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# ActDuino S500\_Modify Tool Use Guide

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## 2 introduction

### 2.1 Writing purpose

This paper is used to illustrate how to install and use the Tool to modify the firmware.

Target readers: FAE project ActDuino team, agents, program, such as business engineers.

### 2.2 Terms and abbreviations

Terms	Explain
md5	A hash function widely used in the field of computer security to provide data integrity protection.
ADFU	Actions Device Firmware Upgrade
Small firmware	Multiple mirror firmware: .fw + recovery.img + misc.img + system.img
Big firmware	Package multiple mirror images into a large file: xx-large.fw, Mass production with the production of small firmware is the same, the production of large firmware support production cards.

## 3 Tool description

### 3.1 Summary

**Pad Firmware Modify Tool** is a tool used to directly modify the firmware file. The user can according to the requirements of the firmware file such as: basic information, USB information, resource modification, built-in APK, advanced settings options, such as the modification of the project, At the same time can be preset to the factory data into the tablet, which is a clone of the small machine is the data.img to read the PC, when the firmware insert data.img insert the original firmware to generate a new firmware.

### 3.2 Supported firmware

Support ActDuino project firmware format (multi mirror firmware components: **.fw + recovery.img + misc.img + system.img**) And the big firmware format (the multiple mirror firmware is packaged into a large file: **xx-large.fw**)

### 3.3 Installation requirements

#### 3.3.1 software environment

Prior to the use of tools should be prepared to do a good job in order to ensure that the work of Modify can be carried out smoothly and orderly.

PC environment:

OS	<p>WINXP SP2 or above Unpack the operating system in win7 and above, Because win7 and above operating system permissions mechanism</p> <p>Only the administrator login users have permission to modify the file after unpacking , Ordinary users need to modify the unpacked files, run as administrator and then open the unpacking file editing tools can be modified.</p>
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PC Configuration requirements	<ol style="list-style-type: none"><li>1. 2.2GHz CPU or above</li><li>2. Memory 2G or above</li><li>3. C drive have more than 5GB of the remaining space</li></ol>
PC Drive installation	<p>To install the ADB driver, tools to support the cloning function Prompt:</p> <p><a href="#">Windows under the drive of the storage path (applicable to 2000/xp/win7) Please see the release package: release\leopard\tools\adb_drv\usb_driver_r04-windows</a></p> <p>When installing the inf file can be selected. Or contact FAE to provide.</p>

After more than satisfied, you can click on the tool to install Modify tools installation tool.

### 3.3.2 Support language

Tools to support the use of the operating system of the three languages in simplified Chinese, English and traditional Chinese.

## 3.4 Software installation

Pad Firmware Modify Tool installation is convenient, simple and quick, Open “Pad Firmware Modify Tool installation package, Double click Run “Setup” file, After entering the installation interface in accordance with the prompt click next step can be installed correctly.

## 3.5 Software uninstall

### 3.5.1 Control panel uninstall

After installing Pad Firmware Modify Tool, By entering [control panel] select [add or remove programs], Selected “Pad Firmware Modify Tool”, Click the “delete” button to uninstall it.

### 3.5.2 Uninstall the program group

Tools support self unloading, by entering the [program] selection “Pad Firmware Modify Tool”, click “Uninstall”

## 4 Firmware modification process description

In order to make the correct firmware, follow these steps to modify the firmware:

- 1、First prepare the original firmware file (just make out, no data.img firmware)
- 2、Load the original firmware with modify and start some basic changes.

For example: basic information, resource file replacement, program files, USB information label, logo, boot animation and other modifications.

Order to make the correct In firmware follow steps these to modify the firmware:

- 3、After the modification, click "save" to generate a new firmware.。
- 5、After the small machine is fully operational, according to the requirements of the operation of small machines

For example: adjust the desktop layout, replace the desktop background, set the font size, set the default language, set the browser default page (home page), pre installed APK and so on.

- 6、According to the needs of the completion of the operation, the need for normal shutdown, restart the small machine

- 7、Load on the modify just burn and write the firmware (step 4), after the small machine is fully boot, USB debug mode to connect PC

- 8、When the modify tool is properly connected to the small machine ("clone" button highlighted), you can click the clone button to clone (in order to ensure that the clone function is correct, clone is prohibited for any operation on the tablet).

- 9、After the completion of the clone, click the "save" button, you can generate more than all the modifications and the operation of the effect of the firmware.

**Remind:**

1、If the tool is judged to be loaded with data.img and the file is generated via the clone function, it is prohibited to "default".Recognition of the language change function, because the function of the modification may be cloned into the data.img user defined data conflict, Causes the modification to be invalid.

