

Systemové programování Windows

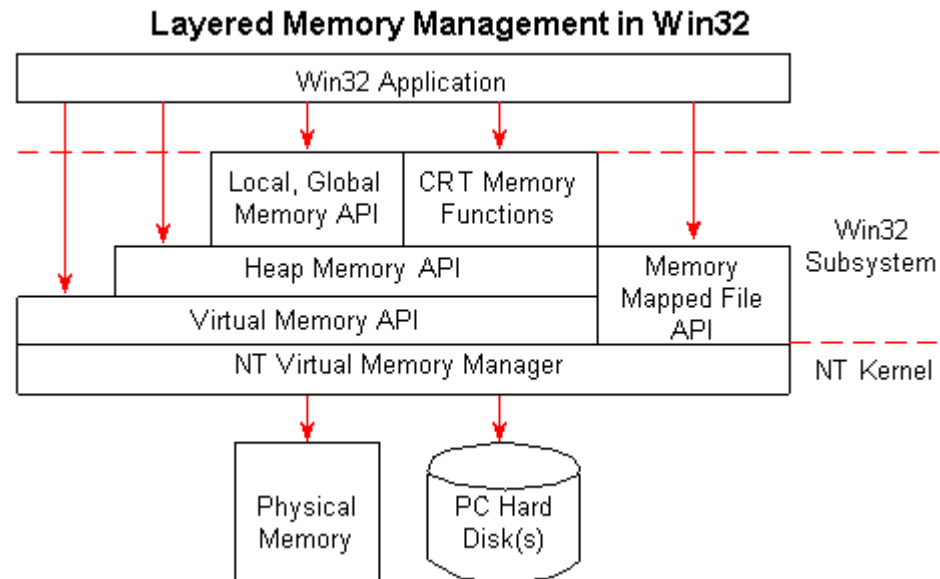
Paměť - 2

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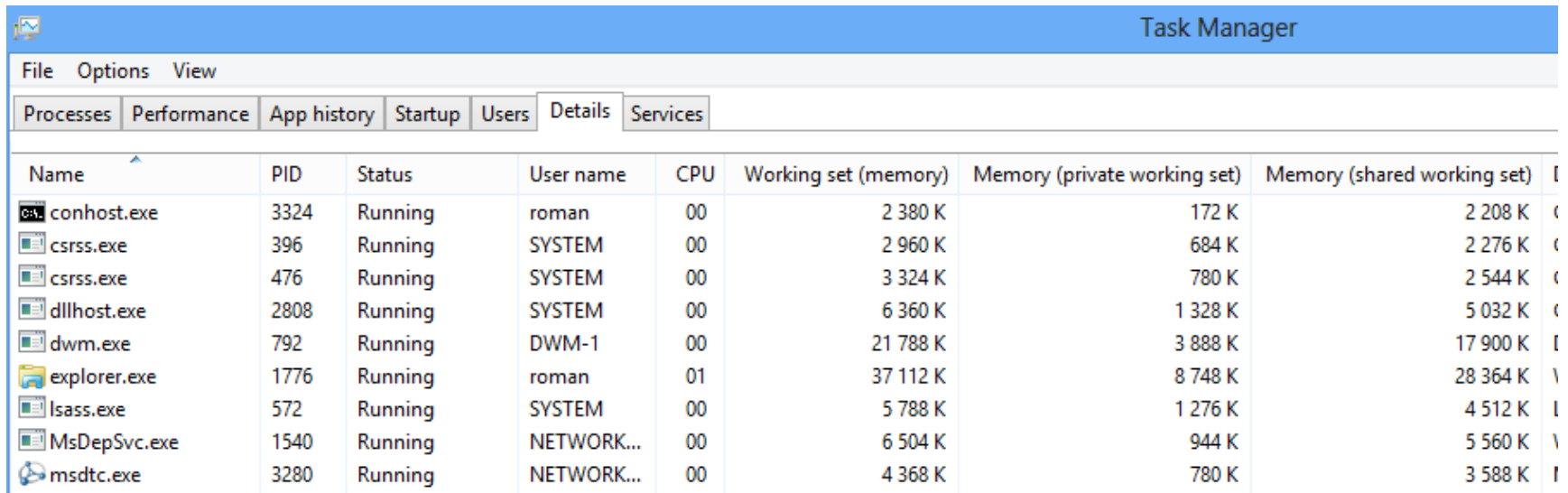


Memory Management



Task Manager

▶ Taskmgr.exe



The screenshot shows the Windows Task Manager application window titled "Task Manager". The "Details" tab is selected, displaying a list of running processes. The table columns are: Name, PID, Status, User name, CPU, Working set (memory), Memory (private working set), and Memory (shared working set). The processes listed are conhost.exe, csrss.exe (two instances), dllhost.exe, dwm.exe, explorer.exe, lsass.exe, MsDepSvc.exe, and msdtc.exe.

Name	PID	Status	User name	CPU	Working set (memory)	Memory (private working set)	Memory (shared working set)
conhost.exe	3324	Running	roman	00	2 380 K	172 K	2 208 K
csrss.exe	396	Running	SYSTEM	00	2 960 K	684 K	2 276 K
csrss.exe	476	Running	SYSTEM	00	3 324 K	780 K	2 544 K
dllhost.exe	2808	Running	SYSTEM	00	6 360 K	1 328 K	5 032 K
dwm.exe	792	Running	DWM-1	00	21 788 K	3 888 K	17 900 K
explorer.exe	1776	Running	roman	01	37 112 K	8 748 K	28 364 K
lsass.exe	572	Running	SYSTEM	00	5 788 K	1 276 K	4 512 K
MsDepSvc.exe	1540	Running	NETWORK...	00	6 504 K	944 K	5 560 K
msdtc.exe	3280	Running	NETWORK...	00	4 368 K	780 K	3 588 K

Aktuální stav fyzické paměti

- ▶ **Private Working Set (procexp: „PM – WS private“)**
 - ▶ Subset of working set that specifically describes the amount of memory a process is using that cannot be shared by other processes.
- ▶ **Working Set (procexp: „PM – Working set“)**
 - ▶ Amount of memory in the private working set plus the amount of memory the process is using that can be shared by other processes.



