



Version: V1.0 | English

The TF1011 is an offline handheld ECU flashing device launched by TOSUN. It has a lot of application scenarios and advantages. It can be paired with TSMaster to write UDS diagnostic flow

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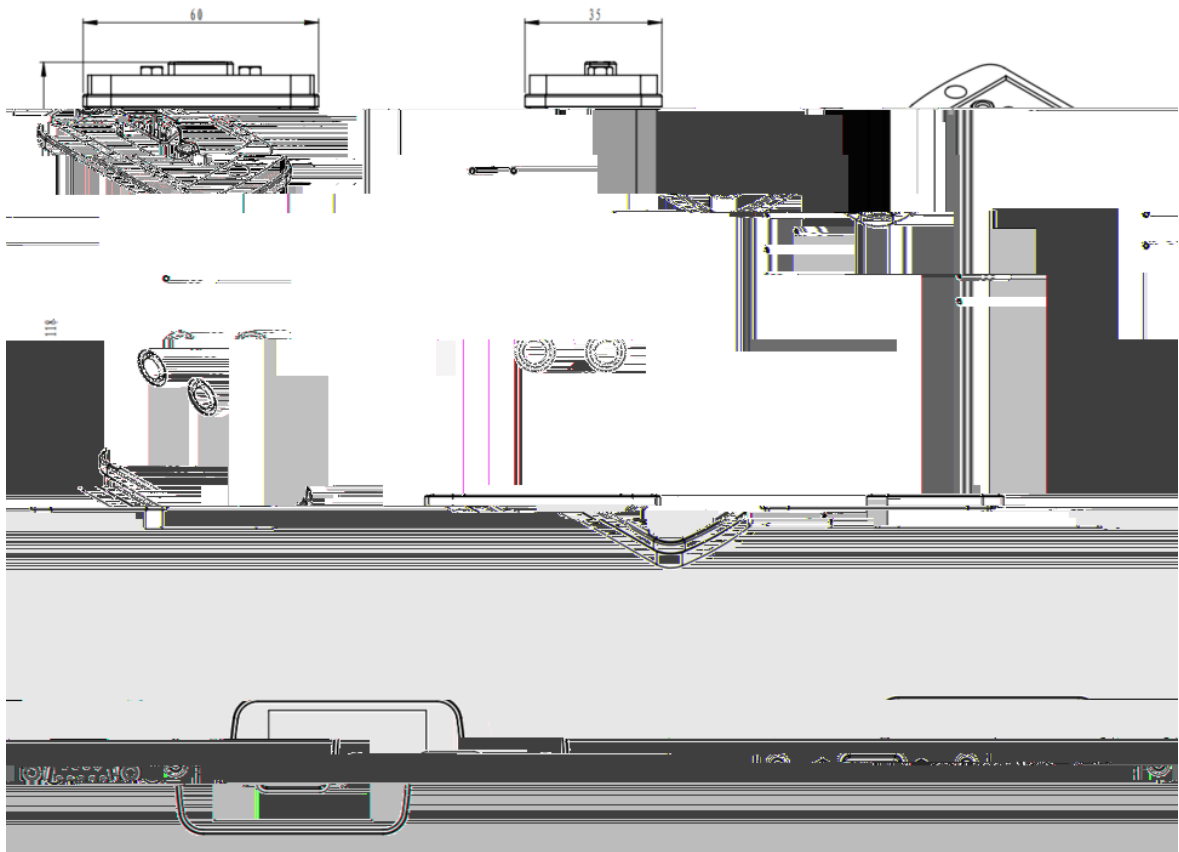
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The TF1011 is a single-channel offline handheld ECU flashing device that can download and store three sets of flow configurations. It features physical button for switching between flashing files. When paired with the TSMaster software, users can edit UDS diagnostic flows (typically, UDS flashing flow) without the need to write code. The device offers one CAN FD interface, which is compatible with both Classic CAN and CAN FD, and it has built-in terminal resistors, eliminating the need for users to connect external terminal resistors.

