VVDI–MB TOOL User Manual

VVDI

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1. Document Declaration

Please view the following declaration carefully:

- VVDI – MB TOOL User Manual can help you maintenance vehicles with VVDI MB TOOL device. **Please DON'T used for illegal purpose, Please follow the national law**
- VVDI – MB TOOL User Manual is written by VVDI-MB, **please DON'T used for commercial purposes without authorize**
- VVDI – MB TOOL User Manual can help you how to use VVDI – MB TOOL software, please view carefully
- **Any illegal use VVDI – MB TOOL User Manual, illegal use VVDI – MB TOOL device, The user should take all risks, the company does not assume any responsibility**

VVDI MB

2.Overview

2.1. Noun explanation

- **Mercedes Benz:** A car brand come from German, we simply use MB, BENZ instead
- **EIS：Sometimes we call it EZS. The immobilizer system for MB cars**
- **ESL: Sometimes we call it ESL**
- **Chassis:** Mainly use to distinguish car platform, the same platform will have same EIS type, example: W204, W216 etc.

2.2. VVDI – MB TOOL Hardware

1. VVDI-MB TOOL device
2. IR adaptor
3. USB cable
4. NEC adaptor 1
5. NEC adaptor 2
6. NEC adaptor base PCB
7. K Line in OBD line
8. OBD line

⑨

⑩

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9. VVDI-MB NEC Key Adaptor (not standard component, need buy extra)
10. Connector for W164, W209, W211 without gateway (not standard component, need buy extra)
11. VVDI-MB W204 ESL adaptor (not standard component, need buy extra)
12. VVDI Mercedes Benz Simulator (not standard component, need buy extra)
13. VVDI Mercedes Benz five-in-one wiring harness (not standard component, need buy extra)

2.3. Mainly function

◆ **Read Write Key**

1. Read key basic information
2. Key with BE version, we can read password from key via IR directly. Of course, renew key, write new key file via IR is also supported
3. Support IR repair key, repair key not work via IR
4. NEC adaptor can read key password from NEC v51, v57 version
5. Support read/activate blank BGA (0CF4) key
6. Support read last HASH from key (Repair key)
7. Support write and renew (NEC adaptor) NEC key versions following:
   v51, v57
   v28, v35, v40

v03, v06, v08 (Keyless Go)
v05, v07, v09 (Keyless Go)
v59, v61 (Keyless Go)

- **EIS Tools**
  1. **Support read EIS data via OBD and IR adaptor**
  2. **Under OBD mode, we provide auto detect EIS type for CAN protocol and need to select EIS type manually for K protocol**
  3. **Support read W164, W209, W211 EIS via OBD without gateway support**
  4. **Support read old Motorola EIS (HC05, HC08, K-Line) password via IR directly**
  5. **Support renew EIS, make 2nd hand EIS to new one (online)**
  6. **Support replace EIS, you can write original EIS data to new EIS via IR**
  7. **Support write new VIN**
  8. **Support clear TP**
  9. **Support disable key position**
  10. **Support enable key position**
  11. **Support personalize W204 ESL**
  12. **Support test EIS, ESL, working key status**
  13. **Support reading the frame number and EIS number of the K-line EIS(OBD communication needs to short-circuit the pin 7 and pin 1 of the vehicle OBD)**
  14. **Support type：**

      W164 W251
      W164,W251 2009-
      W166, 197, 212, 218, 246
      W169, 209, 211
      W172, 204, 207, 212(old, with ESL)
      W203, 463, 639 (K)
      W202, 208, 210 (K)
      W215, 220 (K)
      W230 (K)
      W216
      W221
      W639 2009-
      W906

- **Password Calculation: support working key and lost all key**
  1. **Password calculation can get the key password from working key and EIS(online)**
  2. **CAN protocol EIS all support password calculation (support BGA keys and other NEC keys)**
  3. **Data acquisition time depends on the key version.**
  4. **Calculate time in server: 30 seconds – 1 minute**
  5. **Now VVDI-MB TOOL is the fastest tool for password calculation.**
  6. **Lost all key password calculation: Now we support calculate password for all FBS3 EIS while lost all keys**

7. **Fast collector support type ('FAST' after the option)：**

W172,W204, W207
W216
W164,W251 2009-
W169,W209,W211
W202,W208,W210
W203,W463,W639
W639 ， 2009-
W906
W221
W164,W251
W215,W220
W230
W230（with ESL）
W169 Type2

8. **Add keys support type:**

W164 W251
W164,W251 2009-
W166, 197, 212, 218, 246
W169, 209, 211
W172, 204, 207, W212 (old, with ESL)
W216
W221
W639 2009-
W906
W202,W208,W210(FAST)
W203,W463,W639(FAST)

IR read password, such as HC12(W209/W211), HC08 (W203/W215/W220/W230)Motorola EIS

◆ **Prepare Key File**

1. **Prepare key file means prepare the key file which you will write to new key(online)**
2. **Prepare key file need about 20 seconds**
3. **Support VVDI-MB type EIS data and old Motorola EEPROM dump**

◆ **ESL Tools**

1. **Support read ESL data via OBD (K-Line)**
2. **Support renew ESL, renew second hand ESL (online)**
3. **Support replace ESL, you can write original ESL or EIS data to the new ESL**
4. **Support write new VIN**
5. **Support clear TP**
6. **Support auto personalized ESL, no need renew EIS**
7. **Support check ESL damage status**
8. **Support repair W204 ESL NEC chip(fatal error: 0xAA) and Motorola ESL chip**

9. **Support renew VVDI-MB W204 emulator**

- **Renew ECU/Gearbox**
  1. **This function support renew, write VIN, personalization operation for module ECU, Gearbox, ISM etc.**

- **KM Repair**

  Support repair dashboard KM. Support the following type:
  1. **C(W204), GLK(X204), CLK(W207), E(W212), SLS(W197), CLS(W218)**
  2. **R-Class(W251), GL(X164), ML(W164)**
  3. **E-Class(W211), CLS(W219)**
  4. **S-Class(W221), CL(216)**
  5. **W166, W172, W246, W231**
  6. **W205**

  Warning: This function is only used for mileage repair, please abide by local laws and regulations, and do not use it for illegal purposes

- **Set key frequency/upgrade smart key**
  1. **Support specific manufacturer keys to change the key frequency through IR**
  2. **Support the smart key of a specific manufacturer to upgrade to the latest version of the server through IR**
- **Points system**

  Use the VVDI BE key to earn extra points. This point can not only redeem the point of the password calculation, but also can redeem functions and accessories.
- **Read/Write CGW(ZGW)**

  Support Read/Write gateway EEPROM and FLASH completely.

  Support following type:
  1. **A-Class (W169)**
  2. **B-Class (W245)**
  3. **C-Class (W204)**
  4. **E-Class (W211)**
  5. **E-Class (W212)**
  6. **GLK (X204)**
  7. **CLK (W207)**
  8. **CLS (W218)**
  9. **CLS (W219)**
  10. **Maybach(W240)**
  11. **SLK (R171)**
  12. **SLR (R199)**
  13. **SLS (R197)**

14. **GL (X164)**
15. **M-Class (W164)**
16. **R-Class (W251)**
17. **SMART**
18. **S-Class (W221)**
19. **CL (W216)**

◆ **FBS4 Disable key**

This function is suitable for disabling the keys of W166, W205, W213, W218, W222 and W246 chassis

Important note: The disabled key can only be enabled online through the original diagnostics tools

◆ **Special Instructions (2021.05.01)**

1. The newest cars after 2015 with FBS4 EIS don't support read data and password, we are still working on it.
2. Renew EIS and renew ESL are both require erase password. Now search erase password have 92% success rate. We are building a new server for erase password. It will support all erase password after new server has been finished.

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3.Options

3.1. Language

Please manual set user language after first run program

Support following languages:

- **Chinese (Simplified)**
- **English**
- **Polish**
- **Spanish**
- **German**

3.2. User Manual

Open user manual folder

3.3. Open Log

Open log folder

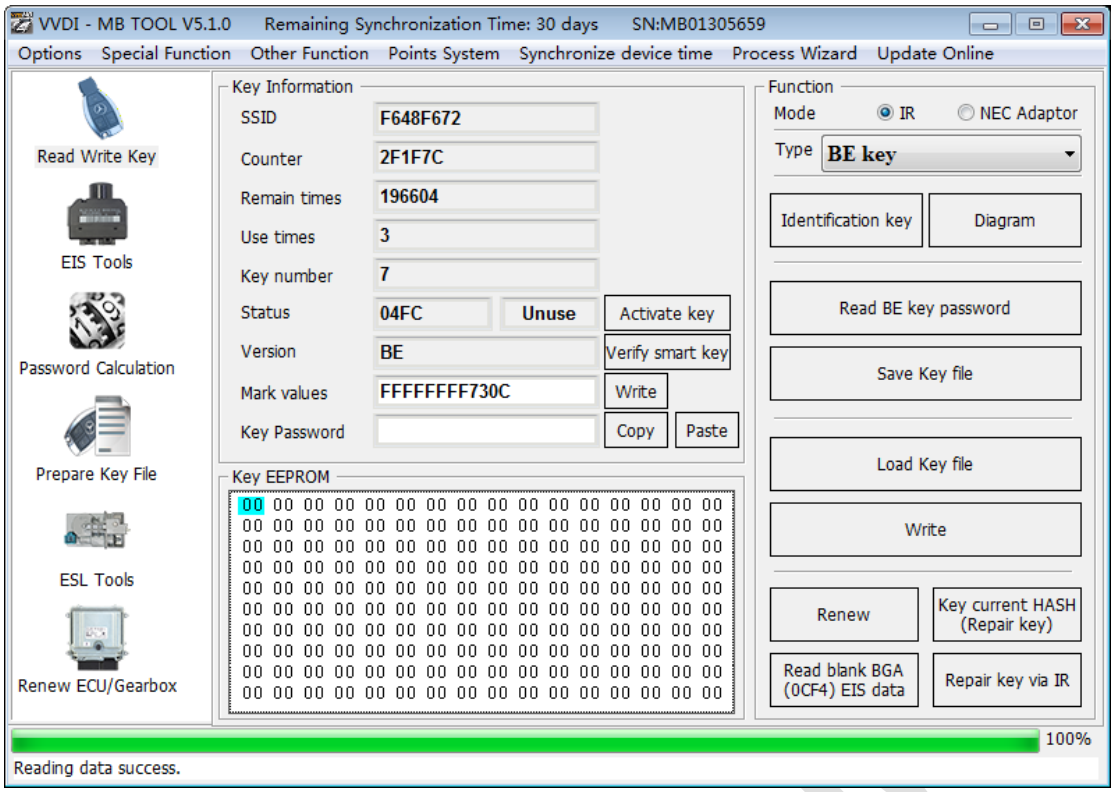
VVDI MB

4.Read Write Key

Read Write Key support read key basic information, generate new working key, renew/write NEC key (Support Keyless Go). Read password of the BE key via IR directly, renew BE key, write new key file to the BE key.
NEC adaptor support read the password of the v51, v57 version key.

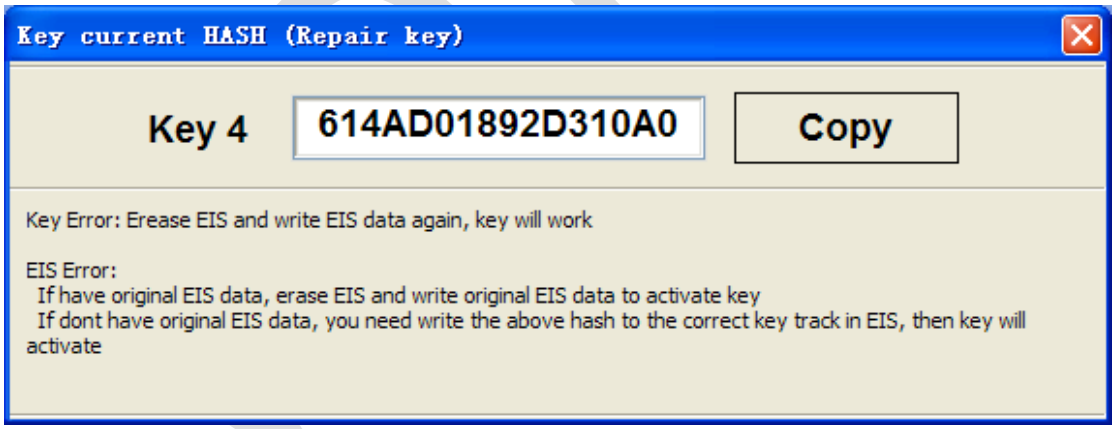
4.1. IR mode

Identification key：Support read key basic information, such as: SSID, counter, remain times, use times, key number, status, version, mark values etc.
BE key: Key version is BE，support read password and key EEPROM stored in BE key, in order to make a working key ,we can write new key file to the key , **renew used BE key and** etc.
If working key is BE version, you can read password from key directly, no need to read password from EIS.
NEC&BGA Keys: Write key file to new original NEC key or erased the key via IR.
Activate key: After you have wrote the new file to the new key, you need to active the new key before you insert the key to the car if the EIS is W210.
Write mark values: This function only support the BE key and the original NEC key to write the mark values via IR.
Copy key password: You can copy the password to clipboard after you have successfully read the key password.
Repair key via IR: When you identify the key, you can only read the SSID and the key's states, then you can repair this kind of key via IR.

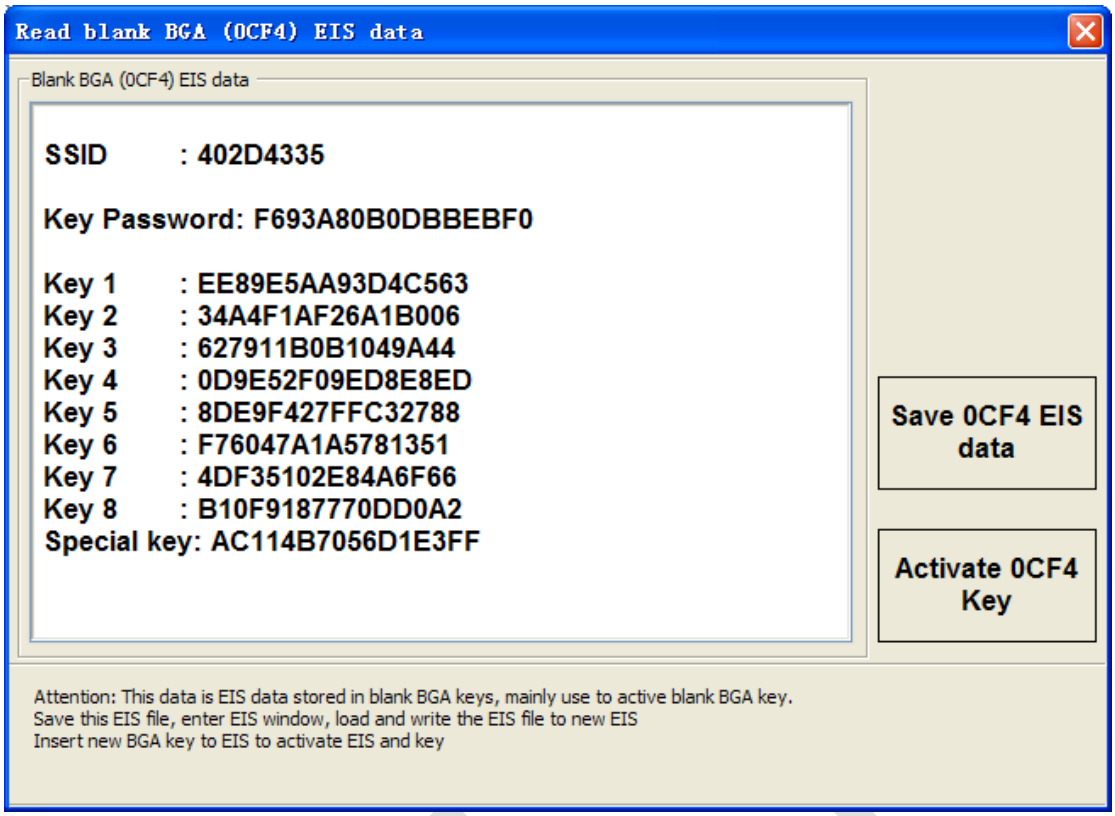


Renew: This function can renew the BE key, the original car key needs NEC adapter to wipe empty.

Key current HASH (Repair key): This function need to bring in the correct key password. It can read the last key track stored in key. With this data you can fix EIS errors.



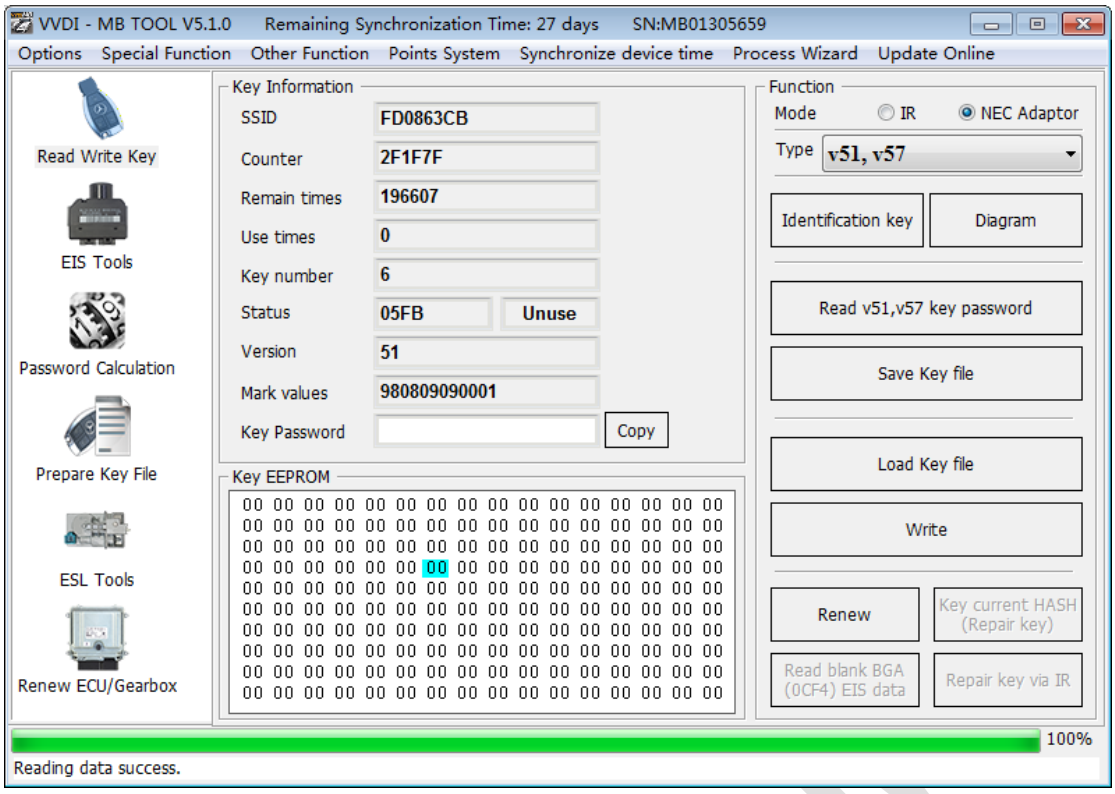
Read Blank BGA (0CF4) EIS data: Support read EIS data stored in blank BGA key. The blank BGA key has a complete set of EIS data. Write this data to NEW EIS, and after you have synchronized other module with EIS, you can activate the blank BGA key, even keyless Go.



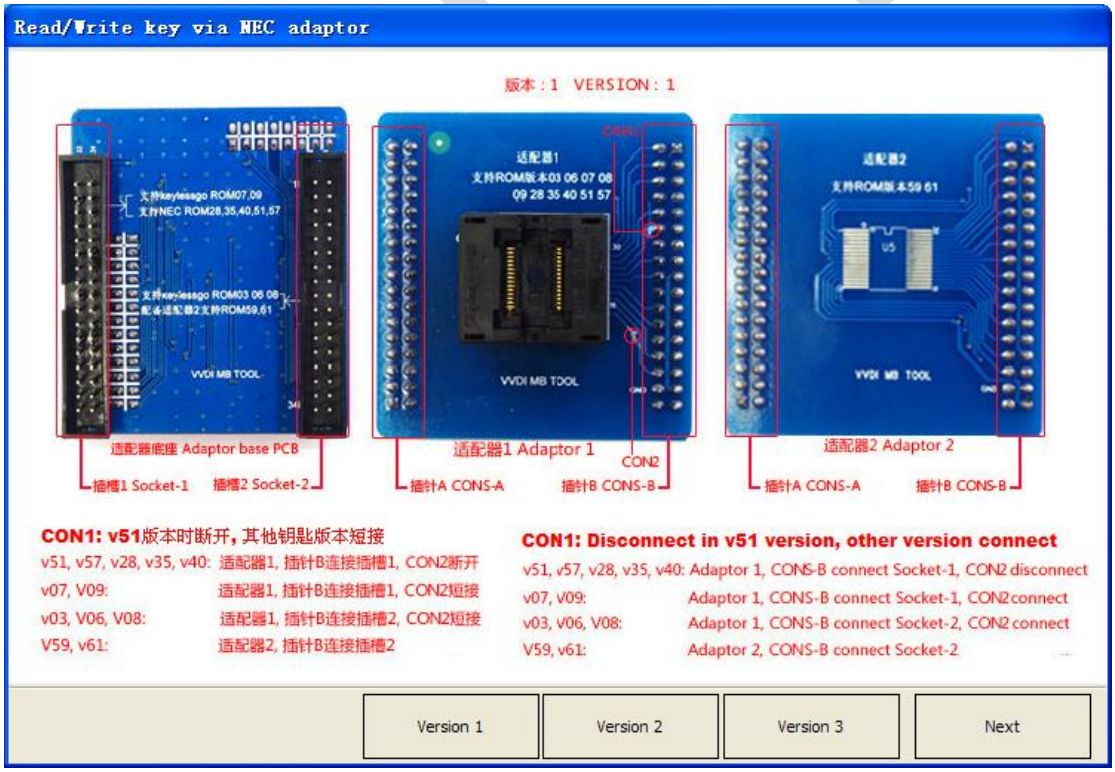
Activate 0CF4 Key: Support change blank BGA key status from 0CF4 to 04FC, you can't read EIS data after you have active the remote.

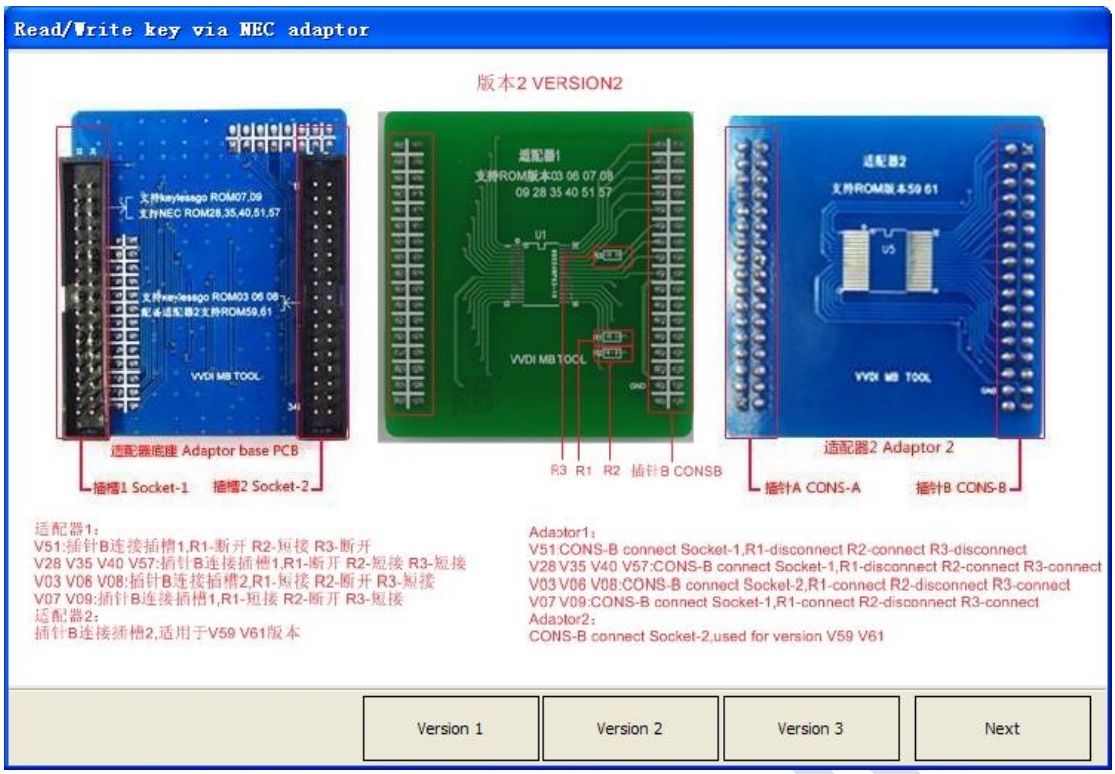
4.2. NEC Adaptor mode

Renew/Write new key file via NEC adaptor
Support versions:
v51, v57
v28, v35, v40
v03, v06, v08 (Keyless Go)
v05, v07, v09 (Keyless Go)
v59, v61 (Keyless Go)
The above keys all with NEC chip (not BGA type). You need solder the NEC chip from key and place it to NEC adaptor
For NEC v51, v57 version, support read password from working key directly, no need read password from EIS
For all NEC types, you must use "Identification key" to read one time before renew/write key



The way to connect the NEC adaptor with the chip:



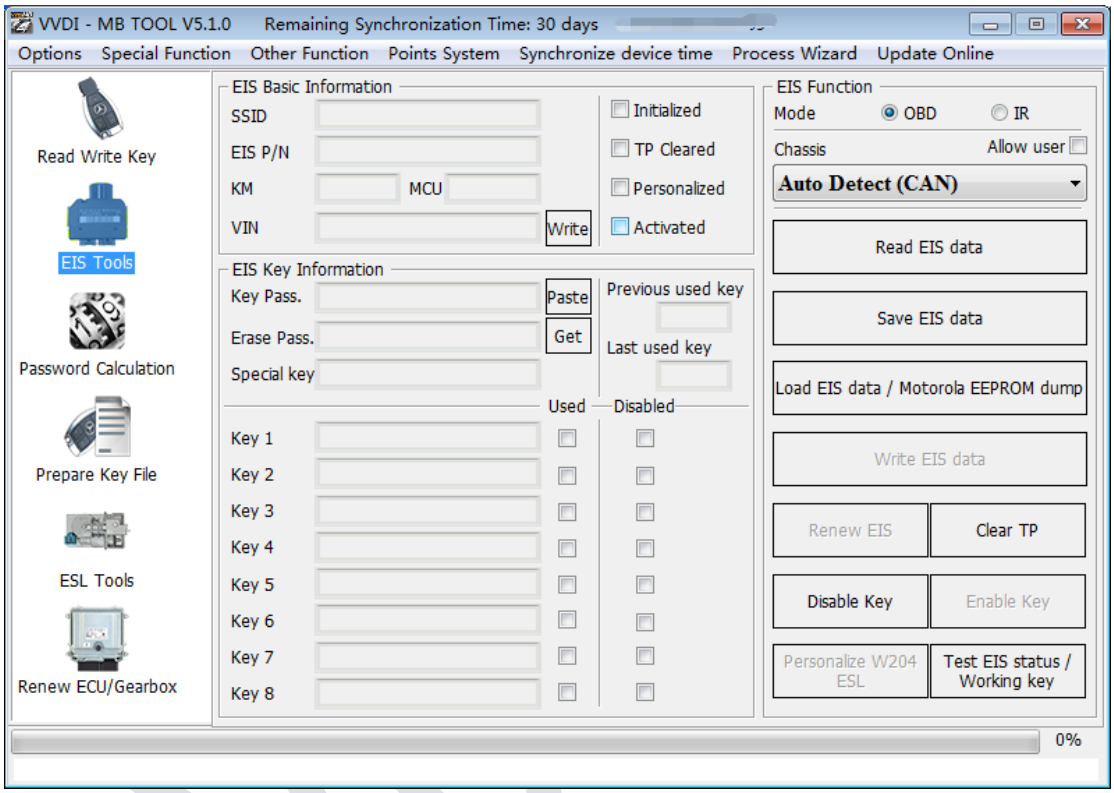

Read/Write key via NEC adaptor
版本2 VERSION2
适配器底座 Adaptor base PCB
插槽1 Socket-1
插槽2 Socket-2
R3 R1 R2 插针B CONSB
适配器2 Adaptor 2
插针A CONS-A
插针B CONS-B
适配器1：
V51:插针B连接插槽1,R1-断开 R2-短接 R3-断开
V28 V35 V40 V57:插针B连接插槽1,R1-断开 R2-短接 R3-短接
V03 V06 V08:插针B连接插槽2,R1-短接 R2-断开 R3-短接
V07 V09:插针B连接插槽1,R1-短接 R2-断开 R3-短接
适配器2：
插针B连接插槽2,适用于V59 V61版本
Adaptor1：
V51:CONS-B connect Socket-1,R1-disconnect R2-connect R3-disconnect
V28 V35 V40 V57:CONS-B connect Socket-1,R1-disconnect R2-connect R3-connect
V03 V06 V08:CONS-B connect Socket-2,R1-connect R2-disconnect R3-connect
V07 V09:CONS-B connect Socket-1,R1-connect R2-disconnect R3-connect
Adaptor2：
CONS-B connect Socket-2,used for version V59 V61
Version 1
Version 2
Version 3
Next

Read/Write key via NEC adaptor
VVDI MB NEC 钥匙适配器 VVDI MB NEC Key Adaptor
VVDI MB
NEC Key Adaptor
1. 支持读取v51, v57版本的钥匙密码
2. 支持擦除和写入的钥匙版本: v28, v35, v40, v51,
v57, v03, v05, v06, v07, v08, v09, v59, v61
注意: 此版本适配器需选配, 如有需求请联系经销商
1. Support read key password from v51, v57 version
2. Support renew/write key versions: v28, v35, v40,
v51, v57, v03, v05, v06, v07, v08, v09, v59, v61
Attention: NEC Key Adaptor is option component, connect dealer for help
Version 1
Version 2
Version 3
Next

5.EIS Tools

EIS data is the data when the key is loaded.
VVDI MB TOOL support two modes to read EIS data: read by OBD and IR adaptor

This picture is read from W246 EIS



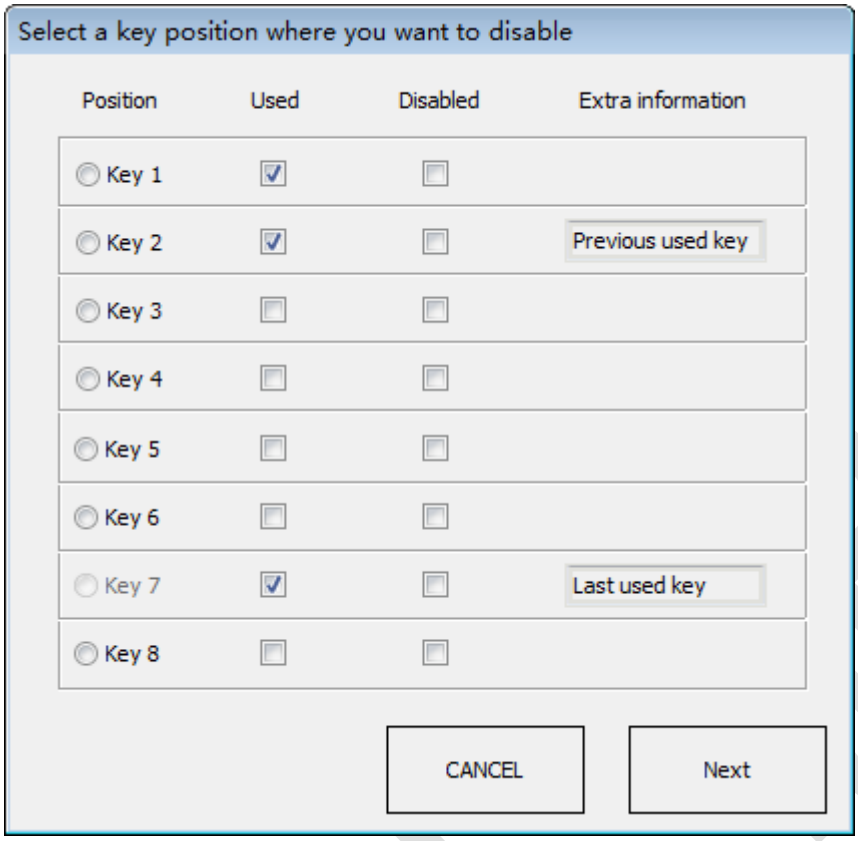
5.1. EIS type

Support types:

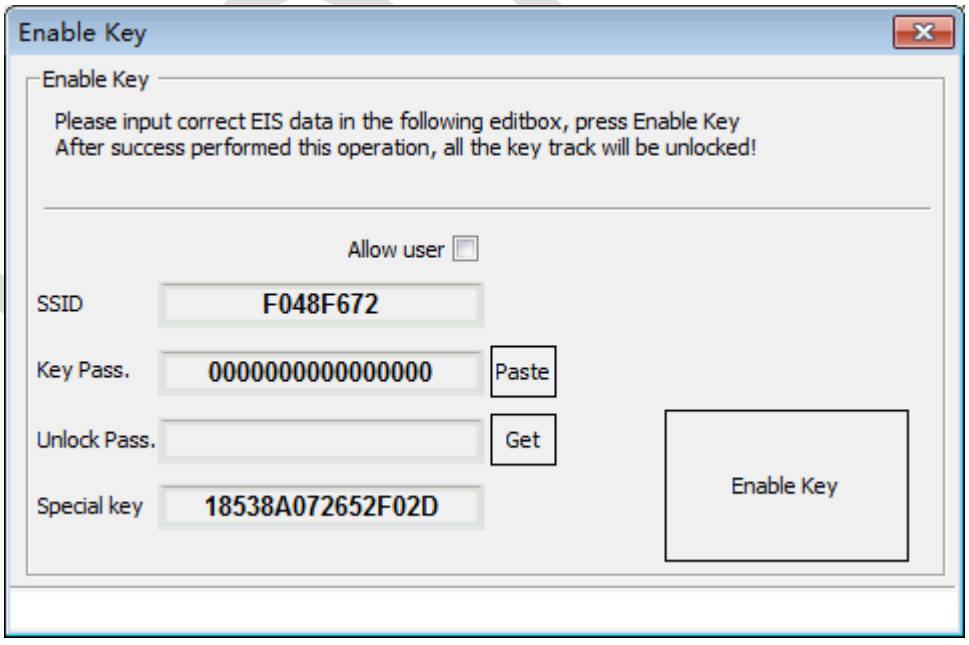
W164
W164 2009-
W166, 197, 212, 218, 246
W169, 209, 211
W172, 204, 207, 212(old, with ESL)
W203, 463, 639 (K)
W202, 208, 210 (K)
W215, 220 (K)
W230 (K)
W216
W221
W639 2009-
W906

5.2. Functions

1. **Mode**: Support OBD and IR adaptor read EIS. You need to connect OBD line to the car in OBD mode or the EIS, IR mode only need IR adaptor. In addition, support no gateway mode to read W164, W209 and W211 EIS via OBD (need an extra adaptor which need to be purchased separately).
2. **Chassis:** EIS type, **support auto detect CAN protocol EIS under OBD mode, K line need to be manually selected.**
3. **Allow user:** When you select this option, allow input key information, password, VIN manually
4. **Read EIS data**: Read basic information and key information from EIS. **Attention: You can read password via IR directly, select IR mode, EIS is old Motorola type HC05, HC08 (K-Line)and so on，can be used for k line EIS model, support add key or lost all key, support some types of W209 and W211 EIS to read the password directly via OBD.**
5. **Save EIS data**: Save the EIS data you have read. The data will be saved in two formats: VVDI-MB type and HC05 type.
6. **Load EIS data/Motorola EEPROM dump**: Load VVDI-MB type EIS data (Support to load the Motorola EEPROM type file).
7. **Write EIS data**: First you should read EIS or load EIS data. Second, write EIS data to new EIS. This function can use to replace EIS. Attention: Only support under IR mode, but you must make sure the OBD line has already connected to the EIS.
8. **Renew EIS**: Input the correct key password and erase password, renew 2nd hand EIS to a new one. Attention: Only support under IR mode.
9. **Clear TP**: This function can clear transportation protection which is only works for the new EIS. Once the EIS activated, this option will be always selected even renew EIS. The EIS without transport protection closed doesn't support write data.
10. **Disable Key**: This function can disable the car key.



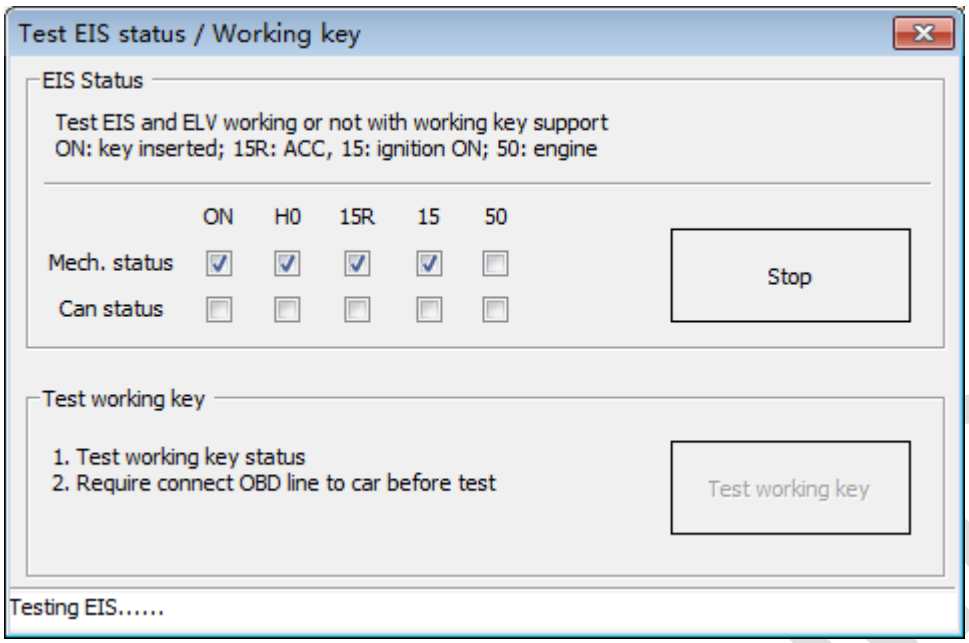
11. **Enable Key**: This function can enable the key.



12. **Personalize W204 ESL**: This function can synchronize key information from EIS to W204 ESL, this function is used for change W204 ESL. Before run this function, make sure “EIS status: Personalized selected, Activated not selected”, “ESL status: Activated not selected”. After success, ESL will have personalized selected. Open ignition with working key will activate ESL automatically. Attention: Only support

under OBD mode with chassis number select W172, 204, 207.

13. **Test EIS status/Working key:** This function can test EIS, ESL and working key status.



Mech. status: Display the corresponding position of the key in the EIS.

Can status: The module communication verification status on the platform right now, the key is screwed to the corresponding position to detect the communication verification on the car, the key is inserted into the EIS and the normal display is 'ON'; 15R ; 50 is the checked status, and the key can normally start the car.

5.3. EIS Basic Information

SSID: The identification ID in EIS, use to recognize key, something like key ID

EIS P/N: EIS part number, the front 3 characters is the main type, example: W164, W166, W246 etc.

KM: KM stored in EIS.

VIN: VIN stored in EIS.

Write VIN: Under the OBD mode, we are support to write the VIN to the ESI which is not been activated.

Initialized: Selected means EIS was already initialized. All EIS include new one with selected status.

TP Cleared: Selected means transport protection was closed. You can't write data to EIS without transport protection closed.

Personalized: Selected means already written car information, insert working key will activate EIS automatically.

Activated: Selected means this EIS already have working key. You can't write data to EIS with activated status.

5.4. EIS Key Information

Key Password: Key password is used for EIS to authenticate the working key. It is also the password you need when you want to generate a new key (IMPORTANT).

Paste key password: You can paste your password to here directly.

Erase Password: Renew activated EIS to un-activated status, make EIS allow write new data. Attention: Renew EIS not only need erase password but also the key password.

Get erase password: First, you need to read the EIS data, then press button “Get” and then you can get erase password online

Special Key: A special key stored in EIS.

Previous used key: The previous used key in EIS, which had been used and is always different form the last key position.

Last used key: The last used key in EIS. Example: insert working key with in follow order: 3, 3, 1 and 1, then the lasted used key is 1, the previous used key is 3.

Key 1 – Key 8: Key track (hash) for every key. Attention: key track is not a fixed value. When you insert a working key to EIS, its key track will changed. You can verify working key status though this method.

Key used: Selected means this position have a working key.

Key Disabled: Selected means this position was disabled, not accept any key. Now we don’t support enable key

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6. Password Calculation

6.1. Overview

Password calculation support working key mode and lost all key mode. Password calculation needs the points or token, for detailed rules, you can contact the technical support or the local dealer.

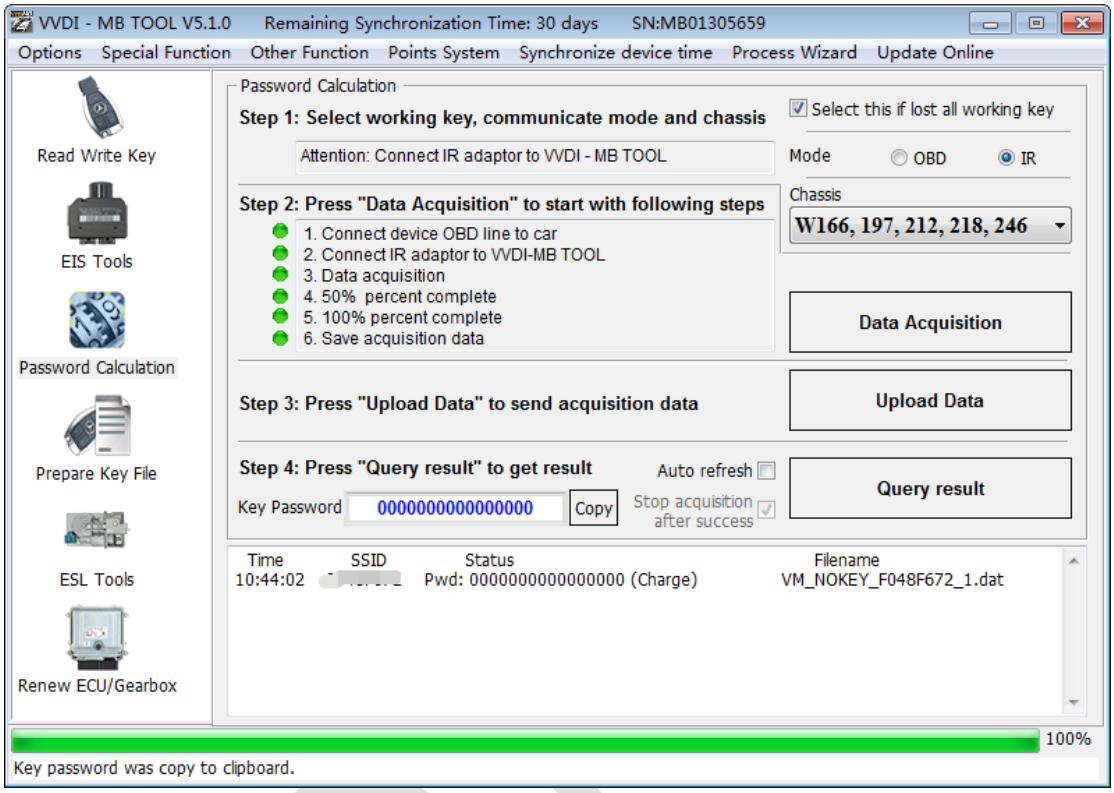
Password calculation –adding key: can get key password through EIS and working key (online).
CAN protocol EIS all support password calculation.
Support BGA keys and other NEC keys.
Support calculate password for NEC v51, v57 keys. No soldering, safe method.
Data acquisition time depends on the key version and mating times.
Calculate time in server: 30 seconds – 1 minute.

Password calculation – lost all key (Fast acquisition adapter): Select the potion with FAST suffix in the chassis number. It needs to be used with a Mercedes-Benz power adapter (all-lost fast collector), and an external 12V 3A power supply is required, without additional power supply to the EIS
Support W164, W164 2009-, W209, W211, gateway simulation, OBD direct communication
W172, W204, W207 All key lost adding fast mode (collecting data 18 minutes)
W216, W2+5 2009-No need to plug and unplug the IR adapter (saving a lot of manpower, no need to plug and unplug 500 times)
W202/W208/W210, W203/W469/W639（Kline）Adding is the same as the all key lost, fast acquisition adapter is needed(acquisition time 15-30minutes)
W169/W209/W211 All key lost collection time is about 15 minutes
W639 2009-/W906All key lost collection time is about 15 minutes
W164/W215 -2009 All key lost collection time is about 30 minutes
W230All key lost collection time is about 20 minutes to an hour

Password calculation-all key lost: now supports all FBS3 EISs without working key to collect the password.
Lost all keys data acquisition time depends on EIS type, it needs about 3.5 minutes to 3 hours.
W204, W207 all key lost data acquisition require about 2 hours and 10 minutes.
W216, W164 2009- lost all key data acquisition require about 2 hours.
W164,W251（-2009）lost all keys data acquisition require about 20 minutes to 1.5 hours.
W221 all key lost data acquisition require about 20 about 1.5 hours.
W230 all key lost data acquisition require about 2-3 hours.

W215 all key lost data acquisition require about 2-3 hours.

Lost all keys calculate time in server: 30 seconds – 1 minute.



6.2. Support type

- Add key support type
  W164,W251
  W164,W251 2009-
  W166, 197, 212, 218, 246
  W169, 209, 211
  W172, 204, 207, 212(old with ESL)
  W216
  W221
  W639 2009-
  W906
  W202,W208,W210(FAST)
  W203,W463,W639(FAST)
  IR reading password (W209/W211 (CPU HC12)) and W203/W215/W220/W230 (CPU HC08))

- **Lost all key support the follow types, all key lost fast collection support type has FAST suffix in the option.**
  W166, 197, 212, 218, 246

W212 (old with ESL)
W172,W204, W207
W216
W164, W251 2009-
W169,W209,W211
W202,W208,W210
W203,W463,W639
W639 2009-
W906
W221
W164,W251
W215,W220
W230
W169 Type2

6.3. Functions

Select this if lost all working key: This option must be selected when all keys are lost

Mode: OBD and IR adaptor, mode use for communicate with EIS

Chassis: Select chassis number, you can detect it with auto detect in EIS Tools

Data Acquisition: When adding or ticking all key lost collection, you need to pay attention to the operation prompts. Different types of EIS have different operation prompts.

Prompt to connect the OBD cable to the car, you can collect it on the car or on the platform.

Prompt warning: Please perform the collection process on the platform, you need to remove the EIS platform wiring to collect data.

Upload Data: Upload saved acquisition data to the server for calculating password. Attention: Once successfully calculate password for one SSID, the server will not accept calculate the acquisition data with same SSID in 2 hours. **After 2 hours later, acquisition data with same SSID upload to server will start with a new task.**

Query result: Query server calculation result. The password will fill in key password area automatically after success calculation. Use “Copy” to copy the password to clipboard.

Auto refresh: Program will auto **refresh** server result until there’s no task for this device. You can start data acquisition once more while auto **refresh** starting.

Stop acquisition after success: If you are running data acquisition while auto **refresh** is running, program will stop the acquisition progress when it find correct password.

6.4. About query result status

Query result support query calculation result in 24 hours, others don't support

Query result will display Time, SSID, Status, Filename (name when upload to server)

Status has the following types:

1. Queuing: number x, require about y minutes, means your task need y minutes
2. Processing: requires 1 minutes, means your task need 1 minute to finish
3. Password: xxxxxxxxxxxxxxx (Free), means success find password, "Free" show this task is calculated for free or this task already success calculated before
4. Discard: Once you success calculate the password, in 2 hours, the upload acquisition data with same SSID will discard
5. Already upload: means the server already have this file in queuing
6. Pay for password calculation before upload: means your device doesn't have authorize for calculation. Contact your dealer and pay for password calculation
7. Failed: means this task failed to get password, you can run data acquisition again. Failed task is always free

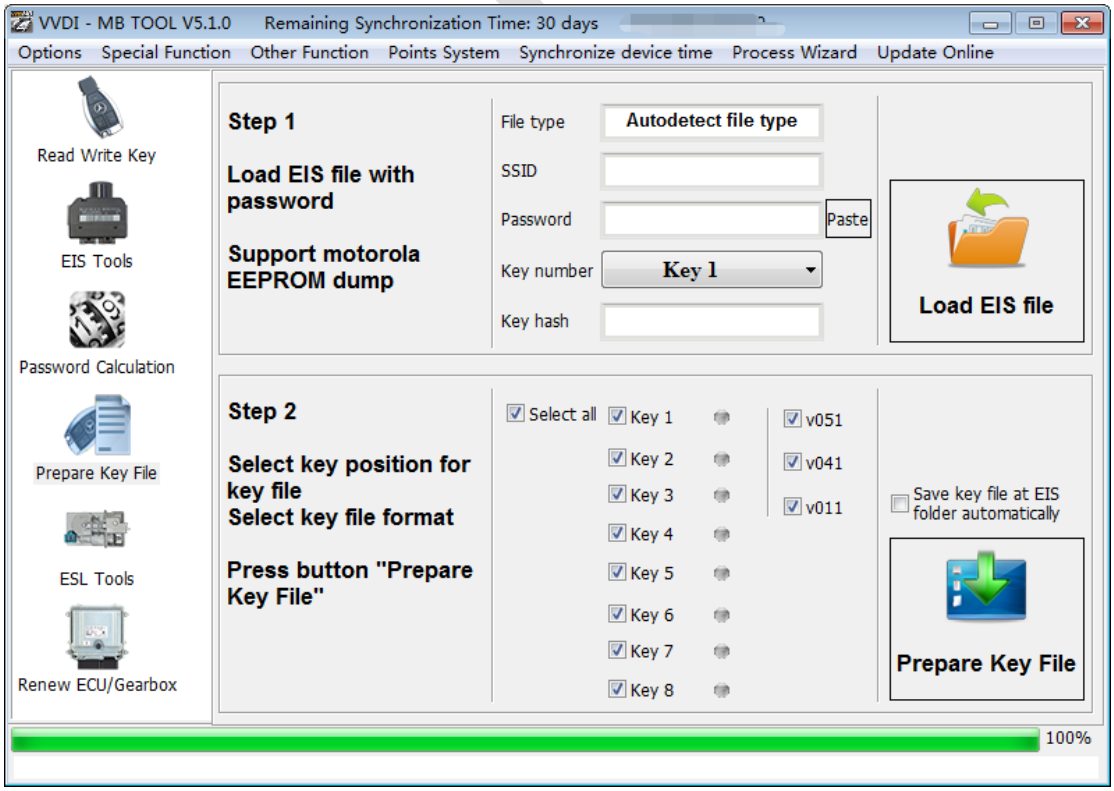
VVDI MB

7. Prepare Key File

Prepare key file means prepare the key file which you will write to new key (online)

Step 1: Load EIS file with password. The file can auto detected by VVDI-MB TOOL
Support VVDI-MB type and old Motorola EEPROM dump file
If the loaded EIS don't contain key password, paste your password with "Paste"
After load file key position show blue means it is used
After load file key position show green means it is unused
After load file key position show gray means it is disabled

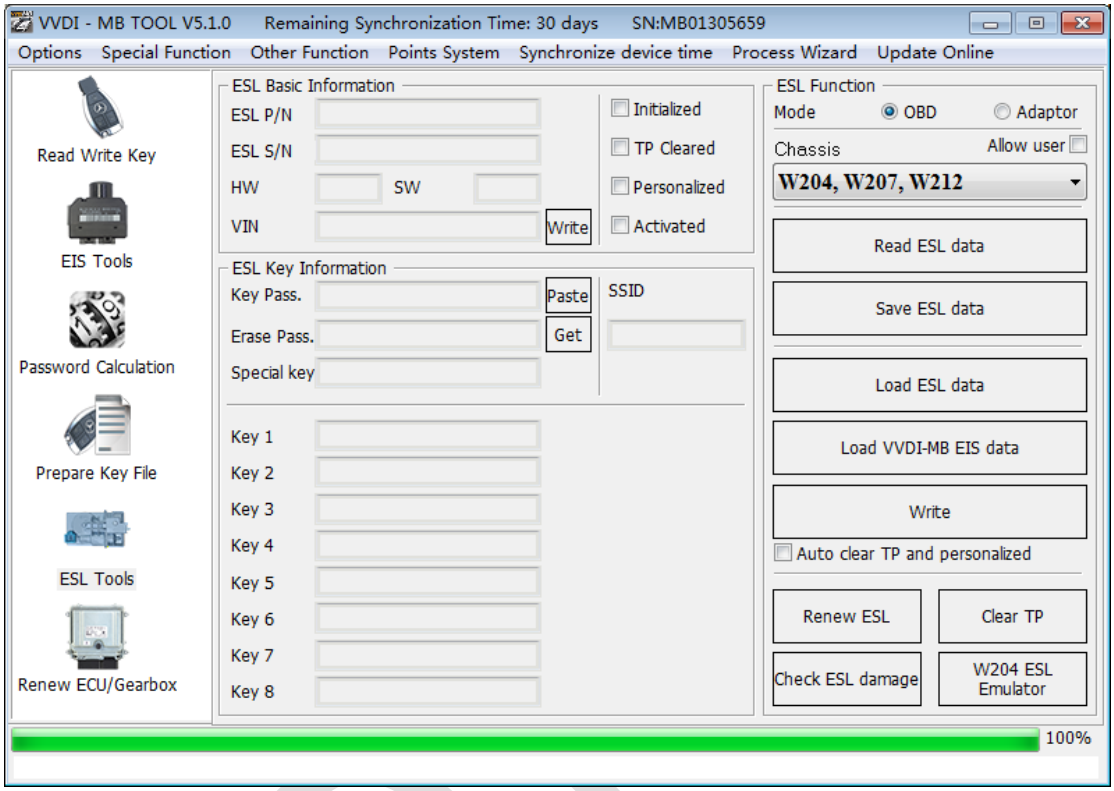
Step 2: Press "Prepare Key File". This function need online, about 20 seconds
It will prepare the key file after success find in server
After prepare key file, key position show green means success
After prepare key file, key position show red means failed



After the selected key file is calculated and generated, the save box will pop up. Select the directory to save the generated key file.

