

PRTG сензор за Mikrotik устройства

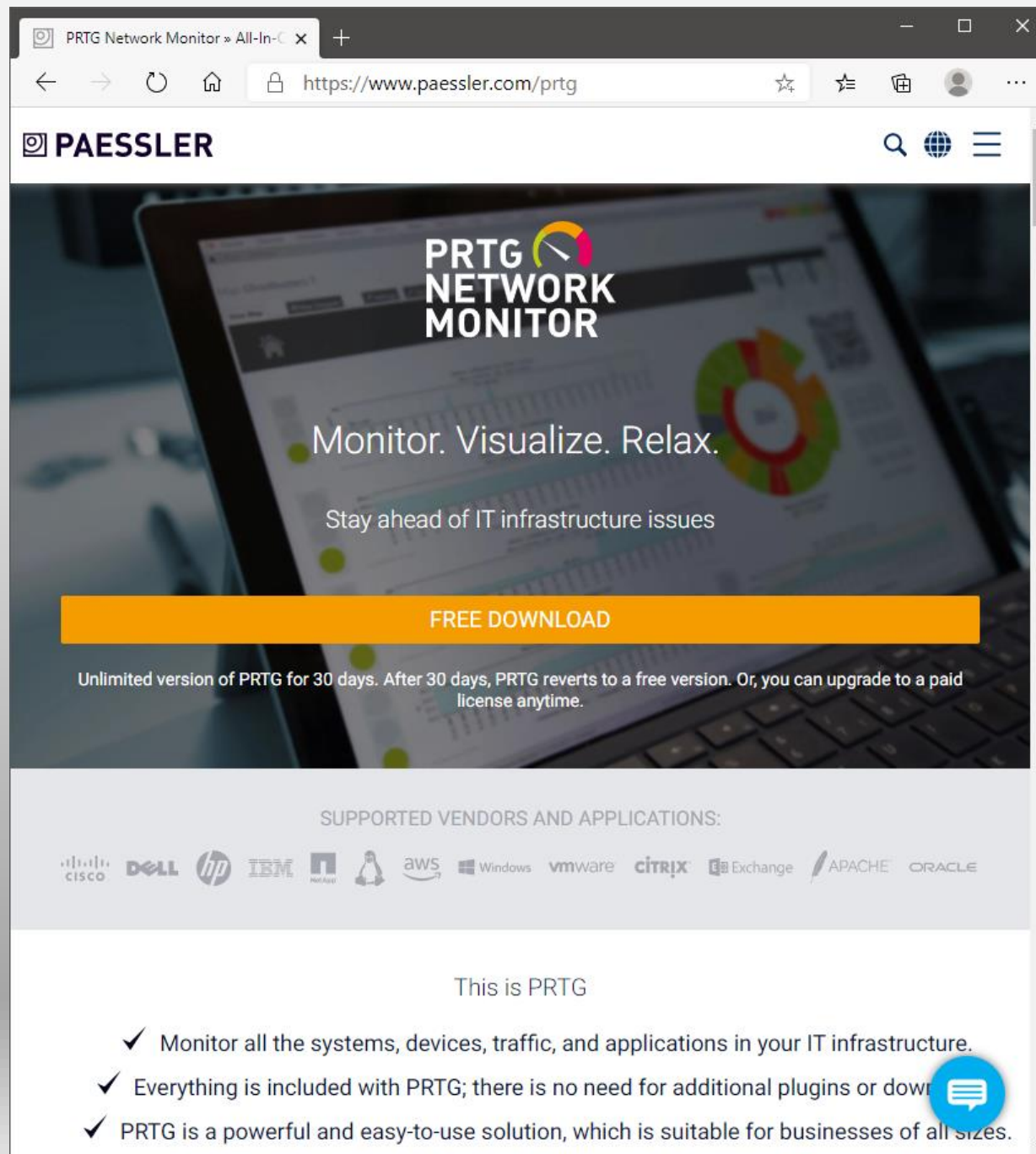
Александър Ташков, Синформа ЕООД

PRTG сензор за Mikrotik устройства

- PRTG
- Потребителски сензори в PRTG
- Сензор за Mikrotik устройства
- Изменения в Router OS
- Любопитни резултати
- Следващи стъпки

PRTG

- За следене на мрежови и други устройства
- Таблично и графично представяне на информацията, потребителски карти, панели и отчети
- Гъвкаво дефиниране на събития и действия/известяване



The screenshot shows the PRTG Network Monitor website. The browser address bar displays 'https://www.paessler.com/prtg'. The page features the PRTG logo and the tagline 'Monitor. Visualize. Relax.' with the subtext 'Stay ahead of IT infrastructure issues'. A prominent orange button labeled 'FREE DOWNLOAD' is visible. Below this, a disclaimer states: 'Unlimited version of PRTG for 30 days. After 30 days, PRTG reverts to a free version. Or, you can upgrade to a paid license anytime.' A section titled 'SUPPORTED VENDORS AND APPLICATIONS:' lists various brands including Cisco, Dell, HP, IBM, Oracle, AWS, Windows, VMware, Citrix, and Exchange. The bottom section, 'This is PRTG', lists three key features with checkmarks: monitoring all systems, including everything in the price, and being a powerful, easy-to-use solution for businesses of all sizes.

PRTG NETWORK MONITOR

Monitor. Visualize. Relax.

Stay ahead of IT infrastructure issues

FREE DOWNLOAD

Unlimited version of PRTG for 30 days. After 30 days, PRTG reverts to a free version. Or, you can upgrade to a paid license anytime.

SUPPORTED VENDORS AND APPLICATIONS:

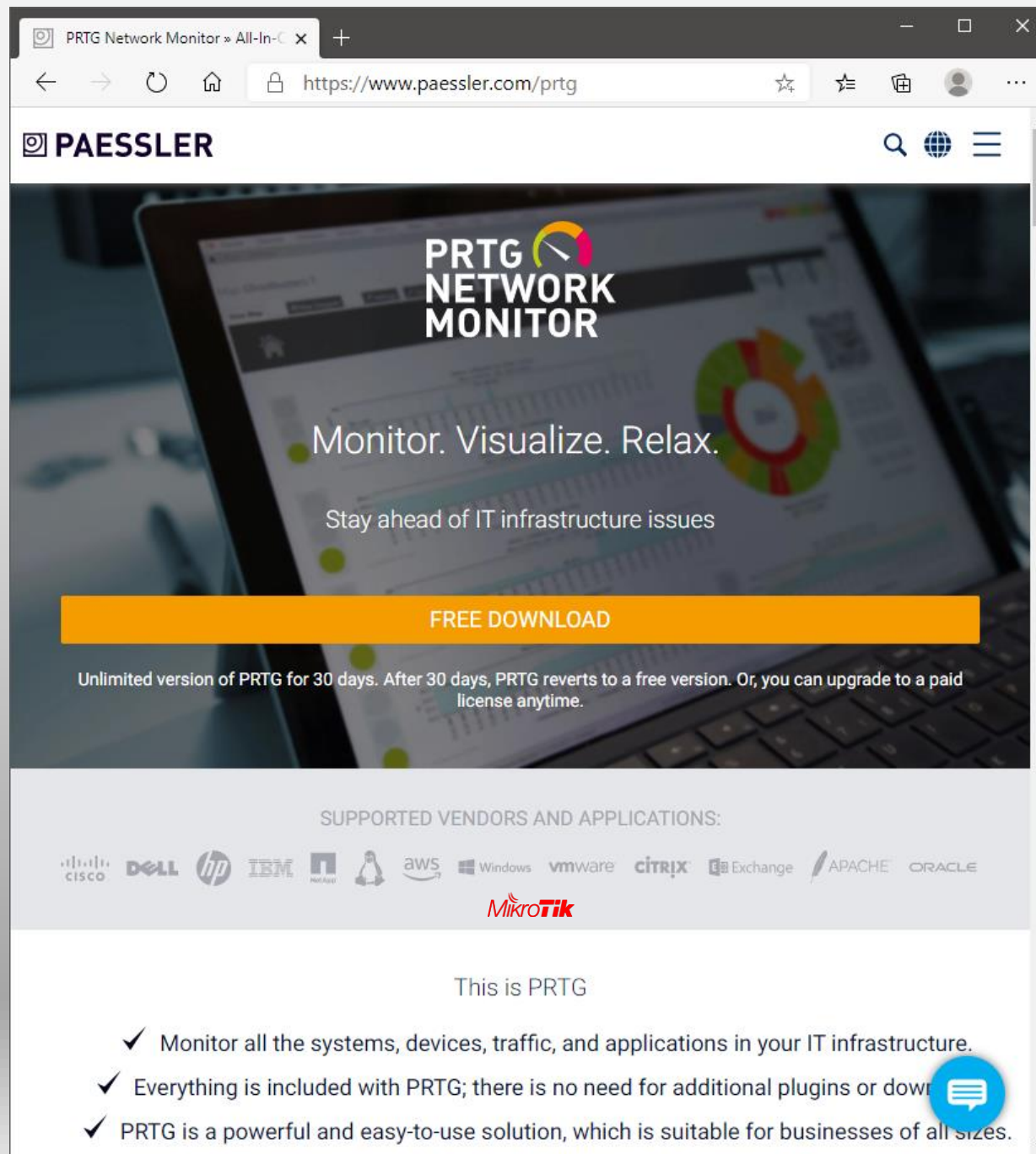
CISCO DELL HP IBM ORACLE AWS Windows VMWARE CITRIX Exchange APACHE

