

WMCPA Working Knowledge Series

QSHELL for Dummies

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QSHIELD for Dummies

- Ground Rules
 - Please set cell phones to 'Stun'
 - Feel Free to ask questions
 - If you must take/make a call please exit room

QSHHELL for Dummies

- Speaker Bio
 - 27 years on the machine (S/38-i)
 - IBM Certified ILE specialist
 - Used QSHHELL and AIX for about 6 years
 - Specialize in:
 - JDE
 - Global installations
 - Performance

QSHHELL for Dummies

Agenda

- What is QSHHELL
- The very basics
- Where are things stored
- Directory structure
- Useful commands
- Some useful short scripts
- Conclusions

QSHELL for Dummies

What is QSHELL

- According to IBM:
 - Qshell is a command environment based on POSIX and X/Open standards.
- According to me:
 - QSHELL is AIX for the 'i'
- If you already know AIX, UNIX, or LINUX you already know QSHELL

QSHELL for Dummies

The Very Basics

- Terminology
 - *nix – Generic term for all Unix variants
 - Binaries – Generic term for programs and service programs, in general executable objects
 - Regular expression – a method of matching strings, it is very flexible. Used by many *nix commands to figure out which file to work on
 - Man pages – Refers to the ‘manual pages’ can be found online

QSHELL for Dummies

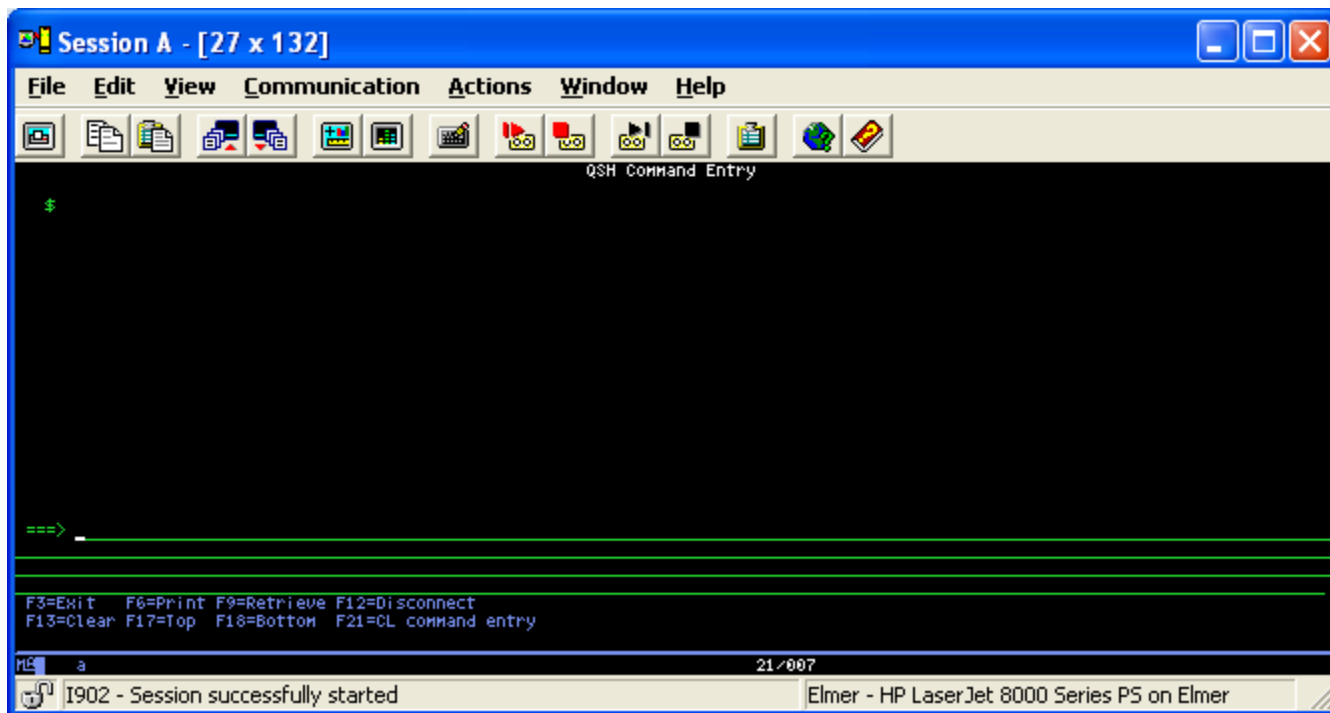
The Very Basics

- Installing QSHELL
 - Program products:
 - 5722SS1 Option 30 – Qshell
 - 5722SS1 Option 33 - PASE
- Starting QSHELL
 - Command: STRQSH (or QSH)
 - There is only one parameter : CMD
 - If you use it the command (or script) will execute and you can't do anything except exit
- Everything is case sensitive

QSHHELL for Dummies

The very basics

- Here is what your initial screen looks like

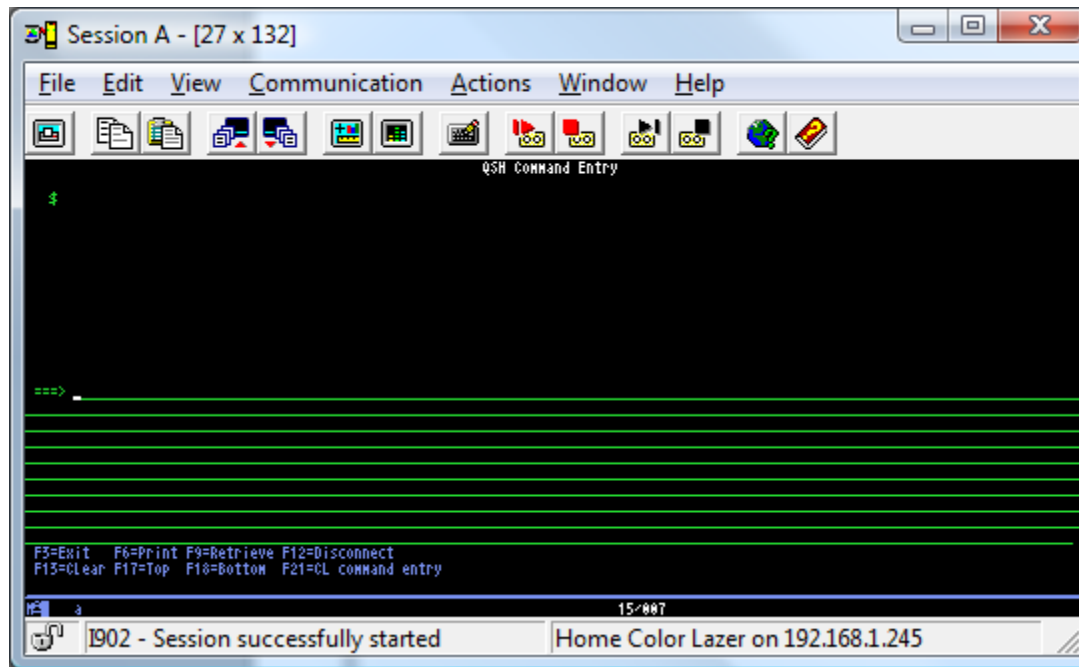


Acts like a unix terminal, things scroll off the top, you can use page up/page down
F12 allows you to leave and come back, does not survive a signoff

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The very basics

- How to change the number of blank lines



F14 allows you to increase/decrease the number of lines. Just put # on line 1 and Press F14, if no number entered takes you back to 4 lines

