Volvo Anti-theft Operation Guidelines-Type 1

List of applicable models

The anti-theft process of the following models is basically the same, but different vehicles need to read vehicle module data in different ways, which can be divided into the following three categories (each color represents one) :

Brand	Model	Year	Key type
VOLVO	S60	2010-2018	Smart Key/Half-Smart Key
VOLVO	S60 Cross Country	2016-2018	Smart Key/Half-Smart Key
VOLVO	S60L	2014-2018	Smart Key/Half-Smart Key
VOLVO	S80	2010-2016	Smart Key/Half-Smart Key
VOLVO	S80L	2010-2015	Smart Key/Half-Smart Key
VOLVO	V60	2011-2018	Smart Key/Half-Smart Key
VOLVO	V60 Cross Country	2015-2018	Smart Key/Half-Smart Key
VOLVO	V70	2009-2016	Smart Key/Half-Smart Key
VOLVO	XC60	2010-2018	Smart Key/Half-Smart Key
VOLVO	XC70	2011-2016	Smart Key/Half-Smart Key
VOLVO	S80	2007-2009	Smart Key/Half-Smart Key
VOLVO	S80L	2008-2009	Smart Key/Half-Smart Key
VOLVO	XC60	2006-2009	Smart Key/Half-Smart Key
VOLVO	XC70	2008-2010	Smart Key/Half-Smart Key
VOLVO	V40	2012-2018	Smart Key/Half-Smart Key
VOLVO	V40 Cross Country	2013-2018	Smart Key/Half-Smart Key

Anti-theft conditions and requirements

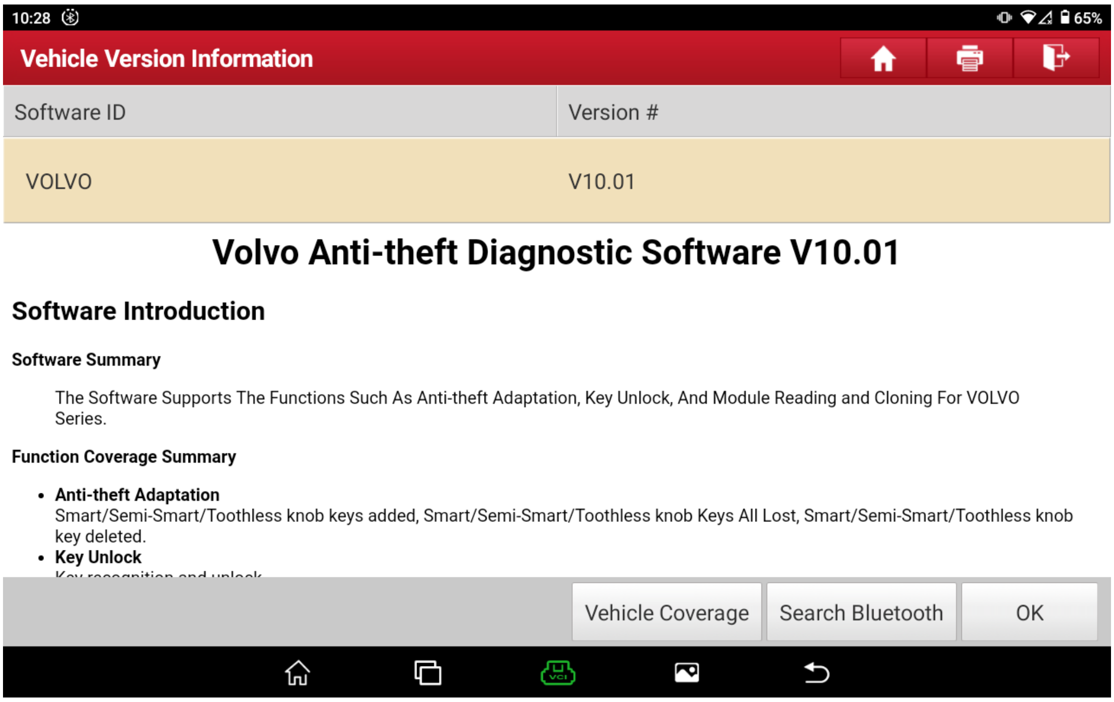
1. Launch IMMO PRO/IMMO PAD (professional version).
2. As for the compliance smart keys/semi-smart keys used for anti-theft matching, it is recommended to use the original factory key, because some secondary factory keys may have no intelligence after matching.
3. The difference between the semi-smart key and the smart key is that the matching process of the smart key contains KVM data disassembling & reading and data decryption steps. Other matching processes are basically the same as those of the smart key.

Anti-theft operation process

This operation process demonstration takes Volvo 2016 XC60 smart key as an example.

1. Vehicle series entry

Select [Volvo] -> [Automatic scan] -> [XC60] -> [2010-2018] -> [Smart key] (See Figure 1, Figure 2, Figure 3, Figure 4, Figure 5, Figure 6 and Figure 7 for the process steps)



Software ID	Version #
VOLVO	V10.01

Volvo Anti-theft Diagnostic Software V10.01

Software Introduction

Software Summary

The Software Supports The Functions Such As Anti-theft Adaptation, Key Unlock, And Module Reading and Cloning For VOLVO Series.

Function Coverage Summary

- **Anti-theft Adaptation**
  Smart/Semi-Smart/Toothless knob keys added, Smart/Semi-Smart/Toothless knob Keys All Lost, Smart/Semi-Smart/Toothless knob key deleted.
- **Key Unlock**
  Key recognition and unlock

Figure 1

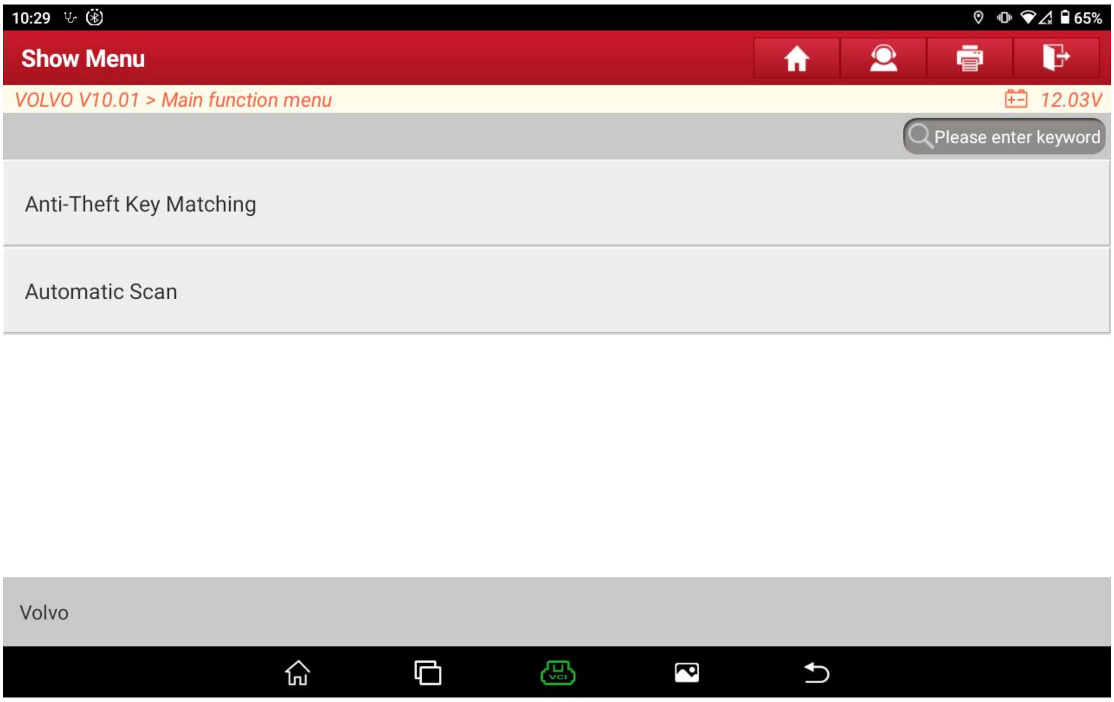
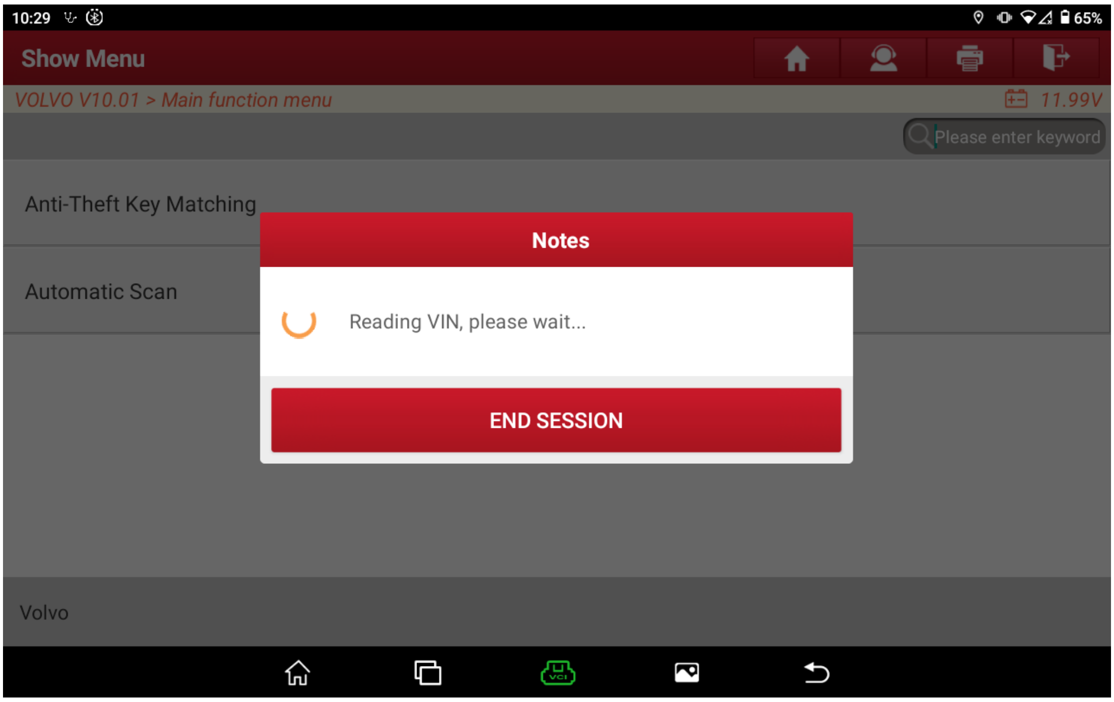
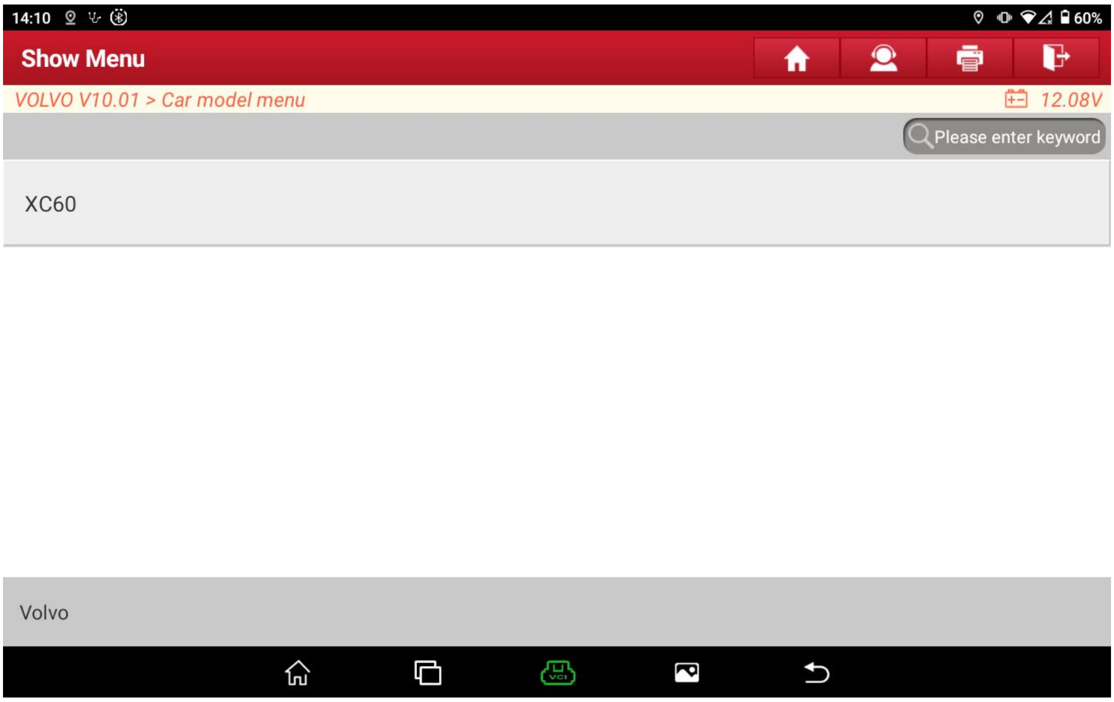


Figure 2



Reading VIN, please wait...