8. ESL Tools

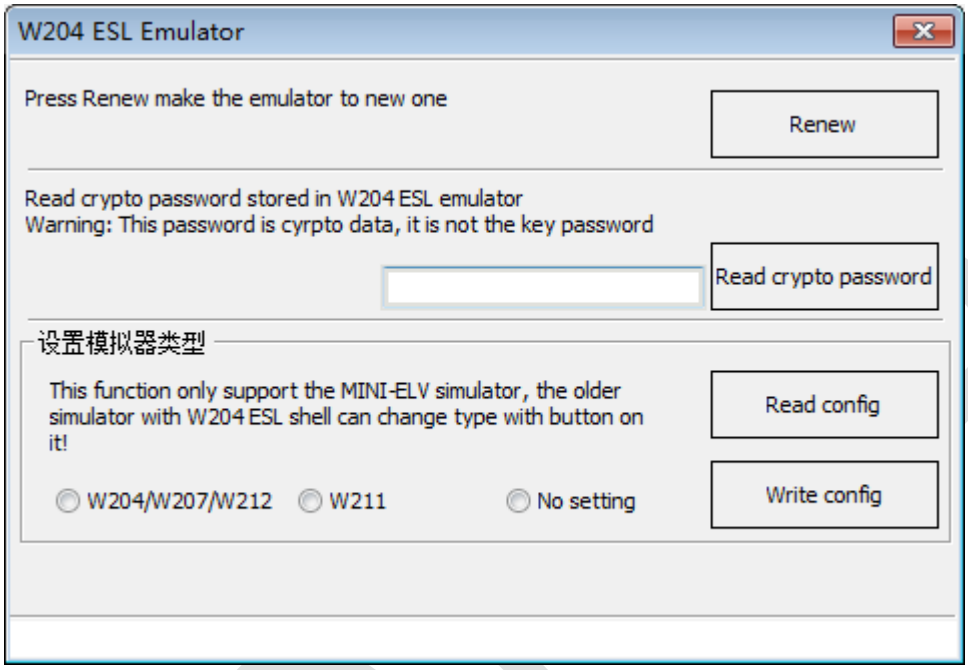
ESL Tools can read/write/renew ESL via OBD (K-Line). Adaptor also support



8.1. Functions

1. **Mode**: Now only support OBD (K-Line). If ESL was on car, you need connect the K-Line(find from device OBD head) to ESL separately
2. **Chassis:** ESL type
3. **Allow user:** If select this option, allow input key track, password, VIN manually
4. **Read ESL data**: Read basic information and key information from ESL
5. **Save ESL data**: Save the read ESL data
6. **Load ESL data**: Load ESL data read by VVDI-MB TOOL
7. **Load VVDI-MB EIS data**: Load VVDI-MB type EIS data
8. **Write**: Write the key information (shown in window) into the new ESL
9. **Auto clear TP and personalized**: If you select this option, it will close transport protection and personalized ESL automatically while write data. Attention: Correct key password and EIS SSID should place with this option. With this option you can change W204 ESL without erase EIS.
10. **Renew ESL**: Input correct erase password, renew 2nd hand ESL to a new one
11. **Check ESL damage**: Most W204 ESL will damage with EIS status. You can test it
12. **Clear TP**: Close transport protection in new ESL. The ESL without transport protection closed doesn't support write data

13. **Check ESL damage**: Fix the locked ESL to be a normal one (NEC chip fatal error: 0xAA). This function need to buy an extra NEC ESL adaptor, support W204 ESL and old Motorola ESL. You need to select Adaptor option in ESL window.
14. **W204 ESL Emulator**: Support match VVDI-MB ESL emulator, the emulator will finish all the W204 ESL function. Before you use emulator, please renew it first, then you can do personalize. The way to connect the ESL which is the same with original W204 ESL.



1. **Renew:** click Renew to make W204 ESL simulator or mini ESL simulator into a new state.
2. **Read crypto password:** Read the key password in the W204 ESL simulator or mini ESL simulator (this password is encrypted, not the real password)

3. **Set the simulator type:** Switch the configuration information in the mini ELV simulator to adapt to W204/W207/W212 or the old W211 chassis

Read config: Read the chassis type set in the current ESL (only support mini ELV simulator)

Write config: Manually select W204/W207/W212 or W211 chassis type and write the corresponding configuration Setting information (only supports mini ELV emulator)

8.2. ESL Basic Information

ESL P/N: ESL part number, the front 3 characters is the main type, example: W204 and so on. .

ESL S/N: ESL serial number.

HW: ESL hardware version.

SW: ESL software version.

VIN: VIN stored in ESL. Attention: only last 14 digits, without first three digits.

Write VIN: Support write VIN to ESL without activated status.

Initialized: Selected means ESL was already initialized.

TP Cleared: Selected means TP was cleared. You can't write data to ESL without TP cleared

Personalized: Selected means already written car information, insert working key will activate ESL automatically

Activated: Selected means this ESL already have working key. You can't write data to EIS with activated status

8.3. ESL Key Information

Key Password: Key password use for EIS to recognize working key. It is also stored in ESL

Paste key password: You can paste your password here directly

Erase Password: Renew activated ESL to new one

Get erase password: First read ESL, then press button "Get", get erase password online

Special Key: A special key stored in ESL. Normally it is same with EIS special key

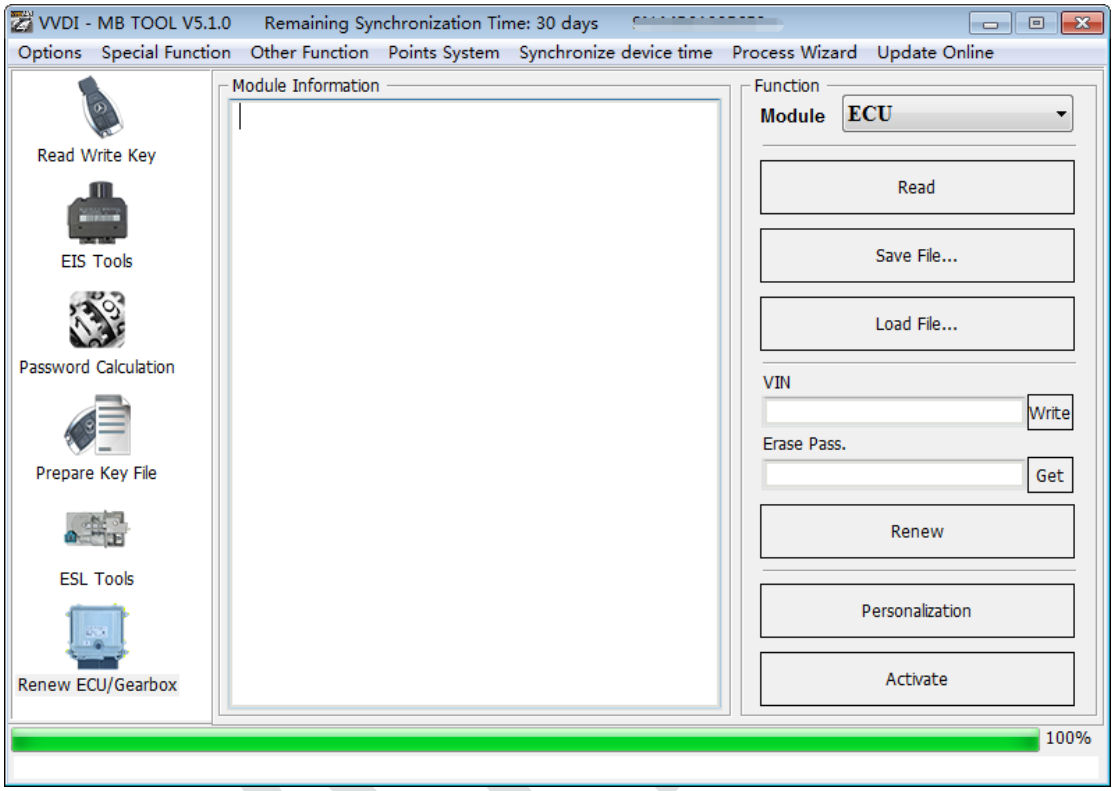
SSID: You can't read this from ESL. When you write ESL, need this value

Key 1 – Key 8: Key track (hash) for every key. Normally it is same with EIS key track

VVDI MB

9. Renew ECU/Gearbox

This function support renew, write VIN, personalization operation for module ECU, Gearbox, ISM etc.

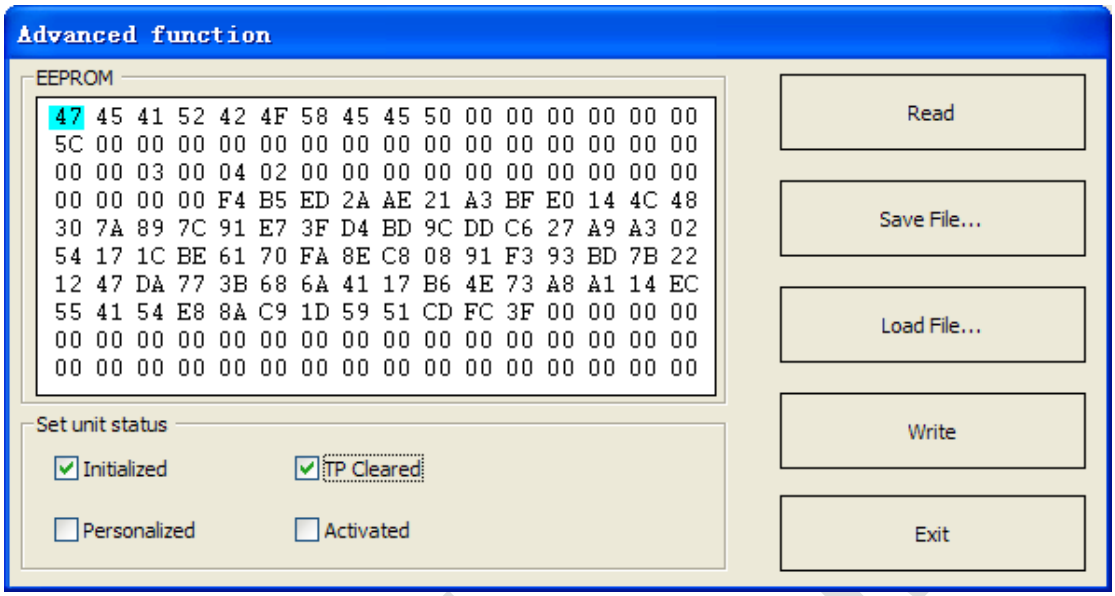


9.1. Functions

1. **Module**: Support ECU, Gearbox, ISM etc.
2. **Read:** Read key information, unit status and other diagnostic information. Require connect unit with CAN separately.
3. **Save File…**: Save the read data to file.
4. **Load File…**: Load the saved file.
5. **Write VIN**: Write VIN to unit.
6. **Get Erase Pass.**: Get erase password online after success read module information.
7. **Renew**: Input correct erase password, renew 2nd hand unit to a new one. Require connect unit with CAN separately.
8. **Personalization**: Personalize unit to new car. Requires module placed on car.
9. **Activate**: Only gearbox has this function. Support renew gearbox without erase password, see chapter 9.2.

9.2. Advanced Function

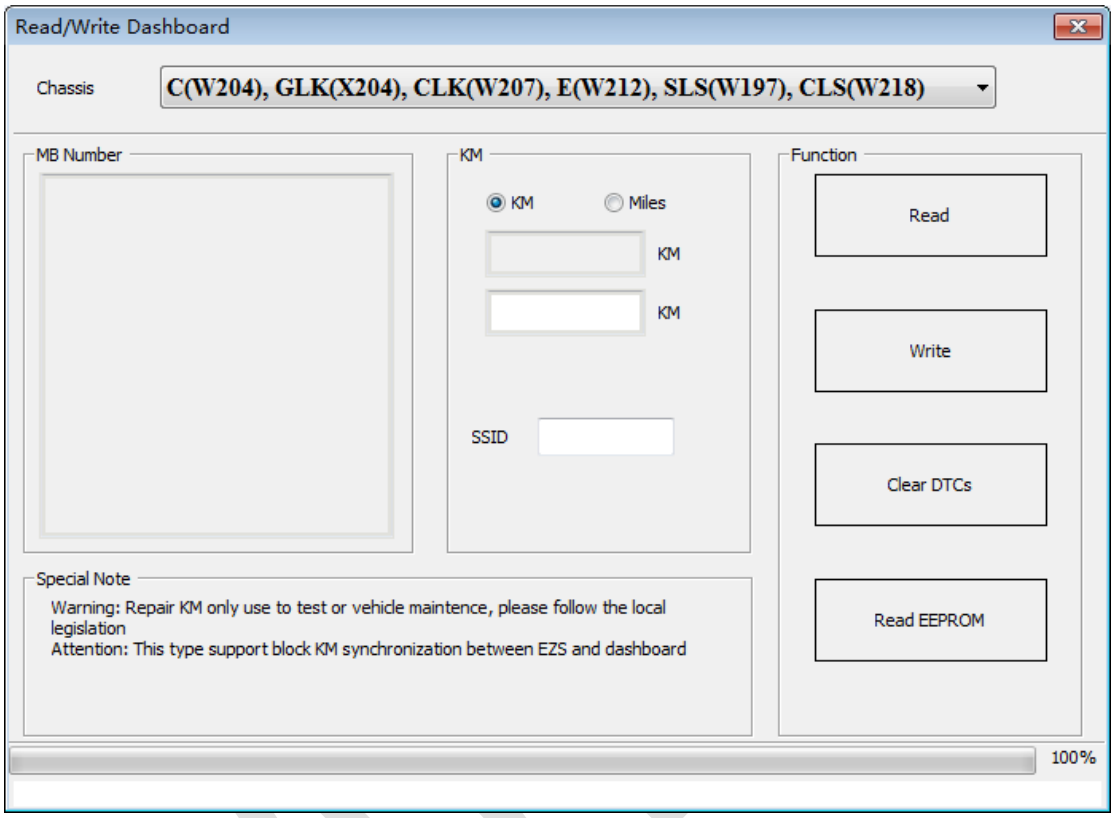
Support Read/Write gearbox special EEPROM. Support set unit status while write data. That means you can renew gearbox without erase password



1. **Read:** Read module special EEPROM.
2. **Save File…**: Save the read EEPROM file.
3. **Load File…**: Load the saved EEPROM file.
4. **Write**: Write EEPROM to unit，it will set the selected status to module.
5. **Set unit status**: Set unit status, you can set status to unit by write once.
   Set Activated: Will set Initialized, TP Cleared, Personalized, Activated status.
   Set Personalized: Will set Initialized, TP Cleared, and Personalized status; not set Activated status.
   Set TP Cleared: Will set Initialized, TP Cleared status; not set Personalized, Activated status.
   Set Initialized: Will set Initialized status; not set Cleared, Personalized, Activated status.

10. KM Repair

This function support to repair the dashboard KM**. (Menu -> Other Function -> Read and Write Dashboard)**



10.1. Support Type

1. **C(W204), GLK(X204), CLK(W207), E(W212), SLS(W197), CLS(W218)**
2. **R-Class(W251), GL(X164), ML(W164)**
3. **E-Class(W211), CLS(W219)**
4. **S-Class(W221), CL(216)**
5. **W166, W172, W246, W231**
6. **W205**

- **W204, W207, W212…and S-Class (W221), CL (216): If you want block KM synchronization between EZS and dashboard, you need to backup CGW (Gateway) EEPROM and FLASH before write KM.**
- **For S-Class(W221), CL (216), block KM synchronization require update Gateway FLASH and EEPROM. You can provide the FLASH and EEPROM that you have. If you don't provide these files. We will use the FALSH and EEPROM from Gateway, only need some time to read it.**
- **W166, W172, W246, W231 and W205: these 2 types only support change KM in**

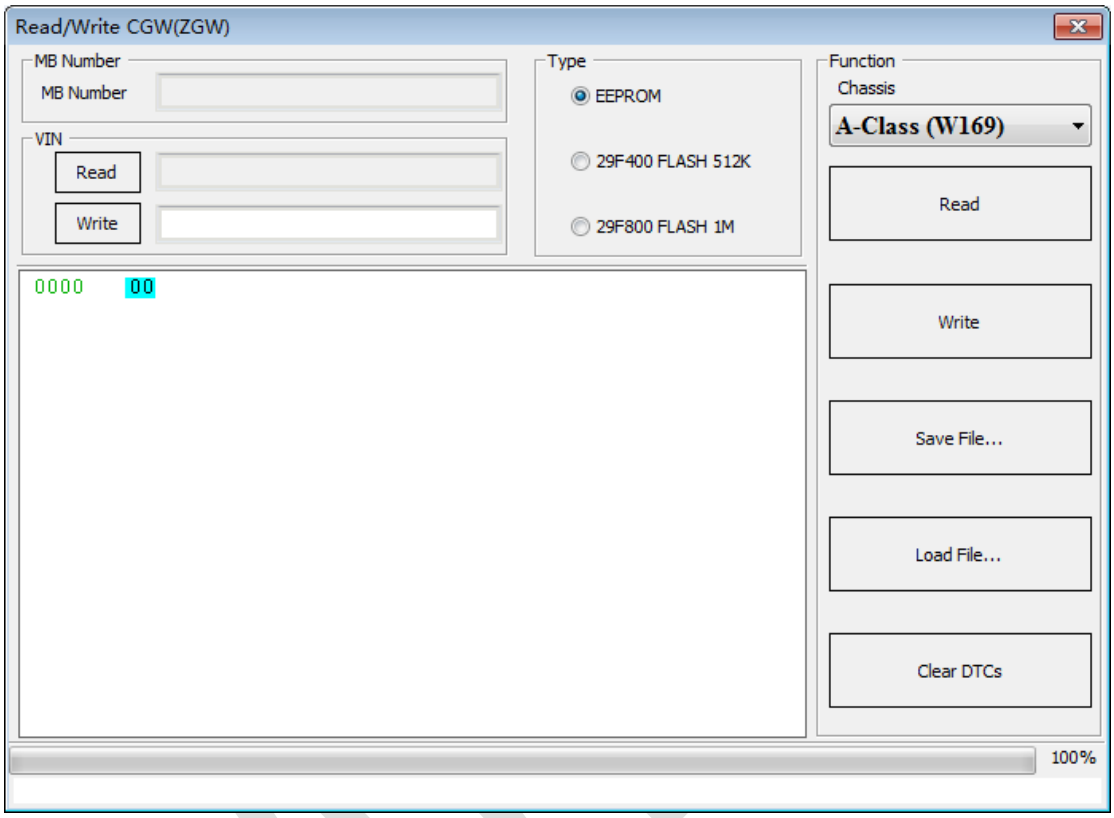
dashboard. Doesn't support block KM synchronization between EZS and dashboard. You can install extra CAN filter yourself or erase EIS.

- **Warning: This function is only used for KM repair, please follow the local legislation.**

VVDI MB

11. Read/Write CGW(ZGW)

This function supports backing up the EEPROM and FLASH data form gateway.(Menu -> Other Function -> Read and Write CGW (ZGW))



11.1. Support Type

1. **Type 1: A-Class (W169), B-Class (W245), GL (X164), E-Class (W211), ML (W164), CLS (W219), SLK, SLR, SMART**
2. **Type 2: C-Class (W204), CLK (W207), GLK (X204), E-Class (W212), SLS (W197), CLS (W218)**
3. **Type3: S-Class (W221), CL (W216)**

- **Type 1 is supported to read/write EEPROM and FLASH. FLASH have 2 options, one is 29F400 with 512K, another one is 29F800 with 1M. We can't detect the specify type via OBDII, so you need select the type manually. And type 1 is supported changing VIN.**
- **Type 2 is supported to read /write EEPROM, but for FALSH, is only supported to read.**
- **Type 3 is supported to read/write EEPROM and FALSH**

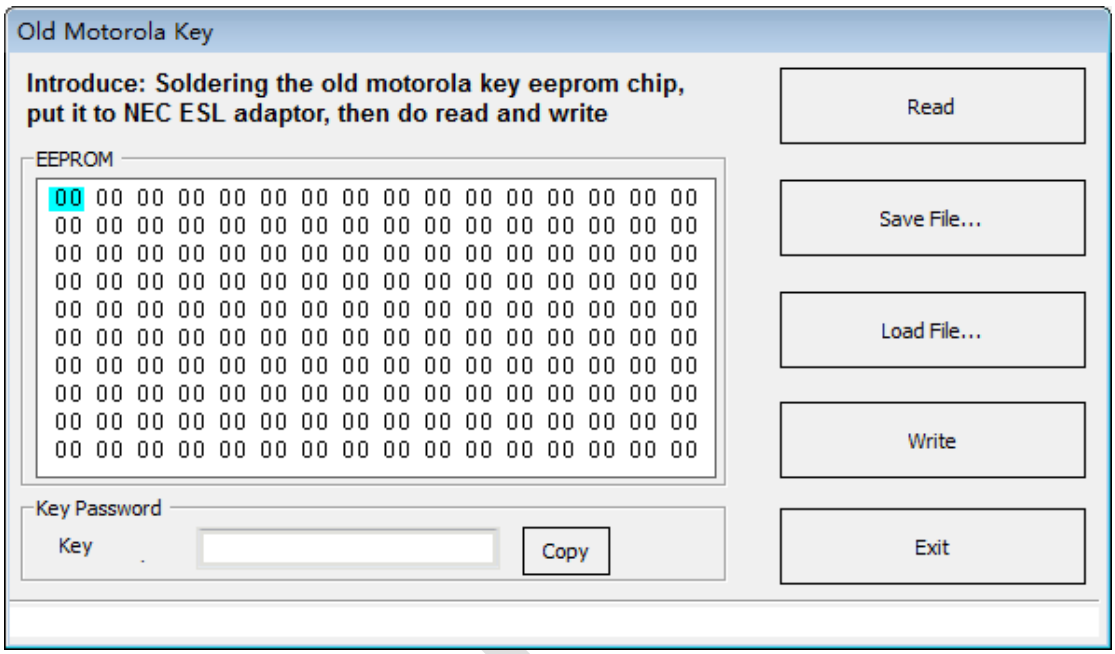
11.2. Support Type

1. **Read:** The EEPROM type which are need to select manually in the read type; 29F400 FLASH 512K；29F800 FLASH 1M data file.
2. **Write:** Write the currently read or loaded EEPROM or FLASH file into the gateway (the FLASH file of type 2 gateway does not support writing)
3. **Save file:** Save the EEPROM and Flash file read by the current gateway. Load file: load the gateway EEPROM and Flash file selected in the corresponding directory
4. **Clear fault:** Clear the current fault code in the gateway.
5. **VIN (read):** Read the frame number in the current gateway.
6. **VIN (write):** Write the frame number to the current gateway(only type 1 is supported)

VVDI MB

12. Old Motorola Key

This function can read and write the old Motorola key which needs the NEC ESL adaptor(Menu-Other Function-Old Motorola Key)



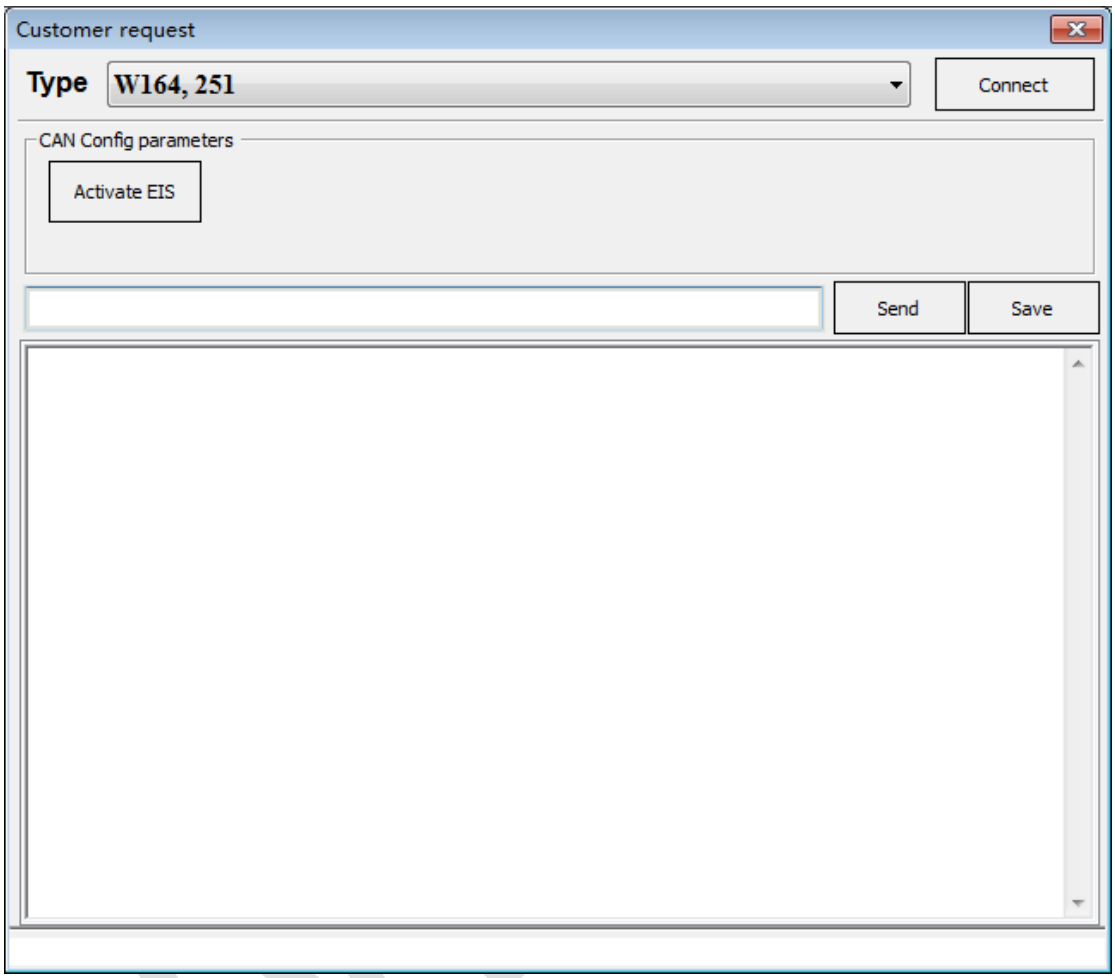
12.1. Function introduction

The chip on the old Motorola key needs to be soldered down and placed on the NEC ESL adapter for reading and writing operations.

