System shells

BAT Advanced - 5

```
                                    workspace
16/12/2022  12:45              2 295 zaza.txt
                                  123 383 octets
                               529 472 octets libres

 ou

 *
 da                           pelle Tweety
 Le numéro de                  5E35-93A3

 Répertoire de C:\unix

05/12/2022  13:34              2 768 goal.o
17/01/2023  11:53              2 568 lab1.o
10/11/2022  10:07              1 472 lab11.o
01/09/2022  16:31              2 416 lab2.o
02/09/2022  10:58              1 968 lab3.o
20/01/2023  12:31              2 880 lateBinding
20/01/2023  11:51              1 976 main
20/01/2023  12:16              1 896 mea
09/11/2022  12:59              2 60    r5.o
09/11/2022  15:00              2 664     .o
04/01/2023  12:09                968 pa
               11 fichier(s          176 octets
                0 Rép(s)  11          096 octets libres

C:\unix>
C:\unix>
C:\unix>
```

5 – Advanced CMD

XCOPY, FIND, FINDSTR etc.

FOR and VARIABLES

- Fill adv1.bat

```
@echo off
setlocal EnableDelayedExpansion
set count=0
for %%i in (1 2 3) do (
    set /a count+=1
    set /a var=%%i
    echo loop -%%i- : count is %count%, var is %var%
   echo   delayed: count is !count!, var is !var!
   echo.
)
echo Outside loop: count is %count%, var is %var%
endlocal
```

Use ! In place of %

unchanged for Set and %%

- Variable EnabledDelayedExplansion
  - Variables evaluation inside <command> of FOR
  - Modify the behavior of the CMD interpreter *(second pass)*
  - Code must be !VAR! in place of %VAR%

IF and VARIABLES

- Fill adv2.bat

```
@echo off
setlocal enabledelayedexpansion
set /a num1=%1
set /a num2=%2

if %num1% LEQ %num2% (
   set /a offset=!num2!-!num1!
) else (
   set /a offset=!num1!-!num2!
)
echo offset is %offset%
```

Use ! In place of %

- Variable `EnabledDelayedExplansion`
  - Variables evaluation inside <command> of `IF`
  - Modify the behavior of the CMD interpreter *(second pass)*
  - Code must be `!VAR!` in place of `%VAR%`

CALL and FUNCTIONS

- Fill adv3.bat

```
@echo off
setlocal enabledelayedexpansion
set /p mystr=please type a string of characters ...
call :strlen "%mystr%"
echo String "%mystr%" length is %ERRORLEVEL%
goto exit /b 0

:: ==== function STRLEN ========
:strlen
set "str=%~1"
for /l %%A in (0 1 4096) do (
    if "!str:~%%A,1!"=="" exit /b %%A
)
exit /b 0
```

Spaces ??

Return as ERRORLEVEL

Empty string

- Use `exit /b XX` as function *`return(XX)`*
  - The return value is in `%ERRORLEVEL%` after the `CALL`

Search & Find

Simple FIND

- Fill adv4.bat

```
@echo off
Echo foo > text.txt
Echo Bar >> text.txt
Echo FooBar >> text.txt
FIND /i "Bar" text.txt
Echo ---------------
FIND /V /n "Foo" text.txt
Echo ---------------
type text.txt | find /i /n "foo"
Del /Q text.txt
```

Will not display file name

- Command **FIND** has some arguments
  - /v will display lines without match
  - /n will add line numbers
  - Can be used as a filter with « pipe »

FIND inside FOR

- Fill adv4.bat

```
:: How many lines with EasterEgg in this script ?
@echo off
set ff=%~f0
set /a eggs=0
for /f "usebackq delims=" %%A in (`type %%ff%% ^| ^
FIND /i "easteregg"`) do (
   set /a eggs+=1
)
echo %eggs% lines containing easterEgg in %~nx0
```

Back Quote

- Note multiple escapes
  - `usebackq` because find string "…"
  - `%%ff%%` because in a quoted section
  - `^` at end of line to continue command on next line

Command FINDSTR

- Fill adv4.bat

```
@echo off
Echo foo > text.txt
Echo Bar >> text.txt
Echo FooBar >> text.txt
type text.txt | findstr ^[fF]
Del /Q text.txt
```

Lines starting with f or F

- FINDSTR accepts metacharacters

.	One of Any character
*	Zero or any number of any character
^	Start of line
$	End of line
[class]	Any character in the group i.e [Aez12]
[^class]	Any character NOT in the group [^ezEZ]
[x-y]	Any character in the interval [0-9]
\x	escape for literal usage of metachar ‘x’
\<xyz	« xyz » at start of word
xyz\>	« xyz » at end of word

