15:15:16
GDLVM7   CONFIG     F         80        429         9 2005/05/19 16:23:54
SYSTEM   CONFIG     F         80        289         6 2004/07/02 11:39:11
ONMESS   SHARE      F         78         1           1 2004/02/06 15:15:06
ONMESS   LOGO       F         78         1           1 2004/02/06 15:15:06
ONMESS   SAMPLE     F         78         1           1 2004/02/04 14:11:54
SYSNOCSE CONFIG     F         80        291         6 2004/01/30 16:30:44
JAF1RDEV CONFIG     F         80         76         2 2003/06/10 14:29:23
JAF1CSE  CONFIG     F         80         36         1 2002/12/05 11:11:39
3=QUIT  4=SORT (TYPE) 5=SORT (DATE) 6=SORT (NAME) 7=BACK 8=FORWARD 11=SELECT

```


IPLing z/VM from a SCSI Disk

SCSI disks emulated as 9336 Model 20 FBA DASD

- ▶ Larger emulated sizes supported (up to 381 GB)

All disks containing IPL information must be on same WWPN and LUN

- ▶ IPL (FCP) Device (where SAPL is)
- ▶ SYSRES disk (where CP module is)
- ▶ Parm Disk (where system configuration file is)

SAPL contains small SCSI device driver

- ▶ Loads CP module from SCSI disk

CP uses SCSI device driver to

- ▶ Initialize PARM disk
- ▶ Read system configuration file

IPLing z/VM from a SCSI Disk...

- *SAPL is loaded by the machine loader*
- *SCSI-specific parameters specified on Hardware Management Console*

The screenshot shows a 'Load' dialog box with the following fields and values:

CPC:	P0016F5A
Image:	TPAT
Load type:	<input type="radio"/> Normal <input type="radio"/> Clear <input checked="" type="radio"/> SCSI <input type="radio"/> SCSI dump
<input type="checkbox"/> Store status	
Load address	2C00
Load parameter	
Time-out value	060 60 to 600 seconds
World wide port name	5005076300C204DA
Logical unit number	5153000000000000
Boot program selector	0
Boot record logical block address	0000000000000078
OS specific load parameters	20

Buttons at the bottom: OK, Reset, Cancel, Help

IPLing z/VM from a SCSI Disk...

"PDVOL= addr" IPL parameter is required

- ▶ Defines emulated FBA address of SCSI IPL Device to CP
- ▶ Should **NOT** match address of any real devices
 - Error message; real device is ignored by CP
- ▶ May be specified on SALIPL command or SAPL panel

```
salipl 123 (extent 1 module cpnew comments ? iplparms fn=syszvm pdvol=555
```