Stav virtuální paměti

- ▶ **Commit Size** (procexp: „VM – private bytes“)
 - ▶ Amount of virtual memory that is reserved for use by a process.



Process Explorer

Process Explorer - Sysinternals: www.sysinternals.com [VM-WIN81-64]

File Options View Process Find Handle Users Help

Process	PID	CPU	Private Bytes	Working Set	Description	Company Name
smss.exe	308		272 K	224 K		
csrss.exe	408		1 924 K	2 176 K		
wininit.exe	480		744 K	188 K		
csrss.exe	488	0.16	2 200 K	12 096 K		
winlogon.exe	532		1 316 K	1 868 K		
dwm.exe	796	0.19	91 120 K	78 972 K		
explorer.exe	1404	0.14	37 024 K	56 704 K	Windows Explorer	Microsoft Corporation
vm VMWare Tray.exe	3116		1 620 K	2 076 K	VMware Tools tray application	VMware, Inc.
vm vmtoolsd.exe	3164	0.10	5 460 K	5 016 K	VMware Tools Core Service	VMware, Inc.
devenv.exe	3220	0.01	71 564 K	37 900 K	Microsoft Visual Studio 2013	Microsoft Corporation
TOTALCMD64.EXE	4064	0.15	12 820 K	27 028 K	Total Commander	Ghisler Software GmbH
procexp.exe	3424		2 356 K	4 548 K	Sysinternals Process Explorer	Sysinternals - www.sys...
procexp64.exe	3920	13.72	17 468 K	40 780 K	Sysinternals Process Explorer	Sysinternals - www.sys...
cmd.exe	2932		1 520 K	2 468 K	Windows Command Processor	Microsoft Corporation
conhost.exe	1732	< 0.01	1 104 K	5 048 K	Console Window Host	Microsoft Corporation
ieexplore.exe	392	< 0.01	7 412 K	22 376 K	Internet Explorer	Microsoft Corporation
ieexplore.exe	2764	0.01	21 804 K	59 200 K	Internet Explorer	Microsoft Corporation
Taskmgr.exe	2344	1.02	11 048 K	14 840 K		
devenv.exe	2248	3.10	172 588 K	289 328 K	Microsoft Visual Studio 2013	Microsoft Corporation
vcpgkgsrv.exe	348	< 0.01	48 976 K	23 792 K	Microsoft (R) Visual C++ Pac...	Microsoft Corporation

Type	Name
ALPC Port	\RPC Control\VOLE4BE530F2299301A7703EFF5730F9
Desktop	\Default
Directory	\KnownDlls
Directory	\KnownDlls32
Directory	\KnownDlls32
Directory	\Sessions\1\BaseNamedObjects
Event	\KernelObjects\MaximumCommitCondition
Event	\BaseNamedObjects\CPFATE_2248_v4.0.30319
Event	\KernelObjects\LowMemoryCondition
Event	\Sessions\1\BaseNamedObjects\Debugger Automation Attach Complete Event
Event	\BaseNamedObjects\TermSrvReadyEvent
Event	\Sessions\1\BaseNamedObjects\Debugger Automation Break Or Design Mode Event
Event	\Sessions\1\BaseNamedObjects\Debugger Automation Evaluation Complete Event
Event	\Sessions\1\BaseNamedObjects\Debugger Automation Detach Complete Event
Event	\Sessions\1\BaseNamedObjects\Debugger Automation Launch Complete Event

devenv.exe:2248 Properties

Security	Environment	Job	.NET Assemblies	.NET Performance	Strings
Image	Performance	Performance Graph	GPU Graph	Threads	TCP/IP

CPU		I/O	
Priority	8	I/O Priority	Normal
Kernel Time	0:01:00.218	Reads	19 299
User Time	0:01:48.250	Read Delta	0
Total Time	0:02:48.468	Read Bytes Delta	0
Cycles	877 756 144 235	Writes	18 891
		Write Delta	0
		Write Bytes Delta	0
		Other	1 368 658
		Other Delta	0
		Other Bytes Delta	0

Virtual Memory		Handles	
Private Bytes	172 588 K	Handles	1 377
Peak Private Bytes	180 936 K	Peak Handles	1 377
Virtual Size	810 968 K	GDI Handles	342
Page Faults	335 934	USER Handles	171
Page Fault Delta	0		

Physical Memory	
Memory Priority	5
Working Set	289 328 K
WS Private	129 792 K
WS Shareable	159 536 K
WS Shared	32 096 K
Peak Working Set	312 932 K

OK Cancel

Soubory namapované do paměti

```
HANDLE hFile = CreateFile(...);  
HANDLE hFileMapping = CreateFileMapping(hFile, ...);  
CloseHandle(hFile);  
PVOID fileView = MapViewOfFile(hFileMapping, ...);
```

```
// use the memory-mapped file
```

```
UnmapViewOfFile(fileView);  
CloseHandle(hFileMapping);
```



Díky za pozornost

