

Virtualización

Instalación y Configuración Agente UPS APC para Vmware ESX.doc

Breve descripción del documento			
Virtualización – Instalación y configuración Agente UPS APC para Vmware ESX.doc			
Entorno Virtualización	Versión 1.0	Fecha 06/01/10	Nº total de páginas
Observaciones			

Histórico de modificaciones:

Versión	Fecha	Modificaciones
1.0	06/01/10	Original – Santiago González

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1. OBJETIVOS

En el presente documento intentaremos indicar paso a paso la instalación y configuración del agente de APC para su aplicación en entornos virtualizados.

2. SOLUCION

Se define una solución para el problema de interrupción abrupta de la conexión eléctrica, en el caso particular de un entorno virtualizado con servidores ESX, ya sea versión 3.5, o 4.0.

Para el diseño de esta solución se hará de uso de una UPS APC conectada a la red a través de una tarjeta de red. Al producirse un corte energético, la UPS comenzara a proveer energía al servidor ESX a través de los bancos de baterías. Al producirse este evento, se configurara que la ups envíe una orden al Servidor ESX del apagado ordenado de todas las maquinas virtuales, teniendo para ello 5 Minutos. Si la energía no se restablece pasados 6 minutos, el servidor ESX se apagara ordenadamente. Si antes de los 6 minutos, la energía se restablece, se podrá ordenar a el Servidor encienda maquinas virtuales preestablecidas de antemano.

3. PRE - REQUISITOS

Para la realización de la solución debemos contar con:

Agente UPS APC: PowerChute Network Shutdown (no gratuito)
UPS APC Compatible
Tarjeta de red de UPS
Servidor ESX

4. INSTALACION

Primeramente se deberá configurar la IP en la tarjeta de red de la UPS, a través de su aplicación de control.

Luego introducimos el CD del Agente APC en el servidor y montamos el CD .

```
mount /dev/cdrom /mnt/cdrom
```

Copiamos el contenido de la carpeta ESX del CD a la ubicación tmp

```
cp -r ESX /tmp/
```

Ejecutamos el script de instalación.

```
./install.sh
```

**PowerChute Network Shutdown v.2.2.3 Installation Script
Copyright American Power Conversion Corporation. 2007**

OS=Linux

Initializing ...

Please enter the PCNS instance number [1|2|3] or press enter to use default value of 1:

Ingresamos 1

1 PCNS instance(s) will be installed.

Please enter the installation directory or press enter to install to the default directory (/opt/APC/PowerChute):

Presionamos Enter, dejando la ruta por defecto de la instalación.

Are you sure you want to install PCNS to /opt/APC/PowerChute [Yes|No]?

Ingresamos Yes y presionamos Enter.

Creating /opt/APC directory ...

PCNS will be installed to /opt/APC/PowerChute

Copying the installation files ...

Extracting PCNS files ...

PCNS is extracted to /opt/APC/PowerChute

Please enter java directory if you want to use your system java (example:/usr/local/bin/jre/jre150_13) or press enter to install the bundled Java:

Presionamos Enter

```
Copying jre to /opt/APC/PowerChute/jre ...
Extracting jre to /opt/APC/PowerChute/jre ...

java version "1.5.0_13"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.5.0_13-b05)
Java HotSpot(TM) Client VM (build 1.5.0_13-b05, mixed mode, sharing)

JAVA_DIR=/opt/APC/PowerChute/jre/jre150_13

Configuring startup files ...
Startup script=/etc/rc.d/init.d/PowerChute
Updating Linux symbolic link ...
Configuring uninstall script ...

Completed.
Please run the PCNSConfig.sh script located within the PCNS installation directory to
complete the installation.
```

Instalacion Finalizada.

5. CONFIGURACION

Habilitar el firewall correspondiente a los puertos necesarios para la conexión del agente con la ups.
Para ello ejecutamos los siguientes comandos en la consola del ESX.

```
esxcfg-firewall -o 80,tcp,out, APC-ups
esxcfg-firewall -o 3052,tcp,out, APC-ups
esxcfg-firewall -o 3052,tcp,in, APC-ups
esxcfg-firewall -o 3052,udp,out, APC-ups
esxcfg-firewall -o 3052,udp,in, APC-ups
esxcfg-firewall -o 6547,tcp,out, APC-ups
esxcfg-firewall -o 6547,tcp,in, APC-ups
```

Comprobamos que los puertos han sido abiertos con el comando:

```
esxcfg-firewall -q
```

Para proceder a la configuración ejecutamos el script PCNSConfig.sh en la ruta /opt/APC/PowerChute/group1/

./PCNSConfig.sh

PowerChute Network Shutdown Configuration Utility

Press Ctrl + C at anytime to abort.

