SCUtils Monitoring APC UPS Guide

Solution for Microsoft System Center 2012 R2/2016 Operations Manager

Published: 21d November 2017

Version: 2.0

Authors:

Yuriy Nizhnikov

Feedback:

support@scutils.com

Contents

1. Getting started

SCUtils Monitoring APC UPS is an extension for Microsoft System Center Operations Manager to monitor **APC UPS** devices. The product is based on the 'powernet417.mib' MIB file.

APC is a trademark of the Schneider Electric. All other trademarks are property of their respective owners.

2. Compatibility

WARNING! Be aware that the version 2.0 is not compatible with 1.0 - 1.6 versions. Uninstall any pre-V2 version before importing the version 2.0 and subsequent

SCUtils Monitoring APC UPS has been designed and tested for the following versions of Microsoft System Center 2012 R2/2016 Operations Manager:

- Microsoft System Center 2012 R2/2016 Operations Manager.

The product might work with Microsoft System Center 2012 Operations Manager SP1, but it is not tested. If you intend to use **SCUtils Monitoring APC UPS** in pre-R2 environments, please carefully evaluate the product in the testing environment.

2.1. Feedback

Our team is always on the way of the improvement of our solutions. We highly appreciate every feedback from our customers. Please send us your thoughts, complains, and feature requests at support@scutils.com.

3. Requirements

All APC UPS devices must be discovered as network devises. Please refer to the Operations Manager guide to details.

4. Installation

Download the archive **SCUtils Monitoring APC UPS v2.0.zip** from Downloads page of www.scutils.com. Copy **SCUtils Monitoring APC UPS v2.0.zip** to the Operations Manager management server.

To install the management packs:

1. Log on to the computer that hosts the **Operations Manager console** using an account that administrative rights in the Operations Manager.
2. In the Operations Manager console, select **Administration**.
3. In the **Administration** pane, select **Management Packs.**
4. In the **Tasks** pane, under **Actions**, click **Import Management Packs**.
5. In the **Select Management Packs** box, click on **Add** button, select **Add from disk**, in the **Online Catalog Connection** dialog select **No**.
6. In the **Select Management Packs to Import** box, point to the location of **SCUtils Monitoring APC UPS**.
7. In the list of files, select the management packs **SCUtils.APC.UPS.Dashboard.MP.xml** and **SCUtils.APC.UPS.MP.mpb**, and then click **Open**.
8. In the window **Import Management Packs,** click **Install**.

5. Uninstallation

To uninstall **SCUtils Monitoring APC UPS** log in the Operations Manager management server where the product was installed. Open Operations Manager 2012 console, go to **Administration** -> **Management Packs.** Select **SCUtils APC UPS Dashboards, SCUtils APC UPS** and click on **Delete** task. If required, delete all depending management packs as well.

6. Using SCUtils Monitoring APC UPS

6.1. Discovery APC UPS devices

After the successful import management pack the discovery process will start. The default interval for discoveries is set to **14400** seconds. You can use override to specify shorter intervals to speed up the process.

To change the scope in the Object Discoveries view in the Authoring Pane, please filter objects by '*APC UPS*'.

