

Technical Certification Specifications

*HP Technical Certification
EXAM # 1H0129*

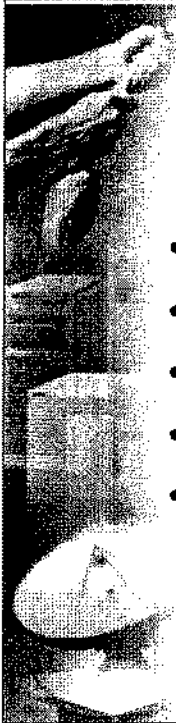
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The Strength of Commitment, The Power of Collaboration

Client  Systems



Technical Certification Review Course

- Introduction
- Goals
- Agenda for the 2-Day Course
- General Certification Exam Items
- Class Begins

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Technical Certification Goals

*Prepare You to focus on Particular Aspects
of MPE and "PASS" the HP Technical
Certification Examination*

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Fundamental MPE overview

Command: **:HELLO**

Purpose: **To initiate a interactive session.**

Parameters: **HELLO USER.ACCOUNT**

Examples:

```

HELLO GEORGE, MANAGER/POST.OFFICE/MAILMAN,IRVING
  ^         ^         ^         ^         ^         ^
  session  user      user  acct.  acct.  group
  name     name     pass  name   pass   name

```

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****Review MPE Logon Elements****

Session Name - Optional

User Name - Required at Logon

Account Name - Required at Logon


Group Name - Optional if the use is assigned a home group.

Session name is used as an additional identifier. The session name can be from 1 to 8 characters; the first character must be an alphabetic character.

User name is created by the account manager and can be from 1 to 8 characters in length with the first character must be an alphabetic character.

Account name is created by the system manager.

The default queue is the CS queue



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Command: !JOB

Purpose: To initiate a batch job.

Parameters: !JOB USER.ACCOUNT

Examples:

```
!JOB MYJOB1,USERNAME (/password)
.ACCTNAME (/password);outclass=LP
(Header=job id & "hello")
!TELLOP myjob1 has begun
!SHOWJOB (CI Script)
!EOJ (End Of Job)
```

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Review the MPE/iX job statement & structure of a job

When data is entered and processed in batch, the activity is called a job. Like a shell program (command file), a job is a text file that contains a list of commands to be executed, although they need to be executed in a specific format.

Questions:

1. Where and how would you identify a group name?
2. How is a batch job launched?
3. What character/s is used to denote a batch job?

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Topic: Job and Session States

- INTRO Being introduced to the system.
- EXEC^ Being initialized.
- EXEC Has all needed resources and is executing.
- WAIT: nn Has reached current job limit or a critical system resource is not available.
- WAIT D Input priority does not exceed the job fence.
- SUSP Is temporarily suspended by BREAKJOB
- SCHED Is scheduled to execute at a date and time specified by the user.

Note: A session can be only in the INTRO or EXEC state.


Example:

A deferred job has a state of WAIT D. It will not execute until one of the following occurs:

1. The job fence has been lowered.
2. The job's input priority has been raised.

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Command: `:CONSOLE xx`

Purpose: To re-assign the logical console.

Parameters: `CONSOLE (LDEV)`

Examples: `:CONSOLE 31`

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Review the MPE/iX Console Command

CONSOLE command:

1. The default LDEV for the console is 20.
2. To move the console, you must have been permitted to do so by the ALLOW command. A user with SM capabilities can also move or take the console.

Questions:

1. How do you determine where the console is currently assigned?



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Topic: Physical Console/Access Port


Purpose: Define the difference between the physical console/logical console and its relation to the access port.

Example:


```

WITHIN SIMULATION
1) :HELLO OPERATOR.SYS
2) Ctrl B
3) CM> ER
          MODE:                MULTIPLE
          PASSWORD:            SPOCK
          PASSWORD FAULTS:     03
4) Do you wish to change the configuration? (Y/N): N
REMOTE CONSOLE IS NOW ENABLED.

```

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- The access port is special hardware that allows the use of Ctrl + B commands and enables a remote site to dial into the system. It places the console in control mode.
 - The access port functions as the console, with access to all Ctrl + A and Ctrl + B commands.
 - In console mode, it is a parallel console for the system console.
 - Hewlett-Packard uses the access port to dial in and troubleshoot problems on your system,
 - Break serves its normal function for the console that is acting as the master.
 - Break allows the slave to "take console" and become the master.
 - There is not way to give the console to the slave.
 - If the access port goes into session mode, it will look the same as any other session.
 - The access port (AP) allows the SM or OP to issue either a hard or soft reset from the console keyboard.
 - The default LDEV for the access port is LDEV 21.
- Other commands: ER - enables the remote console port
DR - disables the remote console port



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Command: :REPLY/=REPLY

Purpose: Replies to pending resource request at the console.