2、SELinux leads to the GMS firmware data division changes will lead to some unpredictable problems, so from v1.10 began to temporarily support GMS firmware cloning, built-in APK. Non GMS firmware from v1.15 began to default does not support functional cloning, we do not recommend using the function, but if you do need to use this feature, please contact Customer Manager Department.

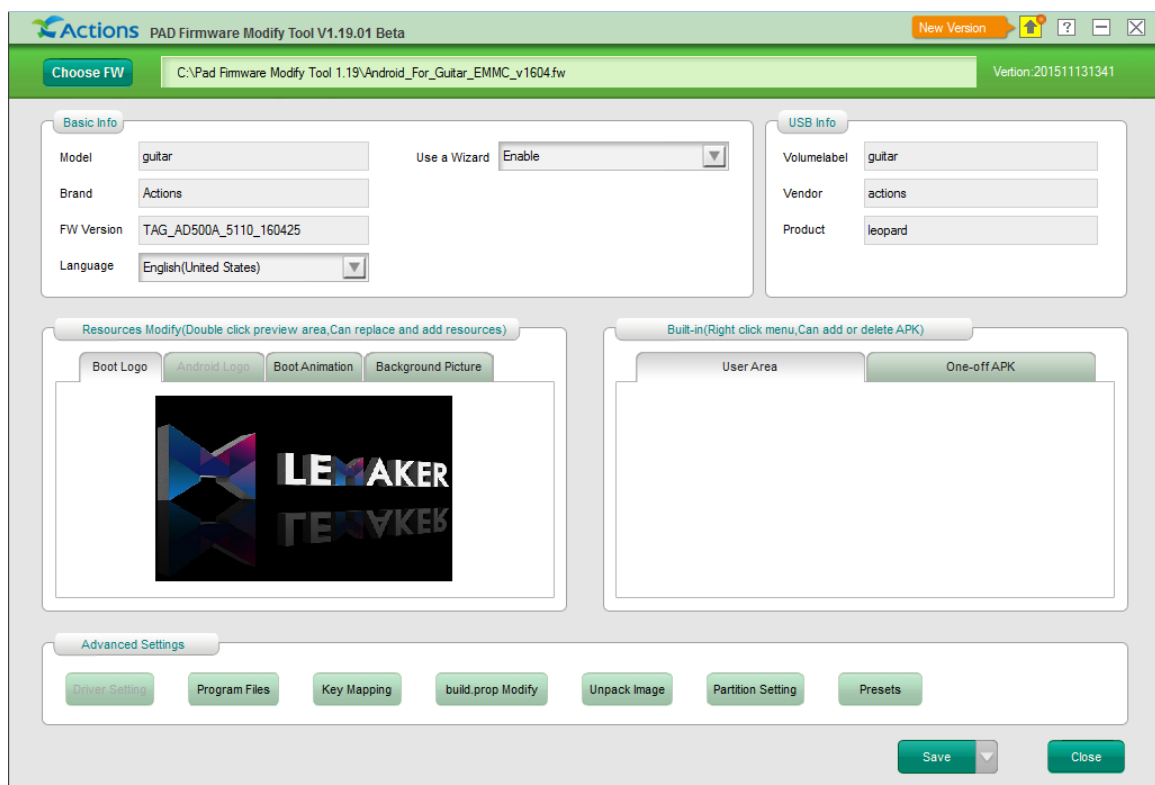
## 5 Modify FW file

### 5.1 Run tool

Click [start] button, enter the [program] Select “Pad Firmware Modify Tool” , Select Click “Pad Firmware Modify Tool” run Modify tool.

### 5.2 Add FW file

Click on the tool interface "button to select the firmware, pop open document window, selected to modify the FW file (extension is \*.fw file or \*.fwu file) click on the" open "button, add FW files and tools in the" firmware "column, choose show the path to FW file, as shown in the diagram below:

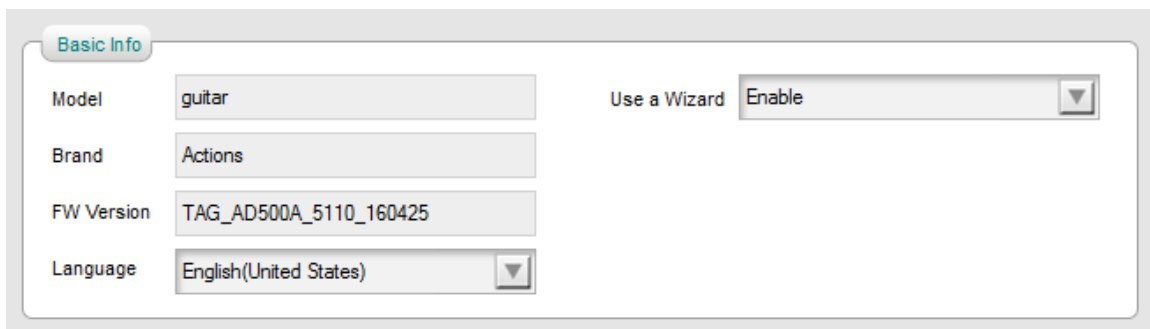




## 5.3 Modify FW file

### 5.3.1 Basic information interface

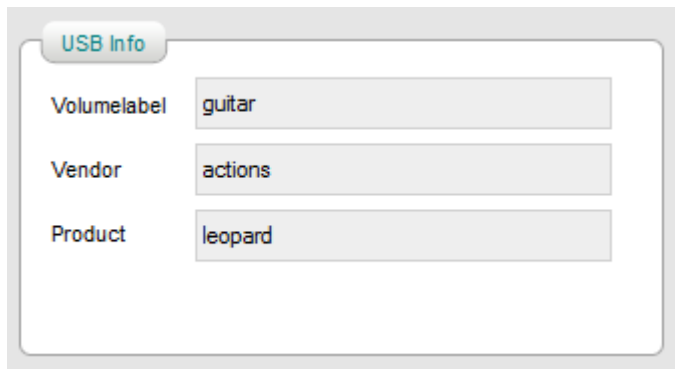
In the basic information interface, can modify a number of information, including product models, the company name, the firmware version, the default language, Using the wizard, as shown below:



Basic Info	
Model	guitar
Brand	Actions
FW Version	TAG_AD500A_5110_160425
Language	English(United States)
Use a Wizard	Enable

### 5.3.2 USB information interface

Information on the USB interface, can modify the number of information, including the U disk label, manufacturer name, product name, as shown below:




USB Info	
Volumelabel	guitar
Vendor	actions
Product	leopard

### 5.3.3 Resource modification interface

Modify the information interface in the resource, modify the default background image, you can modify the information, including Androidlogo, BootLogo, boot animation, the default background image

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Androidlogo, boot animation, support delete function, click “” Function button to delete Androidlogo,

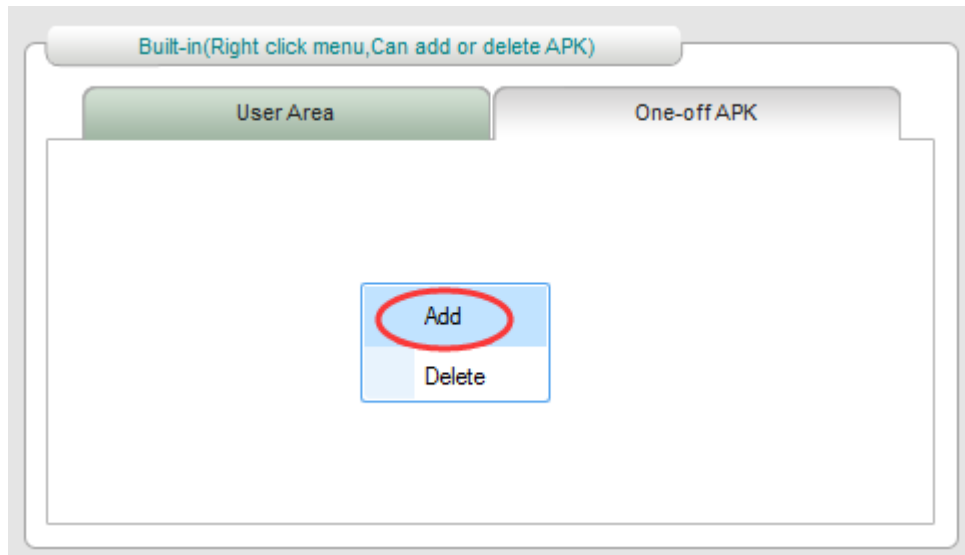
### 5.3.4 Built in APK interface

In the built-in APK interface, modify the user area and one-time APK.

e. g:

User area: the right mouse button menu, you can add or delete APK, as shown below:

Add APK:



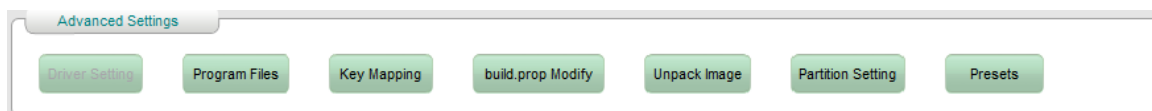
Prompt:

A、User zone preset APK and one-time APK storage location: add to the data/app under the data.img, After startup, a small opportunity to scan and automatic installation; users can delete their own, if by restoring the factory settings, all APK in the data will be deleted

