

# **Operációs rendszerek BSc**

3. Gyakorlat

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**Készítette:**

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# 1. feladat: 3A/4/a,b,c

The image displays two screenshots of the Dependency Walker (Dependency Walker - [30sgyak.exe]) tool, showing the analysis of the 30SGYAK.EXE file.

**Top Screenshot:** The tool shows the initial state of the application. The "Module" list on the left includes 30SGYAK.EXE, KERNEL32.DLL, API-MS-WIN-CORE-RTLSUPPORT-L1-1-0.DLL, NTDLL.DLL, and KERNELBASE.DLL. The "Function" list on the right shows various functions like DeleteCriticalSection, EnterCriticalSection, GetCurrentProcess, GetCurrentProcessId, GetCurrentThreadId, GetLastError, GetStartupInfoA, and GetSystemTimeAsFileTime. The "Module" list at the bottom shows several modules with errors: API-MS-WIN-CORE-CONSOLE-L1-2-0.DLL, API-MS-WIN-CORE-CONSOLE-L1-2-1.DLL, API-MS-WIN-CORE-CONSOLE-L2-1-0.DLL, API-MS-WIN-CORE-CONSOLE-L2-2-0.DLL, API-MS-WIN-CORE-CONSOLE-L3-2-0.DLL, API-MS-WIN-CORE-DATETIME-L1-1-0.DLL, API-MS-WIN-CORE-DATETIME-L1-1-1.DLL, and API-MS-WIN-CORE-DATETIME-L1-2.DLL. The error messages indicate that the system cannot find the specified files.

**Bottom Screenshot:** The tool shows the state after adding the missing DLLs. The "Module" list on the left now includes the previously missing DLLs. The "Function" list on the right shows additional functions like CsrAllocateCaptureBuffer, CsrAllocateMessagePointer, CsrCaptureMessageMultiUnicodeStringsInPlace, CsrCaptureMessageString, CsrClientCallServer, CsrFreeCaptureBuffer, CsrVerifyRegion, DbgPrint, and DbgPrintEx. The "Module" list at the bottom shows the same modules as the top screenshot, but the error messages are now resolved, indicating that the system can find the specified files.

## 2. feladat: 3B/1

```
user@Debian: ~
File Edit View Search Terminal Help
top - 16:55:18 up 3 min, 3 users, load average: 0.34, 0.68, 0.34
Tasks: 188 total, 1 running, 187 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni, 100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 4050508 total, 2586744 free, 612608 used, 851156 buff/cache
KiB Swap: 2097148 total, 2097148 free, 0 used. 3184292 avail Mem

  PID USER      PR  NI   VIRT    RES    SHR  S  %CPU  %MEM   TIME+ COMMAND
 3711 root        20   0   44904    3788    3172  R   0.3   0.1   0:00.12 top
    1 root        20   0 204772    7076    5276  S   0.0   0.2   0:01.28 systemd
    2 root        20   0     0         0         0  S   0.0   0.0   0:00.00 kthreadd
    3 root        20   0     0         0         0  S   0.0   0.0   0:00.51 ksoftirqd/0
    4 root        20   0     0         0         0  S   0.0   0.0   0:00.00 kworker/0:0
    5 root         0 -20     0         0         0  S   0.0   0.0   0:00.00 kworker/0:+
    6 root        20   0     0         0         0  S   0.0   0.0   0:00.00 kworker/u8+
    7 root        20   0     0         0         0  S   0.0   0.0   0:00.27 rcu_sched
    8 root        20   0     0         0         0  S   0.0   0.0   0:00.00 rcu_bh
    9 root        rt    0     0         0         0  S   0.0   0.0   0:00.00 migration/0
   10 root         0 -20     0         0         0  S   0.0   0.0   0:00.00 lru-add-dr+
   11 root        rt    0     0         0         0  S   0.0   0.0   0:00.00 watchdog/0
   12 root        20   0     0         0         0  S   0.0   0.0   0:00.00 cpuhp/0
   13 root        20   0     0         0         0  S   0.0   0.0   0:00.00 cpuhp/1
   14 root        rt    0     0         0         0  S   0.0   0.0   0:00.00 watchdog/1
   15 root        rt    0     0         0         0  S   0.0   0.0   0:00.00 migration/1
   16 root        20   0     0         0         0  S   0.0   0.0   0:00.00 ksoftirqd/1
```