This is PRTG

- ✓ Monitor all the systems, devices, traffic, and applications in your IT infrastructure.
- ✓ Everything is included with PRTG; there is no need for additional plugins or downloads.
- ✓ PRTG is a powerful and easy-to-use solution, which is suitable for businesses of all sizes.

PRTG

- Лесно инсталиране и пускане в действие
- Различни потребителски интерфейси
- Потребители с различно ниво на достъп
- Превъзходна поддръжка
- Огромен брой вградени сензори



The screenshot shows the PRTG Network Monitor website homepage. The browser address bar displays "https://www.paessler.com/prtg". The page features the PAESSLER logo in the top left, a search icon, a globe icon, and a menu icon in the top right. The main content area has a dark background with a laptop displaying the PRTG interface. The text on the page includes "PRTG NETWORK MONITOR", "Monitor. Visualize. Relax.", "Stay ahead of IT infrastructure issues", and a prominent orange "FREE DOWNLOAD" button. Below the button, it states: "Unlimited version of PRTG for 30 days. After 30 days, PRTG reverts to a free version. Or, you can upgrade to a paid license anytime." A section titled "SUPPORTED VENDORS AND APPLICATIONS:" lists various brands and services: CISCO, DELL, HP, IBM, Red Hat, AWS, Windows, VMware, Citrix, Exchange, Apache, and Oracle. The MikroTik logo is also present. Below this, the text "This is PRTG" is followed by a list of features: "Monitor all the systems, devices, traffic, and applications in your IT infrastructure.", "Everything is included with PRTG; there is no need for additional plugins or downloads.", and "PRTG is a powerful and easy-to-use solution, which is suitable for businesses of all sizes." A blue chat bubble icon is visible in the bottom right corner of the page.

PRTG

- **Скъпа**
- **Безплатна версия до 100 сензора**

The screenshot shows the PRTG Network Monitor website homepage. The browser address bar displays "https://www.paessler.com/prtg". The page features the PRTG logo, the tagline "Monitor. Visualize. Relax.", and the subtext "Stay ahead of IT infrastructure issues". A prominent orange button labeled "FREE DOWNLOAD" is centered on the page. Below this, a disclaimer states: "Unlimited version of PRTG for 30 days. After 30 days, PRTG reverts to a free version. Or, you can upgrade to a paid license anytime." A section titled "SUPPORTED VENDORS AND APPLICATIONS:" lists various brands and services including Cisco, Dell, HP, IBM, Oracle, AWS, Windows, VMware, Citrix, Exchange, and Apache. The page concludes with the heading "This is PRTG" followed by three bullet points: "Monitor all the systems, devices, traffic, and applications in your IT infrastructure.", "Everything is included with PRTG; there is no need for additional plugins or downloads.", and "PRTG is a powerful and easy-to-use solution, which is suitable for businesses of all sizes." A blue chat bubble icon is visible in the bottom right corner of the page.

PRTG устройства – сенсоры – каналы

The screenshot displays the PRTG Desktop interface with the following components:

- Группы (Groups):** The top-level navigation structure, including Synforma (Root) and prtg.synforma.bg.
- Устройства (Devices):** A tree view of devices under the prtg.synforma.bg group, such as HQ, Environment, and various servers.
- Сенсоры (Sensors):** A list of sensors for a selected device, including '01.Output Load, W', '02.Output Load, %', '03.Battery Charge Level', etc.
- Каналы (Channels):** A detailed view of a selected sensor's channels, showing a table of channel data.

The 'Channels' table for '01.Output Load, W' is as follows:

Channel	ID	Last Value	Minimum	Maximum
01.Output Load, W	6	616 W	0 W	1 018 W
02.Output Load, %	5	34 %	0 %	57 %
03.Battery Charge Level	4	100 %	0 %	100 %
04.Remaining Time	3	2,416667 Hours	0 Hours	
05.Bad Input Counter	8	1 #	0 #	
06.Power Source	11	On AC power	Undefined lookup	
07.Source Fail Cause	12	No source failure	Undefined lookup value (0)	No Voltage
08.Operating Mode	7	Doble conversion (normal) mode	Undefined lookup value (0)	Doble conversion (normal) mode
09.Battery Fault	9	Battery working normally	Undefined lookup value (0)	Battery working normally
10.Battery Replacement	10	Battery Ok	Undefined lookup value (0)	Battery Ok
11.Charger State	13	Ok	Undefined lookup value (0)	Ok
12.Overload	14	Ok	Undefined lookup value (0)	Ok
13.Over Temperature	15	Ok	Undefined lookup value (0)	Ok
Downtime	-4			
Temperature	2	27 °C	0 °C	29 °C

Additional elements include a 'Live Graph, 12 hours' and '2 days' showing power load trends, and a 'New Version' notification at the bottom right.

Потребителски сензори в PRTG

- Standard and **Advanced EXE/Script Sensor**
- Standard and Advanced SSH Script Sensor
- Advanced HTTP Data and REST Custom Sensors
- DLL Sensors

Сензор за Mikrotik устройства

Възможни подходи:

- ROS API ↔ SNMP
- EXE ↔ Powershell

Сензор за Mikrotik устройства

Пререквизити:

- SNMP Powershell Module
- Библиотека за генериране на PRTG сензор и канали

Сензор за Mikrotik устройства

SNMP Powershell Module:

```
PS C:\> Install-Module snmp
```

- **Install-Module** е налична в Powershell v. 5.0 и следващи
При Windows Server 2012 R2/Windows 8.1 Powershell v. 5.x трябва да се инсталира допълнително (Windows Management Framework 5.1)

Сензор за Mikrotik устройства

SNMP Powershell Module:

Ако при инсталирането възникне грешка

```
WARNING: Unable to download from URI  
'https://go.microsoft.com/fwlink/?LinkID=627338&clcid=0x409' to ''.  
WARNING: Unable to download the list of available providers. Check your internet  
connection.
```

Трябва да се включи TLS 1.2

```
PS C:\> [Net.ServicePointManager]::SecurityProtocol = [Net.SecurityProtocolType]::Tls12|
```