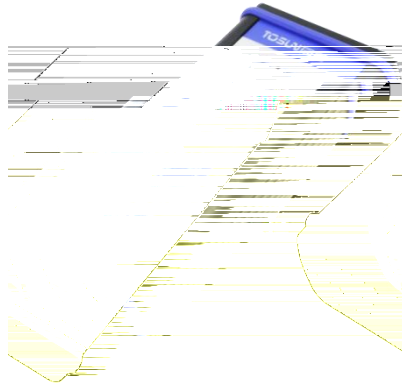
With the TSMaster software, the TF1011 can use Usart_CAN to download updates for the Infineon TLE989x series chip programs, and it also supports UDS protocol for updating APP programs in conjunction with Bootload program.

Utilizes a DB9 interface, supporting power supply from the DB9 interface

UDS flows are configured through the configuration and control



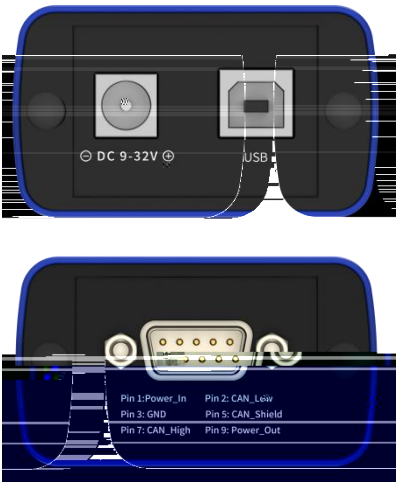
Main device: TF1011



USB cable



12V power adapter



DC power supply port;
USB 2.0 interface;
DB9 male:

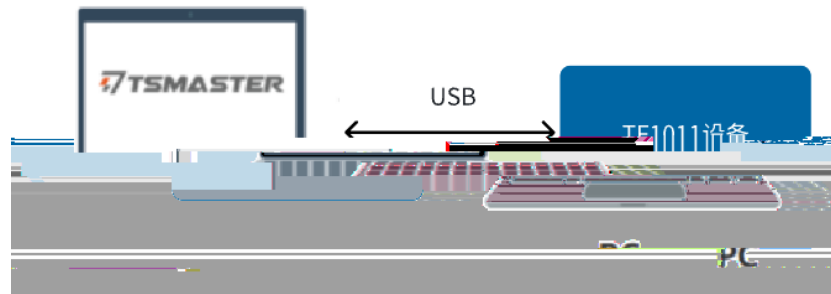
	PIN1	Power_In
	PIN2	CAN_Low
	PIN3	GND
	PIN5	CAN_Shield
	PIN7	CAN_High
	PIN9	Power_Out

Diagram of LED indicator:

Description of indicator:

Power	Indicator for power. Always on when powered.
Error	Indicator for configuration error.
	Indicator for configuration, supporting three types of configuration flashing.
File	BÄ Ü h

Download Configuration



Simply connect to the PC via a USB cable, and perform the configuration download in the diagnostic module of the TSMaster software.

Offline flashing



For offline flashing of an ECU, the TF1011 device requires 12V DC power, which can be provided in two ways: using an external power adapter, or supplying power via the Power_In pin on the DB9 connector (with the positive connected to Power_In and the negative to the GND pin).

Additionally, if the ECU for flashing requires extra power, the TF1011 device's DB9 interface provides a Power_Out pin, which can supply power to the ECU.

All TOSUN hardware adopts a driverless design, offering excellent system compatibility and allowing for direct use without the need for driver installation.

TSMaster is a powerful and comprehensive tool that can connect, configure, and control all TOSUN hardware tools and devices, enabling functions such as automotive bus embedded code generation, monitoring, simulation, development, UDS diagnostics, CCP/XCP calibration, ECU flashing, I/O control, test measurement, and so on.