1. **Read:** Read the EEPROM and key password in the key chip.
2. **Save File...:** Save the EEPROM data file read form the key chip.
3. **Load File:** load key chip EEPROM data file.
4. **Write:** write the loaded EEPROM data file to the current key.
5. **Exit:** exit the page.

13. Custom request

Support use the CAN commands for control unit communication. (Menu-Other Function-Custom Request)



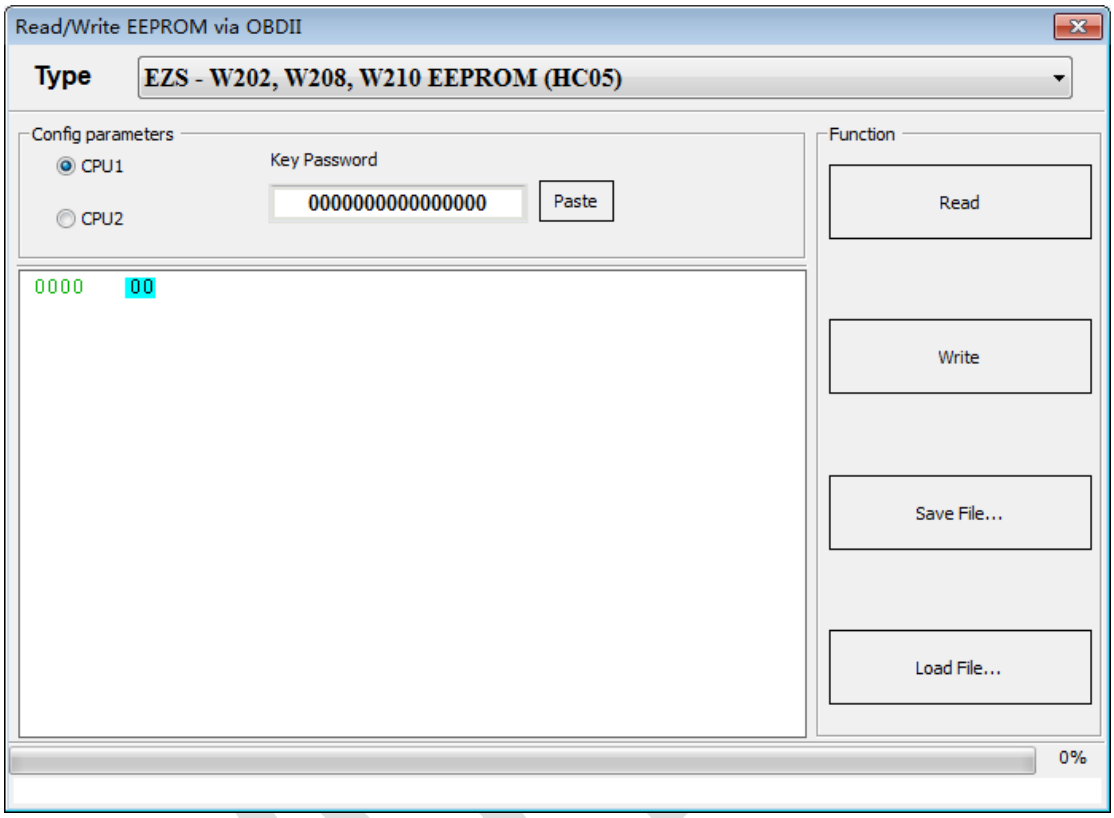
13.1. Function introduction

Recommended for professional users

1. **Connect:** manually select the corresponding EIS type connection for operation
2. **Activate EIS:** support to active the EIS via OBD.
3. **Send:** input a known CAN communication command and request to complete the function
4. **Save:** save the data which is sent and returned by the car into a file

14. OBD read EEPROM

This function is supported to read W202, W208, W210 and the CPU's EEPROM of the EIS via K-line. (Menu -> Other Function -> OBD read and write EEPROM)

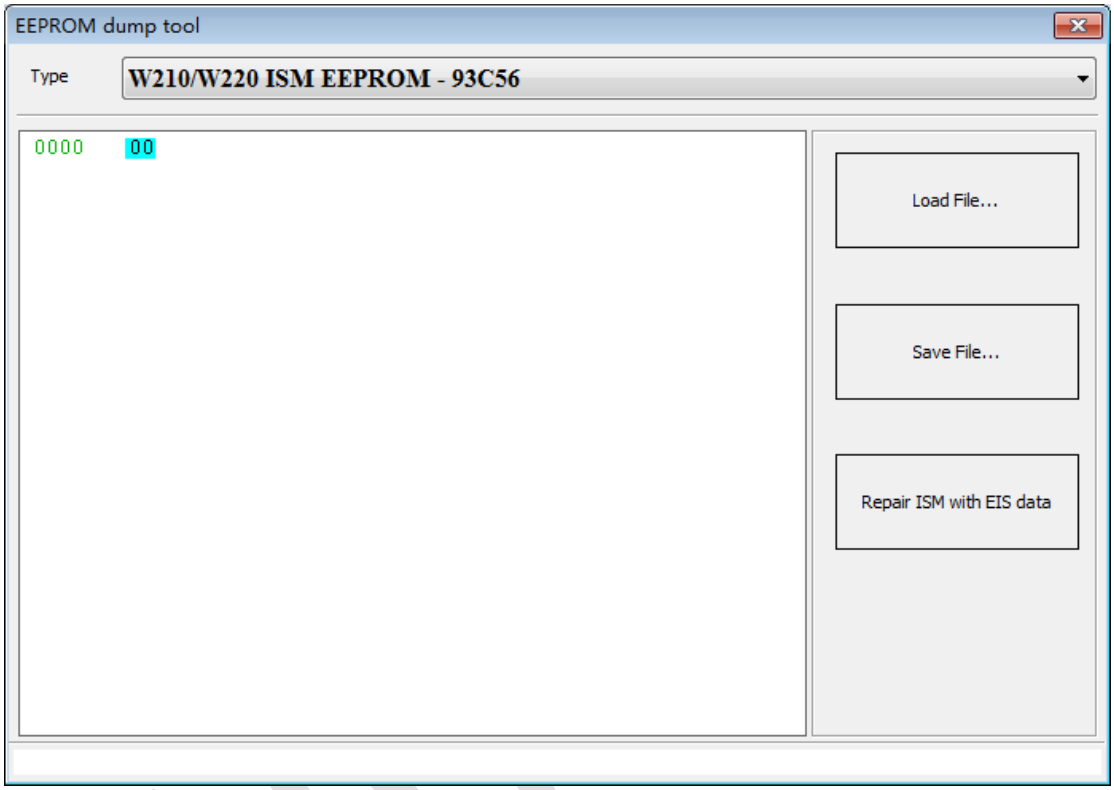


14.1. Function introduction

1. **Read:** read the CPU EEPROM of W202, W208, W210 EISs from OBD through K line
2. **Write:** write to the CPU EEPROM of the loaded W202, W208, W210 EISs via OBD
3. **Save File...:** save the data file which is read form EEPROM
4. **Load File...:** load the corresponding EEPROM file

15. EEPROM data processing tool

Supports repairing EEPROM data of W210/W220 geared computers (Menu -> Other Function -> EEPROM Data Processing Tool)



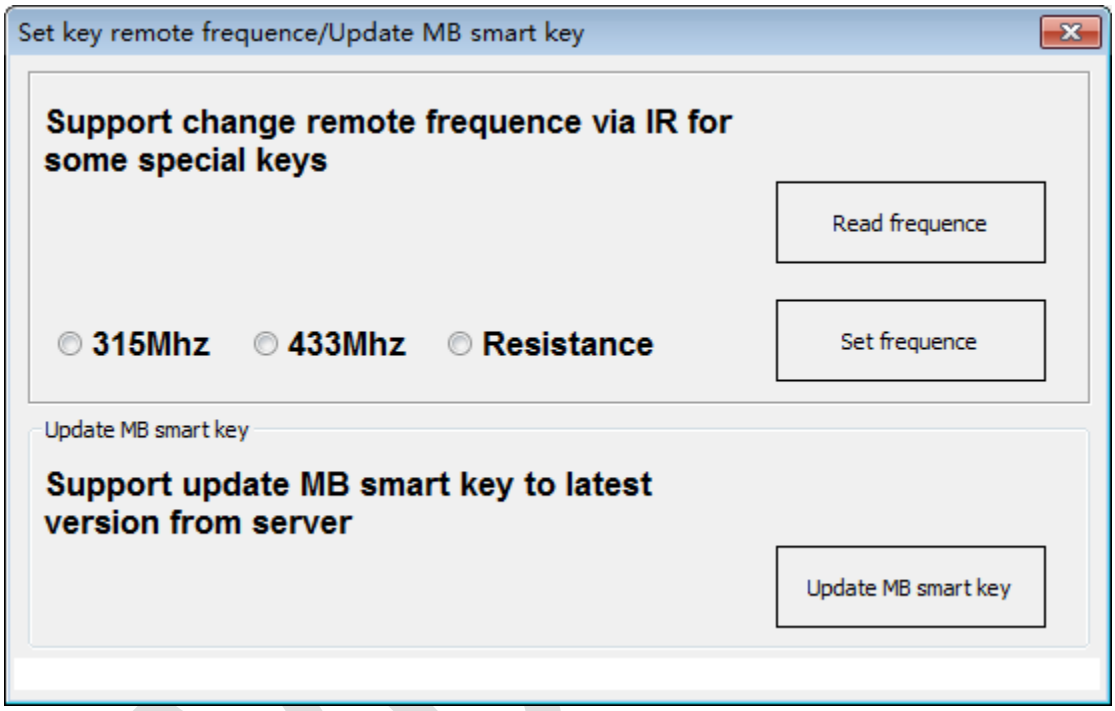
15.1. Function introduction

This function can repair the ISM data and the problem that the computer cannot be put in gear.

1. **Load File:** load the EEPROM data from the W210/W220 gear computer
2. **Save File:** save the repaired file and write it back to the computer board
3. **Repair ISM with EIS data:** load the original car EIS data, and fill the key information into the ISM EEPROM data; click OK to load the original car EIS file (VVDI-MB format file)

16. Set key frequency/upgrade smart key

Support specific manufacturer keys to change the key frequency through IR
Support the smart key of a specific manufacturer to be upgraded to the latest version of the server through IR
(Menu -> Other Function -> Set Key frequency/Upgrade Smart Key)

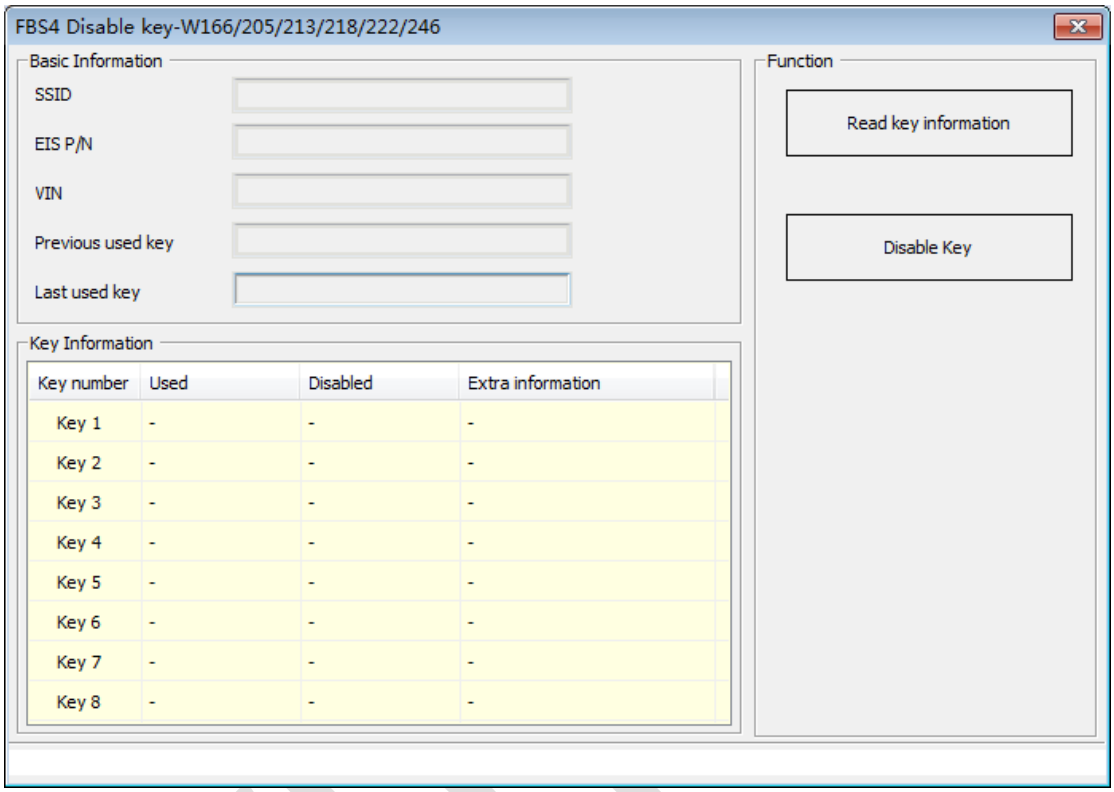


16.1. Function introduction

1. **Read frequency:** Read the frequency set by the current key
2. **Set frequency:** Set the selected frequency to this key
3. **Upgrade MB smart key:** Put the key into the IR coil, click Upgrade Smart Key, a pop-up box will pop up to remind you that you need to manually select the version of the smart key to be upgraded, it is recommended to upgrade to the latest version first, if the key function is not working well, then try another version

17. FBS4 Disable key

This function is suitable for disabling the keys of W166, W205, W213, W218, W222, W246 chassis (Menu -> Other Function -> FBS4 Disable Key)



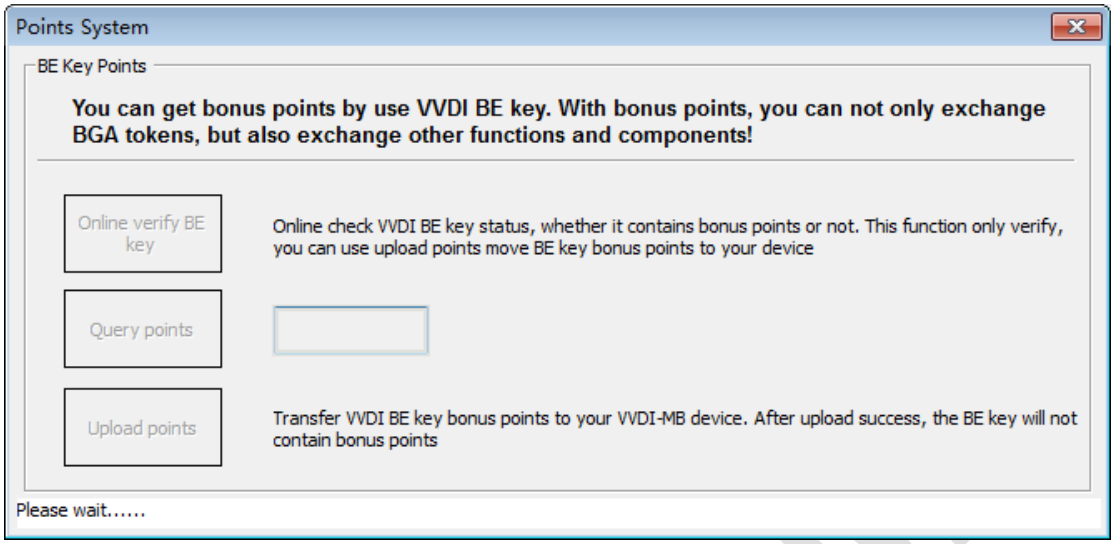
17.1. Function introduction

1. **Read key information:** Read the current EIS SSID, EIS number, frame number, 8 sets of key tracks, the last key bit with the car key, and the penultimate key bit information with the car key
2. **Last used key:** the last working key which is recorded by the EIS
3. **Previous used key:** the penultimate working key which is recorded by the EIS
4. **Disable key:** Disable the key position, select the corresponding key position and click Disable Key

Important note: The disabled key can only be enabled online through the original diagnostics tools

18. Point system

Use the VVDI BE key to earn extra points. Using the points can not only redeem the calculation points of the password, but also redeem functions and accessories.

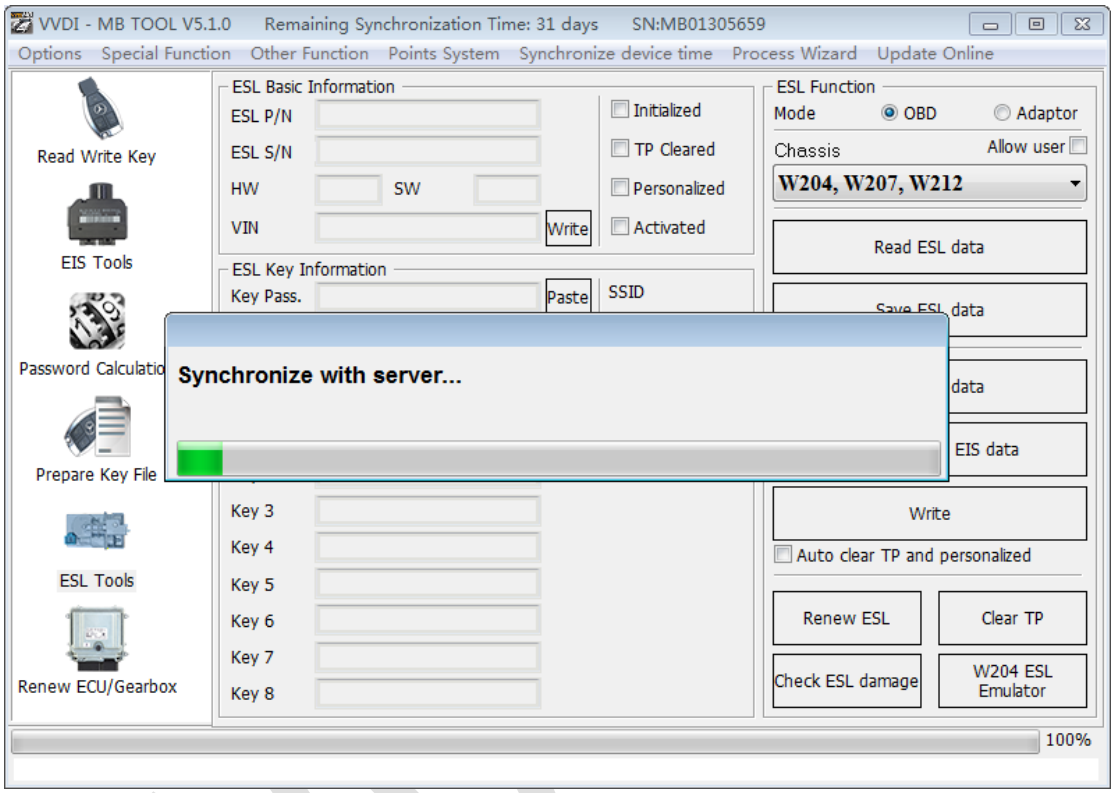


18.1. Function introduction

1. **Online verify BE key:** check the status of VVDI BE key points online to see if you have points. This function does not affect the point's collection
2. **Query points:** query the total amount of points which has been collected
3. **Upload points:** collect the points of the VVDI BE key, and bind the points of the BE key to this device. After the collection is completed, the key will not contain points

19. Synchronize device time

Online synchronization, if the network is normal then the device will automatically synchronize, and the synchronization will fail when there is a problem with the network. After checking and replacing the network, you can manually click online synchronization.



20. Guide

This function will provide the complete operation process of some commonly used functions, such as changing the EIS head, changing the ESL, etc. (under development, please pay attention to subsequent versions)

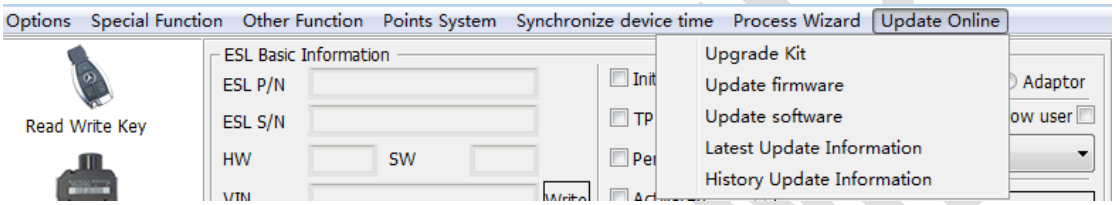
VVDI MB

21. Update Online

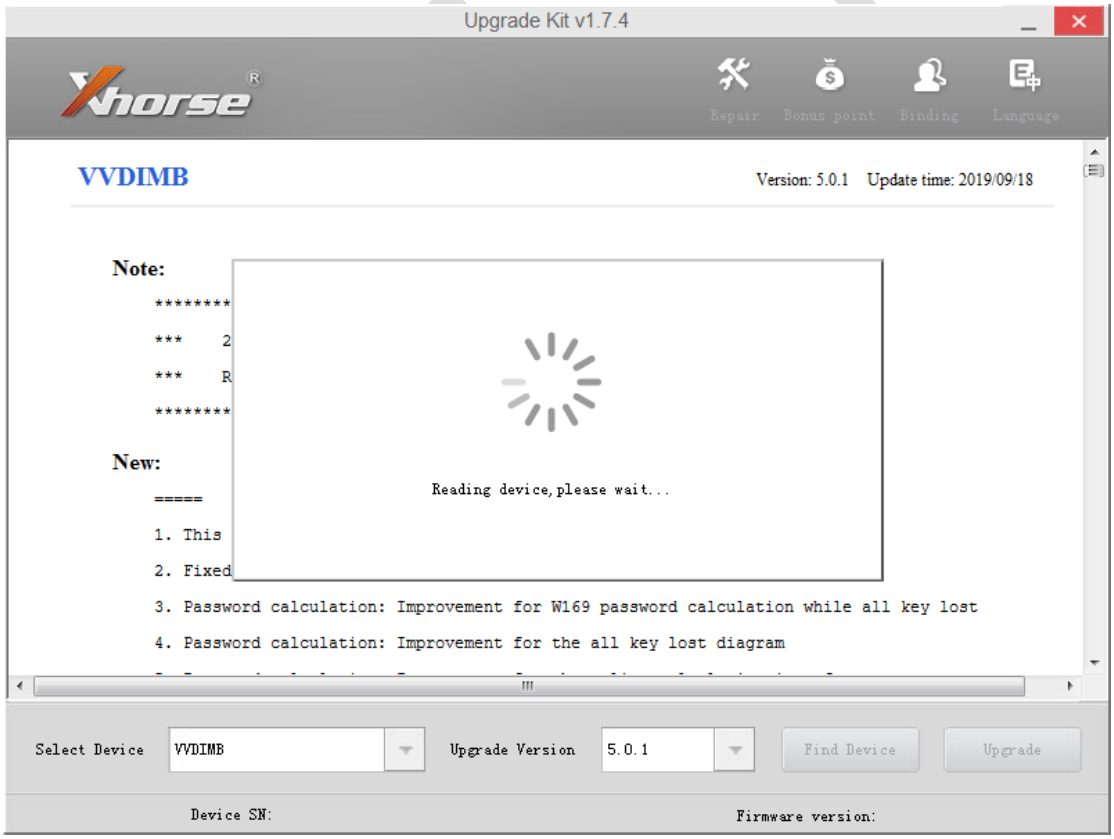
21.1. Update Firmware

- Need to download the Upgrade Kit and connect the device to update with USB cable on the PC.
- Update firmware steps:

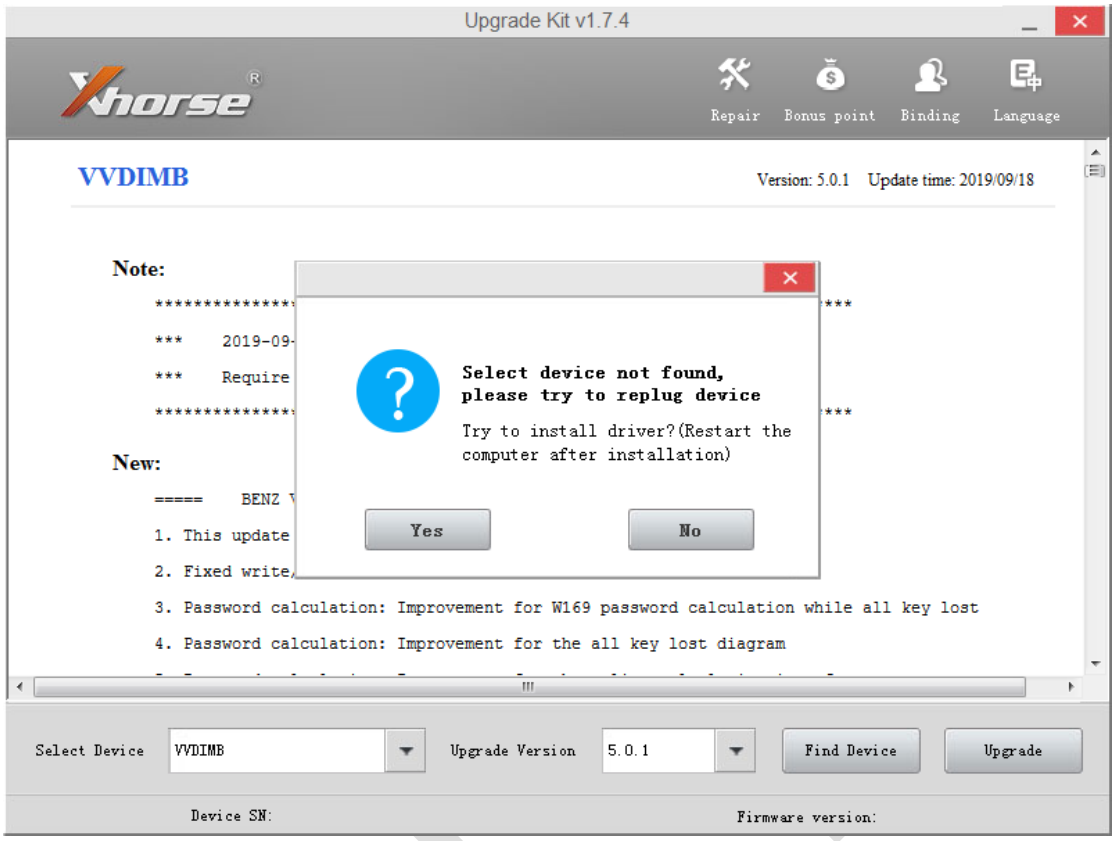
1) Connect VVDI – MB TOOL to PC with USB cable
2) Open the Upgrade Kit to select the corresponding device option (VVDIMB), the latest firmware version is selected by default without having to manually select.