Figure 3



14:10 60%

Show Menu

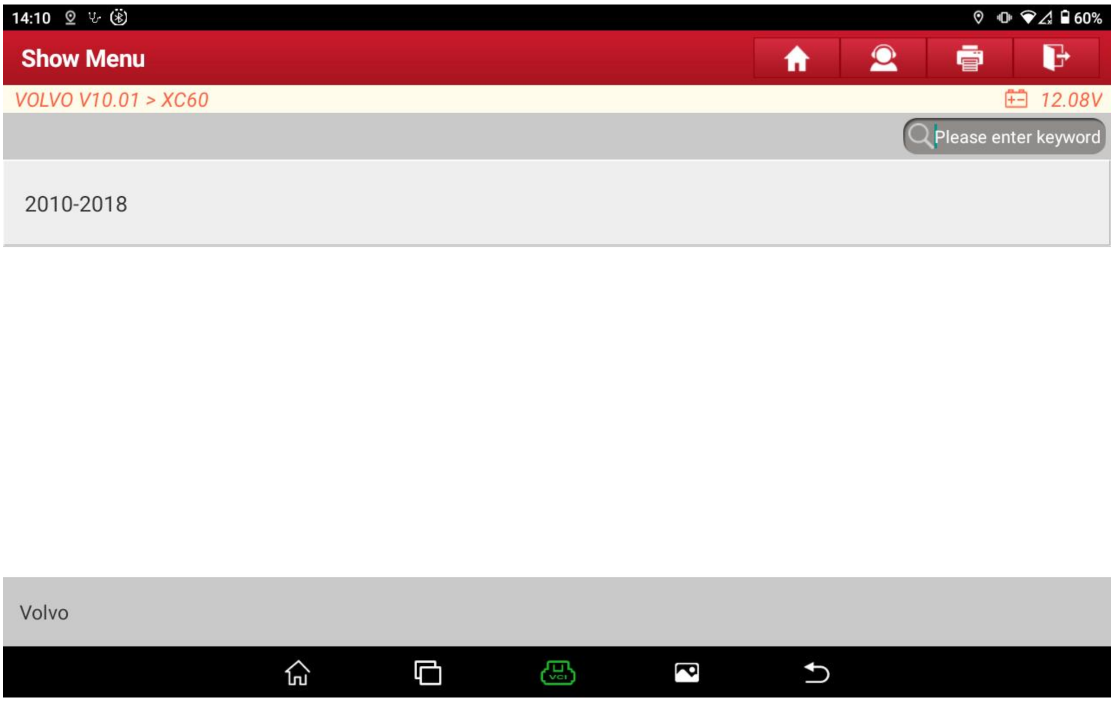
VOLVO V10.01 > Car model menu 12.08V

Please enter keyword

XC60

Volvo

Figure 4



14:10 60%

Show Menu

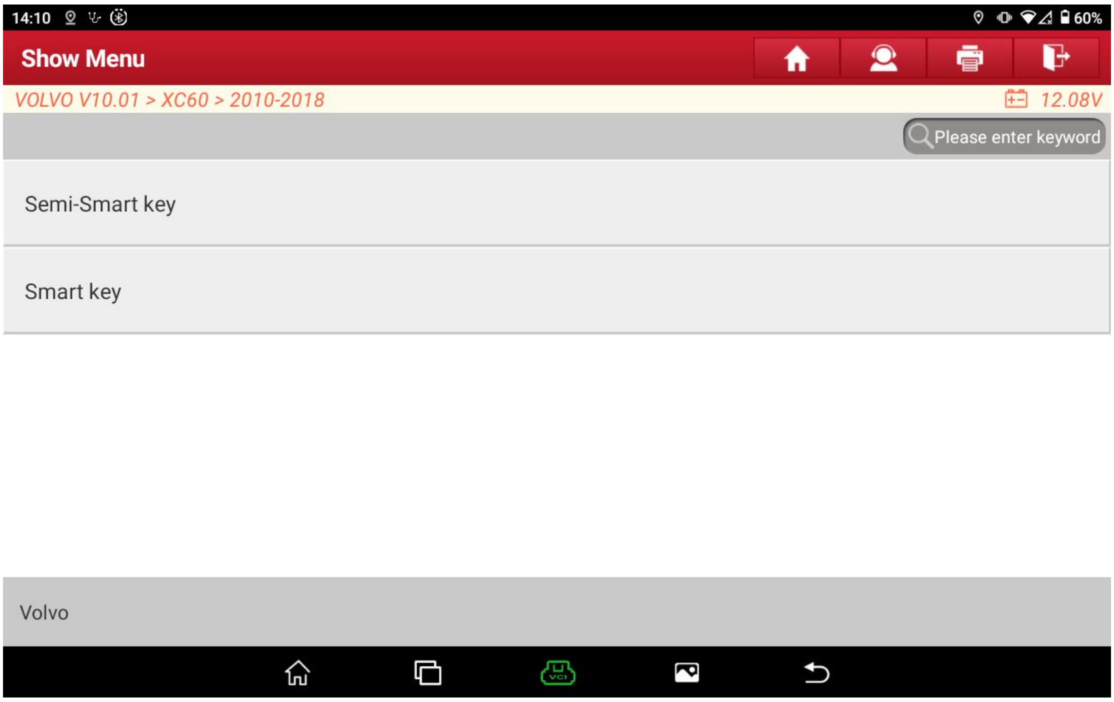
VOLVO V10.01 > XC60 12.08V

Please enter keyword

2010-2018

Volvo

Figure 5



14:10 60%

Show Menu

VOLVO V10.01 > XC60 > 2010-2018 12.08V

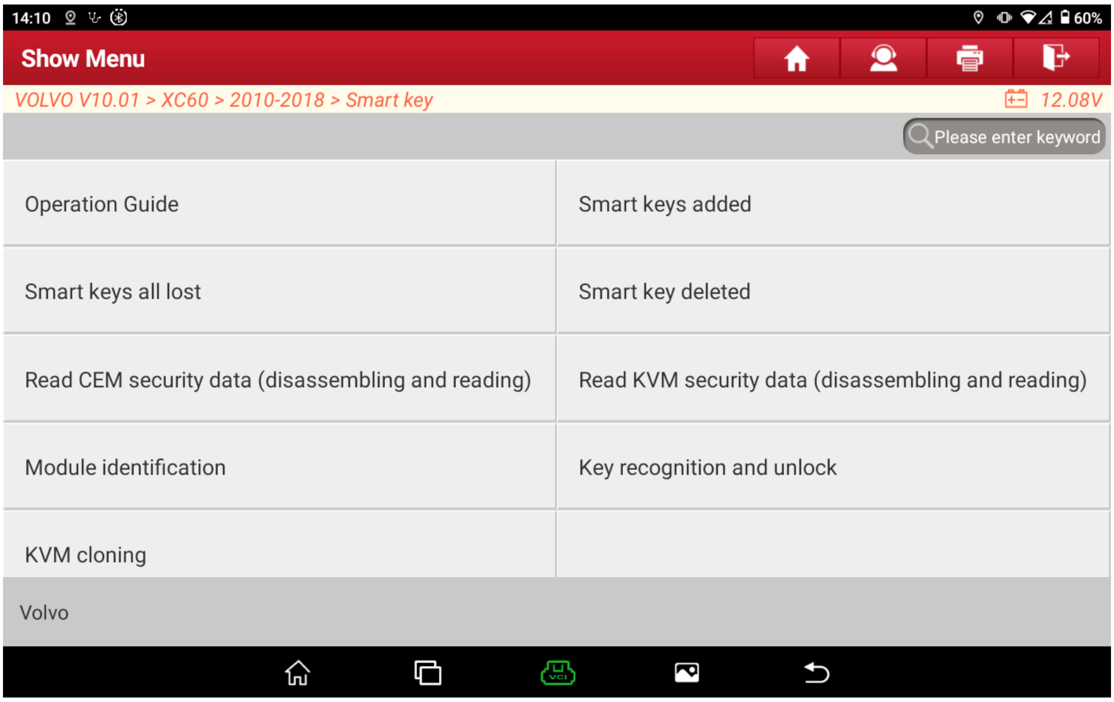
Please enter keyword

Semi-Smart key

Smart key

Volvo

Figure 6



14:10 60%

Show Menu

VOLVO V10.01 > XC60 > 2010-2018 > Smart key 12.08V

Please enter keyword

Operation Guide	Smart keys added
Smart keys all lost	Smart key deleted
Read CEM security data (disassembling and reading)	Read KVM security data (disassembling and reading)
Module identification	Key recognition and unlock
KVM cloning	

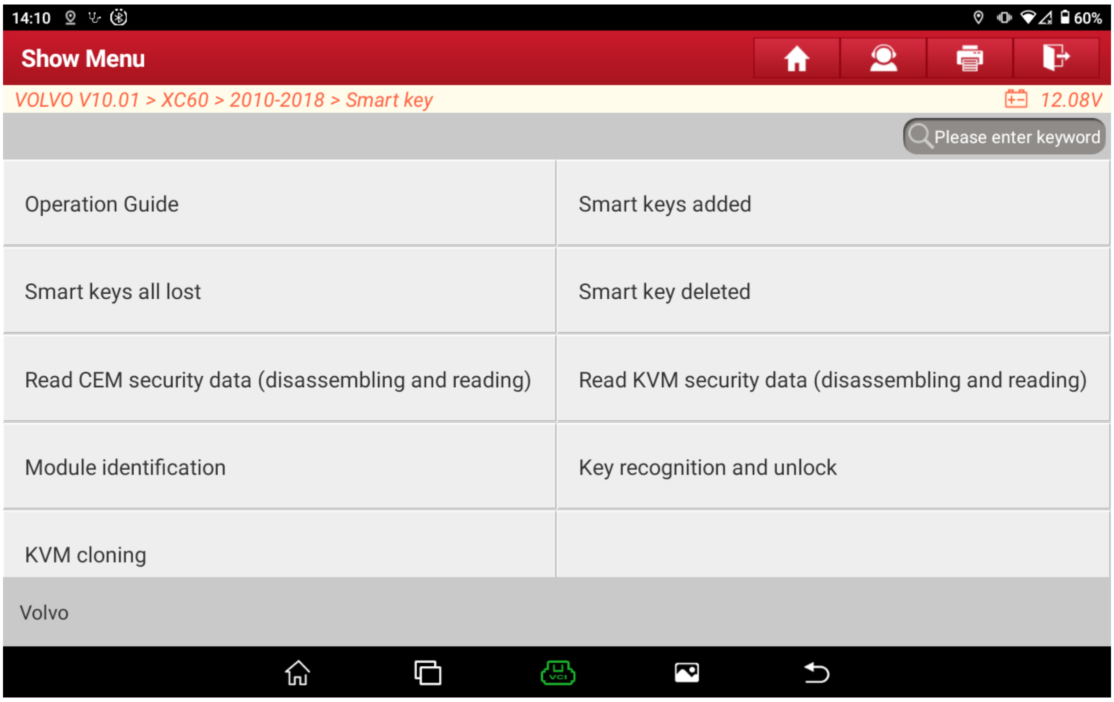
Volvo

Figure 7

2. [Operation Guide]

Check the basic steps and precautions of the anti-theft matching process. (See Figure 8, Figure 9, Figure 10, and Figure 11 for the process steps)

1) Select the [Operation Guide] function to view the operation guide document.



14:10 60%

Show Menu

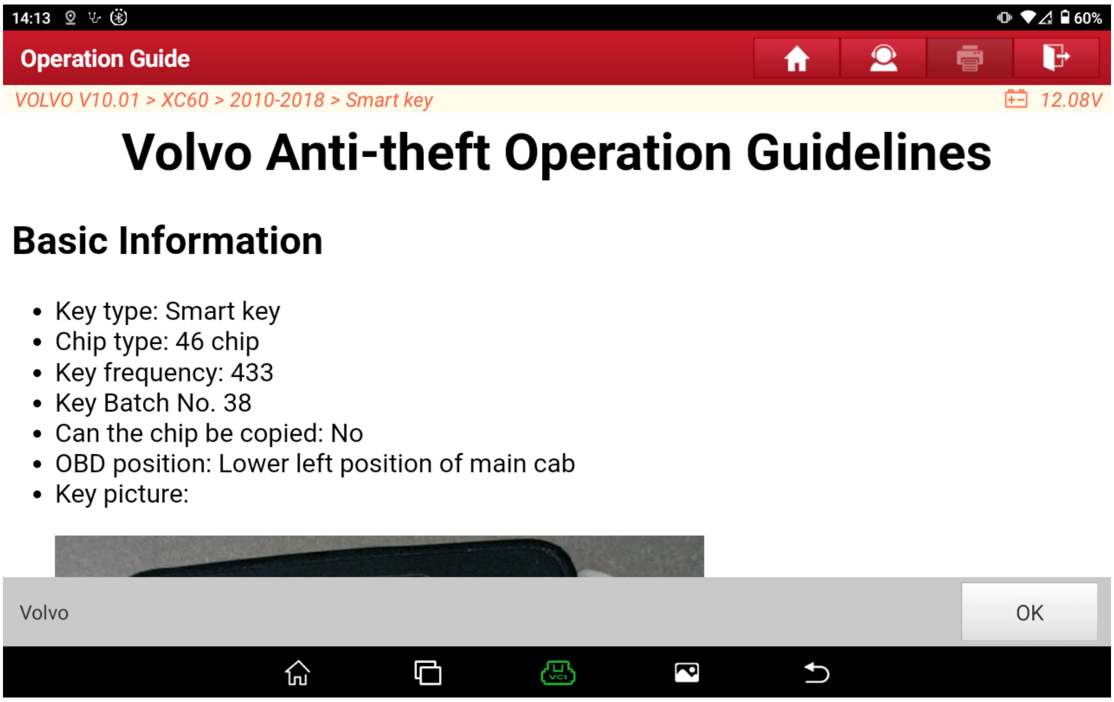
VOLVO V10.01 > XC60 > 2010-2018 > Smart key 12.08V

Please enter keyword

Operation Guide	Smart keys added
Smart keys all lost	Smart key deleted
Read CEM security data (disassembling and reading)	Read KVM security data (disassembling and reading)
Module identification	Key recognition and unlock
KVM cloning	

Volvo

Figure 8



14:13 60%

Operation Guide

VOLVO V10.01 > XC60 > 2010-2018 > Smart key 12.08V

Volvo Anti-theft Operation Guidelines

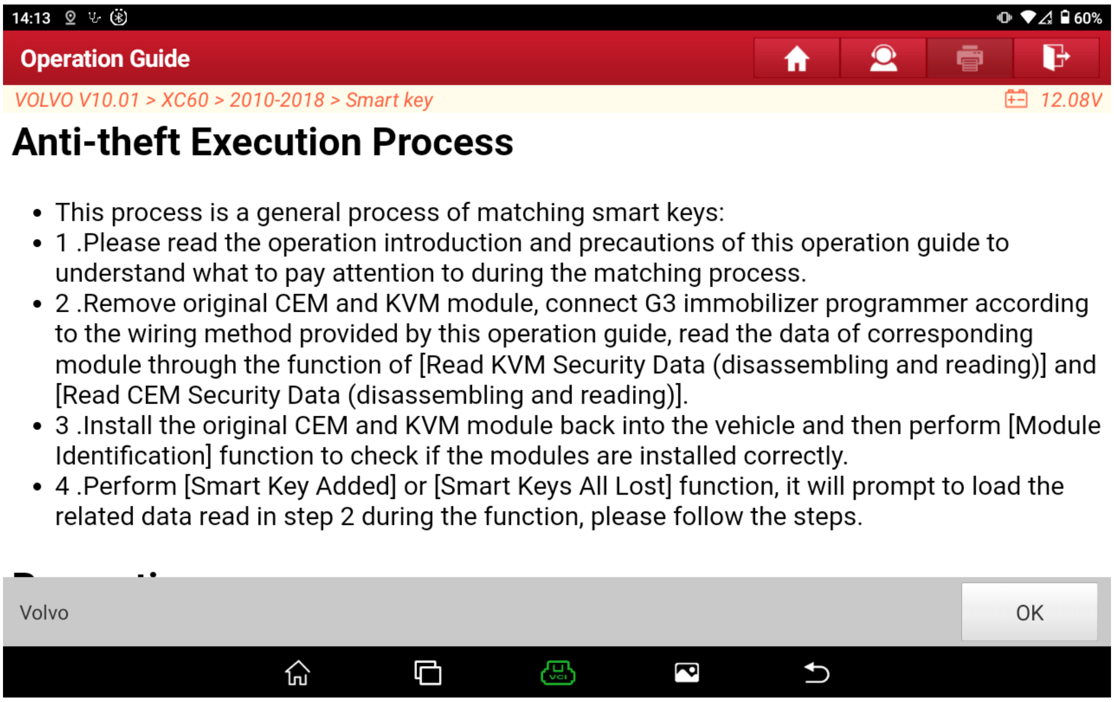
Basic Information

- Key type: Smart key
- Chip type: 46 chip
- Key frequency: 433
- Key Batch No. 38
- Can the chip be copied: No
- OBD position: Lower left position of main cab
- Key picture:

Volvo

OK

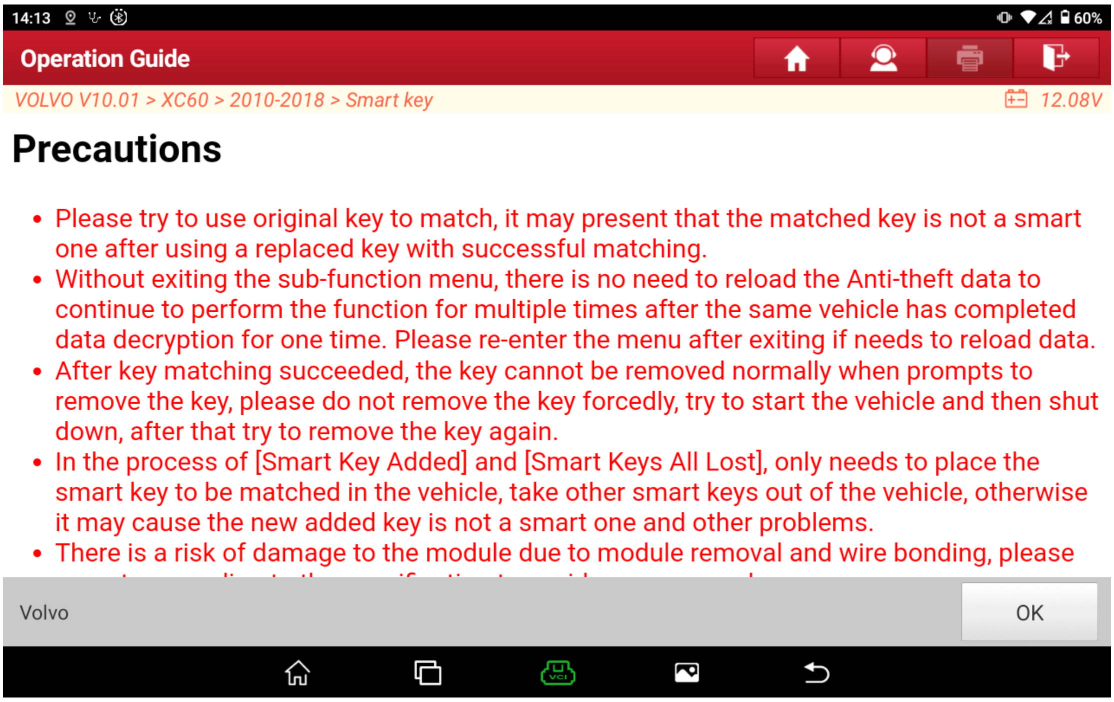
Figure 9



Anti-theft Execution Process

- This process is a general process of matching smart keys:
- 1 .Please read the operation introduction and precautions of this operation guide to understand what to pay attention to during the matching process.
- 2 .Remove original CEM and KVM module, connect G3 immobilizer programmer according to the wiring method provided by this operation guide, read the data of corresponding module through the function of [Read KVM Security Data (disassembling and reading)] and [Read CEM Security Data (disassembling and reading)].
- 3 .Install the original CEM and KVM module back into the vehicle and then perform [Module Identification] function to check if the modules are installed correctly.
- 4 .Perform [Smart Key Added] or [Smart Keys All Lost] function, it will prompt to load the related data read in step 2 during the function, please follow the steps.