top parancs valós időben mutatja a processeket

```
user@Debian: ~
File Edit View Search Terminal Help
root@Debian:~# vmstat
procs -----memory----- --swap-- -----io----- -system-- -----cpu-----
 r b   swpd   free   buff   cache    si   so    bi    bo    in   cs us sy id wa st
 1 0       0 2610916 61652 794772     0    0    238    227   204   278  4  1 88  7
0
root@Debian:~# vmstat -a
procs -----memory----- --swap-- -----io----- -system-- -----cpu-----
 r b   swpd   free   inact   active    si   so    bi    bo    in   cs us sy id wa st
 1 0       0 2610792 386844 901960     0    0    235    225   202   275  4  1 89  6
0
root@Debian:~# vmstat -m
Cache                               Num  Total  Size  Pages
fuse_request                        0      0    400     10
fuse_inode                          1      9    832      9
ext4_groupinfo_1k                   31     60    136     30
ext4_groupinfo_4k                   47     56    144     28
ext4_inode_cache                    15924  15939  1080      3
ext4_allocation_context              0      0    128     32
ext4_io_end                         0      0     64     64
ext4_extents_status                 11276  11385    40     99
jbd2_journal_head                   7      72    112     36
jbd2_revoke_table_s                 2    240     16    240
jbd2_revoke_record_s                0      0     32    124
fscrypt_info                        0      0     24    163
```

