A Gentle Introduction to z/VM System Installation for the Inexperienced

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Agenda - i

- Introductions

- Observation:
    - Goals and Objectives, or "What you're going to do"
    - Raw Materials
- Orientation:
    - Many paths, one destination
- Decisions:
    - Identify and Provision Resources
- Actions:
    - Example: A tour through one possible installation scenario

Agenda - ii

- Observation:
  - What did we just do?

- Orientation:
  - Were the results successful?

- Decision:
  - Now that I've got this thing, what do I do with it?

- Action:
  - Next steps

- Additional Resources

Introduction
About Rocket Software

- http://www.rocketsoftware.com/about

- Rocket Software was founded in 1990 with an initial focus on developing and delivering software solutions to IBM mainframe customers deploying IBM DB2. Within the first five years, Rocket licensed all of its intellectual property to IBM, and all of Rocket's products were rebranded and licensed to enterprises through IBM's worldwide sales channel.

- Since those early years, Rocket has expanded its software OEM business to cover a wide spectrum of enterprise infrastructure products in the areas of Business Intelligence, Storage, Networks, Terminal Emulation, Integration, Security, and Database. And in addition to IBM, Rocket has licensed its products to a number of major OEMs that include Microsoft, RSA, EMC, Nortel, Motorola, and HP.

- In parallel with a significant R&D investment in developing software products, Rocket Software began a series of strategic acquisitions in 2000. As a result, Rocket now has well over 100 software products that are licensed both through OEM partners and resellers, and via direct sales through Rocket's acquired branded sales channels, such as Minstar, Servergraph, CorVu, BlueZone, and Seagull.

- Rocket values the technical skills and deep domain expertise of the employees at the companies we acquire. We endeavor to keep the teams intact and entrust them to manage and expand the product lines that they initially created. This philosophy has allowed Rocket to grow to more than 700 employees around the world, including Eastern and Western Europe, Australia, Asia and North America.

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Introduction
About your speaker

- Customer background
  - 22 years at University of Arkansas
    - …starting with VM/370 R6 PLC 3 (CDC Omega 480-III, anyone?)
    - …lots of Unix / Linux (Solaris, HP-UX, AIX, NCR/Teradata, Various distros)
    - ...lots of really cool toys and technologies
  - Detour: "A Certain Major Retailer"
    - It was the early 1980's - "Distributed Systems"
- Reincarnated as a Developer in 2003
  - Lead design / development
    - IBM Backup and Restore Manager for z/VM
    - IBM Archive Manager for z/VM
  - Co-conspirator
    - IBM Tape Manager for z/VM
    - IBM Operations Manager for z/VM
- Away From the Keyboard…
  - Certified Law Enforcement Officer, Search and Rescue Worker, Emergency Medical First Responder, Farmer/Rancher, Old-school Film Photographer, and Curmudgeon

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Observation
What we're about to do…

- Goal: Provide basic instruction on how to perform the initial system installation for z/VM

- Objectives:

    - Define the basic requirements

    - Identify available options for z/VM installation packaging and distribution

    - Identify necessary system resources

    - Review the planning process

    - Navigate the installation process

    - Discuss post-installation configuration

Observation
Basic requirements

- You are using a currently supported processor
    - *IBM z10 EC, z10 BC, z196, z114 "as well as future generations of System z"*

- You are using a currently supported z/VM release
    - This presentation uses z/VM 6.2 for all examples
    - You have already ordered and received installation materials

- Example scenario: Foundation-level instruction
    - Non-SSI installation process
        - *Cluster Installation procedure is functionally similar*
        - *More decisions, More hardware resources*
    - Non-URM installation
        - ***Important** if your site opts for management via URM*

Observation
"What's in the box?"

- Make sure you received what you ordered.

- Review the Packing List.

  - Otherwise, how do you know you actually received what you asked for?

  - If you didn't, where is it?

  - If the materials you received are inconsistent with the packing list, stop now – and don't resume until the situation is corrected.
    - *It's not common, but mistakes happen. Fix It Now.*

Orientation
Many paths…

- Source media
  - Tape
    - *ECKD DASD required*
    - *TCP/IP Network is not required*

  - DVD or Digital Download
    - *ECKD or FBA DASD*
    - *TCP/IP infrastructure **is** required*

- Installation destination
  - 1st Level ("Bare LPAR")
    - *No pre-existing z/VM system*
    - *…or "clean sweep" desired*
    - *…or migration coming later*

  - 2nd Level (as z/VM guest)
    - *Build and test now…*
    - *…migrate later*
    - *…or other purposes*
      - *Test / Evaluation*
      - *Development*
      - *Education*

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Orientation
…one destination

- First stage
  - Deploy the initial installation system

- Second stage
  - Perform the actual system installation

- Exact steps are determined by:
  - Installation source media (Tape, Optical or download)
  - Initial system state: Bare LPAR, or pre-existing z/VM system

Orientation
…one destination

- Road map:
  - Steps are defined in one book: **z/VM Installation Guide**

- Assumptions for this exercise:
  - Not installing an SSI cluster
  - Not configuring for Unified Resource Manager (URM)

- For in-depth experience, **_PLEASE_** *follow up with sessions 11188, 11189 & 11190 tomorrow (Tue, 7 Aug) afternoon:* **_z/VM 6.2 Installation and Configuration Hands-On Lab_** *located in Orange County Salon 2 & 3!!!*

Decision
Scenario: From tape, to 3390-3 DASD

- Resources required:

  - An LPAR or a Virtual Machine
    - "Virtual" is a matter of perspective
      - *Hint: it's all virtual*

  - A tape drive

  - 8 3390-3 DASD volumes
    - …plus one, temporarily, for LPAR method

  - A local, non-SNA 3270 terminal (or integrated 3270 console)

Action
Foundation: Installation Worksheets

- Minimum requirement:
  - z/VM Installation Guide: Table 1, Table 2 & Table 4

    - First or Second Level?
    - Minidisk or SFS?
      - *Hint: "old timer" bias favors Minidisk*
    - Default system language
    - DASD type and model
    - Common service filepool name
    - SSI, or non-SSI?
      - *This scenario is non-SSI*
    - Unified Resource Manager?
      - *Not in this scenario*

Action
Installation Guide Tables 1 & 2

Table 1. Tape Installation Worksheet 1

Installation method (first-level or second–level): _____

First-level only – address of single volume system (SVS) volume: _____

Record an "M" if you will load the product to a minidisk or an "F" if you will load the product to the VMSYS file pool in the **Install To** column.