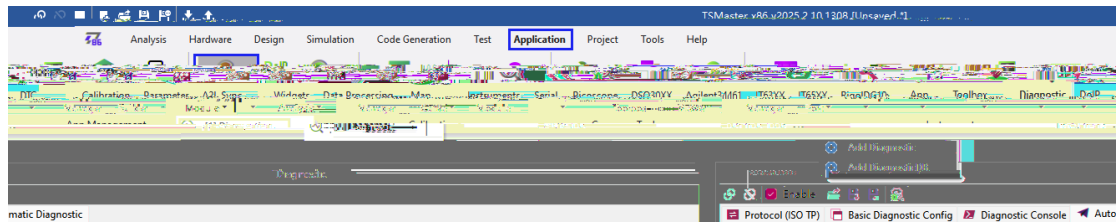
TSMaster supports Matlab Simulink co-simulation and CarSim dynamic model ECU algorithm simulation testing (soft real-time HIL). It provides users with a series of convenient functions and editors, allowing them to directly execute ECU code within TSMaster and supports C script and Python script editing. At the same time, TSMaster also offers a mini-program function, enabling users to customize the simulation test panel, test flow, test logic, and even the entire test system, and automatically generate reports. The code written by users based on TSMaster is hardware-independent, and can be easily shared, referenced, and used on different hardware platforms.

TSMaster supports multi-machine communication, mainly uses bus communication, and

TSMaster software download link:

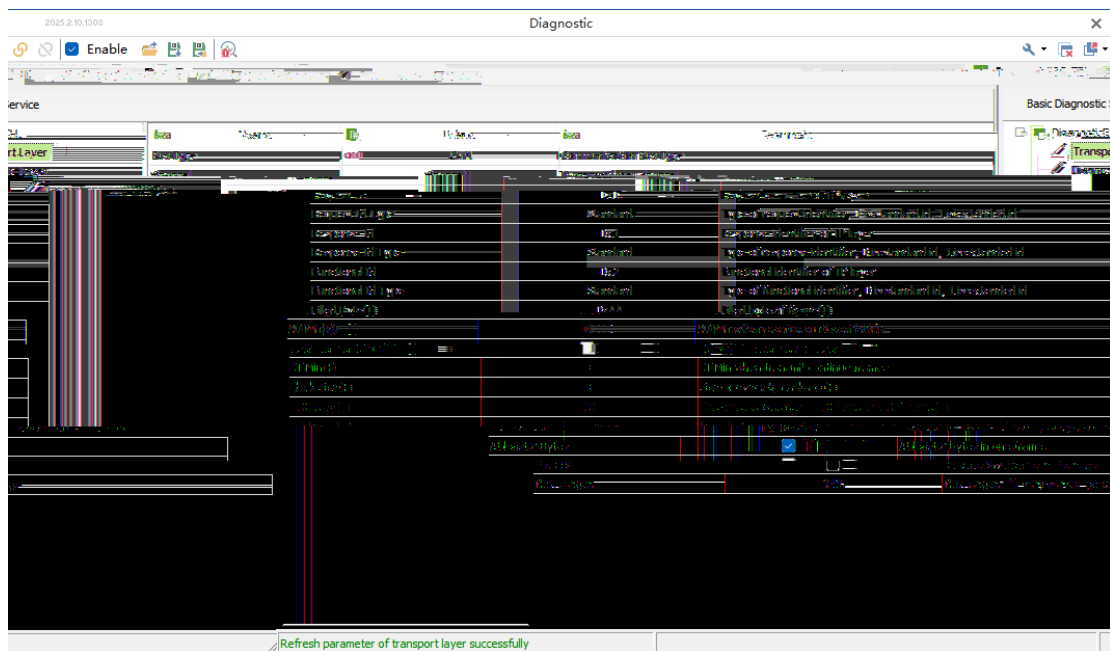
<https://www.tosunai.com/downloads>

The diagnostic function configuration reuses the basic diagnostic configuration features in the TSMaster software.