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The very basics

- You execute a program in your current directory using ./cmd concept

```
Session A - [27 x 132]
File Edit View Communication Actions Window Help
QSH Command Entry
> cd /QOpenSys/usr/bin
$
> stty
qsh: 001-0019 Error found searching for command stty. No such path or directory.
$
> ./stty
stty: tcsetattr: A system call received a parameter that is not valid.
$

===>

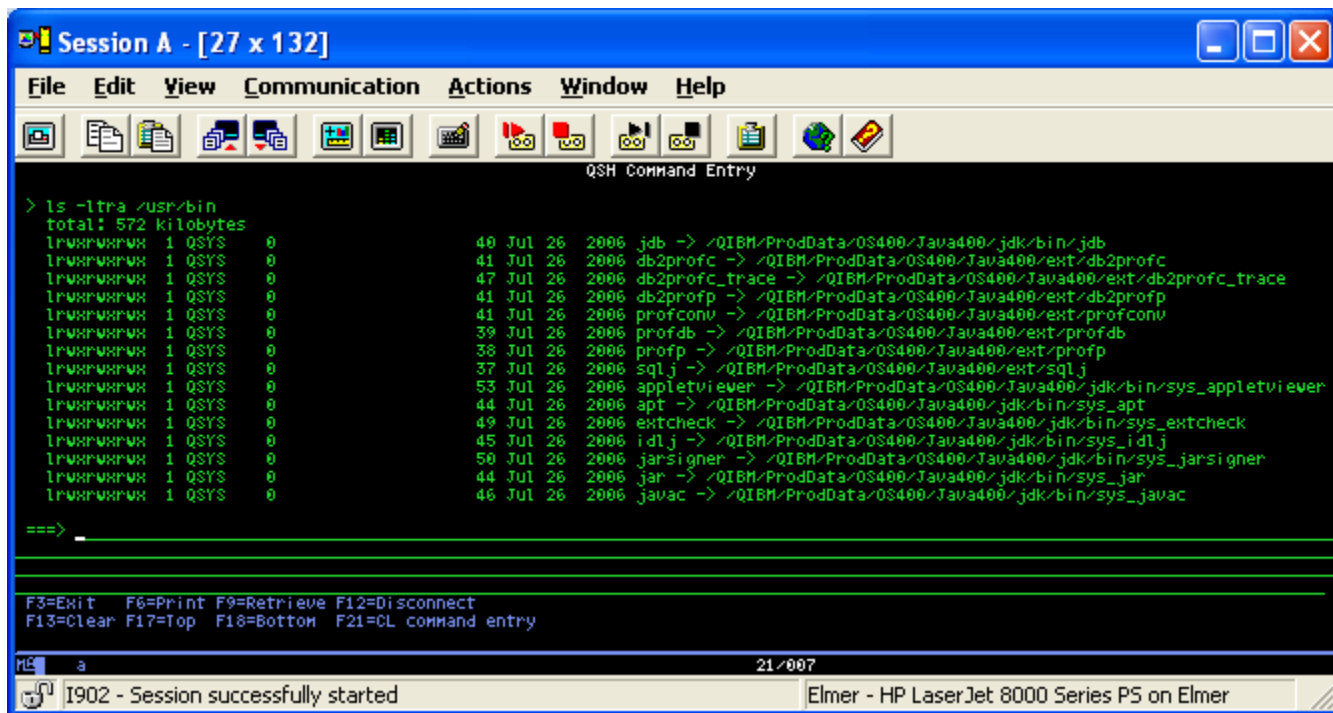
F3=Exit F6=Print F9=Retrieve F12=Disconnect
F13=Clear F17=Top F18=Bottom F21=CL command entry
1902 - Session successfully started Elmer - HP LaserJet 8000 Series PS on Elmer
```

Note without the ./ it couldn't find the command
Picked one that would fail but demonstrate it was called

QShell for Dummies

The very basics

- Most commands have the format “cmd options target”



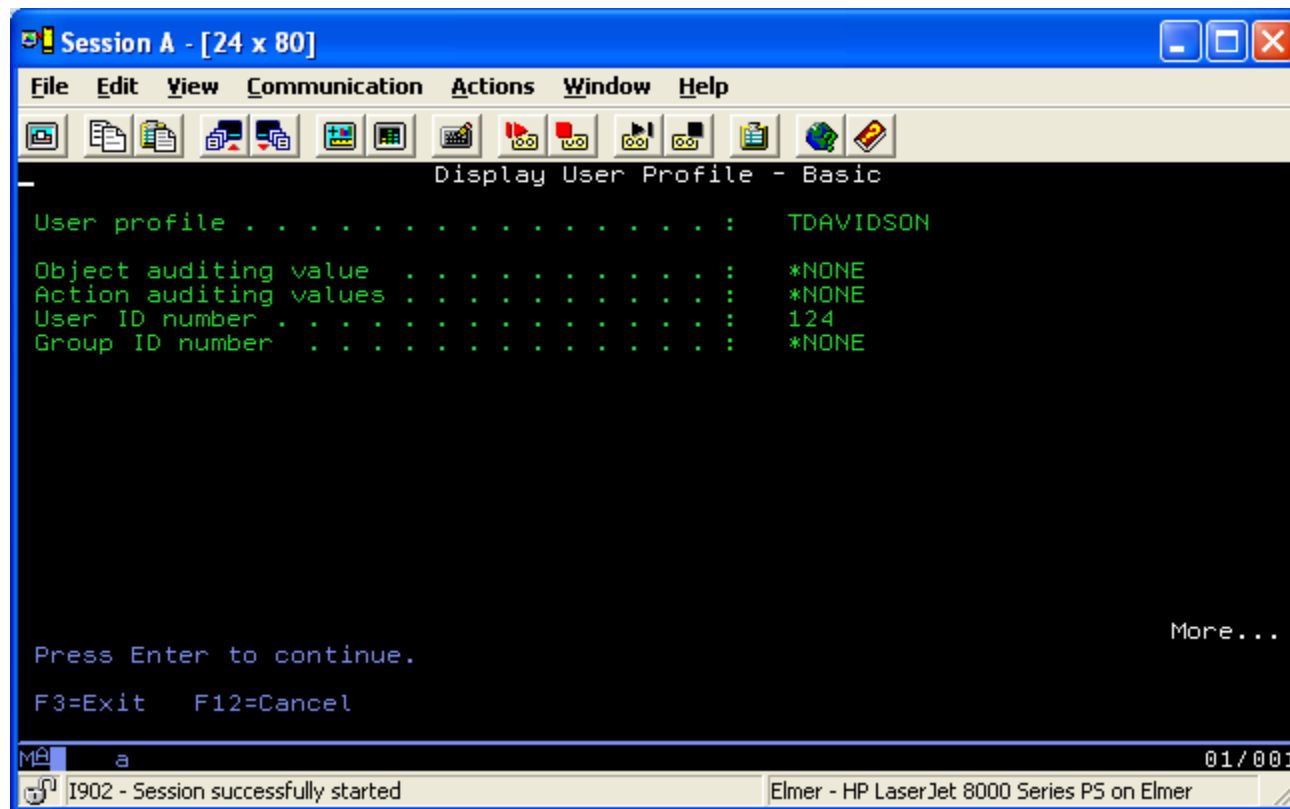
```
Session A - [27 x 132]
File Edit View Communication Actions Window Help
QSH Command Entry
> ls -ltra /usr/bin
total: 572 kilobytes
lrwxrwxrwx 1 QSYS 0      40 Jul 26 2006 jdb -> /QIBM/ProdData/OS400/Java400/jdk/bin/jdb
lrwxrwxrwx 1 QSYS 0      41 Jul 26 2006 db2prof -> /QIBM/ProdData/OS400/Java400/ext/db2prof
lrwxrwxrwx 1 QSYS 0      47 Jul 26 2006 db2prof_trace -> /QIBM/ProdData/OS400/Java400/ext/db2prof_trace
lrwxrwxrwx 1 QSYS 0      41 Jul 26 2006 db2profp -> /QIBM/ProdData/OS400/Java400/ext/db2profp
lrwxrwxrwx 1 QSYS 0      41 Jul 26 2006 profconu -> /QIBM/ProdData/OS400/Java400/ext/profconu
lrwxrwxrwx 1 QSYS 0      39 Jul 26 2006 profdb -> /QIBM/ProdData/OS400/Java400/ext/profdb
lrwxrwxrwx 1 QSYS 0      38 Jul 26 2006 profp -> /QIBM/ProdData/OS400/Java400/ext/profp
lrwxrwxrwx 1 QSYS 0      37 Jul 26 2006 sqlj -> /QIBM/ProdData/OS400/Java400/ext/sqlj
lrwxrwxrwx 1 QSYS 0      53 Jul 26 2006 appletviewer -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_appletviewer
lrwxrwxrwx 1 QSYS 0      44 Jul 26 2006 apt -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_apt
lrwxrwxrwx 1 QSYS 0      49 Jul 26 2006 extcheck -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_extcheck
lrwxrwxrwx 1 QSYS 0      45 Jul 26 2006 idlj -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_idlj
lrwxrwxrwx 1 QSYS 0      50 Jul 26 2006 jarsigner -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_jarsigner
lrwxrwxrwx 1 QSYS 0      44 Jul 26 2006 jar -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_jar
lrwxrwxrwx 1 QSYS 0      46 Jul 26 2006 javac -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_javac

===>
F3=Exit F6=Print F9=Retrieve F12=Disconnect
F13=Clear F17=Top F18=Bottom F21=CL command entry
1902 - Session successfully started Elmer - HP LaserJet 8000 Series PS on Elmer
```