Install To	Product	Install To	Product	Install To	Product
	VM		OSA		PERFTK
	VMHCD		RACF®		DIRM
	RSCS		ICKDSF		TCPIP

Default system language: _____

DASD type and model: _____

Common service filepool name: _____

Installation Type:

__ Non-SSI   System Name: _____

__ SSI   Number of Members: ___   SSI Cluster Name: _____

Table 2. Tape Installation Worksheet 2

Would you like to have your system automatically configured to be managed by the Unified Resource Manager or some other SMAPI client for system management? (Y/N) _____

Keep the following in mind:

   If you say YES, you should not attempt to manage your system in any other way.

   If you'd like to manage your own system, or use a purchased external security manager or a purchased directory manager, say NO.

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Action
Installation Guide, Table 4

Table 4. Tape Installation Worksheet 4 (Non-SSI Only)

Volume Type	Default Label	New Label	Address
COMMON	VMCOM1		
COMMON2	VMCOM2		
RELVOL	620RL1		
RELVOL2	620RL2		
RES	M01RES		
SPOOL	M01S01		
PAGE	M01P01		
WORK	M01W01		

Note: You must *not* use any of IBM's default volume labels for a volume other than the volume for which it is originally defined.

Hint: We'll see these again in a moment...

Action
Installation Guide Tables 1 & 2

Table 1. Tape Installation Worksheet 1

Installation method (first-level or second–level):   First-level

First-level only – address of single volume system (SVS) volume: 2137

Record an "M" if you will load the product to a minidisk or an "F" if you will load the product to the VMSYS file pool in the **Install To** column.

Install To	Product	Install To	Product	Install To	Product
M	VM	M	OSA	M	PERFTK
M	VMHCD	M	RACF®	M	DIRM
M	RSCS	M	ICKDSF	M	TCPIP

Default system language: AMENG

DASD type and model: 3390-3

Common service filepool name: VMCOMSRV

Installation Type:

____X____ Non-SSI   System Name: _____

____ SSI   Number of Members: ____   SSI Cluster Name: _____

Table 2. Tape Installation Worksheet 2

Would you like to have your system automatically configured to be managed by the Unified Resource Manager or some other SMAPI client for system management? (Y/N)   NO

Keep the following in mind:

If you say YES, you should not attempt to manage your system in any other way.

If you'd like to manage your own system, or use a purchased external security manager or a purchased directory manager, say NO.

Action

Installation Guide, Table 4

Table 4. Tape Installation Worksheet 4 (Non-SSI Only)

Volume Type	Default Label	New Label	Address
COMMON	VMCOM1	62DCM1	2138
COMMON2	VMCOM2	62DCM2	2139
RELVOL	620RL1	62DRL1	213A
RELVOL2	620RL2	62DRL2	213B
RES	M01RES	62DRES	213C
SPOOL	M01S01	62DS01	213D
PAGE	M01P01	62DP01	213E
WORK	M01W01	62DW01	213F

Note: You must *not* use any of IBM's default volume labels for a volume other than the volume for which it is originally defined.

Action
"Make me a virtual machine like this"

```
USER WATSON ******* 256M 1024M BEG

    INCLUDE USERPROF

    ACCOUNT ROCKET VMLAB

    IPL CMS

    MACHINE ESA

    OPTION TODENABLE

    CONSOLE 0009 3215

    MDISK 0191 3390 101 50 VM540A WR VML2R VML2W VML2M

    MDISK 0291 3390 151 50 VM540A WR VML2R VML2W VML2M
*
    MDISK 2137 3390 0 END 62DINS MR VML2R VML2W VML2M

    MDISK 2138 3390 0 END 62DCM1 MR VML2R VML2W VML2M

    MDISK 2139 3390 0 END 62DCM2 MR VML2R VML2W VML2M

    MDISK 213A 3390 0 END 62DRL1 MR VML2R VML2W VML2M

    MDISK 213B 3390 0 END 62DRL2 MR VML2R VML2W VML2M

    MDISK 213C 3390 0 END 62DRES MR VML2R VML2W VML2M

    MDISK 213D 3390 0 END 62DS01 MR VML2R VML2W VML2M

    MDISK 213E 3390 0 END 62DP01 MR VML2R VML2W VML2M

    MDISK 213F 3390 0 END 62DW01 MR VML2R VML2W VML2M
```

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action:
Inspect the virtualized install setup

```
l watson by dmartin

Enter your password,
or
To change your password, enter: ccc/nnn/nnn
     where ccc = current password, and nnn = new password

 ICH70001I WATSON   LAST ACCESS AT 12:19:22 ON TUESDAY, JULY 31, 2012
z/VM Version 5 Release 3.0, Service Level 1002 (64-bit),
built on IBM Virtualization Technology
There is no logmsg data
FILES:   NO RDR,   NO PRT,   NO PUN
LOGON AT 12:22:33 CDT TUESDAY 07/31/12
z/VM V5.3.0    2011-04-06 16:48

Ready; T=0.01/0.01 12:22:43
q v dasd
DASD 0190 3390 530RES R/O          107 CYL ON DASD  3180 SUBCHANNEL = 000E
DASD 0191 3390 VM540A R/W           50 CYL ON DASD  332A SUBCHANNEL = 0001
DASD 019D 3390 530W01 R/O          146 CYL ON DASD  3183 SUBCHANNEL = 0010
DASD 019E 3390 530W02 R/O          400 CYL ON DASD  3184 SUBCHANNEL = 000F
DASD 0291 3390 VM540A R/W           50 CYL ON DASD  332A SUBCHANNEL = 0002
DASD 2138 3390 62DCM1 R/W         3339 CYL ON DASD  2138 SUBCHANNEL = 0003
DASD 2139 3390 62DCM2 R/W         3339 CYL ON DASD  2139 SUBCHANNEL = 0004
DASD 213A 3390 62DRL1 R/W         3339 CYL ON DASD  213A SUBCHANNEL = 0005
DASD 213B 3390 62DRL2 R/W         3339 CYL ON DASD  213B SUBCHANNEL = 0006
DASD 213C 3390 62DRES R/W         3339 CYL ON DASD  213C SUBCHANNEL = 0007
DASD 213D 3390 62DS01 R/W         3339 CYL ON DASD  213D SUBCHANNEL = 0008
DASD 213E 3390 62DP01 R/W         3339 CYL ON DASD  213E SUBCHANNEL = 0009
DASD 213F 3390 62DW01 R/W         3339 CYL ON DASD  213F SUBCHANNEL = 000A
Ready;
```