Figure 10



Precautions

- Please try to use original key to match, it may present that the matched key is not a smart one after using a replaced key with successful matching.
- Without exiting the sub-function menu, there is no need to reload the Anti-theft data to continue to perform the function for multiple times after the same vehicle has completed data decryption for one time. Please re-enter the menu after exiting if needs to reload data.
- After key matching succeeded, the key cannot be removed normally when prompts to remove the key, please do not remove the key forcedly, try to start the vehicle and then shut down, after that try to remove the key again.
- In the process of [Smart Key Added] and [Smart Keys All Lost], only needs to place the smart key to be matched in the vehicle, take other smart keys out of the vehicle, otherwise it may cause the new added key is not a smart one and other problems.
- There is a risk of damage to the module due to module removal and wire bonding, please

Figure 11

3. [Read KVM security data (disassembling and reading)]

After reading the operation document of the function of [Operation Guide], the MCU Cable V1 harness of the G3 programmer should be used to connect the disassembled vehicle module, and then the MCU V2 adapter should be used to connect the G3 programmer to the vehicle module. Finally, the function [Read KVM security data (disassembling and reading)] should be selected to read the anti-theft data of the vehicle module. (The module location and connection method are detailed in the [Operation Guide], which will not be detailed in this document. The procedure is as follows.)

1) The connection diagram is as follows:

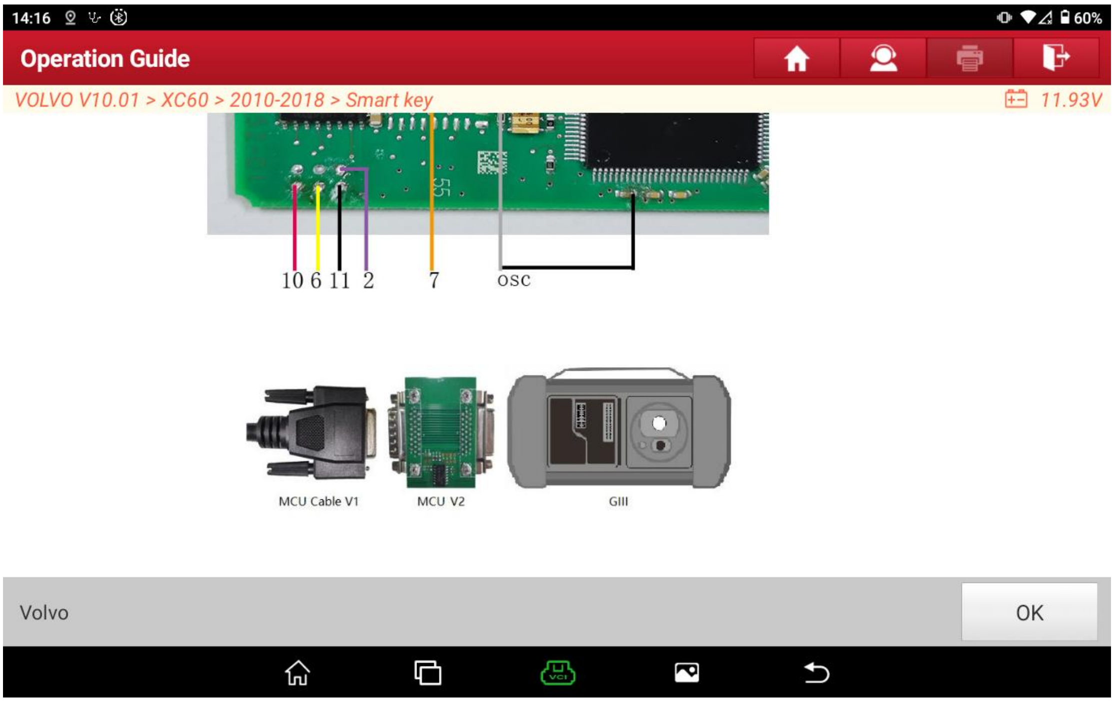
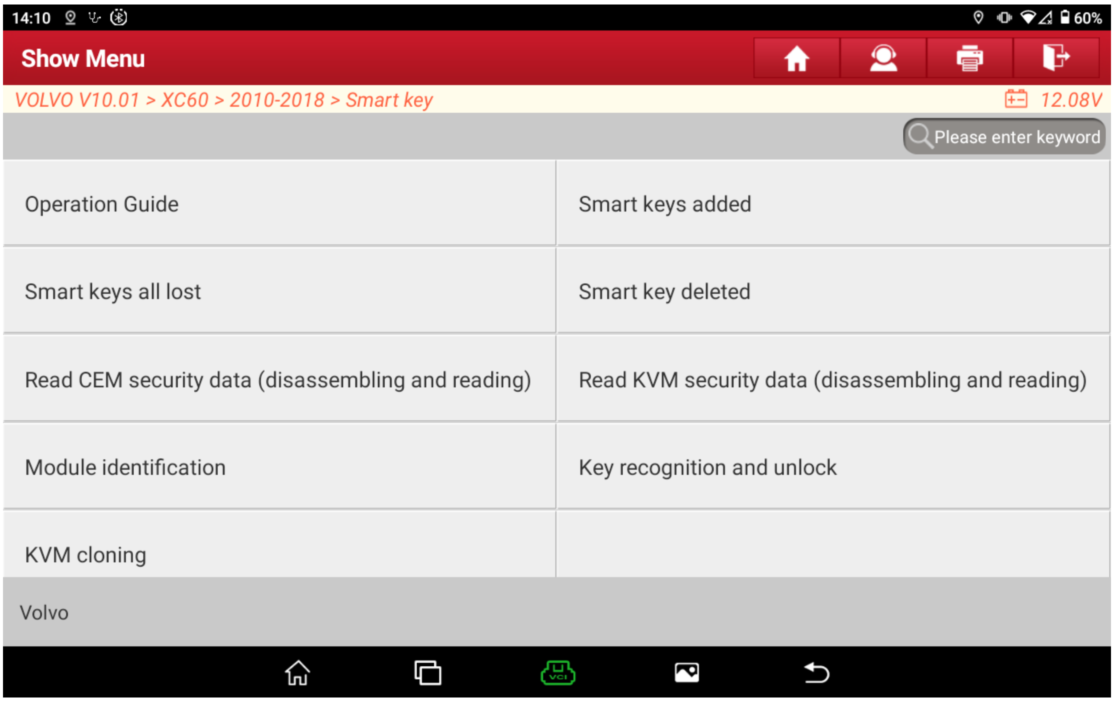


Figure 12

2) Select [Read KVM security data (disassembling and reading)] function



14:10 60%

Show Menu

VOLVO V10.01 > XC60 > 2010-2018 > Smart key 12.08V

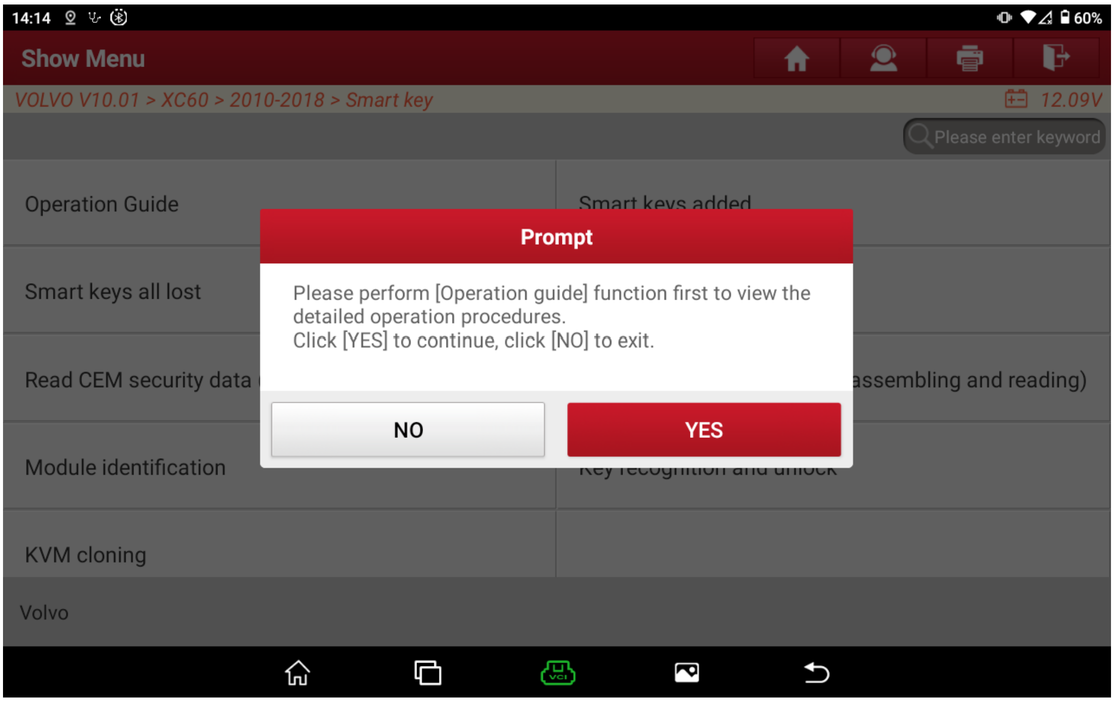
Please enter keyword

Operation Guide	Smart keys added
Smart keys all lost	Smart key deleted
Read CEM security data (disassembling and reading)	Read KVM security data (disassembling and reading)
Module identification	Key recognition and unlock
KVM cloning	

Volvo

Figure 13

3) Prompt to view the [Operation Guide] function and click [YES] to proceed to the next step.



14:14 60%

Show Menu

VOLVO V10.01 > XC60 > 2010-2018 > Smart key 12.09V

Please enter keyword

Prompt

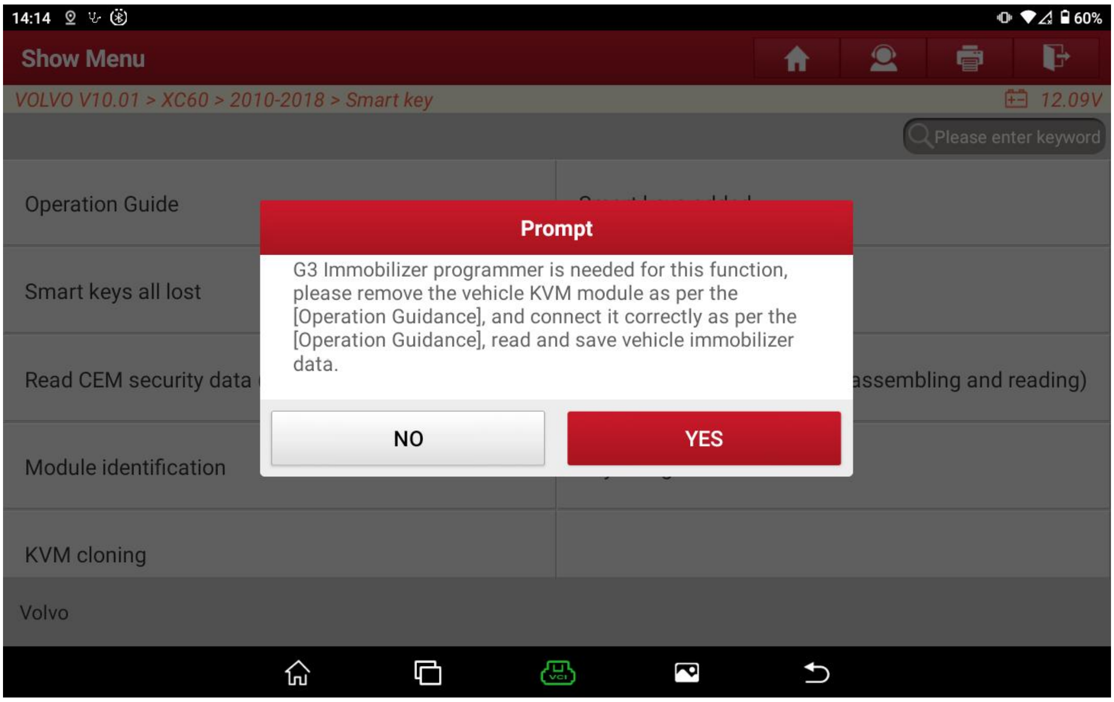
Please perform [Operation guide] function first to view the detailed operation procedures.
Click [YES] to continue, click [NO] to exit.

NO YES

Volvo

Figure 14

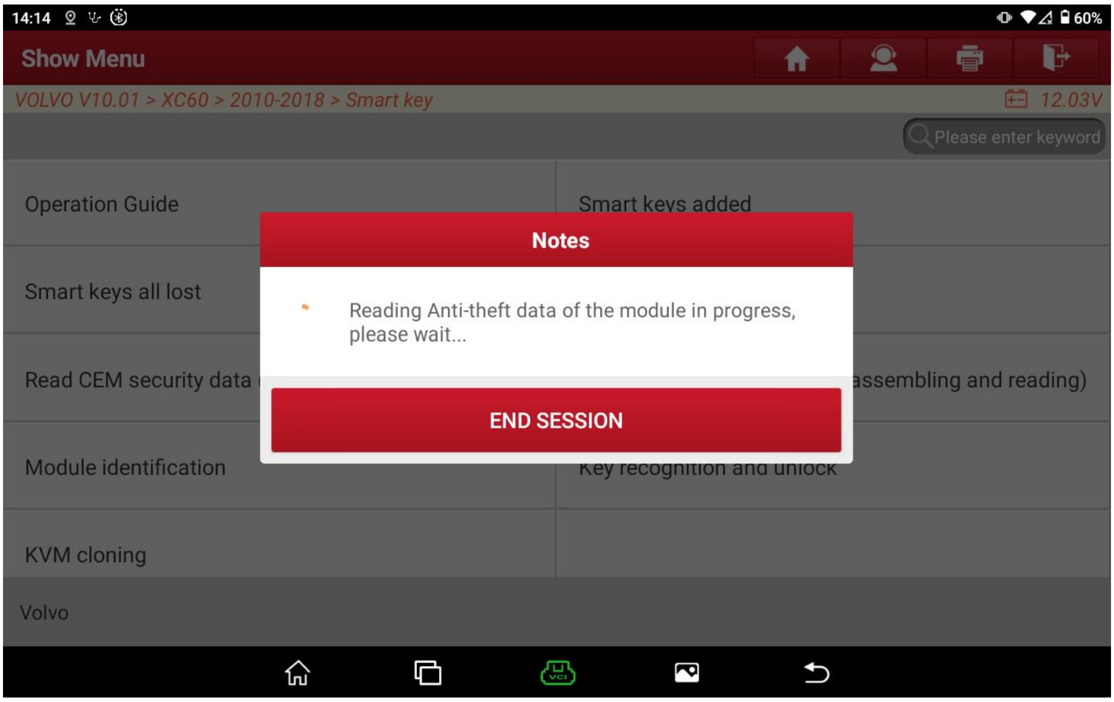
4) **Connect G3 programmer. Connect anti-theft device, programmer and vehicle module according to [Operation guide]. Click [Yes] to proceed to the next step.**



G3 Immobilizer programmer is needed for this function, please remove the vehicle KVM module as per the [Operation Guidance], and connect it correctly as per the [Operation Guidance], read and save vehicle immobilizer data.

