

APC Managed Services Integration Kit

APC Smart-UPS® and SolarWinds N-able N-central RMM Integration

Installation and Configuration Guide

990-5762A

12/2016



Schneider Electric IT Corporation Legal Disclaimer

The information presented in this manual is not warranted by the Schneider Electric IT Corporation to be authoritative, error free, or complete. This publication is not meant to be a substitute for a detailed operational and site specific development plan. Therefore, Schneider Electric IT Corporation assumes no liability for damages, violations of codes, improper installation, system failures, or any other problems that could arise based on the use of this Publication.

The information contained in this Publication is provided as is and has been prepared solely for the purpose of evaluating data center design and construction. This Publication has been compiled in good faith by Schneider Electric IT Corporation. However, no representation is made or warranty given, either express or implied, as to the completeness or accuracy of the information this Publication contains.

IN NO EVENT SHALL SCHNEIDER ELECTRIC IT CORPORATION, OR ANY PARENT, AFFILIATE OR SUBSIDIARY COMPANY OF SCHNEIDER ELECTRIC IT CORPORATION OR THEIR RESPECTIVE OFFICERS, DIRECTORS, OR EMPLOYEES BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL, OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS, CONTRACT, REVENUE, DATA, INFORMATION, OR BUSINESS INTERRUPTION) RESULTING FROM, ARISING OUT, OR IN CONNECTION WITH THE USE OF, OR INABILITY TO USE THIS PUBLICATION OR THE CONTENT, EVEN IF SCHNEIDER ELECTRIC IT CORPORATION HAS BEEN EXPRESSLY ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SCHNEIDER ELECTRIC IT CORPORATION RESERVES THE RIGHT TO MAKE CHANGES OR UPDATES WITH RESPECT TO OR IN THE CONTENT OF THE PUBLICATION OR THE FORMAT THEREOF AT ANY TIME WITHOUT NOTICE.

Copyright, intellectual, and all other proprietary rights in the content (including but not limited to software, audio, video, text, and photographs) rests with Schneider Electric IT Corporation or its licensors. All rights in the content not expressly granted herein are reserved. No rights of any kind are licensed or assigned or shall otherwise pass to persons accessing this information.

This Publication shall not be for resale in whole or in part.

Table of Contents

Preliminary Information	1
Introduction	1
System Requirements	1
Supported Devices	1
Related Documents	1
Terminology	1
Prerequisite Set Up and Discovery Process	2
Set up Customer and Site	2
Download Agent and Probe	2
Configure the Network Management Card SNMP Settings	2
N-central Discovery Process	4
Add devices	4
Configuring SNMP Settings per Device	5
SNMP Custom Services.....	6
Overview	6
Inventory	6
Object Identifiers (OIDs)	7
Installation	8
Prerequisites	8
Importing SNMP Custom Services to N-central.....	8
Importing SNMP Service Templates to N-central	8
Assigning Custom Service and Service Templates to Network Devices.....	9
Assigning Service Templates to Network Devices	9
Assigning Custom Services to Network Devices	9
Filters and Dashboards	10
Create a Filter	10
Create a Dashboard	11
View SNMP Data	11
Modify Custom Service Thresholds	11
Modify Polling Thresholds	11
Reapply Custom Services	12
Rules and Notifications	12
Create a Rule	12
Configuring Notifications	12

Preliminary Information

Introduction

APC Managed Services Integration Kits provide advanced SNMP monitoring of APC Smart-UPS® with Remote Monitoring and Management (RMM) solutions, using integrated SNMP Custom Services. This document details the process to configure SNMP polling for APC Smart-UPS, using the SolarWinds N-able N-central Remote Monitoring and Management (RMM) solution. The SNMP Object Identifiers (OIDs) detailed allow Managed Service Providers to monitor APC Smart-UPS with a Network Management Card (NMC) AP9630, AP9631 or AP9635 installed.