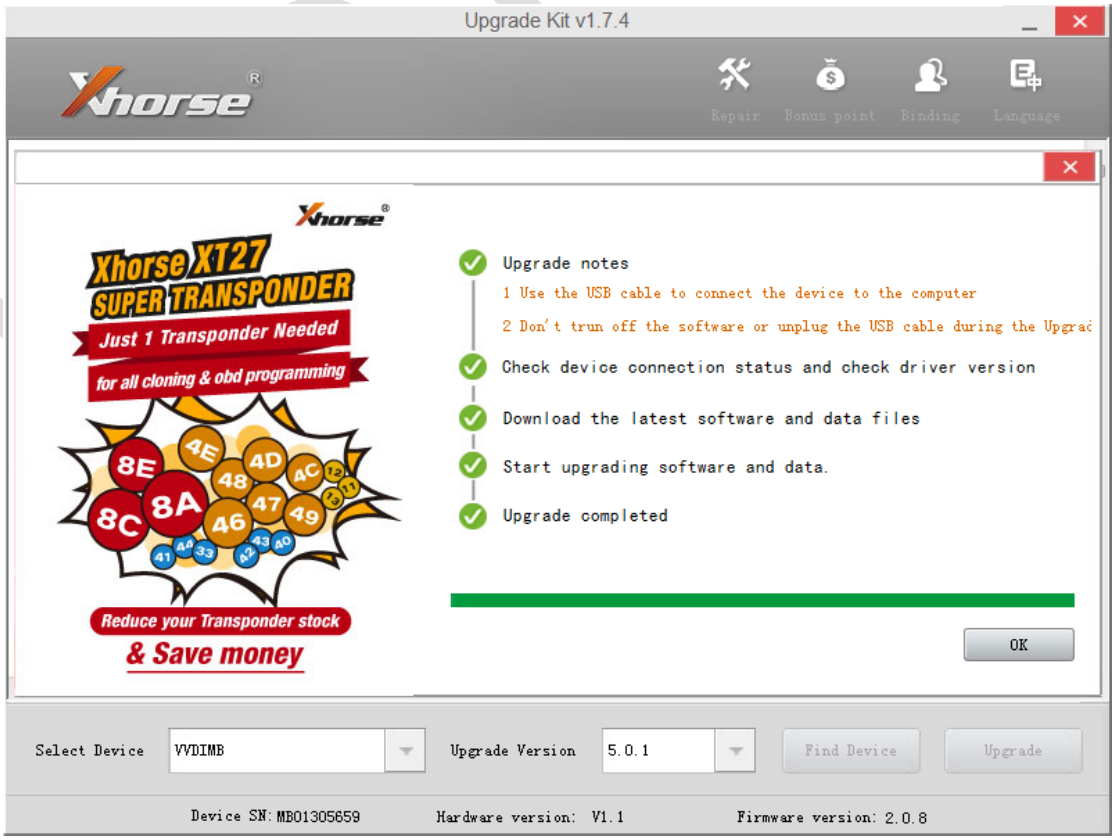
3) Click Find Device to identify the device serial number and current firmware version



4) If the device cannot be identified, it prompts that the device is not found, whether to install the driver, click to select the corresponding device driver to install, after installation, restart the computer and re-link to identify the device



5) Click Upgrade and wait for the upgrade to complete



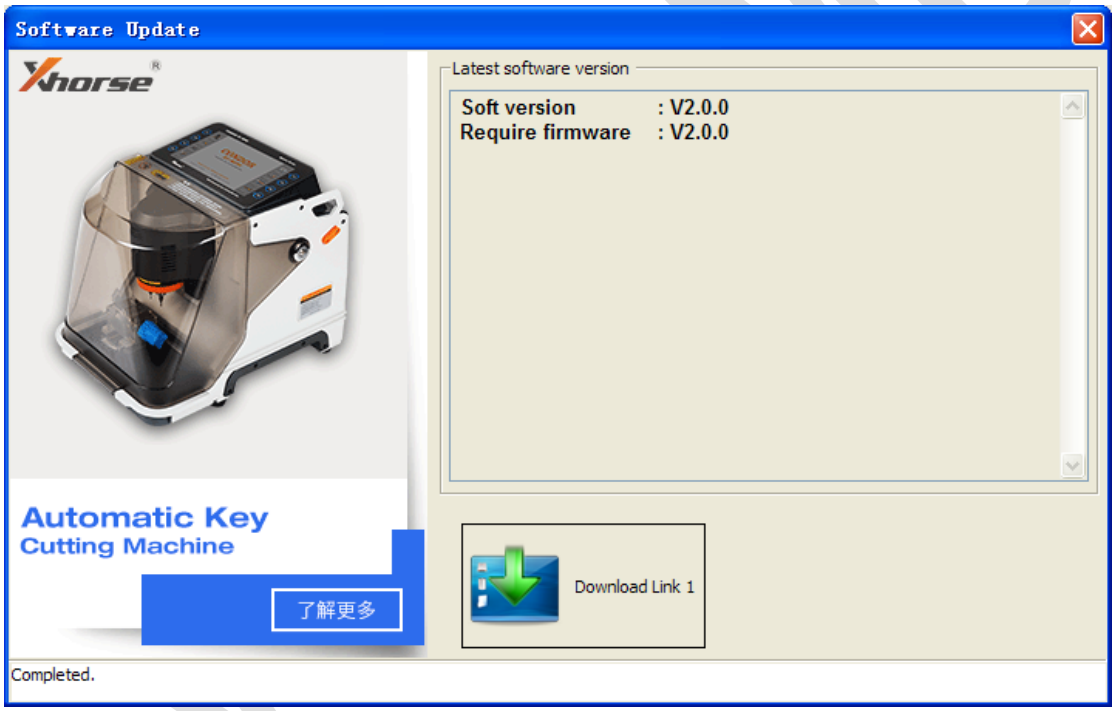
6) If the software does not display the latest version number of the server or promptsa

network error when upgrading, please check the network connection or change another network.

7) Wait for the upgrade to complete (about 10 minutes, need to connect to the Internet), do not turn off the computer or unplug the USB cable during the upgrade process.

21.2. Update software

- This function require internet support
- Use “Menu ->Update Online->Update software” to obtain VVDI-MB TOOL latest software version, the software version require firmware version etc. Press Download Link will download the latest software
- If there’s no display for software version, shutdown your firewall and antivirus programsand retry



21.3. Latest Update Information

- This function require internet support
- Use “Menu->Update Online->Latest Update Information” to obtain VVDI-MB TOOL latest update information

21.4. History Update Information

Use “Menu->Update Online->History Update Information” to obtain VVDI-MB TOOL

history update information

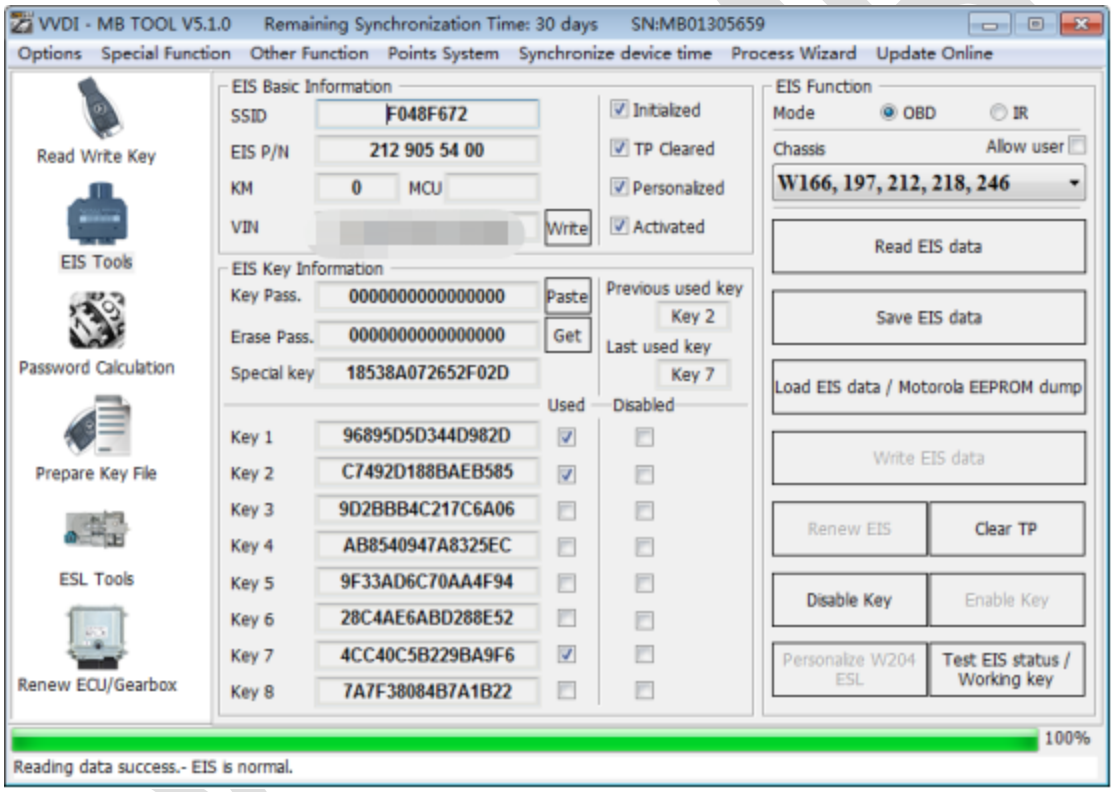
22. Case Description

22.1. W212 EIS, all key lost

1. Connect the device to the car, enter the EIS interface and click to **Read EIS data** and the device will automatically diagnose the EIS model

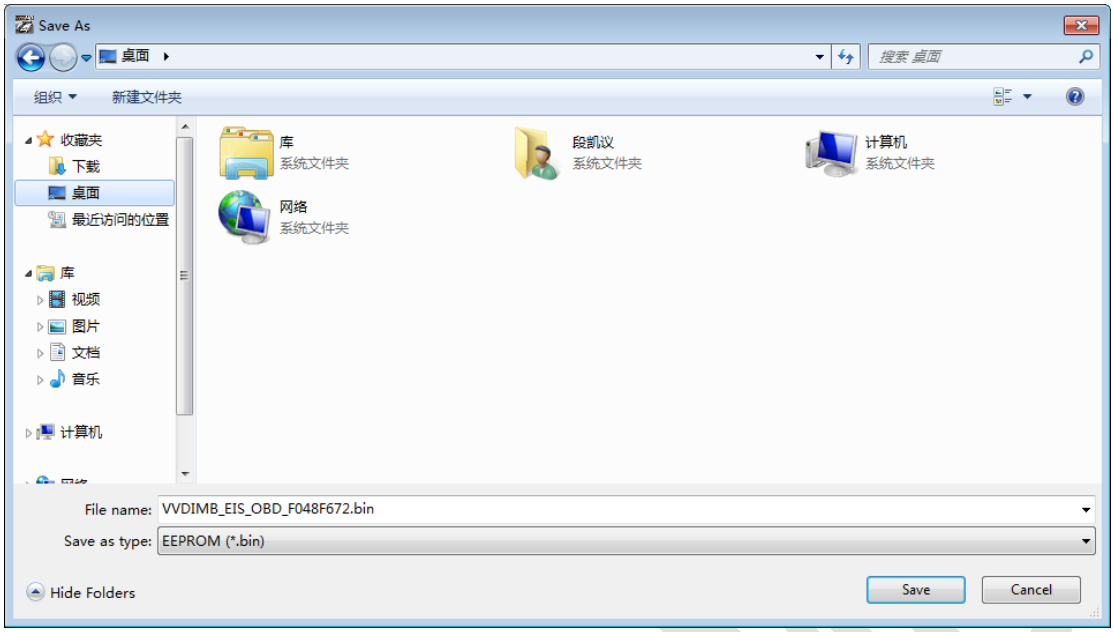
☐ If W209 and W211 are displayed, the OBD can directly read the password without calculating the password

☐ This example is the method of W212 EIS and under the all keys are lost situation



2. Click **Save EIS data**, two files will be saved when saving, VVDI-MB format and HC05 format

☐ The file's name can be customized, but it is recommended to save it with the default name



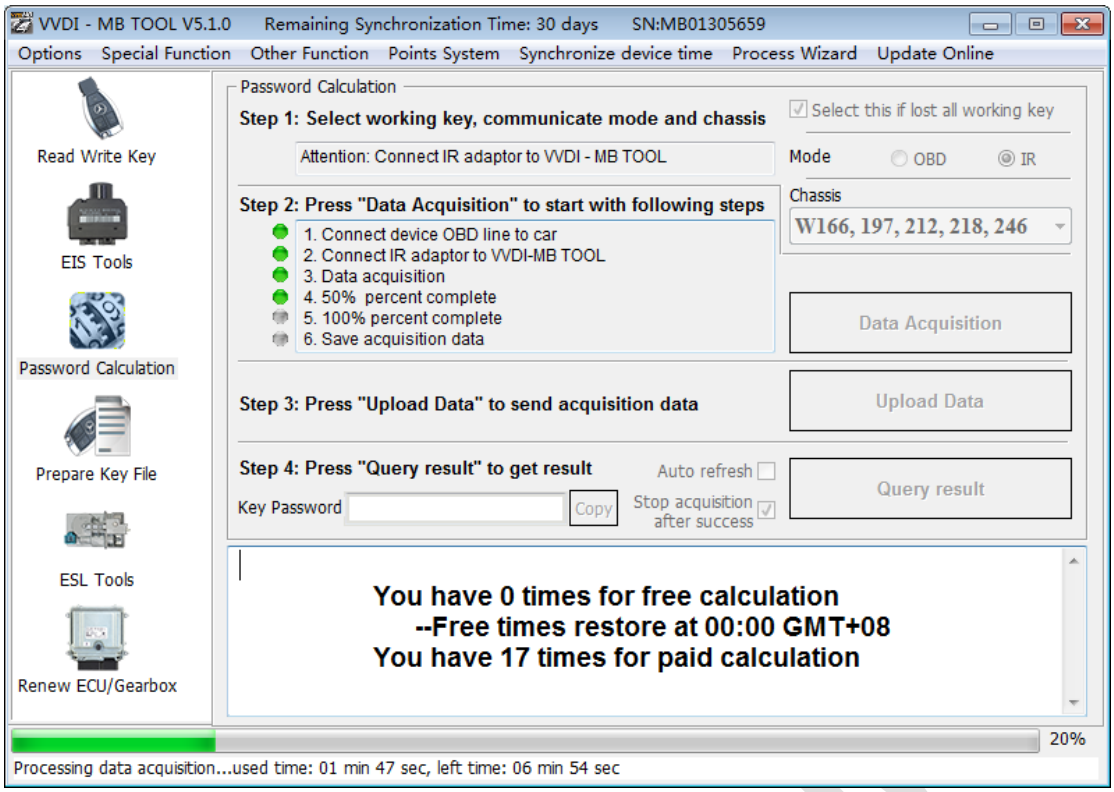
3. Enter the **Password Calculation**, collect data to calculate the key password

☐ Check the '**Select this if lost all working key'** on the upper right corner, select **IR** in the mode, and then manually select the number diagnosed on the EIS page

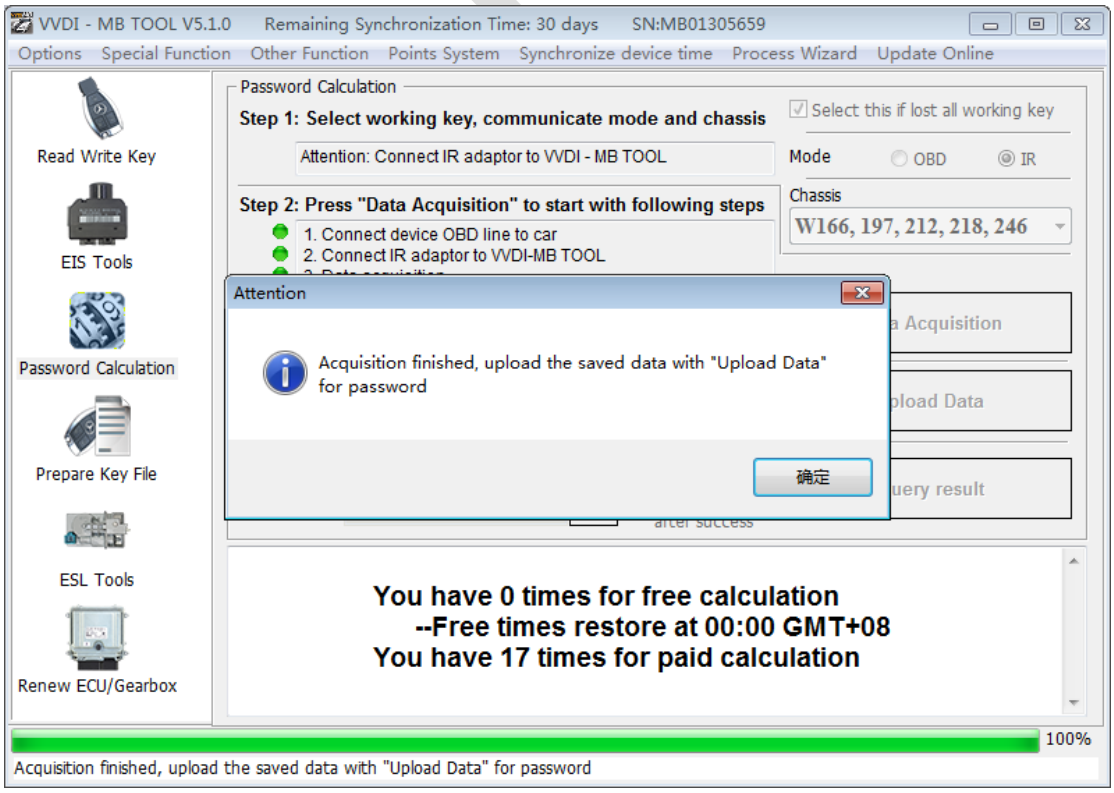
☐ The bottom of the first step of the interface will prompt whether you need to operate on the platform after you select the chassis model, and if you are prompted to operate on the platform, you need to remove the EIS and the platform wiring to collect and calculate

☐ In this example, the W212 EIS loss collection does not require platform operation, and can be collected and calculated on the car

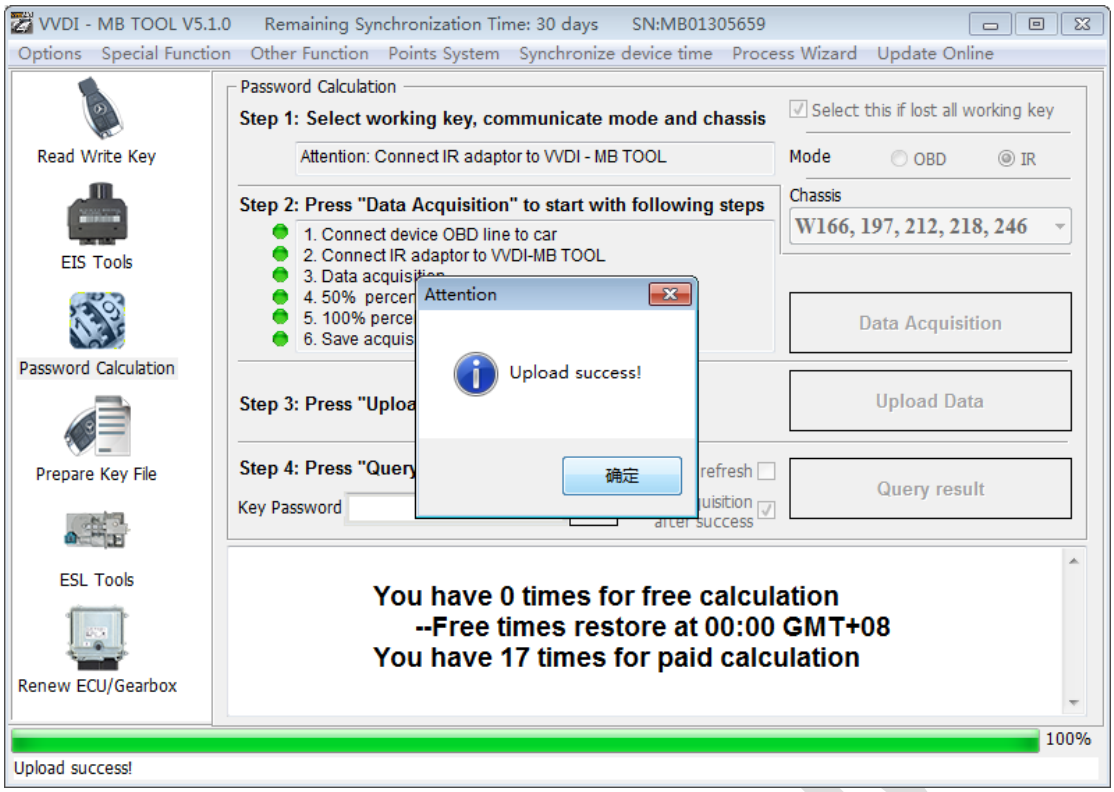
☐ Follow the prompts to connect the IR adapter, click the **'Data Acquisition'**, and start to collect EIS data through the IR adapter



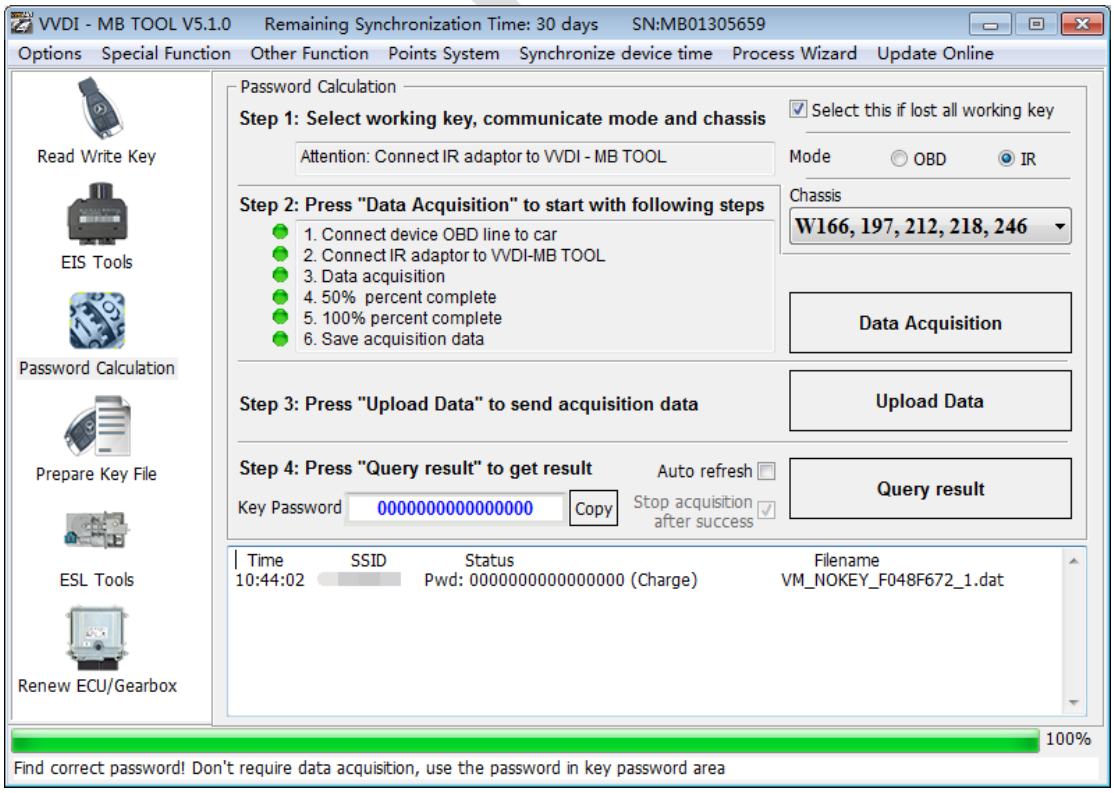
☐ The collection is complete, save the collected data, it is recommended to use the default file name