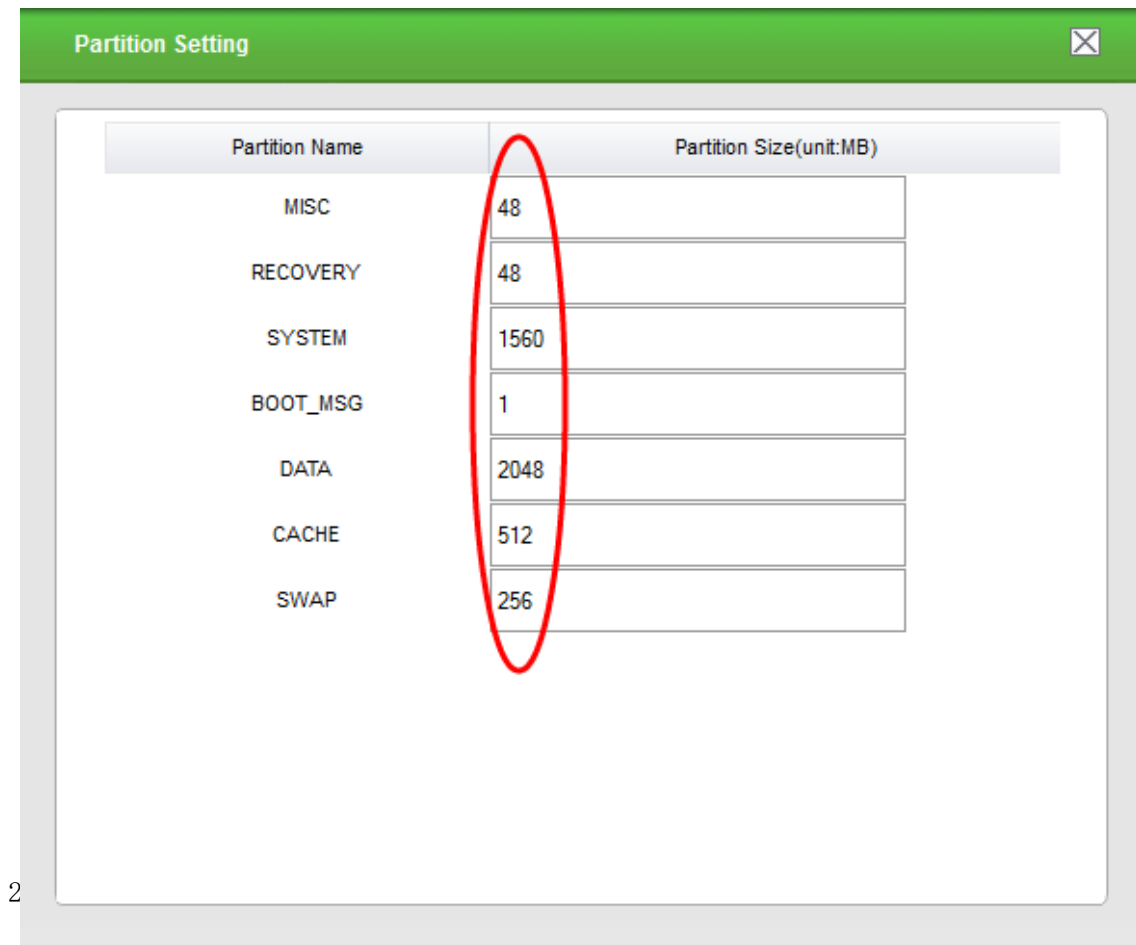
B、Disposable preset APK, modify, will in the APK former increase "actltinstall\_ field for different user preset APK; if small machine with preset disposable APK, settings in the application will delete one-time preset APK" menu item. Perform this menu item will only delete except for disposable preset APK, user area of the APK is not deleted. This function which can be used to built some of the production line test of the APK, test and don't want to end users see and use. At this time, you can through the settings "delete one-time preset APK" menu to separate delete the APK.


### 5.3.5 Advanced settings options interface

In advanced settings interface, you can modify the information, including driver configuration, program files, key mapping, modify the buildprop, cloning unpack the mirror, the configuration partition, as shown in the following picture: in the advanced settings interface, can modify the information, including driver configuration, program files, key mapping, buildprop Modify, clone, unpack image, partitioning configuration, as shown below:




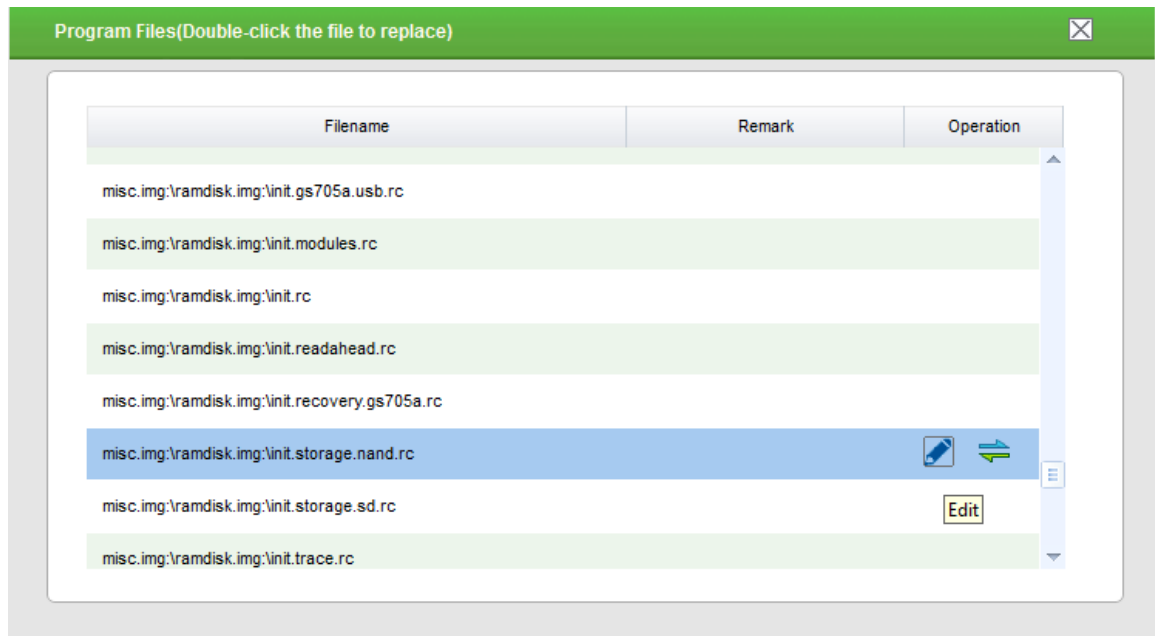
1、The mouse click on the "driver configuration": tools to resolve config.xml and bin\_cfg.xml files, and set out the configuration items for the user to change.



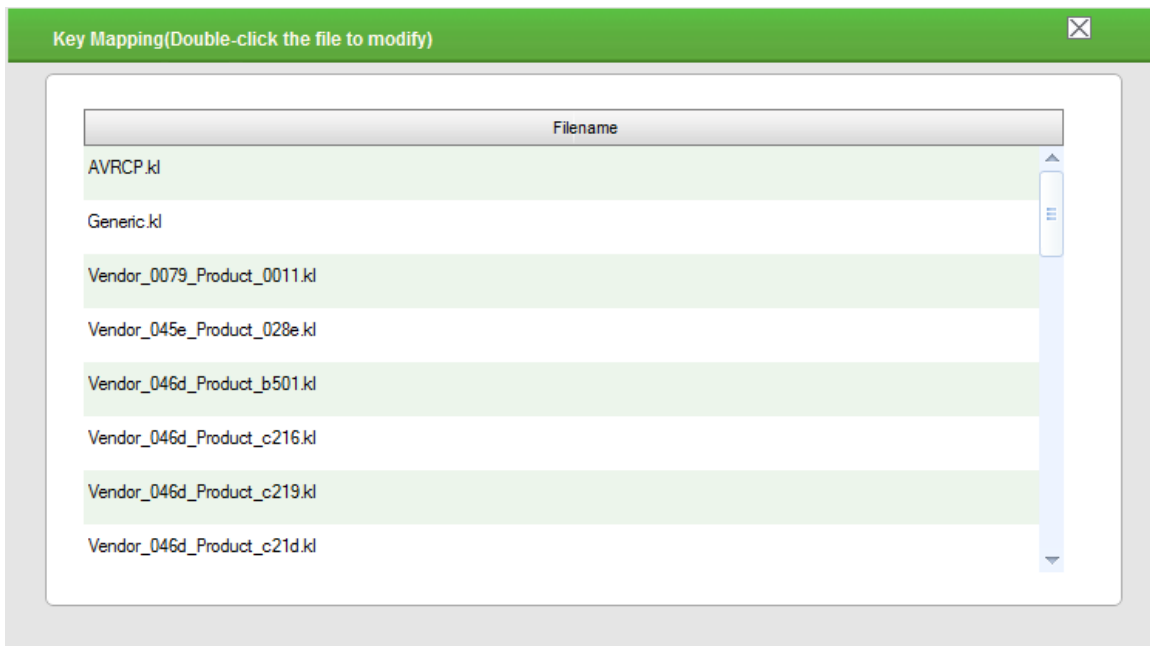
Click “” Can replace the file, as shown below



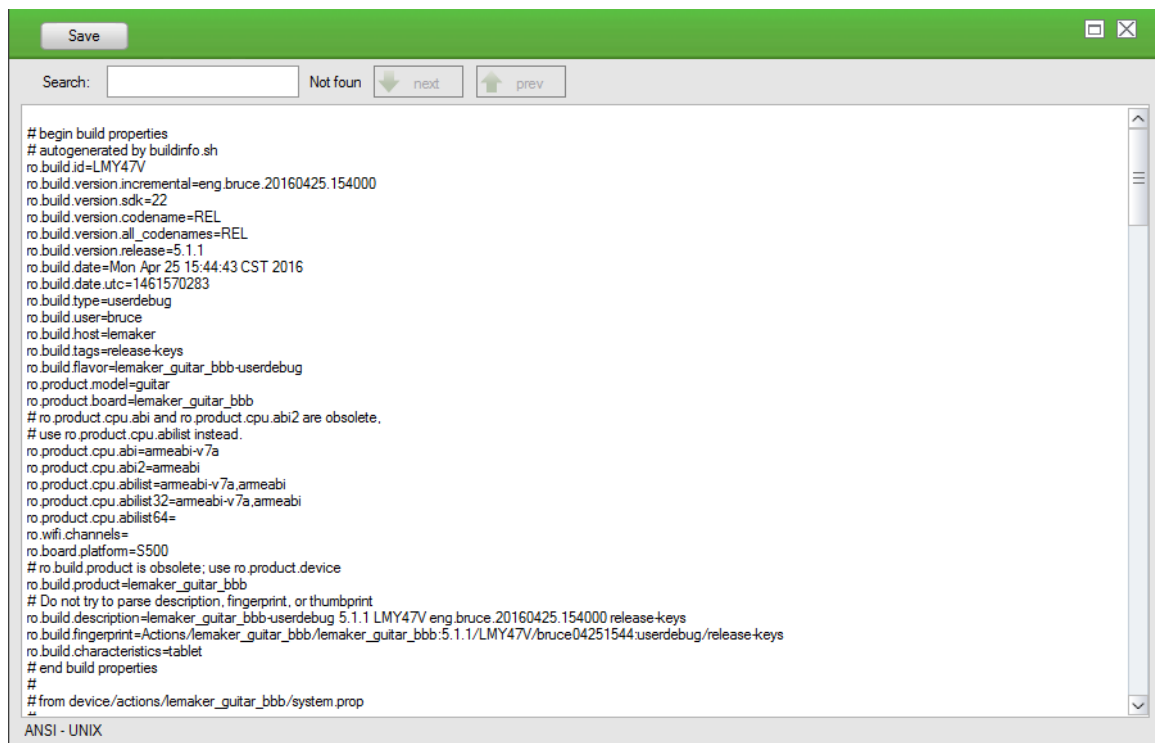
Program file support text editing function, click  Edit button pop-up text editor for user editing This function is similar to the edit function of the button mapping A file is replaced, edited, or replaced, and can be replaced and edited, depending on the configuration in the FMTool.cfg.



3、Mouse click on the "key mapping entry: tools to a text file open build.prop file, for users to edit, modify (note to UNIX format editing, avoid the problem of inconsistent newline formats)



4、The mouse click "build.prop modify" entry: open the build.prop file for the user to edit, modify.



### 5、Small machine for U disk device firmware clone function

The clone will put all the information on the device side, including the user installed APK, the default bookmark / home page of the web browser, and the desktop interface. Layout, system settings, and so on information will be cloned into the new firmware (stored in the data.img file).

### Specific cloning steps:

Step 1: before cloning, the contents of the hope that the cloning of the first to change the small machine (such as the default language, time zone, the default input method, Table layout and so on first set up.

Step 2: the small machine will be changed to normal shutdown (to ensure that the changes can be cloned before, please perform this operation!)

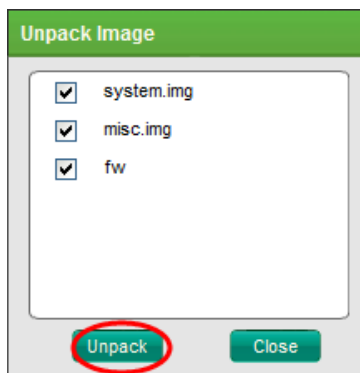
Step 3: boot, and then on the way to connect USB PC, "clone" button highlighted, the connection is successful (to ensure that the clone function correctly, clone prohibit any operation on the tablet).

Step 4: click the "clone" button and start cloning.

Step 5: "save" the firmware.

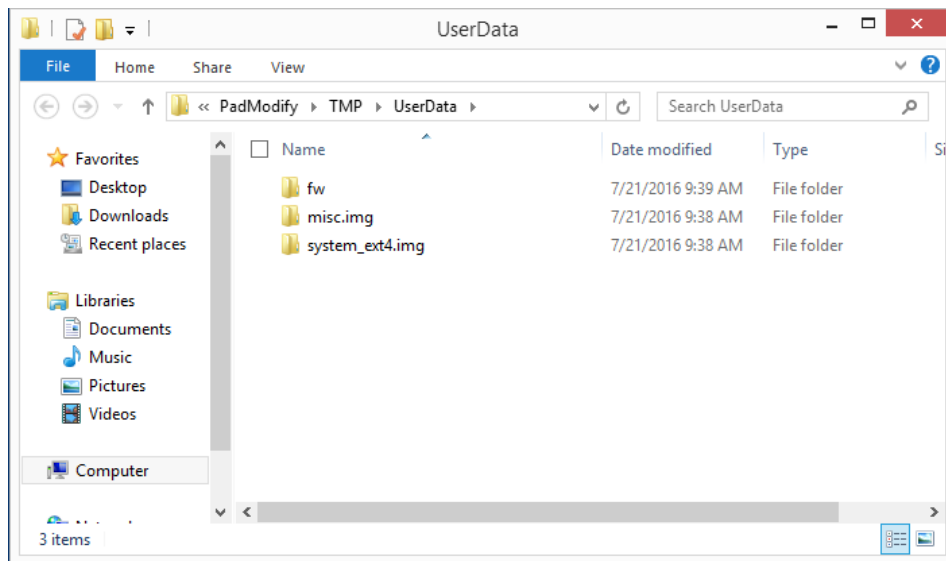
After saving the firmware, firmware file will be more cloned the data.img and data Data\_bak.img two files. Production firmware will data.img and data Data\_bak.img are selected and burn to small machine can be.

6、A mouse click on the "mirror" unpacking: Windows environment pack / unpack ext4 image file.

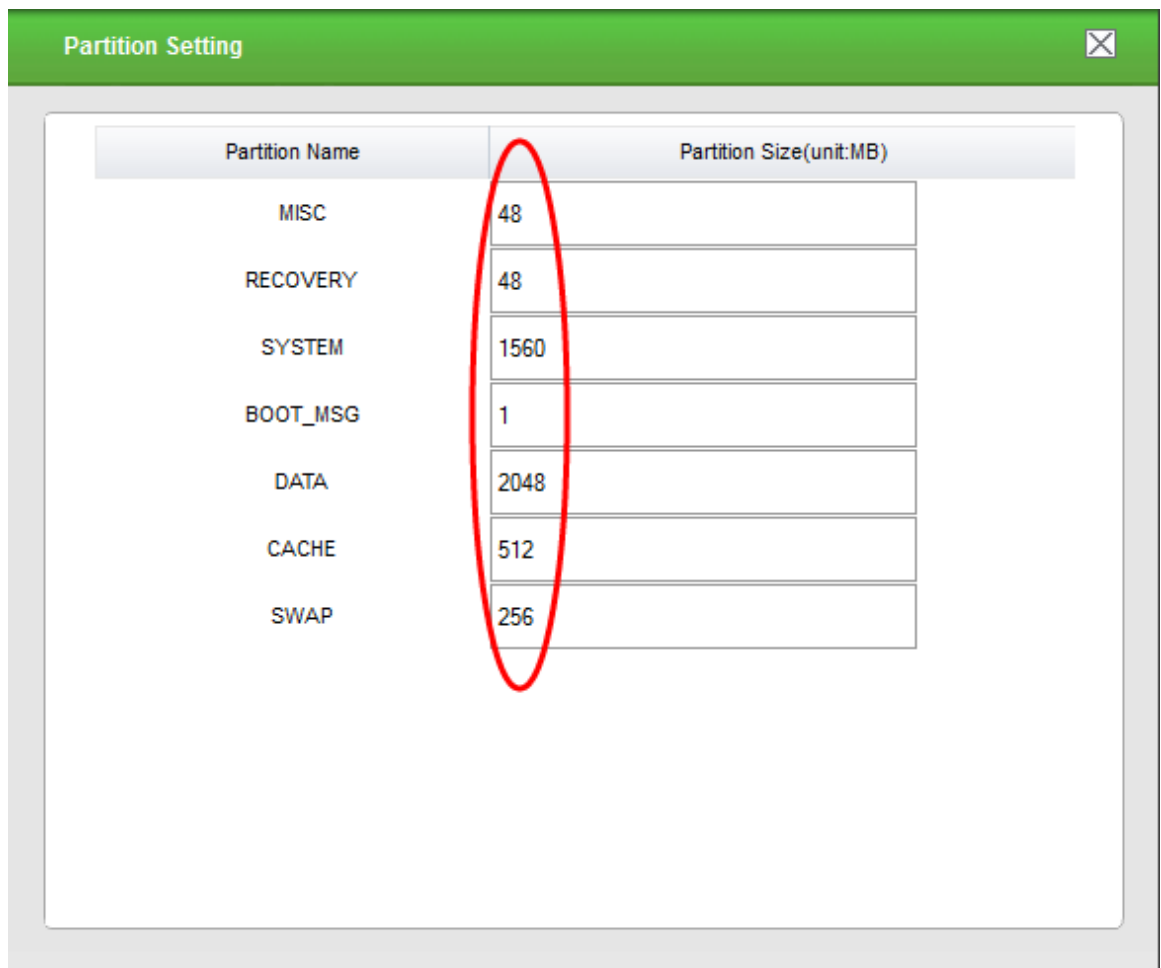


After the success of the open file directory path C:\Document and Settings\user\Application Data\TMP\UserData,





7、The mouse click on the partition configuration item: click the 'partition' button on the tool interface.



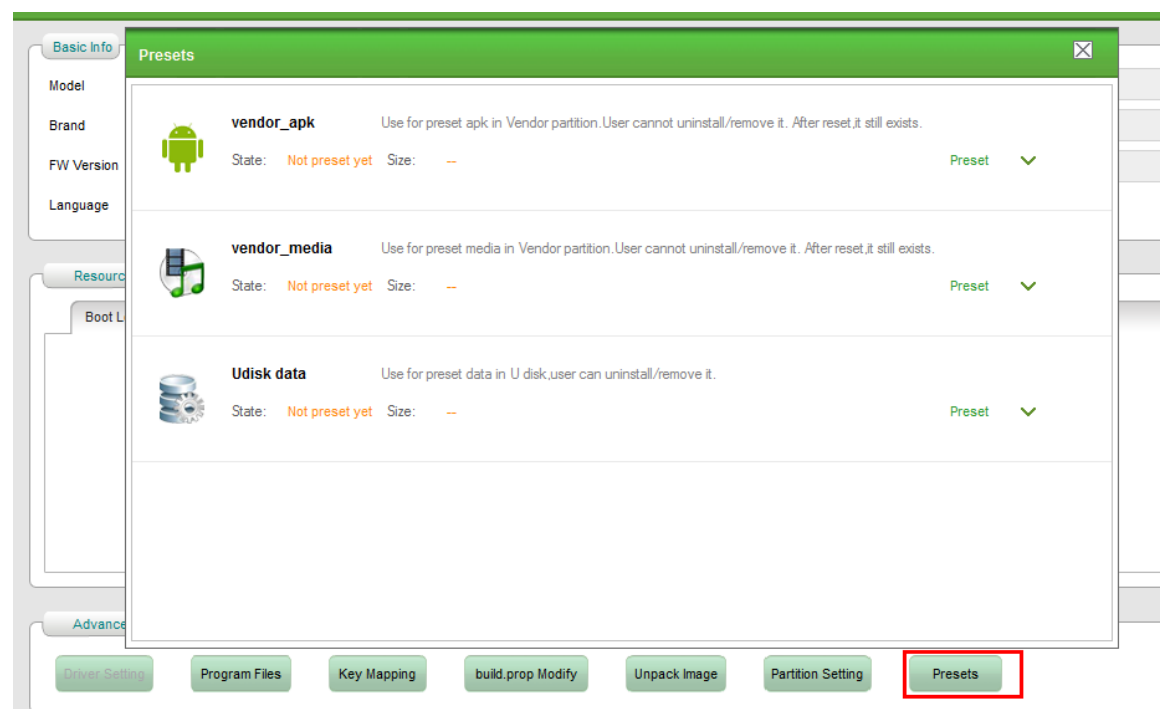
### 5.3.6 Factory preset function instructions

At present, there are two types of organization forms of the firmware.

1. The firmware file has only one ".FW" file, and the file is preset by modify.
2. The firmware file is composed of multiple files (one ".FW" and ".Img" components).

To preset.

Preset VENDOR\_MEDIA, VENDOR\_APK and U disk factory data, after the success of the preset to play together to save changes Package to the FW firmware, through the production tool to burn the tablet PC.。



1. Preset data: click "I want to preset" function, select the preset data input directory, click on the "preset" function

Button to initialize data

With pre vendor\_apk data as an example:

## 6 Reference

## 7 Version history

Date	Version	Note	writer
2015-5-8	1.0	Create an initial version	ActDuino

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