TMK Local Injection Manual

20180129	Add version control	FSP
20230104	Add Q2 screenshot	FSP

1. Introduction

TMK Local Injection System is a pre-installed application in Key injection device(a special device to inject key, usually is wizarpos 1 or wizarpos Q2), payment managers can use this terminal to inject keys to normal terminals, the Key injection device can store Keys from PC side or manual inputting, it also can inject keys to normal terminals from PC side or from local storage.

2. Functions

2.1. Login & Idle

Two login passwords required when you start app. Default login password1: **1111111** Default login password2: **22222222**

After verifying password successfully, TMK Deliver System will enter IDLE page which displays version info.

User can go to 'system manage' menu (press button '5') or 'deliver' menu (press button 'OK') from IDLE page.

Engineering mode TMK Deliver System	login	engin	eering mode
	1	2	3
login	4	5	6
piease input login pass 1.	7	8	9
	abc	0	ŧ
Engineering mode	Cancel	Clear Engin	OK eering mode
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TMK Deliver System on wizarpos 1:

Engineering mode TMK Deliver System-	-login	Engin	eering mode
	1	2	3
login	4	5	6
please input login pass 2.	7	8	9
	abc	0	Ŧ
Engineering mode	Cancel	Clear Engin	OK eering mode
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Engineering mode TMK Deliver Syste	m	Engin	eering mode
	1	2	3
TMK Deliver System	4	5	6
	7	8	9
	abc	0	ŧ
Engineering mode	Cancel	Clear Engin	OK ering mode
		10:12	2744

(IDLE page)



TMK Deliver System on wizarpos Q2:



(IDLE page)

2.2. System Manage Menu

Press keyboard **button '5'** in IDLE page to manage the key injection parameter. Default admin password: **87654321**

Engineering mode T	MK Deliver System	Engineering mode		
		1	2	3
plagas input admin		4	5	6
input:8		7	8	9
		abc	0	+
Engineering mode		Cancel	Clear	OK eering mode
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TMK Deliver System on wizarpos 1:





TMK Deliver System on wizarpos Q2:

2.2.1. KEK setting

KEK full name is Key Encryption Key, used to encrypt master keys, it will be used when you want to inject keys from PC side or load keys from PC side, so KEK no need to be set when user want to inject keys which were inputted on Key injection device manually.

KEK Setting should be completed in these two situations:

- Loading key from PC
- Online delivery.

KEK Setting contains two components setting, every component setting will request password.

Default component password: Component 1 password: 88888888 Component 2 password: 99999999

2.2.2. Deliver type

Deliver type setting indicate the target terminal type you want to inject.

Deliver type should be set correctly before injecting keys.

It contains 3 choices:

2.

- 1. 'Wizarhand Q1v1' Target POS is old product model of Q1.
 - 'PINPAD' Target is external PINPAD
- 3. 'Others' "Others" mean target POS is wizarpos Q2, wizarposQ3 and other models.

Engineering mode Engineering mode TMK Deliver System--deliver type 2 deliver type 5 6 please select deliver type: 3 8 9 1.Wizarhand Q1v1 2.PINPAD 0 abc 3.0thers Image: A start of the start of Clear OK Engineering mode Cancel 9:599# 1 \square 雲 5

TMK Deliver System on wizarpos 1:

TMK Deliver System on wizarpos Q2:

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1	MK Delive	r System	deliver typ	e
	c	leliver type	9	
please	select deli	ver type:	3	
1.Wiza	rhand Q1v1			
2.PINP	AD			
3.0the	3.0thers			 Image: A start of the start of
0	1	2	3	ŧ
abc	4	5	6	Clear
Cancel Engineer	7 ing mode	8	9 Engineeri	OK na mode

2.2.3. Key type

TMK Deliver System support different key types to inject. Key type should be set correctly before injecting keys.

Engineering mode TMK Deliver Systemke	ey type	Engin	eering mode
key type	1	2	3
please select key type: 1 1.MASTER KEY(3DES) Image: Comparison of the select key type:	4	5	6
2.DUKPT-IPEK	7	8	9
4.MASTER KEY(AES) 5.MASTER KEY(SM4)	abc	0	ŧ
6.DUKPT-BDK	Cancel	Clear Engin	OK eering mode
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TMK Deliver System on wizarpos 1:

TMK Deliver System on wizarpos Q2:

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1 2	TMK Deliv	ver System	key type		
		key type			
please	select key	type: 1			
1.MAS	FER KEY(3I	DES)			
2.DUKF	2.DUKPT-IPEK				
3.TRAN	ISMISSION	KEY(3DES)		
4.MAS	TER KEY(A	ES)			
5.MAS	FER KEY(SI	M4)			
2					
0	1	2	3	ŧ	
abc	4	5	6	Clear	
Cancel Engineer	7 ing mode	8	9 Engineeri	OK ng mode	

2.2.4. Input key

During inputting key, it will request inputting MID, TID, KSI, or KID up to key type. Notice **'key type'** should be set before **'input key'**.