Figure 15

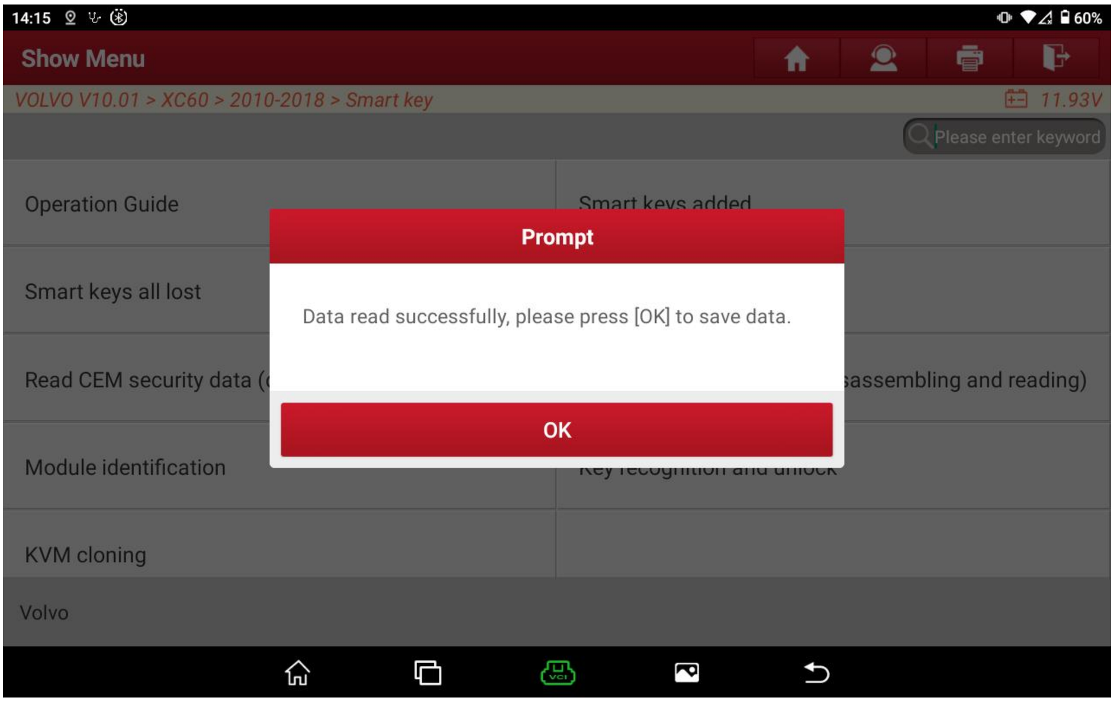
5) **It is indicated that anti-theft data is being read. The reading time is about 1 minute, during which no operation is required. Do not move the device to avoid data reading failure.**



Reading Anti-theft data of the module in progress, please wait...

Figure 16

6) **After the anti-theft data is read successfully, it is prompted that the data is read successfully and the data is saved. After the successful saving, the function execution is completed.**

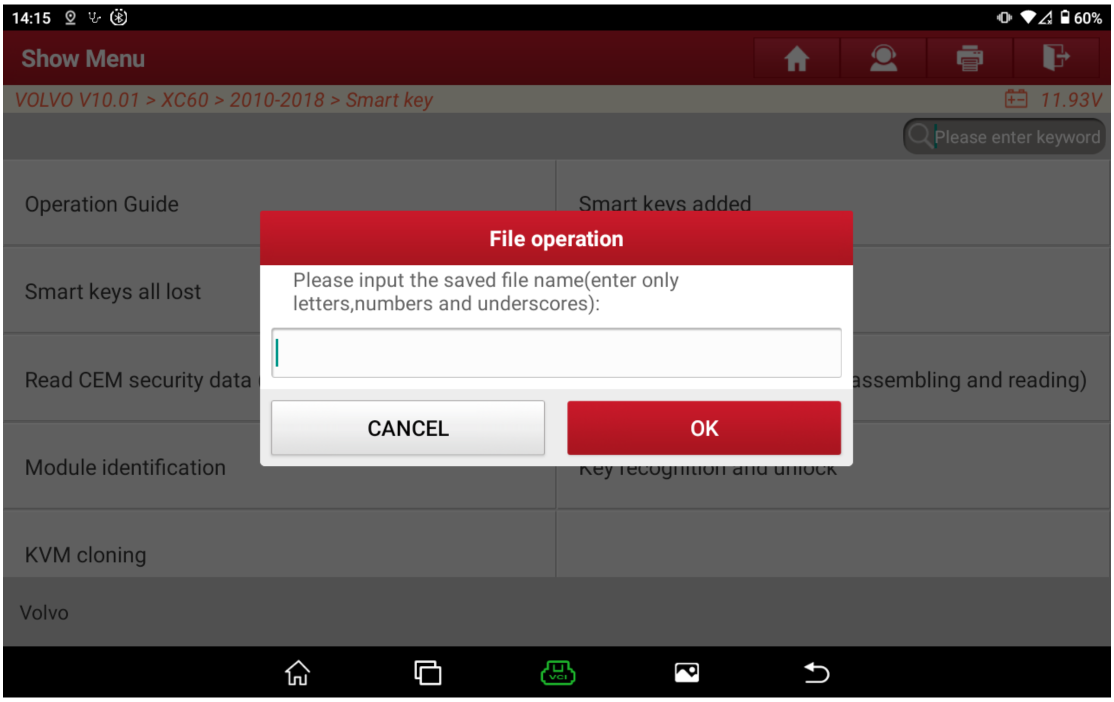


Prompt

Data read successfully, please press [OK] to save data.

OK

Figure 17

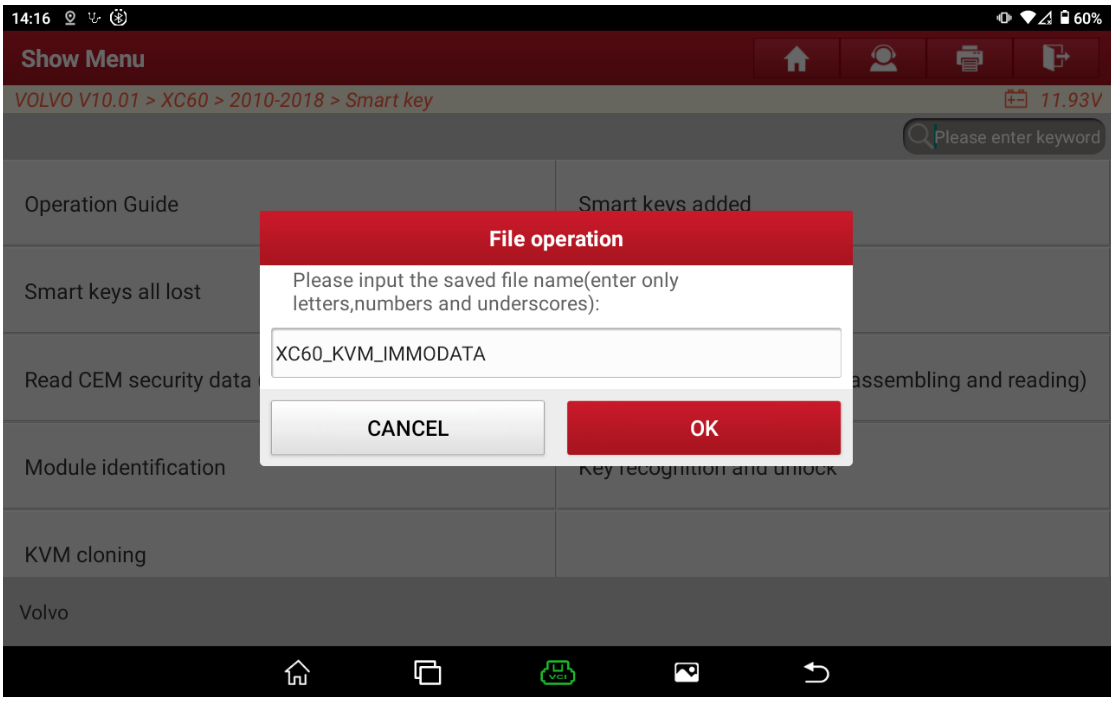


File operation

Please input the saved file name(enter only letters,numbers and underscores):

CANCEL OK

Figure 18



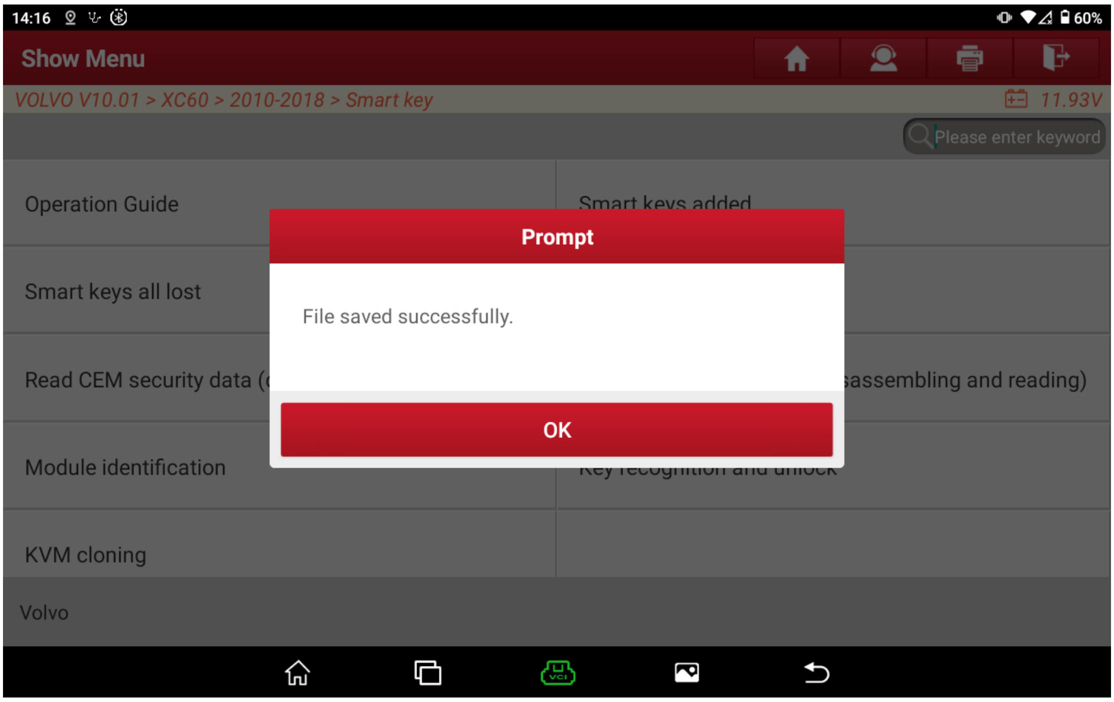
File operation

Please input the saved file name(enter only letters,numbers and underscores):

XC60_KVM_IMMODATA

CANCEL OK

Figure 19



Prompt

File saved successfully.

OK

Figure 20

4. [Read CEM security data (disassembling and reading)]

By reading the operation document of the function of [Operation Guidance], the MCU Cable V1 harness of G3 programmer should be used to connect the disassembled vehicle module, and then the MCU V2 adapter should be used to connect the G3 programmer to the vehicle module. Finally, the function [Read CEM security data (disassembling and reading)] should be selected to read the anti-theft data of the vehicle module. (The module location and cable connection are detailed in the [Operation Guide]. This document will not describe this part in detail. The procedure is as follows)

1) The connection diagram is as follows:

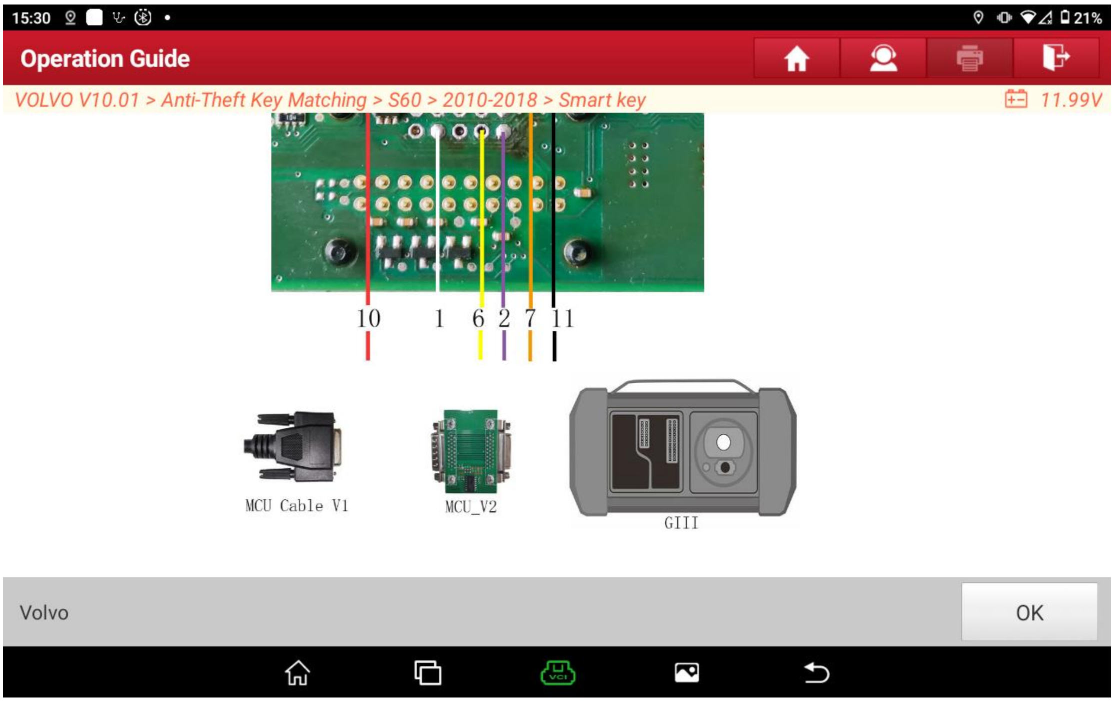

15:30
21%
Operation Guide
VOLVO V10.01 > Anti-Theft Key Matching > S60 > 2010-2018 > Smart key
11.99V
10
1
6
2
7
11
MCU Cable V1
MCU_V2
GIII
Volvo
OK