System Requirements

To configure N-central for SNMP Monitoring of APC Smart-UPS, the following configuration is required:

- SolarWinds N-able N-central version 10 or higher.
 - See the **N-able** website www.n-able.com for specific operating system requirements.
 - For N-central technical support, visit www.n-able.com/support
- APC Smart-UPS with an NMC 2 installed. See “Supported Devices”.
- SNMPv1 and SNMPv3 are supported.

Supported Devices

Advanced SNMP monitoring of APC Smart-UPS with N-central RMM using integrated SNMP Custom Services is available for APC Smart-UPS with a Network Management Card 2 installed (AP9630, AP9631 and AP9635).

Related Documents

The APC by Schneider Electric website, www.apc.com, includes the following UPS Network Management Card documentation:

- **Network Management Card 2 Installation Guide**, for AP9630, AP9631, and AP9635. See the NMC 2 Installation Guide for detailed instructions on the installation and configuration of the Network Management card for APC Smart-UPS.
- **Network Management Card 2 User Guide**, for AP9630, AP9631, and AP9635. See the NMC 2 User Guide for detailed network and SNMP configuration of the Network Management Card 2.

Terminology

Custom Service

A collection of OID queries, index values and data descriptions (metrics) that can be assigned to one or more SNMP-enabled devices.

Service Template

A group of Custom Services that are applied manually or automatically, to standardize the monitoring of a network device.

Agent

N-central Agents monitor the devices on which they have been installed and report data about the device to the N-central server. Devices that cannot have an Agent installed (e.g. UPS, printers, routers, switches) rely on Probes.

Probe

A Probe is a Windows application that resides on a system within a network that provides network discovery, monitoring and management services for devices on the network, using standard protocols such as SNMP.

Prerequisite Set Up and Discovery Process

To begin the configuration of N-central for SNMP monitoring of APC Smart-UPS, log in to N-able N-central using the **Login Name** and **Password** created during the installation of N-central.

Set up Customer and Site

1. Go to **Actions > Add Customer**
2. Enter the **Customer Name** of the network to be monitored.
3. Select the **License Type** purchased from N-central. All other fields can be left blank.
4. Click **Save and Continue**.
5. Go to **Actions > Add Site**
6. Enter the Customer Name entered in step 2.
7. Select the **License Type** purchased from N-central. All other fields can be left blank.
8. Click **Save and Continue**.

Download Agent and Probe

1. Go to **Actions > Download Agent/Probe**
2. Select the **Customer/Site**
3. Click on the **Windows Agent**. Download it and install it on the computer that is to serve as an N-central Agent.
4. Click on the **Windows Probe**. Download it and install it on the computer that is to serve as an N-central Probe.

Configure the Network Management Card SNMP Settings

All Network Management Cards installed in APC Smart-UPS present on the network must be configured to communicate via SNMP in order to be discovered by the N-central Agent. N-central can communicate via SNMPv1 and SNMPv3.

For each Network Management Card on the network, open the **NMC Web interface** in a web browser.

SNMPv1 Configuration

To confirm that SNMPv1 is enabled, go to **Configuration > Network > SNMPv1 > Access** and check that the **Enable** checkbox is selected. SNMPv1 is enabled by default.

SNMPv3 Configuration

1. Go to **Configuration > Network > SNMPv3 > Access** and select the **Enable** checkbox, and click **Apply**. To reboot the management interface for the change to take effect, go to **Control > Network > Reset/Reboot** and **Reboot the Management Interface**.
2. To set up an SNMPv3 User Profile that the NMC uses to communicate with N-central, go to **Configuration > Network > SNMPv3 > User Profiles**. Click on the name of a default user profile (e.g. `apc snmp profile1`). Enter:
 - a. **User Name:** The User Name of the SNMP profile, which is used in the SNMP settings of the N-central Discovery process.
 - b. **Authentication Passphrase:** A phrase of 15 to 32 ASCII characters (`apc auth passphrase` by default) used to verify the Authentication protocol.
 - c. **Authentication Protocol:** Select either SHA or MD5 as the method of authentication.
 - d. **Privacy Passphrase:** A phrase of 15 to 32 ASCII characters (`apc crypt passphrase` by default) used to verify the privacy protocol.
 - e. **Privacy Protocol:** Select either AES or DES as the method of encryption.

