



TETRA Terminal KMA
Operation Guide



Copyright Information

Hytera is the trademark or registered trademark of Hytera Communications Corporation Limited (the Company) in PRC and/or other countries or areas. The Company retains the ownership of its trademarks and product names. All other trademarks and/or product names that may be used in this manual are properties of their respective owners.

The product described in this manual may include the Company's computer programs stored in memory or other media. Laws in PRC and/or other countries or areas protect the exclusive rights of the Company with respect to its computer programs. The purchase of this product shall not be deemed to grant, either directly or by implication, any rights to the purchaser regarding the Company's computer programs. Any of the Company's computer programs may not be copied, modified, distributed, decompiled, or reverse-engineered in any manner without the prior written consent of the Company.

Disclaimer

The Company endeavors to achieve the accuracy and completeness of this manual, but no warranty of accuracy or reliability is given. All the specifications and designs are subject to change without notice due to continuous technology development. No part of this manual may be copied, modified, translated, or distributed in any manner without the express written permission of us.

We do not guarantee, for any particular purpose, the accuracy, validity, timeliness, legitimacy or completeness of the Third Party products and contents involved in this manual.

If you have any suggestions or would like to learn more details, please visit our website at:

<http://www.hytera.com>.

Contents






Documentation Information	1
1. Overview.....	2
1.1 Feature Description	2
1.2 Interface Description.....	2
2. Before Use.....	4
2.1 Hardware Requirements.....	4
2.2 KMA and Related Documentations	5
2.3 Installing KMA.....	5
3. Basic Operations	7
3.1 Operation Flow	7
3.2 Adding a key	7
3.2.1 Adding a K Key.....	7
3.2.2 Adding a SCK Key.....	8
3.2.3 Adding a E2EE Key	9
3.3 Creating a Key File	11
3.4 Writing a key file	11
4. Related Operations	15
4.1 Deleting a Key	15
4.2 Deleting a Key File.....	15
5. FAQ	17
A Abbreviation	18

Documentation Information

This section describes the conventions and revision history of this document.

Documentation Conventions

Instructional Icons

Icon	Description
 Tip	Indicates information that can help you make better use of your product.
 Note	Indicates references that can further describe the related topics.
 Caution	Indicates situations that could cause data loss or equipment damage.
 Warning	Indicates situations that could cause minor personal injury.
 Danger	Indicates situations that could cause major personal injury or even death.

Notational Conventions

Item	Description
“ ”	The quotation marks enclose the name of a software interface element. For example, click “OK”.
【 】	The text in boldface denotes the name of a hardware button. For example, press the PTT key.
->	The symbol directs you to access a multi-level menu. For example, to select “New” from the “File” menu, we will describe it as follows: “File -> New”.