Figure 21

2) **Select [Read CEM security data (disassembling and reading)] function**

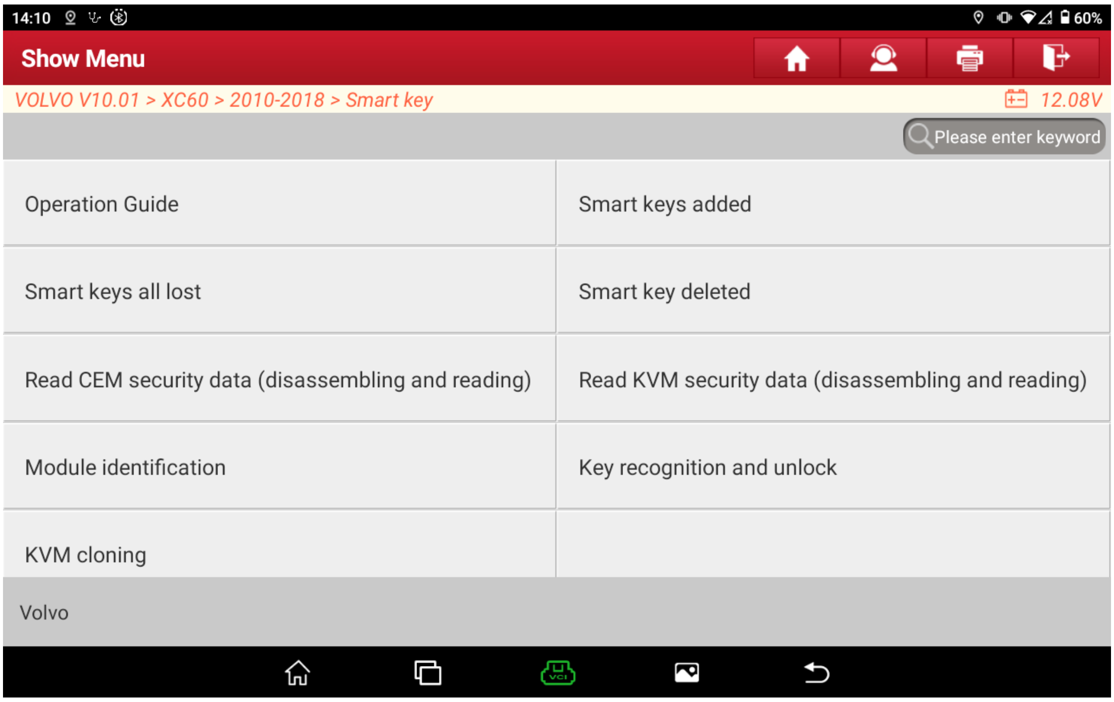
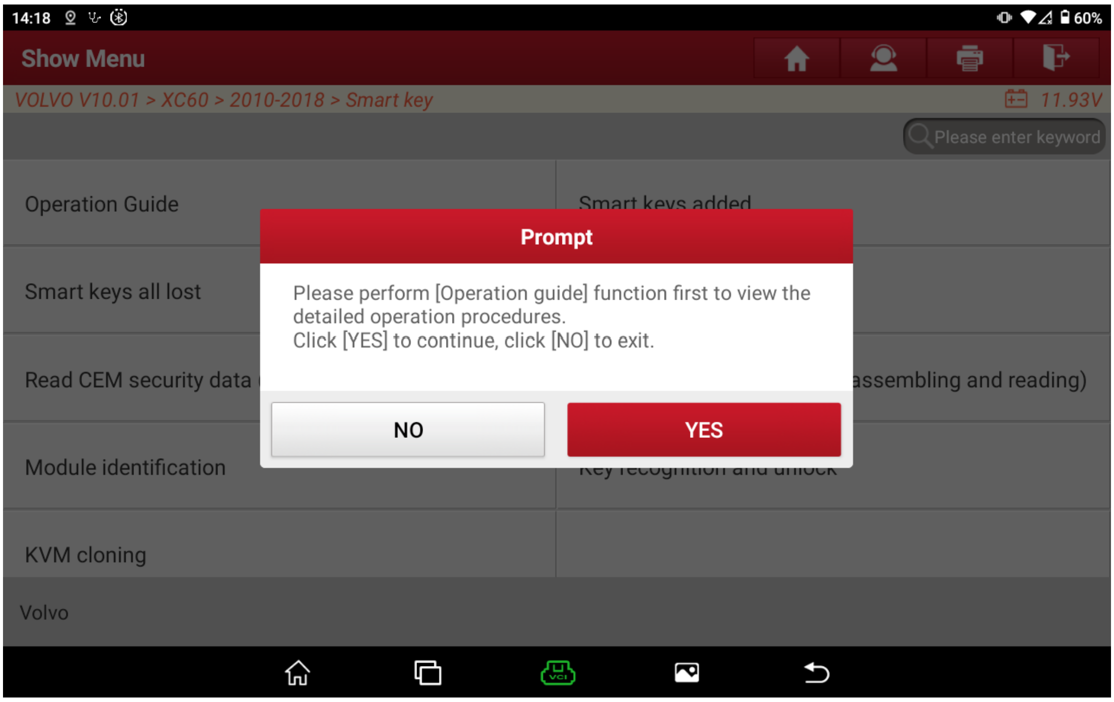

14:10
60%
Show Menu
VOLVO V10.01 > XC60 > 2010-2018 > Smart key
12.08V
Please enter keyword
Operation Guide
Smart keys added
Smart keys all lost
Smart key deleted
Read CEM security data (disassembling and reading)
Read KVM security data (disassembling and reading)
Module identification
Key recognition and unlock
KVM cloning
Volvo

Figure 22

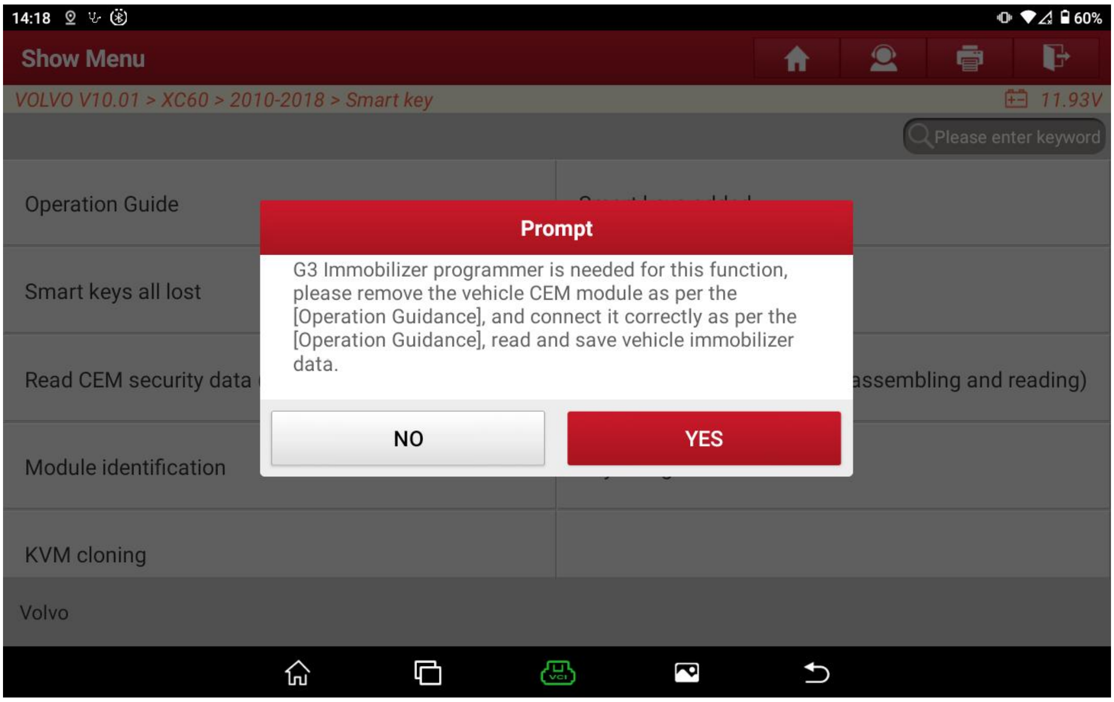
3) **Prompt to view [Operation guide] function, click [YES] to proceed to the next step.**



Please perform [Operation guide] function first to view the detailed operation procedures.
Click [YES] to continue, click [NO] to exit.

Figure 23

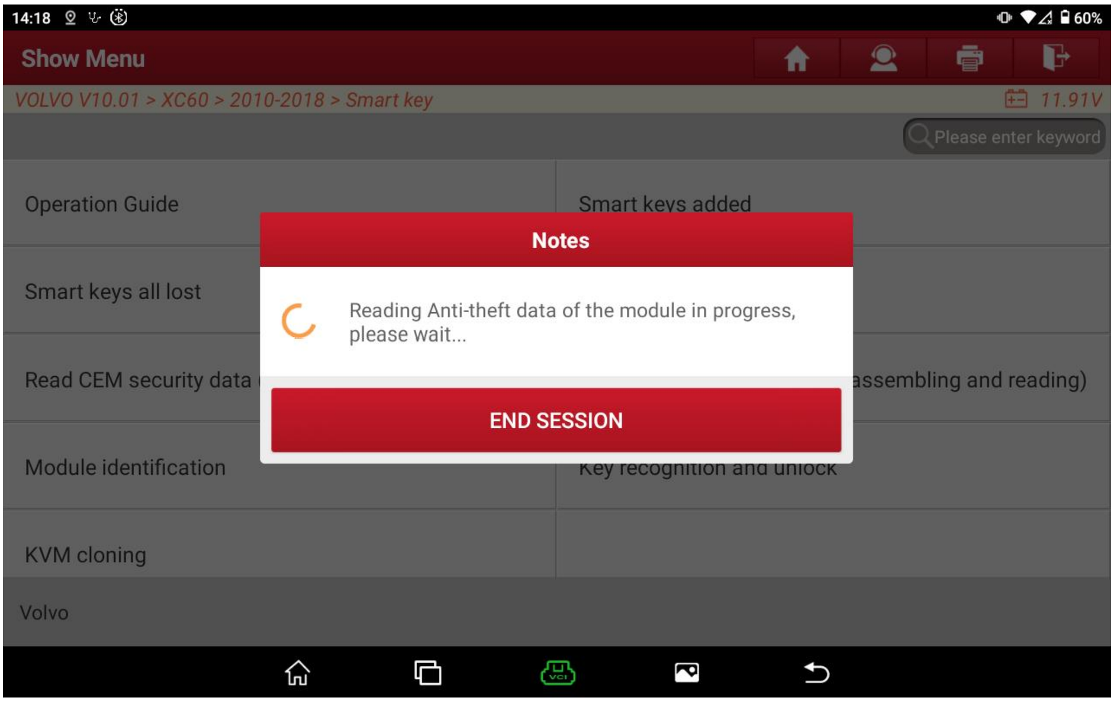
4) Connect G3 programmer, connect anti-theft device, programmer and vehicle module according to [Operation Guide], and click [YES] to go to the next step.



G3 Immobilizer programmer is needed for this function, please remove the vehicle CEM module as per the [Operation Guidance], and connect it correctly as per the [Operation Guidance], read and save vehicle immobilizer data.

Figure 24

5) **It is suggested that anti-theft data is being read, and the reading time is about 1-2 minutes. During this period, no operation is required. Do not move the device to avoid data reading failure.**



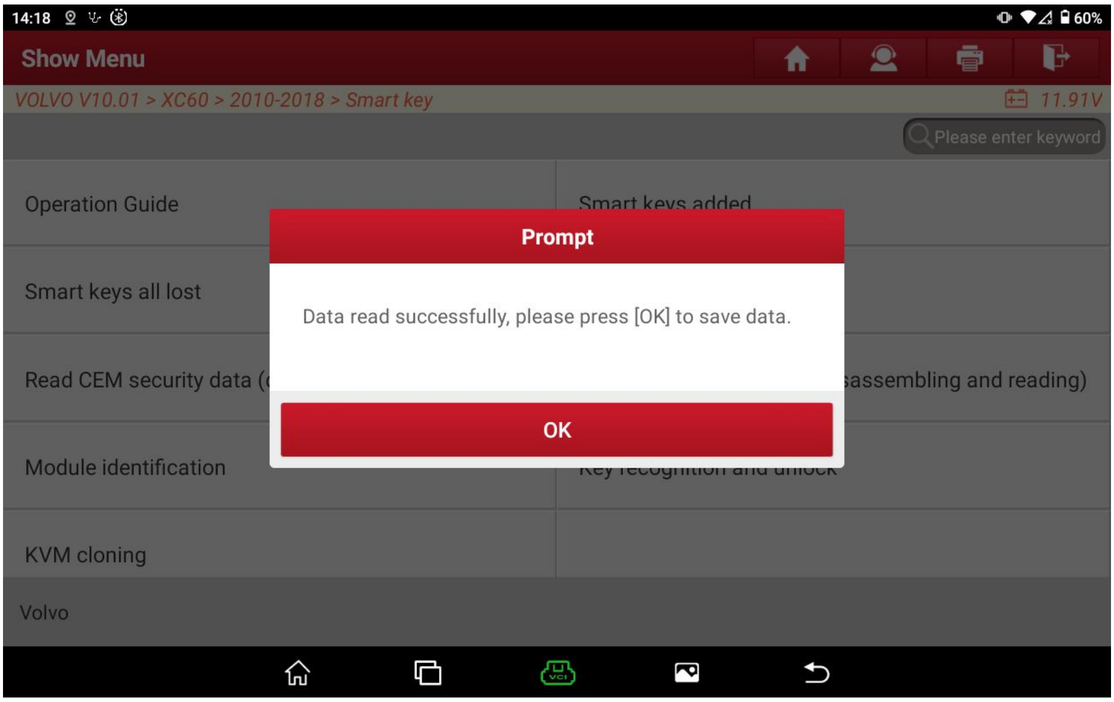
Notes

Reading Anti-theft data of the module in progress, please wait...

END SESSION

Figure 25

6) **After the anti-theft data is read successfully, it is prompted that the data is read successfully and the data is saved. After the successful saving, the function execution is completed.**

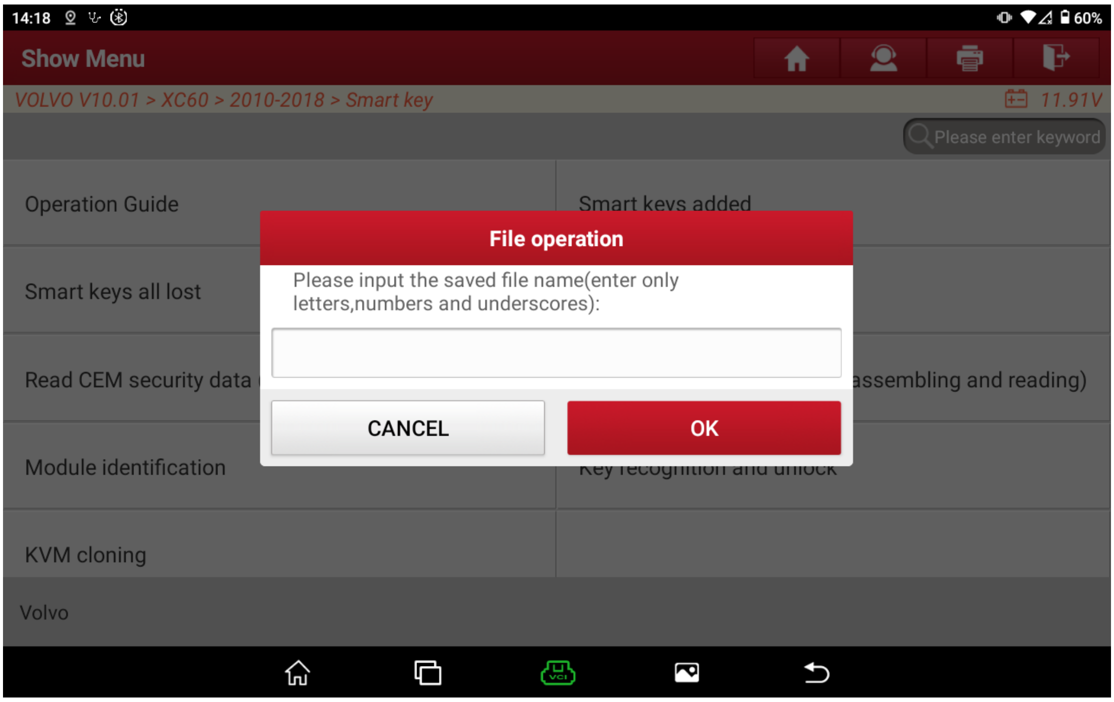


Prompt

Data read successfully, please press [OK] to save data.