Be sure to enter all of the Authentication and Privacy details, as they are required for SNMPv3 communication with N-central. Click **Apply** to save the configuration.
3. To specify that N-central has access via SNMPv3 to the NMC, go to **Configuration > Network > SNMPv3 > Access Control**
 - a. Click on the User Profile **User Name** to edit the Access Control.
 - b. Select the **Enable** checkbox.
 - c. Select the **User Name** created in step 2 from the drop-down list.
 - d. For **NMS IP/Host Name**, enter the IP address of the N-central **Probe**. See “Download Agent and Probe” on page 2.
 - e. Click **Apply** to save the configuration.

N-central Discovery Process

Once each NMC on the network has been configured for SNMP communication, a discovery process can be initiated in N-central to discover all of the SNMP-enabled devices. To begin the discovery process:

1. In the N-central user interface, go to **Actions > Run a Discovery**
2. On the **Devices to Discover** tab:
 - a. Select the **Customer/Site** and **Probe** from the dropdown lists, as created in “Set up Customer and Site” and “Download Agent and Probe” on page 2.
 - b. Enter an **IP Range** within which you expect to find SNMP-enabled devices.
3. On the SNMP Settings tab, click the **Add SNMP Credential** button and select SNMPv1 or SNMPv3.
 - a. If SNMPv1 is selected, enter a **Profile Name**, **Port** and **Community String**. The Community string should match the Community Name used in the NMC “SNMPv1 Configuration”
 - b. If SNMPv3 is selected:
 - Enter a **Profile Name** and **Port**.
 - Enter **Authorization Username**, matching the User Name of the NMC User Profile used in the NMC “SNMPv3 Configuration”.
 - Enter the SNMP V3 **Authentication Protocol Method** and **Password**, matching the Authentication Protocol and Authentication Passphrase used in the NMC “SNMPv3 Configuration”.
 - Enter the SNMP V3 Encryption **Privacy Protocol Method** and **Password**, matching the Privacy Protocol and Privacy Passphrase used in the NMC “SNMPv3 Configuration”.

NOTE: If AES Privacy Protocol was selected in the NMC, you must select **AES 128** in N-central SNMP discovery settings.
 - c. Enter a **Timeout** value, which is the amount of time (in milliseconds) permitted before the connection is considered unsuccessful.
 - d. Enter the **Number of Retries** which is the maximum number of times that the Probe attempts the SNMP query.
4. All other discovery settings can remain at default values. Click **Finish** (or press ENTER on your keyboard) to run the discovery process.

Add devices

Once the discovery process has completed, to add the discovered SNMP-enabled devices to the N-central inventory, go to **Actions > Add/Import Devices**.

1. Click on the **Discovered Assets** button. A list of SNMP-enabled devices found during the discovery process is displayed.
2. Select the checkbox beside the UPS device(s) and click **Import**.
3. To complete the import, click **Finish**.
4. On the left navigation, go to **Views > All Devices** to view the imported devices.

Configuring SNMP Settings per Device

You can change SNMP settings from SNMPv1 to SNMPv3 on a per-device basis. To configure SNMP settings per device:

1. Go to **Dashboards > Device – Network Devices**
2. Select the device to be configured.
3. Select **Settings > Monitoring Options > SNMP Settings**

Update the SNMP settings as desired, matching NMC values as detailed in “N-central Discovery Process” on page 4.

SNMP Custom Services

Overview

The SNMP Custom Services for APC Smart-UPS and N-central are available for download from the **APC by Schneider Electric** website, www.apc.com.

