

# Advanced firmware upgrade on VigorACS

**Revision 1.1**

## **Preface**

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This document describes how to do advanced firmware upgrade on VigorACS.

## **Scope**

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This document contains the actions of the advanced firmware upgrade on VigorACS. VigorACS follows CWMP (CPE WAN Management Protocol) specification (or shorted by TR-069 specification) to do the advanced firmware upgrade. With VigorACS, firmware upgrade can be easily applied to any kinds of CPEs which complies with CWMP specification.

## **Reference**

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User Guide for VigorACS

Quick Start Guide for VigorACS

TR-069 specification

TR-104 specification

Revision	Date	Description
1.0	Nov 27, 2007	Initial release by Eric Hsiao
1.1	April 2, 2008	Modified by Eric Hsiao

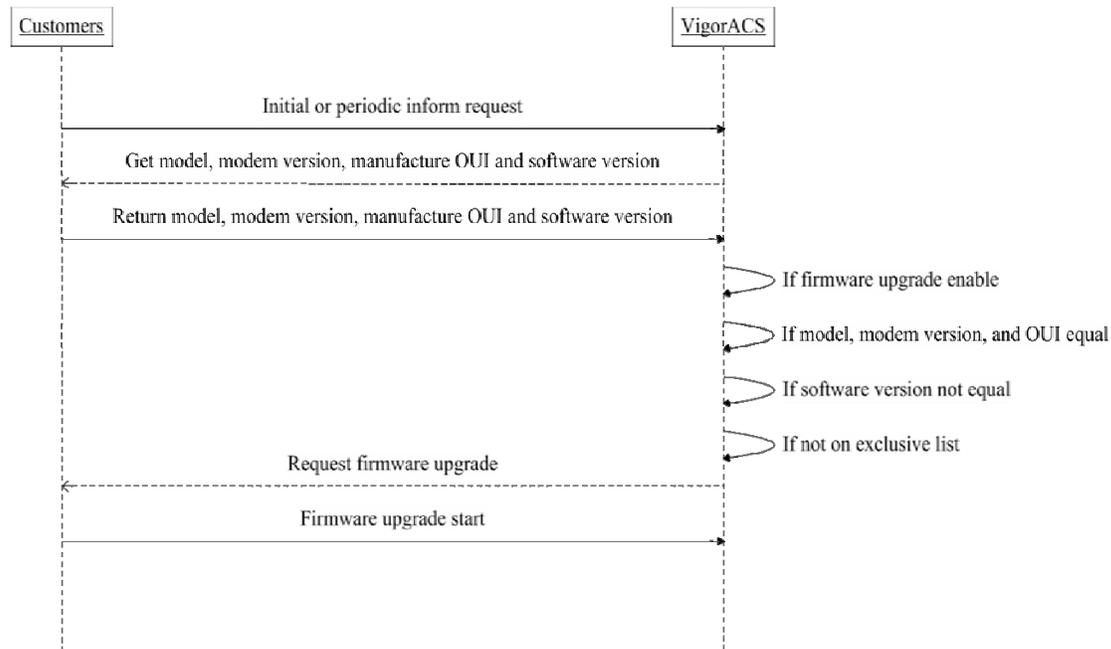
# 1. Introduction

To upgrade firmware on a large scale network with many devices is not an easy job for network administrator. For instance, if there are three thousands of devices on your network, you want to upgrade firmware on these devices. If you can upgrade 100 devices once day, you need 1 month to finish this work. It really takes time. Besides time issue, you might need to face many other problems. How many devices finished the upgrade? How many not? How to control the firmware version? Every network administrator wants to find a good way doing this job. Now with TR-069 and VigorACS the dream is coming true.

If you upgrade firmware manually, the first thing is to check the firmware version on device. If the version of the device is not the same as your current version, you perform the firmware upgrade. Basically, you want to all devices on your network with the same firmware version but sometimes few devices with different version. The firmware upgrade feature of VigorACS is based on this idea and covers all these requirements.

# 2. Procedure

The procedures of firmware upgrade on VigorACS go follows:



1. We get ModelName, ModemFirmwareVersion, ManufactureOUI and software version from CPE once CPE contact with VigorACS.

2. Compare ModelName, ModemFirmwareVersion, ManufactureOUI on CPE with VigorACS database if network administrator enable firmware upgrade feature and ModelName, ModemFirmwareVersion, ManufactureOUI is the same but software version is different.