SNMP Powershell Module

Проблеми с Mikrotik устройства

```
PS C:\> Invoke-SnmpWalk -IP 10.0.0.17 -OIDStart 1.3.6.1.4.1.18928.1.2.2.1
OID                               Data
----                               -
.1.3.6.1.4.1.18928.1.2.2.1.1.0    4
.1.3.6.1.4.1.18928.1.2.2.1.2.0    ARECA   SAS RAID Controller
.1.3.6.1.4.1.18928.1.2.2.1.3.0    0
.1.3.6.1.4.1.18928.1.2.2.1.4.0    9
.1.3.6.1.4.1.18928.1.2.2.1.5.0    1
.1.3.6.1.4.1.18928.1.2.2.1.6.0    2
.1.3.6.1.4.1.18928.1.2.2.1.8.1.1.1 1
.1.3.6.1.4.1.18928.1.2.2.1.8.1.1.2 2
.1.3.6.1.4.1.18928.1.2.2.1.8.1.1.3 3
.1.3.6.1.4.1.18928.1.2.2.1.8.1.1.4 4
.1.3.6.1.4.1.18928.1.2.2.1.8.1.1.5 5
.1.3.6.1.4.1.18928.1.2.2.1.8.1.1.6 6
.1.3.6.1.4.1.18928.1.2.2.1.8.1.1.7 7
.1.3.6.1.4.1.18928.1.2.2.1.8.1.1.8 8
.1.3.6.1.4.1.18928.1.2.2.1.8.1.1.9 9
.1.3.6.1.4.1.18928.1.2.2.1.8.1.2.1 12V
.1.3.6.1.4.1.18928.1.2.2.1.8.1.2.2 5V
.1.3.6.1.4.1.18928.1.2.2.1.8.1.2.3 3.3V
.1.3.6.1.4.1.18928.1.2.2.1.8.1.2.4 IO Voltage +1.8V
.1.3.6.1.4.1.18928.1.2.2.1.8.1.2.5 DDR3      +1.5V
.1.3.6.1.4.1.18928.1.2.2.1.8.1.2.6 CPU VCore +1.0V
.1.3.6.1.4.1.18928.1.2.2.1.8.1.2.7 Analog    +1.0V
.1.3.6.1.4.1.18928.1.2.2.1.8.1.2.8 DDR3      +0.75V
.1.3.6.1.4.1.18928.1.2.2.1.8.1.2.9 Battery Status
.1.3.6.1.4.1.18928.1.2.2.1.8.1.3.1 12342
.1.3.6.1.4.1.18928.1.2.2.1.8.1.3.2 5107
.1.3.6.1.4.1.18928.1.2.2.1.8.1.3.3 3328
.1.3.6.1.4.1.18928.1.2.2.1.8.1.3.4 1856
.1.3.6.1.4.1.18928.1.2.2.1.8.1.3.5 1552
.1.3.6.1.4.1.18928.1.2.2.1.8.1.3.6 1056
.1.3.6.1.4.1.18928.1.2.2.1.8.1.3.7 1056
.1.3.6.1.4.1.18928.1.2.2.1.8.1.3.8 768
.1.3.6.1.4.1.18928.1.2.2.1.8.1.3.9 255
.1.3.6.1.4.1.18928.1.2.2.1.9.1.1.1 1
.1.3.6.1.4.1.18928.1.2.2.1.9.1.2.1 CPU Fan
.1.3.6.1.4.1.18928.1.2.2.1.9.1.3.1 7670
.1.3.6.1.4.1.18928.1.2.2.1.10.1.1.1 1
.1.3.6.1.4.1.18928.1.2.2.1.10.1.1.2 2
.1.3.6.1.4.1.18928.1.2.2.1.10.1.2.1 CPU Temperature
.1.3.6.1.4.1.18928.1.2.2.1.10.1.2.2 Controller Temp.
.1.3.6.1.4.1.18928.1.2.2.1.10.1.3.1 60
.1.3.6.1.4.1.18928.1.2.2.1.10.1.3.2 37
```

Друго устройство

```
PS C:\> Invoke-SnmpWalk -IP 172.20.4.15 -OIDStart 1.3.6.1.4.1.14988.1.1.3.100.1.2
WARNING: SNMP Walk issue: Exception calling "walk" with "7" argument(s): "truncation error for 32-bit integer coding
Parameter name: length"
PS C:\> |
```

Mikrotik устройство

SNMP Powershell Module

Проблеми с Mikrotik устройства

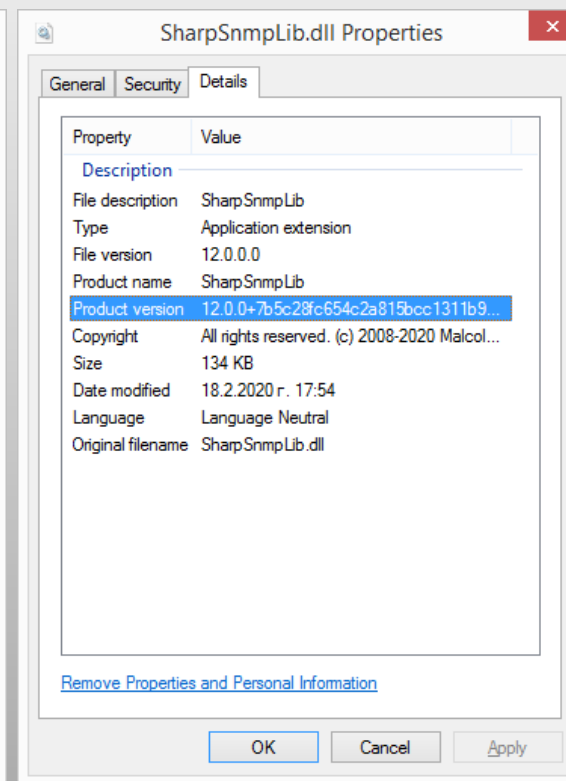
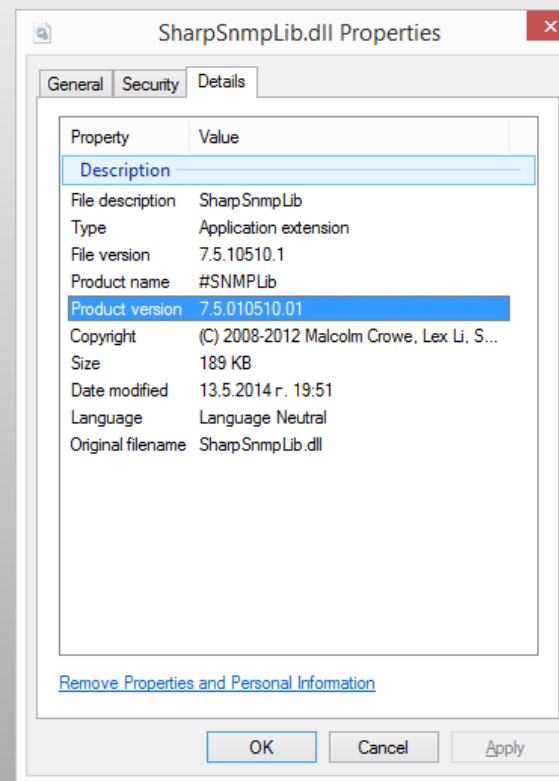
1. Заменя се библиотеката SharpSnmpLib.dll с по-нова версия

2. Модулът се импортира:

```
PS C:\Users\Admin> Import-Module snmp -Force
```

3. Изпълнява се:

```
PS C:\Users\Admin> [Lextm.SharpSnmpLib.Messaging.Messenger]::UseFullRange = $false
```



Библиотека за генериране на PRTG каналы и сензор

Thomas Dobler

<https://germanpowershell.com>

https://www.youtube.com/channel/UCO6JgRg7bExng2Jvbw_Tr_g

Компоненти на сензора

- Powershell Script

MikrotikHealth.ps1 – трябва да бъде копиран в

C:\Program Files (x86)\PRTG Network Monitor\Custom Sensor

- Модул за генериране на PRTG сензора

GeneratePRTGSensorXML.ps1 – в поддиректория

.\GeneratePRTGSensor на горната директория

Компоненти на сензора

- Custom Lookup файлове:

`mikrotik.active.fan.ovl`

`mikrotik.ps.status.ovl`

`mikrotik.storage.status.ovl`

`mikrotik.GT.ps.status.ovl`

Копират се в папката

`C:\Program Files (x86)\PRTG Network Monitor\lookups\custom`

Групи следени величини

- CPU

Натоварване – hrProcessorTable – 1.3.6.1.2.1.25.3.3

- Storage

hrStorageTable – 1.3.6.1.2.1.25.2.3.1.3

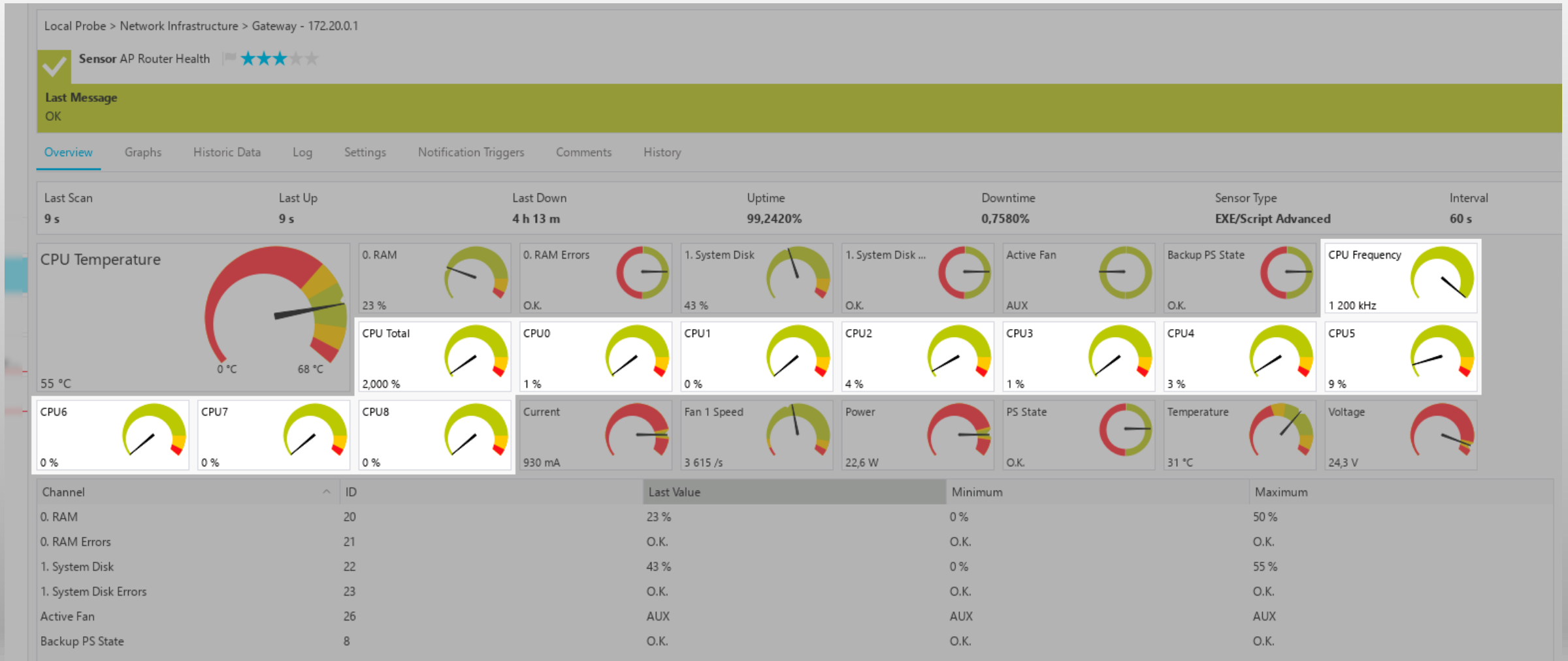
- Health

mtxHealth – 1.3.6.1.4.1.14988.1.1.3

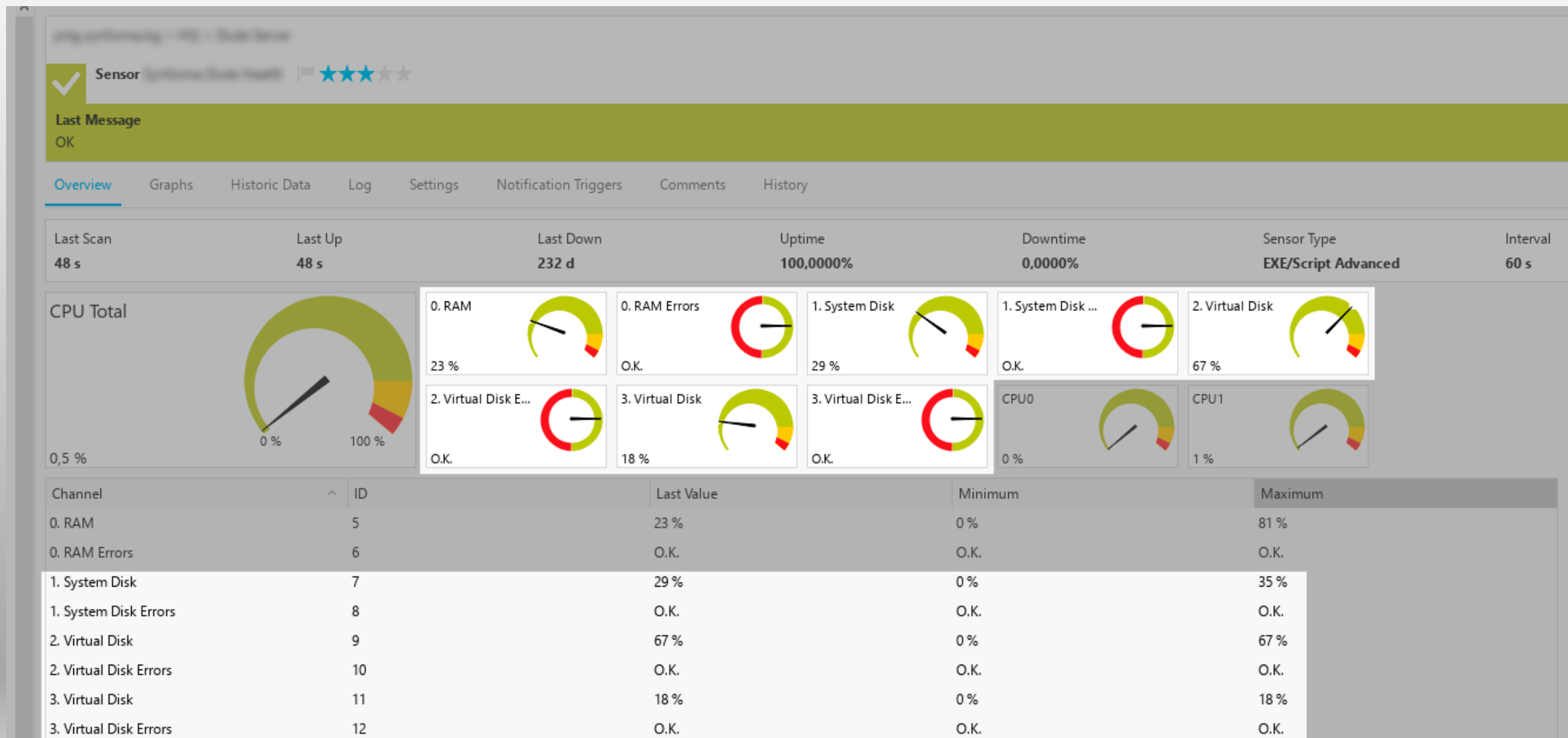
PRTG сензор – параметри

- Задължителен
 - **Device** IP адрес (не може да е DNS име!)
- Опционални
 - **ShowCPUCores**
 - **ShowCPUFrequency**
 - **ShowBackupPS**
 - **ShowActiveFan**
 - ...

Генерирани канали - CPU



Генерирани канали - Storage



Генерирани канали - Health



Новости в RouterOS v. 6.47

```
PS C:\Windows\system32> Invoke-SnmpWalk -IP 172.20.4.15 -OIDStart 1.3.6.1.4.1.14988.1.1.3
```

OID	Data
---	----
1.3.6.1.4.1.14988.1.1.3.9.0	n/a
1.3.6.1.4.1.14988.1.1.3.11.0	580
1.3.6.1.4.1.14988.1.1.3.14.0	650
1.3.6.1.4.1.14988.1.1.3.15.0	1
1.3.6.1.4.1.14988.1.1.3.16.0	1
1.3.6.1.4.1.14988.1.1.3.17.0	6150
1.3.6.1.4.1.14988.1.1.3.18.0	6105
1.3.6.1.4.1.14988.1.1.3.100.1.2.17	cpu-temperature
1.3.6.1.4.1.14988.1.1.3.100.1.2.7001	fan1-speed
1.3.6.1.4.1.14988.1.1.3.100.1.2.7002	fan2-speed
1.3.6.1.4.1.14988.1.1.3.100.1.2.7003	fan3-speed
1.3.6.1.4.1.14988.1.1.3.100.1.2.7101	board-temperature1
1.3.6.1.4.1.14988.1.1.3.100.1.2.7102	board-temperature2
1.3.6.1.4.1.14988.1.1.3.100.1.2.7401	psu1-state
1.3.6.1.4.1.14988.1.1.3.100.1.2.7402	psu2-state
1.3.6.1.4.1.14988.1.1.3.100.1.3.17	56
1.3.6.1.4.1.14988.1.1.3.100.1.3.7001	6150
1.3.6.1.4.1.14988.1.1.3.100.1.3.7002	6105
1.3.6.1.4.1.14988.1.1.3.100.1.3.7003	6045
1.3.6.1.4.1.14988.1.1.3.100.1.3.7101	40
1.3.6.1.4.1.14988.1.1.3.100.1.3.7102	22
1.3.6.1.4.1.14988.1.1.3.100.1.3.7401	0
1.3.6.1.4.1.14988.1.1.3.100.1.3.7402	0
1.3.6.1.4.1.14988.1.1.3.100.1.4.17	1
1.3.6.1.4.1.14988.1.1.3.100.1.4.7001	2
1.3.6.1.4.1.14988.1.1.3.100.1.4.7002	2
1.3.6.1.4.1.14988.1.1.3.100.1.4.7003	2
1.3.6.1.4.1.14988.1.1.3.100.1.4.7101	1
1.3.6.1.4.1.14988.1.1.3.100.1.4.7102	1
1.3.6.1.4.1.14988.1.1.3.100.1.4.7401	6
1.3.6.1.4.1.14988.1.1.3.100.1.4.7402	6

⇒ Изменение в PowerShell скрипта

```
25  Function Convert-ActiveFanValue
26  + {...}
35
36  Function Define-StorageStatus
37  + {...}
49
50  Function Get-CPUUsage
51  + {...}
77
78  Function Get-StorageCounters
79  + {...}
117
118  function Get-ClassicalHealthCounters
119  + {...}
261
262  function Get-GaugeTableHealthCounters
263  + {...}
```


PRTG сензор – параметри

- Задължителен
 - **Device** IP адрес (не може да е DNS име!)
- Опционални
 - **ShowCPUCores**
 - **ShowCPUFrequency**
 - **ShowBackupPS**
 - **ShowActiveFan**
 - **OnlyGaugeTableHealthCounters**
 - **OnlyLegacyHealthCounters**

GaugeTable проблеми

Липсва официално публикуван MIB

https://mikrotik.com/documentation//manual_2.9/Mikrotik.mib

REVISION "200404010000Z"

<http://download2.mikrotik.com/Mikrotik.mib>

REVISION "201807310000Z"

<https://mibs.observium.org/mib/MIKROTIK-MIB/>

Актуален списък на OIDs

/Dude/files/default/mibs/mikrotik.txt

v. 6.47.2: REVISION "201912100000Z"

GaugeTable проблеми

Няма съответствие на
идентификаторите

Oid	Simple Oid	Value
iso - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
org - 3	1.3.6.1.4.1.14988.1.1.3.8.0	
dod - 6	1.3.6.1.4.1.14988.1.1.3.8.0	
internet - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
private - 4	1.3.6.1.4.1.14988.1.1.3.8.0	
enterprises - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mikrotik - 14988	1.3.6.1.4.1.14988.1.1.3.8.0	
mikrotikExperimentalModule - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mtXRouterOs - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mtxrHealth - 3	1.3.6.1.4.1.14988.1.1.3.8.0	
mtxrGaugeTable - 100	1.3.6.1.4.1.14988.1.1.3.100.1.2.13	
mtxrGaugeTableEntry - 1	1.3.6.1.4.1.14988.1.1.3.100.1.2.13	
mtxrGaugeName - 2	1.3.6.1.4.1.14988.1.1.3.100.1.2.13	
13	1.3.6.1.4.1.14988.1.1.3.100.1.2.13	voltage
14	1.3.6.1.4.1.14988.1.1.3.100.1.2.14	temperature
16		
17		
18		
7001		
7401		
7402	1.3.6.1.4.1.14988.1.1.3.100.1.2.7402	psu2-state
mtxrGaugeUnit - 4	1.3.6.1.4.1.14988.1.1.3.100.1.4.13	
13	1.3.6.1.4.1.14988.1.1.3.100.1.4.13	dV (3)
14	1.3.6.1.4.1.14988.1.1.3.100.1.4.14	celsius (1)
16	1.3.6.1.4.1.14988.1.1.3.100.1.4.16	dW (5)
17	1.3.6.1.4.1.14988.1.1.3.100.1.4.17	celsius (1)
18	1.3.6.1.4.1.14988.1.1.3.100.1.4.18	dA (4)
7001	1.3.6.1.4.1.14988.1.1.3.100.1.4.7001	rpm (2)
7401	1.3.6.1.4.1.14988.1.1.3.100.1.4.7401	status (6)
7402	1.3.6.1.4.1.14988.1.1.3.100.1.4.7402	status (6)
mtxrGaugeValue - 3	1.3.6.1.4.1.14988.1.1.3.100.1.3.13	
13	1.3.6.1.4.1.14988.1.1.3.100.1.3.13	243
14	1.3.6.1.4.1.14988.1.1.3.100.1.3.14	31
16	1.3.6.1.4.1.14988.1.1.3.100.1.3.16	208
	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	53
	1.3.6.1.4.1.14988.1.1.3.100.1.3.18	8
	1.3.6.1.4.1.14988.1.1.3.100.1.3.7001	5667
	1.3.6.1.4.1.14988.1.1.3.100.1.3.7401	0
	1.3.6.1.4.1.14988.1.1.3.100.1.3.7402	0
	1.3.6.1.4.1.14988.1.1.3.9.0	main
mtxrHIBackupPowerSupplyState - 16	1.3.6.1.4.1.14988.1.1.3.16.0	true (1)
mtxrHICurrent - 13	1.3.6.1.4.1.14988.1.1.3.13.0	851
mtxrHIFanSpeed1 - 17	1.3.6.1.4.1.14988.1.1.3.17.0	5668
mtxrHIPower - 12	1.3.6.1.4.1.14988.1.1.3.12.0	20.6
mtxrHIPowerSupplyState - 15	1.3.6.1.4.1.14988.1.1.3.15.0	true (1)
mtxrHIProcessorFrequency - 14	1.3.6.1.4.1.14988.1.1.3.14.0	1200
mtxrHIProcessorTemperature - 11	1.3.6.1.4.1.14988.1.1.3.11.0	54.0
mtxrHITemperature - 10	1.3.6.1.4.1.14988.1.1.3.10.0	30.0
mtxrHIVoltage - 8	1.3.6.1.4.1.14988.1.1.3.8.0	24.2

GaugeTable проблеми

Некоректно и с грешки (?)
дефиниране на мерните
единици

```
1462 mtxrGaugeUnit OBJECT-TYPE
1463     SYNTAX INTEGER {
1464         celsius(1),
1465         rpm(2),
1466         dV(3),
1467         dA(4),
1468         dW(5),
1469         status(6)
1470     }
```