Command WHERE

- Fill adv5.bat

```
@echo off

set /p file_name=Enter pattern for file name:

WHERE /T /R "%LOCALAPPDATA%" "%file_name%"
```

- WHERE accepts some metacharacters

?	One of Any character
*	Zero or any number of any character

Redirections

OUT and IN flows

- Fill flow1.bat

```
@echo off
>text.txt echo "FOO"
echo bar >>text.txt
1>>text.txt echo "ACME"
md FOO/BAR 2>log.txt
2>>log.txt md FOO/BAR

echo ----more---- & more text.txt
echo ---- ^< ---- & <text.txt more
echo ----0^< ---- & 0<text.txt more
echo ----FIND---- & <text.txt FIND "ar“
```

- Standard flows
  - Standard IN is `flow 0` (implicit on < or <<)
  - Standard OUT is `flow 1` (implicit on > or >>)
  - ERROR OUT is `flow 2`

User defined flows

- Fill flow2.bat

```
@echo off
1>test.txt  echo     first line
1>>test.txt echo     second line

<&3>LogInput.txt type test.txt
type LogInput.txt
echo.

0<&3>>logInput.txt type test.txt
type LogInput.txt

del /Q LogInput.txt
del /Q test.txt
```

- User defined flows
  - Use an explicit number i.e `flow 3`
  - Use redirection operators `<&3` or `&>3`

Compare

Compare files with FC

- Fill adv6.bat

```
@echo off

echo ------BEFORE---------- > tempo.txt
Type %~nx0 >> tempo.txt
echo ------AFTER---------- >> tempo.txt

FC tempo.txt %~nx0
del /Q tempo.txt
```

- `FC` will give differences between the two files
  - Works on files with different sizes
  - May receive sets of files
  - `/L` or `/U` for ASCII or UNICODE text files
  - `/C` to ignore case
  - `/B` for BINARY files
  - `/LBn` to stop after n differences

Compare files with COMP

- Fill adv7.bat

```
@echo off

echo ------BEFORE----------- > temp1.txt
Type %~nx0 >> temp1.txt
echo -------AFTER----------- > temp2.txt
Type %~nx0 >> temp2.txt

COMP temp1.txt temp2.txt /A /M
del /Q temp*.txt
```

- COMP will give differences between the two files
  - Give details if files have the same
  - May receive sets of files
  - /A to give the result in ASCII
  - /D to give the result in decimal
  - /C to ignore ASCII case (A = a)

Copy/Compare with XCOPY

- Fill adv8.bat

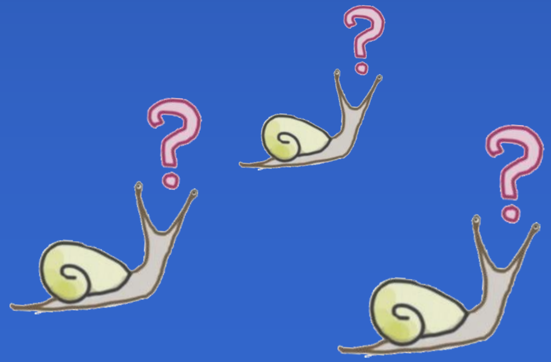
```
@echo off

Set DIR=%USERPROFILE%\LABS
Set BKP=%USERPROFILE%\BACKUP\LABS
Echo .txt > nsav
Echo .tmp >> nsav

xcopy %DIR%\*.* %BKP%\*.* /D /E /H /I /EXCLUDE:nsav /Y
del /Q nsav
```

- XCOPY will update the destination with any new thing
  - `/D` updates files that have been modified
  - `/E` iterates copy through folder tree
  - `/H` copy hidden files
  - `/I` Creates destination folder if necessary
  - `/EXCLUDE` ignore files with a match in nsav *(*.txt *.tmp)*
  - `/Y` copy without user confirmation

Control



Applications Life & Death

- Fill adv9.bat

```
@echo off
START notepad.exe

TASKLIST /FI "IMAGENAME eq notepad.exe"
Set /P answ=Enter PID of NOTEPAD:

TASKKILL /PID %answ%
```

- **TASKLIST** has many options
  - Modules (dll)
  - Services
  - Output (CSV etc.)

What is my IP adress ?

-
  ```
  IPCONFIG  /all
  ```

-
  ```
  IPCONFIG | FINDSTR "IPv4"
  ```