Revision History

Version	Release Date	Description
R1.0	10-2015	Initial release

1. Overview

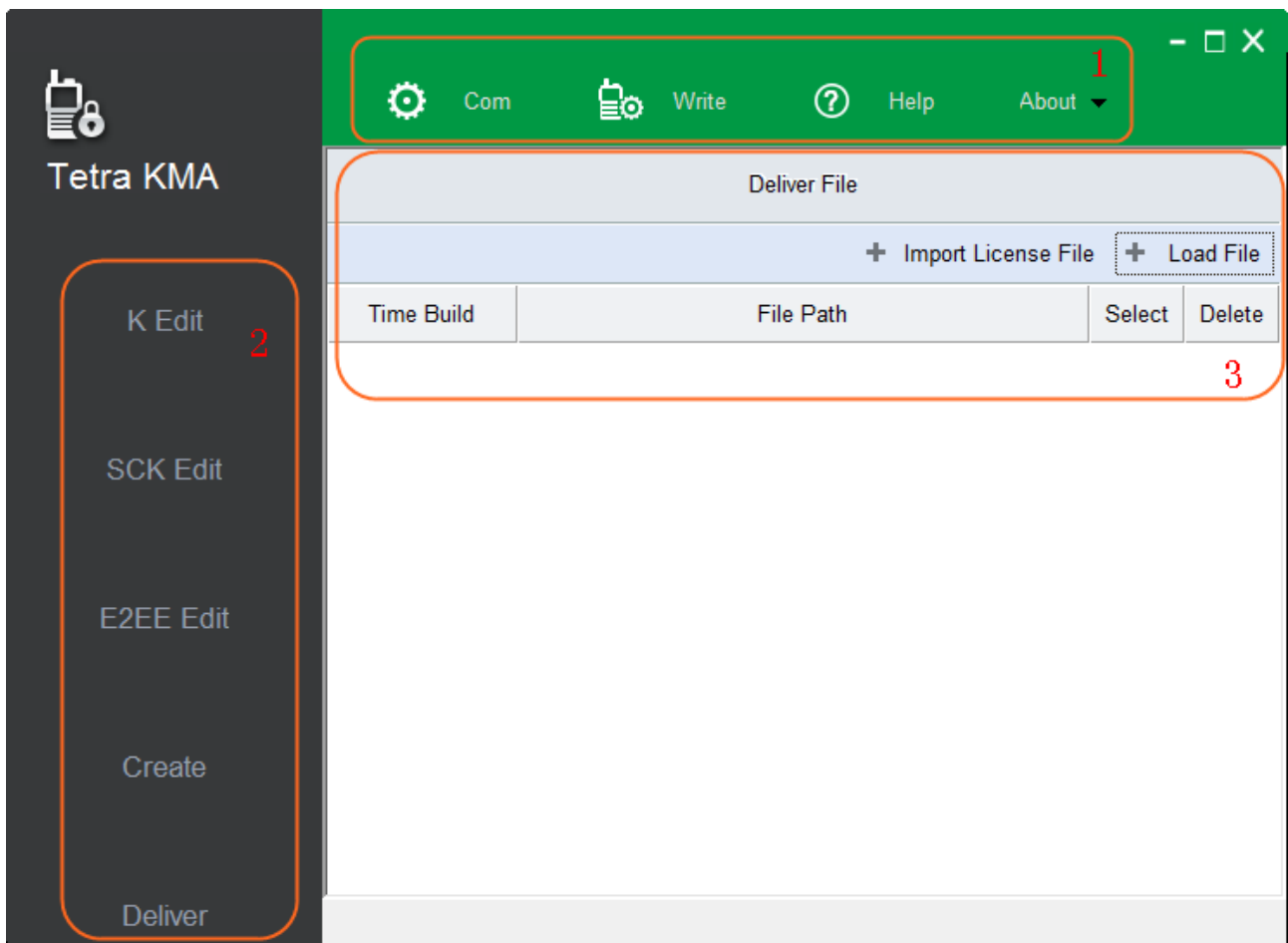
1.1 Feature Description

KMA (Key Management Assistant) is a key management tool. It is designed to create keys, and write the key file into terminal in encryption form to ensure key security. The keys available for management include TMO authentication key (K), air interface encryption key (DMO/TMO SCK) and E2EE key.

This tool is applicable to the terminal whose firmware version is R7.0 (V3.07.10.006 for portable terminals) or above.

1.2 Interface Description

The home interface of KMA is shown in the following figure.



Area	Function
1	<p>Implement an operation by clicking the appropriate icon.</p> <ul style="list-style-type: none"> ● Com: click to select the port for communication between the PC and terminal. ● Write: click to write the key file into the terminal.

Area	Function
	<ul style="list-style-type: none">● Help: click to display instructions on KMA use.● About: click to display the software version.
2	Select the items to be configured, including K Edit, SCK Edit, E2EE Edit, Create and Deliver. Click on any item to access its configuration interface.
3	The configuration interface.

2. Before Use

2.1 Hardware Requirements

To write the key file into a terminal, a qualified programming cable is required, which is subject to terminal model, as described below.

Terminal Model	Programming Cable
PT580H Plus	PC36
Z1p	PC66



Figure 2-1 PC36 Programming Cable (for PT580H Plus)



Figure 2-2 PC66 Programming Cable (for Z1p)

2.2 KMA and Related Documentations

Consult your dealer to obtain KMA and related documentations.