QSHELL for Dummies

The very basics

- Permissions based on UID



The screenshot shows a terminal window titled "Session A - [24 x 80]". The window has a menu bar with "File", "Edit", "View", "Communication", "Actions", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main area of the terminal displays the following text:

```
Display User Profile - Basic
User profile . . . . . : TDAVIDSON
Object auditing value . . . . . : *NONE
Action auditing values . . . . . : *NONE
User ID number . . . . . : 124
Group ID number . . . . . : *NONE
```

At the bottom of the terminal, it says "Press Enter to continue." and "More...". Below the terminal window, there is a status bar with "M[A] a" on the left, "01/001" on the right, and a message "I902 - Session successfully started" on the left and "Elmer - HP LaserJet 8000 Series P5 on Elmer" on the right.

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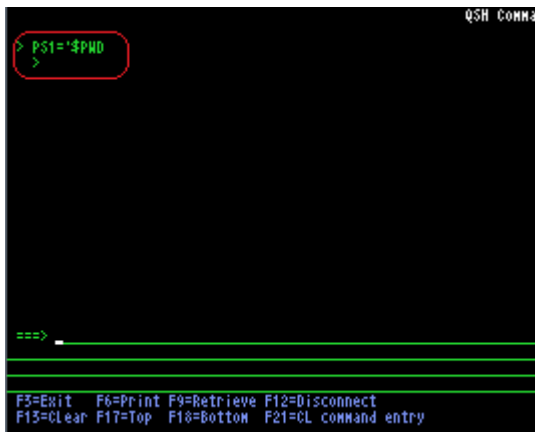
The very basics: Quotes

- Double Quotes ("") (weak quotes)
 - Allows substitution
- Single Quotes ('') (strong quotes)
 - Does not allow substitution
- Back Quotes (``) (command substitution)
 - Treats what is between them as a command

QSHELL for Dummies

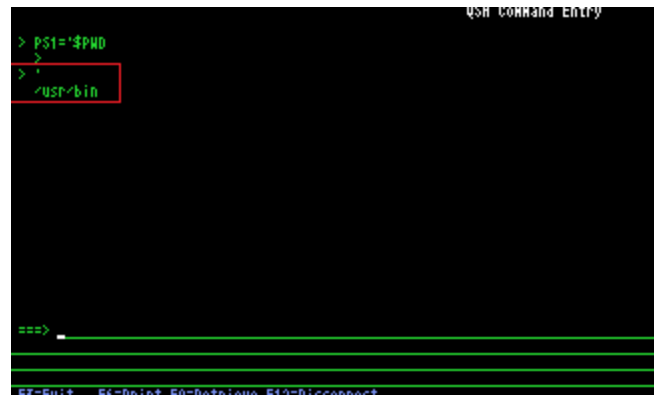
The very basics: Quotes

- A common error, not finishing quotes



```
QSH COMM2
> PS1='$PWD
>
===>
F3=Exit F6=Print F9=Retrieve F12=Disconnect
F13=Clear F17=Top F18=Bottom F21=CL command entry
```

The screenshot shows a terminal window titled "QSH COMM2". The prompt is "> PS1='\$PWD" and the user has entered ">". A red box highlights the unescaped single quote in the prompt. Below the prompt is a cursor and the text "===>". At the bottom, there is a legend for function keys: F3=Exit, F6=Print, F9=Retrieve, F12=Disconnect, F13=Clear, F17=Top, F18=Bottom, F21=CL command entry.



```
QSH COMMAND ENTRY
> PS1='$PWD
> '
~usr/bin
===>
F3=Exit F6=Print F9=Retrieve F12=Disconnect
```

The screenshot shows a terminal window titled "QSH COMMAND ENTRY". The prompt is "> PS1='\$PWD" and the user has entered "> '". A red box highlights the escaped single quote. Below the prompt is a cursor and the text "===>". At the bottom, there is a legend for function keys: F3=Exit, F6=Print, F9=Retrieve, F12=Disconnect.

- Cure by using ' '

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The very basics: Redirection

- Similar to DOS
 - | to pass data from one application to the next
 - > to send output to a file
 - >> to append to a file
 - < to get input from a file

QSHELL for Dummies

The very basics, your environment

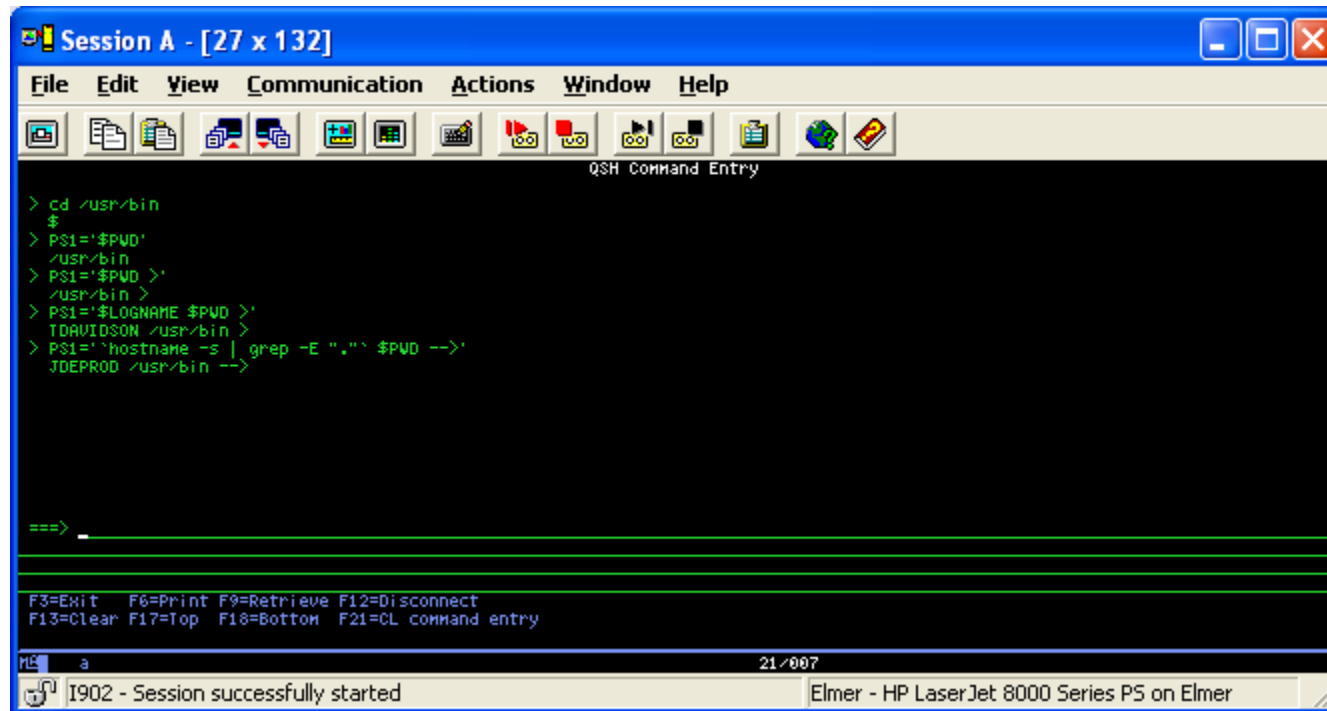
- Default path is /usr/bin:
- If POSIX loaded:
 - Note ':' separates directories
- Changing the prompt
 - By default it is \$
 - Change by using the following:

```
> PS1='$PWD'  
/usr/bin  
> cd ..  
/usr
```