Inventory

The self-extracting executable contains six XML Custom Services and one `.zip` Service Template file:

- **APC Smart UPS – About**
The About Custom Service provides information about the UPS such as Model, Part Number, Serial Number, and Manufacture Date. See “SNMP About Information” on page 7.
- **APC Smart UPS – Config**
The Config Custom Service provides information about the configuration of the UPS, such as Self Test Interval and Voltage Transfer points. See “SNMP Configuration Information” on page 7.
- **APC Smart UPS Battery SKU**
The Battery SKU Custom Service provides information about the SKU of the batteries contained within the UPS. See “APC Smart-UPS Battery SKU” on page 7. **NOTE:** This information is not available for all Smart-UPS models.
- **APC Smart UPS Audible Alarm Information**
The Audible Alarm Information Custom Service provides information about the audible alarm of the UPS. See “APC Smart-UPS Audible Alarm Information” on page 7. **NOTE:** This information is not available for all Smart-UPS models.
- **APC Smart UPS Next Battery Replacement**
The Next Battery Replacement Custom Service provides the date it is recommended to replace the battery. See “APC Smart-UPS Next Battery Replacement” on page 7. **NOTE:** This information is not available for all Smart-UPS models.
- **APC Smart UPS – Status**
The Status Custom Service provides information about the status of the UPS, such as Battery Charged Percentage, Load, Battery Voltage, and Battery Temperature. See “SNMP Status Information” on page 7.
- **Service Template Get Export**
This `.zip` file contains the Service Template for APC Smart-UPS Polling. Custom Services that provide polling information (including About, Config, and Status) are included in this Service Template, to provide a standard method of SNMP polling many network devices, manually or automatically.

Object Identifiers (OIDs)

The table below lists the OID names made available in each Custom Service file. They provide APC Smart-UPS status and configuration information for SNMP polling.

Note: Some of the Custom Services listed below contain OIDs that are not supported by all APC Smart-UPS models. If a Custom Service contains an OID that is not supported, all other OIDs contained in the custom service may not be successfully polled for SNMP data by N-central:



- If an OID is not supported by the device being polled, it will be displayed in the Active Issues View. Refer to the N-central help for more information on the **Active Issues View**.

- Removing an unsupported OID from a Custom Service allows all other OIDs in the custom service to be successfully polled. Refer to the N-central help for more information on **Editing a Custom Service** to remove an unsupported OID.

SNMP About Information

- upsBasicIdentModel
- upsAdvIdentSkuNumber
- upsAdvIdentSerialNumber
- upsAdvIdentDateOfManufacture
- upsBasicBatteryLastReplaceDate
- upsAdvIdentFirmwareRevision

SNMP Configuration Information

- upsAdvTestDiagnosticSchedule
- upsAdvConfigLowTransferVolt
- upsAdvConfigHighTransferVolt
- upsAdvConfigLowBatteryRunTime
- upsBasicStateOutputState

APC Smart-UPS Audible Alarm Information

NOTE: These OIDs are not supported by all Smart-UPS models.

- upsAdvConfigAlarm
- upsAdvConfigAlarmTimer

APC Smart-UPS Battery SKU

NOTE: These OIDs are not supported by all Smart-UPS models.

- upsAdvBatteryInternalSKU
- upsAdvBatteryExternalSKU

APC Smart-UPS Next Battery Replacement

NOTE: This OID is not supported by all Smart-UPS models.

- upsAdvBatteryRecommendedReplaceDate

SNMP Status Information

- upsBasicStateOutputState
- upsHighPrecOutputLoad
- upsHighPrecBatteryCapacity
- upsAdvBatteryRunTimeRemaining
- upsHighPrecOutputCurrent
- upsHighPrecBatteryTemperature
- upsHighPrecOutputEfficiency
- upsHighPrecOutputEnergyUsage
- upsHighPrecBatteryActualVoltage
- upsHighPrecInputLineVoltage
- upsHighPrecInputFrequency
- upsHighPrecOutputVoltage
- upsHighPrecOutputFrequency
- upsAdvInputLineFailCause
- upsAdvTestDiagnosticsResults
- upsAdvStateAbnormalConditions

