Temperature monitoring using a USB thermometer via SNMP

In this article the temperature from a USB thermometer, connected to a computer running Linux, will be exposed to public via SNMP under OID `1.3.6.1.2.1.99.1.1.1.4`

1   Gather tools

Install snmp daemon and tools.

For Debian and Ubuntu:

```
$ apt-get install -y digitemp snmp snmpd
```

2   Prepare digitemp

Firstly, connect a USB thermometer to a USB port. Once the device is connected, a device file is created, e.g. `/dev/ttyUSB0`.

Secondly, as superuser, create configuration file `/etc/digitemp.conf`.

```
$ digitemp_DS9097 -q -i -c /etc/digitemp.conf -s /dev/ttyUSB0
28667E060C000012 : DS18B20 Temperature Sensor
ROM #0 : 28667E060C000012
```

Then, check if it works.

```
$ digitemp_DS9097 -q -c /etc/digitemp.conf -a
Aug 03 17:23:50 Sensor 0 C: 25.25 F: 77.45
```

Create file (script) `/usr/bin/checktemp` with the following content.

```
#!/bin/sh

CONF=/etc/digitemp.conf
ID=${1:-0}

digitemp_DS9097 -q -c $CONF -t $ID | cut -d\  -f7
```

Make it executable `chmod +x /usr/bin/checktemp`, and check if it works.

```
$ /usr/bin/checktemp
25.00
```

3 Prepare snmpd

Make sure user running snmpd process can access device file. If snmpd is run under Debian-snmp user, it should be a member of device file owning group, e.g. `dialout`.

```
adduser Debian-snmp dialout
```

Open snmp configuration file `/etc/snmp/snmpd.conf`, and add permissions for UID:

```
view        systemonly        included        .1.3.6.1.2.1.99.1.1.1.4
```

and then:

```
extend        .1.3.6.1.2.1.99.1.1.1.4        temp0        /usr/bin/checktemp 0
```

4 Check snmp

```
$ snmpwalk -v1 -cpublic localhost iso.3.6.1.2.1.99.1.1.1.4
iso.3.6.1.2.1.99.1.1.1.4.1.0 = INTEGER: 1
iso.3.6.1.2.1.99.1.1.1.4.2.1.2.5.116.101.109.112.48 = STRING: "/usr/bin/checktemp"
iso.3.6.1.2.1.99.1.1.1.4.2.1.3.5.116.101.109.112.48 = STRING: "0"
iso.3.6.1.2.1.99.1.1.1.4.2.1.4.5.116.101.109.112.48 = ""
iso.3.6.1.2.1.99.1.1.1.4.2.1.5.5.116.101.109.112.48 = INTEGER: 5
iso.3.6.1.2.1.99.1.1.1.4.2.1.6.5.116.101.109.112.48 = INTEGER: 1
iso.3.6.1.2.1.99.1.1.1.4.2.1.7.5.116.101.109.112.48 = INTEGER: 1
iso.3.6.1.2.1.99.1.1.1.4.2.1.20.5.116.101.109.112.48 = INTEGER: 4
iso.3.6.1.2.1.99.1.1.1.4.2.1.21.5.116.101.109.112.48 = INTEGER: 1
iso.3.6.1.2.1.99.1.1.1.4.3.1.1.5.116.101.109.112.48 = STRING: "25.00"
iso.3.6.1.2.1.99.1.1.1.4.3.1.2.5.116.101.109.112.48 = STRING: "25.00"
iso.3.6.1.2.1.99.1.1.1.4.3.1.3.5.116.101.109.112.48 = INTEGER: 1
iso.3.6.1.2.1.99.1.1.1.4.3.1.4.5.116.101.109.112.48 = INTEGER: 0
iso.3.6.1.2.1.99.1.1.1.4.4.1.2.5.116.101.109.112.48.1 = STRING: "25.00"
```

Temperature is available under UID:

```
iso.3.6.1.2.1.99.1.1.1.4.4.1.2.5.116.101.109.112.48.1
```