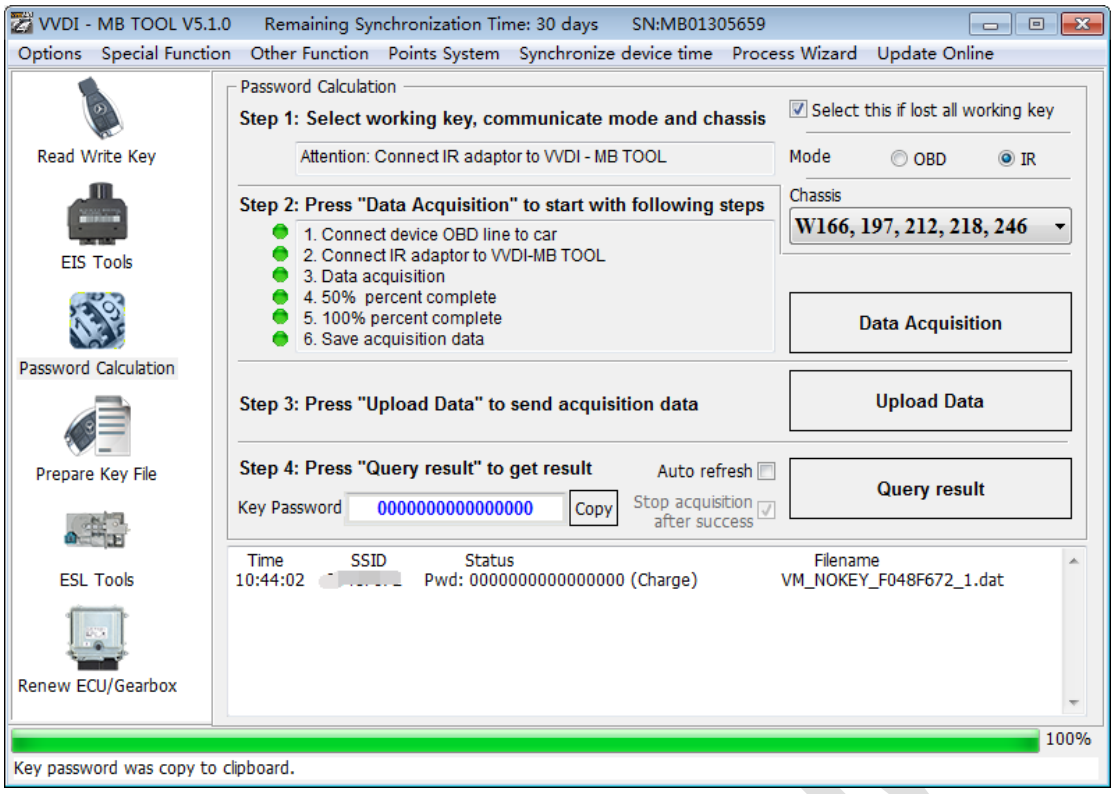
☐ Click Upload Data to upload the saved collected data to the server for calculation



☐ Click **Query result** to query the server results, you can select **Auto refresh**, the software will automatically refresh the server results, it takes about 1 minute



☐ After the calculation is successful, the password is automatically displayed in the key password area, click **Copy** to copy the password to the clipboard



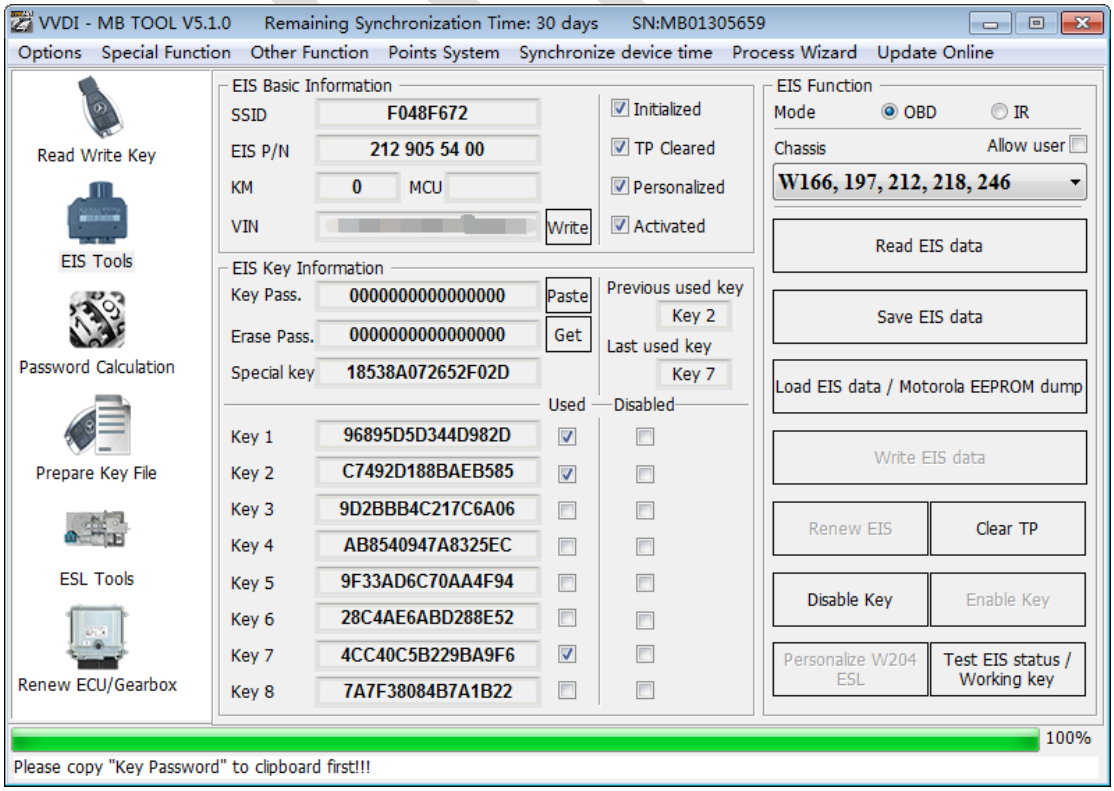
4. Save EIS data with password

☐ Enter the **EIS Tools** interface again

☐ Re-read the EIS data

☐ Use **Paste** to paste the password into the key password area

☐ Then click again the '**save EIS data' button to save the EIS data with key code**



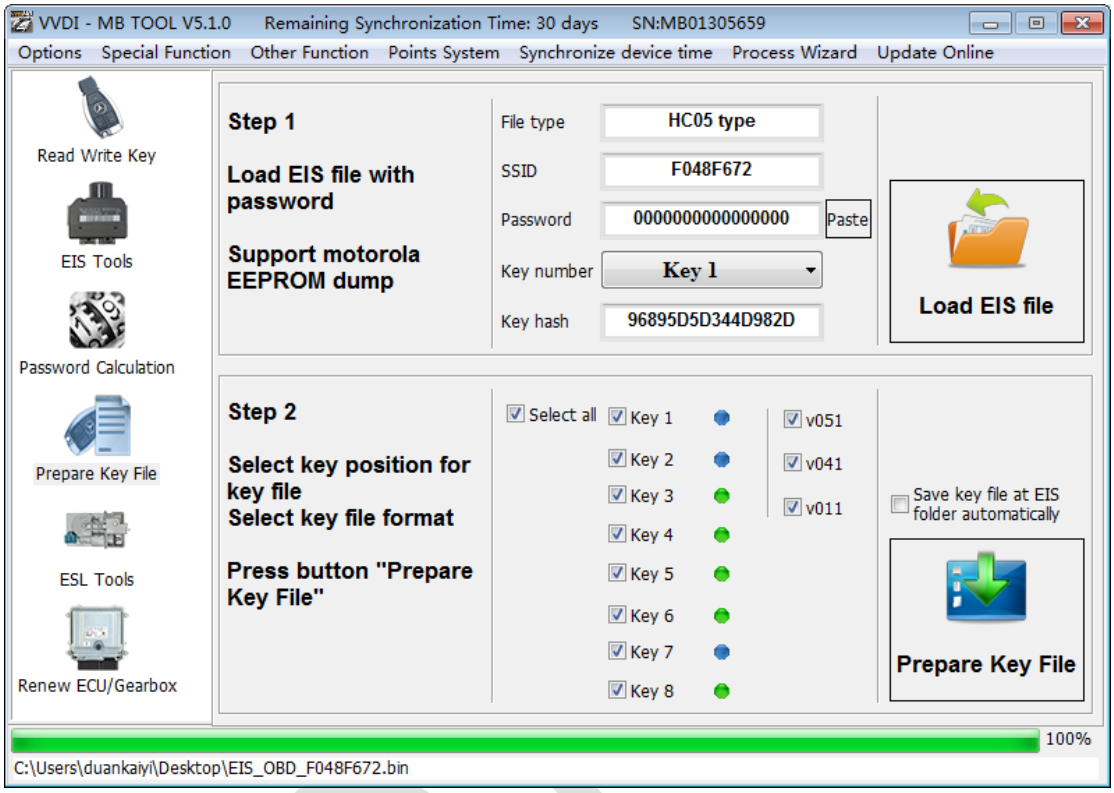
5. Enter to **Prepare Key File**

☐ Click to load EIS (EIS) file to **Load EIS file** with key password

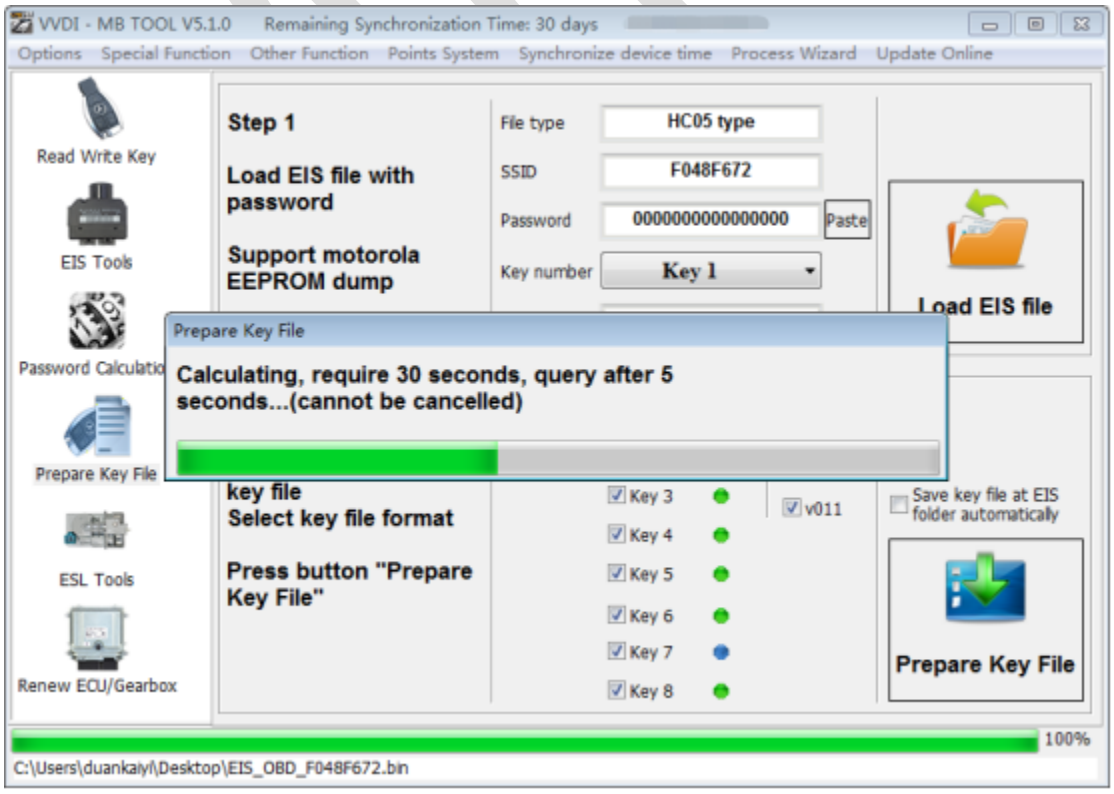
☐ The loaded file address is displayed below the software

☐ The software automatically determines that the loading type is HC05 format

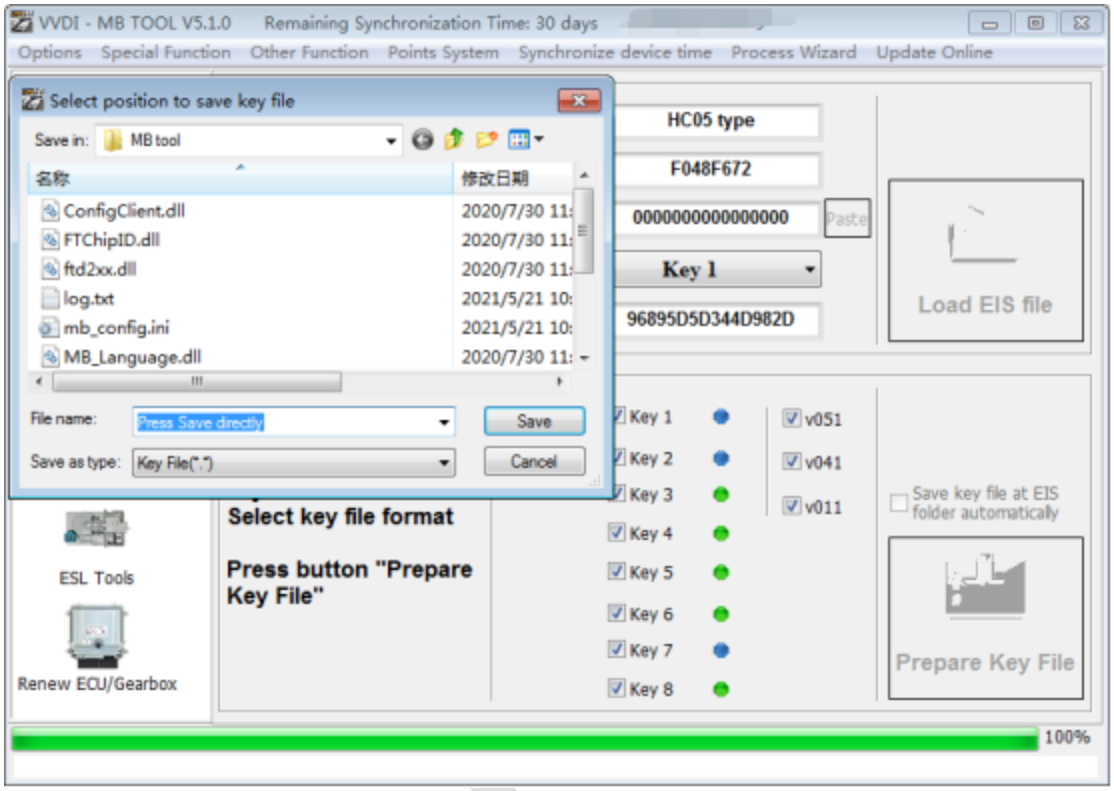
☐ Display information such as SSID and key password in the file



☐ Select the location and format of the key to be generated, click to**Prepare Key file** (requires online)



☐ After the server search is successful, select the location to save the key file. Click save directly

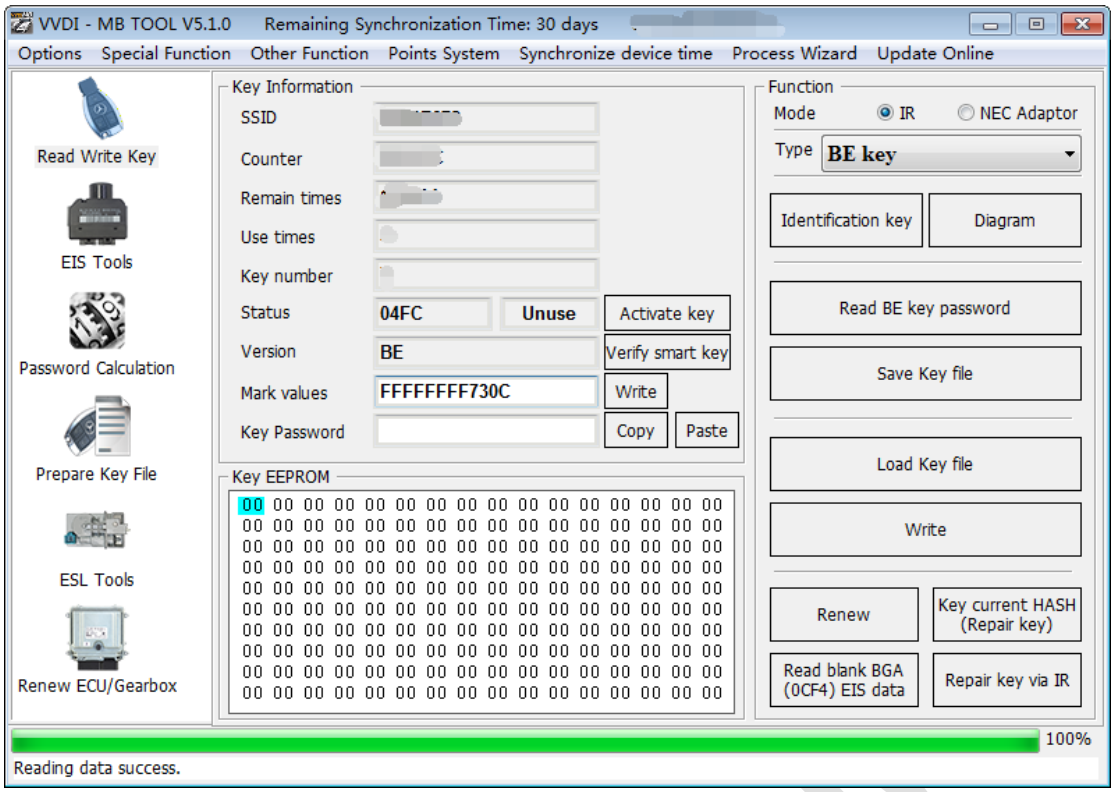


6. Enter the **Read write key**. Prepare a new key.

☐ We need to generate a BE key

☐ Put the new BE key into the IR antenna of the device, select IR as the communication method, and select the BE key as the type

☐ Click to I**dentification key**



☐ **Load key file**, select the 7th key position

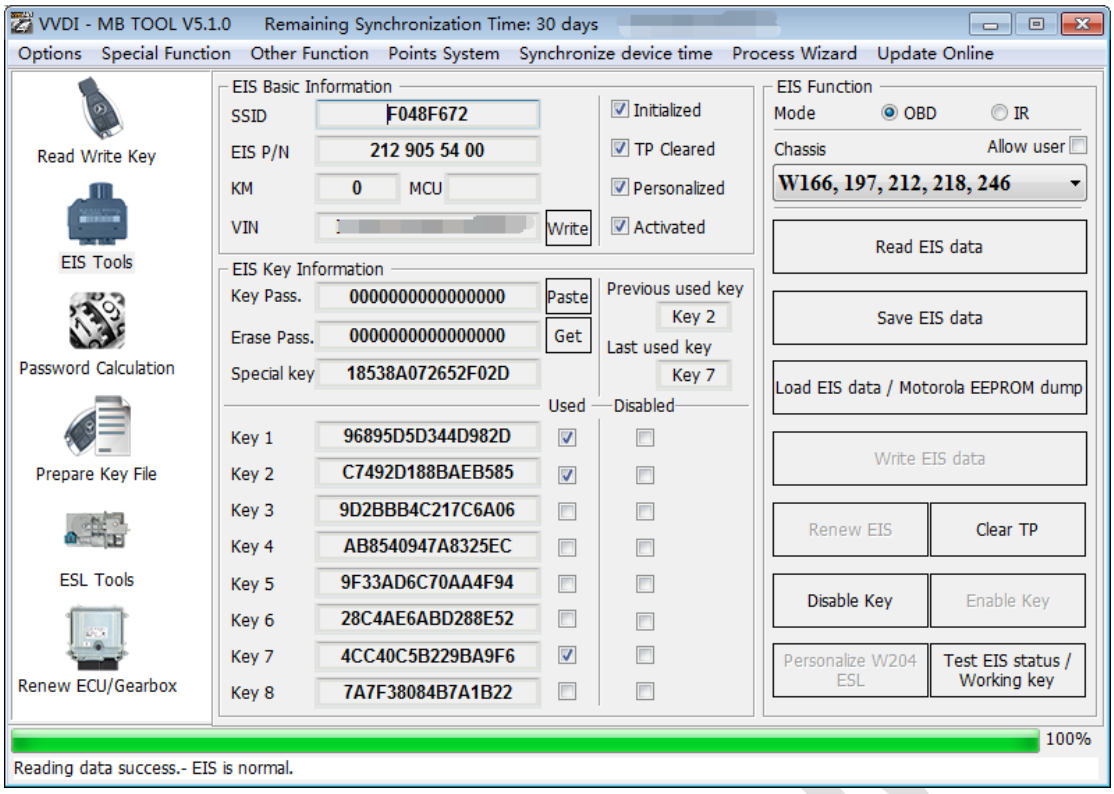
☐ Click the **write** option

☐ After writing, click on the **Identification key**, it is already in a state of preparation for activation

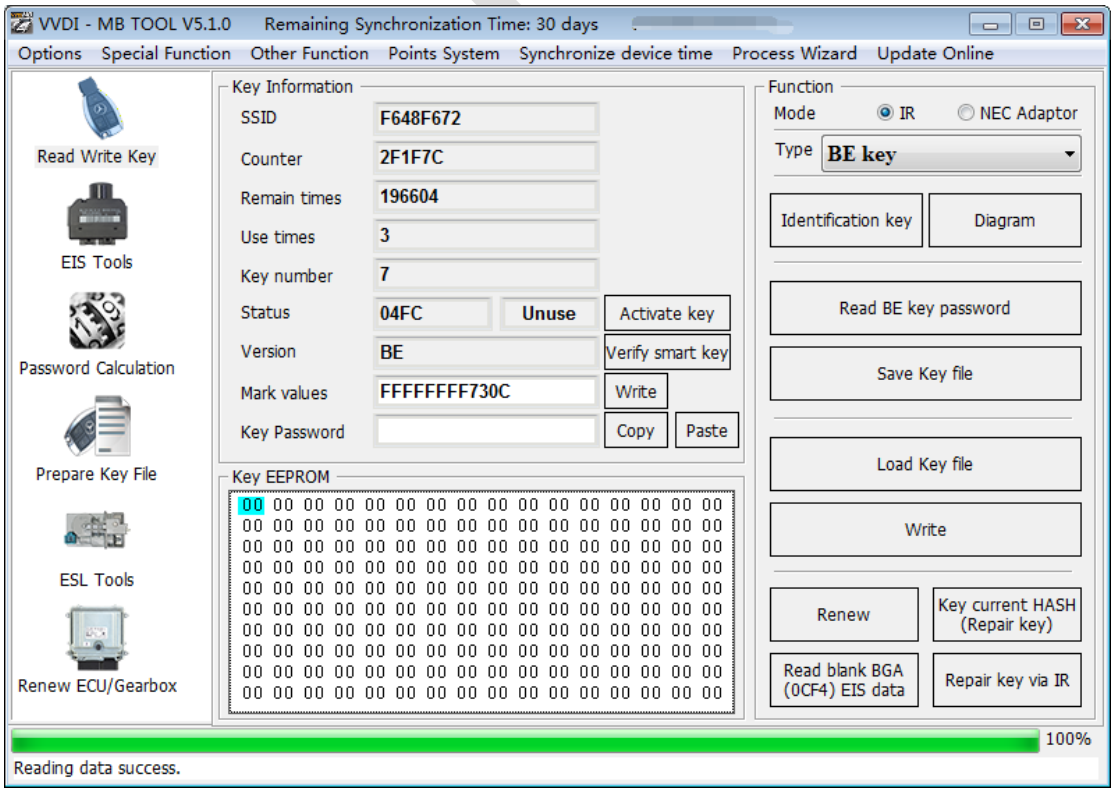
7. Insert the key into the EIS again, and the EIS starts to learn the key

☐ The red light on the key will light up once and then go out, indicating that the key learning is complete

☐ Read the EIS data again, you will find that the Key 7 position has been used and selected



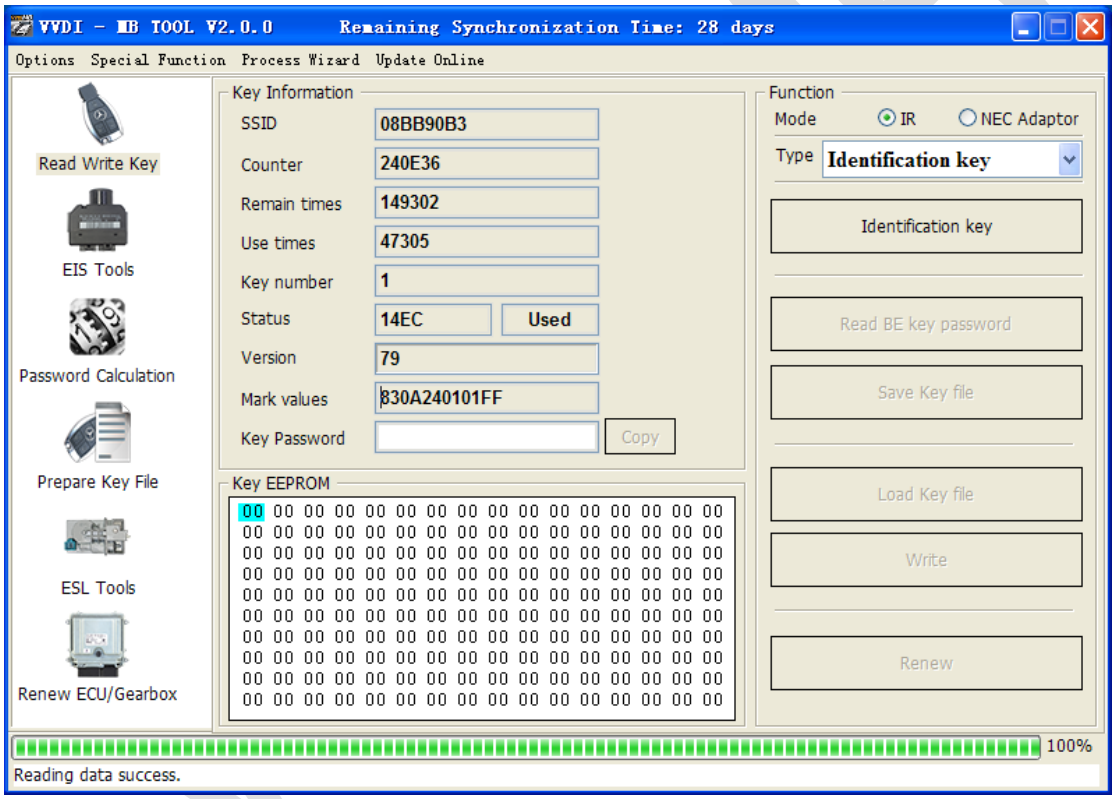
☐ Read the BE key again, the key status has been used.