OK

Figure 26

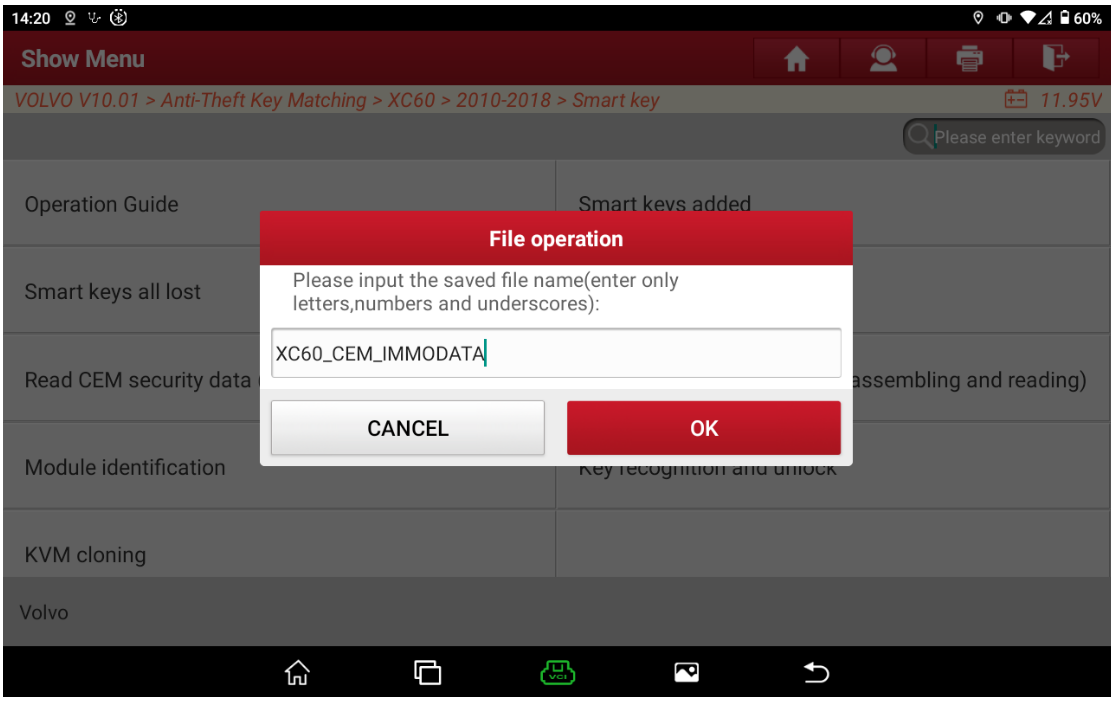


File operation

Please input the saved file name(enter only letters,numbers and underscores):

CANCEL OK

Figure 27



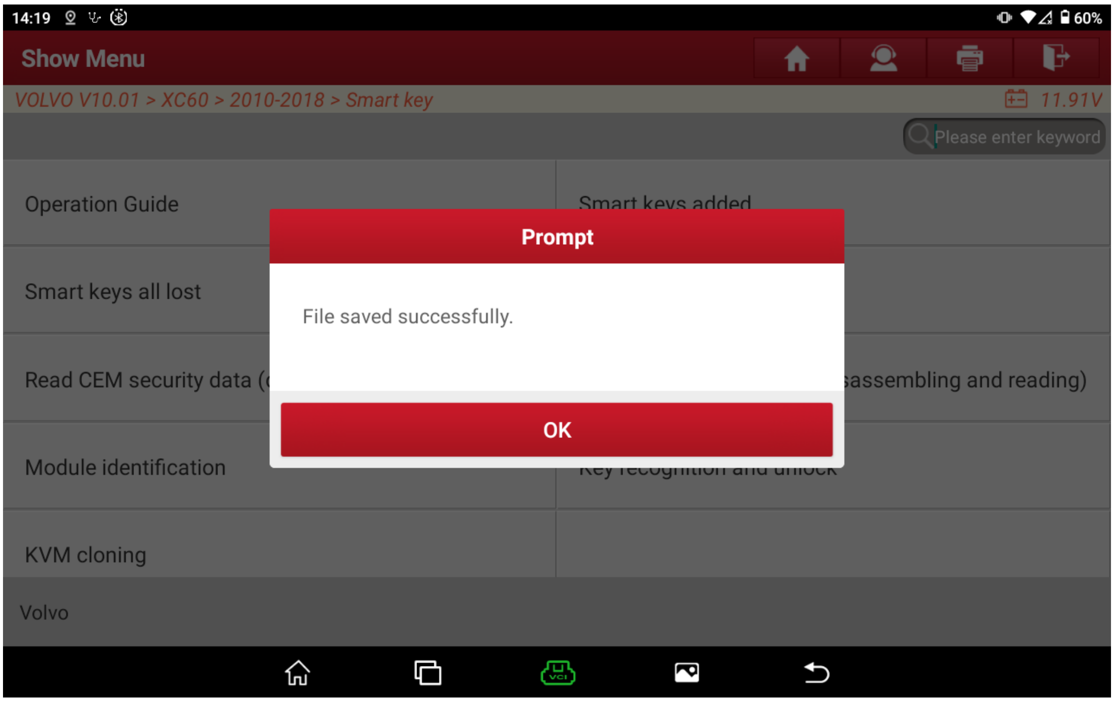
File operation

Please input the saved file name(enter only letters,numbers and underscores):

XC60_CEM_IMMODATA

CANCEL OK

Figure 28



Prompt

File saved successfully.

OK

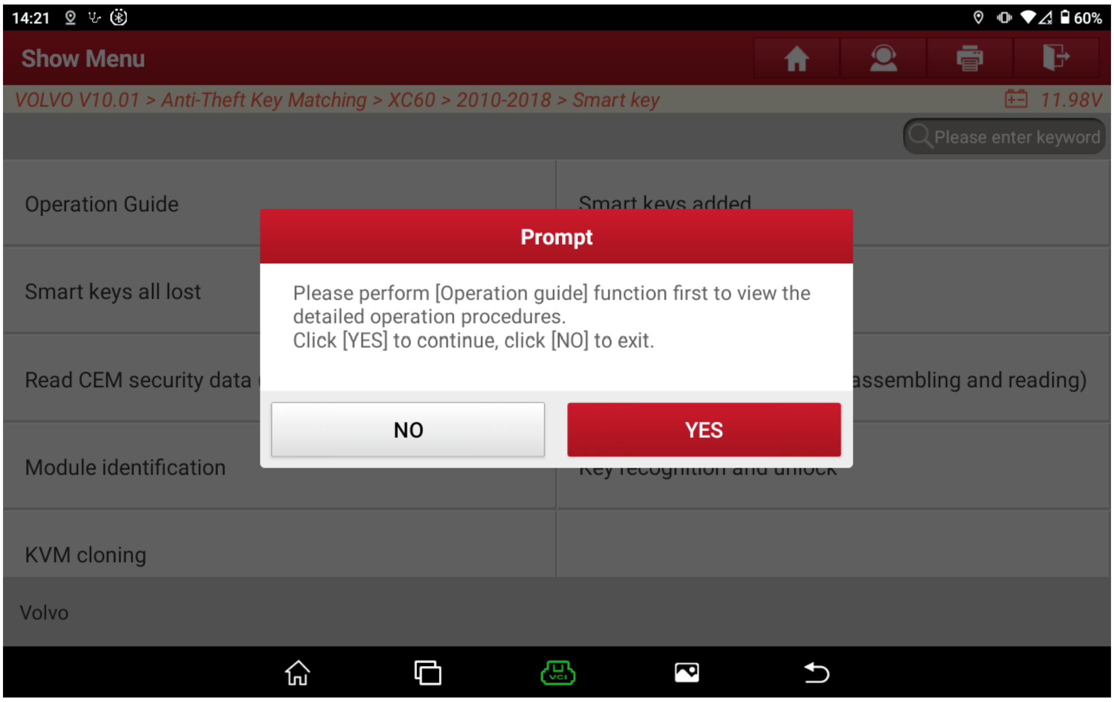
Figure 29

5. [Smart keys added]

The [Smart keys added] function is used to add keys to the vehicle without deleting the original car keys. The [Smart keys all lost] function is used to add keys to the vehicle after deleting all the original car keys. After deleting the original car keys, the original car keys need to be re-matched before they can be used again. The

[Smart key deleted] function is used to delete all the original car keys. Please select a function based on actual requirements. This document takes [Smart keys added] as an example:

1) **Select [Smart keys added] function, it's prompted to view the [Operation guide] function and click [YES] to perform the next step.**

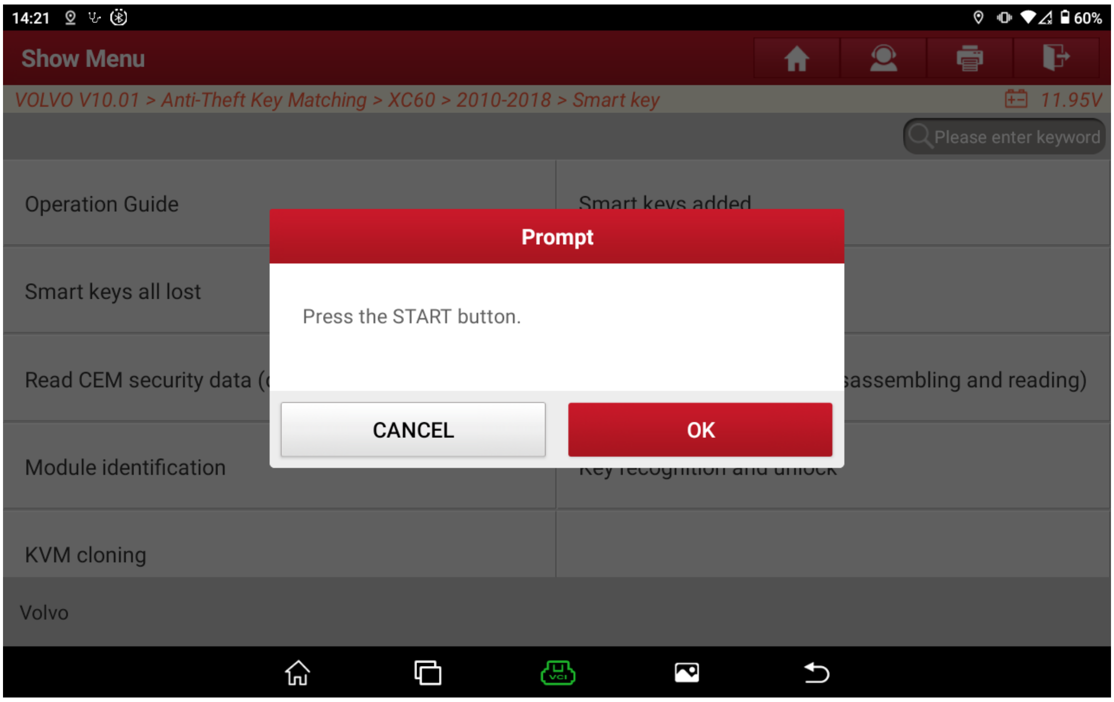


Prompt

Please perform [Operation guide] function first to view the detailed operation procedures.
Click [YES] to continue, click [NO] to exit.

Figure 30

2) After completing the action 'Press the START button', click [OK] to perform the next step.



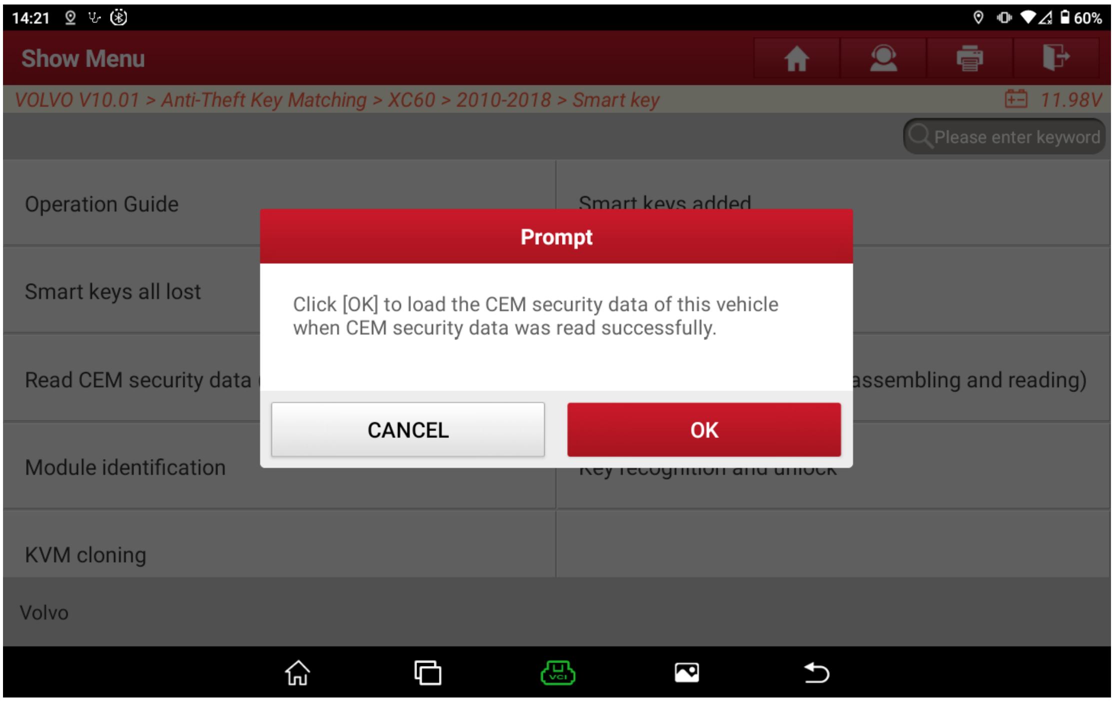
Prompt

Press the START button.

CANCEL OK

Figure 31

3) It's prompted to load CEM security data, click [OK] to load the anti-theft data.



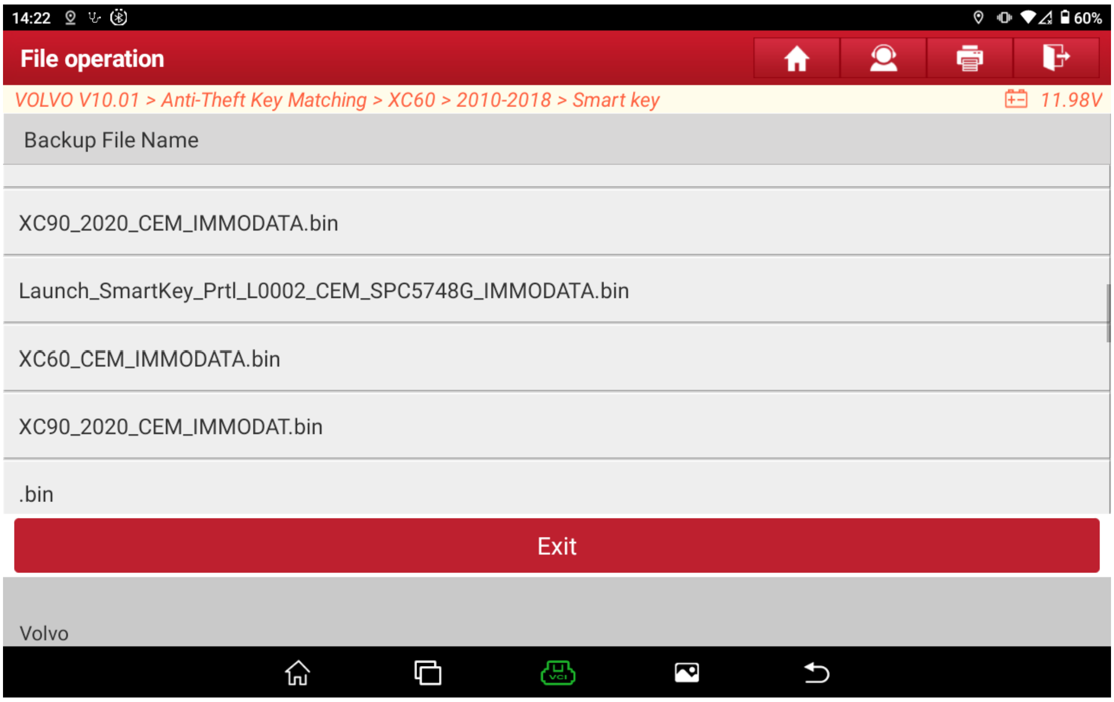
Prompt

Click [OK] to load the CEM security data of this vehicle when CEM security data was read successfully.

CANCEL OK

Figure 32

4) Select the read data file, here we select file XC60_CEM_IMMODATA.bin.