QSHHELL for Dummies

The very basics, your environment

- Prompting



The screenshot shows a window titled "Session A - [27 x 132]" with a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The main area is a terminal window with the following text:

```
> cd /usr/bin
$
> PS1='$PWD'
/usr/bin
> PS1='$PWD >'
/usr/bin >
> PS1='$LOGNAME $PWD >'
TDAVIDSON /usr/bin >
> PS1='hostname -s | grep -E ".\"` $PWD -->'
JDEPROD /usr/bin -->
```

Below the terminal output, there are several horizontal lines and a prompt "===>". At the bottom of the terminal area, there is a legend for function keys:

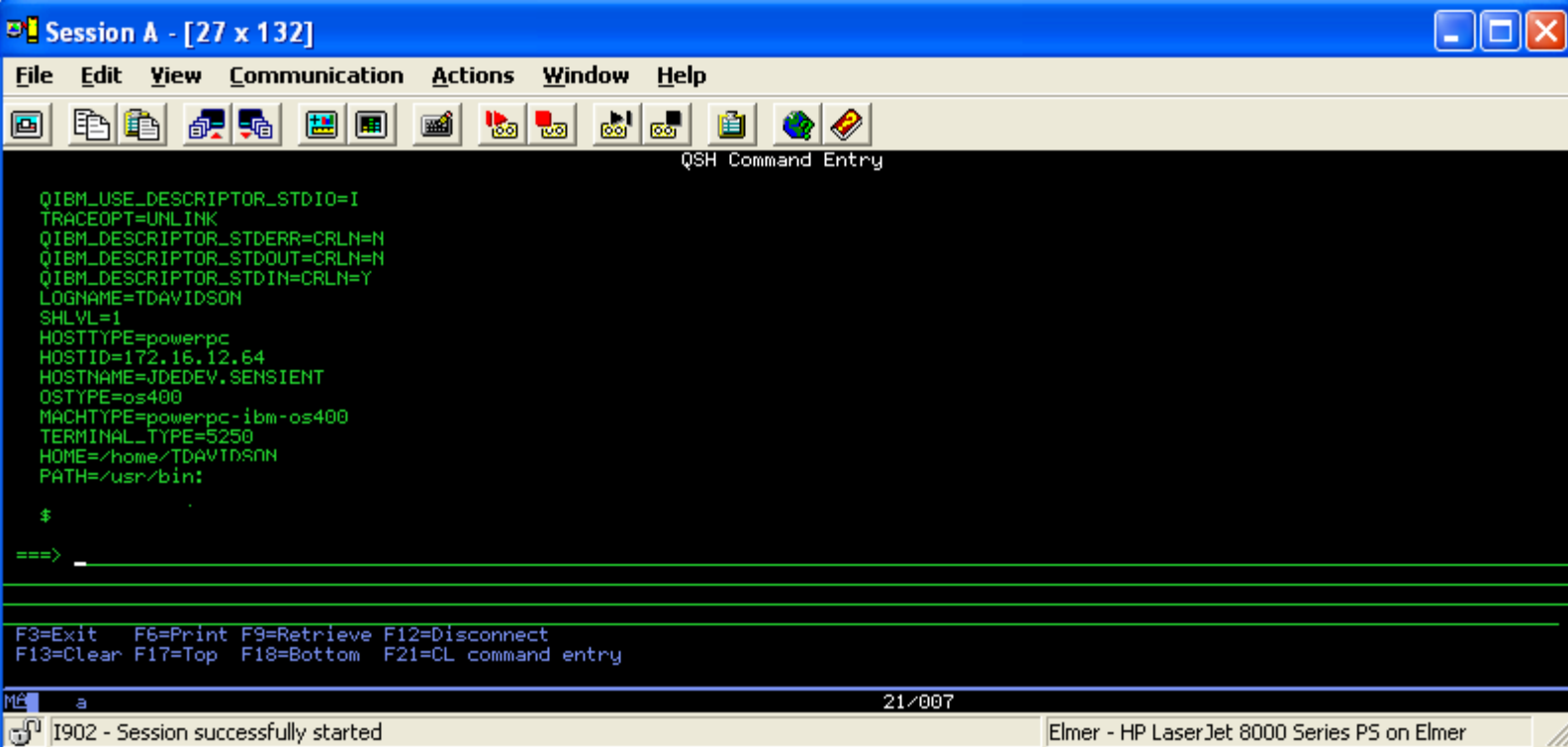
```
F3=Exit F6=Print F9=Retrieve F12=Disconnect
F13=Clear F17=Top F18=Bottom F21=CL command entry
```

The status bar at the bottom of the window shows "a" on the left, "21/007" in the center, and "Elmer - HP LaserJet 8000 Series PS on Elmer" on the right. A small notification box in the bottom left corner says "1902 - Session successfully started".

QSHELL for Dummies

The very basics, your environment

- Your environment



The screenshot shows a window titled "Session A - [27 x 132]" with a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The main area is a terminal window titled "QSH Command Entry" displaying the following environment variables and system information:

```
QIBM_USE_DESCRIPTOR_STDIO=I
TRACEOPT=UNLINK
QIBM_DESCRIPTOR_STDERR=CRLN=N
QIBM_DESCRIPTOR_STDOUT=CRLN=N
QIBM_DESCRIPTOR_STDIN=CRLN=Y
LOGNAME=TDAVIDSON
SHLVL=1
HOSTTYPE=powerpc
HOSTID=172.16.12.64
HOSTNAME=JDEDEV.SENSIENT
OSTYPE=os400
MACHTYPE=powerpc-ibm-os400
TERMINAL_TYPE=5250
HOME=/home/TDAVIDSON
PATH=/usr/bin:

$
===> _
```

Below the terminal area, there is a status bar with the following information:

```
F3=Exit F6=Print F9=Retrieve F12=Disconnect
F13=Clear F17=Top F18=Bottom F21=CL command entry
```

At the bottom of the window, there is a taskbar with the following information:

```
MC a 21/007
I902 - Session successfully started Elmer - HP LaserJet 8000 Series PS on Elmer
```

Qshell for Dummies

Where are things stored

- Most of the Qshell stuff is stored in the QOpenSys directory structure
- You can put your stuff anywhere you like, but you should follow *nix standards, others will expect to find it there
- You can directly load and execute AIX binaries

QShell for Dummies

Directory Structure

- Here is the directory structure for one system:

The screenshot shows the iSeries Navigator interface. The left pane displays a tree view of the environment, with the 'QOpenSys' folder under 'Root' selected. A red box highlights the subfolders: bin, etc, lib, sbin, usr, and var. The right pane shows a table of these folders with their names, sizes, types, and last modified dates.