Configuring PowerChute Network Shutdown ...

- [1]: Configure for a single APC UPS device
- [2]: Configure for a parallel APC Silicon UPS/Smart-UPS VT system
- [3]: Configure for multiple APC Smart-UPS devices
- [4]: Configure for multiple APC Symmetra devices

Please select the appropriate configuration type (1) [1 - 4]:

Presionamos 1y Enter

Management Card IP:

Ingresamos la IP de la tarjeta de la UPS APC antes configurada.

Por ej.: **192.168.248.50**

Presionamos Enter

Management Card Port # (80):

Presionamos Enter dejando el puerto 80 por defecto

Administrator User Name:

Ingresamos el usuario (por defecto): **apc**

Administrator Password:

Ingresamos el password (por defecto):**apc**

Authentication Phrase:

Ingresamos phrase (por defecto): **admin user phrase**

Setting Summary:

Management Card IP: 192.168.248.50

Management Card Port #: 80

Administrator User Name: apc

Administrator Password: [MASKED]
Authentication Phrase: [MASKED]

Do you wish to register these settings [Yes | No | Abort]?

Ingresamos Yes y presionamos Enter

Registering PowerChute Network Shutdown with the management card ...
PowerChute Network Shutdown registration completed successfully.

Do you wish to start the PowerChute Network Shutdown service [Yes | No]?

Ingresamos Yes y Presionamos Enter

PowerChute Network Shutdown service started.

Configuration completed.

6. CONFIGURACION DEL AGENTE PARA EL APAGADO DEL SERVER Y LAS MV

Detalle del script creado para el apagado de todas las maquinas virtuales y guardado en la ruta /opt/APC/PowerChute

```
#####
#!/bin/sh
#
# vmshutdown.sh
#
# UPS APC SHUTDOWN VIRTUAL MACHINE SCRIPT FOR VMWARE ESX 3.X, 4.0
#
# ENERO 2010 - SANTIAGO GONZALEZ –Fuente varios scripts publicados en webs
#
#####

#####
# set the paths that the vmware tools need
PATH="/usr/local/sbin:/usr/local/bin:/sbin:/bin:/usr/sbin:/usr/bin"

#####

# try do a nice shutdown of VM there is power
count_vm_on=0
for vm in `vmware-cmd -l` ; do
#echo "VM: "$vm
for VMstate in `vmware-cmd "$vm" getstate` ; do
#echo $VMstate

# If the VM is power ON
if [ $VMstate = "on" ] ; then
echo ""
echo "VM: "$vm
```

```

echo "State: is on and will now tell it to shut down"
echo "Shutting down: " $vm
vmware-cmd "$vm" stop trysoft
vmwarecmd_exitcode=$(expr $?)
if [ $vmwarecmd_exitcode -ne 0 ]; then
    echo "exitcode: $vmwarecmd_exitcode so will now turn it off hard"
    vmware-cmd "$vm" stop hard
fi
count_vm_on=$count_vm_on+1
sleep 2
# if the VM is power OFF
elif [ $VMstate = "off" ]; then
    echo ""
    echo "VM: " $vm
    echo "State: is off, so i skip it"
# if the VM is power suspended
elif [ $VMstate = "suspended" ]; then
    echo ""
    echo "VM: " $vm
    echo "State: is suspended, so i skip it"
# if state is getstate or =
else
    printf ""
    #echo "unknown state: " $VMstate
fi

done
done

#####
# wait for up to 5 min for the VM to shutd
#
if [ $count_vm_on = 0 ]; then
    echo ""
    echo "All VM is off or suspended"
else
    echo ""
    vm_time_out=300
    count_vm_on=0
    echo "Waiting for VMware virtual machines."
    for (( second=0; second<$vm_time_out; second=second+5 )); do
        sleep 5
        printf "."
        count_vm_on=0
        for vm in `vmware-cmd -l` ; do
            for VMstate in `vmware-cmd "$vm" getstate` ; do
                if [ $VMstate = "on" ]; then
                    count_vm_on=$((expr $count_vm_on + 1))
                fi
            done
        done
        if [ $count_vm_on = 0 ]; then
            #echo "exit for"
            break
        fi
    done
    #echo $VMstate
fi
#echo $count_vm_on
#####