Oid	Simple Oid	Value
iso - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
org - 3	1.3.6.1.4.1.14988.1.1.3.8.0	
dod - 6	1.3.6.1.4.1.14988.1.1.3.8.0	
internet - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
private - 4	1.3.6.1.4.1.14988.1.1.3.8.0	
enterprises - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mikrotik - 14988	1.3.6.1.4.1.14988.1.1.3.8.0	
mikrotik ExperimentalModule - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mtXRouterOs - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mbxrHealth - 3	1.3.6.1.4.1.14988.1.1.3.8.0	
mbxrGaugeTable - 100	1.3.6.1.4.1.14988.1.1.3.100.1.2.13	
mbxrGaugeTableEntry - 1	1.3.6.1.4.1.14988.1.1.3.100.1.2.13	
mbxrGaugeName - 2	1.3.6.1.4.1.14988.1.1.3.100.1.2.13	
13	1.3.6.1.4.1.14988.1.1.3.100.1.2.13	voltage
14	1.3.6.1.4.1.14988.1.1.3.100.1.2.14	temperature
16	1.3.6.1.4.1.14988.1.1.3.100.1.2.16	power-consumption
17	1.3.6.1.4.1.14988.1.1.3.100.1.2.17	cpu-temperature
18	1.3.6.1.4.1.14988.1.1.3.100.1.2.18	current
7001	1.3.6.1.4.1.14988.1.1.3.100.1.2.7001	fan1-speed
7401		
7402		
mbxrGaugeUnit - 4		
13		
14		
16		
17	1.3.6.1.4.1.14988.1.1.3.100.1.4.17	celsius (1)
18	1.3.6.1.4.1.14988.1.1.3.100.1.4.18	dA (4)
7001	1.3.6.1.4.1.14988.1.1.3.100.1.4.7001	rpm (2)
7401	1.3.6.1.4.1.14988.1.1.3.100.1.4.7401	status (6)
7402	1.3.6.1.4.1.14988.1.1.3.100.1.4.7402	status (6)
mbxrGaugeValue - 3		
13	1.3.6.1.4.1.14988.1.1.3.100.1.3.13	243
14	1.3.6.1.4.1.14988.1.1.3.100.1.3.14	32
16	1.3.6.1.4.1.14988.1.1.3.100.1.3.16	231
17	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	54
18	1.3.6.1.4.1.14988.1.1.3.100.1.3.18	925
7001	1.3.6.1.4.1.14988.1.1.3.100.1.3.7001	4304967305
7401		
7402		
mbxrHiActiveFan - 9		
mbxrHiBackupPowerSupplyState - 16		
mbxrHiCurrent - 13		
mbxrHiFan Speed1 - 17		
mbxrHiPower - 12	1.3.6.1.4.1.14988.1.1.3.12.0	23.0
mbxrHiPowerSupplyState - 15	1.3.6.1.4.1.14988.1.1.3.15.0	true (1)
mbxrHiProcessorFrequency - 14	1.3.6.1.4.1.14988.1.1.3.14.0	1200
mbxrHiProcessorTemperature - 11	1.3.6.1.4.1.14988.1.1.3.11.0	54.0
mbxrHiTemperature - 10	1.3.6.1.4.1.14988.1.1.3.10.0	32.0
mbxrHiVoltage - 8	1.3.6.1.4.1.14988.1.1.3.8.0	24.3

GaugeTable проблеми

Недокументирана

Last Number in OID	mtxrGaugeName ...1.1.3.100.1.2	mtxrGaugeUnit ...1.1.3.100.1.4	mtxrGaugeValue ...1.1.3.100.1.3
13	Voltage	dV (3)	V x 10
14	Temperature	Celsius (1)	
16	Power-Consumption	dW (5)	W x 10
17	CPU-Temperature	Celsius (1)	
18	Current	dA (4)	mA
700X	FanX	rpm (2)	
710X	Board Temperature X	Celsius (1)	
740X	PSU X State	Status (6)	0 – OK; 1 - Fail

GaugeTable проблеми

- Някои броячи са налични само в класическите идентификатори
`mtxrHlActiveFan`, `mtxrHlProcessorFrequency` и др.
- Някои броячи са налични само в GaugeTable
`7003 fan3-speed`, `710X - board-temperatureX` и др.
- Някои се срещат и на двете места

GaugeTable проблеми

Дублирани броячи

- Непоследователност в дефиниционните стойности на броячи за състоянието

Брояч	O.K. State	Fail State
Gauge Table psuX-state	0	1
mtxrPowerSupplyState mtxrBackupSupplyState	1	0

GaugeTable проблеми

Дублирани броячи

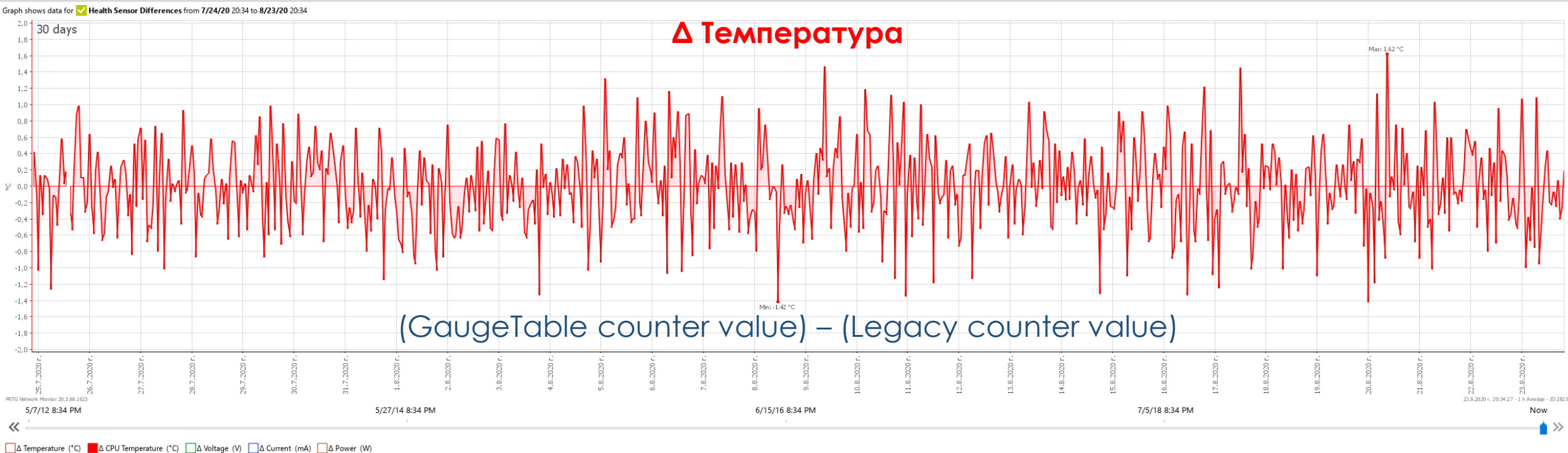
Graph shows data for Health Sensor Differences from 7/24/20 20:37 to 8/23/20 20:37



Δ Temperature (°C) Δ CPU Temperature (°C) Δ Voltage (V) Δ Current (mA) Δ Power (W)