Name	Size	Type	Changed
QIBM		File Folder	7/26/2006 7:39 AM
QOpenSys		File Folder	7/26/2006 8:20 AM
QSR		File Folder	8/24/2009 5:56 PM
bin		File Folder	7/26/2006 8:20 AM
etc		File Folder	7/26/2006 8:20 AM
lib		File Folder	7/26/2006 8:20 AM
sbin		File Folder	7/26/2006 8:20 AM
usr		File Folder	7/26/2006 9:16 AM
var		File Folder	7/26/2006 9:16 AM
verity		File Folder	8/3/2006 2:51 PM

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Directory Structure

- bin – Common libraries and commands
- etc – Configuration info for applications
- lib – Shared libraries
- sbin – programs essential to working of the system
- usr – User binaries
- var – Mail, logs, etc

QShell for Dummies

Useful Commands

- Format of command `cmd -abcd filename`
- You can prompt via `cmd -?` May or may not be usefull
- Man pages -

http://publib16.boulder.ibm.com/pseries/en_US/

(Commands Reference/Alphabetical list)

QSHELL for Dummies

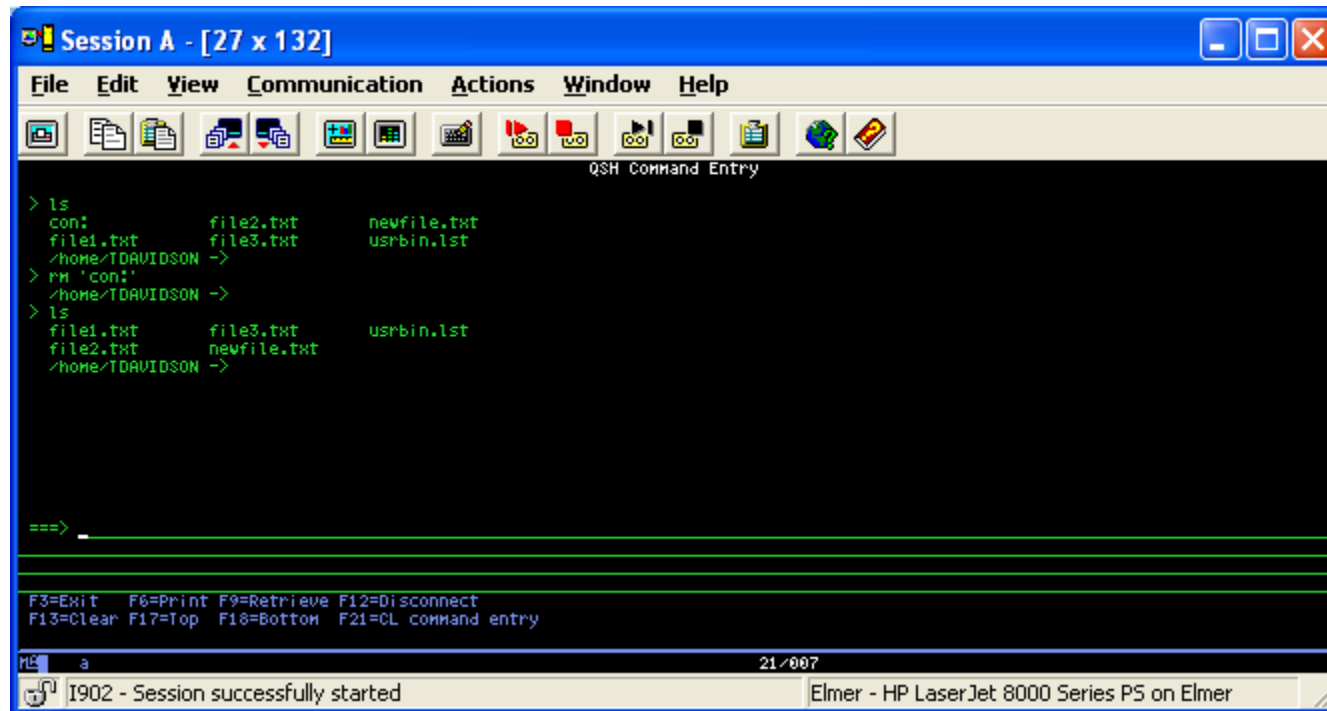
Useful Commands

- Displaying a directory (ls)
- Display where you are (pwd)
- POSIX commands
 - rm
 - cat
 - grep
 - head
 - tail

QSHHELL for Dummies

Useful Commands

- Deleting a file (rm)



The screenshot shows a terminal window titled "Session A - [27 x 132]". The window has a menu bar with "File", "Edit", "View", "Communication", "Actions", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main area of the window is a black terminal with green text. The text shows the following commands and their outputs:

```
> ls
con:          file2.txt    newfile.txt
file1.txt    file3.txt    usrbin.lst
/home/TDAVIDSON ->
> rm 'con:'
/home/TDAVIDSON ->
> ls
file1.txt    file3.txt    usrbin.lst
file2.txt    newfile.txt
/home/TDAVIDSON ->
```

Below the terminal output, there is a prompt "===> _" and a list of function key shortcuts:

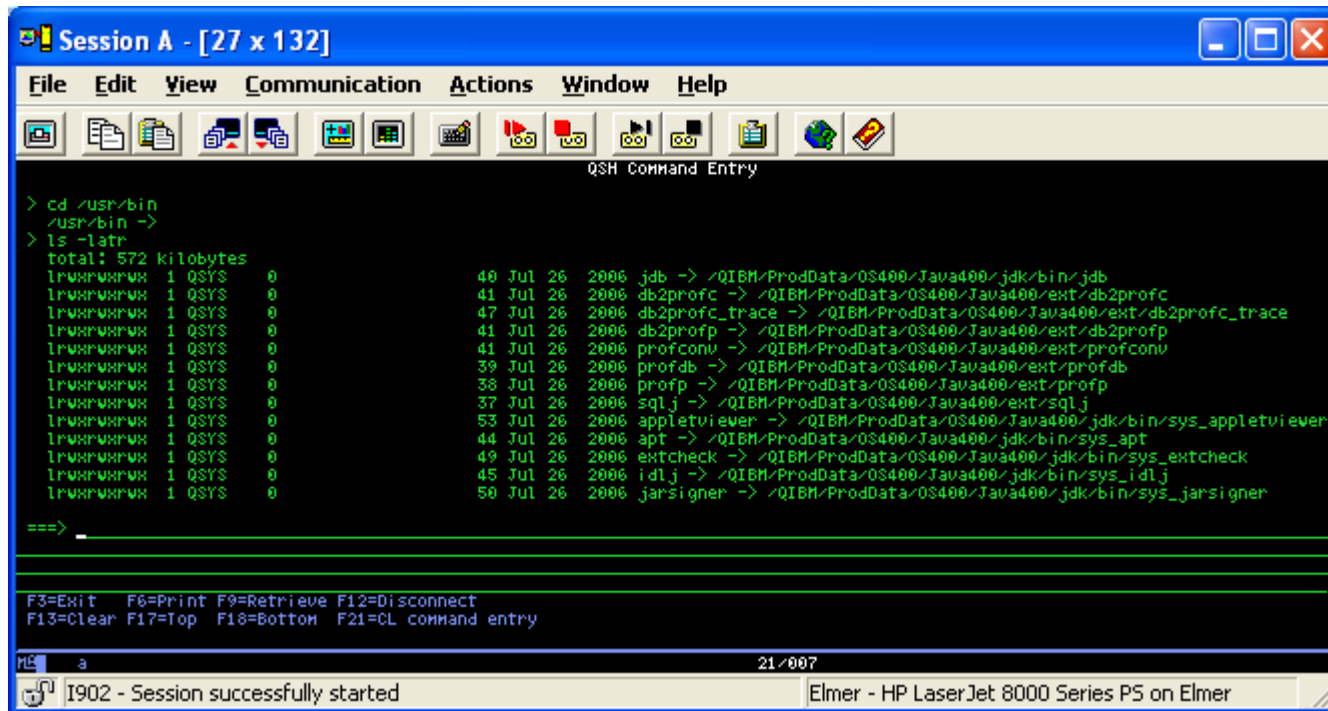
```
F3=Exit  F6=Print  F9=Retrieve  F12=Disconnect
F13=Clear F17=Top  F18=Bottom  F21=CL command entry
```

At the bottom of the window, there is a status bar with the text "1902 - Session successfully started" and "Elmer - HP LaserJet 8000 Series PS on Elmer".