```

```

# checking if all the VM are off and if not then turn them off
for vm in `vmware-cmd -l` ; do
    #echo "VM: " $vm
    for VMstate in `vmware-cmd "$vm" getstate` ; do
        # If the VM is power ON
        if [ $VMstate = "on" ] ; then
            echo " "
            echo "Found this VM: " $vm
            echo "it is still on but now i will turn it off"
            vmware-cmd "$vm" stop hard
            sleep 2
        fi
    done
done
#Fin

```

Detalle del script creado para el encendido de una maquina en particular guardado en la ruta /opt/APC/PowerChute

```

#####
#!/bin/sh
#
# vmpoweron.sh
#
# UPS APC POWER-ON VIRTUAL MACHINE SCRIPT FOR VMWARE ESX 3.X, 4.0
#
# ENERO 2010 - SANTIAGO GONZALEZ
#
# CAMBIAR EL NOMBRE DE MAQUINA A ENCENDER AGREGANDO UNA LINEA IGUAL POR CADA UNA
#
#####
# Encendiendo maquina virtual SRVZLPOCS002
echo "Encendiendo Maquina Virtual SRVZLPOCS002"

vmware-cmd start SRVZLPOCS002

#Fin

```

Asegurarse que los permisos de ejecución sean dados para los dos scripts con el comando:

```

chmod 777 vmpoweron.sh
chmod 777 vmshutdown.sh

```

Para proceder a la configuración del agente procedemos a ingresar en la interfaz web proporcionada por el agente en la dirección <https://ipdelserver:6547>

Ingresamos usuario y password, por defecto
User name: apc
Pasword. Apc

Presionamos Login

Seleccionamos Configure Events

Seleccionamos UPS: On Battery Notify Users

Date	Time	Event
01/06/2010	19:50:29	Communication has been established
01/06/2010	19:50:19	PowerChute Network Shutdown version 2.2.3 started
Communication: Lost while on Battery		
Communication: Management Card cannot communicate with the UPS		
Communication: PowerChute cannot communicate with the Management Card		
Environment: Contact Zone 1 Alarm		
Environment: Contact Zone 1 Normal		
Environment: Contact Zone 2 Alarm		
Environment: Contact Zone 2 Normal		
Environment: Humidity Probe 1 In Range		
Environment: Humidity Probe 1 Out Of Range		
Environment: Temperature Probe 1 In Range		
Environment: Temperature Probe 1 Out Of Range		
Input Power: Restored		
Runtime: Exceeded		
Runtime: Normal Again		
UPS Overload: Corrected		
UPS: On Battery		
UPS: Overloaded		

PowerChute Network Shutdown - Windows Internet Explorer
https://192.168.248.106:6547/index.html

Google Buscar Sidewiki Corrector ortográfico

Favoritos Sitos sugeridos Escribe lo que deseas buscar

install.htm PowerChute Network Shut... PowerChute Network S...

PowerChute Network Shutdown

ESXLAB02

- View Event Log
- Configure Events**
- Configure Shutdown
- Set Up Communications

UPS Information

Help

Interactive Assistance

APC www.apc.com

Configure User Notification

Do you want to notify a user when the selected event happens?

Yes, I want to notify a user.

Send notification only when the event lasts this long (seconds):

Notify all users

Notify only this user:

Send notification again this often (seconds):

Apply **Reset**

Marcamos Notify a user y presionamos Apply

PowerChute Network Shutdown

ESXLAB02

- View Event Log
- Configure Events**
- Configure Shutdown
- Set Up Communications

UPS Information

Help

Interactive Assistance

Communication: Communication link with UPS	1	2	3	4	5	6	7	8
Communication: Management Card cannot communicate with the UPS	Green							
Communication: PowerChute cannot communicate with the Management Card	Green							
Environment: Contact Zone 1 Alarm	Green							
Environment: Contact Zone 1 Normal	Green							
Environment: Contact Zone 2 Alarm	Green							
Environment: Contact Zone 2 Normal	Green							
Environment: Humidity Probe 1 In Range	Green							
Environment: Humidity Probe 1 Out Of Range	Green							
Environment: Temperature Probe 1 In Range	Green							
Environment: Temperature Probe 1 Out Of Range	Green							
Input Power: Restored	Green							
Runtime: Exceeded	Green							
Runtime: Normal Again	Green							
UPS Overload: Corrected	Green							
UPS: On Battery	Green	Green	Green	Green	Green	Red	Green	Green
UPS: Under Load	Green							

Seleccionamos Run Command File

PowerChute Network Shutdown - Windows Internet Explorer
https://192.168.248.106:6547/index.html

Google Buscar Sidewiki Corrector ortográfico

Favoritos Sitos sugeridos Más complementos

install.htm PowerChute Network Shut... PowerChute Network S...

PowerChute Network Shutdown

ESXLAB02

- View Event Log
- Configure Events**
- Configure Shutdown
- Set Up Communications

UPS Information

Help

Interactive Assistance

APC www.apc.com

Configure Run Command File

Do you want to run a command file when the selected event happens?

Yes, I want to run a command file.

Full path of the command file: /opt/APC/PowerChute/v

Run the command file only when the event lasts this long (seconds):

The command file needs this much time to complete (seconds):

Apply **Reset**

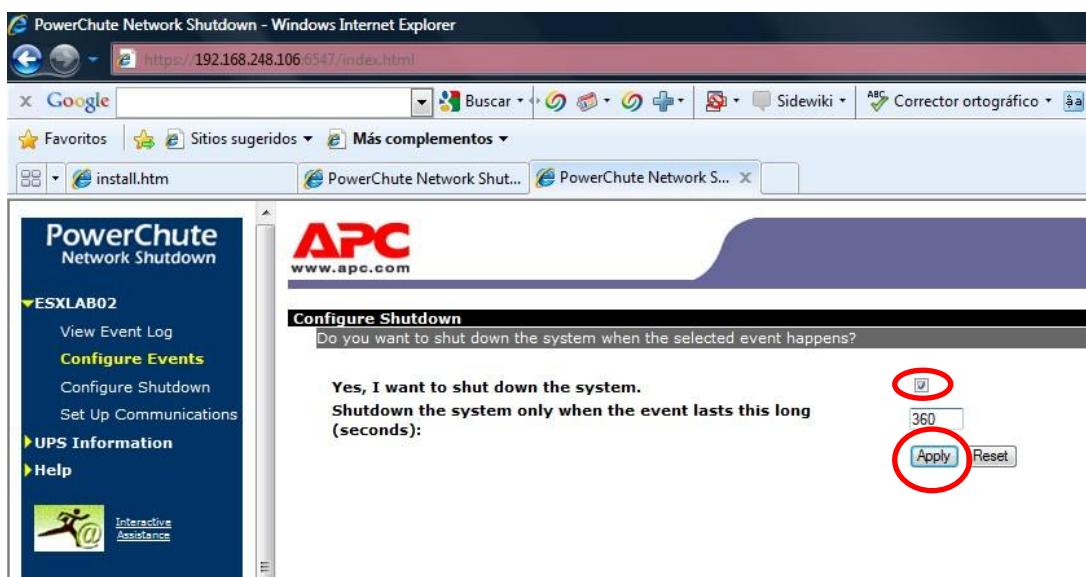
Seleccionamos Yes, i want to run a command file.

Ingresamos la ruta del script de apagado, por ej. /opt/APC/PowerChute/vmshutdown.sh



Communication: Lost while on battery	Green	Green	Green	Green
Communication: Management Card cannot communicate with the UPS	Green	Green	Green	Green
Communication: PowerChute cannot communicate with the Management Card	Green	Green	Green	Green
Environment: Contact Zone 1 Alarm	Green	Green	Green	Green
Environment: Contact Zone 1 Normal	Green	Green	Green	Green
Environment: Contact Zone 2 Alarm	Green	Green	Green	Green
Environment: Contact Zone 2 Normal	Green	Green	Green	Green
Environment: Humidity Probe 1 In Range	Green	Green	Green	Green
Environment: Humidity Probe 1 Out Of Range	Green	Green	Green	Green
Environment: Temperature Probe 1 In Range	Green	Green	Green	Green
Environment: Temperature Probe 1 Out Of Range	Green	Green	Green	Green
Input Power: Restored	Green	Green	Green	Green
Runtime: Exceeded	Green	Green	Green	Green
Runtime: Normal Again	Green	Green	Green	Green
UPS Overload: Corrected	Green	Green	Green	Green
UPS: On Battery	Green	Green	Green	Red
UPS: Overloaded	Green	Green	Green	Green