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action:
Manual virtual machine tweaks

- Get rid of CMS underpinnings
  - CP SYSTEM CLEAR
    - *clear memory; reset virtual machine to "POR" state*
  - CP DETACH 190 191 19D 19E 291
    - *drop CMS-related DASD resources*
  - CP TERM CONMODE 3270
    - *ask CP to handle virtual console as a 3270, not a 3215*
- Request operator intervention provision tape
  - **Tape 181 attached R/O**
    - *…magic happens, courtesy of privileged third-party user…*

Action
Manual virtual machine tweaks

```
cp system clear
Storage cleared – system reset.
cp det 190 191 19d 19e 291
0190 0191 019D 019E 0291 DETACHED
Tape 181 attached R/O
cp term conmode 3270
cp q v da
DASD 2137 3390 62DINS R/W          3339 CYL ON DASD  2137 SUBCHANNEL = 0003
DASD 2138 3390 62DCM1 R/W          3339 CYL ON DASD  2138 SUBCHANNEL = 0004
DASD 2139 3390 62DCM2 R/W          3339 CYL ON DASD  2139 SUBCHANNEL = 0005
DASD 213A 3390 62DRL1 R/W          3339 CYL ON DASD  213A SUBCHANNEL = 0006
DASD 213B 3390 62DRL2 R/W          3339 CYL ON DASD  213B SUBCHANNEL = 0007
DASD 213C 3390 62DRES R/W          3339 CYL ON DASD  213C SUBCHANNEL = 0008
DASD 213D 3390 62DS01 R/W          3339 CYL ON DASD  213D SUBCHANNEL = 0009
DASD 213E 3390 62DP01 R/W          3339 CYL ON DASD  213E SUBCHANNEL = 000A
DASD 213F 3390 62DW01 R/W          3339 CYL ON DASD  213F SUBCHANNEL = 000B
```

NOTE: DASD Volumes are conveniently pre-initialized for this example…

Action
Launch "Install from Tape"

```
DASD 2137 3390 62DINS R/W          3339 CYL ON DASD  2137 SUBCHANNEL = 0003
DASD 2138 3390 62DCM1 R/W          3339 CYL ON DASD  2138 SUBCHANNEL = 0004
DASD 2139 3390 62DCM2 R/W          3339 CYL ON DASD  2139 SUBCHANNEL = 0005
DASD 213A 3390 62DRL1 R/W          3339 CYL ON DASD  213A SUBCHANNEL = 0006
DASD 213B 3390 62DRL2 R/W          3339 CYL ON DASD  213B SUBCHANNEL = 0007
DASD 213C 3390 62DRES R/W          3339 CYL ON DASD  213C SUBCHANNEL = 0008
DASD 213D 3390 62DS01 R/W          3339 CYL ON DASD  213D SUBCHANNEL = 0009
DASD 213E 3390 62DP01 R/W          3339 CYL ON DASD  213E SUBCHANNEL = 000A
DASD 213F 3390 62DW01 R/W          3339 CYL ON DASD  213F SUBCHANNEL = 000B
TAPE 0181 ON DEV  0531 3590 GIVEN BY DMARTIN  R/O SUBCHANNEL = 0012
```

cp ipl 181 clear loadparm cnsl0009

```
                                          CP READ    VMLAB
```

Action
Install from Tape: ICKDSF loads…

CLEAR SCREEN WHEN READY

Action
ICKDSF prep of Single Volume System

```
ICK005E DEFINE INPUT DEVICE, REPLY 'DDDD,CUU' OR 'CONSOLE'

ENTER INPUT/COMMAND:

CONSOLE

ICK006E DEFINE OUTPUT DEVICE, REPLY 'DDDD,CUU' OR 'CONSOLE'

ENTER INPUT/COMMAND:

CONSOLE

ICKDSF - SA/XA/ESA  DEVICE SUPPORT FACILITIES 17.0L                TIME: 21:24:14
       07/31/12      PAGE   1


ENTER INPUT/COMMAND:
```

```
cpvolume format unit(2137) novfy volid(620svs) mode(esa) nofiller
```

Action
ICKDSF init of 620SVS completes

```
…              FORMATTING OF CYLINDER 3338 ENDED AT:  21:27:43
               VOLUME SERIAL NUMBER IS NOW = 620SVS


               CYLINDER ALLOCATION CURRENTLY IS AS FOLLOWS:
               TYPE       START       END         TOTAL
               ----       -----       ---         -----
               PERM       0           3338        3339


ICK00001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0
          21:27:43     07/31/12


ENTER INPUT/COMMAND:




--------
Press PA1 to drop out of ICKDSF and back to "CP READ"...
--------
```

