Use DCE to monitor the DCO PUE

Addition to Schneider Electric StruxureWare for Data Centers
By Ed Tarento etarento@gmailcom Nov 2018
V2 – updated for minor corrections and added some trouble shooting Jan 2019

Developed using Data Center Operations (DCO) 8.2.7 and Data Center Expert (DCE) 7.4.3, but should be OK for recent previous and future releases. Uses the same SNMP extension feature that is used to get DCO information to DCE

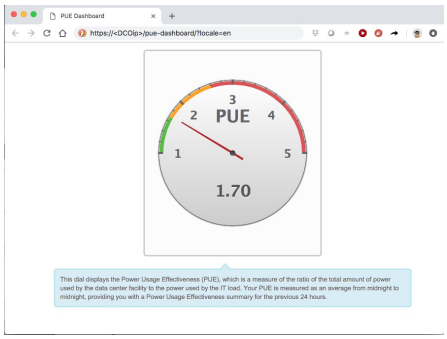
DCO PUE dashboard figure can be viewed over time. This facility may be disrupted by any future SE DCO or DCE release. Probably suitable only for small companies with a single data centre / server room. If you're a bigger organisation who has multiple rooms and as you already own DCE and DCO, you might consider a more robust and fully featured PUE solution such as the StruxureWare Energy Efficiency (EE) add-on to DCO

You need

- root or sudo access on DCO server
- the ability to create or modify system files, e.g. ssh and vi or similar
- adjust /etc/snmpd/snmpd.conf
- add /etc/snmpd/getPUE.sh
- familiarity with snmp
- assumes you have already discovered the DCO server on DCE

Steps on DCO Server

1. configure the PUE dash board value and check the value is properly displayed



2. create /etc/snmp/getPUE.sh either copy the file or create using your fav editor from
3. adjust permissions to 755
4. adjust /etc/snmp/snmpd.conf. After the line ...
   `pass .1.3.6.1.4.1.318 /etc/snmp/snmphandler.sh`
   add the line ...
   `pass .1.3.6.1.4.1.26639 /etc/snmp/getPUE.sh`
5. restart the snmp deamon …
   `kill -HUP `ps -A | awk ' ($4=="snmpd") {print $1}'`

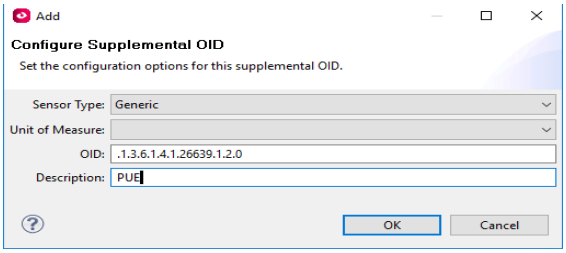
The DCO server SNMP agent now has a new OID .1.3.6.1.4.1.26639.1.2.0 showing the PUE value. You can check this using SNMP from another machine (my DCO server does not have the snmpwalk executable ...

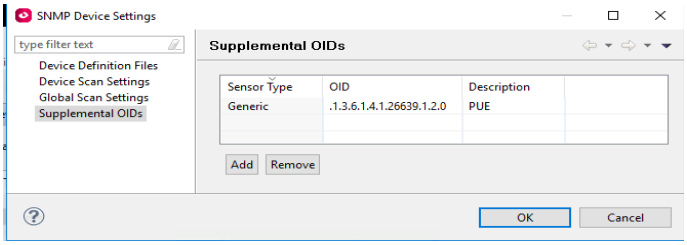
```
> snmpwalk -v 1 -c public <DCOip> .1.3.6.1.4.1.26639.1.2.0
SNMPv2-SMI::enterprises.26639.1.2.0 = STRING: "1.8"
```

Steps on DCE Server

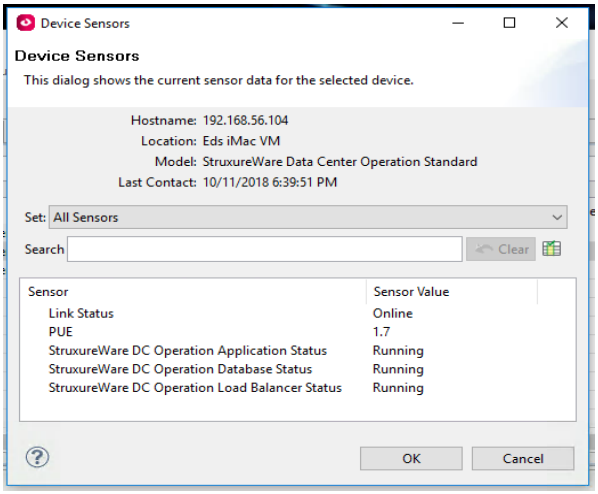
Or equivalent on your whatever SNMP manager you have.