Transport layer configuration:

Each item has a corresponding comment following it:



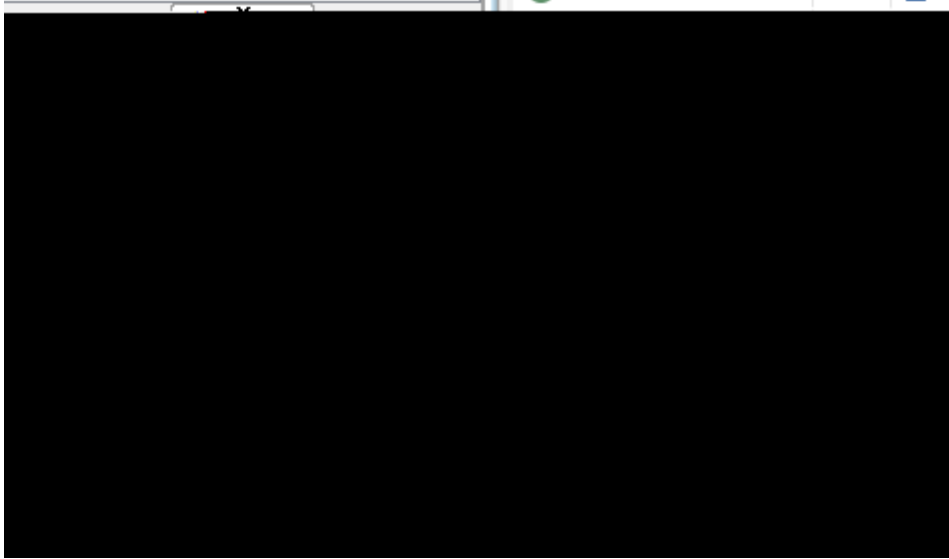
Diagnostic service layer configuration

When performing the configuration, if support for the TF1011 series devices is required, the option “Support TSFlash Device” must be selected, and the corresponding tsbin format file should be loaded.

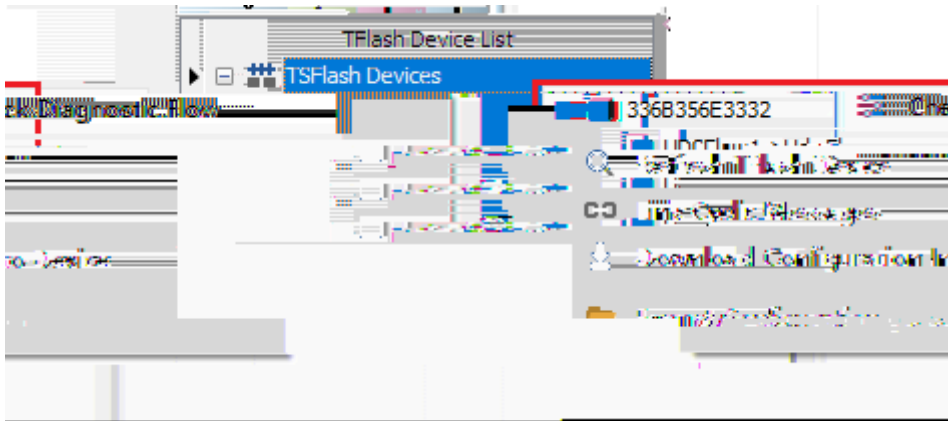
Select the “Support TSFlash Device” option, click  to select the corresponding encrypted tsbin file:

Create tsbin file

For the generation of tsbin format file, TOSUN provides a standalone software tool called TSSKGen. Users can input the corresponding security algorithm code into the software to generate the tin