Action
ICKDSF finished; IPL stand-alone DDR
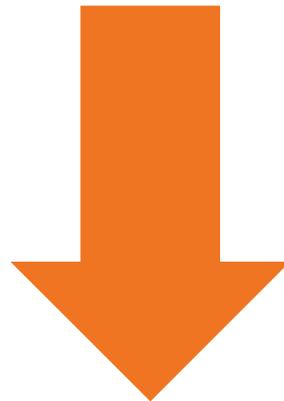
```
cp ipl 181 clear loadparm 0009
```

                                             CP READ   VMLAB

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action:
Reload 620SVS pre-packaged system

```
z/VM DASD DUMP/RESTORE PROGRAM

ENTER CARD READER ADDRESS OR CONTROL STATEMENTS

ENTER:
```

SYSPRINT CONS

```
ENTER:
```

INPUT 181 TAPE (SKIP 1 LEAVE

```
ENTER:
```

OUTPUT 2137 DASD 620SVS

```
ENTER:
```

RESTORE ALL

```
RESTORING 620SVS

DATA DUMPED   10/25/11 AT 22.59.02   GMT FROM 620SVS RESTORED TO 620SVS

INPUT CYLINDER EXTENTS        OUTPUT CYLINDER EXTENTS

     START         STOP          START         STOP

        0          522             0           522

END OF RESTORE

 BYTES RESTORED   386616984


ENTER:
```

*…**At completion: Press PA1 to drop back to CP READ…***

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action
IPL pre-packaged system from 620SVS
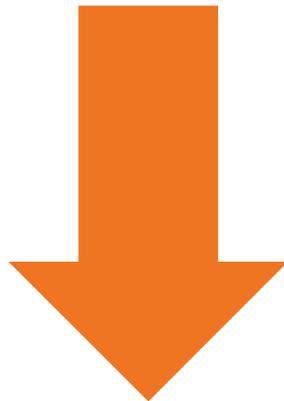
```
cp ipl 2137 clear loadparm 0009
```

CP READ   VMLAB

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action
"Starter System" launch

```
STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 5.0


 DEVICE NUMBER:    2137        MINIDISK OFFSET:    00000000   EXTENT:  1


 MODULE NAME:      CPLOAD      LOAD ORIGIN:        1000


 -------------------------------IPL PARAMETERS-------------------------------
 cons=0009                        Your job:  Specify the console address, then press PF10



 -------------------------------COMMENTS-------------------------------




 -----------------------------------------------------------------------------



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

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Action
Launch starter system, stand back…

```
16:36:01 z/VM  V6 R2.0  SERVICE LEVEL 0000 (64-BIT)
 16:36:01 SYSTEM NUCLEUS CREATED ON 2011-10-07 AT 10:29:10, LOADED FROM 620SVS
16:36:01
16:36:01 ********************************************************************
16:36:01 * LICENSED MATERIALS - PROPERTY OF IBM*                          *
16:36:01 *                                                                *
16:36:01 * 5741-A07 (C) COPYRIGHT IBM CORP. 1983, 2011. ALL RIGHTS        *
16:36:01 * RESERVED. US GOVERNMENT USERS RESTRICTED RIGHTS - USE,         *
16:36:01 * DUPLICATION OR DISCLOSURE RESTRICTED BY GSA ADP SCHEDULE       *
16:36:01 * CONTRACT WITH IBM CORP.                                        *
16:36:01 *                                                                *
16:36:01 * * TRADEMARK OF INTERNATIONAL BUSINESS MACHINES.                *
16:36:01 ********************************************************************
16:36:01
 16:36:01 HCPZCO6718I Using parm disk 1 on volume 620SVS (device 2137).
 16:36:01 HCPZCO6718I Parm disk resides on cylinders 39 through 158.
16:36:01 Start ((Warm|Force|COLD|CLEAN) (DRain) (DIsable)  (NODIRect)
16:36:01       (NOAUTOlog)) or (SHUTDOWN)
16:37:48 COLD DRAIN NOAUTOLOG                     ... Respond as instructed ...
```

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action
Launch starter system, stand back...

```
16:37:48 NOW 16:37:48 EST TUESDAY 2012-07-31
16:37:48 Change TOD clock (Yes|No)
16:38:19 NO                    ... Respond as instructed ...
16:38:19 The directory on volume 620SVS at address 2137 has been brought online.
 16:38:20 HCPWRS2513I
 16:38:20 HCPWRS2513I Spool files available     NONE
 16:38:21 HCPWRS2512I Spooling initialization is complete.
16:38:21 DASD 2137 dump unit CP IPL pages 8675
16:38:21 HCPMLM3016I Management by the Unified Resource Manager is not available
 for this system.
16:38:21 HCPAAU2700I System gateway ZVM62SVS identified.
16:38:21 z/VM Version 6 Release 2.0, Service Level 0000 (64-bit),
16:38:21 built on IBM Virtualization Technology
16:38:21 There is no logmsg data
16:38:21 FILES:  NO RDR,  NO PRT,  NO PUN
16:38:21 LOGON AT 16:38:21 EST TUESDAY 07/31/12
16:38:21 GRAF  0009 LOGON  AS  OPERATOR USERS = 1
... additional start-up traffic omitted ...
DISCONN
```

Action
Starter system is up…

```
z/VM ONLINE


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


                     built on IBM Virtualization Technology




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


COMMAND  ===>

                                                 RUNNING    ZVM62SVS
```

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action
…now login as MAINTSVS

```
z/VM ONLINE


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


                  built on IBM Virtualization Technology




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


COMMAND  ===>

                                           RUNNING    ZVM62SVS
```

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action
MAINTSVS login sequence

```
LOGON MAINTSVS
z/VM Version 6 Release 2.0, Service Level 0000 (64-bit),
built on IBM Virtualization Technology
There is no logmsg data
FILES:   NO RDR,   NO PRT,   NO PUN
LOGON AT 16:41:52 EST TUESDAY 07/31/12
DMSIND2015W Unable to access the Y-disk. Filemode Y (19E) not accessed
DMSWSP327I The installation saved segment could not be loaded
z/VM V6.2.0    2011-10-07 10:28
```
Press _ENTER_ at this prompt
```
DMSDCS1083E Saved segment CMSPIPES does not exist
DMSDCS1083E Saved segment CMSPIPES does not exist
DMSDCS1083E Saved segment CMSVMLIB does not exist
Ready; T=0.01/0.01 16:43:43
```

                                              RUNNING   ZVM62SVS

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action
Pause for reflection

- You **did** complete the worksheets from earlier in the exercise, didn't you? We'll need them in a moment.

Action
Load installation tools from tape