- KMA software installation package
- TETRA Terminal KMA Operation Guide Rx.x

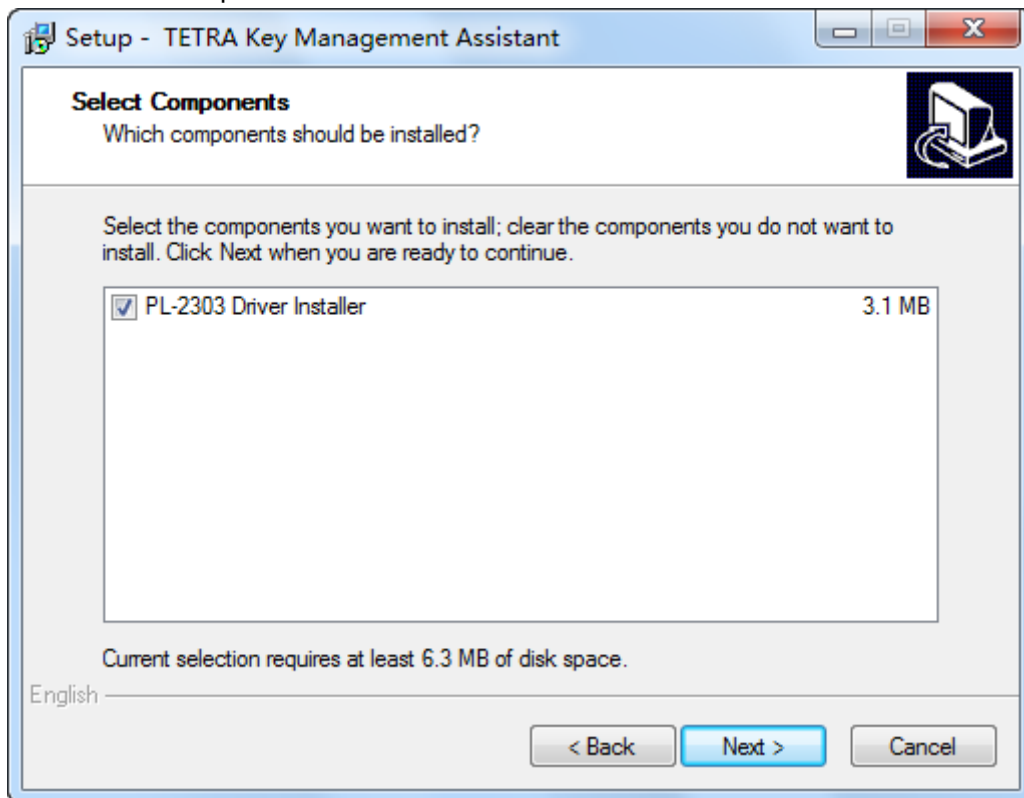
2.3 Installing KMA

Caution

When installing the KMA onto the computer with a language other than simplified Chinese, select “English” as the display language of the KMA.

Step 1 Double-click the KMA software installation package, and follow the on-screen instructions to complete the installation process.

When the following interface appears, make the right choice as per your actual requirements, and click “Next” to proceed.



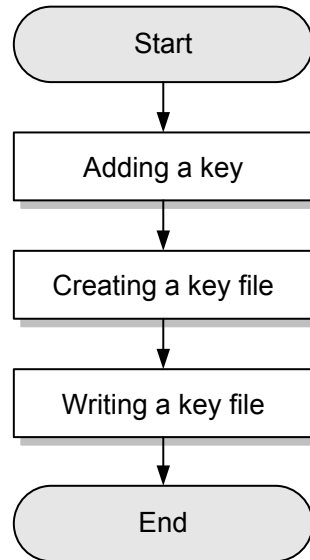
The computer can identify the connected terminals only after PL-2303 Driver Installer is installed. If PL-2303 driver has been installed during other installation tasks, uncheck the “PL-2303 Driver Installer” to avoid repetitive installation. If not installed previously, PL-2303 Driver Installer is required.

Step 2 Follow the consequent installation instructions.

3. Basic Operations

This part describes how KMA is used to create a key and write it into a terminal.

3.1 Operation Flow



Operation	Description	Chapter
Adding a key	Add a K key, SCK key or E2EE key as per actual needs.	3.2
Creating a key file	Create a key file via the added key. The key file would be encrypted to ensure key security.	3.3
Writing a key file	Import the key file and write it into a terminal.	3.4

3.2 Adding a key

3.2.1 Adding a K Key

Step 1 Click “K Edit” to access its configuration interface.

Step 2 Click “Add”, and input the key name in the pop-up window. Then click “OK”.

Step 3 Click “Add”, and input the TEI and the key value of appropriate terminal.