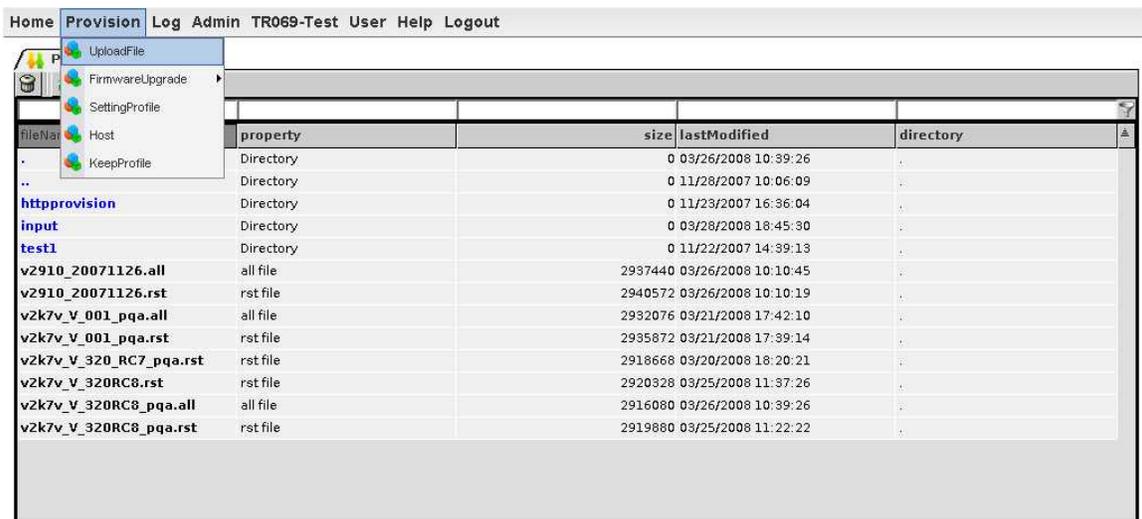
3. If the case is true, this CPE is selected on IncludeNetwork and current time is defined on the period of trigger time, we issue firmware upgrade to CPE.
4. CPE starts to firmware upgrade once finish, CPE reboot by itself.
5. Network administrator can add device to excluded list on VigorACS. Those devices on excluded list will be ignored to do the firmware upgrade even if the model, modem version, and manufacture OUI is the same.

Once network administrator set up VigorACS correctly, all devices with same ModelName, ModemFirmwareVersion, ManufactureOUI will be upgraded to the same firmware version without other effort.

## 3. Configuration

### 3.1 Upload File

Upload the CPE firmware to VigorACS Server.