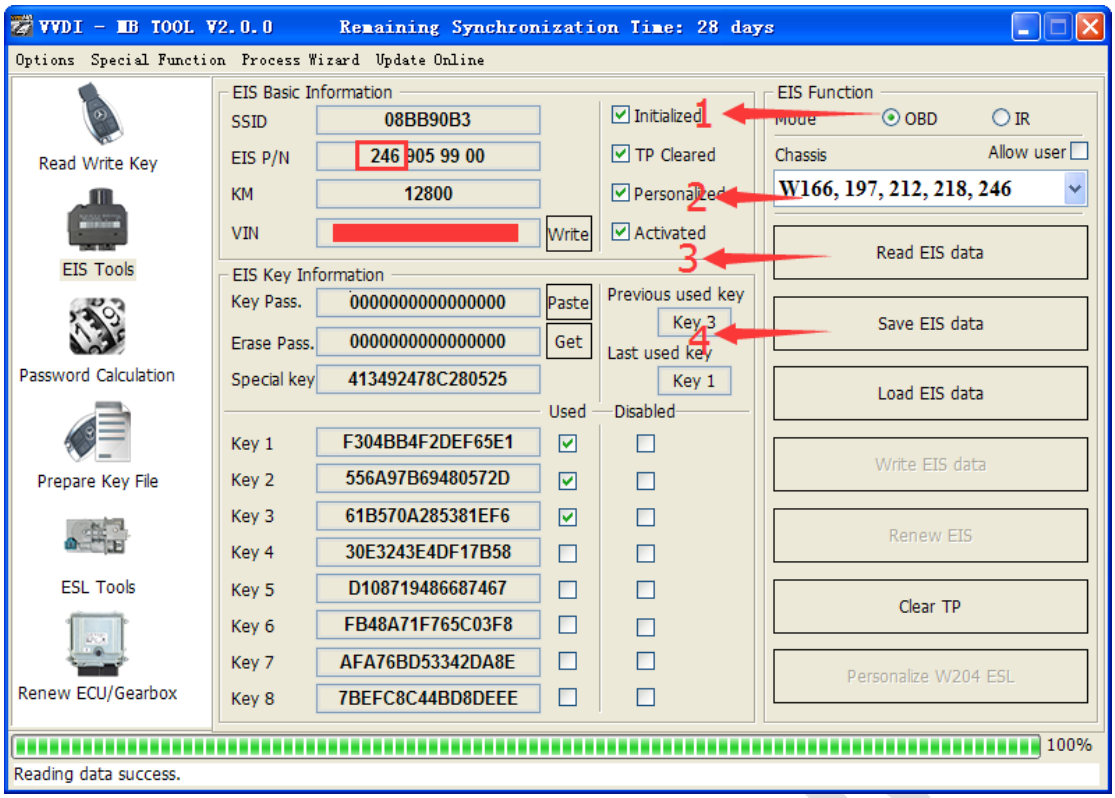
8. Completed.

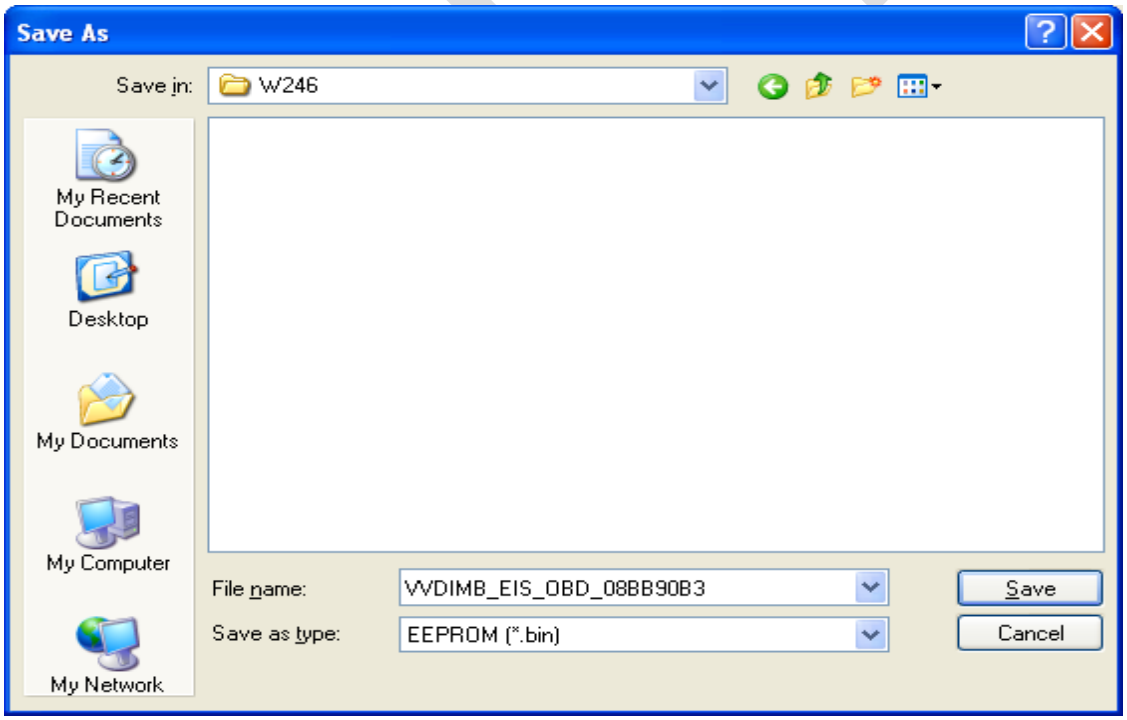
22.2. W246 EIS with BGA (79) keys, add new key via OBD

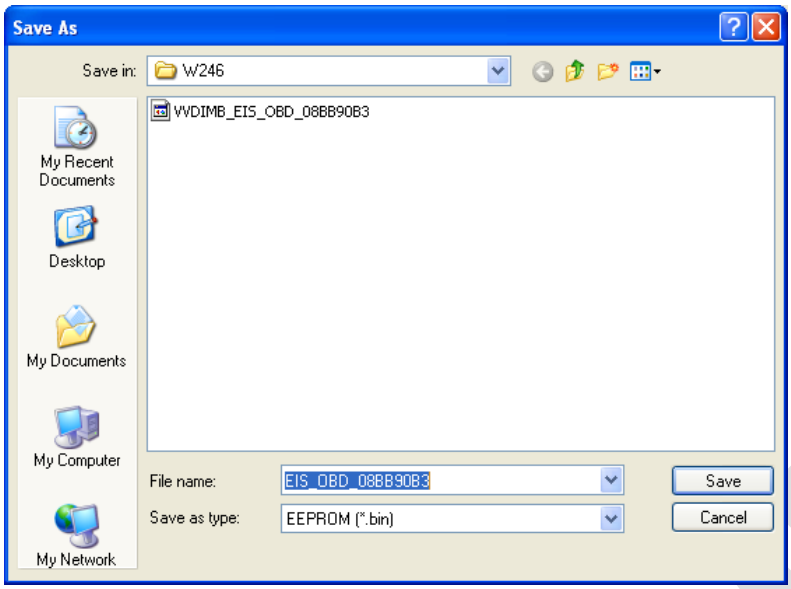
1. Insert the original working key into the device IR reader, Press "**Identification key**" to check the working key version
   - If the key is BE version, you can read password via IR, no need to calculate the password
   - If the key is v51,or v57 version, you can read password via NEC adaptor, or you can use password calculation
   - In this example the key's version is 79, belong to BGA key. We use password calculation function in order to get the password



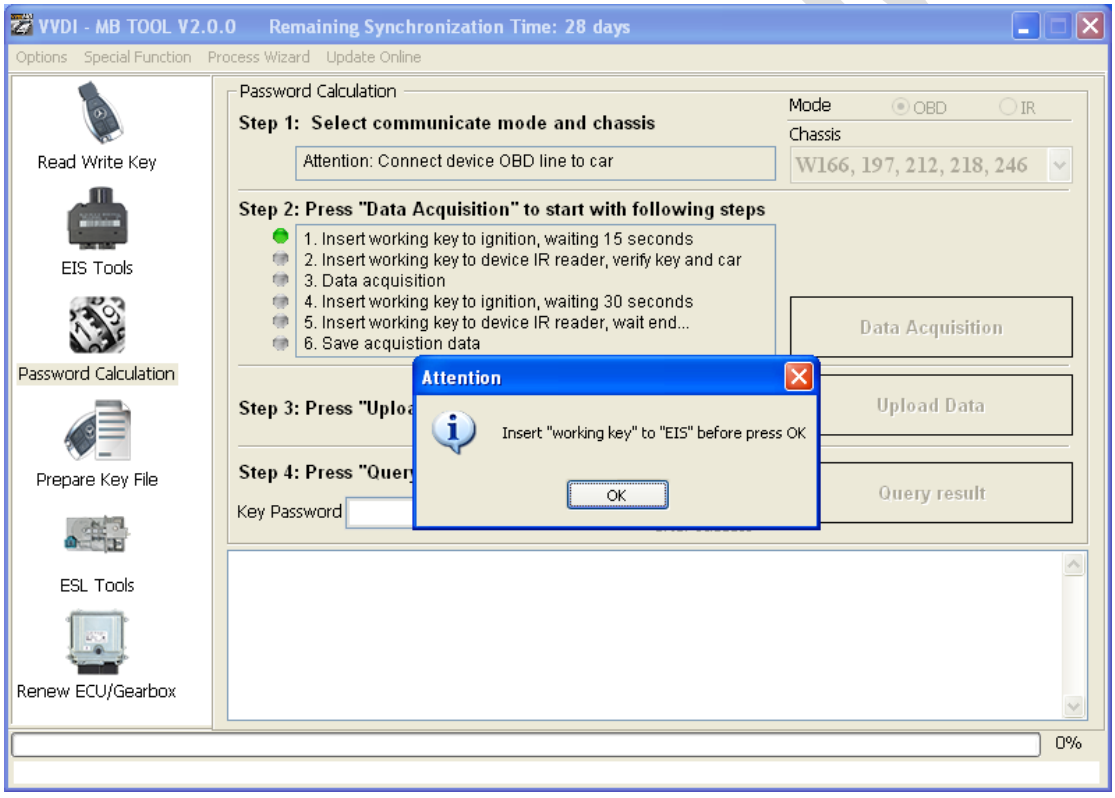
2. Connect the device to the car via OBD cable. Select **OBD** mode, select AutoDetect (CAN)chassis
   - Press **Read EIS data**. Chassis will turn to specify item after success read
   - Follow steps 1->2->3->4 in picture and save EIS data
   - It will save 2 files, VVDI-MB format and HC05 format
   - There's default file name when you are saving the EIS data. Suggest you use that name and do not change it .


VVDI - MB TOOL V2.0.0 Remaining Synchronization Time: 28 days
Options Special Function Process Wizard Update Online
Read Write Key
EIS Tools
Password Calculation
Prepare Key File
ESL Tools
Renew ECU/Gearbox
EIS Basic Information
SSID 08BB90B3
EIS P/N 246 905 99 00
KM 12800
VIN
Write
Initialized
TP Cleared
Personalized
Activated
EIS Key Information
Key Pass. 0000000000000000
Erase Pass. 0000000000000000
Special key 413492478C280525
Paste
Get
Previous used key
Key 3
Last used key
Key 1
Used
Disabled
Key 1 F304BB4F2DEF65E1
Key 2 556A97B69480572D
Key 3 61B570A285381EF6
Key 4 30E3243E4DF17B58
Key 5 D108719486687467
Key 6 FB48A71F765C03F8
Key 7 AFA76BD53342DA8E
Key 8 7BEFC8C44BD8DEEE
EIS Function
Mode OBD IR
Chassis
Allow user
W166, 197, 212, 218, 246
Read EIS data
Save EIS data
Load EIS data
Write EIS data
Renew EIS
Clear TP
Personalize W204 ESL
1
2
3
4
100%
Reading data success.

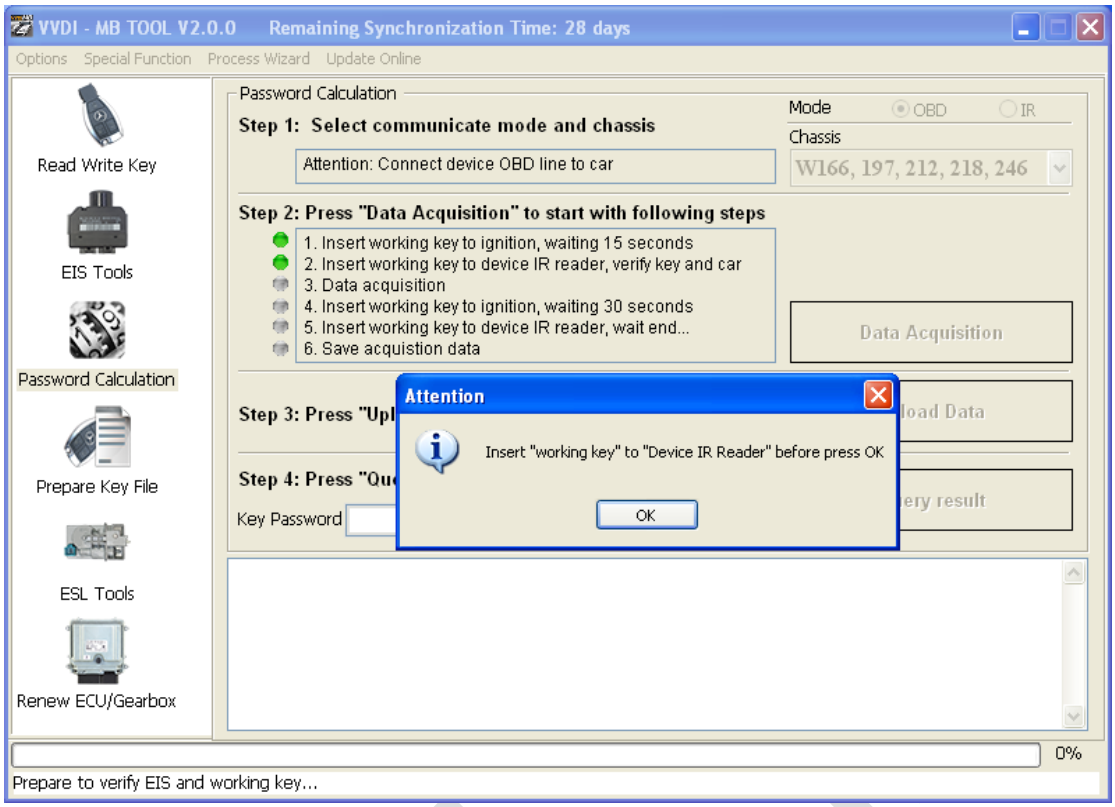

Save As
Save in: W246
My Recent Documents
Desktop
My Documents
My Computer
My Network
File name: VVDIMB_EIS_OBD_08BB90B3
Save as type: EEPROM (*.bin)
Save
Cancel



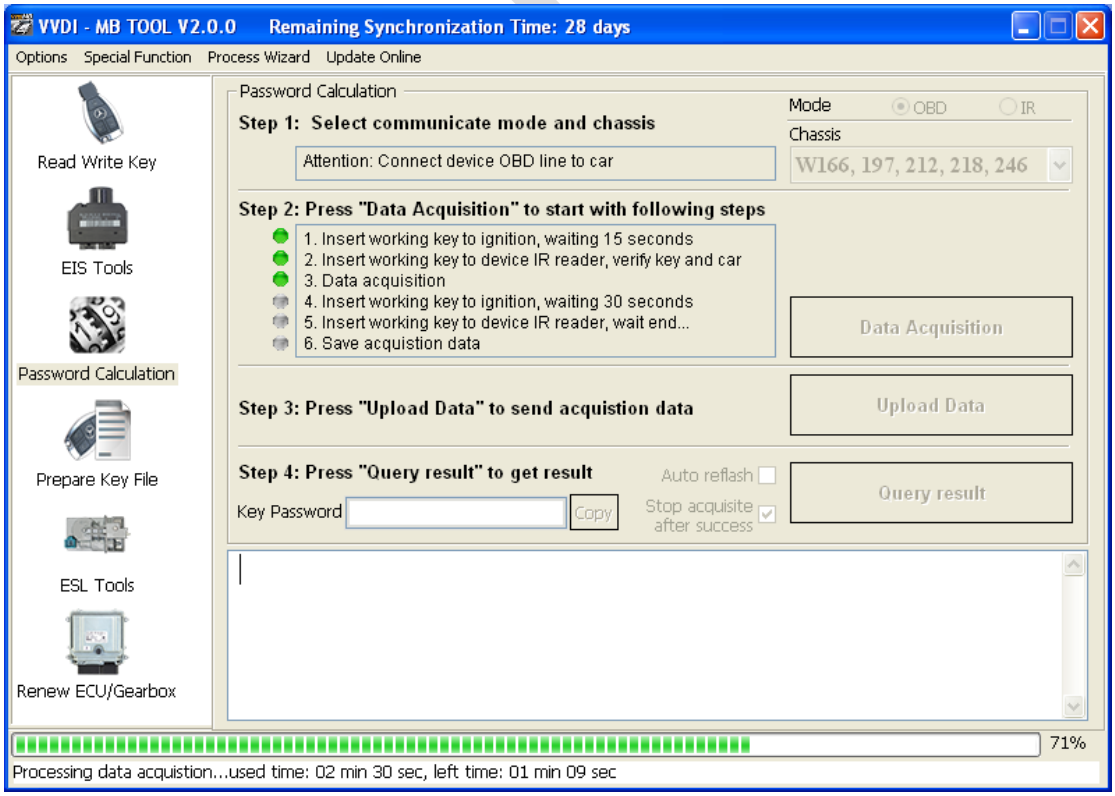
3. Enter **Password Calculation**, you can calculate key password in this option
   - Select OBD mode, chassis select W166, 197, 212, 218, 246
   - Press "**Data Acquisition**", progress with following steps
   - Insert "working key" to "EIS" before press OK; only insert working key to EIS, don't switch ignition ON



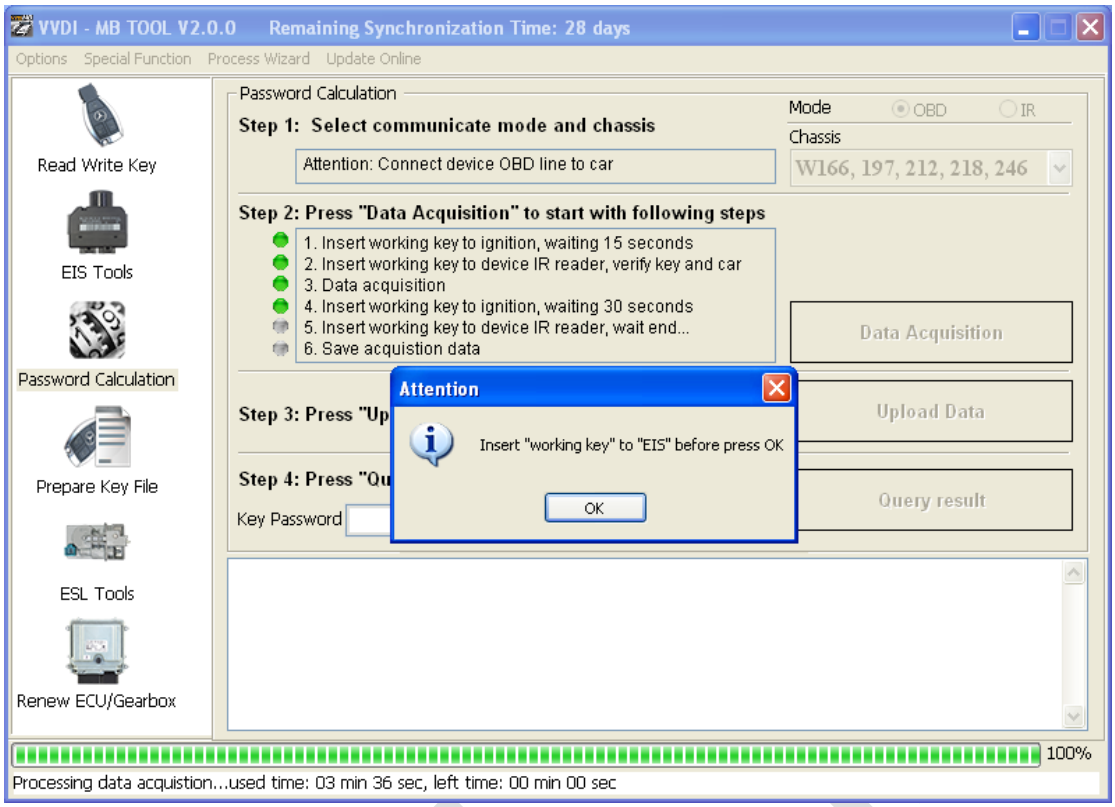
   - Waiting 15 seconds
   - Insert "working key" to "Device IR Reader" before press OK; take off working key from EIS and insert to device IR Reader, then press OK



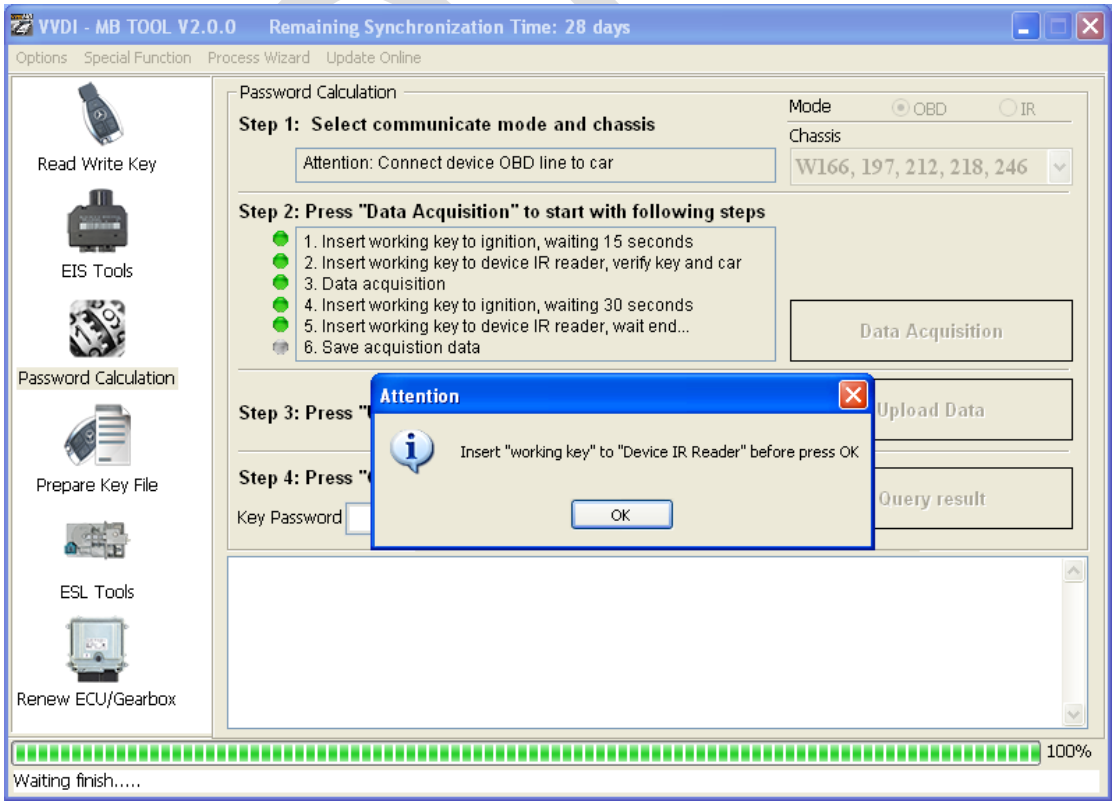
- Data acquisition progress, just wait it to finish. The left time will show on the bottom



- After 100%, Insert “working key” to “EIS” before press OK; only insert working key to EIS, don’t switch ignition ON

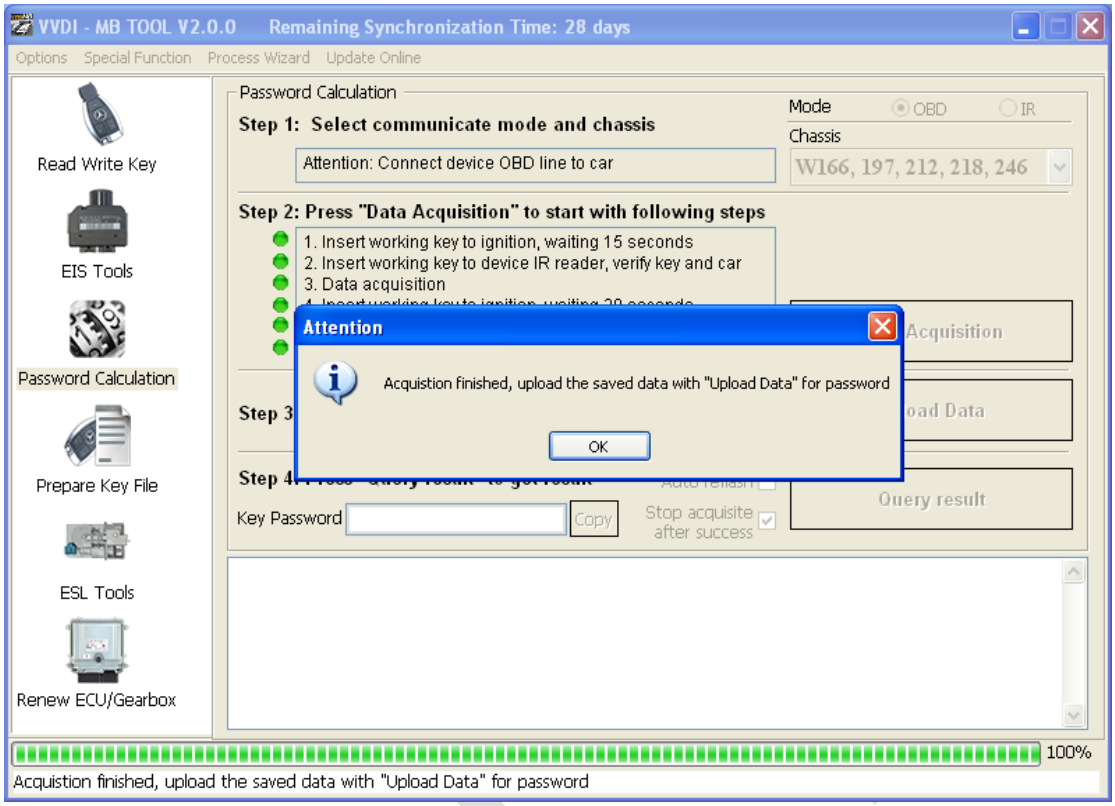


- Waiting 30 seconds
- Insert “working key” to “Device IR Reader” before press OK; take off working key from EIS and insert to device IR Reader, then press OK