Note:

You can click “Import” directly if there is a TEI-K file already.

K_11		
+ Add + Import		
TEI	K	Delete
0001302F5006600	322434672FB368426D2F08D054217F3D	Delete
0001302F5006610	5FB13E2E739A2F5A3BFF1A9464B43A6C	Delete

Parameter	Description
TEI	<p>Terminal Equipment Identity, consisting of 15 hexadecimal characters.</p> <p>Note:</p> <p>You can find the TEI via the label, which locates at the aluminum chassis (portable terminals) or at the bottom side of the control panel (mobile terminals).</p>
K	The authentication key, a 32-bit hexadecimal string.

Step 4 Click “Save” to end.

3.2.2 Adding a SCK Key

Step 1 Click “SCK Edit” to access its configuration interface.

Step 2 Click “Add”, and input the key name in the pop-up window. Then click “OK”.

Step 3 In the “Version” field, input the key version, and input key value in the “Value” field.



- You can click “Import” directly if there is a SCK key file already.
- You can click “Export” to export the ready-to-use key file for future use.
- You can click “Random” to generate the random keys.

SCK - SCK_11			
Key	No.	Version	Value
Key1	0	0	6D6313AA5ECF74A179DA
Key2	1	0	50D327EC1EBF555F71E4
Key3	2	0	66154B7837DD35B26914
Key4	3	0	26790D1A4C78058F41E5
Key5	4	0	2E813A843CE82EA56A24
Key6	5	0	53301C616F007B016014
Key7	6	0	1784776B5684487A61C2
Key8	7	0	31A2734E4D120B5A35F7
Key9	8	0	6D352BE8657C2EEA2A8C
Key10	9	0	409271AE1AFB66A474AE
Key11	10	0	607060BC4592148C631B
Key12	11	0	692A55335C27550F343D
Key13	12	0	1F6E505A000D1BBE31B9
Key14	13	0	38507FE238593DDF4B3D
Key15	14	0	09461CF33800664B1803
Key16	15	0	5C3E15D95ED8485A0C8A
Key17	16	0	134544DE5FA23DDE2004
Key18	17	0	29B2483216475ABC3EF2
<div> Import Export Save Exit Random </div>			

Parameter	Description
Key	The name of key. Up to 32 names are allowed.
No.	The serial number of key.
Version	The version of key, used for checking key validity. The range is 0 – 65535.
Value	Consisting of 20 hexadecimal characters.

Step 4 Click “Save” to end.

3.2.3 Adding a E2EE Key

E2EE includes hardware E2EE and software E2EE.

Hardware E2EE requires you to input the SIM card number while software E2EE needs you to input key

length and key value.

Step 1 Click “E2EE Edit” to access its configuration interface.

Step 2 Click “Add”, and input the key name in the pop-up window. Then click “OK”.

Step 3 For hardware E2EE, input SIM card number in the “SIM” field; for software E2EE, select the appropriate key length in the “Key Length” field and configure appropriate key value in the “Value” column.

Key	Value
SIM	00000000000000000000
Key Length[bits]	256bit
Key1	A7B6ddc7728425EA7B6d288425EFd05DBCAEFa005Dc7288425EFa08CAE7723Ab
Key2	a25EAbaCD288425EFd05DEFADc72884EEEFd0285EFd05DBCAEFa00aBCefd79aBc
Key3	
Key4	
Key5	
Key6	
Key7	
Key8	
Key9	
Key10	
Key11	
Key12	
Key13	
Key14	
Key15	
Key16	
Key17	
Key18	
Key19	

Parameter	Description
SIM	<p>The number of the SIM card used by the terminal, consisting of 20 hexadecimal characters.</p> <p>Note:</p> <p>The terminal will automatically check/verify the number of the inserted SIM card upon power-on. If this number is different from the existing number preset via the KMA in the terminal, a prompt “Invalid Card” will be displayed on the screen. And the terminal will be locked and cannot be operated.</p> <p>If the terminal displays a prompt “Please insert the SIM card.” on the screen upon power-on, it means no SIM card is inserted into the terminal.</p>

Parameter	Description
	In this case, the terminal you need to insert the SIM card.
Key Length	The length of key, including 128bit and 256 bit.
Value	<p>The E2EE key.</p> <ul style="list-style-type: none"> ● 128bit: consisting of 32 hexadecimal characters. ● 256bit: consisting of 64 hexadecimal characters.