14:22

File operation

VOLVO V10.01 > Anti-Theft Key Matching > XC60 > 2010-2018 > Smart key 11.98V

Backup File Name

XC90_2020_CEM_IMMODATA.bin

Launch_SmartKey_Prtl_L0002_CEM_SPC5748G_IMMODATA.bin

XC60_CEM_IMMODATA.bin

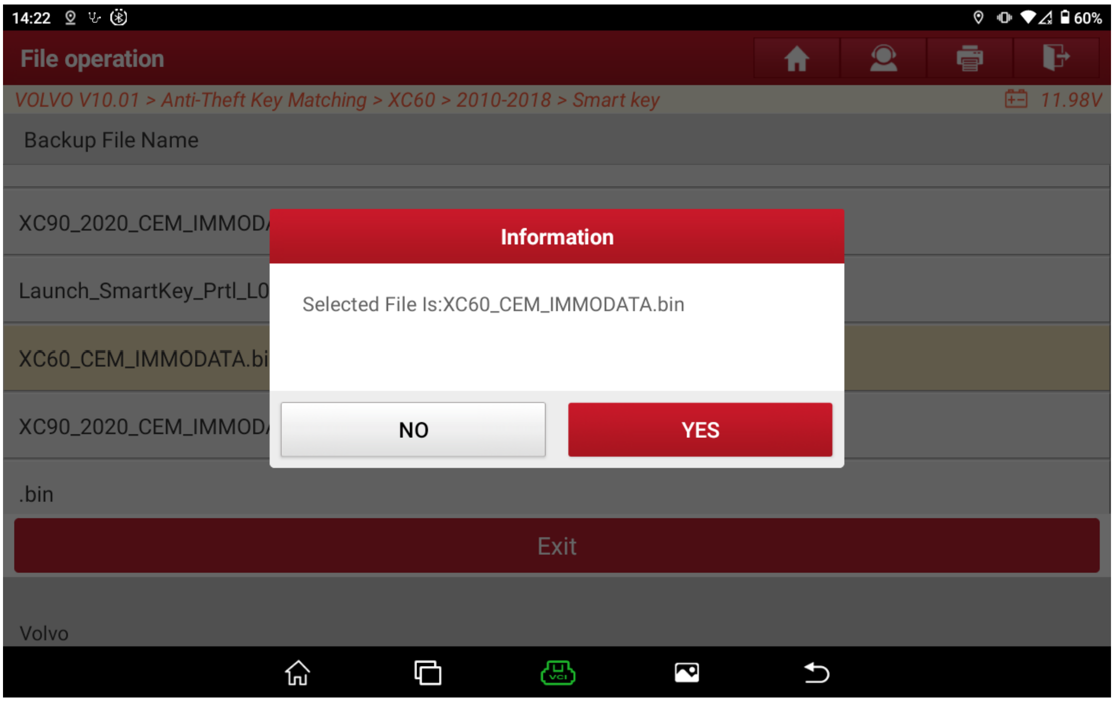
XC90_2020_CEM_IMMODAT.bin

.bin

Exit

Volvo

Figure 33



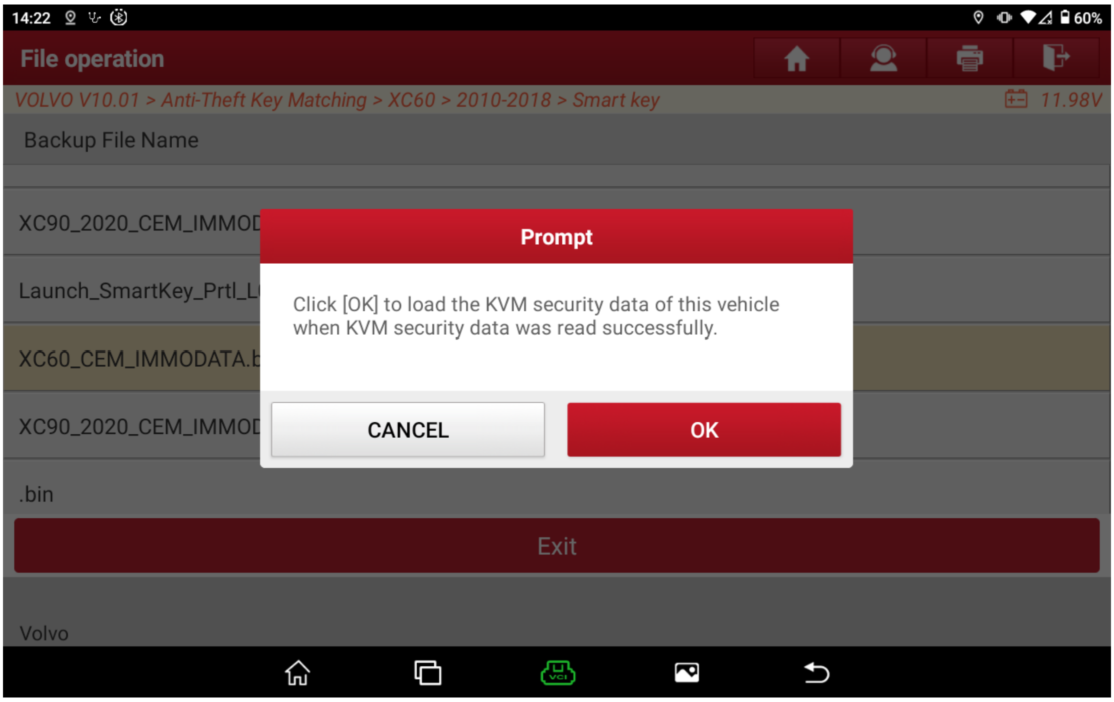
Information

Selected File Is:XC60_CEM_IMMODATA.bin

NO YES

Figure 34

5) **It's prompted to load KVM security data, click [OK] to load the anti-theft data.**



14:22 60%

File operation

VOLVO V10.01 > Anti-Theft Key Matching > XC60 > 2010-2018 > Smart key 11.98V

Backup File Name

XC90_2020_CEM_IMMOD

Launch_SmartKey_Prtl_L

XC60_CEM_IMMODATA.b

XC90_2020_CEM_IMMOD

.bin

Prompt

Click [OK] to load the KVM security data of this vehicle when KVM security data was read successfully.

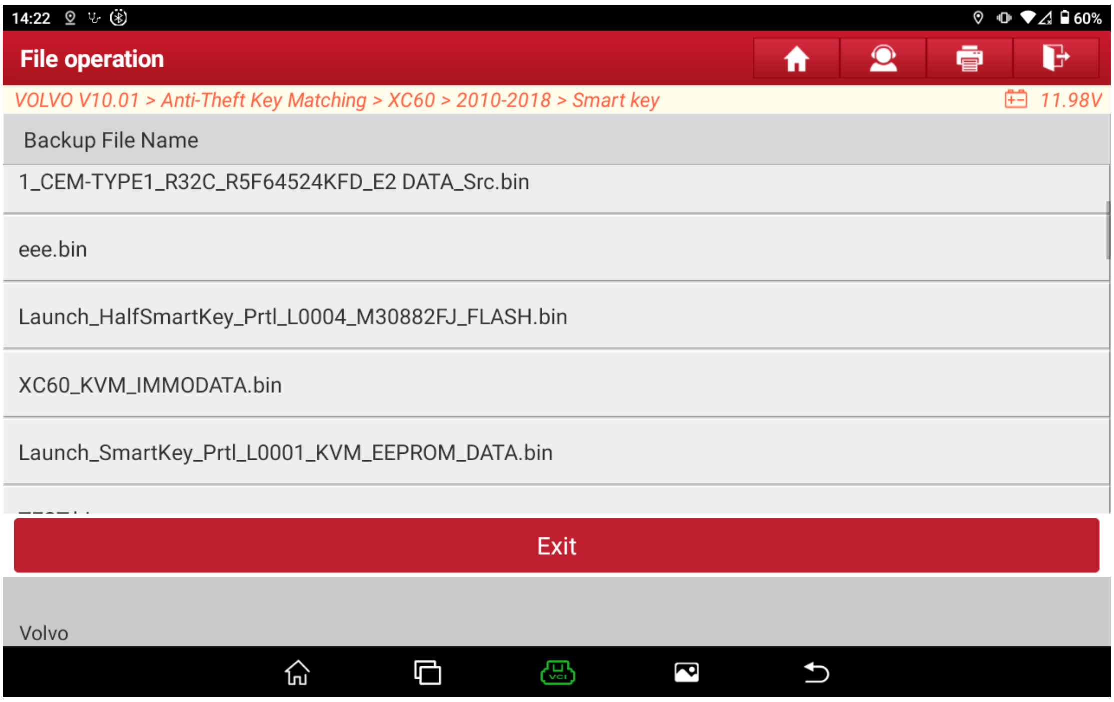
CANCEL OK

Exit

Volvo

Figure 35

6) **Select the read data file, here we select file XC60_KVM_IMMODATA.bin.**



14:22 60%

File operation

VOLVO V10.01 > Anti-Theft Key Matching > XC60 > 2010-2018 > Smart key 11.98V

Backup File Name

1_CEM-TYPE1_R32C_R5F64524KFD_E2 DATA_Src.bin

eee.bin

Launch_HalfSmartKey_Prtl_L0004_M30882FJ_FLASH.bin

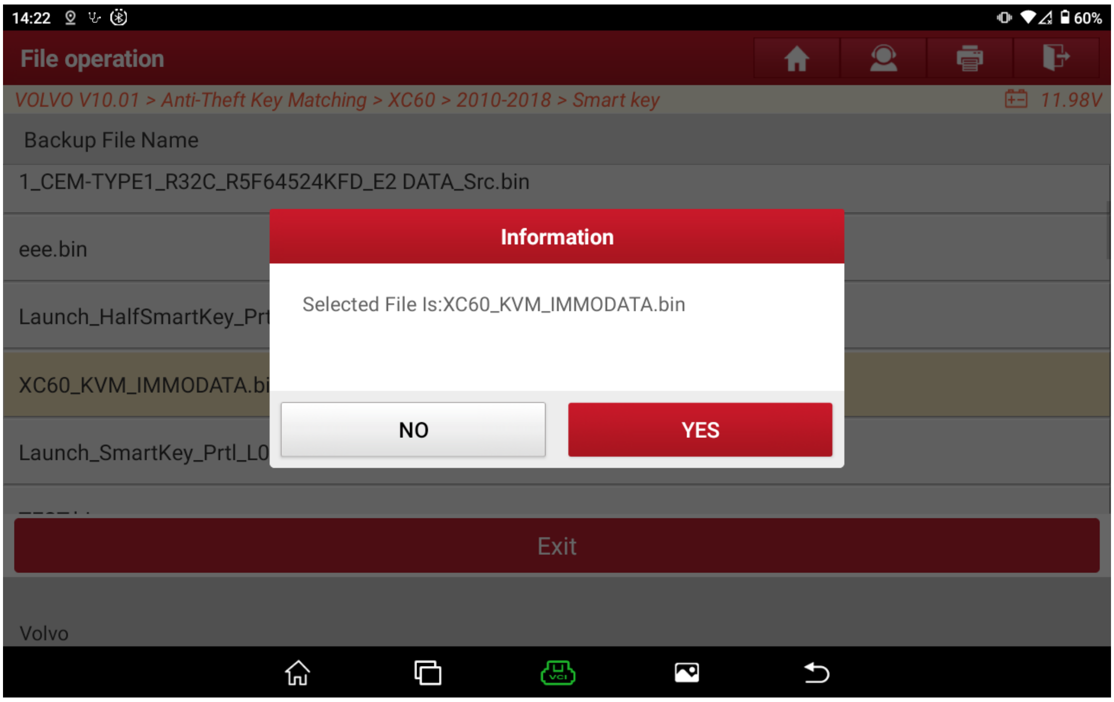
XC60_KVM_IMMODATA.bin

Launch_SmartKey_Prtl_L0001_KVM_EEPROM_DATA.bin

Exit

Volvo

Figure 36



14:22 60%

File operation

VOLVO V10.01 > Anti-Theft Key Matching > XC60 > 2010-2018 > Smart key 11.98V

Backup File Name

1_CEM-TYPE1_R32C_R5F64524KFD_E2 DATA_Src.bin

eee.bin

Launch_HalfSmartKey_Prt

XC60_KVM_IMMODATA.bi

Launch_SmartKey_Prtl_L0

Information

Selected File Is:XC60_KVM_IMMODATA.bin

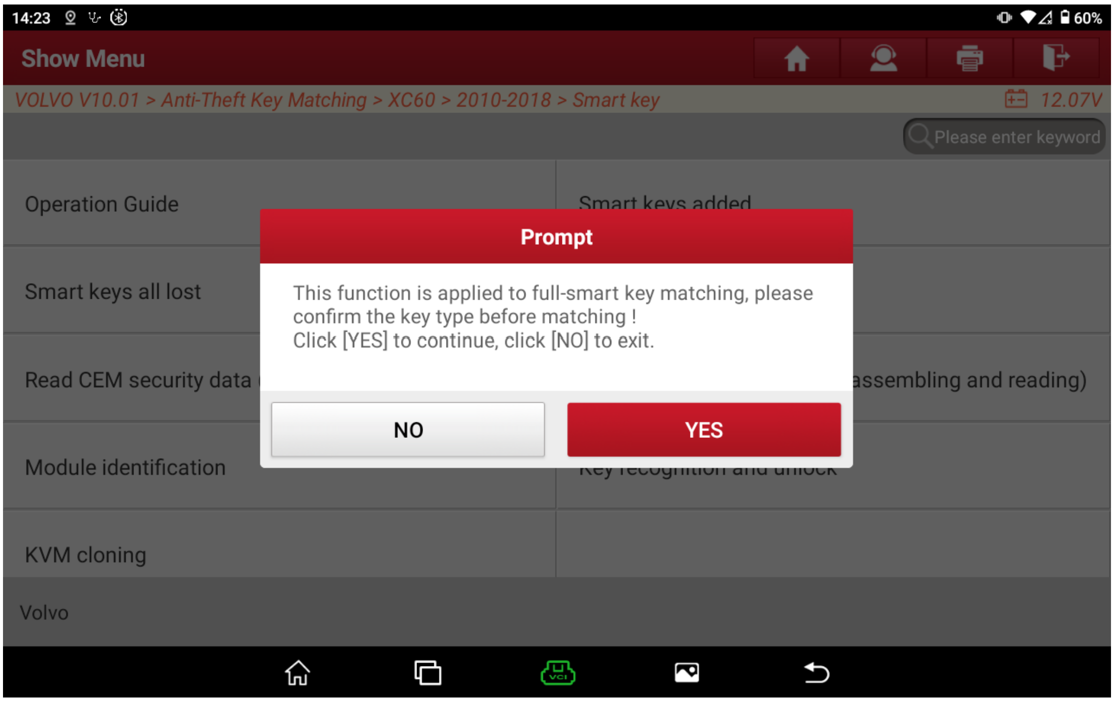
NO YES

Exit

Volvo

Figure 37

7) Confirm the key is correct and then click [YES] to perform the next step.



14:23 60%

Show Menu

VOLVO V10.01 > Anti-Theft Key Matching > XC60 > 2010-2018 > Smart key 12.07V

Please enter keyword

Operation Guide

Smart keys added

Smart keys all lost

Read CEM security data

assembling and reading)

Module identification

Key recognition and unlock

KVM cloning

Prompt

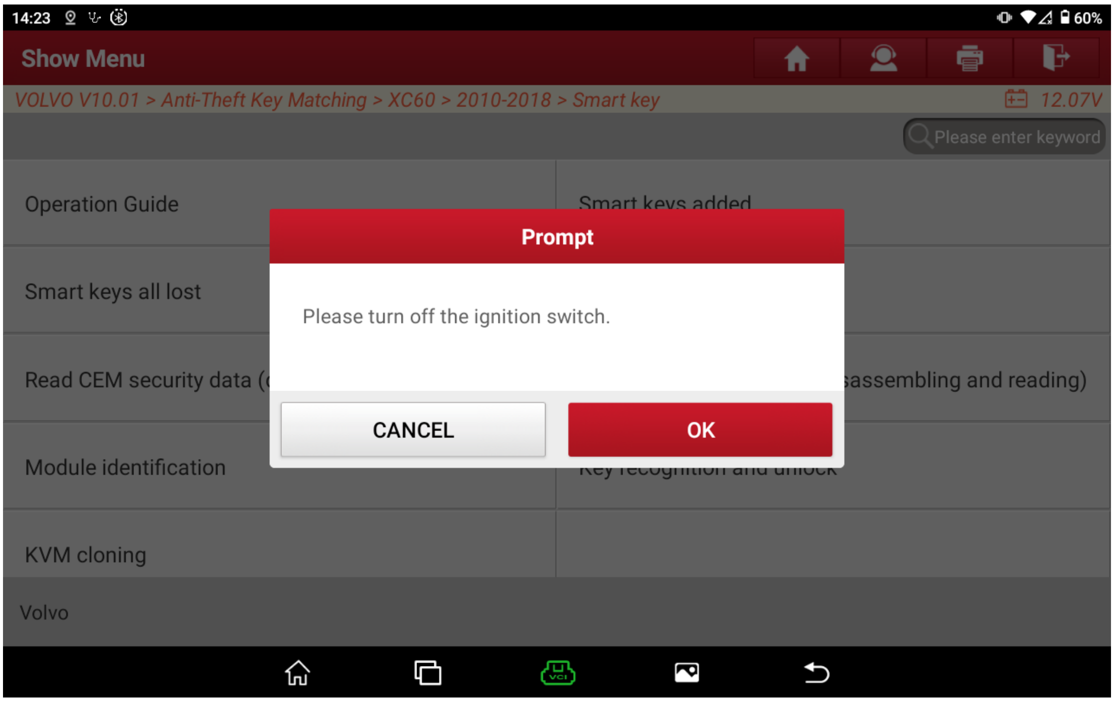
This function is applied to full-smart key matching, please confirm the key type before matching !
Click [YES] to continue, click [NO] to exit.