```
STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 2.0

DEVICE NUMBER:  0123      MINIDISK OFFSET:  00000000      EXTENT:  1
MODULE NAME:    CPNEW     LOAD ORIGIN:      1000

-----IPL PARAMETERS-----
fn=syszvm pdvol=555

-----COMMENTS-----
```

Defining and Modifying the System Configuration

The System Configuration File

CMS file which resides on the PARM disk

- ▶ Default name/type is SYSTEM CONFIG

Defines characteristics of z/VM system at IPL time

- ▶ System definition parameters
- ▶ Device definitions when:
 - Characteristics other than defaults need to be defined for specific device(s)
 - A device does not respond to sense ID commands
 - Handling of a specific device at IPL time is other than default

The System Configuration File...

Defines system-wide options

- ▶ which devices to bring online at IPL time
- ▶ which timezone to select
- ▶ whether to autolog special user IDs
- ▶ whether to automatically do a specified type of IPL
- ▶ number of command retrieve buffers
- ▶ default terminal characters- owned disk volumes
- ▶ ...

CPSYNTAX Utility

Checks syntax of system configuration file statements

- ▶ Includes imbedded files if on the same disk as base file

Does not check configuration logic or integrity

Consists of 2 files

- ▶ CPSYNTAX EXEC
- ▶ CPSYNCHK MODULE

Recommend ALWAYS running after changing configuration file

- ▶ Remove errors that may keep your system from completing IPL

Dynamically Changing Your CP Configuration

- *CP commands change characteristics defined by configuration file statements*
 - ▶ DEFINE/QUERY
 - CPOWNER
 - (spooling device)
 - TIMEZONE
 - ▶ SET/QUERY
 - LAN
 - PROMPT
 - RDEVICE
 - EDEVICE
 - TIMEZONE
 - RETRIEVE
 - VSWITCH
 - ▶ START/DRAIN DASD

Configuration Statements and CP Commands

RDEVICE Statement

Tell CP what kind of devices are at specific addresses

- ▶ Unit Record
 - Printers, Card punches/readers
- ▶ Communication controllers and line adapters
- ▶ DASD
- ▶ Graphic display devices
- ▶ Special devices
- ▶ Tape units
- ▶ Unsupported devices

Use:

- ▶ To define characteristics of specific devices
 - Alter default characteristics
- ▶ When devices can't be sensed

SET RDEVICE Command

Modify an active system's definition of specific device(s)

- ▶ Add devices to configuration
- ▶ Remove devices from configuration
- ▶ Modify definition of specific device(s)
- ▶ Change the type of device at a specific address

Devices must be varied offline before they can be changed

Changing a CP Command Definition

MODIFY COMMAND / CMD Statement

- ▶ Change privilege class(es) of a command
- ▶ Change entry point that processes a command
- ▶ Suppress responses for ATTACH, DETACH, GIVE commands

```
MODIFY Command LOCATE IBMclass C Privclasses G
```

```
QUERY CPCMDS LOCATE
```

```
Command: LOCATE
```

```
Status:      Enabled      Not Silent
IBM Class:   C             PrivClasses: G
CMDBK Address: 00E9C6B0   Entry Point: HCPCFDLO
```

```
Command: -----
```

```
Status:      Enabled      Not Silent
IBM Class:   C             PrivClasses: C
CMDBK Address: 01200780   Entry Point: HCPCFDLO
```

```
Command: LOCATE
```

```
Status:      Enabled      Not Silent
IBM Class:   E             PrivClasses: E
CMDBK Address: 00E9C720   Entry Point: HCPCFDLO
```

MODIFY COMMAND / CMD Command

- ▶ Change same attributes of CP commands on active system

Privilege Classes

A user's privilege class(es) are defined in the directory

```
USER OPERATOR U 32M 2047M ABCDEG
USER U1        U 32M 32M    G
```

User is given directory privilege classes at LOGON

```
QUERY PRIVCLASS OPERATOR
```

```
Privilege classes for user OPERATOR
```

```
    Currently: ABCDEG
```

```
    Directory: ABCDEG
```

```
The privilege classes are not locked against changes.
```

```
QUERY PRIVCLASS U1
```

```
Privilege classes for user U1
```

```
    Currently: G
```

```
    Directory: G
```

```
The privilege classes are not locked against changes.
```

Privilege Classes...

SET PRIVCLASS command can be used to change a logged on user's privilege classes

- ▶ Self (Any privilege class)
 - Can set to privilege classes allowed in directory
- ▶ Others (Privilege class C)
 - Can set any privilege classes

```
SET PRIVCLASS OPERATOR -E
Privilege classes for user OPERATOR
    Currently: ABCDG
    Directory: ABCDEG
The privilege classes are not locked against changes.
```

```
SET PRIVCLASS U1 +CD
Privilege classes for user U1
    Currently: CDG
    Directory: G
The privilege classes are not locked against changes.
```

Requires SET_PRIVCLASS to be enabled on FEATURES statement in system configuration file

Modifying Commands and Privilege Classes - Example

Modify SHUTDOWN and FORCE commands to limit usage

- Requires privilege class A

