1 Introduction

This document describes the stages to integrate and use EATON with the HP OpenView Network and Systems Management platform. This document is applicable for HP OpenView NNM 6.1 for HP-UX 10.x or 11.x.

To use any EATON with this platform, you must have completed the installation and configuration procedures first.

2 Installation and configuration procedure

2.1 Installation

The HPOV platform should be up and running. If necessary, run /opt/OV/bin/ovstart to start the platform.

To install this snap-in application, log in as root and copy the NMS_UPS.tar.Z file on the HP OpenView system in the directory /opt/OV/contrib/NNM/. Uncompress the archive and extract the files using the tar commands:

`gunzip NMS_UPS.tar.Z` (Only for a file downloaded from www.eaton.com)
`tar xvf ./NMS_UPS.tar`.

Change the directory to /opt/OV/contrib/NNM/mg and run install:

`./install`

If all UPS’s are already discovered, stop ovw and use the following procedure to force NNM to change the UPS symbols:

`cd /opt/OV/bin`
`Stop ovw`
`ovstop netmon`
`ovtopofix –a`
`ovstart netmon`
`ovw&`
2.2 Configure the EATON SNMP cards/agents

Each compatible EATON Pulsar SNMP card or agent must be configured so that the SNMP alarms (Traps) are sent to the HP OpenView platform. To do this, the HP OpenView host must be declared in the managers' table of each SNMP card and agent.

You have following possibilities:

- You can also use the “Notified Applications” HTML settings page for the Trap settings.
- For some legacy cards (66074/66244) EATON SNMP cards, you can use the telnet configuration menu.
  Or use a MIB browser to configure the SNMP cards and agents.

Configuration example for manager number X:

<table>
<thead>
<tr>
<th>OID number</th>
<th>Designation / Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.6.1.4.1.705.1.2.2.1.1.X</td>
<td>Manager number = X.</td>
</tr>
<tr>
<td>1.3.6.1.4.1.705.1.2.2.1.2.X</td>
<td>Device number = 0.</td>
</tr>
<tr>
<td>1.3.6.1.4.1.705.1.2.2.1.3.X</td>
<td>Manager type = 9 (other).</td>
</tr>
<tr>
<td>1.3.6.1.4.1.705.1.2.2.1.4.X</td>
<td>Protocol level = 4 (snmpv1).</td>
</tr>
<tr>
<td>1.3.6.1.4.1.705.1.2.2.1.5.X</td>
<td>Manager description = e.g. &quot;HP OpenView&quot;</td>
</tr>
<tr>
<td>1.3.6.1.4.1.705.1.2.2.1.6.X</td>
<td>Manager IP address = YYY.YYY.YYY.YYY format.</td>
</tr>
</tbody>
</table>
1.3.6.1.4.1.705.1.2.2.1.7.X | Community name = e.g. "public"
1.3.6.1.4.1.705.1.2.2.1.8.X | Severity level = e.g. 2
1.3.6.1.4.1.705.1.2.2.1.9.X | Acknowledgement type = 2 (mgnoack).
3  Operation

Segment after discover

Two elements were added in the title bar (Administer and Monitor)

3.1  Administer menu

This menu provides additional information about the UPS agent (Agent conf…) and displays the table of managers (Managers…).
3.2 Monitor menu

This menu gives access to most UPS and power quality monitoring data, including:
- The output load, to make sure the UPS is not overloaded or to estimate how much capacity is available;
- The battery level, to make sure UPS is fully recharged in case of an impending power outage;
- The remaining time, to know how long critical devices will be able to run in case of a power outage;
- Detailed analysis of the utility power quality (Input menu), the service provided by the UPS (Output menu) or environment parameters like the room temperature or humidity level (when used in conjunction with a sensor).

An overview of the available UPS applications can be found in the help section of the application menu. Any EATON application starts with the letters “mg”.

3.3 UPS Symbols

Each UPS symbol can provide detailed information through a simple click on its icon. You just need to define which information to display (such as Battery level) in the Application/Action/Symbol Properties... panel.
3.4 Features

Traps sent by the UPS will be picked up by the OpenView event system and can be seen in a special category (UPS Events) in the event-browser. Depending on the severity of the trap, an additional action will be performed. The severity of the traps and the message that is displayed in the Event browser can be customized: go in the Event Configurator located into the options menu. Be careful not to change the executed command: the command shown will take care of the trap acknowledgement.
The only actions currently implemented are a message window and a status change when a power failure/restoration occurs. However, user-defined actions can be added in the file:

```
SOV_CONTRIB/NNM/mg/actions/trap.action
```
4 Appendix: Trap.action file

#!/bin/ksh
###########################################################
# ACTIONS for UPS traps
###########################################################
# This script is executed from the OpenView eventsystem.
# Based on two parameters, an action will be performed.

ERRFILE=/opt/OV/contrib/NNM/mg/log/action.log
SNMPLOGFILE=/opt/OV/contrib/NNM/mg/log/snmpset.log

touch $ERRFILE $SNMPLOGFILE
chmod 666 $ERRFILE $SNMPLOGFILE

# This script must have 2 parameters
if [ "$#" -ne "2" ]
then
  echo "$0: wrong number of parameters" >> $ERRFILE
  exit 1
fi

# the first parameter is the UPS system that sent the trap
UPSNAME=$1

# The second parameter is the trap number that the UPS sent
TRAP=$2

# write logfile
echo $UPSNAME send trap $TRAP >> $ERRFILE

# First acknowledge the trap for SNMP v2c
echo "\date": acknowledge trap $TRAP to UPS: $UPSNAME" >> $SNMPLOGFILE
/opt/OV/contrib/NNM/mg/actions/acknowledge $UPSNAME $TRAP 2>&1 >> $SNMPLOGFILE

#
#
# ADD SPECIFIC ACTIONS HERE !!!
#
#
# Use two variables to determine what action should be performed:
#
<table>
<thead>
<tr>
<th>#</th>
<th>$UPSNAME:</th>
<th>The UPS that sent the trap</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>$TRAP:</td>
<td>The specific trap that was sent</td>
</tr>
</tbody>
</table>
if [ "$TRAP" -eq "11" ]
then
  if [ -x /usr/OV/contrib/NNM/ringBell/ringBell ]
  then
    # important ! UPS on battery _> ring a bell
    /opt/OV/contrib/NNM/ringBell/ringBell $UPSNAME "$UPSNAME on battery"
  fi
  sleep 1
  if [ -x /usr/audio/bin/send_sound ]
  then
    /usr/audio/bin/send_sound /opt/OV/contrib/NNM/EATON/message.au -loop 2 2>&1 > /dev/null
  fi
fi
# In this example :
# - The IP address of the UPS which powers the HP-OV station is 168.8.0.111,
# - The shutdown sequence starts when the following traps occur:
#   -- trap "29": "UPS OFF sequence to be started"
#   -- trap "31": "UPS OFF sequence in progress"
#   -- trap "9" : "UPS entering in minimum condition 
# If you need to shutdown your system on other event detections, add the other traps in the second test line
# (refer to EATON MIB documentation)
#
# To use this example:
# - verify and modify the shutdown sequence, according to your site specific needs,
# - change the UPS agent IP address to the one you want in the first test line,
# - suppress one "#" character at the beginning of the 9 following lines.
# if test $UPSNAME = 168.8.0.111
#then
# if ([ "$TRAP" -eq "29" ] || [ "$TRAP" -eq "31" ] || [ "$TRAP" -eq "9" ])
# then
#  # echo "UPS: "$UPSNAME >> /tmp/toto1
#  # echo "TRAP NUMBER: "$TRAP >> /tmp/toto1
#  # /etc/shutdown -h -y 0>/dev/console 2>/dev/console
# fi
#fi
# The following lines allow changing the icon color when a trap is received.
# # Critical Events: Low Battery or Low condition or UPS Communication failure or On Battery
# This command set the icon color to red
if ( [ "$TRAP" -eq "5" ] || [ "$TRAP" -eq "9" ] || [ "$TRAP" -eq "37" ] || [ "$TRAP" -eq "11" ] ) then
$OV_BIN/mgstatus.sh $UPSNAME Critical
#/usr/contrib/games/flip -times 1 -display hp9000:0
fi

# Return from Critical UPS Events, set the icon to Normal
if ( [ "$TRAP" -eq "6" ] || [ "$TRAP" -eq "10" ] || [ "$TRAP" -eq "38" ] || [ "$TRAP" -eq "12" ] ) then
$OV_BIN/mgstatus.sh $UPSNAME Normal
fi

# Major UPS Status Alarm: Battery fault or upsExternalAlarmActive
# This command set the icon's colour to Major
#if ( [ "$TRAP" -eq "1" ] || [ "$TRAP" -eq "49" ] )
#endif
$OV_BIN/mgstatus.sh $UPSNAME Major
#if
# Return from Major UPS Alarm, set the icon to Normal
#if ( [ "$TRAP" -eq "2" ] || [ "$TRAP" -eq "50" ] )
#endif
$OV_BIN/mgstatus.sh $UPSNAME Normal
#endif

# Major UPS Events: upsOnByPass or upsOverload or upsOverTemperature
#if ( [ "$TRAP" -eq "13" ] || [ "$TRAP" -eq "21" ] || [ "$TRAP" -eq "23" ] )
#endif
# /usr/OV/bin/snmptrap `hostname` \
#     $OV_BIN/mgstatus.sh $UPSNAME Major
#fi

# Return from Major UPS Events, set the icon to Normal
#if   ( [ "$TRAP" -eq "14" ] || [ "$TRAP" -eq "22" ] || [ "$TRAP" -eq "24" ] )
#then
#     $OV_BIN/mgstatus.sh $UPSNAME Normal
#fi