Step 4 Click “Save” to end.

3.3 Creating a Key File

Step 1 Click “Create” to access the creation interface.

To generate a key file, check the appropriate option, and choose the key to be used for the key file from the drop-down list. The following figure shows an example of K.

Build Encrypted File - source	
Title	Param
K Switch	<input checked="" type="checkbox"/>
K Source File	K_11
SCK Switch	<input type="checkbox"/>
SCK Source File	
E2EE Switch	<input type="checkbox"/>
E2EE Source File	
<div>Save Exit</div>	

Step 2 Click “Save”.

Step 3 In the pop-up window, select the storage directory and input the file name.

Step 4 Click “Save” to end.

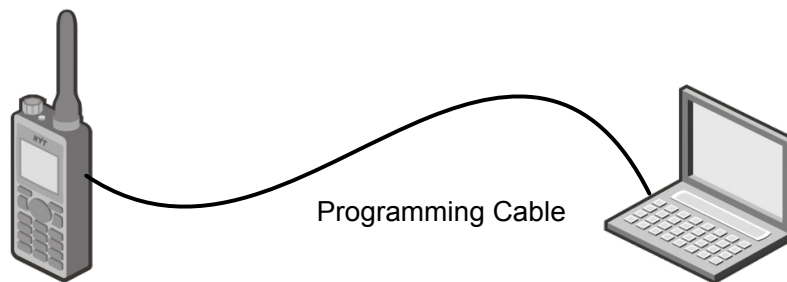
The key file in “.kma” format will be saved to your specified directory.

3.4 Writing a key file

Step 1 Power on the terminal.

Step 2 Use the programming cable to connect the terminal to the computer with KMA installed.

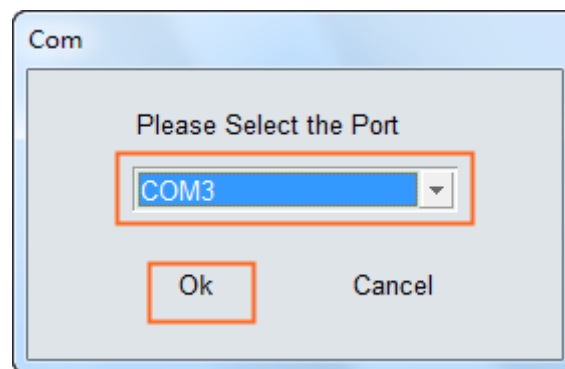
There are different programming cables for different terminals. Please refer to [2.1 Hardware Requirements](#) for details.



Step 3 Run KMA.

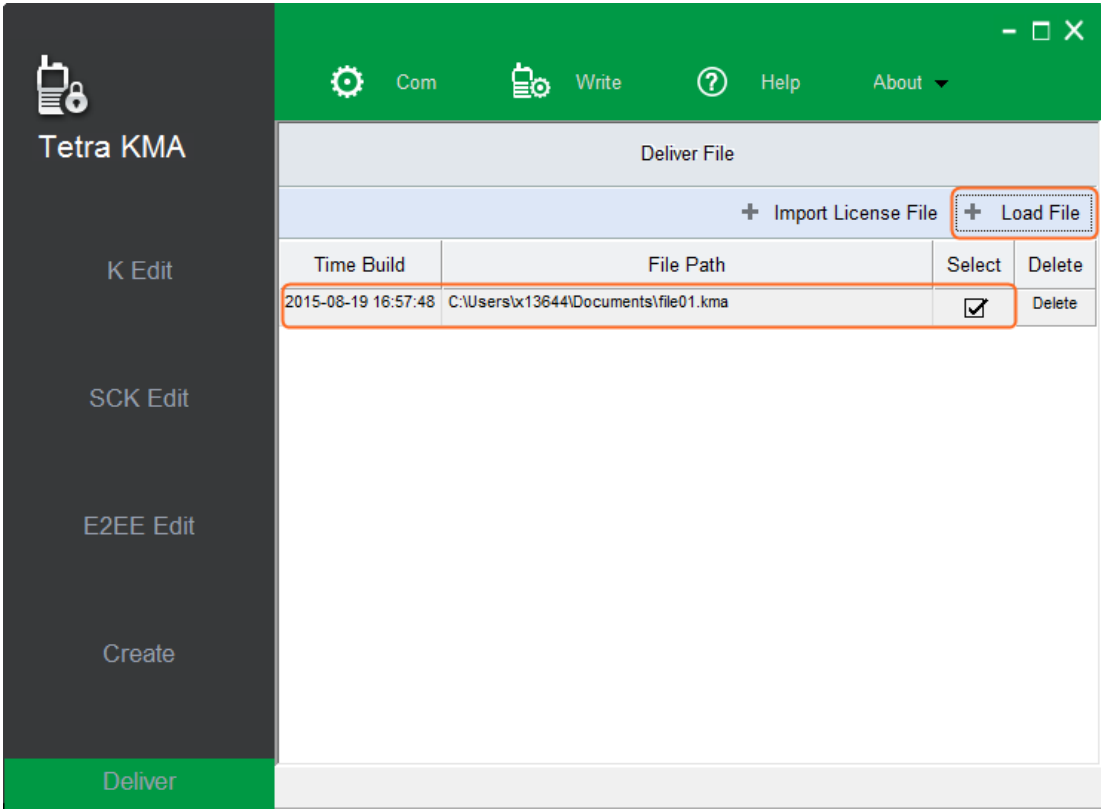
Step 4 Click "Com".

Step 5 Choose the right port from the drop-down list and click "OK".

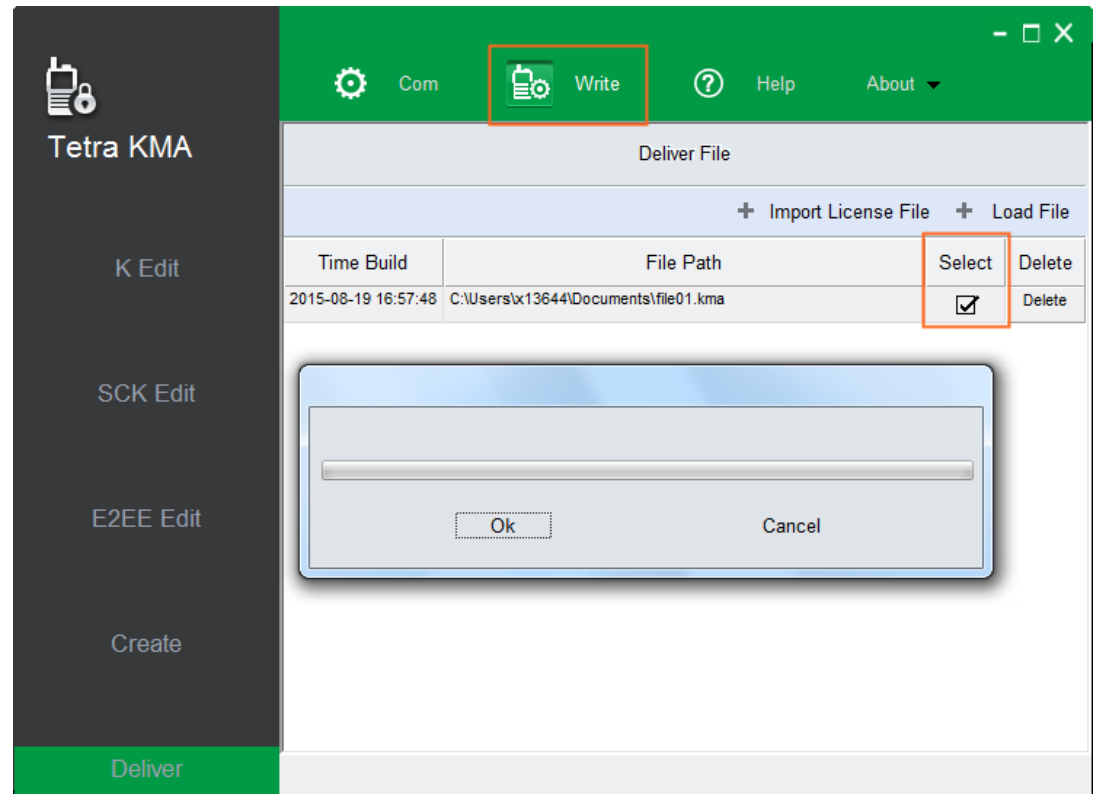


Step 6 Click "Deliver" and the import interface will appear.

Step 7 Click "Load File", and choose the key file (.kma) generated at [3.3 Creating a Key File](#). Then click "Open".

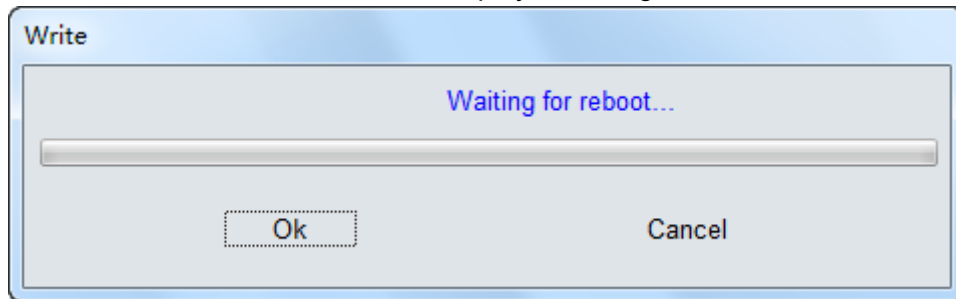


Step 8 Check the key file to be written, and click “Write”.

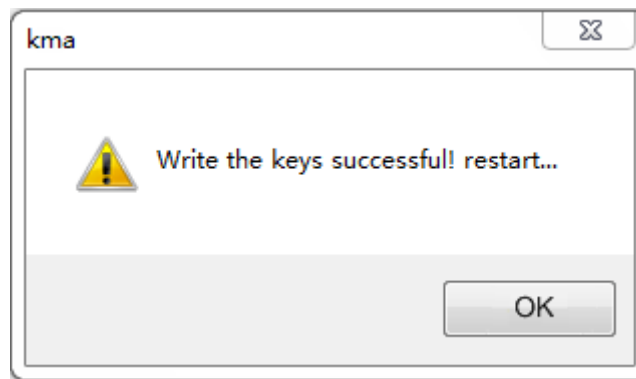


Step 9 Click “OK” to start writing.

Restart the terminal when the interface displays “Waiting for reboot...”.



The key file has been written successfully when the interface displays “Write the keys successfully! Restart...”.



Step 10 Click “OK” to end.

4. Related Operations

4.1 Deleting a Key

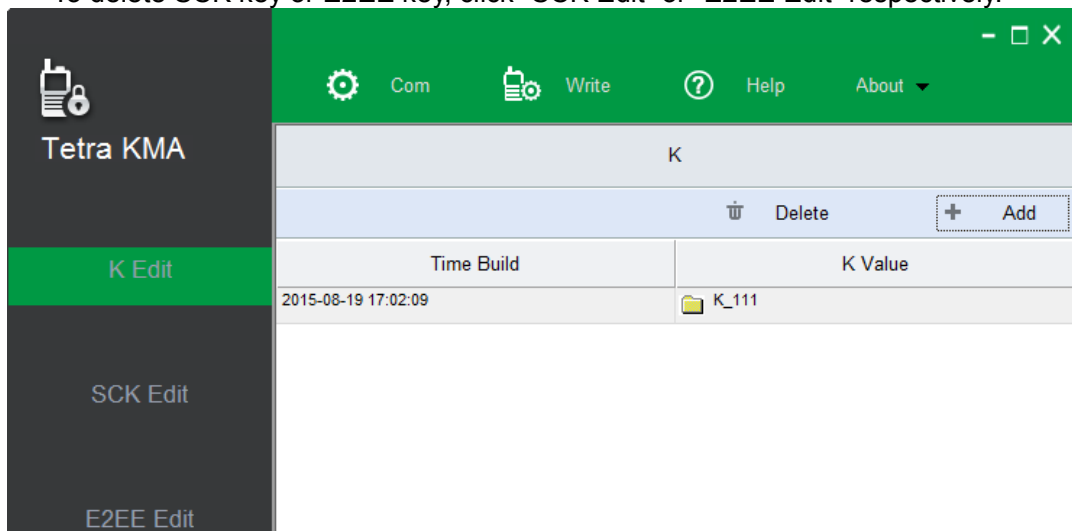
In the key configuration interface, you can delete all displayed keys but will not remove them from the terminal. The method for deleting K key, SCK key and E2EE key is the same. The following part takes deleting a K key for example.