```
MODIFY COMMAND SHUTDOWN PRIVCLASS Z
```

```
MODIFY COMMAND FORCE PRIVCLASS Z
```

```
Q CPCMDS SHUTDOWN
```

```
Command: SHUTDOWN
```

```
Status:      Enabled      Not Silent
IBM Class:   A             PrivClasses: Z
CMDBK Address: 00E9DFA0    Entry Point: HCPSHUTD
```

```
Command: -----
```

```
Status:      Enabled      Not Silent
IBM Class:   A             PrivClasses: A
CMDBK Address: 01169A88    Entry Point: HCPSHUTD
```

```
Q CPCMDS FORCE
```

```
Command: FORCE
```

```
Status:      Enabled      Not Silent
IBM Class:   A             PrivClasses: Z
CMDBK Address: 00E9BF40    Entry Point: HCPUSOFL
```

```
Command: -----
```

```
Status:      Enabled      Not Silent
IBM Class:   A             PrivClasses: A
CMDBK Address: 01169768    Entry Point: HCPUSOFL
```

Modifying Commands and Privilege Classes - Example...

Allow only user OPERZ to issue SHUTDOWN and FORCE when needed

From user OPERZ:

```
QUERY PRIVCLASS
```

```
Privilege classes for user OPERZ
```

```
Currently: AG
```

```
Directory: AG
```

```
The privilege classes are not locked against changes.
```

```
FORCE U1
```

```
Unknown CP/CMS command
```

From user with Class C privilege:

```
SET PRIVCLASS OPERZ +Z
```

```
Privilege classes for user OPERZ
```

```
Currently: AGZ
```

```
Directory: AG
```

```
The privilege classes are not locked against changes.
```

From user OPERZ:

```
FORCE U1
```

```
USER DSC LOGOFF AS U1 USERS = 2 FORCED BY OPERZ
```


Defining Disk Areas for CP System Use

CP_OWNeD statement

- ▶ Define disk areas that contain system areas
 - Page
 - Spool
 - TDISK
 - DRCT
- ▶ Reserved slots can/should be defined for adding volumes
 - Slots 6-20 reserved in z/VM 5.2.0 sample config file
 - Slots 7-20 reserved in z/VM 5.3.0 sample config file

DEFINE CPOWNeD command

- ▶ Define new entries or change existing entries in CP-Owned list

Example:

```
CP_Owned  Slot    1  VMRES1
CP_Owned  Slot    2  VMSPL1
CP_Owned  Slot    3  VMPAG1
CP_Owned  Slot    4  RESERVED
```

Stop and Start use of CP-Owned Space

DRAIN/START (Disk) statements and commands

- ▶ Stop and start the following on CP-owned disk volumes:
 - writing pages
 - allowing links to minidisks
 - allocating spool space
 - allocating TDisk space

Specify by

- ▶ rdev
- ▶ rdev range
- ▶ volid

Existing data and allocations remain on DRAINed volumes

DRAIN/START (Disk) Statements...Examples

Example #1 - Have CP:

- ▶ Stop all operations on all DASD between X'0700' and X'07FF',
- ▶ Allow users to link to minidisks on DASD X'0700', and
- ▶ Ensure that CP can write pages to the CP-owned paging pack (SYSPG1)

```

Drain DASD 0700-07ff All
Start DASD 0700 Links
Start Volid SYSPG1 Page

```

Example #2 - Have CP start allowing:

- ▶ All new operations on all DASD between X'0700' and X'07FF',
- ▶ SPOOLing on DASD at real device number X'0800'
- ▶ Paging on volume SYSPG1 (previously defined on a CP_OWNED statement)

```

Start DASD 0700-07ff All
Start DASD 0800 Spool
Start Volid SYSPG1 Page

```

Dynamically Adding a CP Owned Volume

1. Define reserved slots in CP_Owned list in config file