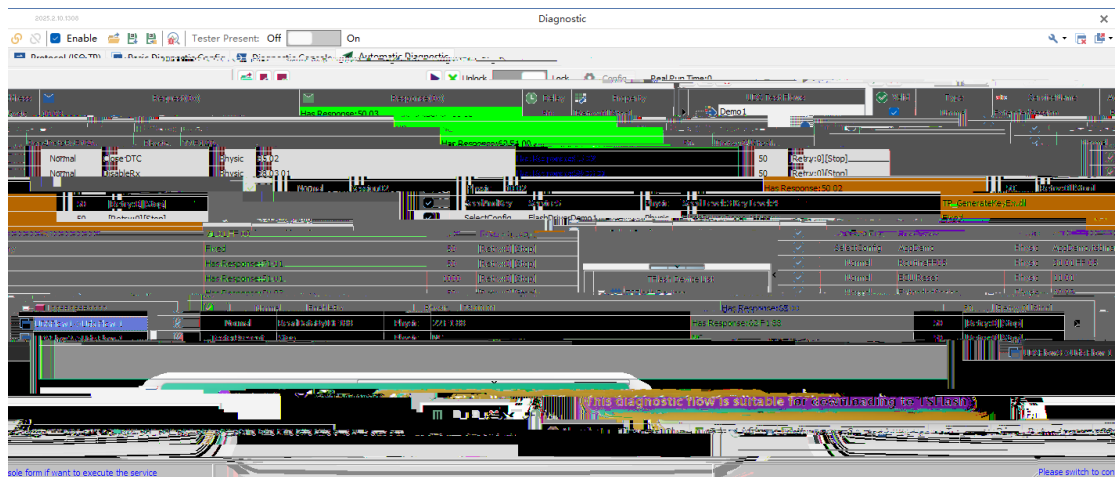


In the TF1011 device management interface, right-click to open the context menu and select the "Check Diagnostic Flow" option, as shown in the image below:



If the configuration fully meets the requirements, a prompt will indicate that the current configuration is suitable for downloading to the TF1011 device. Meanwhile, the diagnostic flow interface will display the following:

All the response services are green:



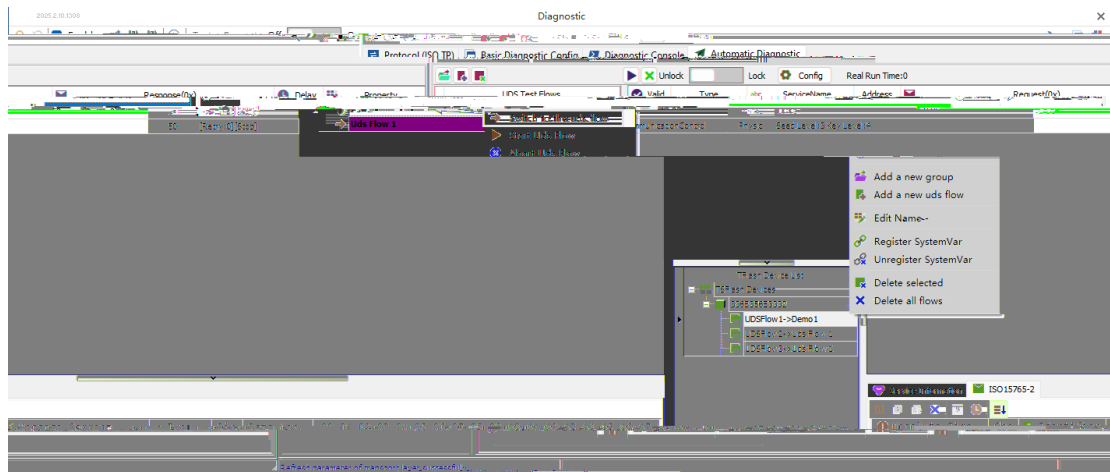
If there are unsuitable items in the configuration, an error message will be displayed, as shown below:



After completing the above configuration, the configured flow needs to be downloaded to the device. The TF1011 device supports three sets of configuration flows simultaneously. Therefore, the user must select one of the configuration items and click "Download File" to complete the download process.