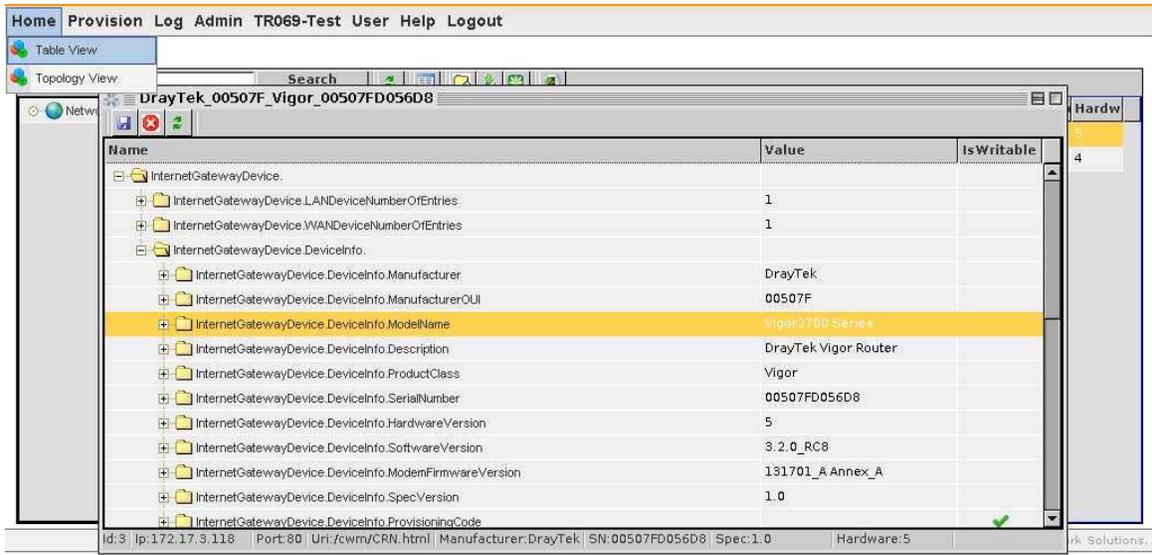


The screenshot shows the VigorACS web interface. The top navigation bar includes 'Home', 'Provision', 'Log', 'Admin', 'TR069-Test', 'User', 'Help', and 'Logout'. The 'Provision' menu is open, showing options: 'UploadFile', 'FirmwareUpgrade', 'SettingProfile', 'Host', and 'KeepProfile'. Below the menu is a file directory listing table.

fileName	property	size	lastModified	directory
.	Directory	0	03/26/2008 10:39:26	.
..	Directory	0	11/28/2007 10:06:09	.
httpprovision	Directory	0	11/23/2007 16:36:04	.
input	Directory	0	03/28/2008 18:45:30	.
test1	Directory	0	11/22/2007 14:39:13	.
v2910_20071126.all	all file	2937440	03/26/2008 10:10:45	.
v2910_20071126.rst	rst file	2940572	03/26/2008 10:10:19	.
v2k7v_V_001_pqa.all	all file	2932076	03/21/2008 17:42:10	.
v2k7v_V_001_pqa.rst	rst file	2935872	03/21/2008 17:39:14	.
v2k7v_V_320_RC7_pqa.rst	rst file	2918668	03/20/2008 18:20:21	.
v2k7v_V_320RC8.rst	rst file	2920328	03/25/2008 11:37:26	.
v2k7v_V_320RC8_pqa.all	all file	2916080	03/26/2008 10:39:26	.
v2k7v_V_320RC8_pqa.rst	rst file	2919880	03/25/2008 11:22:22	.

### 3.2 Check the CPE information first.

The ModelName, ModelFirmwareVersion, and ManufactureOUI is Vigor's comparison condition. You must make sure that those values of the different CPEs can be isolated. For instance, you have AnnexA and AnnexB on Vigor2700 Series. The ModelFirmwareVersion can be separated it.

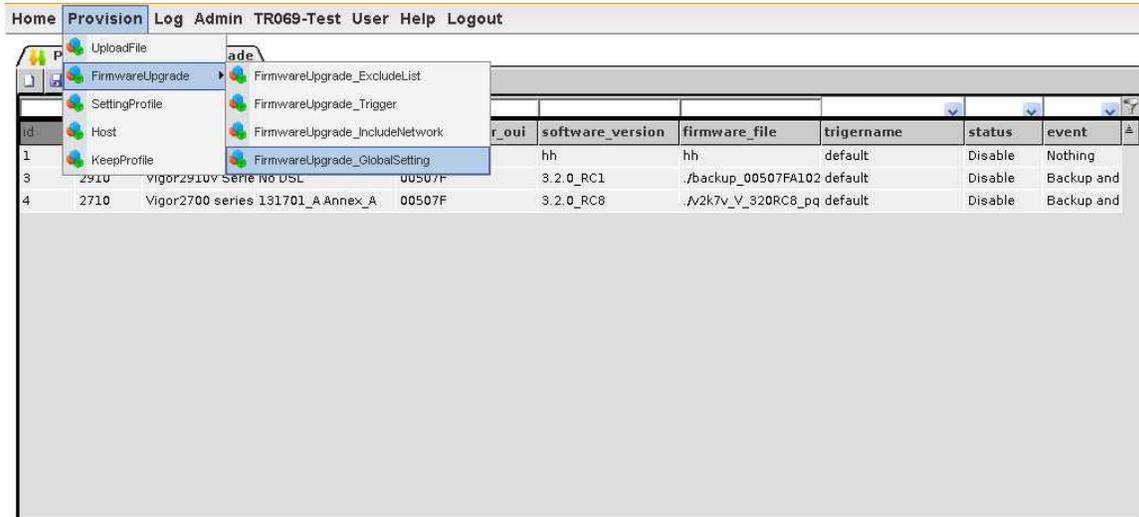


### 3.3 Define the global setting of firmware upgrade

Field	Description
Id	Index of advanced firmware upgrade record
Name	Name of advanced firmware upgrade
Model name	Model name on device
Modem firmware version	Modem firmware version on device
Manufacturer oui	Manufacturer OUI version on device
Software version	Software version on device
Firmware file	The new firmware file
Status	Enable or Disable this advanced firmware upgrade
triggername	Select the available trigger defined on trigger list
Event	Include the backup and restore

1. Define a unique firmware upgrade name.
2. Define Model name, Modem firmware version, Manufacturer oui and Software version according to CPE information.

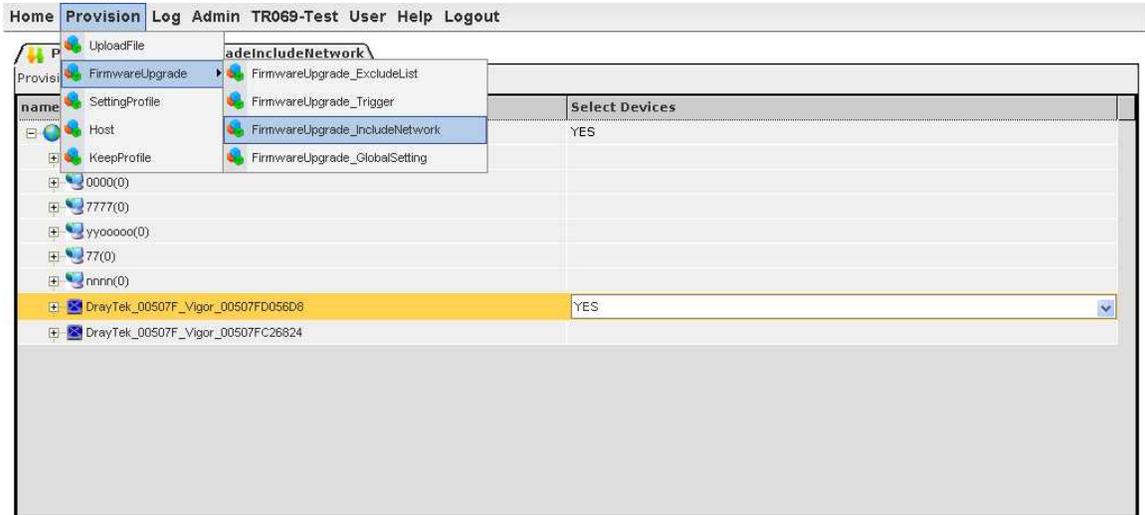
3. Select Firmware file from upload list.
4. Enable or disable the firmware upgrade setting. Be careful, only one record can be enabled if the Model name, Modem firmware version and Manufacturer oui is the same.
5. Select the trigger defined on trigger list.
6. Include backup and restore before and after firmware upgrade. You can use get parameter function to get all parameters from CPE for backup, and use set parameter function set them back for restore. Or you can choose to use the configure file of CPE for backup and restore.



id	r_oui	software_version	firmware_file	trigername	status	event		
1	hh	hh	hh	default	Disable	Nothing		
3	2910	vigor2910v Serie 100 DSL	00507F	3.2.0_RC1	./backup_00507FA102	default	Disable	Backup and
4	2710	Vigor2700 series 131701_A Annex_A	00507F	3.2.0_RC8	./v2k7v_v_320RC8_pq	default	Disable	Backup and

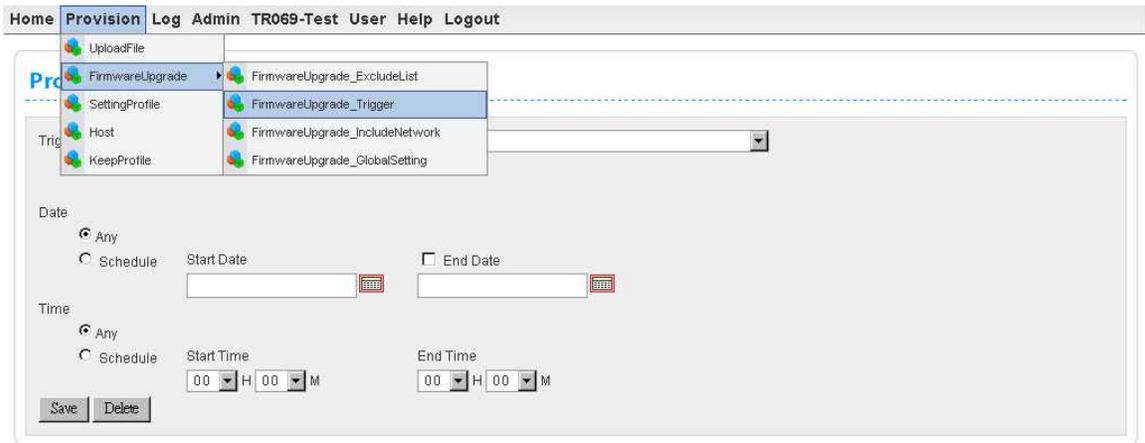
### 3.4 IncludeNetwork

According to firmware upgrade name, select the devices or networks to do the firmware upgrade. The IncludeNetwork use inheritance way to set up the devices or networks. There are three options “YES”, “NO” and “” to set up devices or networks. If you select “YES” or “NO” options, it is obvious to include or exclude this device or network. But if you select “”, it means inheritance from parent network. If the parent network is “” too, it will inheritance the parent network. Only the root network “Network View” can not be “” option. For example, if you just want to upgrade only one network, you only need to select the root network (“Network View”) to NO and this network to YES. The all devices or networks belong to this network is “” will inheritance this network and do the firmware upgrade.



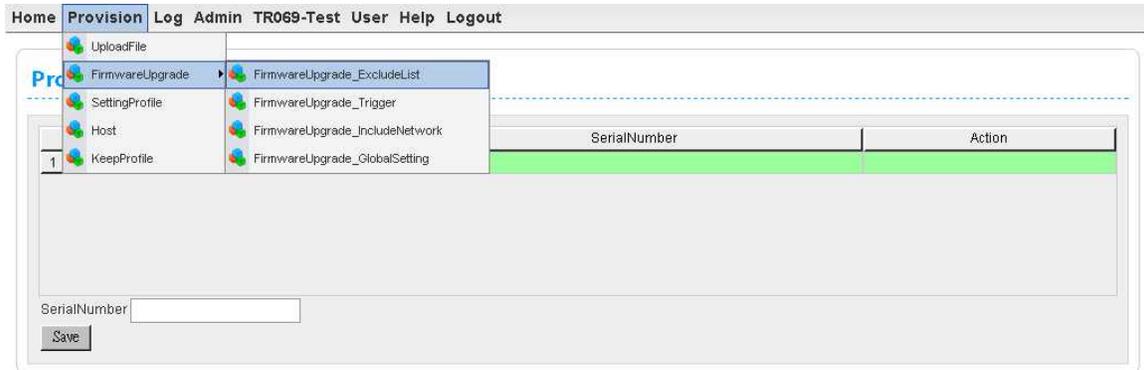
### 3.5 Trigger

You can use trigger to define the time to do the firmware upgrade. Sometimes you just want VigorACS upgrade firmware on middle night. You can define the trigger to limit the time.



### 3.6 ExcludeList

Any device on the ExcludeList will not do any firmware upgrade.



Everything is done.

## 4. Exception

According to our test, you may have some trouble at such circumstances:

### I. Reboot the CPE

Because it is remote firmware upgrade, customer does not know it. So it is possible that customer reboot the CPE during firmware upgrade. Most of CPEs will lose its firmware. There are two kinds of reboot on CPE. One is soft reboot and another is power off/on. This is nothing we can do if customer power off/on. But for soft reboot, CPE must protect itself and do not reboot during firmware upgrade. You might inform customer do not power on/off on the firmware upgrade period.

### II. Another firmware upgrade

During firmware upgrade, CPE might be issued another firmware upgrade by web. Some CPEs will be failure. CPE must protect itself only allow or accept one firmware upgrade at the same time.

### III. Network problem

Some CPEs will be failure if network problem during firmware upgrade.

### IV. Version incorrect

You must check the configuration on VigorACS is correct. Once the firmware version of the CPE is incorrect, the CPE will be upgraded again and again.

### V. Relation to Dynamic Service Provisioning

You might set up Dynamic Service Provisioning on VigorACS. We will do the firmware upgrade first and during firmware upgrade VigorACS will keep the Dynamic Service Provisioning data once firmware upgrade is finished, the Dynamic Service Provisioning data will be set to CPE.