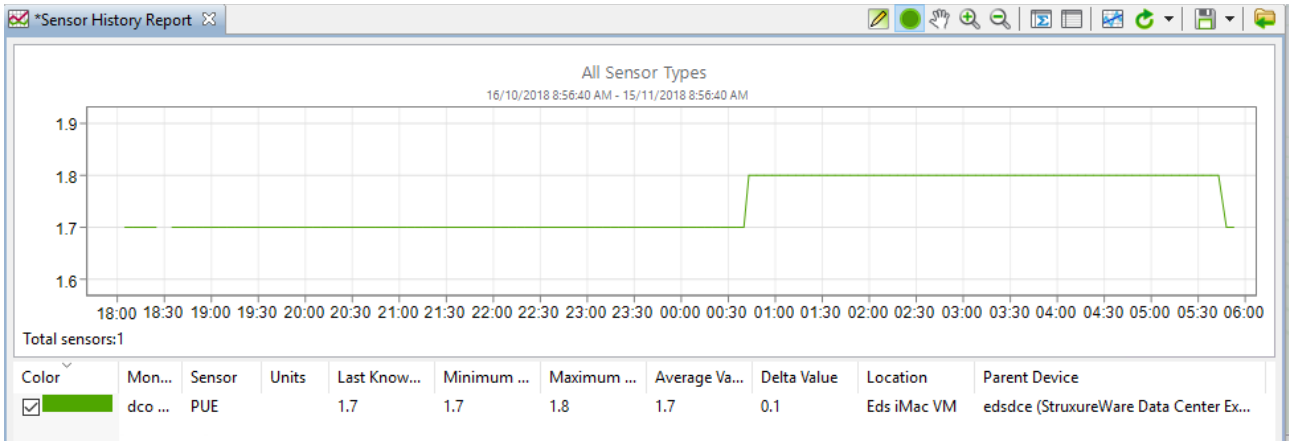
Device → SNMP Device Communications Settings → Supplemental OID...





Under Monitoring (Device or Map view) right click on DCO Server and select “Request Device Scan”. Wait a few seconds then “View Device Sensors” – you should now see PUE





Troubleshooting on the DCO Server:

List the contents of the /etc/snmp directory

```
> ls -al /etc/snmp
```

You should see n entry as follows

```
 -rwxr-xr-x.  1 root root   934 Oct 28 17:59 getPUE.sh
```

Use the test script

Create the file /etc/snmpd/test.sh

```
#!/bin/bash
# by Ed Tarento etarento@gmail.com Jan 2019

pue=0

DCOip=`/bin/hostname -I`
echo $DCOip

pue=`/bin/curl -ks  https://"$DCOip"/rest/pue-v1/instantPueData| awk -F":"
'/1/ {print $2}'|awk -F"," '/1/ {print $1}' `
echo $pue
```

Make it executable

```
> chmod 755 /etc/snmp/test.sh
```

Run test.sh and check output. You should see the IP of your DCO server and the current PUE

```
[root@dco snmp]# ./test.sh
192.168.56.104
1.7
```

If that doesn't work as expected, you've missed something in the install. Go back and double check the contents of `snmpd.conf` and the contents and permissions of `getPUE.sh`

If you found you made an mistake, please post it here or let me know so I can update these instructions and other users can benefit.

getPUE.sh

```
#!/bin/bash

# by Ed Tarento etarento@gmail.com Nov 2018 from SE's snmphandler.sh
# So DCE can monitor DCO PUE

# for deployment to Schneider Electric StruxureWare Data Center Operations server
# reads the DCO PUE dashboard number and delivers via SNMP to any SNMP manager, especially DCE, that calls for it
# to be called from an adjusted /etc/snmpd/snmpd.conf

pue=0

DCOip=`/bin/hostname -I`

operation=$1
oid=$2

get_pue() {
      pue=`/bin/curl -ks  https://"$DCOip"/rest/pue-v1/instantPueData| awk -F":" '/1/ {print $2}'|awk -F"," '/1/ {print $1}' `
      status=$?

      echo ".1.3.6.1.4.1.26639.1.2.0"
      echo "String"
      echo $pue
}

# SNMP Set
if [ $operation == "-s" ]; then
    echo not-writable
fi

# SNMP Walk
if [ $operation == "-n" ]; then
      if [ $oid == ".1.3.6.1.4.1.26639.1.1.0" ]; then
            get_pue
            exit 0
      fi
fi

# SNMP Get
if [ $operation == "-g" ]; then
      if [ $oid == ".1.3.6.1.4.1.26639.1.2.0" ]; then
            get_pue
            exit 0
      fi
fi
```