Installation

Prerequisites

In advance of installing Custom Services and Service templates in N-central, make sure that the following steps are complete:

1. A Customer/Site has been set up in N-central. See “Set up Customer and Site” on page 2.
2. The N-central **Agent** and **Probe** have been installed. See “Download Agent and Probe” on page 2.
3. Each Network Management Card on the network has been configured for SNMP. See “Configure the Network Management Card SNMP Settings” on page 2.
4. The N-central Discovery process is complete, and SNMP-enabled devices have been found on the network and imported into the N-central Device inventory. “N-central Discovery Process” and “Add devices” on page 4.
5. The SNMP Custom Service files have been downloaded from the APC website. See “SNMP Custom Services” on page 6.

There are four steps in the process to add SNMP monitoring for APC Smart-UPS to N-central RMM:

1. Import the SNMP Polling Custom Services and Service Templates to N-central. See “Importing SNMP Custom Services to N-central”.
2. Assign the SNMP Custom Services and Service Templates to APC Smart-UPS devices on the network. See “Assigning Service Templates to Network Devices” and “Assigning Custom Services to Network Devices” on page 9
3. Create a Dashboard to view APC Smart-UPS devices and the Custom Services assigned to them. See “Create a Filter” and “Create a Dashboard” on page 11.
4. Add thresholds to the SNMP Polling Custom Services. See “Modify Polling Thresholds” on page 11.

Importing SNMP Custom Services to N-central

1. Download the SNMP Custom Services and Service Templates for APC Smart-UPS from www.apc.com. Save the files to your computer.
2. In N-central, go to **Administration > Service Management > Custom Services**
3. Click on the **Import** button and **Browse** to the location the Custom Service XML files are saved. Select the first Custom Service and click **Open**. Click on the **Import Custom Service** button.
4. Repeat steps 1–3 to import all Custom Service files.
5. To verify that the Custom Services has been imported successfully, go to **Administration > Service Management > Custom Services** to view the list of imported custom services.

Importing SNMP Service Templates to N-central

1. In the N-central user interface, go to **Administration > Service Management > Service Templates**
2. Click on the **Import** button and **Browse** to the location of the Service Template files.
3. Select a Service Template file and click **Open**. Click on the **Import Service Template** button.
4. To verify successful import of the Service Template, go to **Administration > Service Management > Service Templates** to view the list of imported Service Templates.

Assigning Custom Service and Service Templates to Network Devices

Assigning Service Templates to Network Devices

Assign APC Service Templates to network devices for automatic monitoring of APC Smart-UPS with all custom services.

1. Go to **Dashboards > Device – Network Devices** and select the APC Smart-UPS device to which you want to apply the Service Template.
2. On the **Device Details** page, select the **Monitoring tab > Service Templates**
3. Click **Apply New Service Template**.
4. Select the **APC Smart-UPS Polling** Service Template from the list, and click **OK**.
5. A Service Template Application Report is generated to verify the successful assignment of the Service Templates to the device.
6. To prompt N-central to immediately begin gathering the information required by the Service Template, on the **Device Details** page, click **Add Task > Update Asset Info**.
7. Repeat steps 1–6 for each Smart-UPS device on your network.

Assigning Custom Services to Network Devices

Custom Services can be assigned individually to a network device. Use this method when assigning a Service Template does not meet your needs; for example, to assign a specific, single custom service to a device.

1. Go to **Dashboards > Device – Network Devices** and select the APC Smart-UPS device to which you want to apply the individual Custom Service.
2. On the **Device Details** page, select **Monitoring tab > Status tab > Add**
3. On the Service Settings page:
 - a. Select the **N-central Probe** from the **Monitoring Appliance** dropdown list.
 - b. Select the Custom Service you wish to apply to the device, and increase the **Instances** field to 1.
NOTE: Multiple Custom Services can be added by increasing the **Instances** field of each desired Custom Service to 1.
 - c. Click **Apply** to add the Custom Service to the device.
4. To prompt N-central to immediately begin gathering the information required by the Custom Service, on the **Device Details** page, click **Add Task > Update Asset Info**
5. Repeat steps 1–4 for each APC Smart-UPS on the network.

Filters and Dashboards

Create a Filter

Filters can be used to define the set of APC devices available on your network, in order to configure how they are displayed in the N-Central user interface, and how N-central can apply **Rules** to those devices.

To create a filter for APC devices on your network:

1. In the N-central user interface, go to **Configuration > Filters**
2. Click **Add** to create a new custom filter.
 - a. Enter a descriptive **Filter Name**, e.g. "APC Devices"
 - b. Enter a filter **Description**
 - c. Select **Show in my Drop-Down**
 - d. For the dropdown **Find devices where**, enter:

Networking	NIC MAC	Contains	00:C0:B7
	Address		

NOTE: The first six characters of the MAC address can also be found in the user interface of the NMC. Go to **About > Network** and the MAC Address is displayed.

NOTE: The MAC address filter will display not only APC Smart-UPS devices, but all APC devices on the network.

- e. To verify the criteria, click **Preview** to see the devices discovered.
- f. Click **Save**. The new filter displays in the list of filters.

Create a Dashboard

You can create a dashboard to view the status of the APC devices on your network, based on the APC filter created in “Create a Filter” on page 10.

1. Go to **Dashboards > Manage Dashboards**
2. Click **Add** to create a new dashboard. Enter:
 - a. Type: Public
 - b. Enter a descriptive **Name** for the dashboard, e.g. “APC Devices”.
 - c. Enter a description for the dashboard.
 - d. On the **Devices to Target** tab, select the filter created in “Create a Filter” above.
 - e. On the **Monitoring Options** tab, select the Custom Services that you want to include in the dashboard view for APC devices. For example, you can select all polling custom services to view the full suite of information about APC Smart-UPS in the dashboard at once.
 - f. Click **Save**
3. To view the dashboard, go to **Dashboards > APC Devices**
NOTE: Status indicators shown for custom services and devices are related to the thresholds set for each custom service. See “Modify Polling Thresholds” on page 11.

View SNMP Data

1. Go to **Dashboards > APC Devices** created in “Create a Dashboard” on page 11, and select an APC Smart-UPS device to view its SNMP data.
2. On the Device Details page, select **Monitoring > Status**
3. Click on the Custom Service of interest; the **Status Details** page is displayed:
 - a. The Object Identifier (OID) **Description** and **Value** displays along with any **State** and **Threshold** information applicable.
 - b. For further detail on OID descriptions, a link is provided to a third-party website which provides more information on the OID.

Modify Custom Service Thresholds

Modify Polling Thresholds

You can modify the thresholds of Polling Custom Services to define a specific range of Normal, Warning and Failure states for each Custom Service.

1. Go to **Administration > Service Management > Custom Services**
2. Select the Custom Service for which you want to set thresholds.
3. Select the **Data and Thresholds** tab, select a metric and click **Configure Thresholds**.
4. Change the threshold levels for the metric, and click **Save**.
NOTE: Once the threshold of a Custom Service is changed, the Custom Service must be reapplied. See “Reapply Custom Services” on page 12.

Reapply Custom Services

Once a Custom Service has been changed, for example by modifying thresholds, the Custom Service must be reapplied to the Service Template:

1. Go to **Configuration > Monitoring > Service Templates**
2. Select the Service Template that contains the Custom Service that has changed.
3. On the **Details tab**, select the checkbox beside the Custom Service that has changed, and click the **Delete** button.
4. From the **Service** dropdown list, select the Custom Service deleted in step 3, and click the **Add Service** button. Click **Save**.
5. To reapply the Service Template to the associated site, go to the **Associated Devices** tab, select the **Site/Device**, and click **Save and Re-Apply Service Template**.