NO YES

Volvo

Figure 38

8) **Turn off the ignition switch and click [OK] to perform the next step.**



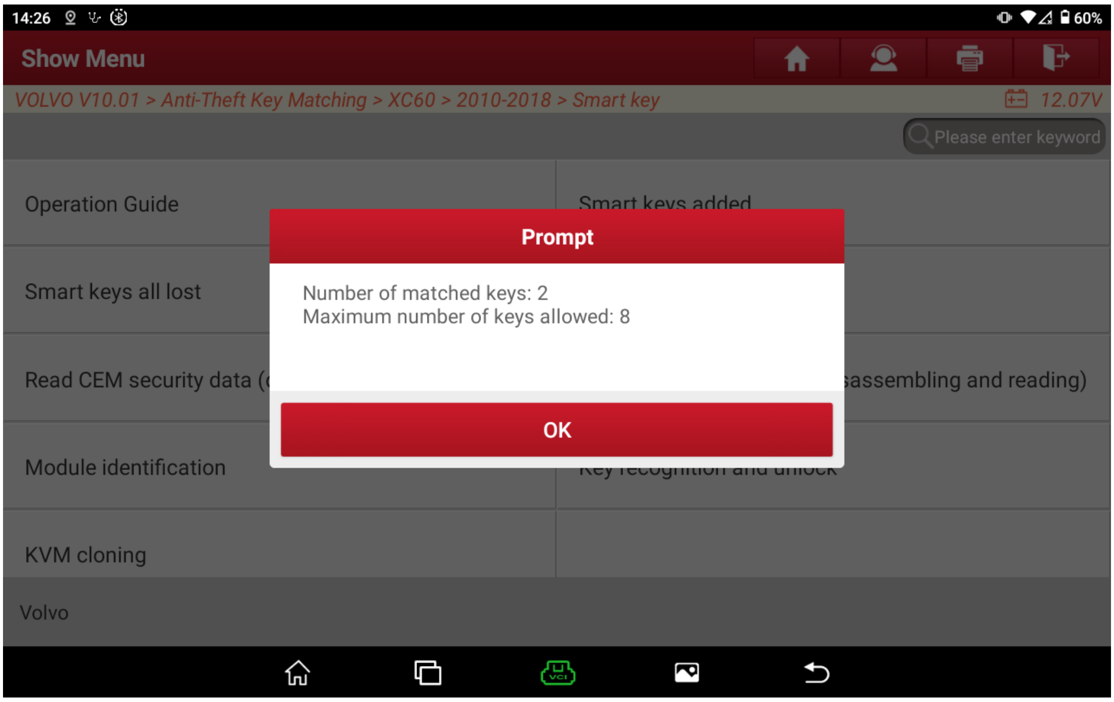
Prompt

Please turn off the ignition switch.

CANCEL OK

Figure 39

9) **Confirm the number of keys and then click [OK] to perform the next step.**



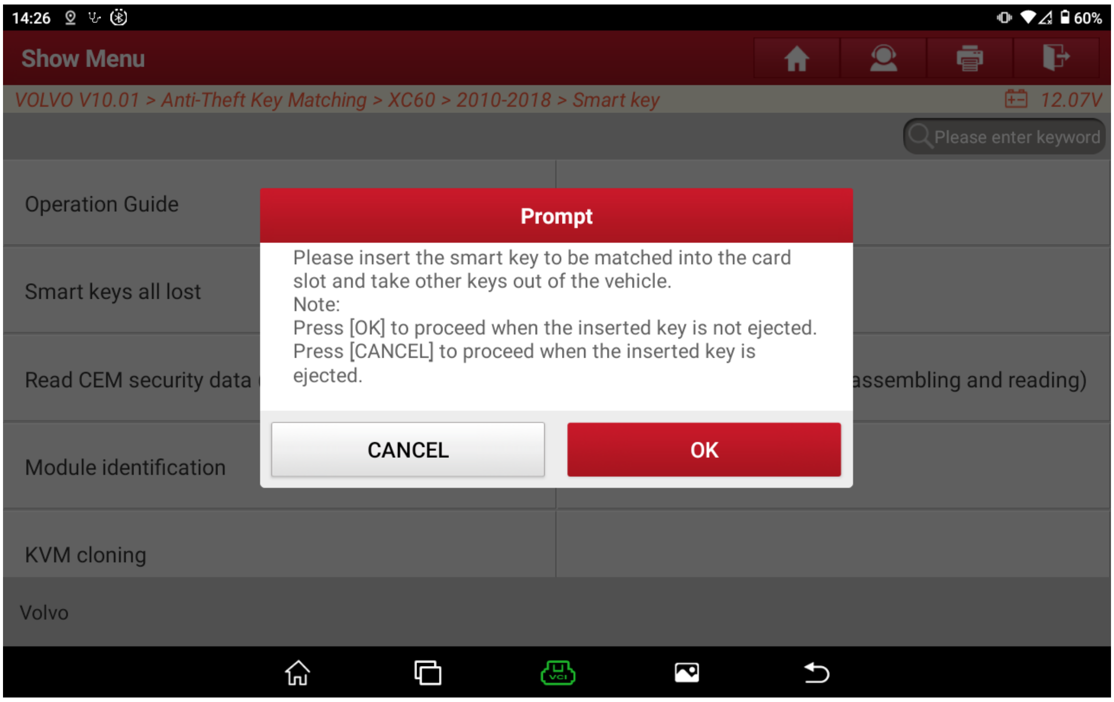
Prompt

Number of matched keys: 2
Maximum number of keys allowed: 8

OK

Figure 40

10) Insert the key into the card slot according to the prompts, select subsequent operations according to whether the key will be ejected. Click [CANCEL] to perform the next step when the key is ejected, click [OK] to perform the next step when the key is not ejected (generally ejected key is a rare case).

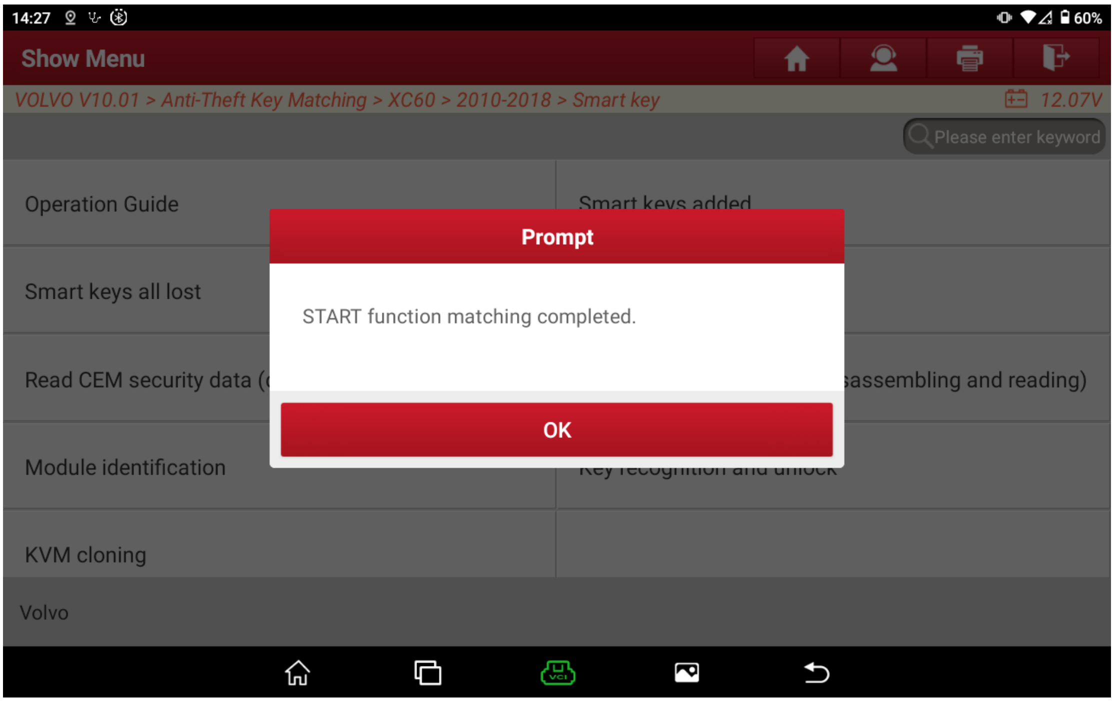


Prompt

Please insert the smart key to be matched into the card slot and take other keys out of the vehicle.
Note:
Press [OK] to proceed when the inserted key is not ejected.
Press [CANCEL] to proceed when the inserted key is ejected.

Figure 41

11) According to the prompts, click [OK] to complete the matching.

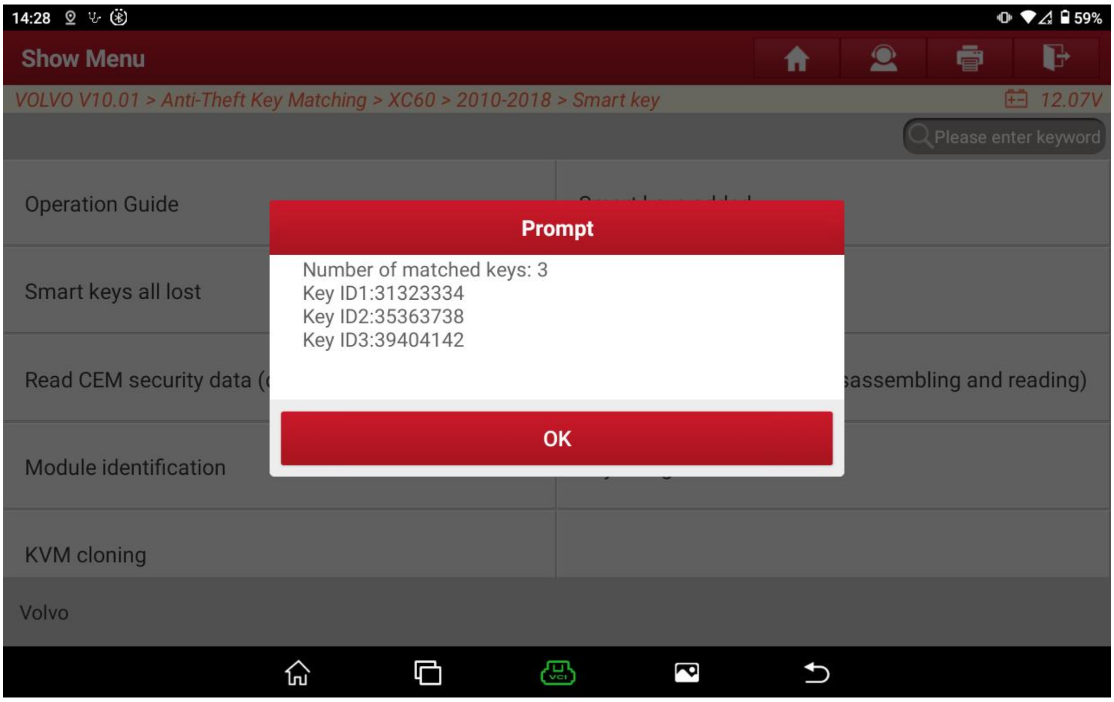


Prompt

START function matching completed.

OK

Figure 42

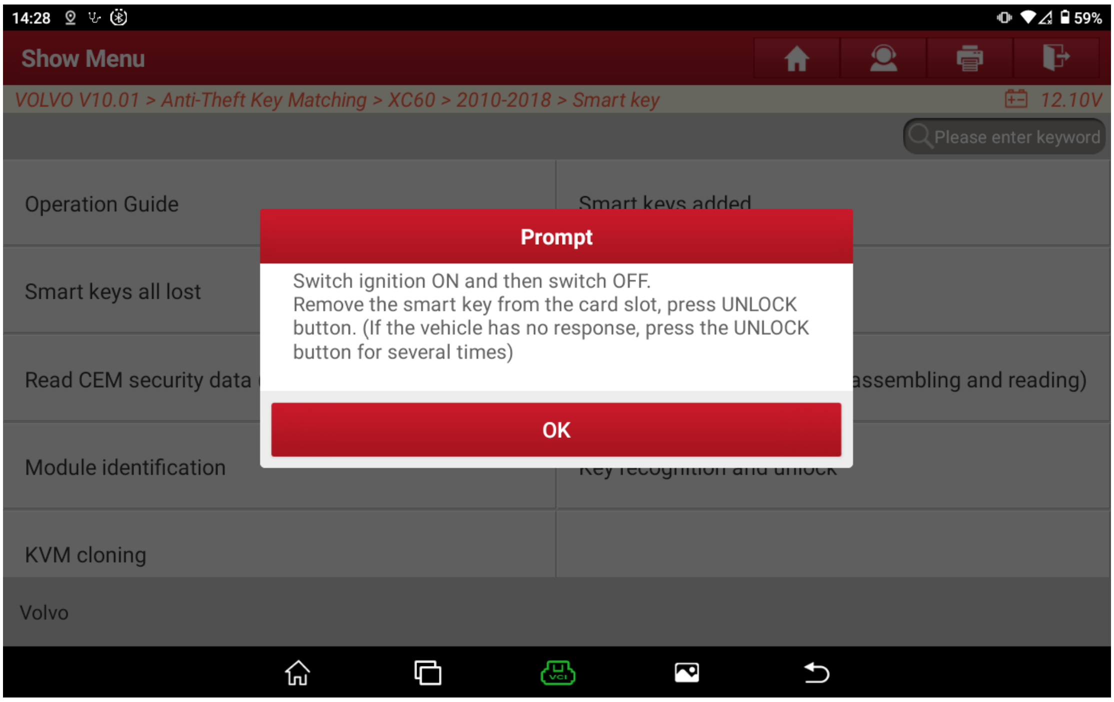


Prompt

Number of matched keys: 3
Key ID1:31323334
Key ID2:35363738
Key ID3:39404142

OK

Figure 43

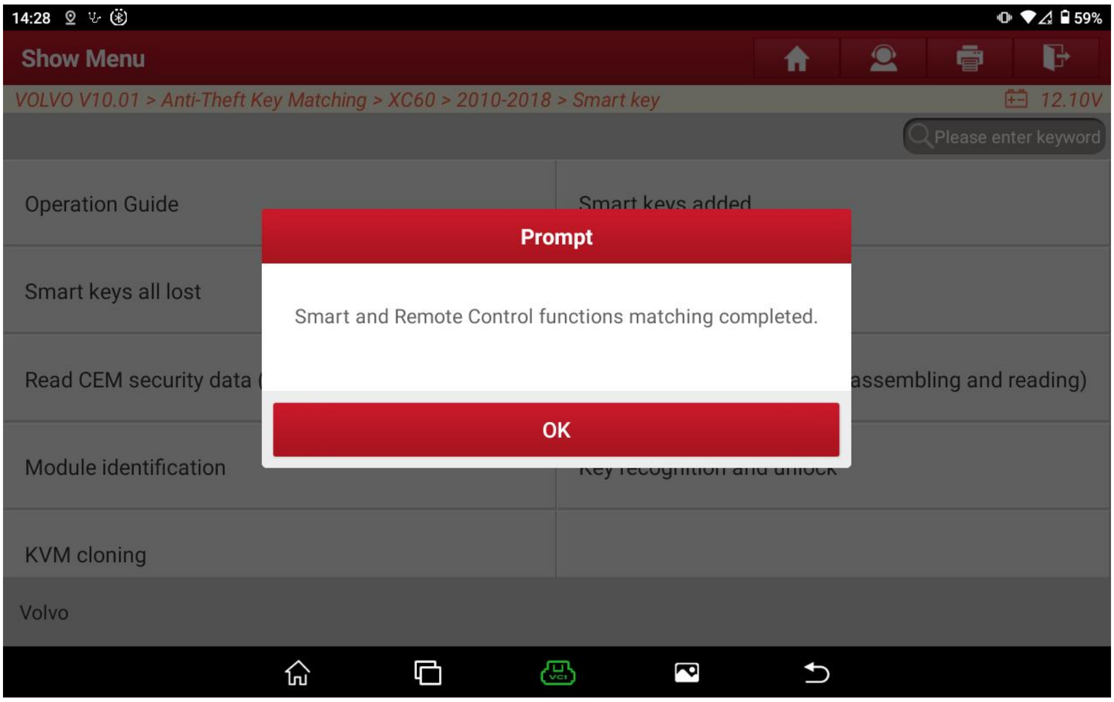


Prompt

Switch ignition ON and then switch OFF.
Remove the smart key from the card slot, press UNLOCK button. (If the vehicle has no response, press the UNLOCK button for several times)

OK

Figure 44



Prompt

Smart and Remote Control functions matching completed.

OK

Figure 45

Statement: