ERNITEC EVA Series
Tools User's Manual

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1. INTRODUCTION

This guide provides the description about 3 tools required for the remote management of NVC and IPE series. When you should manage the multiple devices at the same time or when you update your devices with customized kernel files, these tools can support that works easily.

- **IPAdminTool** : Provides the remote function of IP finder, IP setting, web access and fw files update.
- **Protect Tool** : Provides the function of wrapping and encryption of the binary files for customized 'protect models'
- **Package Tool** : Provides the function of 'Packing ENC files' and 'Packing User File system'

NOTE!
The *IPAdminTool*, *ProtectTool and Package tool* described in this manual are designed only for NVC and IPE series. The interface and some features look identical to those of NVE but you should use separate tools of NVE and NVC series.

2. IPAdminTool

Available functions with IPAdminTool :

- Configure IP address, subnet mask, gateway, DNS, and hostname
- Search available IP devices on network
- Show device information
- Update new firmware on single or multiple devices
- Reboot the system remotely

2.1. Starting IPAdminTool

IPAdminTool is provided with following SDK path.

{SDK root}\BIN\TOOLS\AdminTool\

Run IPAdminTool.exe program and you can see that the IP devices are being scanned. It re-scans network to keep updating IP devices on the list every 2 seconds. If required, you can force scanning by pressing *Refresh* button.

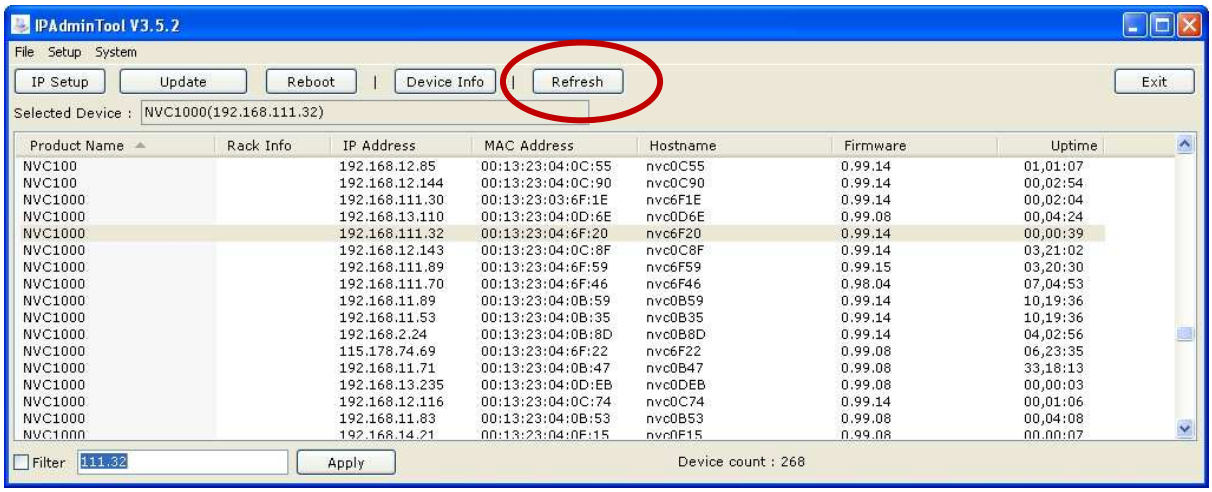


Figure 1. Refresh

2.2. Menu and buttons configuration

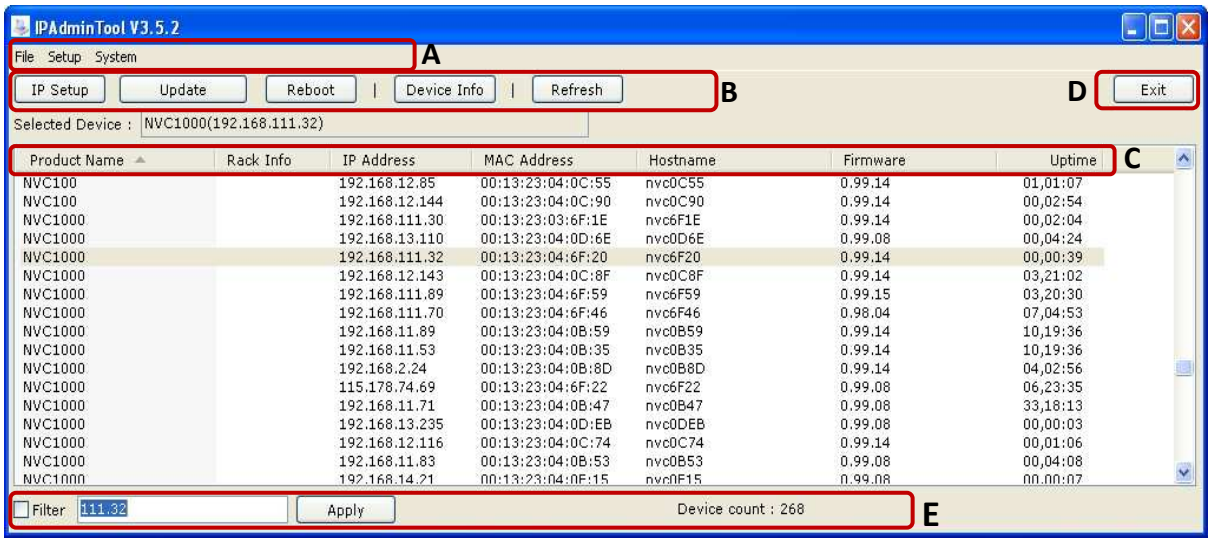


Figure 2. Options

Section A

File
Refresh – Refresh the list and get the IP devices information.
Exit – Quit this program.

Setup
IP Address – Set IP configuration such as IP address, subnet mask, default gateway, etc.
Hostname – Set a new hostname.
Frequency setting – Set the frequency of MDNS messages sending.

System
Update – Update the firmware or any other required files.
Device info – Show the device information.
Reboot – Reboot the device.

Section B

IP Setup - Set the IP configuration such as IP address, subnet mask, default gateway etc.
Protect Update - Upload the firmware or any other required files.
Reboot - Reboot the device.
Device Info– Show the device information.
Refresh – Refresh the list and get the IP devices information.

Section C

Product Name – Product name of your device is displayed. It can be modified by uploading the brand file involving the product name. 5. How to update the customized webpage describes how to upload customized files.
Rack Info – If the scanned device is rack type, the related rack information is displayed.

IP Address – IP Address of your device is displayed.
MAC Address – MAC Address of your device is displayed.
Hostname – The hostname of your device is displayed. Changing the host name is not allowed.
Firmware – The current firmware version of your device is displayed.
Uptime – The passed time since the system is booted (Days: Hours: Minutes).

Section D

Exit – Quit this program.

Section E

Filter – Type any part of numbers of the IP address, check in the Filter box and click the Apply button. Then IPAdminTool will scan only IP devices that include typed numbers.
Device count – The total number of scanned devices

2.3. How to search your device

Before running the IPAdminTool for finding the ERNITEC EVA, check out if the device is powered on and connected the network properly.

1. Run IPAdminTool and wait a second while it scans the IP devices.
2. Right-click on a device name and then a shortcut menu appears as below. Choose the '*Web view*' and you can see that the Web Page is showed up.

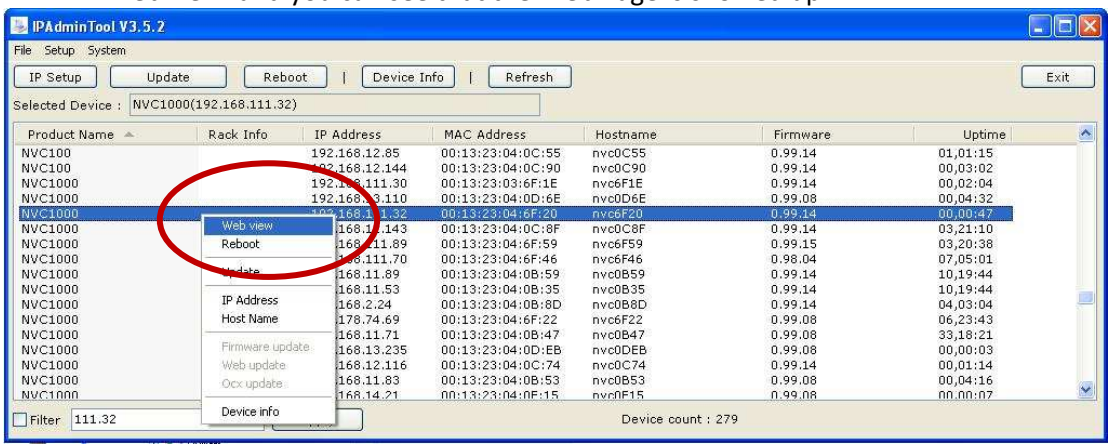


Figure 3. Web View

IP Filtering – When you have multiple ERNITEC EVA

If your network has multiple IP devices and *IPAdminTool* scans too many IPs, you can use the IP filtering feature. Type any part of numbers of the IP address in the blank, check in the *Filter* box and click the *Apply* button. Then *IPAdminTool* will scan only the IP devices that include typed numbers. Refer to the picture below for example.

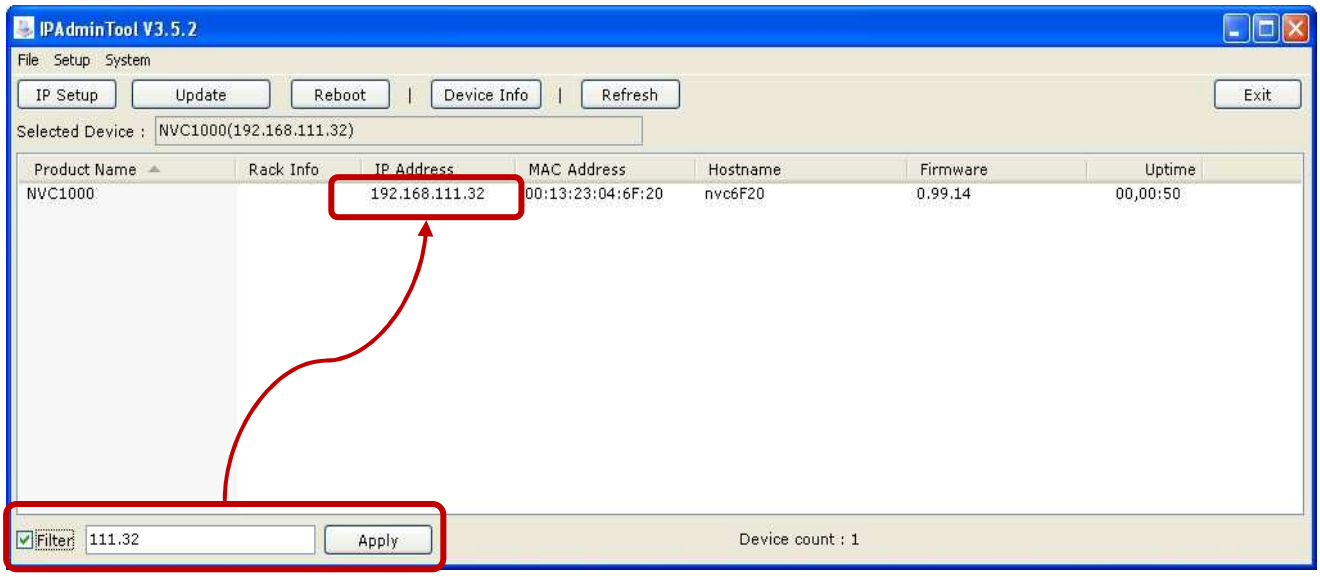


Figure 4. Filter

2.4. IP Management of ERNITEC EVA

You can adjust the network setting with IPAdminTool. Go to IP Setup button on the upper menu bar or you can use the shortcut menus as well.

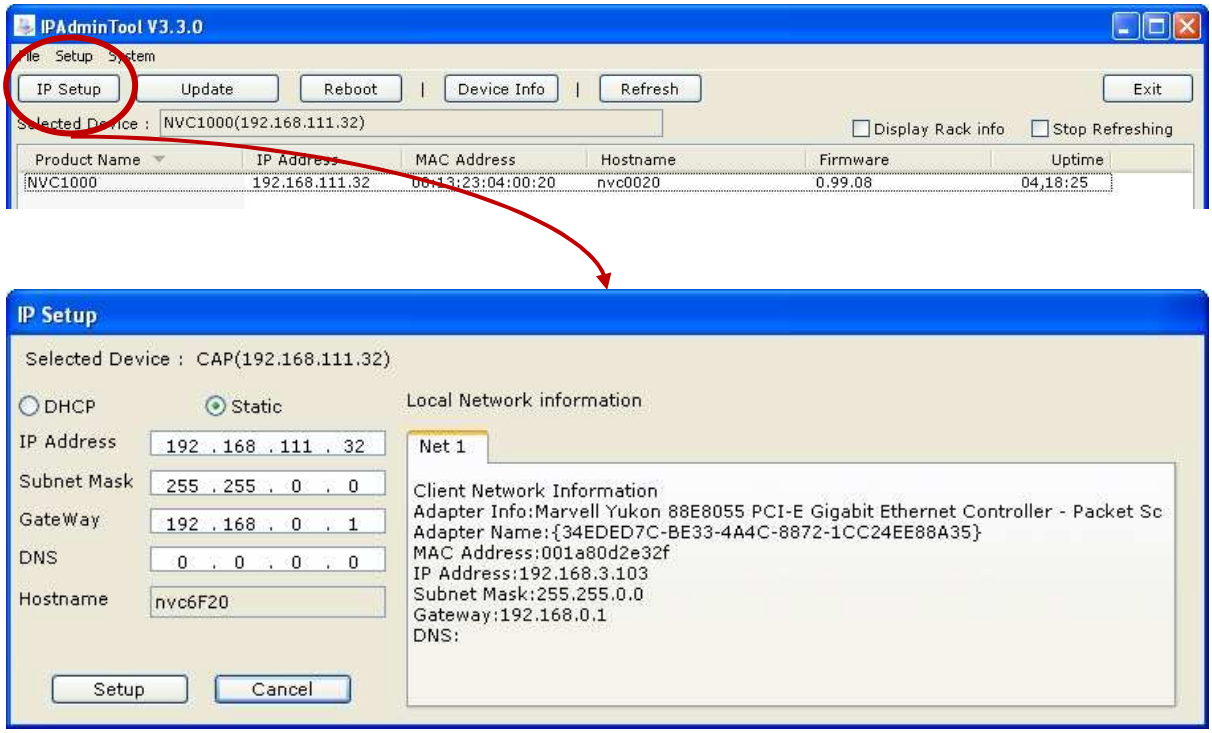


Figure 5. IP Setup

DHCP

Let the DHCP server get the IP address automatically.

Static

Set the IP address, Subnet Mask, Gateway and DNS manually according to users' network requirements.

2.5. How to check your device Information remotely

The software version information of IP devices are shown with the menu [*System – Device Info*]. Shortcut menu also provides as *Device Info* menu.

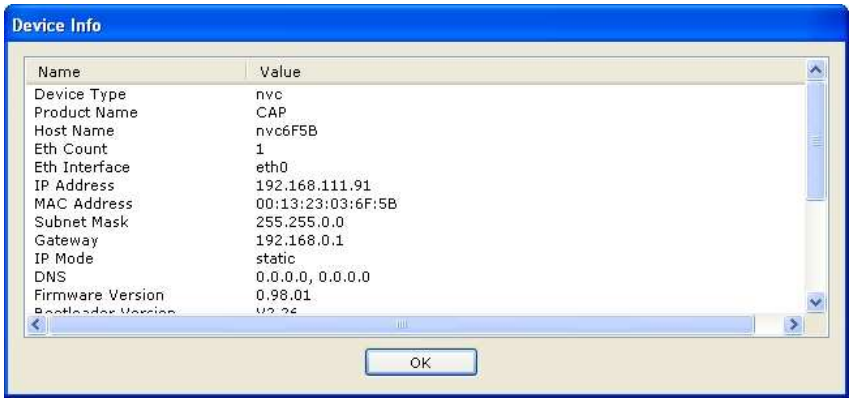


Figure 6. Device Info

You can find the device information as below.

- Device Type
- Product Name
- Host Name
- Ethernet Count
- Ethernet Interface
- IP Address
- MAC Address
- Subnet mask
- Gateway
- IP mode
- DNS
- Firmware version
- Bootloader version
- Web URL
- Web Port
- RTSP port
- Update port
- Uptime
- System Key method
- Device Serial
- Description

2.6. How to update firmware remotely

IPAdminTool provides the firmware update feature for single or multiple IP devices.

Tip. Want to update multiple devices at the same time?

Choose the multiple devices with *Crtl* or *Shift* key and find the '*Update*' button on the upper menu (The mouse shortcut menu also provides the *Update* menu).

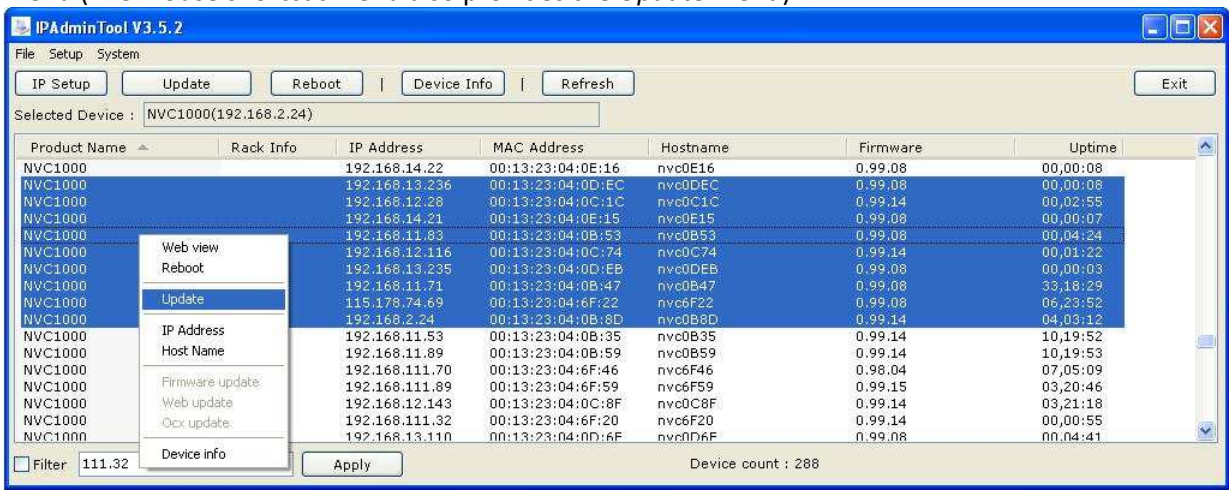


Figure 7. Protect Update of multiple devices

Step1. Select IP device

Select the device you want from the list and it turns blue. Right-click it and select the 'Update' menu. You can see the window below and the selected devices are listed.

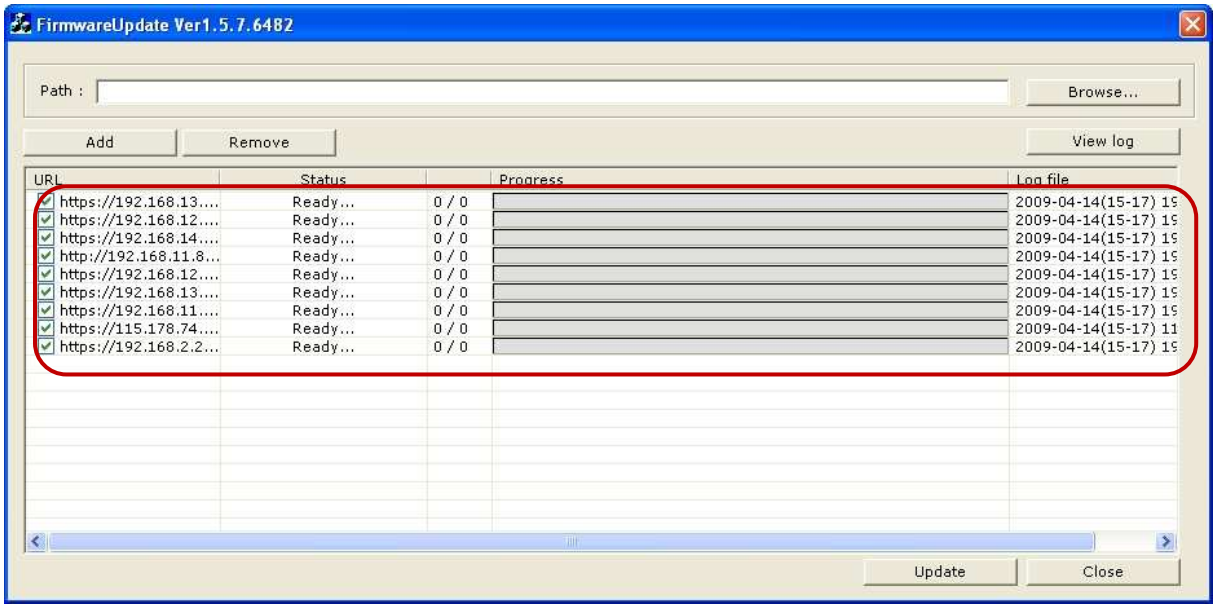


Figure 8. Selected devices list

Tip. Your ERNITEC EVA is not searched by IPAdminTool?

Your devices may have been connected to the external network or mDNS feature is may has been disabled on your device. You can add the device manually by typing the IP address for firmware update.

Click the *Add* button and '*Add device'* window pops up. Select *https* or *http* according to your device protocol type (The factory default is HTTPS). Type the IP Address you want to update and click the *Add* button. Then, you can see that the IP advice is newly added as below.

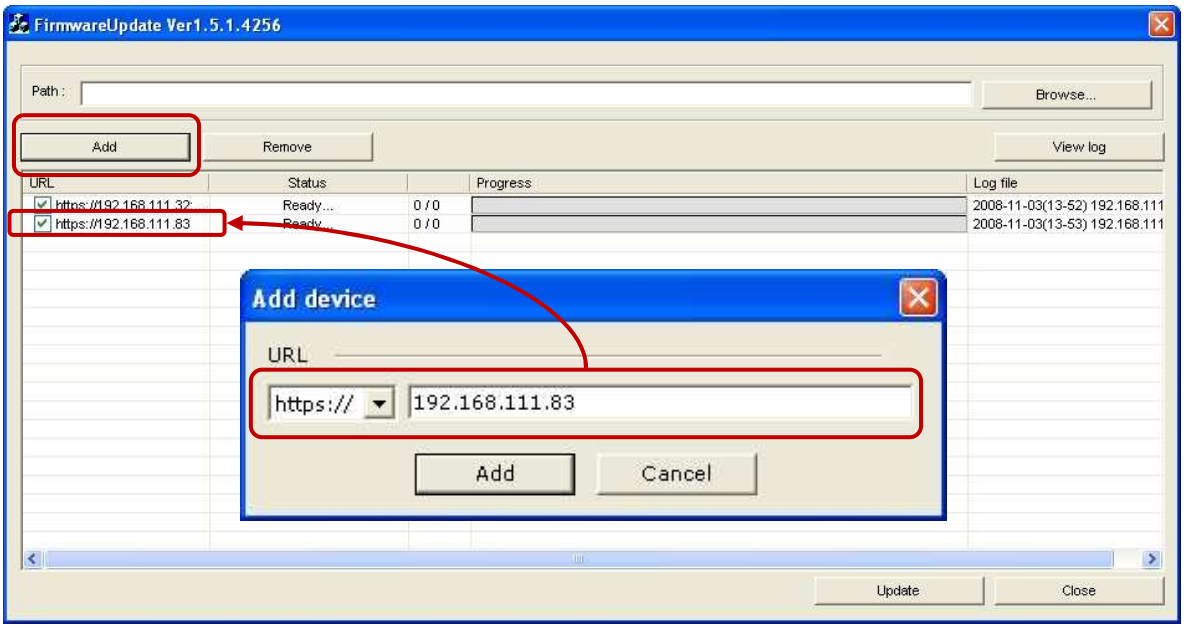


Figure 9. Add device

Tip. Want to remove devices from selected list :

If you want to remove the device from the selected list, tick the box of device you want to remove. Click the *Remove* button and you can see the message box as below and the checked device is removed.

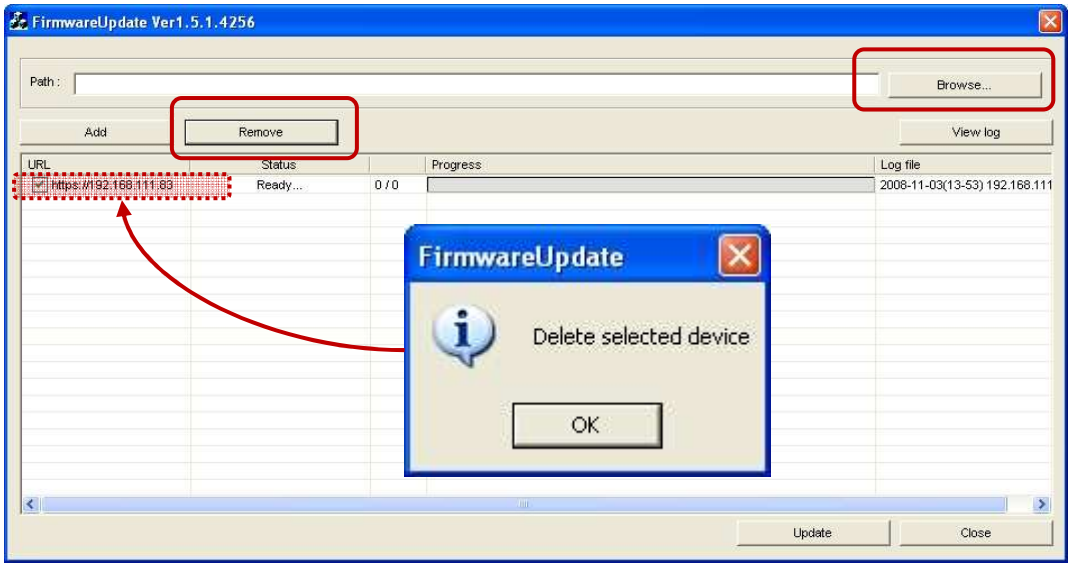


Figure 10. Remove device

Step2. Browse the firmware file and update

1. Now, if you have completed listing up the devices you want to update, click the *Browse* button and select the firmware file (File format : *.pkt).
2. Click the *Update* button
3. It requires the log-in authentication as picture below (a). Type the ID and password of administrator authentication. The factory default is root(ID) and pass(pw).
4. Wait for a few seconds and the progress bar will show you the current status of update. If the update process is completed, the *'All update finish'* message box is shown as below.

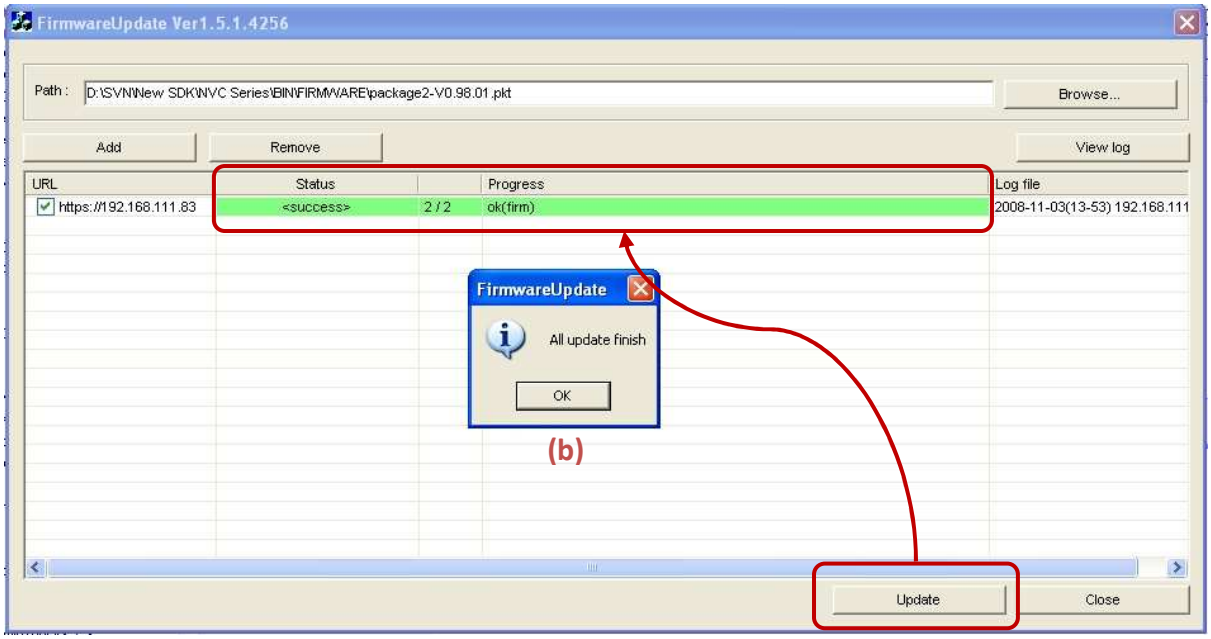


Figure 11. Completed firmware update

Step3. Reboot the system

After the completion of the firmware update, you should wait for about 1 minute while the ERNITEC EVA restarts. Even after the completion of update and reboot of the system, if the your device is not shown on the scanned list of IPAdminTool, click the 'Refresh' button or try to type the IP address on the internet explorer's address bar.

2.7. How to upload new company key file

To upload new company key to your NVC, the *.*enc* format of new company key should be prepared. Go to the ***3.2. Generating company key file*** and put that created file in the required path so that you can use that file in this uploading process. If you have done these process already, you can follow the steps below to upload the company key file.

Step1. Run IPAdminTool

Run the *IPAdminTool* and click the *Protect Update* button.

IPAdminTool provides the company key files update feature for single or multiple IP devices at the same time. Click the IP device you want to update (Choose multiple devices with *Crtl* key) and find the *Protect Update* button on the upper menu. The mouse shortcut menu also provides the *Protect Update* menu.

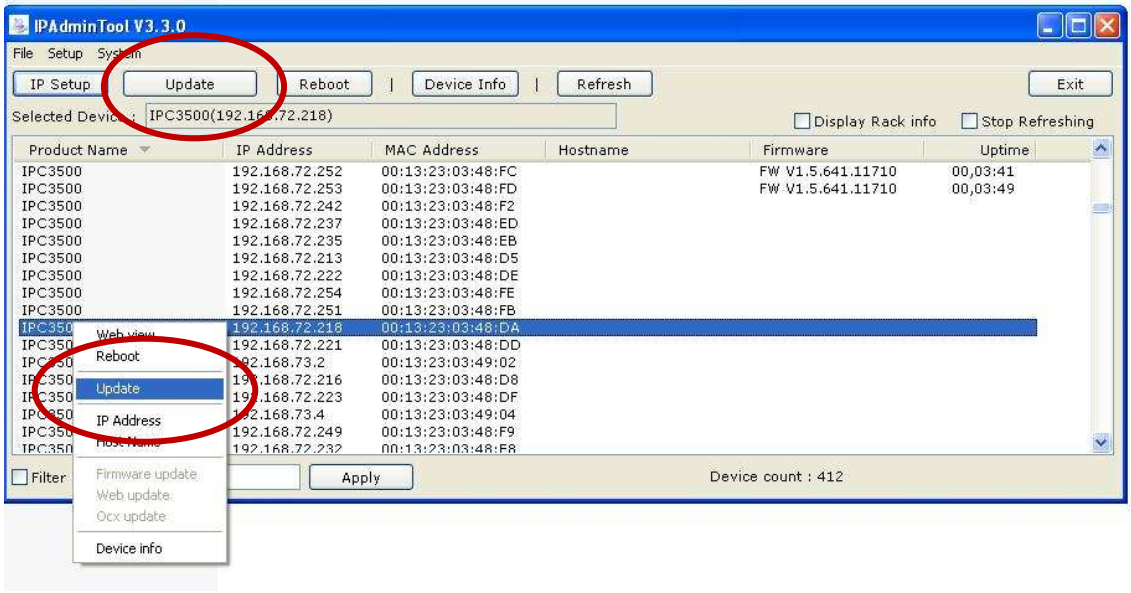


Figure 12. Select device and 'Protect update'

Step2. Browse and update the company key file

Click the *Browse* button, select new company key file (in this example, *vid_cap3.wrp-CAP.enc* which was generated from ***3.2. Generating company key file***) and click *Open* button as the picture below. Select the *All files* for *Files of type* if your file is not shown.

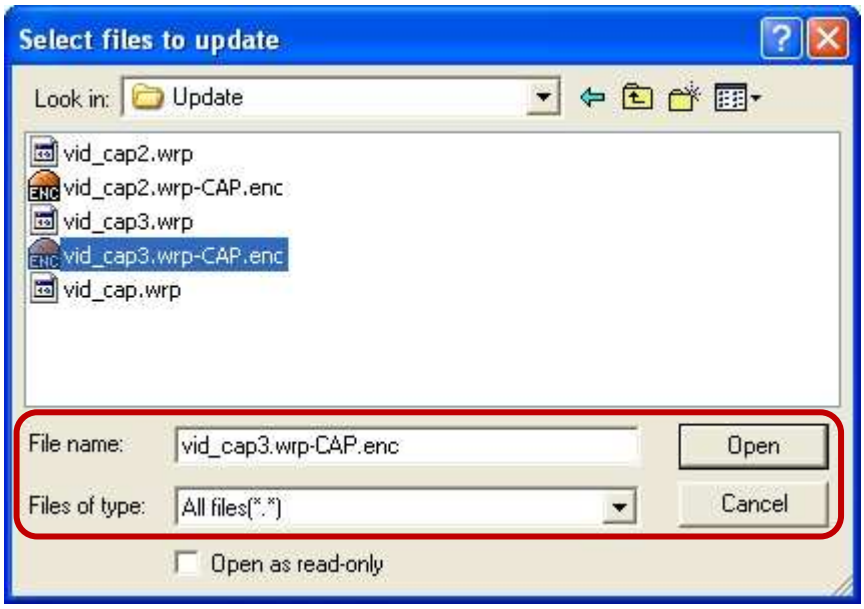


Figure 13. Selection of company key file

Click the *Update* button and wait for a few seconds and then you may see that the *Status* shows *'success'* with green color as the picture below.
If you get a failed message, refer to the error code description document of IPAdminTool. If the *'All update finish'* message is appeared, then the company key of your device has been changed into new company key successfully.

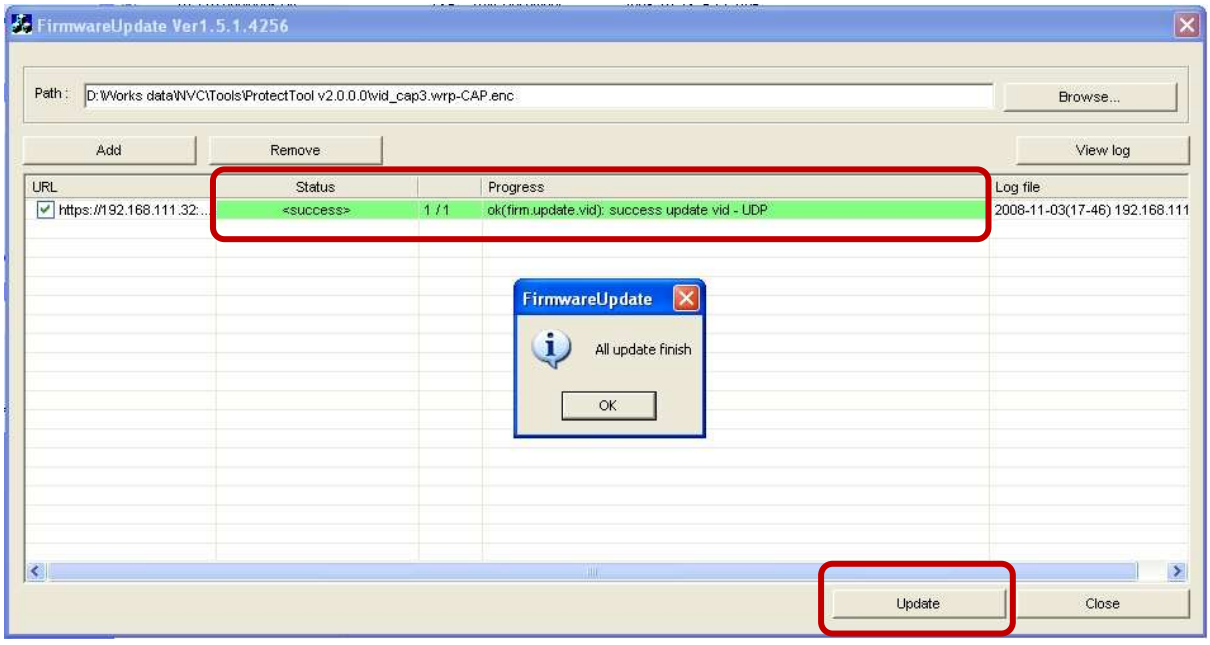


Figure 14. Completed company key update

2.8. How to reboot the device remotely by IPAdminTool

You can reboot the IP device with the *Reboot* button or you can use the shortcut menu as well. If you choose the *Reboot* menu, the below (a) is shown and then, click *OK*. Then you may see the Log-in message and type the ID and PW as below (b). After that, click the *OK* button on the new popup window (c). Now, the device will get restarted in about 1.5 minutes.

(a)

(b)

(c)

Figure 15. Reboot

2.9. How to set the frequency of MDNS message sending

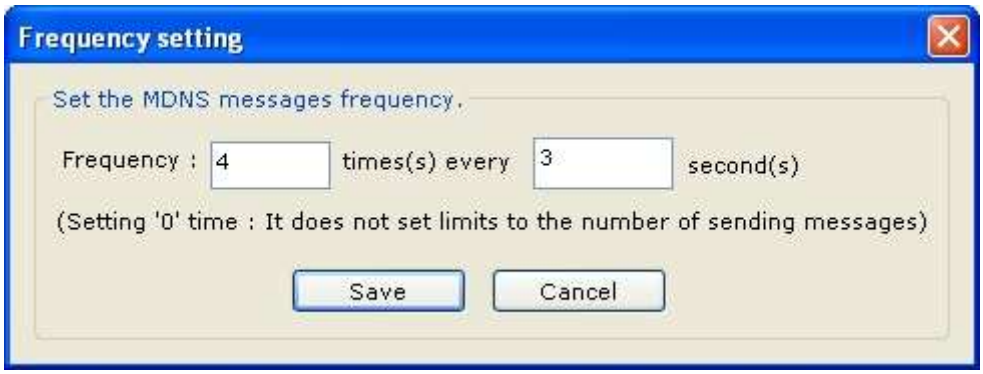


Figure 16. MDNS frequency

What is MDNS?

The IPAdminTool uses a specific protocol, multicast DNS (MDNS) to get the information of devices on the network. When the IPAdminTool is run by user, it sends the packets which request the answers from devices. The results are shown on each tab of IPAdminTool.

You can adjust the frequency of the MDNS queries message in this menu.

As an example above, if you set ‘4 times every 3 seconds’, your IPAdminTool would send the MDNS query 4 times in every 3 seconds and you will get the responses from all devices. If you set the times as ‘0’ it keeps sending the query without limit.

If you have completed the setting, click the Refresh button on the main menu of IPAdminTool. Then, the list will be refreshed according to your frequency setting.

NOTE : Setting too frequent query sending could increase the network load.

3. Protect Tool

3.1. Why company key required?

If your firmware files are encrypted with your own key, it prevents a 3rd party user from changing firmware or any program loaded on NVC. This is because the firmware works only when the company key succeeds in cross-checking the embedded information and user modified software.

In this manual, we assume that the company key of your IP device is *0x000000000000, the* default *company key* which has been generated already in the SDK that UDP provides. The name of company key file is *vid-cap.wrp* and it is located in NVC SDK\BIN\Tools\ProtectTool\.

IMPORTANT :
You should be very careful in handling your own company key. Once your device is encrypted with your own key, every uploaded file on the device requires that company key for encryption.

3.2. Menu and buttons configuration

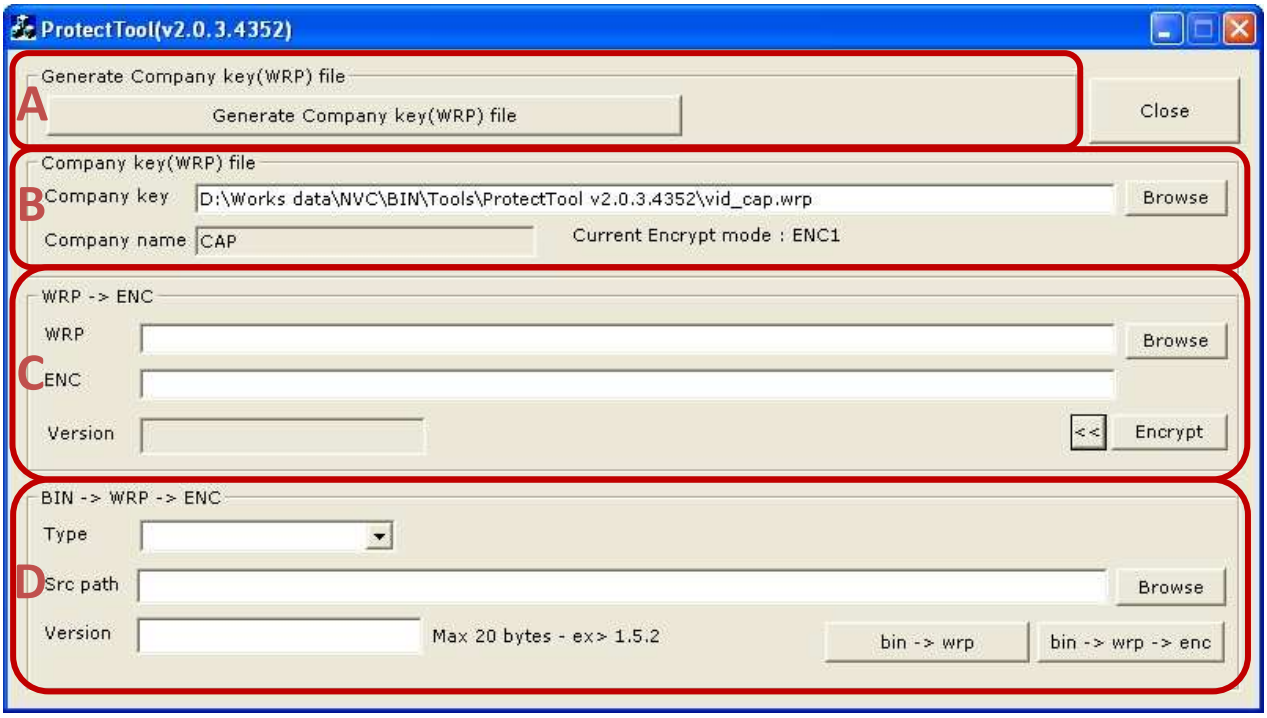


Figure 17. Generating company key file

Section A

To generate the company key, click this button

Section B

Select the company key used for the encryption of files such as brand file, firmware etc.

Section C

When you want to encrypt the .wrp file format, you can use this section.

Section D

When you want to encrypt the binary file format, you can use this section.

NOTE : Version information does not affect any part of the system but it is used only for user's convenience.

3.3. How to create your own company key

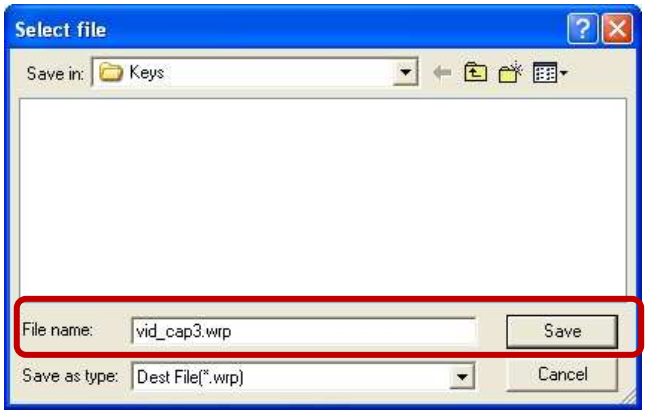
This chapter shows how to generate new company key file to be applied to your device.
Please follow the instructions below.

1. Run *ProtectTool.exe* program provided in the SDK
2. Click the *Generate Company key (WRP) file* button.If '*Select file*' window (a) is shown as below, go to the path you want to put the company key file in and type a new file name. And then another window (b) is shown.
3. Type new *company key* and *company name*.

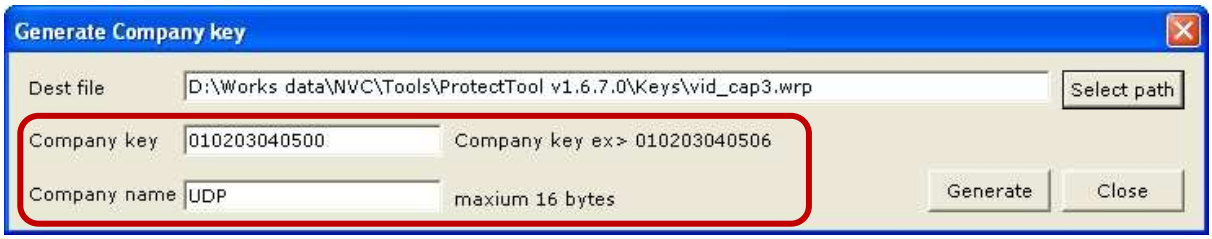
NOTE : *company key* is hexadecimal number and must be 6 bytes. Any friendly name for *company name* can be used as this name will be used for the purpose of recognition in the system. Alphabet, integer number, space and '_' are allowed for company name.

4. Click Generate button.

5. You can see the *Success* message (c).



(a)



(b)

(c)

Figure 18. Company key generated

6. Now, you have created the new company key (In this example, *vid_cap3.wrp* is new company key file) and you may see the new window of file encryption as below. The values in the fields are filled in automatically as below.

   - *Company key* : The default or old company key file is selected and this key file is used as a 'key' when a new file is encrypted.
   - *Company name* : New company name you created earlier is selected.
   - *Src file* : New company key file you just created.
   - *Dest* : The *Src file* will be encrypted into this (**.enc)* file.

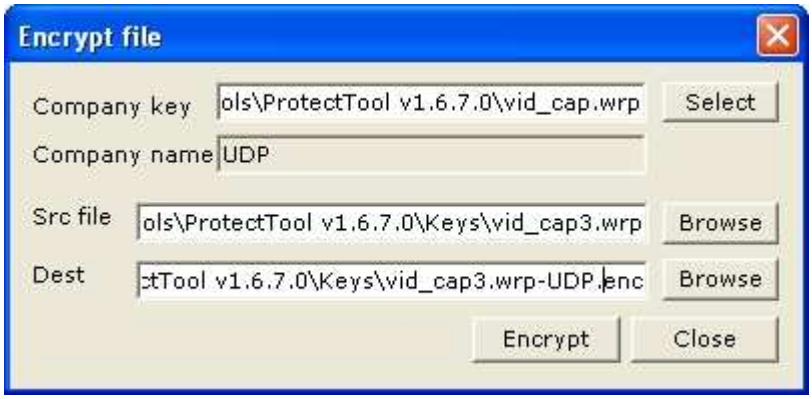


Figure 19. Encrypt the generated key file

7. Click the *Encrypt* button. You can see the encryption is completed as the message below. The encrypted company key file *(vid_cap3.wrp-UDP.enc)* is found in the identical path you have designated at step 3.

Figure 20. Completed the encryption

8. Now, you can just upload the created new company key. *IPAdminTool* provides the feature of uploading the company key file on NVC. If you have completed generating your own company key file, go to the ***2.7. How to upload new company key file*** and follow the steps

4. Package Tool

If your firmware files are encrypted with your own key, it prevents a 3rd party user from changing firmware or any program loaded on NVC. This is because the firmware works only when the company key succeeds in cross-checking the embedded information and user modified software.

In this manual, we assume that the company key of your IP device is *0x000000000000, the* default *company key* which has been generated already in the SDK that UDP provides. The name of company key file is *vid-cap.wrp* and it is located in NVC SDK\BIN\Tools\PackageTool\. This is very critical because the current key is necessary for users to change it to another one.

4.1. Menu and buttons configuration

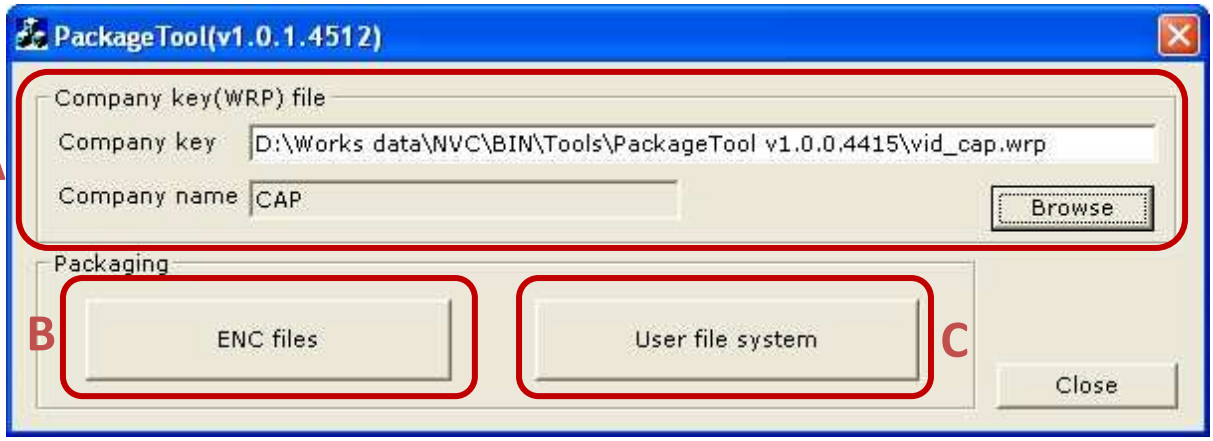


Figure 21. Package tool overview

Section A

You can choose the company key file to apply to the kernel file. On the example above, *vid_cap.rwp* is used for the key, which is the default file provided by SDK. If you created your own key and will use that one instead of the default key (*vid_cap.wrp*), select your key file for the company key with the *Browse* button.

Section B

'*Packing*' function is provided. It is used to pack the *.enc format files into *.pkt format. This tool is useful when you pack multiple files with *.enc formats and combine them into one file with *.pkt format.

Section C

'Encryption plus Pack' function is provided. It is used when you want to customize your NVC series with your own firmware files, this tool helps you to encrypt these files with your own company key (Vender ID) and pack them into one *.pkt file.

4.2. How to pack *.enc files into *. pkt files

Normally, only *.pkt format is allowed for uploading any file on the NVC. This tool helps you to pack the required files into one file. In order to pack the files, the encrypted files (*.enc) should be prepared in advance since this tool is used only to pack the encrypted files.

Step1. Running Package Tool

1. Run the *Package Tool.exe* in the SDK and you might see the window below.
2. Click the *Browse* button and choose the company key you want to use for encryption. If you do not use your own company key, just select the *vid_cap.wrp,* which is provided in the SDK as a default. Click the *User file system* button and then *User file system* program is run as below.

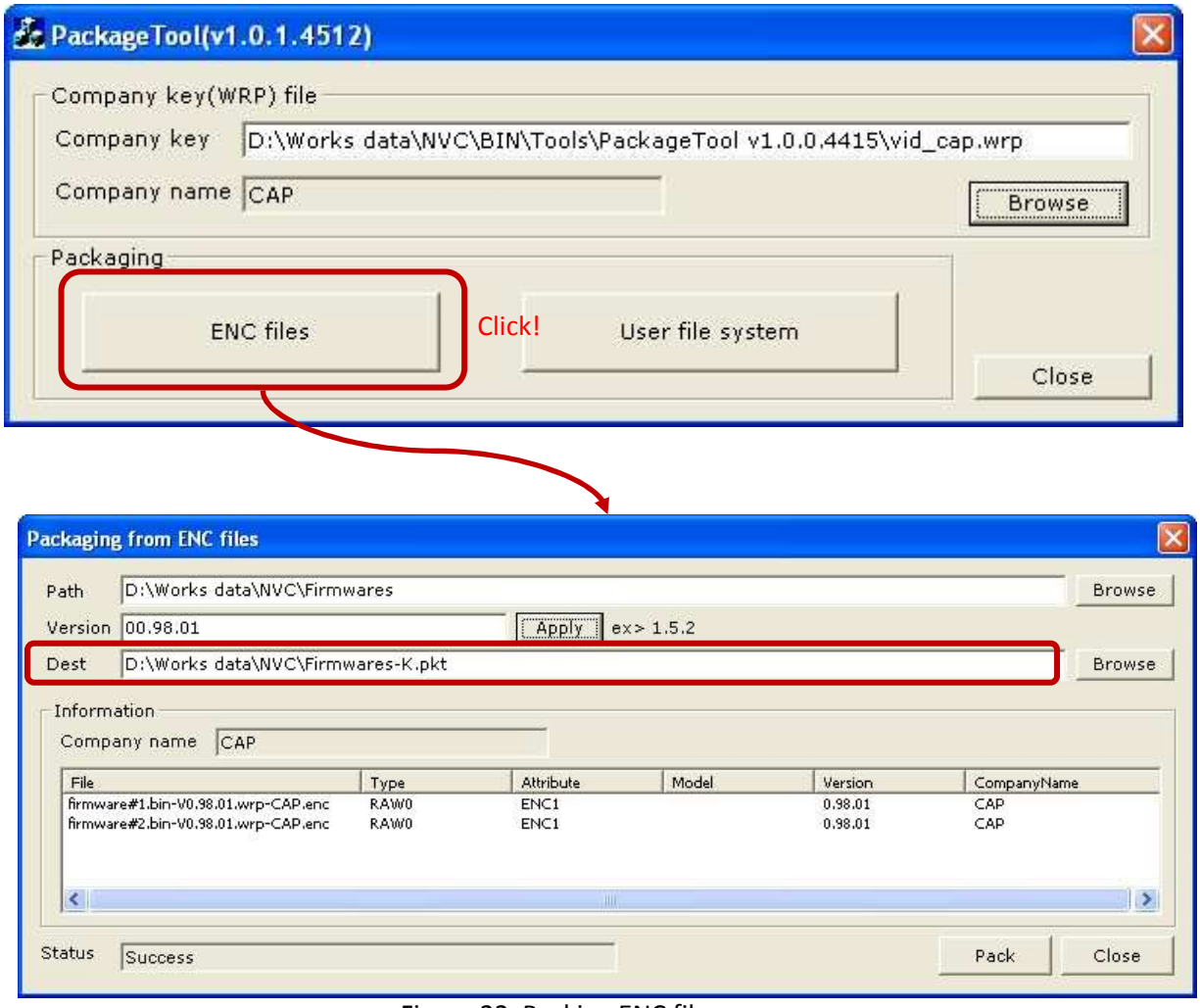


Figure 22. Packing ENC files

Step2. Select the path and the version of files

1. Click the *Browse* button and select the files you want to pack. (In this example, *nvc_firmware#1_0_98_00.bin.wrp-CAP.enc* and *nvc_firmware#1_0_98_00.bin.wrp-CAP.enc* are selected).
2. You may see that the file name (*.pkt) is created in *Dest* box automatically and the added files are listed as above.
3. Type the *Version* you want to designate for the packed file.

Step3. Pack the files

Click the *Pack* button at the bottom of the window. And you will see the *Success* message as below.

Figure 23. Succeeded in package

What's created?

If you check out the folder where the *.enc files are saved, you will find a new *.pkt files is created (In this example, *Firmwares-K.pkt* is created).

Step4. Upload the *.pkt file

The procedure of upload is totally the same with the firmware update process. Refer to ***2.6. How to update firmware remotely***.

REVISION HISTORY

MANUAL#	DATE (M/D/Y)	COMMENTS
D1A.00	11/05/08	Created
D1B.00	12/05/08	Added 3.4. How to update the brand file
D1C.00	02/09/09	Added How to add devices manually for FW update.
D1D.00	03/12/09	Added 4.3.1. Reset User file system to factory default
D1D.01	03/16/09	Reformatting
D1D.02	03/24/09	Added 'allowed memory space at User FS'
D1E.00	04/14/09	Added 'How to set the frequency of MDNS message'
01A.00	06/29/09	Added more info (menu and buttons) of 'Protect Tool'.
02A.00	07/24/09	[FW 1.00.07] Removed section 'How to change brand name on the webpage'. Removed section 'Customizing your own firmware (User file system)'.

** Refer to WHAT'S NEW page for more detailed update.