Step 1 Click “K Edit” to access its configuration interface.



Note:

To delete SCK key or E2EE key, click “SCK Edit” or “E2EE Edit” respectively.

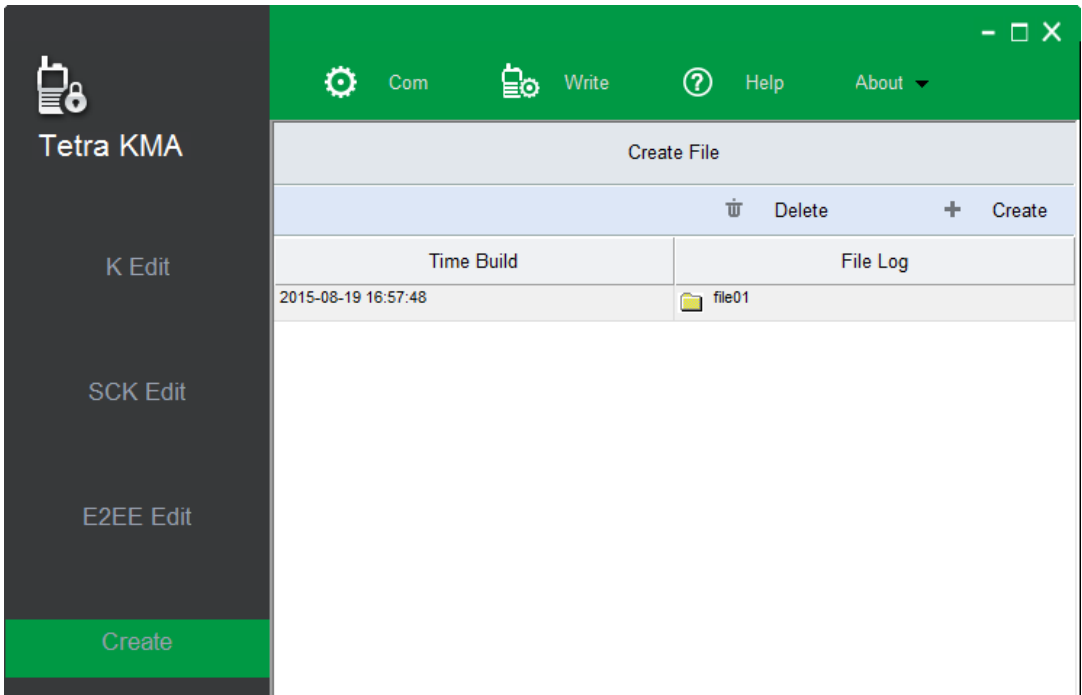


Step 2 Select the unnecessary keys and click “Delete”.

4.2 Deleting a Key File

In the KMA interface, you can delete all displayed key files but will not remove them from the terminal or from your customized storage directory on the PC.

Step 1 Click “Create” to access the creation interface.



Step 2 Select the unnecessary key files and click “Delete”.

5. FAQ

Q: During key writing, why do I receive the prompt “Init Port error! Please check your port!”?

A: Check whether the terminal is connected properly via the programming cable, and check whether the right communication port is selected.

Q: During adding K key, why do I receive the prompt “The terminal's TEI cannot match with the K, please import a correct TEI-K files!”?

A: It indicates the TEI-K file does not contain the TEI information of current terminal. Consult your dealer to obtain the right TEI-K file and try again.

Q: During adding K key, why do I receive the prompt “The format of TEI-K file is not correct! Please check it!”?

A: It indicates the TEI-K file format is wrong. Consult your dealer to obtain the right TEI-K file and try again.

A Abbreviation

Abbreviation	Full Name
DMO	Direct Mode Operation
E2EE	End-to-End Encryption
KMA	Key Management Assistant
SCK	Static Cipher Key
TEI	Terminal Equipment Identity
TETRA	Terrestrial Trunked Radio
TMO	Trunked Mode Operation



is the trademark or registered trademark of Hytera Communications Corporation Limited.
© 2015 Hytera Communications Corporation Limited. All Rights Reserved.

Address: HYT Tower, Hi-Tech Industrial Park North, Beihuan
RD., Nanshan District, Shenzhen, China

Postcode: 518057
<http://www.hytera.com>