MID and TID is merchant id and terminal id to index different keys, the value can be any if you don't have MID or TID, but they should be remembered to when you input. Key injection device Request MID, TID when key type is:

- MASTER KEY(3DES)
- DUKPT-IPEK
- TRANSMISSION KEY
- MASTER KEY(AES)
- MASTER KEY(SM4)

KSI is used to index different BDKs, it is first 10 digits of KSN. Key injection device Request KSI when key type is:

• DUKPT-BDK

KID is used when you want to inject HSM KEYs, KID is 4 digits. Input KID when key type is:

- HSM KEY(DES)
- HSM KEY(3DES)
- HSM KEY(AES)
- HSM KEY(SM4)

Then Key injection device will request inputting Key Components and display check value to verify if the input is correct.

After that, user can use 'offline deliver' to inject the keys.

2.2.5. Passwd modify

TMK Deliver System support change 'administrator password', 'deliver password', 'login password' and 'component password'.



TMK Deliver System on wizarpos 1:

TMK Deliver System on wizarpos Q2:



2.3. Key injection Menu

Press '**OK'** or '**Cancel**' in IDLE page to enter key injection menu.



TMK Deliver System on wizarpos 1:

key injection menu

TMK Deliver System on wizarpos Q2:



key injection menu

2.3.1. Key load (not applicable for TMK Deliver System on Q2)

KEK should be set before use 'Key Load'.

Key Load function is used to get keys from PC side, then save them in Key injection device.

Refer to following steps:

- 1. Key injection device should be connected to PC through DB9 Serial Cable or USB-To-DB9 Serial cable.
- 2. Key Tool on PC should open correct serial port.
- 3. Press 'key load' button to enter serial receiving stage on Key injection device.



TMK Deliver System on wizarpos 1:

Engineering mode TMK Delive	TMK Deliver Systemkey load			
	1	2	3	
key load	4	5	6	
receiving data	7	8	9	
	abc	0	+	
Engineering mode	Cancel	Clear	OK eering mode	
- A B	9 A	6:09	₽₩#	



TMK Deliver System on wizarpos Q2:

- 4. Key Tool on PC should load KEY files correctly.
- 5. Click '**Key Offline Load**' on Key Tool to send keys to Key injection device.

2	Wizarpos	TMK tool				_		×
He	lp							
	TID	TMK CIPHERTEXT	ксу	KEK IDX	TMK IDX	Serial port	COM14	~
1	52008122	6C92EC57DA63552E43ADF8A122359B8F	EBD180	00	01	Baud rate	9600	\sim
2	52008114	142E91DFC6CE0A1E2CBDAD304A88045B	3C045D	00	01	Verify bit	8	\sim
3	52008106	F3948534AC2031D1461B5FB4F05122B5	ACD409	00	01	Data bit	1	\sim
4	51056847	5125AF8EE5A8FA8DEA468FCCBDDB9A17	E69663	00	01	Stop bit	1	\sim
5	51047261	7A78BC249A40D8D5D1149D76BD45F229	C21255	00	01	KEK Index	0	\sim
						Serial state	ON	$\overline{\mathbf{\cdot}}$
		2.Load key files correctly.	ger.	r can de	2	Load ke Clear k Key offl Key onlin	y files ey files .ine load e delive:	l

After loading keys, you can check the keys in '<u>Key Query</u>' page. Then operator can use '<u>offline deliver</u>' to select keys and inject it to target POS.

2.3.2. Offline Injection

Offline deliver is to inject the keys which be inputted or loaded before. Offline deliver will request inputting deliver password, and other information (which was inputted during '<u>Input Key</u>') to locate key. Default deliver password: 00000000

Refer to section <u>4.2</u> Inject keys from .

2.3.3. Online Injection (not applicable for TMK Deliver System

on Q2)

KEK should be set before use 'Online deliver'. See <u>KEK setting</u>

Online deliver is to inject keys from PC to target POS directly, it needs PC, Key injection device and target POS all connected through serial cable. Default deliver password: 00000000

See section 4.1_Inject keys from PC

2.3.4. Key query

All keys input before an be displayed under 'key query' menu.