Rules and Notifications

Create a Rule

Rules allow you to automate notifications for a set of devices defined by a filter. To create a rule:

1. Go to **Configuration > Monitoring > Rules**
2. Click **Add** to create a new rule.
3. Enter **Type**: Public.
4. Enter a descriptive **Name** for the rule.
5. Enter a **Description** of the rule.
6. On the **Devices to Target** tab, select the filter created in "Create a Filter" on page 10.
7. On the **Grant Customer & Sites Access** tab, select **Propagate** to all new customers/sites to automatically propagate the new rule to all new customers and sites added. Also, select the **Customer/Site** to which the rule applies.
8. All other tabs can remain at default values. Click **Save**.

Configuring Notifications

Notifications can be configured to alert you of SNMP Polling threshold violations for APC Smart-UPS devices.

NOTE: A notification cannot be added until a notification method is set up for an account. To set up a notification method, edit the account profile. See the N-central online help for more information on account profile configuration.

Prerequisites: To create a notification, make sure to **Create a Rule** to define the set of APC devices to monitor, and **Create a Rule** to automate the notifications for that set of devices.

To create a notification:

1. Go to **Configuration > Monitoring > Notifications**
2. Click **Add Notification**
3. Enter a descriptive **Name**, for example “*APC Smart-UPS notifications - Status*”, and select the **Profile Type**:
 - a. **Single Device, Single Service Notifications**: sends an individual notification for each device/ service combination in the profile that has triggered the notification.
 - b. **Single Device, Multiple Service Notifications**: sends a notification for each device, listing the services for the triggered state.
 - c. **Multiple Device, Single Service Notifications**: sends a notification for each service, listing the devices in the triggered state. This setting is recommended for notifications of SNMP events for all devices.
4. For **Primary Notification, First Escalation** and **Second Escalation**, enter:
 - a. **Delay**: the elapsed time after which a notification must be sent if the state is still true. This prevents notifications being sent for short-term threshold spikes.
 - b. **Recipients**: configured recipients who receive the notification.
 - c. **Repeat Every**: the time interval between each notification.
5. If you want an acknowledgment sent to all escalation levels, select the **Acknowledgment Settings** checkbox.
6. Click **Save and Continue**.
7. On the **Edit Notification > Trigger Details** tab, click **Add**.
8. To define a trigger:
 - a. Specify a descriptive **Trigger Name**.
 - b. To receive an alert when the trigger returns to the state defined as normal, select **Notify on Return to Normal**.
 - c. Select the **State** of the services to which you would like to apply the notification.
 - d. For the **Trigger the Notification on:** field, select **Service changes State**
9. In the **Services** field, select the custom services for which you want to be notified. Under **Apply the Notification to the Selected Devices**, select the **Rule** that defines the set of devices on which the notification is raised, e.g. “APC Smart-UPS”. See “Create a Rule” on page 12.
10. Click **OK** to save the trigger.

APC by Schneider Electric Worldwide Customer Support

Customer support for this or any other APC by Schneider Electric product is available at no charge in any of the following ways:

- Visit the APC by Schneider Electric web site, www.apc.com to access documents in the APC Knowledge Base and to submit customer support requests.
 - **www.apc.com** (Corporate Headquarters)
Connect to localized APC by Schneider Electric web site for specific countries, each of which provides customer support information.
 - **www.apc.com/support/**
Global support searching APC Knowledge Base and using e-support.
- Contact the APC by Schneider Electric Customer Support Center by telephone or e-mail.
 - Local, country specific centers: go to **www.apc.com/support/contact** for contact information.
 - For information on how to obtain local customer support, contact the APC by Schneider Electric representative or other distributor from whom you purchased your APC by Schneider Electric product.

© 2016 APC by Schneider Electric. APC, the APC logo, and APC Smart-UPS are owned by Schneider Electric Industries S.A.S., or their affiliated companies. All other trademarks are property of their respective owners.