QSHHELL for Dummies

Useful Commands

- Displaying a directory (ls)



```
Session A - [27 x 132]
File Edit View Communication Actions Window Help
QSH Command Entry
> cd /usr/bin
/usr/bin ->
> ls -ltr
total: 572 kilobytes
lrwxrwxrwx 1 QSYS 0      40 Jul 26 2006 jdb -> /QIBM/ProdData/OS400/Java400/jdk/bin/jdb
lrwxrwxrwx 1 QSYS 0      41 Jul 26 2006 db2profic -> /QIBM/ProdData/OS400/Java400/ext/db2profic
lrwxrwxrwx 1 QSYS 0      47 Jul 26 2006 db2profic_trace -> /QIBM/ProdData/OS400/Java400/ext/db2profic_trace
lrwxrwxrwx 1 QSYS 0      41 Jul 26 2006 db2profic -> /QIBM/ProdData/OS400/Java400/ext/db2profic
lrwxrwxrwx 1 QSYS 0      41 Jul 26 2006 profconv -> /QIBM/ProdData/OS400/Java400/ext/profconv
lrwxrwxrwx 1 QSYS 0      39 Jul 26 2006 profdb -> /QIBM/ProdData/OS400/Java400/ext/profdb
lrwxrwxrwx 1 QSYS 0      38 Jul 26 2006 profp -> /QIBM/ProdData/OS400/Java400/ext/profp
lrwxrwxrwx 1 QSYS 0      37 Jul 26 2006 sqlj -> /QIBM/ProdData/OS400/Java400/ext/sqlj
lrwxrwxrwx 1 QSYS 0      53 Jul 26 2006 appletviewer -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_appletviewer
lrwxrwxrwx 1 QSYS 0      44 Jul 26 2006 apt -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_apt
lrwxrwxrwx 1 QSYS 0      49 Jul 26 2006 extcheck -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_extcheck
lrwxrwxrwx 1 QSYS 0      45 Jul 26 2006 idlj -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_idlj
lrwxrwxrwx 1 QSYS 0      50 Jul 26 2006 jarsigner -> /QIBM/ProdData/OS400/Java400/jdk/bin/sys_jarsigner

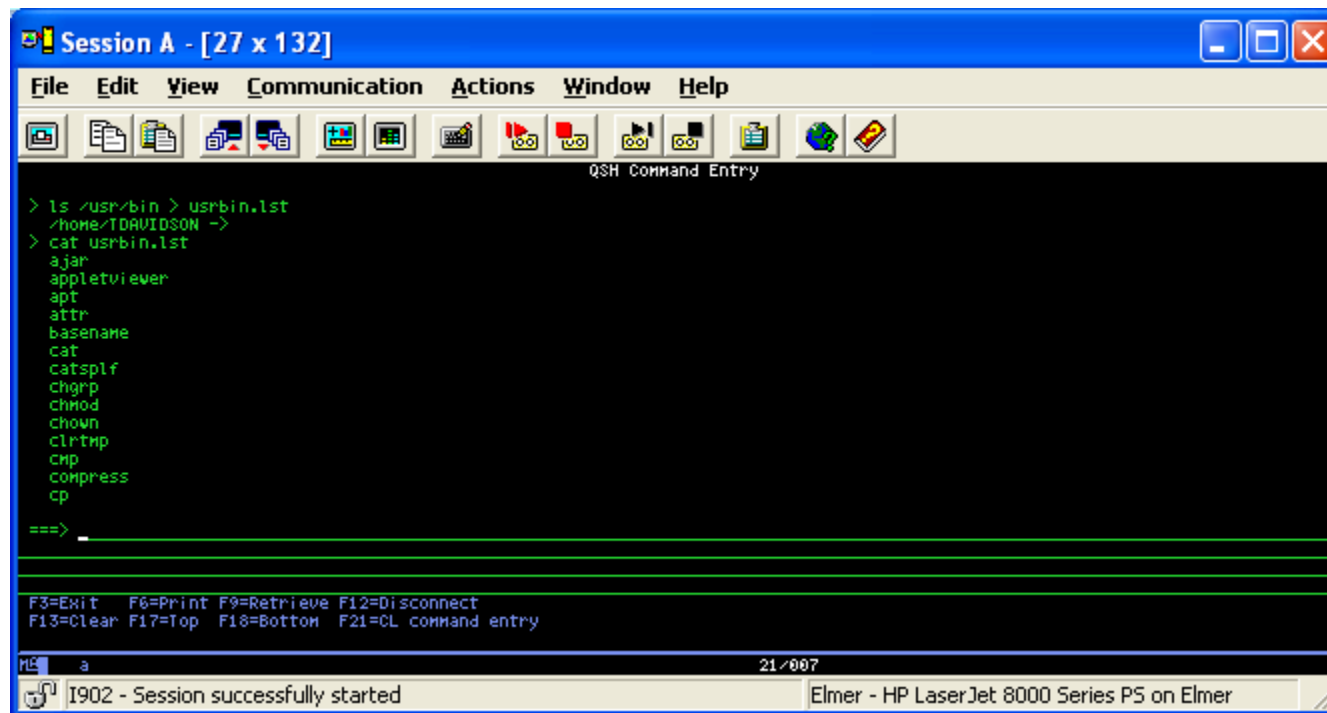
===> _

F3=Exit F6=Print F9=Retrieve F12=Disconnect
F13=Clear F17=Top F18=Bottom F21=CL command entry
HE a 21/007
I902 - Session successfully started Elmer - HP LaserJet 8000 Series PS on Elmer
```

QSHHELL for Dummies

Useful Commands

- cat



The screenshot shows a window titled "Session A - [27 x 132]" with a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The main area is a terminal window with the following text:

```
QSH Command Entry  
  
> ls /usr/bin > usrbin.lst  
/home/TDAVIDSON ->  
> cat usrbin.lst  
a.jar  
appletviewer  
apt  
attr  
basename  
cat  
catapult  
chgrp  
chmod  
chown  
clrtmp  
cmp  
compress  
cp  
  
===> _
```

