



Application Note – AN1303

Shutdown NAS in PowerPanel Business Edition

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Introduction

If you want to properly shut down both the computer and the NAS that are being supplied power by a UPS, this manual will guide through the necessary steps. This will allow the NAS to shut down via the SSH service and the computer to shut down gracefully.

If you are only connecting a NAS to the UPS, you do not need this manual. Simply connect USB cable from the UPS to the NAS and refer to user's manual for the NAS about power management instructions.

Set-up

1. Enable the SSH service on the NAS to allow remote SSH login.

QNAP NAS Example:

Log in to the QTS web service and enable **Allow SSH connection** from *Control Panel > Network Services > Telnet/SSH*.

Synology NAS Example:

Log in of the DSM web service and check **Enable SSH Service** from *Control Panel > Terminal*.
(Refers to your NAS user's manual for more details about SSH service.)

2. Plug in your NAS and computer to the UPS outlets labeled **BATTERY/SURGE** or **CRITICAL LOAD**.
3. Ensure that the USB or serial cable between the UPS and your computer is connected, and install the PowerPanel Business Edition Agent software on your computer. If the UPS has remote management card, the USB or serial cable is unneeded and you should install the PowerPanel Business Edition Client software.
4. Ensure that there is an active network connection between your computer and NAS.

Configuration on Windows

Download SSH client tool

In order to remote control the NAS equipment via SSH service automatically, use **plink.exe** as the SSH client tool. Visit the <http://the.earth.li/~sgtatham/putty/latest/x86/plink.exe> to download the **plink.exe** tool at the target directory, e.g. **C:**

Edit External Command of PowerPanel Business Edition

1. Go to PowerPanel Business Edition installation directory, such as **C:\Program Files\CyberPower PowerPanel Business Edition** is the default directory.
2. Edit **default.cmd** as shown below to allow the NAS to shutdown.

```
:doEventOccurCommand
echo n | C:\plink.exe -ssh -pw Password Account@Address poweroff
.....
goto end
```

Account and **Password** is the administrator account and password for NAS. **Address** is the IP address or domain name of NAS.

3. Access the PowerPanel Business Edition from the **Start > All Programs > CyberPower Business Edition > PowerPanel Business Edition Agent** (or **PowerPanel Business Edition Client**).
4. Login the PowerPanel Business Edition and go to the **Event Action/Events** page.
5. Assign the **default.cmd** as the external command file of the **Shutdown initiated** event and change the delay from the *Column > Initiated* column to ensure that the external command can be executed.

When a power event occurs, the external command execution will be initiated prior to the computer shutdown. Refer to the **Suggestions** chapter for more details.

Configure Proper Delay Time to Turn Off UPS

When a shutdown procedure is initiated, UPS will delay to turn off output power for the specified duration time. This specified duration time must be sufficient for the connected computer and NAS to shutdown properly.

1. Login the PowerPanel Business Edition and go to the **Event Action/Settings** page.
2. The default *Necessary shutdown time* is 300 seconds (5 minutes). This setting will need to be changed if your NAS and computer take longer than 5 minutes to shut down.

Configuration on Linux

Generate an SSH Key

In order to control the NAS from a remote SSH session, you must set up the SSH client with an SSH key which will allow the PowerPanel software to execute the shell script on the NAS and shut it down.

This SSH key is generated on a root user account. Generate a private and a public key by following the steps below:

1. Switch to root account.

```
su root
```

A prompt ask you to provide the root password to complete the authentication.

```
Password:
```

2. Generate a new RSA key pair.

```
ssh-keygen -t rsa
```

This command will ask you to provide a location to save the keys and a passphrase. (Press **Enter** if you change nothing.)

