

Diagnosis of defective HW is realized by using exact methods on selected HW errors and many other HW errors can be determined based on evaluating information recorded and saved in CM.

### Exact methods for determining HW errors by CM

1. Disk errors.

**Diagnosis of disks** is either performed by tests by an external program, or monitoring of S.M.A.R.T. parameters. Read more about monitoring of disks' health in the section <u>S.M.A.R.T. Health of disks</u> [1].

#### 2. Monitoring of HW status of servers.

Thanks to Watches, we can monitor several server parameters, whose faulty values indicate HW errors. More about monitoring of servers' HW can be found in the section <u>Monitoring of HW status</u> <u>of servers</u> [2].

#### 3. Monitoring of the insides of PC a NB

Through Watches, several computer parameters can be monitored. Find out more about monitoring of PC and NB in the section **Monitoring of the insides of PC, NB** [3]

#### Analytical methods

#### **1. Online information**

One way how to determine a defective HW by using analytical methods is to watch the section **Online information** on CM portal. More about evaluation of data and graphs can be found in the section <u>View of load (overload) of a computer through Online information - state for the past 48 hrs</u> [4]

|                             |                        |                                |          |                                |                     | <b>#</b> = |             | Úvodný prehľad | € Kredit | ? Manual      | 0 نۇ  | hlásiť |
|-----------------------------|------------------------|--------------------------------|----------|--------------------------------|---------------------|------------|-------------|----------------|----------|---------------|-------|--------|
|                             | Admin zóna             | Prehliadanie a<br>Vyhodnotenie |          | Customer Desk                  | Communic            | ator       |             |                | Operáti  | or: Meno oper | álora | C      |
| Zbałł vieko – Rozbałł vieko | 🚦 Zóny                 | -                              | _        |                                |                     |            |             |                |          |               |       | ?      |
| - Upozomenia                |                        | Spoločnosť                     |          | Polital 8                      | Pr                  | aživateľ   |             |                |          |               |       |        |
| Paruchy                     | Online Informácie      |                                |          | Umiestnenie<br>Zoradiť podľa C |                     |            | Vzostupne a | Hadat          | Roziíre  | má            | X     |        |
| História porúch             | 0.000 100000 [1]       | OS                             |          |                                | zadané politale     |            |             |                |          |               |       |        |
| Poruchy na počítačoch       |                        |                                |          | C. Commercial                  | canane poenace      |            | , bootings  |                |          |               |       |        |
| Zobrazenia                  | System usage           | Cpe system usage               | 20.%     |                                |                     |            |             |                |          |               |       |        |
|                             |                        | Cpu kernel usage               | 12.%     |                                |                     |            |             |                |          |               |       |        |
| Zóny                        |                        | Memory usage                   | 66 %     |                                |                     |            |             |                |          |               |       |        |
| Watches (Online monitoring) |                        | Disk activity                  | 10.%     |                                |                     |            |             |                |          |               |       |        |
| Počítače                    |                        | Disk avg read queue            | 1        |                                |                     |            |             |                |          |               |       |        |
| Online informácie           |                        | Disk avg write queue           | <u> </u> |                                |                     | _          |             |                |          |               |       |        |
| Internet bandwidth monitor  | Processes by opu       | Process 1                      | CrClilo  | mitor/modules/backup           | BackupPlus.exe (†   | 1.50       |             |                |          |               |       |        |
| Zmeny na počítači           |                        | Process 2                      | CriProg  | ram Files (x86)/Mozilla        | Firefoxifirefox.exe | (6.%)      |             |                |          |               |       | [      |
| Foto dokumentácia           |                        |                                |          |                                |                     |            |             |                |          |               |       |        |
| Manažerské informácie       | Processes by<br>memory | Process 1                      | System   | ( MB)                          |                     |            |             |                |          |               |       |        |
|                             |                        | Process 2                      | audiodg  | .axa (103)                     |                     |            |             |                |          |               |       |        |
| Reporty                     | Local ip 1             | Ip/mac                         | 122.463  | 75.110 / ACI81/12/C8/F8/       | A.C.                |            |             |                |          |               |       |        |
| Prenesené dáta na ADSL a FW | Locar p 1              | Gateway ip/mac                 |          | 75.1 / 00:18:21:92:04:E2       | HL.                 |            |             |                |          |               |       |        |
|                             |                        | Adapter name                   |          | laptër Broadcom 4313GN         | 802 11b/b/o 1x1     |            |             |                |          |               |       |        |
|                             |                        | Avg down speed in<br>last 30s  | 99 E/a   | April Creation Control         | sea, margett bill   |            |             |                |          |               |       |        |
|                             |                        | Avg up speed in last           |          |                                |                     |            |             |                |          |               |       |        |

#### Image: Online informácie

Example of use: When a PC is frozen or in an error state, save the status from online information, where you can see the processes, which currently load the processor and the memory. If these information differ at the next PC failure, you might assume that it's a case of defective HW.



Data in online information are evaluated in 3 minutes intervals and only display two processes, which load the PC the most.

## 2. System information from C-Monitor Console

The difference between Online information and system info is, that in system info, the data are updated every 30 seconds and it shows all processes of the selected PC.

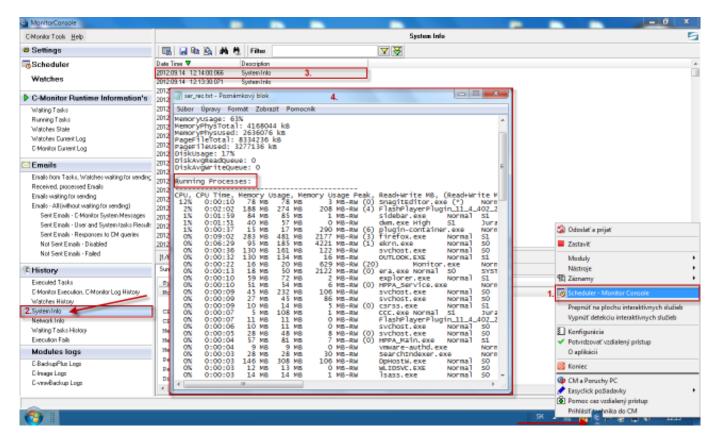


Image: Systémové informácie z C-Monitor Console

# **3.** Confirmation of complete PC shutdown due to HW error or power outage (c-monitor log)

When the shutdown was caused by SW, it usually ends up in the blue screen. When it's a spontaneous shutdown, the last archived C-Monitor Log won't contain App Exit Request at the end. In other cases of HW and SW errors you may see the blue screen, and in other cases of the shutdown you should notice a correct request for computer shutdown in the C-Monitor Log. Confirmation of power outage can be solved by a better UPS and its enhanced monitoring.