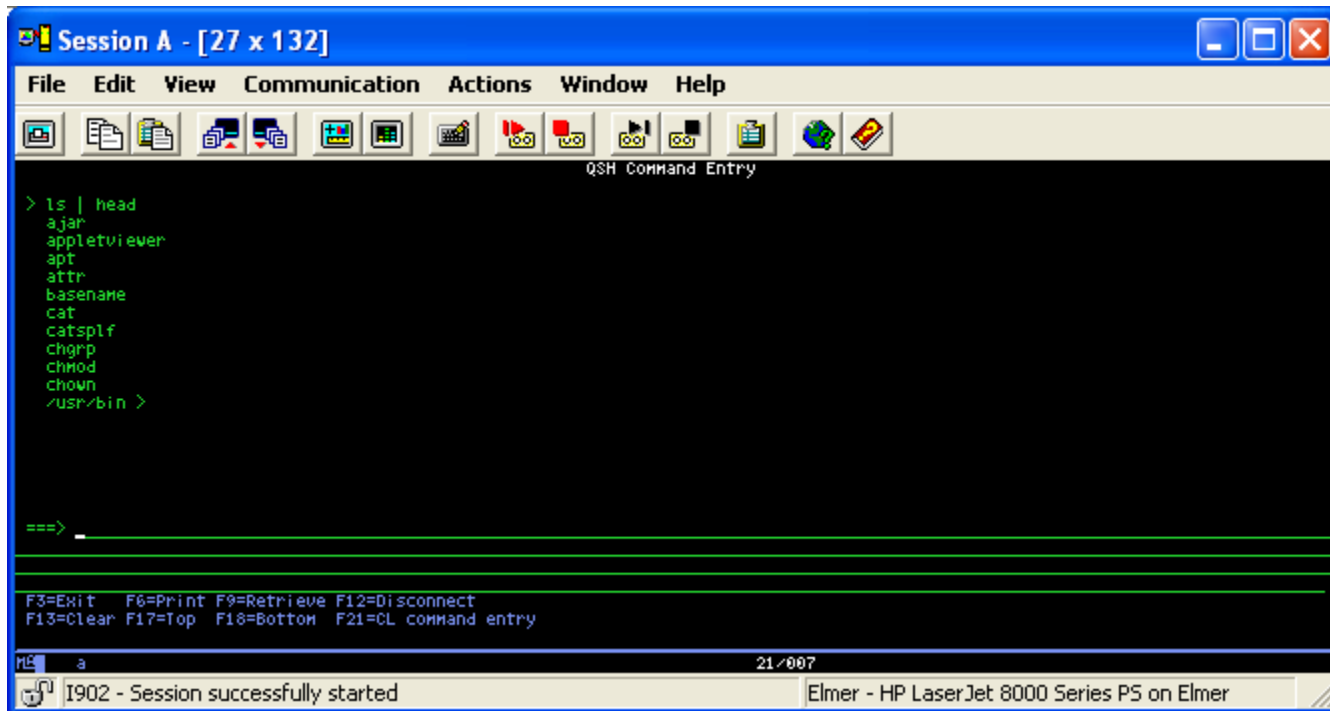
At the bottom of the terminal window, there is a legend for function keys: F3=Exit, F6=Print, F9=Retrieve, F12=Disconnect, F13=Clear, F17=Top, F18=Bottom, F21=CL command entry.

The status bar at the bottom of the window shows "a" on the left, "21/007" in the center, and "1902 - Session successfully started" and "Elmer - HP LaserJet 8000 Series PS on Elmer" on the right.

QSHHELL for Dummies

Useful Commands

- head



The screenshot shows a window titled "Session A - [27 x 132]" with a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The main area is a terminal window titled "QSH Command Entry" with a black background and green text. The command prompt shows the execution of "ls | head" and its output. At the bottom, there is a status bar with a keyboard icon, the letter "a", the page number "21/007", and a printer icon with the text "1902 - Session successfully started" and "Elmer - HP LaserJet 8000 Series PS on Elmer".

```
> ls | head
ajar
appletviewer
apt
attr
basename
cat
catsplf
chgrp
chmod
chown
/usr/bin >
```

===> _

F3=Exit F6=Print F9=Retrieve F12=Disconnect
F13=Clear F17=Top F18=Bottom F21=CL command entry

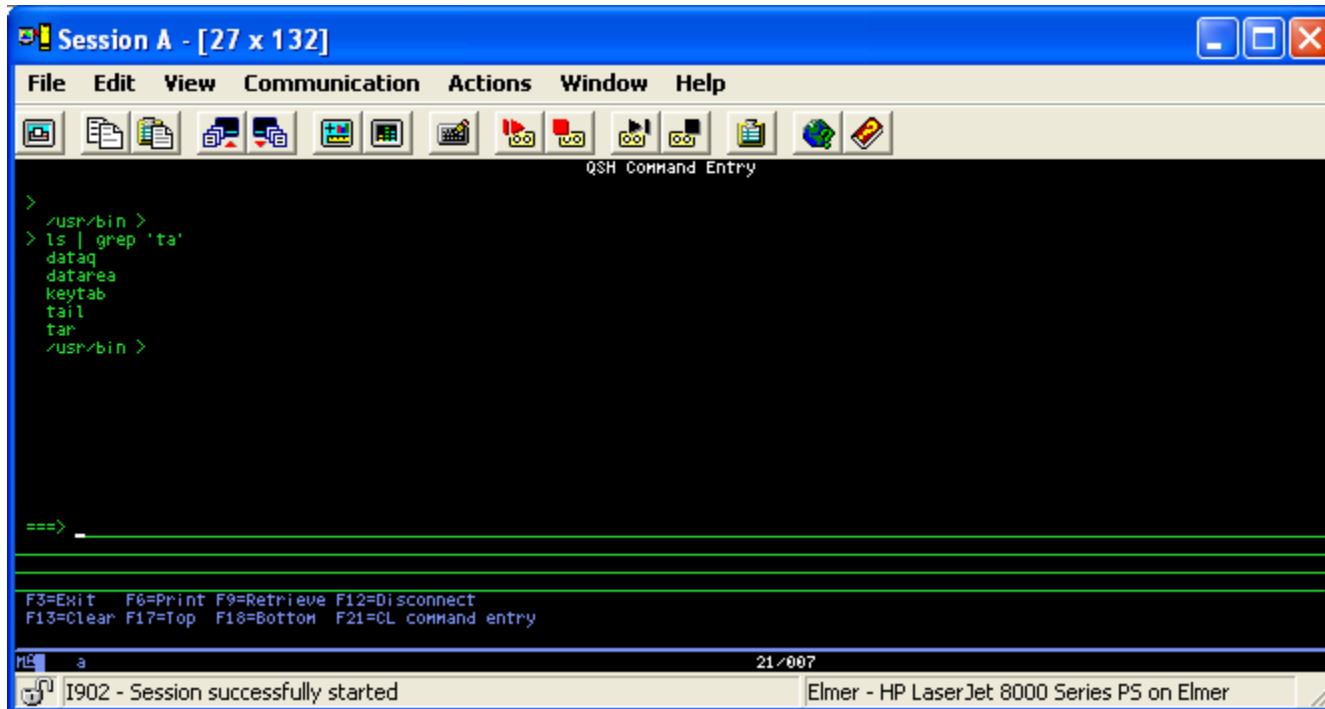
HE a 21/007

1902 - Session successfully started Elmer - HP LaserJet 8000 Series PS on Elmer

QSHHELL for Dummies

Useful Commands

- grep



The screenshot shows a window titled "Session A - [27 x 132]" with a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The main area is a terminal window with a black background and green text. The terminal shows the following commands and output:

```
> /usr/bin >  
> ls | grep 'ta'  
dataq  
datarea  
keytab  
tail  
tar  
> /usr/bin >
```

Below the terminal, there is a status bar with the text "F3=Exit F6=Print F9=Retrieve F12=Disconnect F13=Clear F17=Top F18=Bottom F21=CL command entry". At the bottom of the window, there is a taskbar with the text "1902 - Session successfully started" and "Elmer - HP LaserJet 8000 Series PS on Elmer".