```
CP_Owned Slot 1 JF1RES
CP_Owned Slot 2 SPOOL0
CP_Owned Slot 3 MDSP0
CP_Owned Slot 4 RESERVED
CP_Owned Slot 5 RESERVED
```

2. Query CP_Owned list for available slots

query cpowned

Slot	Vol-ID	Rdev	ype	Status
1	JF1RES	0A40	Own	Online and attached
2	SPOOL0	0780	Own	Online and attached
3	MDSP0	0880	Own	Online and attached
4	-----	----	-----	Reserved
5	-----	----	-----	Reserved

Dynamically Adding a CP Owned Volume..

3. *Replace a reserved entry in the config file with the new volume*

– For next IPL

```
CP_Owned Slot 1 JF1RES
CP_Owned Slot 2 SPOOL0
CP_Owned Slot 3 MDSP0
CP_Owned Slot 4 CPNEW
CP_Owned Slot 5 RESERVED
```

4. *Define new volume to active system*

– (in same slot as config file)

```
define cpowned slot 4 cpnew
```

5. *Attach new volume to system*

```
att 980 system
```

```
query cpowned
```

Slot	Vol-ID	Rdev	Type	Status
1	JF1RES	0A40	Own	Online and attached
2	SPOOL0	0780	Own	Online and attached
3	MDSP0	0880	Own	Online and attached
4	CPNEW	0980	Own	Online and attached
5	-----	----	-----	Reserved

Dynamically Deleting a CP Owned Volume...

1. *Stop all CP activity on the volume*

drain volid cpnew all

2. *Determine when volume is no longer being used*

q alloc CPNEW

```
DASD 0980 CPNEW 3380 CKD-CKD (UNITS IN CYLINDERS)
  TDISK TOTA L=000500 INUSE=000000 AVAIL=000000, DR
  PAGE  TOTAL =000500 INUSE=000000 AVAIL=000000, DR
  SPOOL TOTAL=000500 INUSE=000000 AVAIL=000005, DR
  DRCT  TOTAL =000025 INUSE=000000 AVAIL=000000
```

3. *Detach volume from system and vary offline*

det 980 system

vary 980 offline

Slot	Vol-ID	Rdev	Type	Status
1	JF1RES	0A40	Own	Online and attached
2	SPOOL0	0780	Own	Online and attached
3	MDSP0	0880	Own	Online and attached
4	CPNEW	----	Own	Offline
5	-----	----	-----	Reserved

Removing Spool File Data from a DRAINed Volume

1. *Issue DRAIN DASD command to stop new allocations*
2. *Use SPFPACK from VM Download Library to locate spool files which have information on the volume*
 - <http://www.vm.ibm.com/download/>
 - <http://www.vm.ibm.com/download/packages/>
3. *Dump those files to tape and purge from system*
 - SPXTAPE DUMP with PURGE option
4. *Reload files from tape; space will be allocated on non-DRAINed volumes*
 - SPXTAPE LOAD

Defining and Modifying Guest LANs

DEFINE LAN statement

- ▶ Creates a persistent Guest LAN segment at IPL time
 - Owner can be system or a user

MODIFY LAN statement

- ▶ Modify some characteristics of an existing guest LAN

DEFINE LAN command

- ▶ Add a guest LAN to a running system
 - Transient (default) or persistent

SET LAN command

- ▶ Modify some characteristics of an existing guest LAN

Example:

```
DEFINE LAN JFLAN1 Ownerid SYSTEM Maxconn 100 Accounting OFF
```

```
q lan details
```

```
LAN SYSTEM JFLAN1          Type: HIPERS    Active: 0      MAXCONN: 100
PERSISTENT UNRESTRICTED    MFS: 16384    ACCOUNTING: OFF
```


Defining and Modifying Virtual Switches

DEFINE VSWITCH statement

- ▶ Creates a CP system owned switch (z/VM Virtual Switch) at IPL

MODIFY VSWITCH statement

- ▶ Modify some characteristics of a previously defined virtual switch

DEFINE VSWITCH command

- ▶ Add a virtual switch to a running system

SET VSWITCH command

- ▶ Modify some characteristics of an existing virtual switch

Example:

```
DEFINE VSWITCH JFSW1 RDEV FD00
```

```
q vswitch details
```

```
VSWITCH SYSTEM JFSW1      Type: VSWITCH  Active: 0      MAXCONN: INFINITE
  PERSISTENT RESTRICTED   NONROUTER  MFS: 8192     ACCOUNTING: OFF
  State: Controller not available
  CONTROLLER: *           IPTIMEOUT: 5   QUEUESTORAGE: 8
  PORTNAME: JFSW1        RDEV: FD00
  Authorized userids:
    SYSTEM  VLAN: ANY
```

Defining and Changing Timezones

TimeZone_Definition statements

- ▶ Tell CP how to set the local time relative to the hardware clock

DEFINE TIMEZONE command

- ▶ Define new timezone or change existing timezone definition

TimeZone_Boundary statements

- ▶ Tell CP which previously defined TimeZone should be active at IPL.
 - Must be at least one boundary with a date/time prior to the IPL time or CP will default to the hardware clock date/time
 - Does not cause the time zone of a running system to be changed

SET TIMEZONE command

- ▶ Change a running system's active time zone definition and offset

Defining and Changing Timezones...Example

Configuration File statements

```
TimeZone_Definition EST West 05.00.00  
TimeZone_Definition EDT West 04.00.00
```

```
Timezone_boundary on 2007-03-11 at 02:00:00 to EDT  
Timezone_boundary on 2007-11-04 at 02:00:00 to EST  
Timezone_boundary on 2008-03-09 at 02:00:00 to EDT  
Timezone_boundary on 2008-11-02 at 02:00:00 to EST
```

Changing timezone on an active system

```
q time  
TIME IS 16:22:35 EST FRIDAY 02/15/08  
CONNECT= 00:01:21 VIRTCPU= 000:00.04 TOTCPU= 000:00.07
```

```
set timezone edt  
HCPTZN6759I The time zone has changed to EDT.
```

```
q time  
TIME IS 17:22:51 EDT FRIDAY 02/15/08  
CONNECT= 00:01:37 VIRTCPU= 000:00.04 TOTCPU= 000:00.07
```

Logos

Logo Configuration Files

LOGO CONFIG (default name/type)

- ▶ Specify information about logos for terminals and printers
- ▶ Specify text for status area of terminals

Logos may be selected based on criteria

- ▶ Screen size
- ▶ Device address
- ▶ The ID of the virtual machine creating a logical device.
- ▶ The ID of the VTAM service machine (VSM) managing a terminal session

You can alter:

- ▶ The format of the input area for user IDs, passwords, and commands
- ▶ The contents of the online message at the top of the screen
- ▶ The contents of the status areas, such as CP READ, VM READ, and so forth.

Logo Configuration File: Example

```

/*****/
/*          Logo Configuration File          */
/*****/
/*-----*
 *   Status Area Definition   *
 *-----*/
Status VM_Read      'VM READ ' ,
      CP_Read      'CP READ ' ,
      Running      'RUNNING ' ,
      More         'MORE... ' ,
      Hold         'HOLDING ' ,
      Not_Accepted 'NOT ACCEPTED'
/*-----*
 *   Online Message Definition *
 *-----*/
      Online_Message      ONMESS LOGO