Engineering mode TN	MK Deliver Systemke	y query	Engin	eering mode
key query	DUKPT-B 🔻	1	2	3
001. KSI:9500030000 KCV:1591EA90		4	5	6
		7	8	9
		abc	0	ŧ
Engineering mode		Cancel	Clear Engin	OK eering mode

TMK Deliver System on wizarpos 1:



TMK Deliver System on wizarpos Q2:

2.3.5. Key clear

This function will clear all keys has been input or loaded before.

3. Device connection

TMK Deliver System on wizarpos 1:

If the deliver type is 'PINPAD', PINPAD cable should be inserted into 'RJ11 LINE2'. Other deliver types need connect target POS to USB TYPE A port.

DB9 SERIAL PORT is used to connect to PC when use 'key load' or 'online deliver'.



TMK Deliver System on wizarpos Q2: Target POS should be connected to OTG/TYPE A port through USB cable.

4. Key injection steps

4.1. Inject keys from PC (not applicable for TMK Deliver System on Q2)

- 1. Connect Key injection device to PC through DB9 cable or USB-To-DB9 Serial cable.
- 2. Connect target POS to Key injection device through USB cable.
- 3. Make sure KEK was set correctly on Key injection device. See KEK setting
- Open 'Key injection device Agent' on target POS and start waiting keys. Key injection device Agent is an application embed in target POS, Path: System Setting -> About POS -> POS Configuration -> Load key Make sure Administrator state is 'Login', password: 99999999, then open application and press 'Load Key'.

🗰 🕐 🖥 5:27 PM	🗰 🕜 🖬 😨 5:36 PM
POS Configuration	POS Configuration
	Auministrator Logout
Administrator Login	The administrator has logged in
The administrator has logged out	
Remote Management	Modify password
Soft SIM Settings	Remote Management
Merchant Self Test	Soft SIM Settings
App Market	Merchant Self Test
Print Density Set print density.lower	App Market
	Print Density
Scan mode	Set print density:lower
Camera Mode	
Load key	Scan mode Off
Engindéfing móde <mark>agemen</mark> Engineering mode	Load key Eligineering mode Engineering node



5. Start '**online deliver**' function on Key injection device and enter waiting page. Default deliver password: **00000000**





6. **On PC TMK Tool**, load key files then use '**Key online delivery**' to inject one key.

2	Wizarpos	_		×				
Н	elp			_				
	TID	TMK CIPHERTEXT	KCV	KEK IDX	TMK IDX	Serial port	COM14	~
1	52008122	6C92EC57DA63552E43ADF8A122359B8F	EBD180	00	01	Baud rate	9600	\sim
2	2 52008114	142E91DFC6CE0A1E2CBDAD304A88045B	3C045D	00	01	Verify bit	8	\sim
3	52008106	F3948534AC2031D1461B5FB4F05122B5	ACD409	00	01	Data bit	1	\sim
4	51056847	5125AF8EE5A8FA8DEA468FCCBDDB9A17	E69663	00	01	Stop bit	1	\sim
5	51047261	7A78BC249A40D8D5D1149D76BD45F229	C21255	00	01	KEK Index	0	\sim
		Serial state 🔘						
	1.Open correct serial port, port number can be found in system devices manager.					Load key files		
		2.Load key files correctly.					Clear key files	
						Key offline load		
							e deliver	(y

7. After injecting key success, Key injection device will print receipt and display success message. Key injection device Agent also will display success message.

4.2. Inject keys from Key injection device

Make sure the keys already exist in key injection device if you want to use 'offline deliver' to inject keys.

There two ways to save keys into Key injection device:

- 1. Input key manually, See section 2.2.4 Input key
- 2. Load keys from PC side, See section 2.3.1 Key load

Then follow below steps to inject key:

- 1. Connect target POS to Key injection device through USB cable.
- Open 'Key Loader Agent' on target POS and start waiting keys. Key Loader Agent is an application embed in target POS, Path: System Setting -> About POS -> POS Configuration -> Load Key Make sure Administrator state is 'Login', password: 99999999, then open explication and mass (Logd Key)

application and press 'Load Key'. 🛠 🔓 🛿 5:27 PM **Ⅲ⊘** POS Configuration Administrator Login The administrator has logged out Remote Management Soft SIM Settings Merchant Self Test App Market Print Density Set print density:lower Scan mode Camera Mode Load key ingineéring méde<mark>agemen</mark> Engineering mo