GaugeTable проблеми

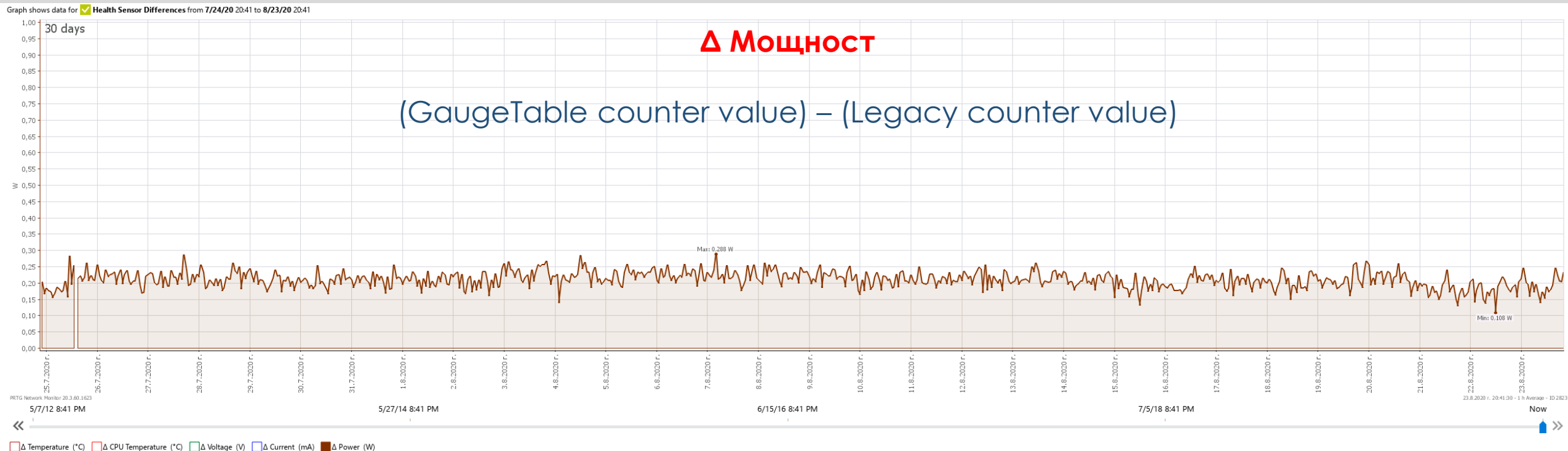
Дублирани броячи



GaugeTable проблеми

Дублирани броячи

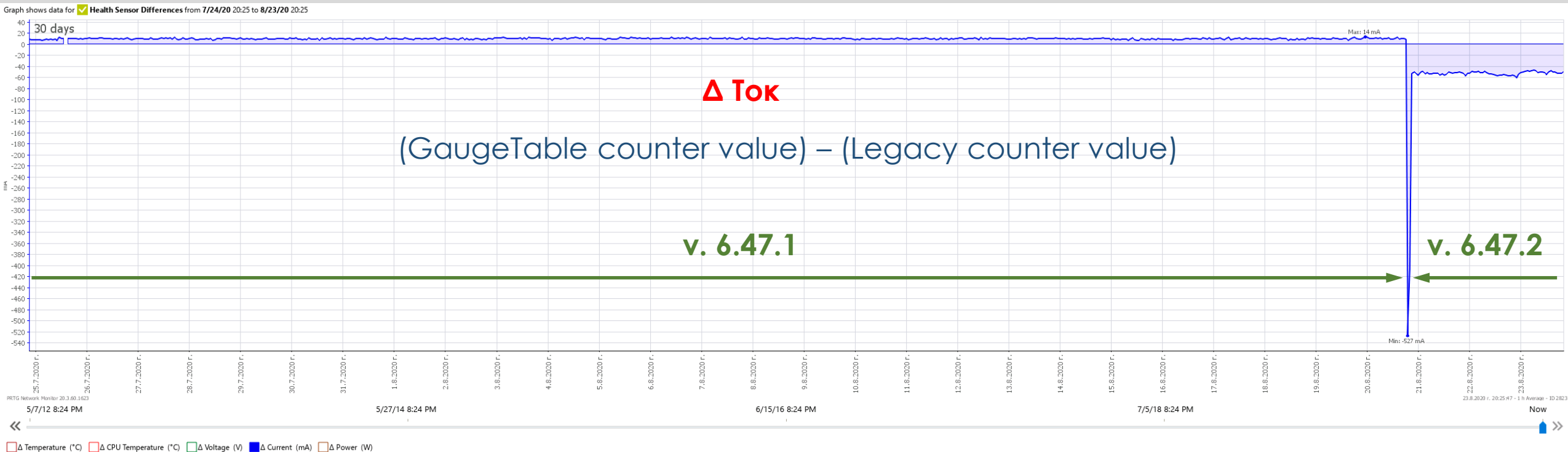
Различаващи се стойности (!)



GaugeTable проблеми

Дублирани броячи

Различаващи се стойности (!)



GaugeTable проблеми

Грешки в новите броячи

RouterOS v. 6.47 – 6.47.1

fanX-speed

Oid	Simple Oid	Value
iso - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
org - 3	1.3.6.1.4.1.14988.1.1.3.8.0	
dod - 6	1.3.6.1.4.1.14988.1.1.3.8.0	
internet - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
private - 4	1.3.6.1.4.1.14988.1.1.3.8.0	
enterprises - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mikrotik - 14988	1.3.6.1.4.1.14988.1.1.3.8.0	
mikrotikExperimentalModule - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mtXRouterOs - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mtxrHealth - 3	1.3.6.1.4.1.14988.1.1.3.8.0	
mtxrGaugeTable - 100	1.3.6.1.4.1.14988.1.1.3.100.1.2.13	
mtxrGauge		
mtxrGau		
13		
14		
16		
17		
18		
7001	1.3.6.1.4.1.14988.1.1.3.100.1.2.7001	fan1-speed
7401	1.3.6.1.4.1.14988.1.1.3.100.1.2.7401	psu1-state
7402	1.3.6.1.4.1.14988.1.1.3.100.1.2.7402	psu2-state
mtxrGaugeUnit - 4	1.3.6.1.4.1.14988.1.1.3.100.1.4.13	
13	1.3.6.1.4.1.14988.1.1.3.100.1.4.13	dV (3)
14	1.3.6.1.4.1.14988.1.1.3.100.1.4.14	celsius (1)
16	1.3.6.1.4.1.14988.1.1.3.100.1.4.16	dW (5)
17	1.3.6.1.4.1.14988.1.1.3.100.1.4.17	celsius (1)
18	1.3.6.1.4.1.14988.1.1.3.100.1.4.18	dA (4)
7001	1.3.6.1.4.1.14988.1.1.3.100.1.4.7001	rpm (2)
7401	1.3.6.1.4.1.14988.1.1.3.100.1.4.7401	status (6)
7402	1.3.6.1.4.1.14988.1.1.3.100.1.4.7402	status (6)
mtxrGaugeValue - 3	1.3.6.1.4.1.14988.1.1.3.100.1.3.13	
13	1.3.6.1.4.1.14988.1.1.3.100.1.3.13	243
14	1.3.6.1.4.1.14988.1.1.3.100.1.3.14	32
16	1.3.6.1.4.1.14988.1.1.3.100.1.3.16	231
17	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	54
18	1.3.6.1.4.1.14988.1.1.3.100.1.3.18	925
7001	1.3.6.1.4.1.14988.1.1.3.100.1.3.7001	4294967295
7401	1.3.6.1.4.1.14988.1.1.3.100.1.3.7401	0
7402	1.3.6.1.4.1.14988.1.1.3.100.1.3.7402	0
mtxrHIActiveFan		
mtxrHIBackupPo		
mtxrHICurrent -		
mtxrHIFanSpeed		
mtxrHIPower - 1		
mtxrHIPowerSupplyState - 13	1.3.6.1.4.1.14988.1.1.3.10.0	idle (1)
mtxrHIProcessorFrequency - 14	1.3.6.1.4.1.14988.1.1.3.14.0	1200
mtxrHIProcessorTemperature - 11	1.3.6.1.4.1.14988.1.1.3.11.0	54.0
mtxrHITemperature - 10	1.3.6.1.4.1.14988.1.1.3.10.0	32.0
mtxrHIVoltage - 8	1.3.6.1.4.1.14988.1.1.3.8.0	24.3

⇒ Изменение в PowerShell скрипта

```
303     {$_ -gt 7000 -and $_ -lt 7010} # Fans
304     {
305         if ($Value -gt 0)
306         {
307             $HealthChannels += Write-PRTGChannel -Title $ChannelName -Value $Value -Unit Speed
308         }
309     }
310
```

Изменения в GaugeTable v. 6.47.2

- Поправена е стойността на брояча **fan1-speed**
- “Поправена“ (твърдят) е стойността на брояча **current**

GaugeTable проблеми

Грешки в новите броячи

RouterOS v. 6.47.2

current

Oid	Simple Oid	Value
iso - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
org - 3	1.3.6.1.4.1.14988.1.1.3.8.0	
dod - 6	1.3.6.1.4.1.14988.1.1.3.8.0	
internet - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
private - 4	1.3.6.1.4.1.14988.1.1.3.8.0	
enterprises - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mikrotik - 14988	1.3.6.1.4.1.14988.1.1.3.8.0	
mikrotik ExperimentalModule - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mtXRouterOs - 1	1.3.6.1.4.1.14988.1.1.3.8.0	
mtxrHealth - 3	1.3.6.1.4.1.14988.1.1.3.8.0	
mtxrGaugeTable - 10	1.3.6.1.4.1.14988.1.1.3.100.1.2.17	
mtxrGaugeTableE	1.3.6.1.4.1.14988.1.1.3.100.1.2.18	
mtxrGaugeNar	1.3.6.1.4.1.14988.1.1.3.100.1.2.17	
13	1.3.6.1.4.1.14988.1.1.3.100.1.2.17	Cpu temperature
14	1.3.6.1.4.1.14988.1.1.3.100.1.2.18	current
16	1.3.6.1.4.1.14988.1.1.3.100.1.2.7001	fan1-speed
17	1.3.6.1.4.1.14988.1.1.3.100.1.2.7401	psu1-state
18	1.3.6.1.4.1.14988.1.1.3.100.1.2.7402	psu2-state
7001	1.3.6.1.4.1.14988.1.1.3.100.1.4.13	dV (3)
7401	1.3.6.1.4.1.14988.1.1.3.100.1.4.13	celsius (1)
7402	1.3.6.1.4.1.14988.1.1.3.100.1.4.14	dW (5)
mtxrGaugeUnit - 4	1.3.6.1.4.1.14988.1.1.3.100.1.4.13	
13	1.3.6.1.4.1.14988.1.1.3.100.1.4.13	celsius (1)
14	1.3.6.1.4.1.14988.1.1.3.100.1.4.14	dW (5)
16	1.3.6.1.4.1.14988.1.1.3.100.1.4.16	celsius (1)
17	1.3.6.1.4.1.14988.1.1.3.100.1.4.17	dA (4)
18	1.3.6.1.4.1.14988.1.1.3.100.1.4.18	rpm (2)
7001	1.3.6.1.4.1.14988.1.1.3.100.1.4.7001	status (6)
7401	1.3.6.1.4.1.14988.1.1.3.100.1.4.7401	status (6)
7402	1.3.6.1.4.1.14988.1.1.3.100.1.4.7402	status (6)
mtxrGaugeValue - 3	1.3.6.1.4.1.14988.1.1.3.100.1.3.13	
13	1.3.6.1.4.1.14988.1.1.3.100.1.3.13	243
14	1.3.6.1.4.1.14988.1.1.3.100.1.3.14	31
16	1.3.6.1.4.1.14988.1.1.3.100.1.3.16	208
17	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	53
18	1.3.6.1.4.1.14988.1.1.3.100.1.3.18	8
7001	1.3.6.1.4.1.14988.1.1.3.100.1.3.7001	5667
7401	1.3.6.1.4.1.14988.1.1.3.100.1.3.7401	5667
7402	1.3.6.1.4.1.14988.1.1.3.100.1.3.7402	5667
mtxrHlActiveFan - 9	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	5667
mtxrHlBackupPowerSupplySta	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	5667
mtxrHlCurrent - 13	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	5667
mtxrHlFanSpeed1 - 17	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	5667
mtxrHlPower - 12	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	5667
mtxrHlPowerSupplyState - 15	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	5667
mtxrHlProcessorFrequency - 14	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	5667
mtxrHlProcessorTemperature - 11	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	5667
mtxrHlTemperature - 10	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	5667
mtxrHlVoltage - 8	1.3.6.1.4.1.14988.1.1.3.100.1.3.17	5667