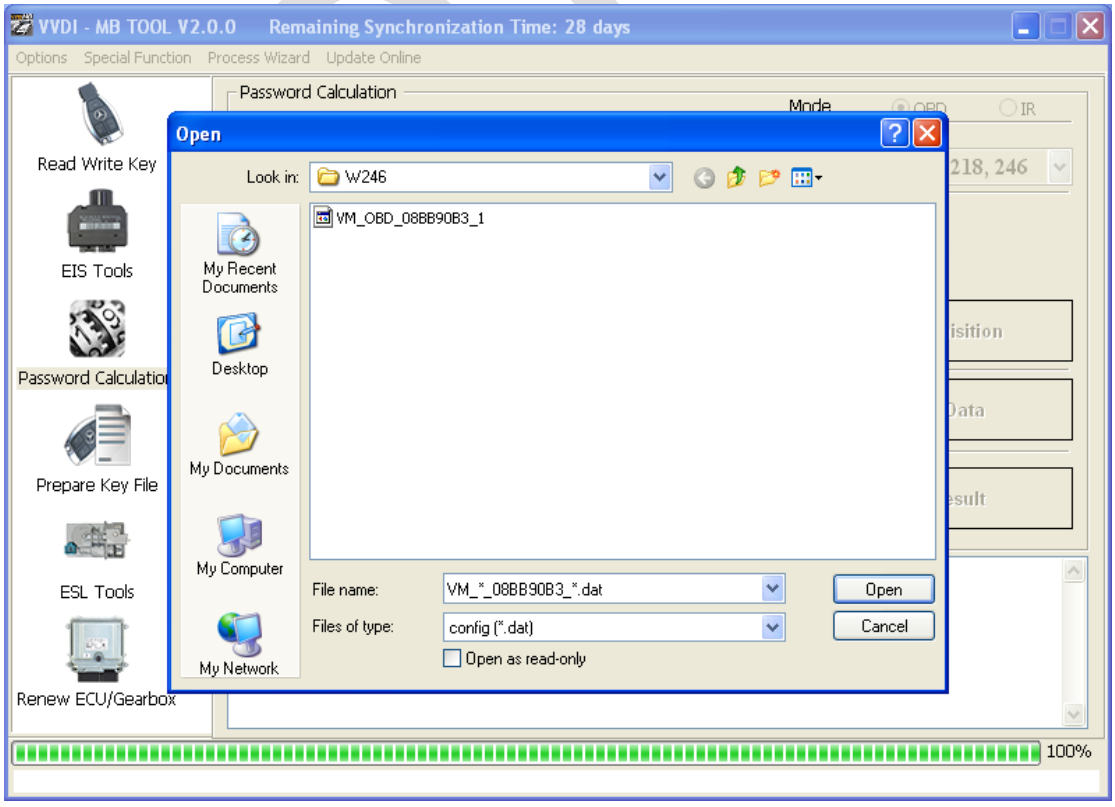


- After save acquisition data you will get next window. Please keep the default

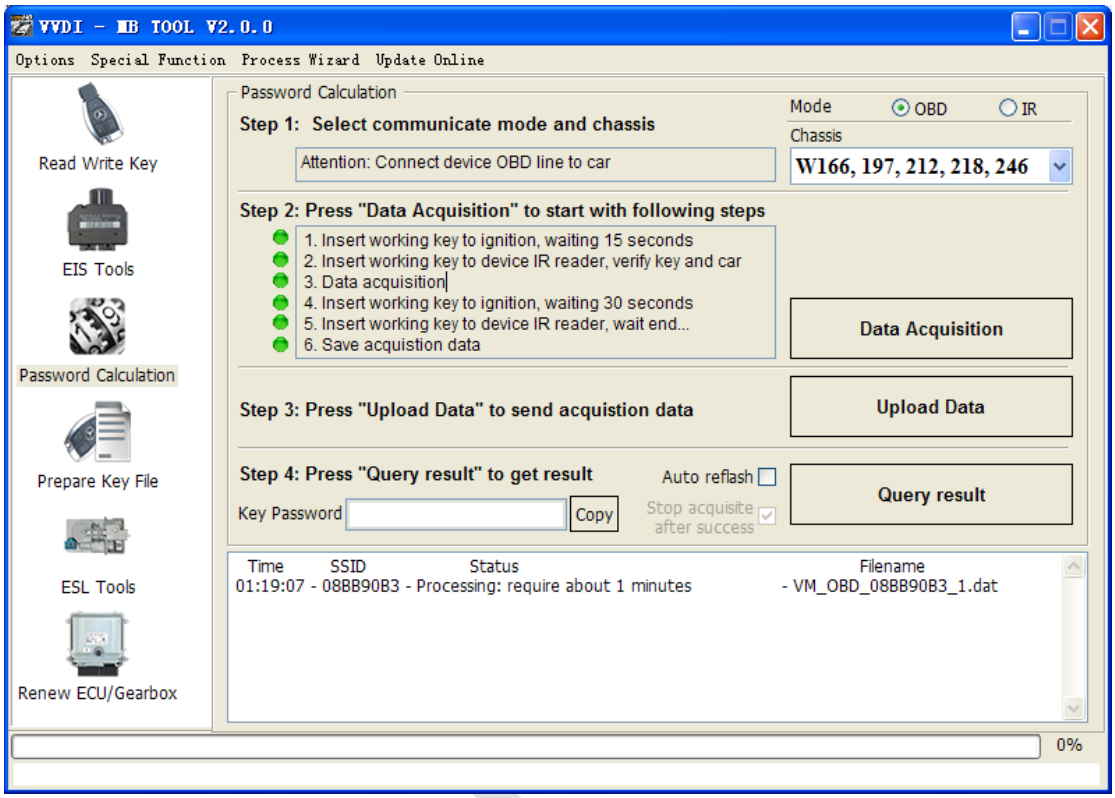
file name when save acquisition data



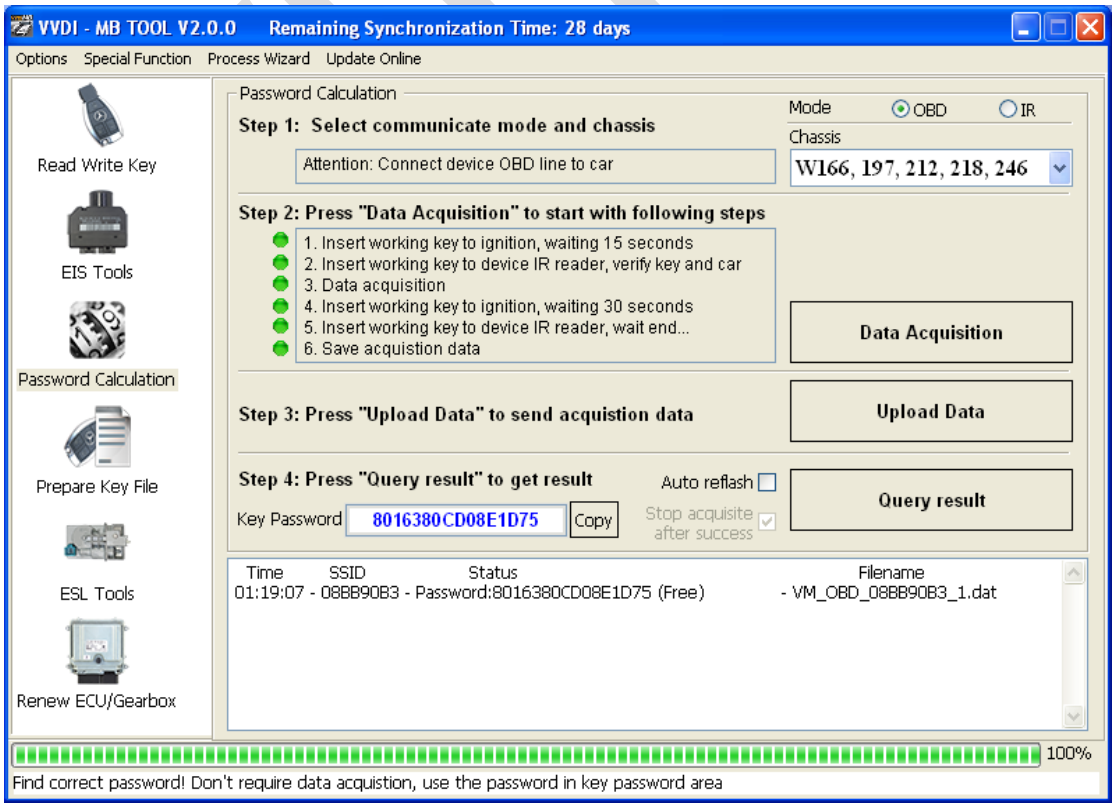
- Press **Upload Data** to upload saved acquisition data to the server



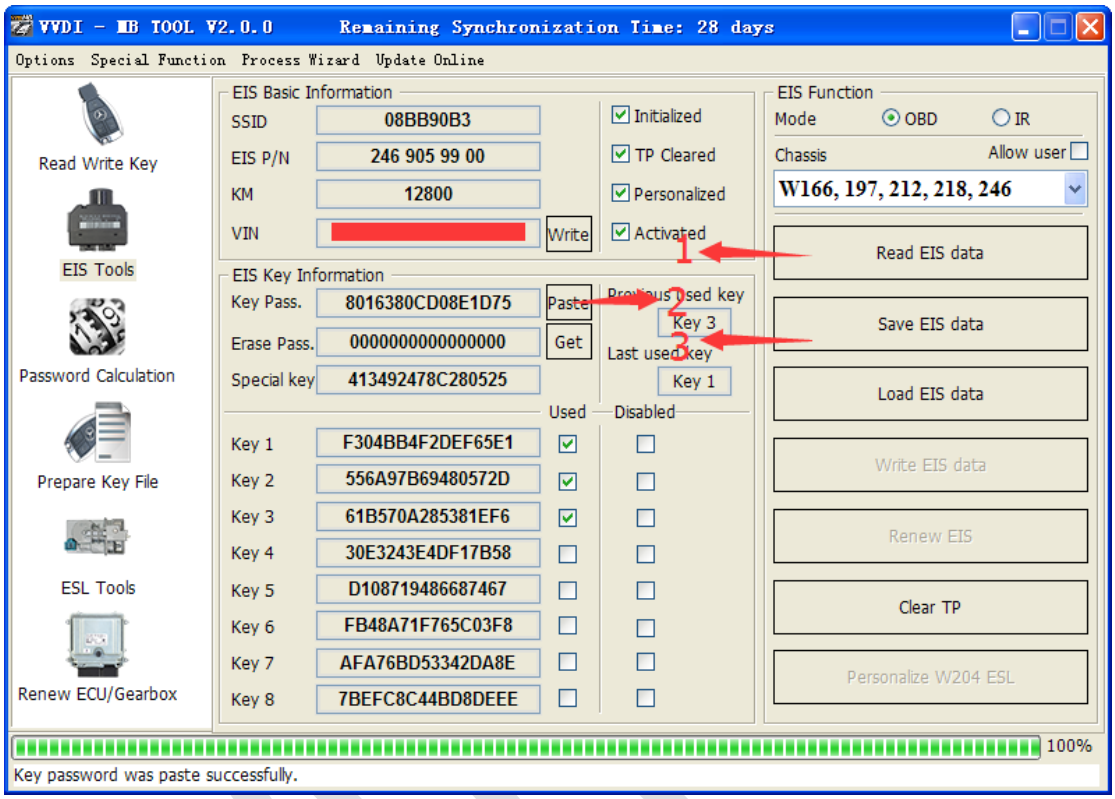
- Press **Query result** to get result, you can select "**Auto reflash**", it will query server result automatically, it need about 1 minute



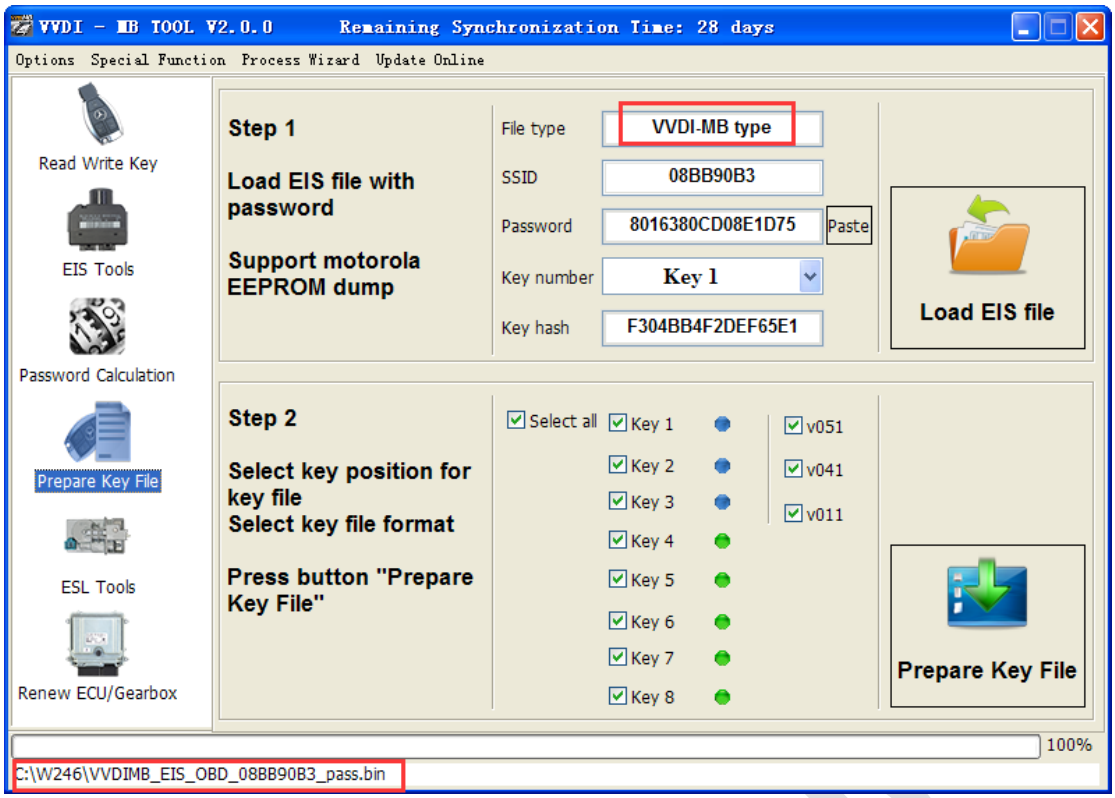
- After calculate success, key password will display at key password area automatically, press "**Copy**" copy the password to clipboard



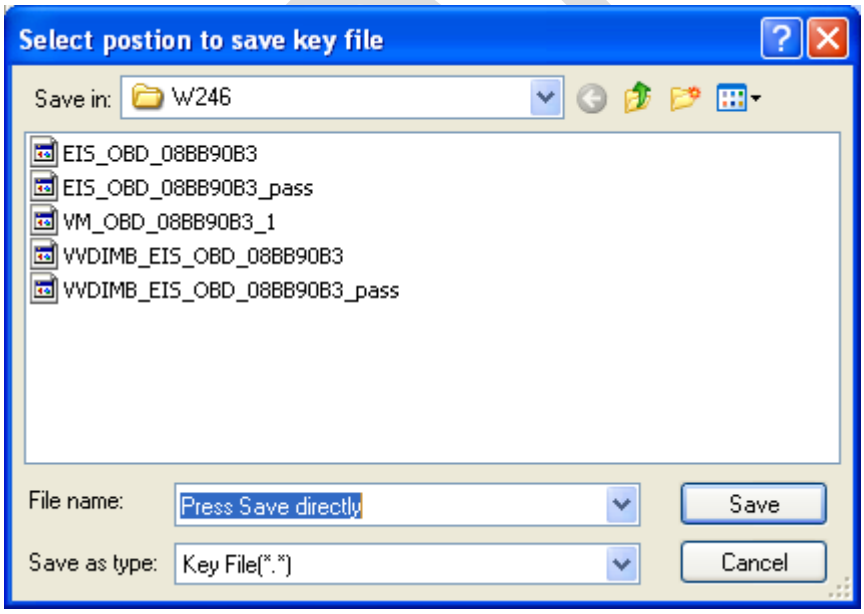
4. Save EIS data with password
   - Enter **EIS Tools**interface again
   - Read EIS data
   - Use “**Paste**” paste the password to key password area
   - Then save EIS data again
   - Steps: 1->2->3



5. Enter **Prepare Key File**
   - Press **Load EIS file to** load EIS data with password
   - The file path will be shown at bottom
   - VVDI-MB TOOL will auto detect load file type, here is VVDI-MB format
   - It will show the information of the SSID and password.

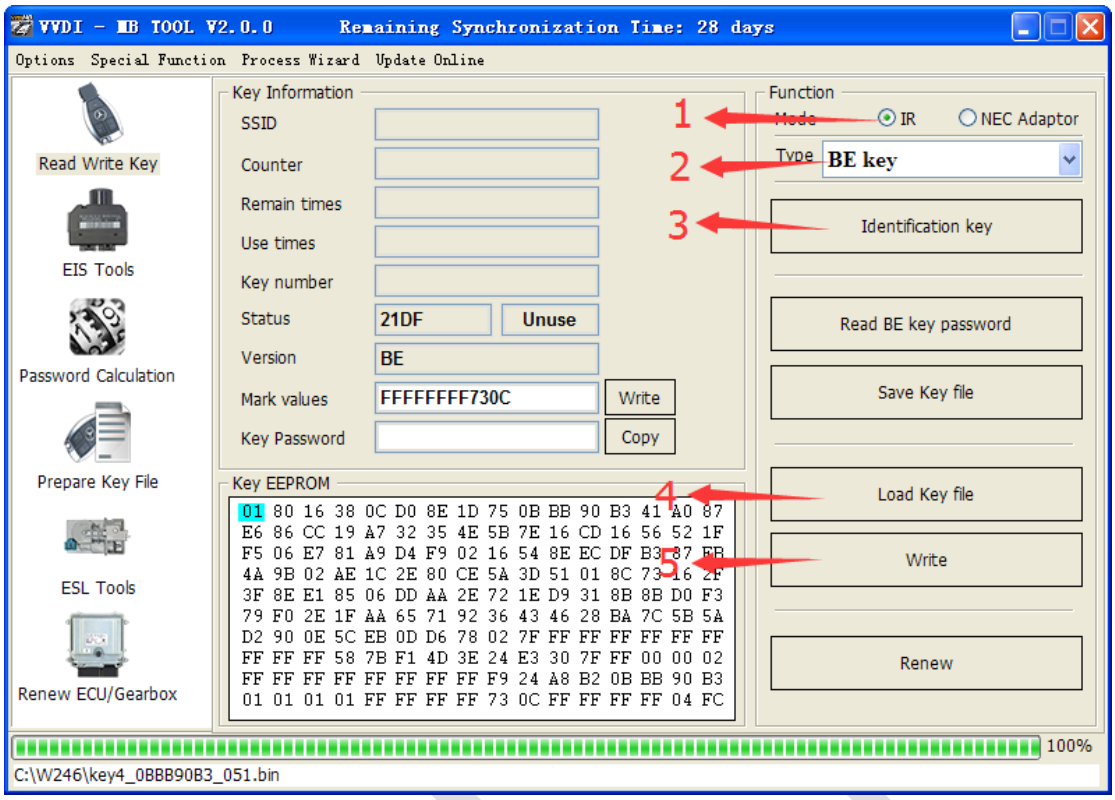


- Select key position and format for key file, Press **Prepare Key File** (need to be online)
- After server find success, select where you want to save the key file, press save directly

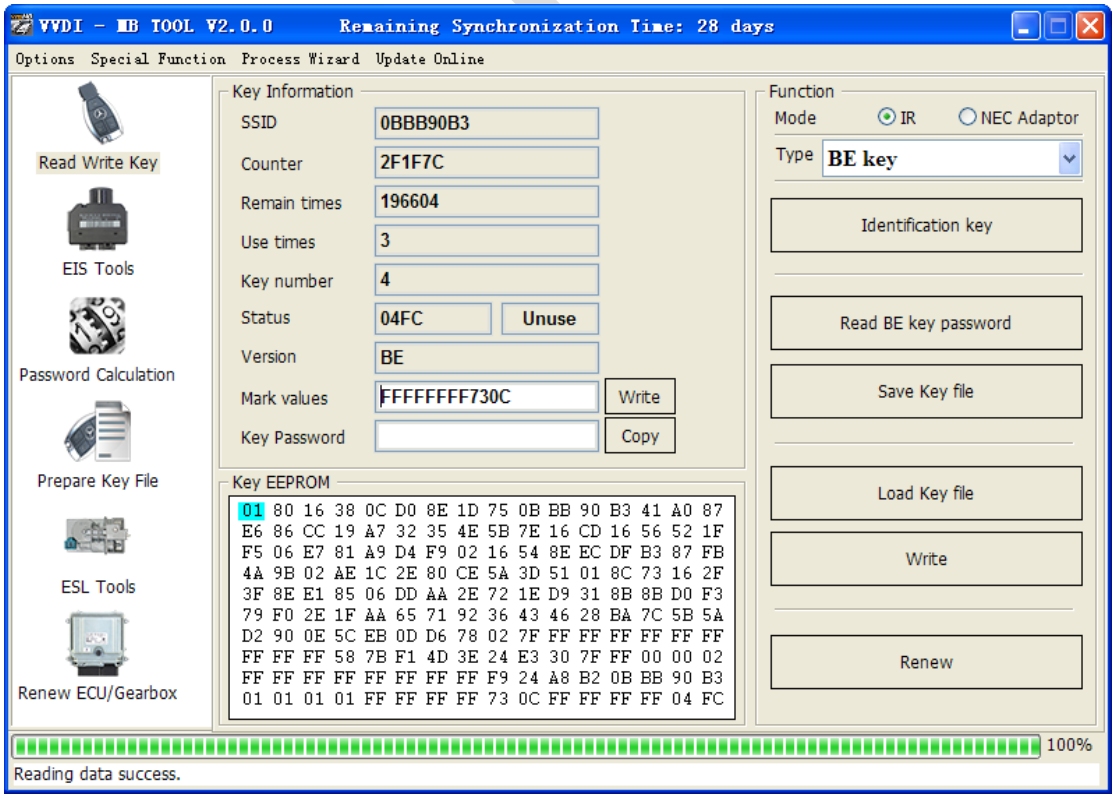


6. Enter **Read Write Key**. If you want Keyless Go, please select NEC adaptor
   - We make a new BE key.
   - Input BE key to device IR reader, select IR mode and BE key
   - Press **Identification key**
   - **Load Key file**, we load key 4 position
   - Press **Write**

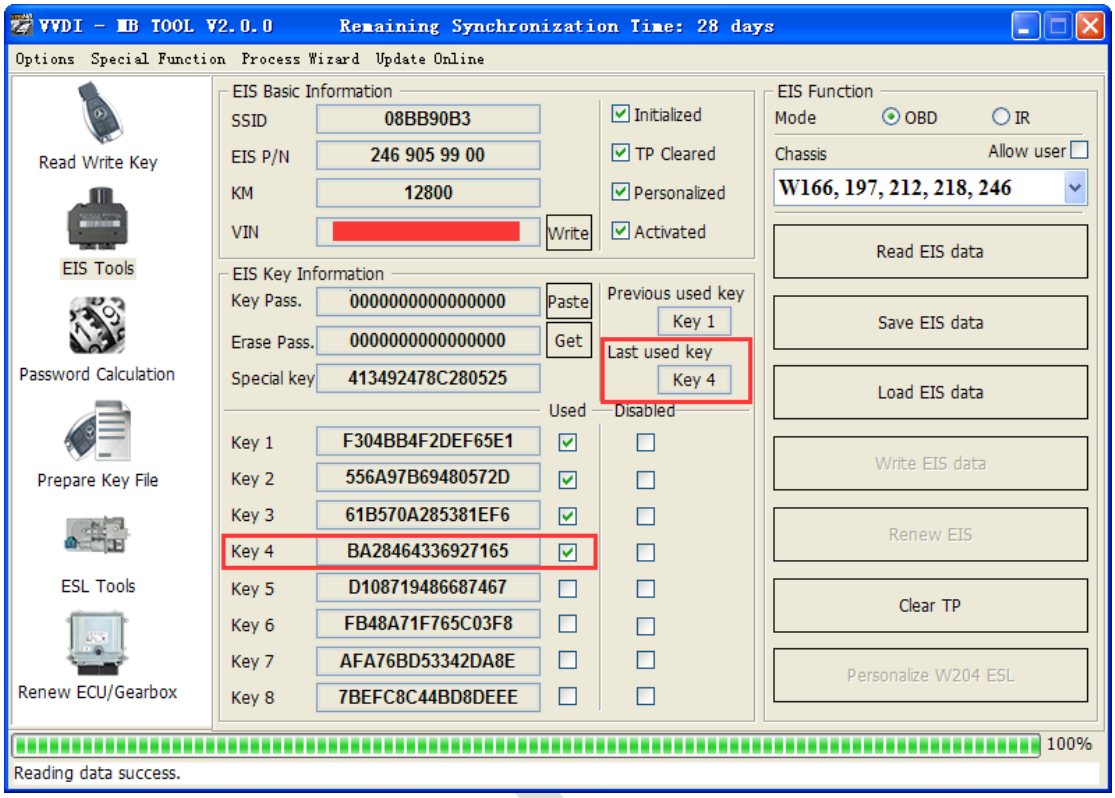
◆ Steps:1->2->3->4->5



◆ Press **Identification key** again after you have wrote key file. You can see the key has beenactivated successfully



7. Insert new key to EIS, the EIS will learn the new key
   - First the red light will turn ON , then turn OFF, it means the key learns success
   - Read EIS data once more, you can find key 4 was selected



8. Completed.