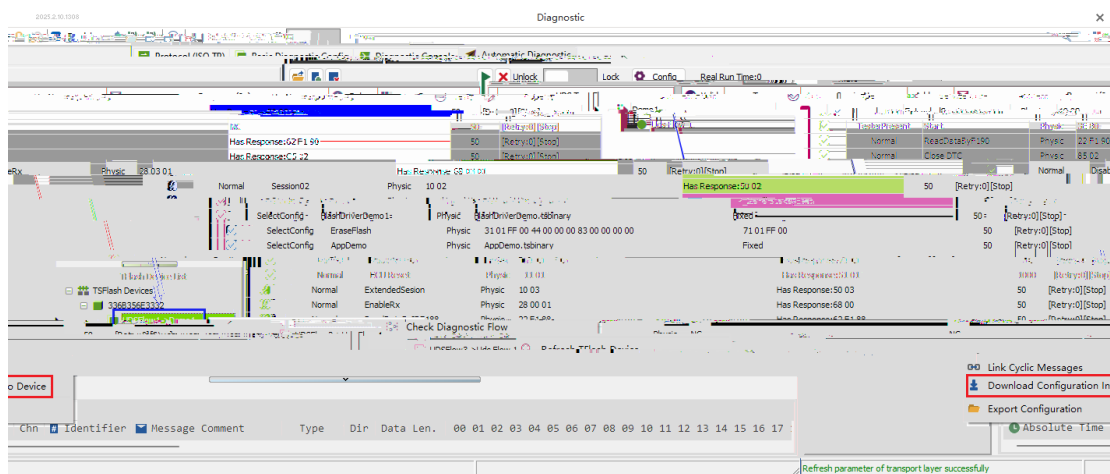
Select UDS Test Flow

Right-click and select "Switch UDS Flow" to choose the flow:



Download Flow Configuration

As shown in the figure below, after selecting the corresponding UDS flow configuration, right-click and choose "Download Configuration Into Device" to download the UDS flow to the device:



At this point, the device can be used for offline automated diagnostics (e.g., UDS FlashBootloader).

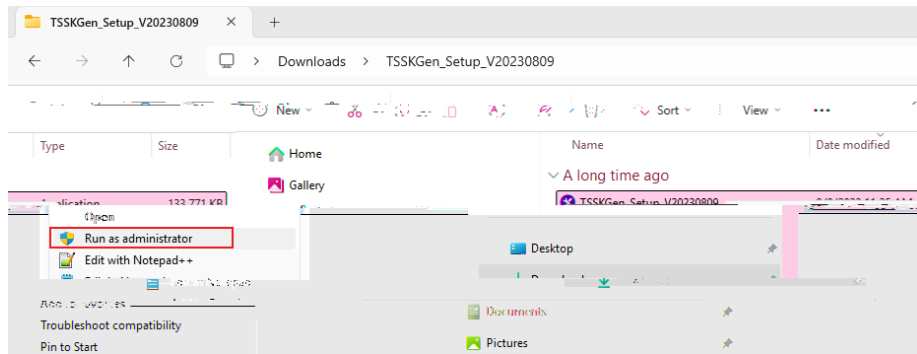
To facilitate users in generating the seed & keys algorithm for the 27 service, we provide the editing and generation software TSSKGen. It uses GCC and Make tools to generate an executable

bin file for the seed & keys algorithm.

Installation

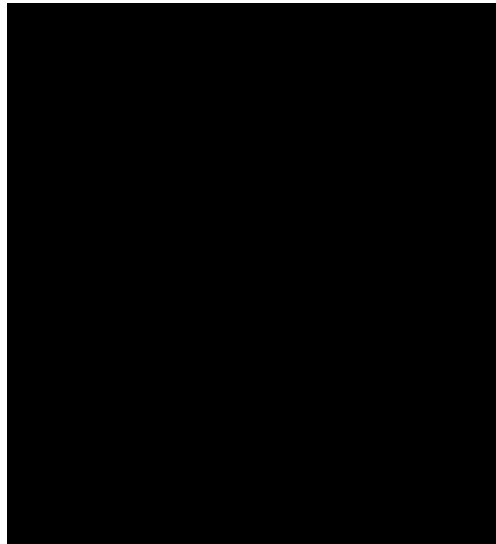
Right-click to run the installer as an administrator, then click "Next" all the way through.

Choose the default installation path on the C drive.