```
DMSDCS1083E Saved segment CMSVMLIB does not exist
Ready; T=0.01/0.01 16:43:43
q ta all
An active tape was not found.
TAPE 0181 FREE
An offline tape was not found.
Ready; T=0.01/0.01 16:45:59
attach 181 to * 181
TAPE 0181 ATTACHED TO MAINTSVS 0181
Ready; T=0.01/0.01 16:46:11
rewind 181
Rewind complete
Ready; T=0.01/0.01 16:46:40
vmfplc2 fsf 7
Ready; T=0.01/0.01 16:47:06
vmfplc2 load * * a
 Loading ...
 DDR       MODULE   A2
 ICKDSF    MODULE   A2
 INSTPLAN  EXEC     A2          ... Full detail is in the Installation Guide ...
```

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Action
Invoke "INSTPLAN"

```
rewind 181
Rewind complete
Ready; T=0.01/0.01 16:48:50
instplan                          NOTE:  Follow the directions...
HCPINP8351E YOU MUST SPECIFY AN OPERAND ON THE INSTPLAN COMMAND
Ready(00100); T=0.01/0.01 16:49:59
```

**NOTE THE NEW
SYSTEM NAME...**
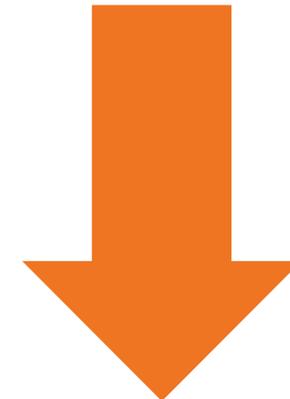
```
instplan tape
```

```
RUNNING    ZVM62SVS
```

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action
Complete the INSTPLAN dialogue

```
*** z/VM INSTALLATION PLANNING ***


   Mark the product(s) selected to be installed into the filepool with an "F"
   and those selected to be installed to minidisks with an "M"
       M       VM              M       OSA             M       PERFTK
       M       VMHCD           M       RACF            M       DIRM
       M       RSCS            M       ICKDSF          M       TCPIP


   Select a System Default Language.
       _ AMENG         _ UCENG          _ KANJI


   Select a System DASD model.
       x 3390 Mod 3           _ 3390 Mod 9


   Enter the name of common service filepool.
       Filepool Name:      VMCOMSRV


   Select a System Type: Non-SSI or SSI (SSI requires the SSI feature)
       x Non-SSI Install:    System Name vm62dpm
       _ SSI Install:        Number of Members _     SSI Cluster Name _____


   F1 = HELP     F3/F12 = QUIT    F5 = Process   ENTER = Refresh
```
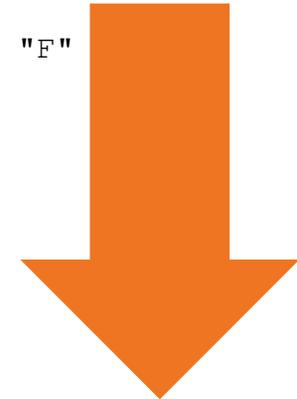
All of these responses are directly from the worksheets.

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Action
Complete the INSTPLAN dialog

```
*** z/VM INSTALLATION PLANNING PANEL 2 ***



n    Would you like to have your system automatically configured to be
     managed by the Unified Resource Manager or some other SMAPI client
     for system management? (Y/N)


     Keep The Following in Mind:


         If you say YES, you should not attempt to manage your system in
         any other way.

         If you'd like to manage your own system, or use a purchased
         external security manager or a purchased directory manager say NO



         F1 = HELP   F3/F12 = QUIT   F5 = Process   ENTER = Refresh
```

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Action
INSTPLAN input confirmation

```
HCPIPX8475I THE PRODUCTS YOU SELECTED TO LOAD TO MINIDISK ARE:
            VM OSA PERFTK VMHCD RACF DIRM RSCS ICKDSF TCPIP


            THE PRODUCTS YOU SELECTED TO LOAD TO SFS ARE:
            NONE


            THE SYSTEM DEFAULT LANGUAGE SELECTED:
            AMENG


            THE COMMON SERVICE FILEPOOL NAME IS:
            VMCOMSRV


            THE INSTALL TYPE YOU SELECTED IS:
            Non-SSI


            THE SYSTEM NAME IS:
            VM62DPM


            THE DASD TYPE YOU SELECTED TO LOAD ON IS:
            3390 Mod 3
```

Action
INSTPLAN input confirmation

```
        THE VOLUMES NEEDED TO LOAD z/VM ARE:

           COMMON:  VMCOM1 VMCOM2

           RELEASE: 620RL1 620RL2

           SYSTEM:  M01RES M01S01 M01P01 M01W01


 DO YOU WANT TO CONTINUE ? (Y/N)
```

```
 Y
```

```
                                        VM READ    ZVM62SVS
```

Action
Final INSTPLAN validation

```
*** z/VM INSTALLATION VOLUME DEFINITION ***


        TYPE      LABEL      ADDRESS                    FORMAT (Y/N)

        ======    ========   =========                  ============
        COMMON    62DCM1     2138                            n
        COMMON2   62DCMD     2139
        RELVOL    62DRL1     213A
        RELVOL2   62DRL2     213B


        TYPE      LABEL      ADDRESS

        ======    ========   =========
VM62DPM
        RES       62DRES     213C
        SPOOL     62DS01     213D
        PAGE      62DP01     213E
        WORK      62DW01     213F



        F1 = HELP      F3/F12 = QUIT      F5 = Process    ENTER = Refresh
```

Action
INSTPLAN completion

```
HCPIIX8377R YOU HAVE SELECTED NOT TO FORMAT YOUR DASD.
            THIS ASSUMES THEY HAVE ALREADY BEEN FORMATTED.
            DASD SELECTED ARE:


            62DCM1      2138
            62DCMD      2139
            62DRL1      213A
            62DRL2      213B
            62DRES      213C
            62DS01      213D
            62DP01      213E
            62DW01      213F
HCPINP8392I INSTPLAN EXEC ENDED SUCCESSFULLY
Ready; T=0.05/0.05 16:58:29




                                    RUNNING    ZVM62SVS
```

Action
The moment of truth is at hand…

```
q da all
DASD 2137 CP OWNED  620SVS   8
DASD 2138 62DCM1  , DASD 2139 62DCM2  , DASD 213A 62DRL1  , DASD 213B 62DRL2
DASD 213C 62DRES  , DASD 213D 62DS01  , DASD 213E 62DP01  , DASD 213F 62DW01
An offline DASD was not found.
Ready; T=0.01/0.01 16:59:36
att 2138-213f *
2138-213F ATTACHED TO MAINTSVS
Ready; T=0.01/0.01 16:59:54
```

```
install
```

```
                                              RUNNING    ZVM62SVS
```

Action
"INSTALL" does the rest…

```
install
HCPIIS8381I CHECKING TAPE VOLUME NUMBER FOR DRIVE 181
HCPIIS8490I NOW LABELING VOLUME 2138 (1 OF 8)
HCPIIS8490I NOW LABELING VOLUME 2139 (2 OF 8)
HCPIIS8490I NOW LABELING VOLUME 213A (3 OF 8)
HCPIIS8490I NOW LABELING VOLUME 213B (4 OF 8)
HCPIIS8490I NOW LABELING VOLUME 213C (5 OF 8)
HCPIIS8490I NOW LABELING VOLUME 213D (6 OF 8)
HCPIIS8490I NOW LABELING VOLUME 213E (7 OF 8)
HCPIIS8490I NOW LABELING VOLUME 213F (8 OF 8)
HCPIIS8380I RESTORING VOLUMES FOR VM62DPM



                                        RUNNING    ZVM62SVS
```

Action
"INSTALL" does the rest…

```
....
HCPIIS8341I WRITING OWNERSHIP FOR VM62DPM TO 213D 62DS01 COMPLETED SUCCESSFULLY

HCPIIS8341I WRITING OWNERSHIP FOR VM62DPM TO 213E 62DP01 COMPLETED SUCCESSFULLY

HCPIIS8380I UPDATING SYSTEM CONFIG

**************************************
*        NOW IPLing VOLUME 213C       *
*             WITH COMMAND:           *
*       CP SYSTEM CLEAR               *
*       TERMINAL CONMODE 3270         *
*       IPL  213C CLEAR               *
**************************************



                                  RUNNING    ZVM62SVS
```

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Action
INSTALL progress…

```
18:03:16 z/VM  V6 R2.0  SERVICE LEVEL 0000 (64-BIT)
18:03:16 SYSTEM NUCLEUS CREATED ON 2011-10-07 AT 10:29:10, LOADED FROM 62DRES
18:03:16 *****************************************************************
18:03:16 * LICENSED MATERIALS - PROPERTY OF IBM*                         *
18:03:16 * 5741-A07 (C) COPYRIGHT IBM CORP. 1983, 2011. ALL RIGHTS       *
18:03:16 * RESERVED. US GOVERNMENT USERS RESTRICTED RIGHTS - USE,        *
18:03:16 * DUPLICATION OR DISCLOSURE RESTRICTED BY GSA ADP SCHEDULE      *
18:03:16 * CONTRACT WITH IBM CORP.                                       *
18:03:16 * * TRADEMARK OF INTERNATIONAL BUSINESS MACHINES.               *
18:03:16 *****************************************************************
18:03:16 HCPZCO6718I Using parm disk 1 on volume 62DCM1 (device 2138).
18:03:16 HCPZCO6718I Parm disk resides on cylinders 1 through 120.
18:03:16 The directory on volume 62DRES at address 213C has been brought online.
18:03:17 HCPWRS2513I
18:03:17 HCPWRS2513I Spool files available       31
18:03:18 HCPWRS2512I Spooling initialization is complete.
18:03:18 DASD 213D dump unit CP IPL pages 8035
18:03:18 HCPMLM3016I Management by the Unified Resource Manager is not available
 for this system.
18:03:18 HCPAAU2700I System gateway VM62DPM identified.
```

... **You may recognize this from earlier, but there are subtle differences now ...**

Action
INSTALL progress…

```
HCPWIN8428I  TOTAL PERCENT LOADED -> 90%



HCPWIN8380I  RESTORING MINIDISK 906 TO 62DW01

RESTORING M01W01
DATA DUMPED   10/25/11 AT 23.22.52  GMT FROM M01W01 RESTORED TO SCRATCH
INPUT CYLINDER EXTENTS      OUTPUT CYLINDER EXTENTS
    START       STOP           START          STOP
```

<p style="text-align:right">RUNNING   VM62DPM</p>

... At this point, we're about 11 minutes into the INSTALL process ...

Action
INSTALL progress…

```
HCPWIN8319I TAPE LOAD COMPLETED SUCCESSFULLY
HCPPLD8341I  POSTLOAD PROCESSING STARTED
DMSACC724I 4CC replaces C (4CC)

HCPIFP8493I ISSUING XAUTOLOG FOR VMSERVU
AUTO LOGON  ***         VMSERVU  USERS = 3
HCPCLS6056I XAUTOLOG information for VMSERVU: The IPL command is verified by the
 IPL command processor.

HCPIFP8493I ISSUING XAUTOLOG FOR VMSERVR
AUTO LOGON  ***         VMSERVR  USERS = 4
HCPCLS6056I XAUTOLOG information for VMSERVR: The IPL command is verified by the
 IPL command processor.

HCPIFP8493I ISSUING XAUTOLOG FOR VMSERVS
AUTO LOGON  ***         VMSERVS  USERS = 5
HCPCLS6056I XAUTOLOG information for VMSERVS: The IPL command is verified by the
 IPL command processor.

USER DSC   LOGOFF AS  VMSERVR  USERS = 4     FORCED BY MAINT620
```

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Action
INSTALL progress...

```
HCPIFP8493I ISSUING XAUTOLOG FOR VMSERVR
AUTO LOGON  ***          VMSERVR  USERS = 5
HCPCLS6056I XAUTOLOG information for VMSERVR: The IPL command is verified by the
 IPL command processor.

HCPIFP8493I ISSUING XAUTOLOG FOR VMSERVP
AUTO LOGON  ***          VMSERVP  USERS = 6
HCPCLS6056I XAUTOLOG information for VMSERVP: The IPL command is verified by the
 IPL command processor.

HCPIFP8338I UPDATING SYSTEM TABLES AND CLEANING UP FILEPOOL DIRECTORIES
```

```
                                         RUNNING   VM62DPM
```

... Elapsed time at this point: About 15 minutes ...

Action
INSTALL progress...

```
DMSWSP100W Shared S-STAT not available

AUTO LOGON  ***         BLDCMS    USERS = 7
HCPCFX6768I SECUSER of BLDCMS initiated for you by BLDCMS.
HCPNSD440I The Named Saved System (NSS) CMS was successfully defined in fileid 0
024.
BLDCMS   : CONNECT= 00:00:01 VIRTCPU= 000:00.01 TOTCPU= 000:00.06
BLDCMS   : LOGOFF AT 18:23:29 EDT TUESDAY 07/31/12 BY MAINT620
USER DSC   LOGOFF AS  BLDCMS    USERS = 6      FORCED BY MAINT620

AUTO LOGON  ***         BLDCMS    USERS = 7
HCPCFX6768I SECUSER of BLDCMS initiated for you by BLDCMS.
DMSACC724I 493 replaces Z (493)
HCPNSD440I The Named Saved System (NSS) ZCMS was successfully defined in fileid
0025.
BLDCMS   : CONNECT= 00:00:01 VIRTCPU= 000:00.01 TOTCPU= 000:00.05
BLDCMS   : LOGOFF AT 18:23:41 EDT TUESDAY 07/31/12 BY MAINT620
USER DSC   LOGOFF AS  BLDCMS    USERS = 6      FORCED BY MAINT620
```

Action
INSTALL progress…

```
HCPDPB899I Rewind not performed
HCPDPB040E Device 0182 does not exist


HCPICP8389W RSU TAPE NOT FOUND ON TAPE DRIVE 181 OR 182


HCPICP8397R MOUNT THE RSU TAPE ON TAPE DRIVE ADDRESS 181 or 182
           AND ENTER ONE OF THE FOLLOWING:
               181 OR 182 - ADDRESS OF THE TAPE DRIVE WHERE YOU HAVE
                            MOUNTED THE RSU TAPE
           NORSU       - TO SKIP RSU PROCESSING
           EXIT        - TO QUIT




norsu

                                          VM READ    VM62DPM
```

Action
INSTALL does SHUTDOWN REIPL

```
18:25:13 HCPWRP963I SHUTDOWN STEP USOAC - JOURNAL USER TERMINATION
18:25:14 HCPWRP963I SHUTDOWN STEP MFRSD - TERMINATE HARDWARE LOADER
18:25:14 HCPWRP963I SHUTDOWN STEP APISD - TERMINATE OTHER PROCESSORS
18:25:15 HCPWRP963I SHUTDOWN STEP ENASD - DISABLE TERMINAL DEVICES
18:25:15 HCPWRP963I SHUTDOWN STEP KCBSD - PERFORM ISFC SHUTDOWN TASKS
18:25:16 HCPWRP963I SHUTDOWN STEP ISHDN - SHUT DOWN I/O SUBSYSTEM
18:25:16 HCPWRP963I SHUTDOWN STEP SGPST - STOP OTHER PROCESSORS
18:25:17 HCPWRP959I VM62DPM  SYSTEM TERMINATION IN PROGRESS ON 2012-07-31
18:25:17 HCPWRP963I SHUTDOWN STEP TXTDS - TERMINATE DATA TRACES
18:25:17 HCPWRP963I SHUTDOWN STEP SVACV - ACTIVATE TERMINATION SAVE AREAS
18:25:18 HCPWRP963I SHUTDOWN STEP CHMOF - DISABLE CHANNEL MEASUREMENT
18:25:18 HCPWRP963I SHUTDOWN STEP ISHDA - DISABLE ALL DEVICES
18:25:19 HCPWRP963I SHUTDOWN STEP CKPSH - TAKE A CHECKPOINT
18:25:19 HCPWRP963I SHUTDOWN STEP OPRCK - SAVE OPERATOR CONSOLE LIST
18:25:20 HCPWRP963I SHUTDOWN STEP MCWMD - DETERMINE MACHINE CHECK STATUS
18:25:20 HCPWRP963I SHUTDOWN STEP SDVRS - RESET IBM DASD CU CHARACTERISTICS
18:25:21 HCPWRP962I VM SHUTDOWN COMPLETED IN 8 SEC
18:25:21 HCPWRP963I SHUTDOWN STEP SGQXX - RESET OTHER PROCESSORS
18:25:21 HCPWRP9277I SYSTEM TERMINATION COMPLETE, ATTEMPTING RESTART
```

Action
INSTALL does SHUTDOWN REIPL

```
18:25:21 HCPWRP9277I 2012-07-31 SYSTEM VM62DPM
18:25:21 HCPWRP963I SHUTDOWN STEP SVADV - DEACTIVATE TERMINATION SAVE AREAS
```

At this point, press <u>CLEAR</u> to continue…

```
MORE...    ZVM62SVS
```

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Action

SHUTDOWN REIPL completes

```
18:26:07 z/VM SYSTEM RESTART FROM SHUTDOWN REIPL
 18:26:07 z/VM  V6 R2.0  SERVICE LEVEL 0000 (64-BIT)
 18:26:07 SYSTEM NUCLEUS CREATED ON 2011-10-07 AT 10:29:10, LOADED FROM 62DRES
18:26:07
18:26:07 *********************************************************************
18:26:07 * LICENSED MATERIALS - PROPERTY OF IBM*                          *
18:26:07 *                                                                *
18:26:07 * 5741-A07 (C) COPYRIGHT IBM CORP. 1983, 2011. ALL RIGHTS        *
18:26:07 * RESERVED. US GOVERNMENT USERS RESTRICTED RIGHTS - USE,         *
18:26:07 * DUPLICATION OR DISCLOSURE RESTRICTED BY GSA ADP SCHEDULE       *
18:26:07 * CONTRACT WITH IBM CORP.                                        *
18:26:07 *                                                                *
18:26:07 * * TRADEMARK OF INTERNATIONAL BUSINESS MACHINES.                *
18:26:07 *********************************************************************
18:26:07
 18:26:07 HCPZCO6718I Using parm disk 1 on volume 62DCM1 (device 2138).
 18:26:07 HCPZCO6718I Parm disk resides on cylinders 1 through 120.
18:26:07 The directory on volume 62DRES at address 213C has been brought online.
 18:26:08 HCPWRS2513I
 18:26:08 HCPWRS2513I Spool files available       31
 18:26:09 HCPWRS2512I Spooling initialization is complete.
```

Action
SHUTDOWN REIPL completes

```
18:26:09 DASD 213D dump unit CP IPL pages 8038
18:26:09 HCPMLM3016I Management by the Unified Resource Manager is not available
 for this system.
18:26:09 HCPAAU2700I System gateway VM62DPM identified.
18:26:09 z/VM Version 6 Release 2.0, Service Level 0000 (64-bit),
18:26:09 built on IBM Virtualization Technology
18:26:09 There is no logmsg data
18:26:09 FILES:   NO RDR,   NO PRT,   NO PUN
18:26:09 LOGON AT 18:26:09 EDT TUESDAY 07/31/12
18:26:09 GRAF  0020 LOGON  AS  OPERATOR USERS = 1
18:26:09 HCPIOP952I 0128M system storage
18:26:09 FILES: 0000002 RDR, 0000001 PRT,     NO PUN
18:26:09 HCPUSO967I Disconnect OPERATOR – system restarted SHUTDOWN and system c
onsole not VM operator console
18:26:09 HCPCRC8082I Accounting records are accumulating for userid DISKACNT.
18:26:09 DISCONNECT AT 18:26:09 EDT TUESDAY 07/31/12
18:26:09
18:26:09 Press enter or clear key to continue
```

```
                                            RUNNING   VM62DPM
```

Observation
Basic installation is now complete

```
z/VM ONLINE




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


                      built on IBM Virtualization Technology


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


COMMAND  ===>
                                                    RUNNING    VM62DPM
```

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Observation
Comments about basic installation

- Literally, it takes longer to describe and walk through the process than it does to do it.

  - On our lab system, the actual "heads down" time was about 30 minutes.

    - *… not counting interruptions …*
      - *…which, of course, never happen…*

- Attention to detail during worksheet completion will avoid execution-time complications.
      - *… thus reducing the likelihood of frustration…*
        - *… or of Coming to the Attention of Important People …*

Orient
What did this exercise accomplish?

- End result: A "second-level" z/VM 6.2 system
  - Not a cluster member (non-SSI)
  - "Traditionally" managed (non-UMR / non-SMAPI)

- What's the point?
  - Test / development environment established
    - First-level hypervisor protects other guests from "collateral damage" if something horrible happens to this new system.
  - Other uses: "Your mileage may vary" depending on need
    - Training; initial deployment of new service updates or OEM products; "safe playground" for systems programmer

Decide
Q: Where to from here?

- A: "It depends."
- Typical next steps:
  - Deploy in LPAR instead of as a 2nd-level guest
    - *Do <u>NOT</u> try to run same system volumes from two locations concurrently. At best, "results may be unpredictable."*
  - Enable, configure and implement networking
    - *TCP/IP*
    - *RSCS (NJE)*
  - Provision resources for other guest virtual machines
    - *Linux, z/OS, z/VSE, z/TPF, CMS*
  - Provision systems management / security tools
    - *RACF, DIRMAINT, Automation, Tape Management, Backup…*
    - *Non-IBM OEM tools*

Act
Next steps

- "Next steps" are dictated by installation needs.

- Needs of the enterprise dictate the level of complexity
  - Mix of features and products
  - Cluster or monolithic system configuration?
    - Two-way? Four-way?
      - *Remote? How remote?*
  - Traditional or URM system management?

- Goal: Keep it as simple as possible – but no more so.

Additional Resources
a/k/a "Things I wish I had known…"

- This week:
  - Tuesday afternoon: z/VM 6.2 Hands-On Lab
  - Wednesday morning: Linux for Beginners Hands-On Lab
  - Thursday: Experiences with Linux and System z Cust. Panel
  - Friday (or any time during the week): ASK QUESTIONS!
    - Friday, 11:00 – Linux & VM Program Wrap Up & Free-For-All
- Online
  - http://www.vm.ibm.com/ – "All Things z/VM"
  - http://listserv.uark.edu/archives/ibmvm.html – IBMVM Listserv
  - http://www2.marist.edu/htbin/wlvindex?LINUX-VM – Linux-390 Listserv

Questions?

You know it was a good day if you didn't **Hit** or **Bite** anyone.

NATHANIAL PARIZEK, age 4

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Time is really the only capital that any human being has and the thing that he can least afford to waste or lose...
-- Thomas Edison

THANK YOU for sharing your valuable time with me today!

WELL, I JUST DID MY JOB OF INSPIRING YOU, SO I MIGHT AS WELL GO HOME.

Session Number 11817

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