Parameters: :REPLY pin, reply =REPLY pin, reply

Examples:


```
?16:15/#25/43/LDEV# FOR" T"ON TAPE(NUM)?  
:reply 43,7
```

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•From the console, a CTRL +A must first be issued in order to respond with this command.

•Questions:

1. What value is entered if you want to cancel or satisfy a pending request?




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Command: `:ALLOW`

Purpose: Grants a user access to a specific operator command(s).


Parameters: `ALLOW FILE = formaldesignator
[;SHOW]`

Examples: `ALLOW [@.@ |@.acct|user.acct
;COMMANDS=command
[,COMMAND,...]`

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EXPLAIN: What happens when the console is moved?

- SM always has capability to use the ALLOW command.
- Everyone else "inherits" the ALLOW command from the logical console.
- Exception: Disallow or ALLOWed the allow command.
- Use the SHOWALLOW command to display what capabilities or commands are allowed. System manager (SM) capability is required to specify @.@. Account managers (AM capability) may specify all users in their own account.
- Not all commands can be ALLOWED.



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Command: =SHUTDOWN

Purpose: Initiates an orderly shutdown of the computer

Examples: Ctrl + A
=SHUTDOWN

Shutdown messages are displayed

(SHUT 6)

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A Ctrl + A =SHUTDOWN performs an orderly shutdown of the system just as it does under MPE V/E. Seeing (shut 6) on the screen as the last shut message indicates that the shutdown was clean and is complete. No prompt follows. The (shut 6) message is your signal to begin the boot process with a Ctrl + B.

The shutdown of the system occurs at the physical console.



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Command: TELLOP

Purpose: Sends a message to the logical console. (Native Mode)

Parameters: text

Message text, preceded by a space and consisting of any string of ASCII characters. Default is that no text is printed; however, MPE/iX still prints the FROM as follows:


FROM/sessionid

:TELLOP PLEASE MOUNT TAPE XYZ

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- This is permitted either in batch or session modes.
- The message can be sent to the system console, even if no session is logged on or if an active session is running in QUIET mode.




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Command: TELL

Purpose: Sends a message to another session.

Parameters: TELL{[#] | S nnn [[sessionname,]
username.acctname |@|@.acctname |@S}{[:]
text]

Examples: :TELL JOE.USER HI THERE!
:TELL #Sunn HI THERE AGAIN!

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•Sessions with an active SETMSG OFF command are listed as being in QUIET mode and do not receive your TELL message. This is also true for a session on the system console.

•Questions:

1. What MPE command is used to allow messages to be received by a session?



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Command: PRINT

Purpose: Prints the contents of a file. **PRINT**
filename[;OUT=outfile][;START=m]
[;END=N][;PAGE=p][;UNN|NUM]
[;NONUM]

Parameters: FILENAME


Actual file name of the file to be printed to SSTDLIST, unless outfile is specified as a destination. To specify an HFS file, begin the filename with a dot (.) or slash (/). The filename may specify either a temporary or a permanent disk file. File equations are ignored unless an asterisk (*) preceded filename, indicating a backreference.

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•The following command entry will print the last 10 records of the file called posix/doc/print.doc in the current working directory (CWD).

```
PRINT ./posix/doc/print.doc;start=-10
```



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Command: REPORT


Purpose: Displays accounting information for groups and accounts. Any user may obtain REPORT information about the user's logon group. (Compatibility Mode)

Parameters: REPORT[groupset[|,listfile]
[;ONVS=[volumesetname]]

Examples: :report test

ACCOUNT	FILESPACE-SECTORS	CPU-SECONDS	CONNECT-MINUTES
/GROUP	COUNT	LIMIT	COUNT
SYS	4231968	**	91204
/PUB	1708592	**	58280

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- The REPORT command displays the total resource usage logged against accounts and groups, and the limits on those resources. For **standard users**, data is displayed for their own group(s) only; **account managers** may specify all groups in their account; **system managers** may specify any or all groups in any or all accounts.
- The RESETACCT command resets the running counts of CPU-time or connect-time accumulated by an account and by all groups within that account to zero.



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Command: :LISTREDO

Purpose: Displays the history stack contents.

Parameters: :LISTREDO [START=M][;END=N][;OUT=OUTFILE][;{Abs | REL [UNN]}]


Examples: :LISTREDO

:LISTREDO START=80;END=90

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- Displays the last 20 commands within the history stack when no parameters are entered.
- If negative numbers are used, they refer to relative command numbers (-1 is the most recent).
- The maximum number of records in the LISTREDO stack is 1,000 for MPE 6.0




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Topic: File Equations

Purpose: To re-direct input or output.

Parameters: FILE formaldisgnator=[*formaldisgnator|SNULL
SNEWPASS SOLDPASS \$STDIN \$STDINX \$STDLIST
filereference]| : nodespec , filedomain]
[:DEV=[{ envname }#|{ device}|{ outpri}| ,numcopies|]
[;VTERM|] ;ENV=envfile| :nodespec|]
[;optfon| ;access| ; disposition]
[;DEFBLK | ;OPTMBLK]

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****Review FILE command structure****

```
:FILE T;DEV=7
:FILE T;DEV=TAPE
:FILE L;DEV=6
:FILE L;DEV=LP
:FILE DBSTEXT=PAEXSCH
:FILE REPLIST=$STDLIST
```



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Command: `LISTFILE [[fileset =]{ fileset | (fileset [, fileset]...) }],4`

Purpose: `LISTFILE,4` is used to display the security matrix for the file. This includes account, group and file-level security, and the access rights for the user.

Example:

(1.) `:LISTFILE MYFILE,4`

(2.) `:listfile (test1,test2,test3),4`

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- `LISTFILE filename,4` can be issued to identify all three levels of access for a file.
- The display also shows the access that is allowed the user issuing the `LISTFILE` command.
- All users can issue this `LISTFILE` option for any file on the system.
- ACD security is above account, group and file security.
- `LISTFILE -2` displays ACD security.
- You may have an MPE group that also contains files with HFS syntax, for example, they are lowercase, have long names, or contain special characters. To see both MPE and HFS files in a group, type,
`LISTFILE ./@`
- If the fileset begins with a dot (.) or a slash (/), it is assumed to be in HFS syntax. The characters composing the name may be selected from the following set:
`a-z, A-Z, 0 1 2 3 4 5 6 7 8 9 - _ . ' ~ $ % ^ * + \ { } :`



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Command: LISTFTEMP @,2

Purpose: Show temporary file domain.

Examples: :listftemp @,2

```
TEMPORARY FILES FOR MANAGER.SYS,PUB
ACCOUNT= SYS          GROUP= PUB
FILENAME CODE  LOGICAL RECORD  SPACE
          SIZE  TYP  EOF LIMIT R/B SECTORS #X MX
MYFILE    128W  FB   0  1023  1   0  0 *(TEMP)
```

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•The REPORT statement does not display temporary files.



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Command: ALTSEC, RELEASE, SECURE

The **ALTSEC** command is used to change the access permissions of an *object* by altering its ACD.

The **RELEASE** command is used by the creator of a file to temporarily allow unlimited access to whoever knows the lockword.

The **SECURE** command is used to secure a file that has been released.

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- Mention that released files are a security issue. When a file is released, any user on the system can read the file, modify the file, purge the file, and so on.
- To maintain some security while releasing the file, the creator can type in the lockword at the user's terminal.
- ALTSEC, RELEASE, and SECURE are restricted to the creator of a file.
- RELEASE and SECURE** have **no** effect on files protected by **ACDs**.
- MPE's RELEASE command does not override ALTSEC's security.
- LISTFILE -2 displays the ACD security matrix



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Command: RENAME

Purpose: Add or remove a lockword.

Parameters: :RENAME filename/lockword,
filename

:RENAME filename,
filename/lockword

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Topic: HFS File System Basics

HFS file and directory limitations:

All names directly below root, account and directory under MPE groups are limited to 16 characters. All others can be up to 255 characters.

Examples:

<u>MPE <i>POSIX</i> file structure:</u>	<u>MPE <i>NATIVE</i> file structure:</u>
TREE/FOREST/SEEN	TREE.FOREST.SEEN
^ ^ ^	^ ^ ^
ACCOUNT/GROUP/FILE	FILE.GROUP.ACCOUNT

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- File names in upper case and 8 or less characters are MPE files.
- POSIX file names can be up to 255 characters.



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Command: NEWDIR / PURGEDIR

NEWDIR - The name of the directory that you are creating (required). The `dir_name` is assumed to be an MPE name unless it begins with a dot (.) or a slash (/), which indicates an HFS directory. The `dir_name` may not end in a slash, have wildcard characters, or reference a file equation.

PURGEDIR - The name of the directory that is being purged (required). The `dir_name` is assumed to be an MPE name unless you begin it with a dot (.) or a slash (/) to indicate an HFS directory. If `dir_name` is an HFS directory that ends in a slash and you don't include NOTREE option, **PURGEDIR** deletes all objects at all levels under and including `dir_name`. The use of wildcards is permitted. The `dir_name` cannot name root (/), and MPE group, or an account.

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Operation


The **NEWDIR** command creates a directory named `dir_name`. All parent directories must already exist. The new directory inherits the group ID (GID) from its parent directory and the user ID (UID) from the user creating the directory. The special directory entries dot (.) and dot-dot (..) are automatically created under `dir_name`.

By default **NEWDIR** creates an MPE-named directory, which means that `dir_name` must follow all MPE naming rules. Since the MPE name syntax defines three levels, fully (or partially) qualified MPE-named directories can only be created under MPE groups. Unqualified MPE-named directories are created relative to the CWD.

If `dir_name` begins with a dot (.) or a slash (/), the HFS naming rules are enforced.

Directories do not support lockwords, file equations, or system defined file names (for example, \$NEWPASS).

You must have create directory entries (CD) permission for the parent directory and save files (SF) capability. Furthermore, traverse directory entries (TD) access is required for each directory component named in `dir_name`. (Refer to the **ALTSEC** command in this chapter for further information on directory permissions).




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Topic: User Security

Purpose: Assigning Access.

Parameters:

- Q. Who sets account-level security?
- A. An SM user.
NEWACCOUNT FUN,MANAGER;ACCESS={mode:users;...}
PURGEACCT FUN
- Q. Who sets group level security?
- A. An AM user.
NEWGROUP GAMES;ACCESS=
ALTGROUP GAMES;ACCESS=
PURGEGROUP GAMES
- Q. Who sets user level security?
- A. Either AM or SM.
NEWUSER BOB;PASS=IDIOT
ALTUSER BOB;CAP= ;HOME=SALES
PURGEUSER BOB

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User Security / File Security

Also mention: NEWUSER
ALTUSER
PURGEUSER



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Topic: Capability Chart

Purpose: To identify who has various abilities within accounts.

VERBS	NOUNS	WHO
NEW	ACCT	SM
ALT	GROUP	SM
PURGE	USER	OR AM
LIST	FILE	ANY

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- Read the chart cross wise: for NEW, ALT and PURGE commands at the ACCT level only the SM can do this.....etc.
- Test fact:** SM only has the capability to tune, monitor and change configurations. OP can monitor and tune only.

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Topic: User Capabilities

IA BA SF ND

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The LISTUSER command displays a user's capabilities. The following general capabilities are available:

Interactive access (IA) allows a user to log on with HELLO.

Batch access (BA) allows the user to log on with !JOB.

Save files (SF) allows a user to save files permanently on disk. With this capability, the user can execute commands like BUILD, SAVE, RESTORE, and /KEEP in EDITOR.


Non-shareable devices (ND) allows the use of non-shareable devices, such as the tape drive and line printer.

In addition to general users, there are some special users on the system -- those who have extra capabilities.

System manager (SM) users have complete access to the system; can use NEWACCT, PURGEACCT, and ALTACCT; and can set system-level UDCs. SM users are the only ones who can maintain passwords and capabilities at the account level.

Account manager (AM) users have access to file, group, and user information, including passwords and lockwords within their own account. Account managers often use the following commands: NEWGROUP, ALTGROUP, NEWUSER, ALTUSER, PURGEGROUP, PURGEUSER. AM users cannot control the account itself.

System supervisor (OP) users monitor system activity by having access to special commands. This user can perform system backups and create system load tapes.



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Topic: Program Capabilities


Purpose: Program capabilities can be assigned to programs, accounts, groups, and users.

IA A program that has IA capability can be run online.

BA A program that has BA capability can be run from a batch job.

PM, PH, MR, DS Special program capabilities.

They can be viewed by using the **VERSION** command
:VERSION DISCFREE.PUB.SYS

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Program capabilities can be assigned to programs, accounts, groups, and users.

The HELLO command initiates interactive use; IA allows session mode.

The !JOB command initiates batch use. BA capability is needed.

The privileged mode (PM) gives a user or program access to all MPE/iX resources, including privileged intrinsics, privileged procedure calls, main memory, system tables, and privileged CPU instructions.

PM is considered "unsupported," meaning that while users may take advantage of structures used in MPE/iX, Hewlett-Packard cannot guarantee that these structures will be consistent from one version to the next; therefore, a PM program may need to be modified after a system update.


Furthermore, a PM program can actually destroy file integrity, including the MPE/iX operating system software itself. Upon request, Hewlett-Packard will investigate and attempt to resolve problems resulting from the use of PM code. This service is not available under the standard service contract, but it is available on a time and materials billing basis. Note, however, that Hewlett-Packard does not support any modification of the MPE/iX operating system software.

PH also allows process suspension, interprocess communication, and process deletion.

MR allows exclusive use of more than one resource number simultaneously. If MR is assigned, multiple resources must be correctly managed. If they are not, resource deadlocking can stop the system.


Data segments are typically used by a program for temporarily storing large amounts of data, thus the program's global data area stays relatively small.

**** A question on the test asks which capability allows you to add more memory--
 DS**




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Topic:	Other Capabilities
Purpose:	LG User logging NM Node manager NA Network administrator CS Communications subsystems PS Programmatic sessions UV Use volumes CV Create volumes DI Diagnostician AL Account librarian GL Group librarian

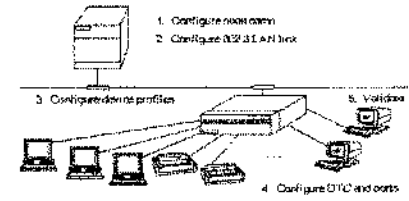
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- The **VERSION** command is used to display the capabilities of a program.
- LG-User logging allows enabling of the logging facility.
- NM-Node manager allows the use of NMMGR.PUB.SYS to configure and manage nodes in a LAN.
- NA-Network administrator allows use of NMMGR.PUB.SYS to configure NS and LAN and to administer the resulting network.
- CS-Communications subsystems allows exclusive access to a communications device.
- PS-Programmatic sessions allows use of the STARTSESS command and the STARTSESS intrinsic.
- UV-Use volumes allows access to nonsystem domain volumes.
- CV-Create volumes is needed to create, alter, and delete mountable volume sets.
- DI-Diagnostician allows a user to run certain device and CPU diagnostics or verification programs.
- AL-Account librarian allows access to files within the user's account.
- GL-Group librarian allows access to all files within the user's group.



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Topic: Networking Overview



NMMGR Overview

The Local Node Name is the name by which the series 900 HP3000 machine is known in the network. The format of a node name is *name.domain.organization*. The total number of characters is 50 or fewer, and each field contains 16 or fewer characters (alphanumeric, underscore, or hyphens). The first character must be alphabetic.

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The purpose of configuration is to let the MPE/iX host know that devices are connected to it and how the host will communicate with these devices.

Order of configuration:

1. Node name -- a unique name for a host system on the network. It is in the form node.domain.organization and each part may be a maximum of sixteen characters long.
2. LAN link -- physical path and other information for the IEEE 802.3 device adapter.
3. Device profile -- defines characteristics of the various printers and terminals.
4. DTC and ports -- configure the IEEE 802.3 station address and node name for the DTC; configure the LDEV number and device profile for each port.
5. Validation of configuration within NMMGR.

Test Fact: know the items listed above under heading 'NMMGR Overview'



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Topic: Peripheral Overview

SCSI	Small Computer System Interface (single ended)
FW SCSI	Fast/Wide Small Computer System
HP-IB	Hewlett-Packard Interface Bus

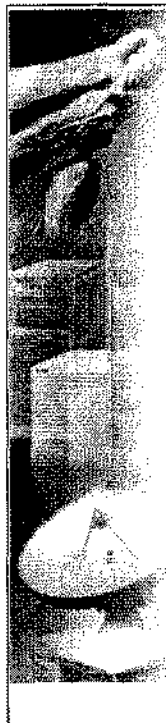
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The HP Small Computer System Interface (SCSI) is an interface card that is used to connect a variety of peripherals to the Series 900 systems. This interface satisfies industry standard and open system requirements. The **maximum cable length is 6 meters**, including internal cabling and cables must be terminated. **All devices attached must have a unique device address between 0 and 6. Never use device address 7 (reserved).** This interface favors the highest device address when communicating.

The Fast/Wide Differential SCSI-2 interface is the newest option which will connect more peripherals per channel for a greater distance on the midrange and high-end systems. FW SCSI is primarily focused on high performance and industry standards. **It supports a 25 meter cable** and must be terminated. **Up to 15 devices are supported, making device addresses 0-6 and 8-15 available (7 is reserved).** Precedence is given to device address 6 going down to address 0, then from 15 down to 8. SE SCSI devices can NOT be connected to FW SCSI channels and vice-versa.

The Hewlett-Packard Interface Bus (HP-IB) is an IEEE 488 standard general purpose interface bus that can transmit data at high speed -- up to one megabyte-per-second over a **maximum distance of 15 meters. Device addresses of 0-7 may be used with the lowest device address being favored (a maximum of 4 peripherals per channel is recommended for performance reasons).**




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Command: SH


Purpose: UDC that executes SH.HPBIN.SYS, the POSIX shell.

Examples: :SH
OR
:SH.HPBIN.SYS-L

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- The SH command only works if the udc, HPPXUDC.PUB.SYS is turned 'on'




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Topic: Year 2K Basics

Purpose: To show 3 different ways MPE/iX will handle CI Year 2K issues through systems variables.

Examples: HPYEAR
HPYYYY
HPSPLITYEAR

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Refer to the Communicator 3000 MPE/iX 6.0 and Year 2000 Enhancements for details.

The available HPYEAR variable is corrected to return the last two digits of the current system year, and a new CI variable is added to have the four-digit current system year.

Existing variable:

HPYEAR is a global variable used by the CI that shows the last two digits of the current year; the initial value is the year at logon. Type=R I

For example, HPYEAR will have 0 for year 2000 and 5 for year 2005.

New four-digit year variable:

HPYYYY is a global variable used by the CI that shows the current year; the initial value is the year logon. Type=R I

For example, for year 2000, HPYYY will have 2000.

HPSPLITYEAR is a global variable used by the CI that shows the current century split year; the initial value is 50. Type=W I

This variable is used in the new date intrinsics to manipulate dates in various formats.

Two-Digit Years Interpretation

One of the ways for handling two-digit year input is to interpret the years in the method called fixed window method. In this method, the two-digit years map as follows:

.00 .. 49 maps to 2000 .. 2049

.50 .. 99 maps to 1950 .. 1999

For example, both of the following STREAM commands will schedule the JOBFILE as January 21,2001:

```
:STREAM JOBFILE;DATE=01/21/2001
```

```
:STREAM JOBFILE;DATE=01/21/01
```




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Topic: Variable Review

Purpose: Variable names can be any combination of letters and numbers plus the underscore character, up to a total of 255 characters. Variables must start with a letter or the underscore character.

Examples: :SETVAR FIRST_NAME "carol"

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Topic: CI Looping Process

A loop is a programming code construct that allows us to repeat a command, or series of commands, a number of times.

The CI provides a looping structure through WHILE and ENDWHILE statements. Combined with the expression evaluator functions, a series of statements can be repeated as long as a particular condition exists. Simple loop example using a counter.

```
Example:  SETVAR CNT 1
          WHILE CNT <=10 DO
            ECHO THE COUNT IS CURRENTLY = !CNT
            SETVAR CNT,CNT+1
          ENDWHILE
```

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Examples continued...

(The CALC command evaluates expressions and returns a numeric, Boolean, or string value result is stored in the system variable, HPRESULT) Expression Evaluator

Examples below:

<u>Expression</u>	<u>Results</u>
:CALC 8+3	11,3B,%13 (numeric-decimal, Hexadecimal, %octal)
:CALC 1+1=3	FALSE (Boolean)
:CALC UPS ("fred")	FRED (string)
IF CHOICE = "1" THEN DOCMD1 ELSE IF CHOICE = "2" THEN ENDIF ENDIF	HPRESULT

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Topic: UDC Search Logic/HPPATH

Purpose: In processing any command, the CI first checks the UDC files and MPE/iX built in commands. If no match is found, the CI automatically searches for a program file or command file of the same name by using the HPPATH variable. (UDCs can override built in CI commands!). For command files, the CI uses the HPPATH variable (remember: UDCs and built in commands are checked first). By default, the current group is checked first, followed by the PUB group of the logon account, followed by the PUB.SYS and ARPA.SYS.

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The SETVAR command allows you to change the path along which the computer searches for executable files. You may use the SETVAR command to change the value of a system-defined variable called HPPATH.

Sequence:

1. User, Account and System UDC are checked
2. Is the file a MPE/iX command
3. HPPATH is then checked. The logon group, then the PUB group of the logon, next is the PUB.SYS followed by ARPA.SYS.



Technical Certification

Topic: PATCH/iX

Purpose: HP Patch/iX provides a user-friendly environment for customization and installation of HP supported patches.

Benefits and features:

- Qualification of all patches (Reactive and Power Patch).
- Simultaneous installation of Power Patch tape Reactive patches.
- Customization of patches.
- Creation of the patch installation tape while users remain on the system.
- Creation of a CSLT only when necessary.

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Patch/iX supported Processes:

Single Reactive patch / Multiple Reactive patches -various sources.


Power Patch tape / Power patch tape with Reactive patches.

SUBSYS with Power Patch tape (Express)

SUBSYS with Power Patch tape & reactive patches.

HP Patch/iX does not support the UPDATE of a system from one MPE release to another. (5.5 to 6.0).


HP Patch/iX from a PC using Reflection: Install MPE/iX POSIX option or it won't work from the PC.



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Topic: HP STAGE/ix

Purpose: HP Stage/ix is part of FOS in 6.0, an Operating system facility for applying and managing MPE/iX patches on your system. Targeted for larger systems with extra disc space. Use stage/ix to place Power Patch and reactive patches into staging areas on disc while system is up, and then choose a staging area to use a staging area to use at boot time to apply patches.

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STAGE/iX has the ability to back-out a patch.


Stage/ix 3 Interfaces:

HP Patch/iX menu - Allows you to stage patches to staging areas once HP Stage/iX is initialized (as well as create CSLT/STORE tapes as usual).

STAGEMAN utility - Allows you to manage your Stage/iX environment, and obtain info. About the environment & individual staging areas.

STAGEISL utility - is an ISL utility available when the system is down. It contains the subset of the STAGEMAN functionality, and allows you to recover from most errors and mistakes.

Two Stage/iX safety nets: STARTBASE (points to base version to START - boot your system to base and STAGEISL (LIST avail staging areas, get the STATUS of the Stage/iX environment, and SET to staging area or base).




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Topic: System Backup Strategy

Purpose: To restore files and/or directories back onto a system following a system failure.

Parameters: A) Cumulative
B) Incremental

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Cumulative:

Doing partial backups between full backups reduces backup time and the amount of tape required.

The STORE command parameter syntax is DATE>=mm/dd/yy. It stores everything with a modification date greater than or equal to the specified date. The date specified for a cumulative backup strategy will be the date of the full backup.

Each partial backup contains data added since the last full backup. To recover, RESTORE needs to be done from only two tape sets: the most recent full backup and the most recent partial backup, in that order.

This is called a cumulative backup strategy because each partial backup contains all data modified since the last full backup.

Incremental:

Each partial backup contains only those files changed since the last partial backup. This is called an incremental backup schedule.

This backup scheme can be faster and use less tape than the last one; however, in a recovery, RESTORE needs to be done for every tape set from the most current full through the most recent partial. For example, if a failure occurs Thursday morning, RESTORE must be done from the full backup on Friday night, then the partials for Monday night, Tuesday night, and Wednesday night.

Careful consideration should be given to the backup schedule and method you use for your environment.

HP recommends a full backup once a week.

Test Fact: A question is asked “ if a system is fully backed-up on a Friday and during the coming week incremental back-ups are taken. On Wednesday a system failure occurs during the day. What happens to the data on Wednesday and what is the best manner to recover and get users back online?”



Technical Certification

Topic: Valid Options that STORE & RESTORE SHARE

Purpose: To show the difference between STORE & RESTORE options.

Examples:

RESTORE ONLY= LISTDIR, LOCAL, CREATE, GID, KEEP, NOKEEP, OLDDATE, NEWDATE, DEV=, VOL=, VOLCLASS, VOLSET, ONERR SKIP, ONERR FULL

STORE ONLY= TRANSPORT, DATE<, PURGE, MAXTAPEBUF, NOTIFY, ONVS=, SPLITVS=, RENAME, NOSTORDIR, ;STATISTICS, INTER, STORESET="dev", COMPRESS, ONLINE=START/END, LOGVOLSET, ONERR REDO

SHARED OPTIONS= SHOW, OWNER, DIRECTORY, ONERR, PROGRESS, FILES, COPYACD, NOACD, FCRRANGE, TREE, NOTREE, STOREDIR, PARTIALDB, MOSET, NAME

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Topic: HP Volume Set Allocation Recommendations

Example: System volume sets should be configured with some of each type of storage. The default of 75% for permanent and 75% for transient is the recommended allocation.

Non system volume sets should only have permanent storage. No percent of the volume should be allocated to transient storage. Name can be whatever 32 or fewer alphanumeric characters.

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Use the NEWVOL command to configure disk storage. For example, to configure 65 percent permanent storage and 65 percent transient storage on the system volume MEMBER4, enter:

```
volutil:NEWVOL  
VNAME=MPEXL_SYSTEM_VOLUME_SET:MEMBER4 PERM=65  
TRANS=65
```

NOTE: The operating system limits the changes that can be made to transient storage space on LDEV 1, the system master volume. It is not recommended that transient space be modified for LDEV 1, but if you must do so, plan carefully. For LDEV1, the default value for transient space is 75 percent and the default value for permanent storage is 75 percent.

To change the disk storage:

Use the ALTERVOL command to change the permanent and transient disk space allocation for a particular volume.



Technical Certification

Topic: DATABASE Models


- Hierarchical-** (One of the first models) Predefined path which creates a Parent/Child relationship. **The child can only have one parent. Business rules are defined in the application program.
- Network-** Predefined path which creates a Parent/Child relationship. **The child can have multiple parents. Business rules are defined in the application program.
- Relational-** Defines Tables of data - no predefined paths. **Relationship between Parent/Child defined at Query time. Business rules are defined in the environment.
- Object-** Defines Tables of data - no predefined paths. **Parent/Child defined Query time. Business rules defined in the environment. In addition, the Application developer can create objects (Subroutines) that are re-usable. Allows designing applications that use a (GUI) graphical user interface. JAVA is an example of object language.

Examples: Network DATABASE Model

TurboImage-	(2 level network database model).
Top Level:	Master Datasets = Predefined Path - PARENT
Bottom Level:	Detail Datasets = Predefined Path - CHILD

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Topic: SYSGEN "SLT" Tape

Purpose: Create bootable tape for system recovery.

Parameters: Must have SM capability

Examples: :SYSGEN>TA


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On MPE/iX, two sets of tapes are necessary for system backup.

The SYSGEN> TAPE command creates a system load tape (SLT). This tape will reboot your operating system; however, it does not contain the system directory or any user files. The SLT should be created after any configuration changes have been made. The SLT contains system parameters and I/O configuration.

The STORE @.@.*T;DIRECTORY command creates a store tape that contains, user files, system files and the directory. This tape should be created daily for you system backup.




Technical Certification

Topic: SYSGEN -Formal File Designators

Purpose: Identify input & output device file ID's.

Parameters: SYSGEN [base configuration group]
 [,new configuration group]
 [,command input file] Formal designator
 =SYSGEN
 [,output file] Formal designator
 =SYSGOUT

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****Actual, Formal, and Default file designators for SYSGEN****

SYSGEN = Starts configuration dialog and or installation tape creation. The equivalent CM command is SYSDUMP. (NM)

Syntax = SYSGEN [basegroup][,newgroup][,inputfile][,outputfile]

Inputfile = Actual file designator of the file to be used for command input during the execution of SYSGEN. The formal file designator used by the SYSGEN program for this file is SYSGIN. The default file designator is \$STDIN.

Outputfile = Actual file designator of the file to be used for any output requested during the configurator.user dialog. The formal file designator used by the SYSGEN program for this file is SYSGOUT. The default file designator is \$STDLIST.

System supervisor (OP) is required to view configuration data. System manager (SM) is required to make changes and keep or create an installation tape.

Pressing Break suspends the execution / entering the RESUME command continues the execution.

The test will ask what are the formal file designators for input and output in SYSGEN. In addition, the default file designators were asked. Below is an actual question example, keep in mind the formal and defaults for both input and output.

What is the formal file designator for output in SYSGEN?

1. \$STDOUT
2. \$STDIN
3. SYSGIN
4. SYSGOUT