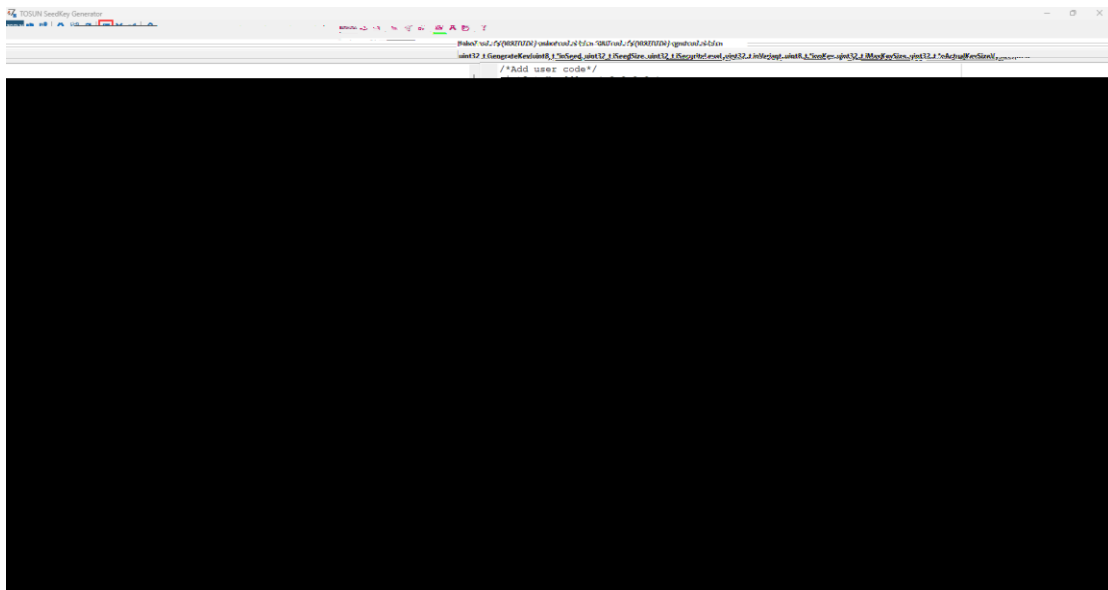


Usage

After installation, right-click to launch the software with administrator privileges:

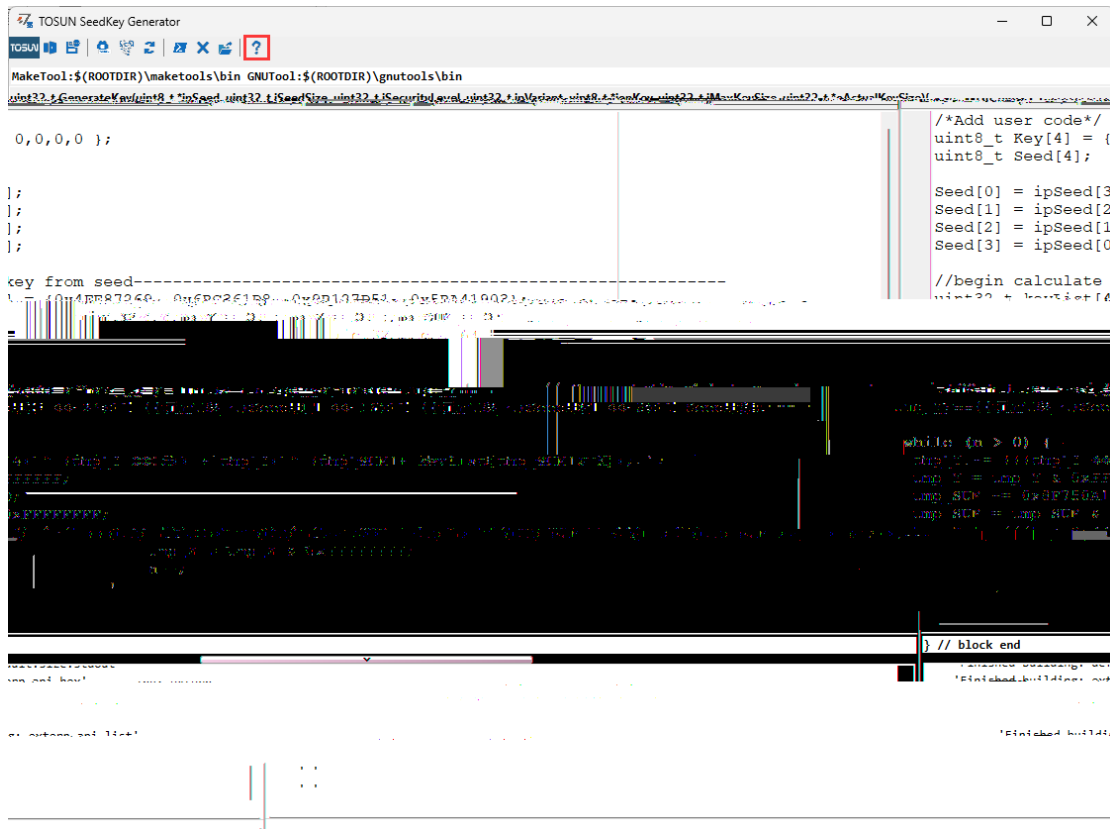


In the TSSKGen code editor, write the SeedKey code. After completing the code, click the " " button to generate the corresponding ".tsbin" format file for the SeedKey, as shown in the figure below:



Help Documentation

After opening the TSSKGen software with administrator privileges, click the  icon at the top of the software to open the user manual:



Currently, the bootram diagnostic flow download supports only the Infineon TLE989X series chips.

To update the program of Infineon TLE989X series chips via the Bootram protocol, refer to the following link:

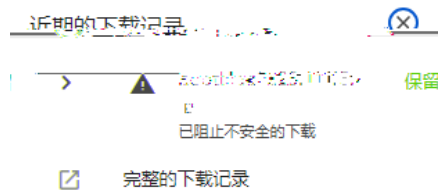
[Infineon UDS Flashing – Shanghai TOSUN Technology Ltd. \(tosunai.com\)](https://tosunai.com/Infineon-UDS-Flashing)

This link provides a free bootloader sample program based on the UDS protocol, which can update Infineon TLE989X series chips via the Bootram protocol.

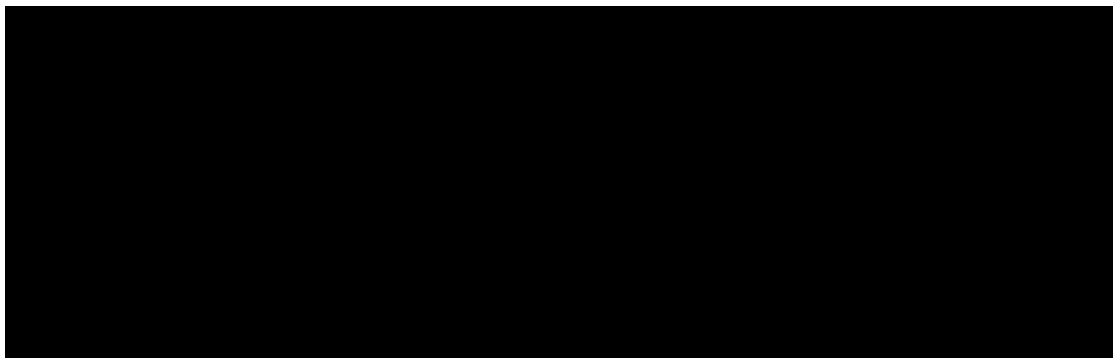


Click "Request Sample Download", and enter your real information and email address. After a short wait, the relevant materials will be sent to the provided email.

Click the link in the email to download the materials. Make sure to check your browser's download history for the file.



After obtaining the downloaded file archive, extract it to view the contents. Inside the folder, you will find related materials and the corresponding documentation:



The main electrical component of the semiconductor (MOSFET) is the MOSFET.

	water, oil, or chemical sprays on the equipment		equipment if necessary.
	Check for the presence of corrosive or flammable gases in the equipment area	No presence	Inspect by the smell, or using a sensor.
	Check for levels of vibration and shock	Vibration and shock are within the acceptable range	Install padding or other shock-absorbing devices if necessary.
	Check for noise sources near the equipment	No significant noise source	Isolate the equipment from noise sources or protect the equipment.
Wiring Installation	Check the crimped connectors in the external wiring Check for damage in the external wiring	Ensure enough space between the connectors	Visually inspect and adjust if necessary.