/*-----*
 *   Logo Definifions        *
 *-----*/
      Choose_Logo Default      LOCAL   LOGO
      Choose_Logo Local        LOCAL   LOGO
      Choose_Logo Ldev         LDEV    LOGO
      Choose_Logo VSM_VMid     VTAM    SNA  LOGO
      Choose_Logo Print_Separator PRINTSEP LOGO
      Choose_Logo Minimum      DEFAULT LOGO
      Input_Area  INPTAREA      SAMPLE

```

Logo Files

Logo files can be updated dynamically

- ▶ Located on a CPACCESSed PARM disk
- ▶ CPACCESS the disk to cause CP to re-read the files
- ▶ Changes activated with CP commands
 - CP REFRESH LOGOINFO filename CONFIG
 - CP REFRESH LOGOVSM user-id

DRAWLOGO tool supplied to help in drawing LOGO files

- ▶ Located on MAINT 2C2 disk
 - DRAWLOGO SAMPEXEC
 - X\$DRWL\$X SAMPXEDI

Changing Logo Information

```

THIS IS JAF1's z/VM TEST LOGO SYSTEM

          / VV          VVV MM          MM
         /  VV          VVV  MMM          MMM
        /   VV          VVV  MMMM          MMMM
       /    VV          VVV  MM MM MM MM
      /     VV  VVV          MM  MMM  MM
     /      VVVVV          MM  M  MM
    /       VVV          MM          MM
   /        V           MM          MM
  ZZZZZZ /

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

COMMAND  ==>

RUNNING  JOHN1

```


Update Logo Configuration File

```
cprelease a
16:25:28 CPRELEASE request for disk A scheduled.
16:25:28 HCPZAC6730I CPRELEASE request for disk A completed.

link maint 1000 1000 mr u

acc 1000 z

x logo config z
    Status  VM_Read      'VM READ '  ,
           CP_Read      'CP READ '  ,
           Running      'GLIDING '  ,

           Online_Message  ONMESS SHARE

rel z (det
16:29:17 DASD 1000 DETACHED

cpaccess maint 1000 a
16:29:23 CPACCESS request for mode A scheduled.

16:29:23 HCPZAC6732I CPACCESS request for MAINT's 1000 in mode A complete

cp refresh logoinfo logo config
```

New Logo

```

THIS IS JAF1's z/VM SHARE SYSTEM

          / VV          VVV MM          MM
         / VV          VVV  MMM          MMM
        / VV          VVV  MMMM          MMMM
       / VV  VVV      MM  MM  MM  MM
      / VV  VVV      MM  M   MM
     / VVVVV        MM  M   MM
    / VVV          MM          MM
   / V            MM          MM

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

COMMAND ==>

                                     GLIDING   JOHN1

```

More Configuration File Statements

Conditional Statements/Imbeds

Conditional Statements are based on System_Identifier labels

```
System_Identifier 2064 012345 MYVM1
System_Identifier_Default      MYVM2
```

```
MYVM1: Operator_Consoles      0C00 0C01
MYVM2: Operator_Consoles      1C00 1C01
```

```
MYVM1: MYVM2: Features ,
  Enable ,
  Auto_Warm_IPL
```

Imbeds allow statements to be included from other files

- ▶ Useful for sections common to multiple systems
 - Command class overrides
 - User diagnose

DEVICES Statement

Tell CP how to handle specified devices at initialization

- ▶ Whether to:
 - Accept
 - Allow dynamic changes
 - Initialize at IPL
 - Measure subchannels
 - Assign tape drive to system
 - Use sense ID information to define device
 - Share dasd between operating systems
 - Throttle I/O rate

Consoles Statement

Operator_Consoles tell CP where to try to display IPL messages

- ▶ Console addresses
 - Integrated 3270 Console (SYSTEM_3270)
 - Locally attached 3270-type displays
 - System Console (SYSTEM_CONSOLE)
- ▶ Must have 3270 to display SAPL screen
 - Enter device number in LOADPARM on processor console
- ▶ If no devices in the list are functional, IPL Wait State 1010

Emergency_Message_Consoles tell CP where to display critical messages such as ABEND and RESTART

- ▶ Include most IPL consoles (except SYSTEM_3270)
- ▶ Also include System Programmer consoles

Example:

```

MYVM1: Operator_Consoles          SYSTEM_3270 0C00 0E00
MYVM1: Emergency_Message_Consoles 0C00 0E00 1234

MYVM2: Operator_Consoles          0D00 0F00
MYVM2: Emergency_Message_Consoles 0D00 0F00 1235

```

FEATURES Statement

Set system attributes at system initialization time

- ▶ IPL Attributes
 - AUTO_WARM_IPL
 - PROMPT...
 - AFTER_REStart
 - AFTER_SHUTDOWN_REIPL
 - AFTER_POWERoff

- ▶ Authorize users system-wide to use certain functions
 - SET_DYNamic_i/o, SET_DYNamic_io
 - SET_DEVices
 - SET_PRIVclass

FEATURES Statement...

Tell CP whether, and how, to activate certain system functions

- ▶ CPCHECKING
 - ABEND
 - VMSTOP
- ▶ CLEAR_TDisk at initialization
- ▶ LOGMSG_FROM_File
 - SHOW_ACCount Yes/No
 - SHOW_ACGroup Yes/No
 - SHOW_Userid Yes/No
- ▶ NEW_DEVICES_initialized_when_added
- ▶ THROTTLE_ALL

FEATURES Statement...

Misc. system and user functions

- ▶ Number of MAXusers (or NOLimit)
- ▶ PASSWORDS_ON_CMDS
 - AUTOLog Yes/No
 - LINK Yes/No
 - LOGon Yes/No
- ▶ Number of RETRIEve buffers per user
 - DEFault
 - MAXimum
- ▶ VDISK/VDSK installation default limits
 - Syslim
 - Userlim
 - Infinite

FEATURES Statement...Automatic IPL

AUTO_IPL features

- ▶ AUTO_IPL
- ▶ AUTO_IPL_AFTER_REStart
- ▶ AUTO_IPL_AFTER_SHUTDOWN_REIPL

All types of IPL may be specified for each AUTO_IPL feature

- ▶ CLEAN
- ▶ COLD
- ▶ FORCE
- ▶ WARM

IPL Options may also be specified

- ▶ NOENABLE
- ▶ DRAIN
- ▶ NOAUTOLOG
- ▶ NODIRECT

FEATURES Statement...Misc.

IPL_MESSAGES

- ▶ tell CP whether or not to display IPL messages or prompts

DISCONNECT_TIMEOUT

- ▶ nnnnnn
 - Sets interval between a forced disconnect and its logoff to specified number of minutes
- ▶ OFF
 - Disables automatic logoff

Guest LAN and Virtual Switch Attributes

VMLAN Statement

- ▶ Set limits for the number of Guest LANs and z/VM Virtual Switches
 - Range 0-1024
 - Default for each type is INFINITE
- ▶ Set default accounting states
- ▶ Example:

```
VMLAN Limit Persistent 20 Transient INFINITE
VMLAN Accounting USER ON
```

```
q vmlan
```

```
VMLAN maintenance level:
```

```
Latest Service: VM63261
```

```
VMLAN MAC address assignment:
```

```
MACADDR Prefix: 020000
```

```
VMLAN default accounting status:
```

```
SYSTEM Accounting: OFF          USER Accounting: ON
```

```
VMLAN general activity:
```

```
PERSISTENT Limit: 20           Current: 2
```

```
TRANSIENT  Limit: INFINITE     Current: 0
```

Summary

Summary

VM's configurability support allows changes to be made while system remains up and running

- ▶ No source code changes
- ▶ No compiles/assemblies
- ▶ Re-IPL not necessary in most cases

Additional information:

- ▶ z/VM CP Planning and Administration
- ▶ z/VM Dynamic I/O Configuration Planning and Administration
- ▶ z/VM CP Command and Utility Reference
- ▶ z/VM System Operation
- ▶ z/VM CP Exit Customization