⇒ Изменение в PowerShell скрипта

```
296  
297  
298 {  
299     if ($Value.Length -eq 1) { $Value = $Value + "00" }  
300     $healthChannels += write-PSRDchannel -file $channelName -Value $Value -Unit Custom -C  
301 }  
302  
303
```


GaugeTable проблеми



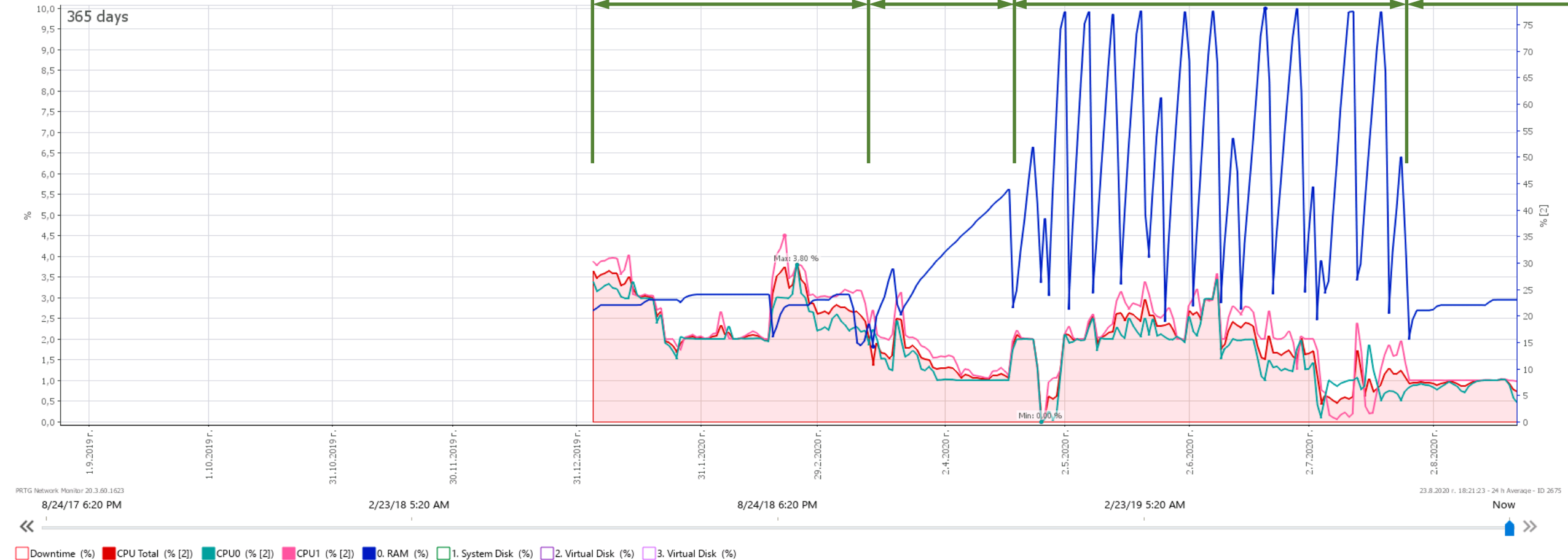
<https://www.youtube.com/watch?v=-5wpm-gesOY>

Любопитни резултати

Dude Server 6.46.5 Memory Leak

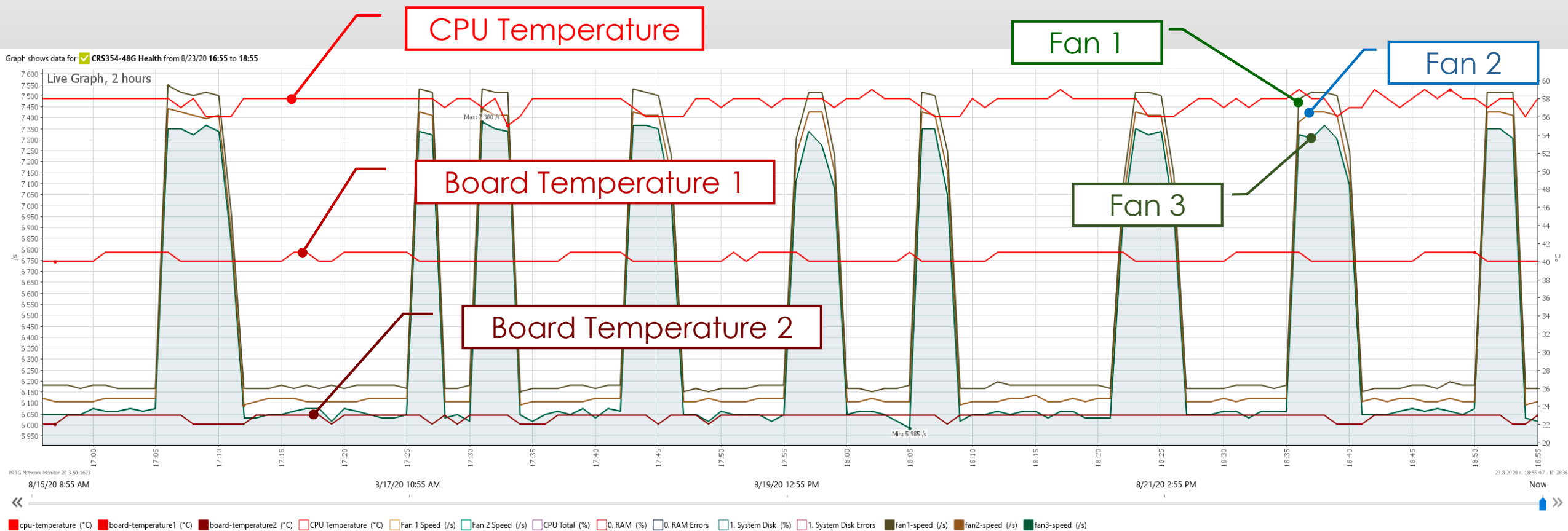
Graph shows data for Synforma Dude Health from 7/20/20 12:11 to 7/21/20 18:11

Graph shows data for Synforma Dude Health from 8/24/19 18:21 to 8/23/20 18:21



Любопитни резултати

Управление на вентилаторите при CRS-354-48G-...



Следващи стъпки

- Добавяне на броячи за параметри на безжични мрежи
- Заобикаляне на ограничението за име на хост на SNMP модула за PowerShell
- Оптимизиране на алгоритъма с цел намаляване на натоварването на сървъра
- Реализация на сензора на C#

Благодаря за вниманието!