QSHELL for Dummies

Useful Commands

- Limit output (grep)
- Takes an input line and if it matches the pattern given passes it on
- Format: `grep [options] pattern [file]`
- Useful options
 - `-i` = case insensitive
 - `-n` = displays line number
 - `-v` = lines not in pattern

QSHHELL for Dummies

Useful Commands

- tail

```
Session A - [27 x 132]
File Edit View Communication Actions Window Help
QSH Command Entry
>
> /usr/bin >
> ls | tail
tnameserv
touch
tr
uname
uncompress
uniq
unpack200
wc
xargs
zcat
> /usr/bin >

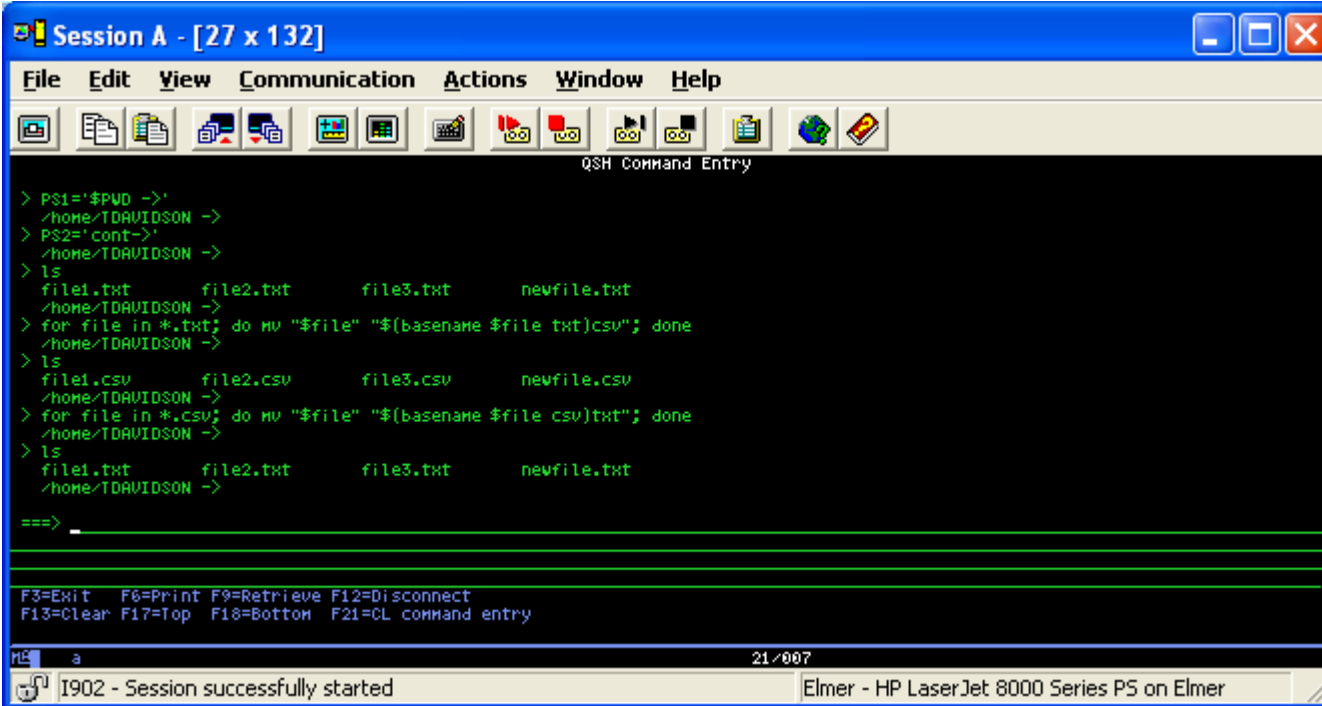
===> _

F3=Exit F6=Print F9=Retrieve F12=Disconnect
F13=Clear F17=Top F18=Bottom F21=CL command entry
a 21/007 Elmer - HP LaserJet 8000 Series PS on Elmer
1902 - Session successfully started
```

QSHHELL for Dummies

Some Useful Short scripts

Rename files in a directory



```
Session A - [27 x 132]
File Edit View Communication Actions Window Help
QSH Command Entry
> PS1='$PWD ->'
/home/TDAVIDSON ->
> PS2='cont->'
/home/TDAVIDSON ->
> ls
file1.txt      file2.txt      file3.txt      newfile.txt
/home/TDAVIDSON ->
> for file in *.txt; do mv "$file" "${basename $file txt}csv"; done
/home/TDAVIDSON ->
> ls
file1.csv      file2.csv      file3.csv      newfile.csv
/home/TDAVIDSON ->
> for file in *.csv; do mv "$file" "${basename $file csv}txt"; done
/home/TDAVIDSON ->
> ls
file1.txt      file2.txt      file3.txt      newfile.txt
/home/TDAVIDSON ->
===>
F3=Exit  F6=Print  F9=Retrieve  F12=Disconnect
F13=Clear F17=Top  F18=Bottom  F21=CL command entry
HE a 21/007
1902 - Session successfully started Elmer - HP LaserJet 8000 Series PS on Elmer
```

<http://www.itjungle.com/fhg/fhg093009-story02.html>

QShell for Dummies

Some Useful Short scripts

List all the members in a library

```
Session A - [27 x 132]
File Edit View Communication Actions Window Help
QSH Command Entry
> system 'crtpf tdauidson/qshell rcdlen(100)';find /qsys.lib/qgpl.lib -name *.MBR > /qsys.lib/tdavidson.lib/qshell.file/qshell.mbr
CPC7301: File QSHELL created in library TDAUIDSON.
CPC7305: Member QSHELL added to file QSHELL in TDAUIDSON.
/JDE812 ->
```

```
Session A - [27 x 132]
File Edit View Communication Actions Window Help
Display Physical File Member
File . . . . . : QSHELL      Library . . . . . : TDAUIDSON
Member . . . . : QSHELL      Record . . . . . : 1
Control . . . . :              Column . . . . . : 1
Find . . . . . :
*...+...1...+...2...+...3...+...4...+...5...+...6...+...7...+...8...+...9...+...0
/qsys.lib/qgpl.lib/ADDR_PRNT.FILE/ADDR_PRNT.MBR
/qsys.lib/qgpl.lib/ALL_VOS.FILE/ALL_VOS.MBR
/qsys.lib/qgpl.lib/ARREC010.FILE/ARREC010.MBR
/qsys.lib/qgpl.lib/ASOF_0002.FILE/ASOF_0002.MBR
/qsys.lib/qgpl.lib/ASOF_001.FILE/ASOF_001.MBR
/qsys.lib/qgpl.lib/ASOF_0021.FILE/ASOF_0021.MBR
/qsys.lib/qgpl.lib/ASOF_011.FILE/ASOF_011.MBR
/qsys.lib/qgpl.lib/ASOF_012.FILE/ASOF_012.MBR
/qsys.lib/qgpl.lib/ASOF_013.FILE/ASOF_013.MBR
/qsys.lib/qgpl.lib/ASOF_014.FILE/ASOF_014.MBR
/qsys.lib/qgpl.lib/BOM.FILE/BOM.MBR
/qsys.lib/qgpl.lib/CASH_ADJS.FILE/CASH_ADJS.MBR
/qsys.lib/qgpl.lib/CASH_APPD.FILE/CASH_APPD.MBR
/qsys.lib/qgpl.lib/CASH_REC.FILE/CASH_REC.MBR
/qsys.lib/qgpl.lib/CONU_TBL.FILE/CONU_TBL.MBR
/qsys.lib/qgpl.lib/CONU_TBL3.FILE/CONU_TBL3.MBR
/qsys.lib/qgpl.lib/CONU_TBL3A.FILE/CONU_TBL3A.MBR
/qsys.lib/qgpl.lib/COSTCOMP.FILE/COSTCOMP.MBR
More...
F3=Exit F12=Cancel F19=Left F20=Right F24=More keys
04/023
1902 - Session successfully started Elmer - HP LaserJet 8000 Series PS on Elmer
```


QShell for Dummies

Conclusions

- QShell is AIX for the 'i'
- You want to load the POSIX tools
- If you know *NIX you already know most of what you need
- You can do useful work in QShell, in some cases it is easier than on the OS/400 side

QSHHELL for Dummies

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