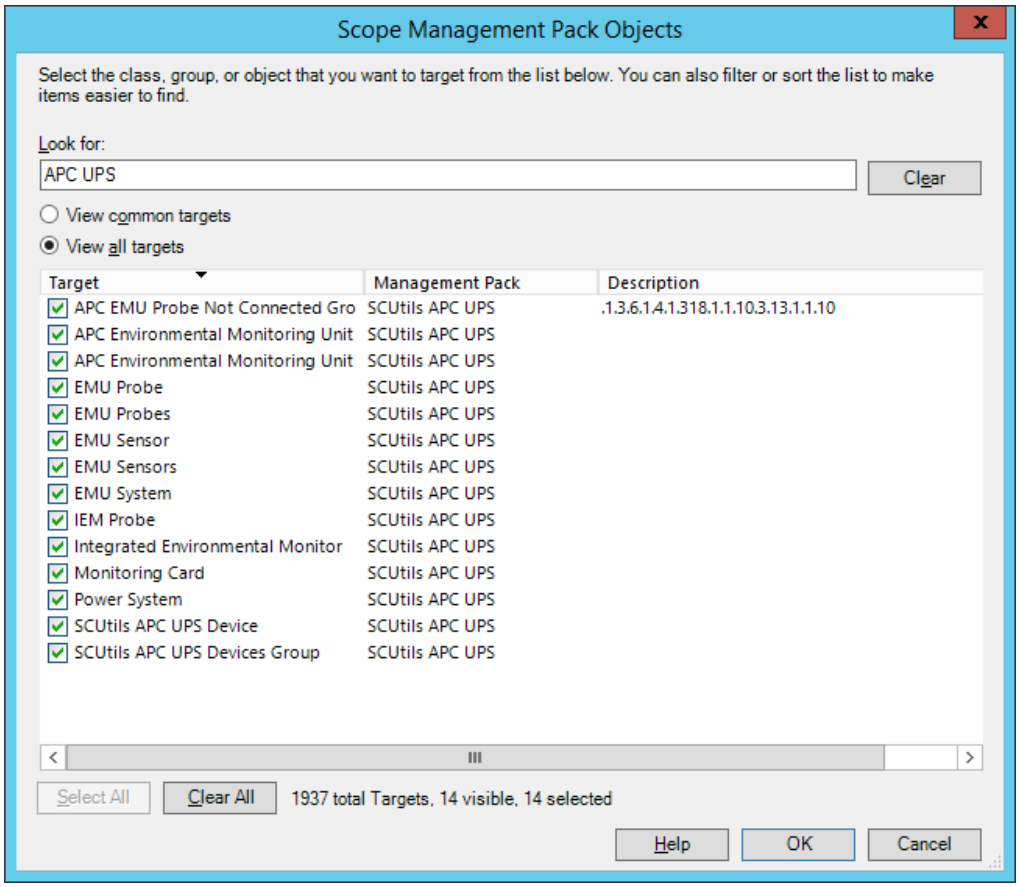

Fig. 1 Changing the scope in Object Discoveries

6.2. Monitors

SCUtils Monitoring APC UPS uses monitors to control the state of APC UPS's components.

All monitors are enabled by default. Please use overrides to disable any monitor if required.

UPS Monitor
UPS Battery Replacement Indicator
UPS Battery Status
UPS Output Load
UPS Battery Capacity
UPS Battery Runtime Remaining
Battery Temperature
UPS Number Of Bad Battery Packs
UPS Basic Output Status

6.3. Informative rules

The table below presents all informative rules of **SCUtils Monitoring APC UPS**.

UPS Rule
UPS Battery RunTime Remaining
UPS Basic Battery Status
UPS Time On Battery
UPS Battery Temperature
UPS Input Line Voltage
UPS Input Frequency
UPS Battery Capacity
UPS Output Voltage

UPS Rule
UPS Output Load
UPS Output Frequency
UPS Output Current
Environment Humidity
Environment temperature

UPS SNMP Trap Rule
SEVERE: Communication to the UPS has been lost
SEVERE: The UPS has sensed a load greater than 100 percent of its rated capacity.
SEVERE: The UPS failed its internal diagnostic self-test.
SEVERE: The UPS batteries are discharged
WARNING: The UPS has switched to battery backup power.
WARNING: The UPS has enabled SmartBoost (TM).
SEVERE: The UPS batteries are low and will soon be exhausted.
INFORMATIONAL: Communication with the UPS has been established.
INFORMATIONAL: Utility power has been restored.
INFORMATIONAL: The UPS passed its internal self-test.
INFORMATIONAL: The UPS has returned from a low battery condition.
WARNING: The UPS has been turned 'off' by the management station.
WARNING: The UPS is entering 'sleep' mode. Power to the load will be cut off.
INFORMATIONAL: The UPS has returned from 'sleep' mode.
WARNING: The UPS has started its reboot sequence.
WARNING: The dip switch settings on the UPS have been changed, possibly altering UPS performance.
SEVERE: The batteries of the UPS need immediate replacement.
SEVERE: One of the contacts on the Environmental Monitor has changed from its default position.
INFORMATIONAL: A fault on one of the Environmental Monitor contacts has been resolved.
SEVERE: UPS on bypass due to internal fault
WARNING: UPS on bypass - user set via software or panel
WARNING: UPS on bypass - initiated by user
INFORMATIONAL: UPS has returned from bypass
SEVERE: Base module bypass power supply needs repair
SEVERE: Base module fan needs repair
SEVERE: Check installation of external battery packs signal cable
INFORMATIONAL: UPS is communicating with the external battery packs.
INFORMATIONAL: A battery calibration test has been initiated on the UPS.
INFORMATIONAL: Agent restarting as commanded by manager.
INFORMATIONAL: A UPS is turned on.
WARNING: The UPS is reducing the line voltage via SmartTrim(TM).
INFORMATIONAL: Authentication on agent code image is done.
INFORMATIONAL: The overload condition has been cleared.
INFORMATIONAL: The UPS has returned from SmartBoost(TM).
INFORMATIONAL: The UPS has returned from SmartTrim(TM).
INFORMATIONAL: A bad battery fault has been cleared.
INFORMATIONAL: The UPS has finished calibrating.

UPS SNMP Trap Rule
INFORMATIONAL: A UPS discharge condition has been cleared.
INFORMATIONAL: A graceful shutdown has been initiated.
WARNING: The output voltage is not within acceptable range.
INFORMATIONAL: The output voltage has returned to an acceptable level.
WARNING: The battery charger has failed.
INFORMATIONAL: The battery charger failure condition has been cleared.
WARNING: The battery temperature threshold has been violated.
INFORMATIONAL: The battery over temperature has been cleared.
WARNING: SmartBoost (TM) or SmartTrim (TM) relay fault.
INFORMATIONAL: SmartBoost(TM) or SmartTrim(TM) relay fault has been cleared.
SEVERE: Probe 1 humidity threshold violated. The first variable is the current humidity.
INFORMATIONAL: An Environmental Monitor humidity threshold violation has been cleared on probe 1.
SEVERE: An Environmental Monitor temperature threshold has been violated on probe 1.
INFORMATIONAL: An Environmental Monitor temperature threshold violation has been cleared on probe 1.
SEVERE: An Environmental Monitor humidity threshold has been violated on probe 2.
INFORMATIONAL: An Environmental Monitor humidity threshold violation has been cleared on probe 2.
SEVERE: An Environmental Monitor temperature threshold has been violated on probe 2.
INFORMATIONAL: An Environmental Monitor temperature threshold violation has been cleared on probe 2.
INFORMATIONAL: The specified Outlet Group turned on.
WARNING: The specified Outlet Group turned off.
WARNING: The internal over temperature condition exists.
INFORMATIONAL: The internal over temperature condition cleared.
INFORMATIONAL: The MPU has been reset.
INFORMATIONAL: The Output Switch is closed.
INFORMATIONAL: The Output Switch is open.
INFORMATIONAL: A calibration value in the stack was changed.
WARNING: The battery temperature sensor fault exists.
INFORMATIONAL: The battery temperature sensor fault cleared.
WARNING: A battery bus soft start fault exists.
INFORMATIONAL: A battery bus soft start fault exists cleared.
WARNING: A PFC fault exists.
INFORMATIONAL: The PFC fault cleared.
WARNING: The inverter fault exists.
INFORMATIONAL: The inverter fault cleared.
WARNING: The backfeed relay (or its driver) has a fault.
WARNING: The backfeed relay (or its driver) has a fault cleared.
WARNING: A bypass relay (or its driver) has a fault.
WARNING: A bypass relay (or its driver) has a fault cleared.
SEVERE: An internal UPS communication fault exists.
INFORMATIONAL: An internal UPS communication fault no longer exists.
WARNING: The specified Outlet Group command has been issued.
SEVERE: Communication to the UPS when the UPS is on Battery.
SEVERE: A UPS critical condition was detected.

UPS SNMP Trap Rule
INFORMATIONAL: A UPS critical condition has been cleared.
WARNING: A UPS warning condition has been detected.
WARNING: A UPS warning condition has been cleared.
INFORMATIONAL: A UPS informational condition has been detected.
INFORMATIONAL: A UPS informational condition has been cleared.
WARNING: Updating UPS firmware.
INFORMATIONAL: Finished updating UPS firmware.
INFORMATIONAL: UPS firmware update succeeded.
WARNING: UPS firmware update failed.
SEVERE: UPS has no valid firmware.
INFORMATIONAL: UPS now has a valid firmware.
WARNING: A local display button fault exists.
INFORMATIONAL: A local display button fault no longer exists.
SEVERE: UPS needs factory setup.
INFORMATIONAL: UPS no longer needs factory setup.
SEVERE: Emergency Power Off (EPO) active.
INFORMATIONAL: Emergency Power Off (EPO) now inactive.
SEVERE: A firmware mismatch error exists.
INFORMATIONAL: A firmware mismatch error no longer exists.
SEVERE: An oscillator error exists.
INFORMATIONAL: An oscillator error no longer exists.
SEVERE: The UPS is on battery due to an error.
INFORMATIONAL: The UPS is no longer on battery due to an error.
INFORMATIONAL: Trap used to test SNMP trap functionality.

6.4. Using SNMP traps

SCUtils Monitoring APC UPS v2.0 supports monitoring with SNMP traps.

Please make sure that SNMP Trap service is not running on the management servers belong to resource pools used for network monitoring.

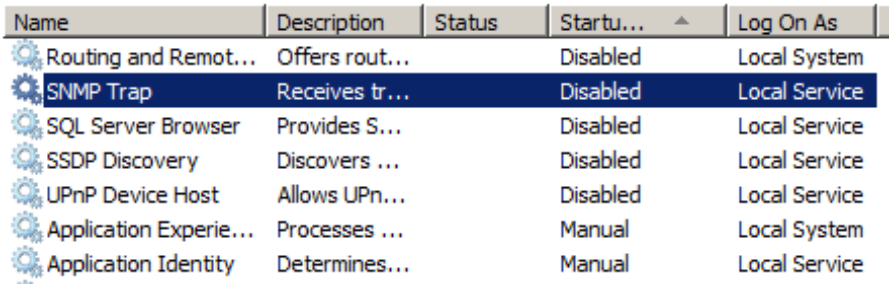

Fig. 2 Inactive SNMP Trap service

Then set up APC UPS devices to send SNMP traps to specific events using **IP address** or **hostname** of the **management server** from the network monitoring resource pool.

Specify **SNMP v1**, if required**.**

Specify the **same community string** as in a discovery rule for that APC UPS device.

Please refer to manuals of your APC UPS device or SNMP/web network management card for details.

The management pack contains of 100 rules for traps. For each rule you can specify your own **Priority** and **Severity** level using **overrides**. Please refer to the Operations Manager guide to details.

The name of trap alert rule starts with 'UPS Alert trap Rule'.

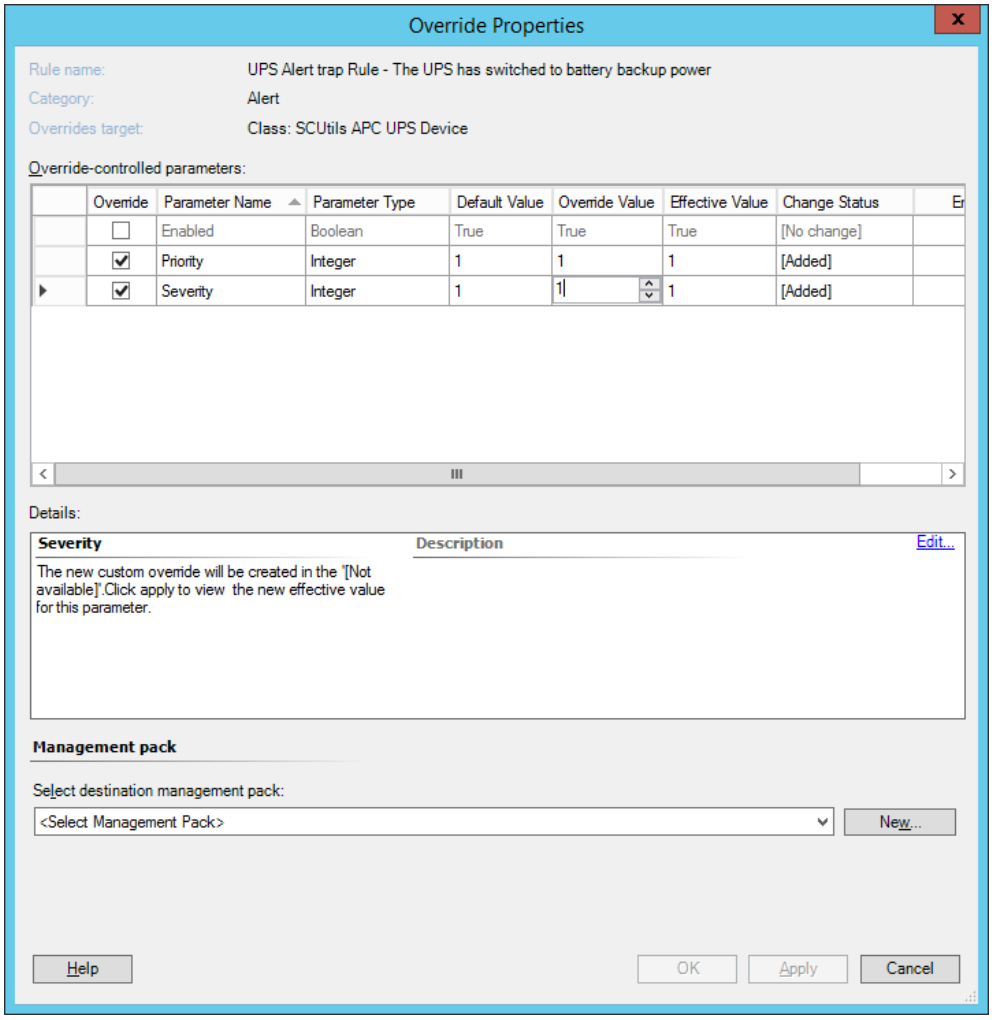

Fig. 3 Overriding Priority and Severity.

Severity defines the alert severity and can be one of the following values:

- 0 - Information
- 1 - Warning
- 2 – Critical

Priority defines the alert priority and the mapping, and it can be one of the following values:

- 0 - Low
- 1 - Medium
- 2 – High

6.5. Reports

SCUtils Monitoring APC UPS includes 11 reports available in the Reporting workspace.

7. Known issues and troubleshooting

Here we describe the known issues. If you haven't found a solution in this section, please contact us at support@scutils.com.

7.1. Errors and warning during a discovery process

During the first discovery you may see some of these errors and warnings being logged on the SCOM Management Servers:

Initialization of a module of type "SnmpAsyncProbe" (CLSID "{2B72C326-CDBB-421A-ACC3-A1994DBD34BB}") failed with error code Unspecified error causing the rule "SCUtils.APC.UPS.Input.Phase.Rule.UPSInputPower" running for instance "Phase-1 on APCUPS1" with id:"{9A8FF3D5-B24F-CE64-0BAD-56A5DTRE3DE71}" in management group "SCOM2012".

These errors and warnings may be safely ignored.