III 🔿 🖬	🛜 🖬 💈 5:36 PM					
POS Configuration						
Aummistrator Logout The administrator has logged in						
Modify password						
Remote Management						
Soft SIM Settings						
Merchant Self Test						
App Market						
Print Density Set print density:lower						
Scan mode Camera Mode	Off					
Load key Eligineering mode	gineering mode					



3. Press 'offline deliver' on Key injection device, deliver password: 00000000



TMK Deliver System on wizarpos 1:



TMK Deliver System on wizarpos Q2:

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TMK Del	iver System	1	TMK Delive	er System-	-key delive	
And in case of the local division in				key deliver		
1 . Y	(V)	please	input deliv	er pass:		
key load	offline deliver		•••			
online deliver	Rey query	input:8	I			
200 kev clear						
	Mar I.	0	1	2	3	ŧ
÷		abc	4	5	6	Clear
Engineering mode	Engineering mode	Cancel Engineer	7 ing mode	8	9 Engineeri	OK ng mode

- Input key message to find the key on Key injection device, it maybe MID & TID,
 KSI or KIN depending on different key type.
- 5. Input additional key message of the key depending on different key type.

When key type is **DUKPT-BDK**, it will request inputting **DID**, it's part of KSN.

Engineering mode TMK Deliver Systemkey deliver			Engineering mode		
	1	2	3	4	
key deliver	5	6	7	8	
please input DiD.	9	0	А	В	
·	С	D	E	F	
Engineering mode	+	Clear	Cancel Engineer	OK ing mode	
1 A B		hi 💿 🖄	2:319	P 47 🦼 🖹	

TMK Deliver System on wizarpos 1:

TMK Deliver System on wizarpos Q2:



It will also request selecting key usage when the key type is **DUKPT-IPEK or DUKPT-BDK**, you can specify the key as PIN-Key, MAC-Key or Data-Key, or you can unspecify it to select '**Reserved'**, HSM of target POS will generate different keys comply with DUKPT2009 specification if you select '**Reserved'**.

ngineering mode Engineering mode TMK Deliver System--key deliver 2 3 key deliver 5 6 please select dukpt key usage: 1 1.PinKey 9 2.MacKey 3.DataKey abc 0 -4 Reserved Clear OK Engineering mode Cancel an model 12:27 - 4 0

TMK Deliver System on wizarpos 1:

TMK Deliver System on wizarpos Q2:

III 🕐 🖬	9 🛜 🖥 🛙	11:31 AM							
	TMK Deliver Systemkey deliver								
	key deliver								
please select dukpt key usage: 4									
1.PinKe	ey								
2.Mack	2.MacKey								
3.Datał	3.DataKey								
4.Rese	4.Reserved								
0 1 2 3 🔶									
abc	abc 4 5 6								
Cancel Engineer	7 ing mode	8	9 Engineeri	OK na mode					

6. Input key index on Key injection device, the key index indicates key slot of HSM on target POS, range from 0-49.

Engineering mode TMK Deliver Syste	mkey deliver	Engin	eering mode
	1	2	3
key deliver	4	5	6
please input key index:	7	8	9
	abc	0	ŧ
Engineering mode	Cancel	Clear	OK eering mod
- C - C	9 *	12:49	₽₽.4 M

TMK Deliver System on wizarpos 1:

TMK Deliver System on wizarpos Q2:

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	TMK Delive	er System	key delive	r A				
key deliver								
please input key index:								
D								
0	1	2	3	ŧ				
aho	1	5	6	Cloar				
abc	4	5	0	Clear				
Cancel Engineer	7 ing mode	8	9 Engineeri	OK ng mode				

7. Continue to confirm the key info and inject the key, after injecting key success, Key injection device will print receipt and display success message. Key injection device Agent also will display success message.

5. Recommended Usage

To provide high security during using TMK Deliver System, there have following suggestions of usage.

- 1. TMK Deliver System has two login passwords, there should have two key custodians to access the app.
- 2. When key custodians first access TMK Deliver System, the two default login passwords should be updated. See <u>Passwd modify</u>.
- 3. Every key custodian should only know his or her own login password and key components.
- 4. Every key component must have full key length which is same with completed key length.
- 5. Key injection device which installs TMK Deliver System should be placed in security room and forbidden network.
- 6. Every time key custodians use TMK Deliver System should be logged.