## **Diagnosis of defective HW**

Published on Customer Monitor

| C-Monitor Tools Help                           | C-Monitor Execution, C-Monitor Log History |                           |          |                            |  |   |  |  |  |
|--|--|---------------------------|----------|----------------------------|--|---|--|--|--|
| © Settings                                     | 🖫 🔒 🗞 🗛 🕂 Fiber                            |                           |          |                            |  |   |  |  |  |
| o Scheduler                                    | Date Time 1                                |                           |          | ecciption                  |  |   |  |  |  |
| Wetches  |  | 09:17:18:954              |          | fanitor Log<br>fanitor Log | 🕞 ser_rec.txt - Poznámkový blok  |   |  |  |  |
|  |  | 16.44:07.192              |          | fanitor Log                |  |   |  |  |  |
| C-Monitor Runtime Information's                |  | 23:17:01:125              |          | fanitor Log                | Súbor Úpravy Formát Zobraziť Pornocník   |   |  |  |  |
| Walting Tasko                                  | 2012.09.11                                 | 23:02:49:539              | ,        | fanitor Log                | 2012.08.31/19:11:09:739 / Tick<br>2012.08.31/19:11:09:848 / Evaluating Watches   |   |  |  |  |
| Running Tasko                                  | 2012.09.07                                 | 12:51:00:712              |          | fanitor Log                | 2012.08.31/19:11:09:879 / selecting Tasks  |   |  |  |  |
| Watches State                                  | 2012.09.05                                 | 10:08:13:903              |          | fanitor Log                | 2012.08.31/19:11:15:542 / HTTP A0 Å210LGIH55 / 1828 : OK (1252/1378)<br>2012.08.31/19:11:26:524 / Begin ArchiveIndex Refresh (C:\CMONITOr\Logs\Syste |   |  |  |  |
| Watches Durient Log                            | 2012.09.05                                 | 09.36:29.788              |          | fanitor Log                | 2012.08.31/19:11:28:942 / End ArchiveIndex Refresh (C:\CMonitor\Logs\System]   |   |  |  |  |
| E-Monitor Eurent Log                           |  | 22 36 30 388              |          | fanitor Log                | 2012.08.31/19:11:35:931 / HTTP A216LGIH55 / 1829 : OK (89/1196)  |   |  |  |  |
| a rising                                       |  | 19:04:45:527              |          | fanitor Log                | 2012.08.31/19:11:39:753 / Tick<br>2012.08.31/19:11:39:769 / Evaluating watches   |   |  |  |  |
| 🖸 Emails                                       |  | 09.4218.597               |          | fanitor Log                | 2012.08.31/19:11:39:831 / Selecting Tasks  |   |  |  |  |
| Emails from Tasks, Watches waiting for sending |  | 00:45:51:328              |          | fanitor Log                | 2012.08.31/19:11:57:319 / HTTP A216LGIH55 / 1830 : OK (89/1198)  |   |  |  |  |
| Received, processed Envalo                     |  | 16:22:53:904              |          | fanitor Log                | 2012.08.31/19:12:09:768 / Tick<br>2012.08.31/19:12:09:768 / Evaluating watches   |   |  |  |  |
| Enally waiting for sending                     |  | 16:14:51:445              |          | fanitor Log                | 2012.08.31/19:12:09:830 / Begin ArchiveIndex Refresh (C:\CMonitor\Logs\WList   |   |  |  |  |
| Enalo - All (without waiting for sending)      |  | 07.21:18.637              |          | fanitor Log                | 2012.08.31/19:12:10:766 / End ArchiveIndex Refresh (C:\CMonitor\Logs\wListLc   |   |  |  |  |
| Sent Emails · C-Monitor System Messages        |  | 1455/15562                |          | fanitor Log                | 2012.08.31/19:12:10:782 / Selecting Tasks<br>2012.08.31/19:12:17:708 / НТТР А216LGIH55 / 1831 : ОК (89/1198)   |   |  |  |  |
| Sent E mails - User and System tasks Result:   |  | 09:13:03:294 16:57:02:830 |          | fanitor Log                | 2012.08.31/19:12:39:236 / HTTP A2I6LGIH55 / 1832 : OK (89/1198)  |   |  |  |  |
| Sent Emails - Responses to DM queries          |  | 16:37:10:681              |          | fanitor Log<br>fanitor Log | 2012.08.31/19:12:39:782 / Tick<br>2012.08.31/19:12:39:798 / Evaluating Watches   |   |  |  |  |
| Not Sent Emails - Disabled                     |  | 16:26:48:571              |          | fanitor Log                | 2012.08.31/19:12:39:798 / Evaluating watches<br>2012.08.31/19:12:39:829 / selecting tasks  |   |  |  |  |
| Not Sent Emails - Failed                       |  |                           |          |                            | 2012.08.31/19:13:01:575 / HTTP A2IÓLGIH55 / 1833 : OK (89/1198)  |   |  |  |  |
| NOI DONCENSIN' PORO                            | [10/135]                                   | . 9. 2012 19.0            | 04:45, C | enpressed, (53             | 1 2012.08.31/19:13:09:797 / Tick<br>2012.08.31/19:13:09:797 / Evaluating Watches   |   |  |  |  |
| History  | Sunnay                                     | Test Test                 | Series   |                            | 2012.08.31/19:13:09:843 / selecting matches  |   |  |  |  |
| Executed Tasks                                 | Monitor                                    |                           |          |                            | 2012.08.31/19:13:23:400 / HTTP A218LGIH55 / 1834 : OK (89/1198)  |   |  |  |  |
| C-Monitor Execution, C-Monitor Log History     |  |                           |          |                            | 2012.08.31/19:13:39:811 / Tick<br>2012.08.31/19:13:39:842 / Evaluating Watches   |   |  |  |  |
| Watches History                                |  |                           |          | 5 / Select                 | 2012.08.31/19:13:39:889 / selecting Tasks  |   |  |  |  |
| System Info                                    |  |                           |          | 6 / Client                 |  |   |  |  |  |
| Network Into                                   |  |                           |          | 1 / HITP /                 | 2012.08.31/19:13:45:471 / HTTP A216LGIH55 / 1835 : OK (89/1198)<br>2012.08.31/19:14:07:046 / HTTP A216LGIH55 / 1836 : FAIL (898) : cap't resolv      |   |  |  |  |
|  |  | .81/15:14                 |          |                            | 2012.08.31/19:14:09:557 / Monitorservice is not running. App Exit Request  |   |  |  |  |
| Waiting Tasko History                          | 2012.08                                    | .31/19:14                 | :09:55   | 7 / Monite                 | 2012.08.31/19:14:10:665 / waiting List thread Done   |   |  |  |  |
| Execution Fails                                |  |                           |          |                            | 2012 05 31/19-14-10-665 / Watchar Monitoring Thread Done   |   |  |  |  |
| Modules logs                                   |  |                           |          | 8 / Weitin                 | 2012.08.31/19:14:11:695 / Monitor Finished   |   |  |  |  |
| C-BackupPlus Logs                              |  |                           |          | 8 / Watch                  |  |   |  |  |  |
| C-Image Logs                                   | 2012.08                                    | .31/19:14                 | :11:65   | 6 / Monite                 |  |   |  |  |  |
| C-vmvBackup Logs                               |  |                           |          |                            |  |   |  |  |  |
|  |  |                           |          |                            |  | P |  |  |  |

Image: Potvrdenie úplného vypnutia PC z dôvodu HW chyby alebo výpadku energie (c-monitor log)



## Links

[1] https://www.customermonitor.co/how-cm-works-0/monitoring-and-diagnostics/free-space-and-health-drives/s-m-r-t-health-disks

[2] https://www.customermonitor.co/how-cm-works-0/monitoring-and-diagnostics/diagnostic-defective-hw/monitoring-servers-status-through

[3] https://www.customermonitor.co/how-cm-works-0/monitoring-and-diagnostics/diagnostic-defective-hw/monitoring-insides-pc-nb

[4] https://www.customermonitor.co/how-cm-works-0/monitoring-and-diagnostics/load-overload-servers-and-computers/view-load-overload

- [5] https://www.customermonitor.co/sites/default/files/online%20onfo\_0.png
- [6] https://www.customermonitor.co/sites/default/files/system%20info.png
- [7] https://www.customermonitor.co/sites/default/files/app%20exit.png