The prompt message shows as below example:

```
Generating public/private rsa key pair.  
Enter file in which to save the key (/root/.ssh/id_rsa):
```

And then ssh-keygen command also asks you to provide a passphrase. Press **ENTER** to accept the default (no passphrase).

```
Enter passphrase (empty for no passphrase):  
Enter same passphrase again:
```

After you confirm the passphrase, the key pair will be generated.

```
Your identification has been saved in /root/.ssh/id_rsa.  
Your public key has been saved in /root/.ssh/id_rsa.pub.
```

3. Copy public key to SSH server of NAS.

```
ssh-copy-id -i /root/.ssh/id_rsa.pub Account@Address
```

Account is the administrator account of NAS. **Address** is the IP address of NAS. This command requires entering **yes** and the NAS administrator *password* to continue connection.

The message shows as below example:

```
The authenticity of host '192.168.20.10 (192.168.20.10)' can't be established.  
RSA key fingerprint is b1:99:1e:25:a5:f9:c9:86:15:5e:5a:4b:53:4f:a8:c9.  
Are you sure you want to continue connecting (yes/no)? yes  
Warning: Permanently added '192.168.20.10' (RSA) to the list of known hosts.  
root@192.168.20.10's password:
```

Edit External Command of PowerPanel Business Edition

1. Use **vi** command to edit the `/usr/local/ppbe/extcmd/default.sh` or `/opt/ppbe/extcmd/default.sh`. Insert the below shell command to allow shutdown of the NAS.

```
#!/bin/sh  
/usr/bin/ssh Account@Address poweroff  
.....  
.....
```

Account is the administrator account of NAS. **Address** is the IP address of NAS.

2. Enter <http://127.0.0.1:3052/> in the address of the web browser in the local computer to access the PowerPanel Business Edition web page.
3. Login the PowerPanel Business Edition and go to the **Event Action/Events** page.
4. Assign the **default.sh** as the external command file of the **Shutdown initiated** event and change the delay from the *Column > Initiated* column to ensure that the external command can be executed.

When a power event occurs, the external command execution will be initiated prior to the computer shutdown. Refer to the **Suggestions** chapter for more details.

Configure Proper Delay Time to Turn Off UPS

When a shutdown procedure is initiated, the UPS will delay the shutdown of its own outlets. This delay must be long enough to allow for the computer shutdown of both the NAS and the computer.

1. Login the PowerPanel Business Edition and go to the **Event Action/Settings** page.
2. The default *Necessary shutdown time* is 300 seconds (5 minutes). This setting will need to be changed if your NAS and computer take longer than 5 minutes to shut down.

Install SSHPass

When using a SSH key to login NAS do not work, use *sshpas* command instead of SSH key.

Install *sshpas* by using the package manager to install *sshpas*. For example, use *apt-get* command in Ubuntu.

```
apt-get install sshpass
```

Edit External Command of PowerPanel Business Edition Via SSHPass

1. Use *vi* command to edit the */usr/local/ppbe/extcmd/default.sh* or */opt/ppbe/extcmd/default.sh*. Insert the below shell command to allow shutdown of the NAS.

```
#!/bin/sh
/usr/bin/sshpass -p `Password` /usr/bin/ssh Account@Address poweroff
.....
.....
```

Account is an administrative account to login NAS and **Password** is the password for the **Account**. **Address** is the IP address of NAS.

2. Enter <http://127.0.0.1:3052/> in the address of the web browser in the local computer to access the PowerPanel Business Edition web page.
3. Login the PowerPanel Business Edition and go to the **Event Action/Events** page.
4. Assign the **default.sh** as the external command file of the **Shutdown initiated** event and change the delay from the *Column > Initiated* column to ensure that the external command can be executed.

When a power event occurs, the external command execution will be initiated prior to the computer shutdown. Refer to the **Suggestions** chapter for more details.

Suggestion

1. A NAS remote login requires *admin* or *root* account. Note: The *Synology* NAS equipment requires root password whose default password is same as administrator password.

2. Because your IP address which is dynamically obtained may change, you must use the domain name to replace with the IP address. The NAS shutdown may not work due to the IP address changed.
Recommends using DDNS service to resolve the dynamic IP address issue. Refer to NAS user's manual for advanced details about DDNS service.
3. PowerPanel software had tested on *Synology* and *QNAP* NAS.