Seleccionamos Shut Down System

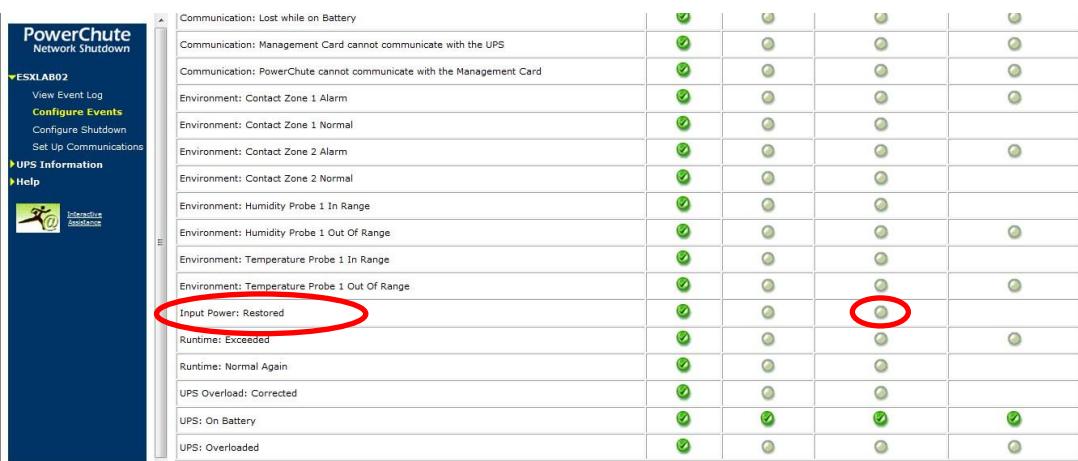


PowerChute Network Shutdown - Windows Internet Explorer
 https://192.168.248.106:6547/index.html

Configure Shutdown
 Do you want to shut down the system when the selected event happens?

Yes, I want to shut down the system.
 Shutdown the system only when the event lasts this long (seconds):

Seleccionamos Yes, I want to shut down the system, dándole 360 segundos y presionamos Apply



Communication: Lost while on Battery	Green	Green	Green	Green
Communication: Management Card cannot communicate with the UPS	Green	Green	Green	Green
Communication: PowerChute cannot communicate with the Management Card	Green	Green	Green	Green
Environment: Contact Zone 1 Alarm	Green	Green	Green	Green
Environment: Contact Zone 1 Normal	Green	Green	Green	Green
Environment: Contact Zone 2 Alarm	Green	Green	Green	Green
Environment: Contact Zone 2 Normal	Green	Green	Green	Green
Environment: Humidity Probe 1 In Range	Green	Green	Green	Green
Environment: Humidity Probe 1 Out Of Range	Green	Green	Green	Green
Environment: Temperature Probe 1 In Range	Green	Green	Green	Green
Environment: Temperature Probe 1 Out Of Range	Green	Green	Green	Green
Input Power: Restored	Green	Green	Red	Green
Runtime: Exceeded	Green	Green	Green	Green
Runtime: Normal Again	Green	Green	Green	Green
UPS Overload: Corrected	Green	Green	Green	Green
UPS: On Battery	Green	Green	Green	Green
UPS: Overloaded	Green	Green	Green	Green

Seleccionamos Run Command File

The screenshot shows the APC PowerChute Network Shutdown configuration interface. On the left, there's a sidebar with navigation links: ESXLAB02 (View Event Log, Configure Events, Configure Shutdown, Set Up Communications), UPS Information, Help, and Interactive Assistance. The main area has the APC logo at the top. A sub-header says "Configure Run Command File" with the question "Do you want to run a command file when the selected event happens?". Below it, a checkbox labeled "Yes, I want to run a command file." is checked (indicated by a red circle). The "Full path of the command file:" field contains "werChute/vmpoweron.sh". Two input fields follow: "Run the command file only when the event lasts this long (seconds):" set to 0, and "The command file needs this much time to complete (seconds):" also set to 0. At the bottom right are "Apply" and "Reset" buttons, with "Apply" also circled in red.

Seleccionamos Yes, i want to run a command file.

Ingresamos la ruta del script de encendido, por ej.
/opt/APC/PowerChute/vmpoweron.sh
Presionamos Apply