Full SNMP Monitoring on Raspberry Pi 5 for LibreNMS (UCD-SNMP + Extend Workaround)

Date: May 14, 2025
Category: Monitoring / SNMP
Backlink: LibreNMS Docker Deployment on Raspberry Pi 5

□□ Overview

This update documents how I configured full-featured SNMP monitoring on a Raspberry Pi 5 running LibreNMS inside Docker. Since `hrProcessorLoad` and traditional Host Resources MIB features are often unavailable or broken on ARM-based systems, I used `UCD-SNMP` and `NET-SNMP-EXTEND-MIB` to monitor:

- □ CPU usage
- □ Memory usage (real, buffers, cache, swap)
- □ Disk space
- □ Temperature via custom script
- □ Graphs and health sensors in LibreNMS dashboard

□□ Step-by-Step Setup

1. **Edit SNMP Configuration**

Update `/etc/snmp/snmpd.conf` with:

```
rocommunity public
disk / 10000

view   systemonly  included   .1.3.6.1.2.1.1
view   systemonly  included   .1.3.6.1.2.1.25
view   systemonly  included   .1.3.6.1.4.1.2021
view   systemonly  included   .1.3.6.1.4.1.8072.1

extend temp /bin/bash /usr/local/bin/snmp-temperature.sh
```

> The `disk` line enables `/` monitoring. The `extend` line provides temperature monitoring.

---

2. **Create Extend Script for CPU Temp**

```
sudo nano /usr/local/bin/snmp-temperature.sh
```

Paste:

```
#!/bin/bash
vcgencmd measure_temp | sed "s/temp=//;s/'C//"
```

Make it executable:

```
sudo chmod +x /usr/local/bin/snmp-temperature.sh
```

---

3. **Give SNMP Access to Pi Temperature Sensor**

```
sudo usermod -aG video Debian-snmp
sudo reboot
```

---

4. **Verify SNMP Outputs**

```
snmpwalk -v2c -c public localhost .1.3.6.1.4.1.2021.4     # Memory
snmpwalk -v2c -c public localhost .1.3.6.1.4.1.2021.9     # Disk
snmpwalk -v2c -c public localhost hrProcessorLoad        # CPU per core
snmpwalk -v2c -c public localhost .1.3.6.1.4.1.2021.10    # Load avg
snmpwalk -v2c -c public localhost NET-SNMP-EXTEND-MIB::nsExtendOutput1Line.\"temp\"    # Temperature
```

---

5. **Ensure Pi is Added in LibreNMS**

In the web UI:

- Add device: `192.168.1.174` (not `localhost`)
- SNMP v2c, community `public`
- Confirm SNMP test passes

□□ Inside the Docker Container

Enter container:

```
docker exec -it librenms bash
cd /opt/librenms
```

Run poller and rediscovery:

```
php artisan config:clear
./lnms poller:discovery 1
./lnms device:poll 1
```

□□ Final Results in LibreNMS

From the Pi's page:

- **Graphs → CPU, Memory, Storage, Temperature** are all active
- **Health tab** shows temperature sensor: `temp1`
- **Storage tab** shows `/` and `/boot/firmware`
- **Dashboard Device Graphs widget** now shows mini graphs for each metric

---

□□ Troubleshooting Addendum

□ Memory Graphs Not Appearing?

Make sure:

- SNMP returns `.1.3.6.1.4.1.2021.4` correctly
- `ucd-mib`, `mempools`, and `storage` modules are enabled in UI
- You've updated the device hostname to use the Pi's **IP**, not `localhost`
- Use:

```
./lnms poller:discovery 1
./lnms device:poll 1
```

□ Wrap-Up

With this configuration, the Pi 5 running LibreNMS inside Docker is now monitoring itself via SNMP, including:

- UCD-based metrics
- Custom `extend` temperature sensor
- Full graph integration

This setup is now replicable for other ARM-based Linux systems with similar SNMP limitations!

Revision #1
Created 14 May 2025 23:35:38 by Nate Nash
Updated 21 December 2025 18:11:14 by Nate Nash