vmstat [-a -m] : rendszer aktivitásról, a hardverről és a rendszerről nyújt információkat.

```
user@Debian: ~
File Edit View Search Terminal Help
root@Debian:~# w
17:04:55 up 13 min, 3 users, load average: 0.00, 0.09, 0.16
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
user      tty2     /dev/tty2     16:54    13:30  7.98s  0.02s /usr/lib/gnome-
root@Debian:~# w user
17:05:05 up 13 min, 3 users, load average: 0.00, 0.08, 0.16
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
user      tty2     /dev/tty2     16:54    13:40  8.07s  0.02s /usr/lib/gnome-
root@Debian:~# w xyz
17:05:12 up 13 min, 3 users, load average: 0.00, 0.08, 0.16
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
root@Debian:~# who
user      tty2     2021-02-27 16:54 (/dev/tty2)
root@Debian:~# whoami
root
root@Debian:~# uname
Linux
root@Debian:~# ps
  PID TTY          TIME CMD
 3699 pts/0        00:00:00 su
 3705 pts/0        00:00:00 bash
 3981 pts/0        00:00:00 ps

user@Debian: ~
File Edit View Search Terminal Help
root@Debian:~# ps -A
  PID TTY          TIME CMD
    1 ?           00:00:01 systemd
    2 ?           00:00:00 kthreadd
    3 ?           00:00:00 ksoftirqd/0
    5 ?           00:00:00 kworker/0:0H
    7 ?           00:00:00 rcu_sched
    8 ?           00:00:00 rcu_bh
    9 ?           00:00:00 migration/0
   10 ?           00:00:00 lru-add-drain
   11 ?           00:00:00 watchdog/0
   12 ?           00:00:00 cpuhp/0
   13 ?           00:00:00 cpuhp/1
   14 ?           00:00:00 watchdog/1
   15 ?           00:00:00 migration/1
   16 ?           00:00:00 ksoftirqd/1
   18 ?           00:00:00 kworker/1:0H
   19 ?           00:00:00 cpuhp/2
   20 ?           00:00:00 watchdog/2
   21 ?           00:00:00 migration/2
   22 ?           00:00:00 ksoftirqd/2
   24 ?           00:00:00 kworker/2:0H
   25 ?           00:00:00 cpuhp/3
   26 ?           00:00:00 watchdog/3
```

```
user@Debian: ~
File Edit View Search Terminal Help
root@Debian:~# ps -Al
F S UID PID PPID C PRI NI ADDR SZ WCHAN TTY TIME CMD
4 S 0 1 0 0 80 0 - 51193 Sys_ep ? 00:00:01 systemd
1 S 0 2 0 0 80 0 - 0 - ? 00:00:00 kthreadd
1 S 0 3 2 0 80 0 - 0 - ? 00:00:00 ksoftirqd/0
1 S 0 5 2 0 60 -20 - 0 - ? 00:00:00 kworker/0:0H
1 S 0 7 2 0 80 0 - 0 - ? 00:00:00 rcu_sched
1 S 0 8 2 0 80 0 - 0 - ? 00:00:00 rcu_bh
1 S 0 9 2 0 -40 - - 0 - ? 00:00:00 migration/0
1 S 0 10 2 0 60 -20 - 0 - ? 00:00:00 lru-add-drain
5 S 0 11 2 0 -40 - - 0 - ? 00:00:00 watchdog/0
1 S 0 12 2 0 80 0 - 0 - ? 00:00:00 cpuhp/0
1 S 0 13 2 0 80 0 - 0 - ? 00:00:00 cpuhp/1
5 S 0 14 2 0 -40 - - 0 - ? 00:00:00 watchdog/1
1 S 0 15 2 0 -40 - - 0 - ? 00:00:00 migration/1
1 S 0 16 2 0 80 0 - 0 - ? 00:00:00 ksoftirqd/1
1 S 0 18 2 0 60 -20 - 0 - ? 00:00:00 kworker/1:0H
1 S 0 19 2 0 80 0 - 0 - ? 00:00:00 cpuhp/2
5 S 0 20 2 0 -40 - - 0 - ? 00:00:00 watchdog/2
1 S 0 21 2 0 -40 - - 0 - ? 00:00:00 migration/2
1 S 0 22 2 0 80 0 - 0 - ? 00:00:00 ksoftirqd/2
1 S 0 24 2 0 60 -20 - 0 - ? 00:00:00 kworker/2:0H
1 S 0 25 2 0 80 0 - 0 - ? 00:00:00 cpuhp/3
5 S 0 26 2 0 -40 - - 0 - ? 00:00:00 watchdog/3
```

```
user@Debian: ~
File Edit View Search Terminal Help
root@Debian:~# ps -AlF
F S UID PID PPID C PRI NI ADDR SZ WCHAN RSS PSR STIME TTY
TIME CMD
4 S root 1 0 0 80 0 - 51193 Sys_ep 7076 0 16:51 ? 00:0
0:01 /sbin/init
1 S root 2 0 0 80 0 - 0 - 0 3 16:51 ? 00:0
0:00 [kthreadd]
1 S root 3 2 0 80 0 - 0 - 0 0 16:51 ? 00:0
0:00 [ksoftirqd/0]
1 S root 5 2 0 60 -20 - 0 - 0 0 16:51 ? 00:0
0:00 [kworker/0:0H]
1 S root 7 2 0 80 0 - 0 rcu_gp 0 1 16:51 ? 00:0
0:00 [rcu_sched]
1 S root 8 2 0 80 0 - 0 - 0 0 16:51 ? 00:0
0:00 [rcu_bh]
1 S root 9 2 0 -40 - - 0 - 0 0 16:51 ? 00:0
0:00 [migration/0]
1 S root 10 2 0 60 -20 - 0 - 0 0 16:51 ? 00:0
0:00 [lru-add-drain]
5 S root 11 2 0 -40 - - 0 - 0 0 16:51 ? 00:0
0:00 [watchdog/0]
1 S root 12 2 0 80 0 - 0 - 0 0 16:51 ? 00:0
0:00 [cpuhp/0]
1 S root 13 2 0 80 0 - 0 - 0 1 16:51 ? 00:0
```

```
user@Debian: ~
File Edit View Search Terminal Help
root@Debian:~# ps -ALFH
F S UID          PID  PPID  C  PRI  NI ADDR SZ WCHAN      RSS  PSR  STIME TTY
TIME CMD
1 S root          2    0  0  80   0 -    0 -      0   3 16:51 ?    00:0
0:00 [kthreadd]
1 S root          3    2  0  80   0 -    0 -      0   0 16:51 ?    00:0
0:00 [ksoftirqd/0]
1 S root          5    2  0  60 -20 -    0 -      0   0 16:51 ?    00:0
0:00 [kworker/0:0H]
1 S root          7    2  0  80   0 -    0 rcu_gp      0   2 16:51 ?    00:0
0:00 [rcu_sched]
1 S root          8    2  0  80   0 -    0 -      0   0 16:51 ?    00:0
0:00 [rcu_bh]
1 S root          9    2  0 -40   - -    0 -      0   0 16:51 ?    00:0
0:00 [migration/0]
1 S root         10    2  0  60 -20 -    0 -      0   0 16:51 ?    00:0
0:00 [lru-add-drain]
5 S root         11    2  0 -40   - -    0 -      0   0 16:51 ?    00:0
0:00 [watchdog/0]
1 S root         12    2  0  80   0 -    0 -      0   0 16:51 ?    00:0
0:00 [cpuhp/0]
1 S root         13    2  0  80   0 -    0 -      0   1 16:51 ?    00:0
0:00 [cpuhp/1]
```

```
user@Debian: ~
File Edit View Search Terminal Help
root@Debian:~# ps -auxf | sort -nr -k 3 | head -5
user      3400  0.4  4.3 2119340 178108 tty2    Sl+  16:54  0:08      \_
/usr/bin/gnome-shell
user      3551  0.2  0.8 582768 34744 ?        Ssl  16:54  0:03  \_ /usr/lib/gn
ome-terminal/gnome-terminal-server
Debian-+  839  0.2  3.2 2038704 133280 tty1    Sl+  16:51  0:05  |      \_
/usr/bin/gnome-shell
user      3459  0.1  2.4 932652 97912 tty2    Sl+  16:54  0:01      \_
/usr/bin/gnome-software --gapplication-service
root      1006  0.1  0.3 400948 15660 ?        Ssl  16:51  0:02 /usr/lib/packag
ekit/packagekitd
root@Debian:~# █
```



```
user@Debian: ~
File Edit View Search Terminal Help

root@Debian:~# free
              total        used        free      shared  buff/cache   available
Mem:          4050508       584492       2605556        20748        860460       3214680
Swap:          2097148           0       2097148

root@Debian:~# iostat
-su: iostat: command not found
root@Debian:~# sar
-su: sar: command not found
root@Debian:~# mpstat
-su: mpstat: command not found
root@Debian:~# pmap

Usage:
  pmap [options] PID [PID ...]

Options:
  -x, --extended          show details
  -X                      show even more details
                        WARNING: format changes according to /proc/PID/smmaps
  -XX                    show everything the kernel provides
  -c, --read-rc           read the default rc
  -C, --read-rc-from=<file> read the rc from file
  -n, --create-rc        create new default rc
  -N, --create-rc-to=<file> create new rc to file
```

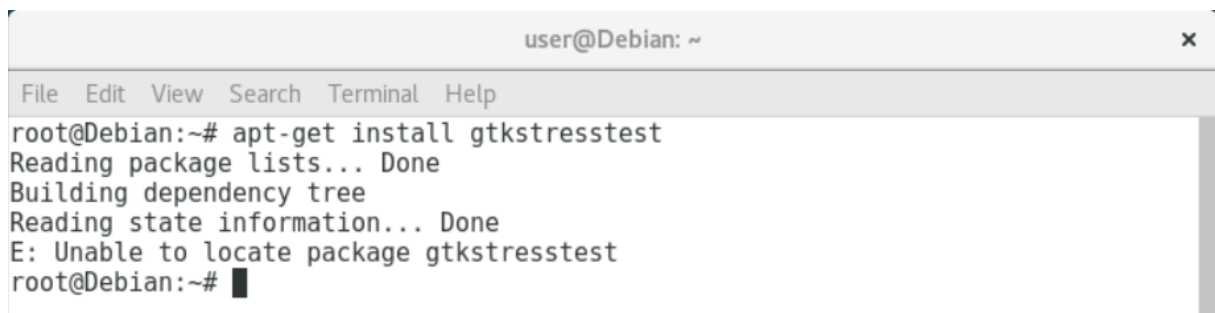
Free: szabad memória és swap terület

pmap: process memória használatát jelzi

```
user@Debian: ~
File Edit View Search Terminal Help

root@Debian:~# pmap 1
1: /sbin/init
000055934889d000    948K r-x-- systemd
000055934898a000    148K r---- systemd
00005593489af000     4K rw--- systemd
0000559349b20000   1168K rw--- [ anon ]
00007f54a4000000    164K rw--- [ anon ]
00007f54a4029000   65372K ---- [ anon ]
00007f54ac000000    164K rw--- [ anon ]
00007f54ac029000   65372K ---- [ anon ]
00007f54b2181000     4K ---- [ anon ]
00007f54b2182000   8192K rw--- [ anon ]
00007f54b2982000     4K ---- [ anon ]
00007f54b2983000   8192K rw--- [ anon ]
00007f54b3183000    16K r-x-- libuuid.so.1.3.0
00007f54b3187000   2044K ---- libuuid.so.1.3.0
00007f54b3386000     4K r---- libuuid.so.1.3.0
00007f54b3387000     4K rw--- libuuid.so.1.3.0
00007f54b338b000    16K r-x-- libattr.so.1.1.0
00007f54b338f000   2044K ---- libattr.so.1.1.0
00007f54b358e000     4K r---- libattr.so.1.1.0
00007f54b358f000     4K rw--- libattr.so.1.1.0
00007f54b3593000    76K r-x-- libgpg-error.so.0.21.0
00007f54b35a6000   2044K ---- libgpg-error.so.0.21.0
```

### 3. feladat: 3B/2



```
user@Debian: ~  
File Edit View Search Terminal Help  
root@Debian:~# apt-get install gtkstresstest  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
E: Unable to locate package gtkstresstest  
root@Debian:~#
```