
IS918M_IS818

Production Tool User

Manual

Innostor Technology Corp.

Version 1.0
Jan. 17, 2019

Revision History

Revision	Date	Description
1.0	2019/01/17	1 st release

1 Execution Platform

Support MS Windows OS: Windows XP 、 Windows 7 、 Windows 8 and Windows 10.

2 MP Tool Main Features

2.1 NAND Flash Support

- Support up to 16 or 32 pcs of USB device to do mass production simultaneously.
- Support different flash type to do mass production at the same time. It also supports “STOP” and “START” functions on each single device.
- Auto-Detect Flash Brand/Type 、 ID 、 CE count and also reserved manual selected flash type function to do mass production.
- Support multi flash dies on single flash channel.
- Support manual selection with different ECC level setting.
- Support “High Level Format” and “Low Level Format” two different scan modes.
 - High Level Format : Original bad block information or previous Low Level Format information will be applied
 - Low Level Format : Selected test pattern will be wrote into flash first then read out to verify the flash’s block is good or bad.

2.2 USB Drive Customized Function Setting

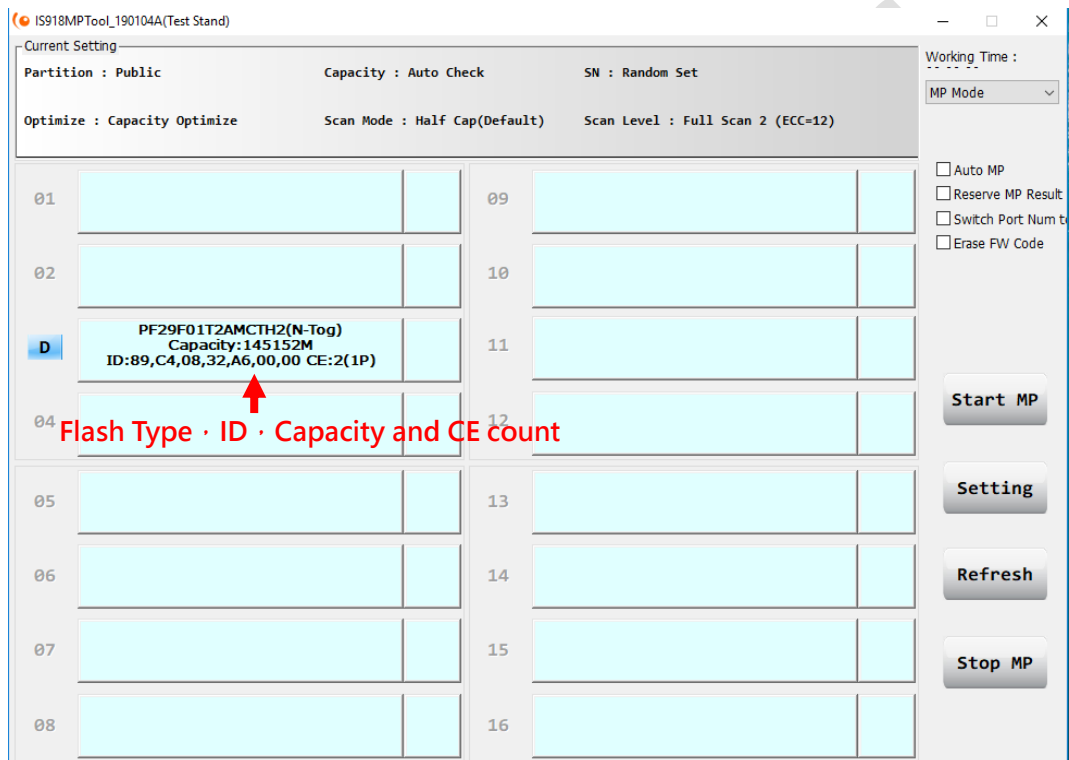
User can define USB device as Pure Disk(Public) 、 Fixed Disk 、 Pure Disk(Public)+Security Disk.... Some manufacturers information can also be applied like PID 、 VID 、 SCSI.....

2.3 Tool Information Bar Font Color Meaning

- BLACK : Brand new pcs or showing tool on-going information.
- RED : Production fail and showing error message and error code.

3 Tool Operation Guide

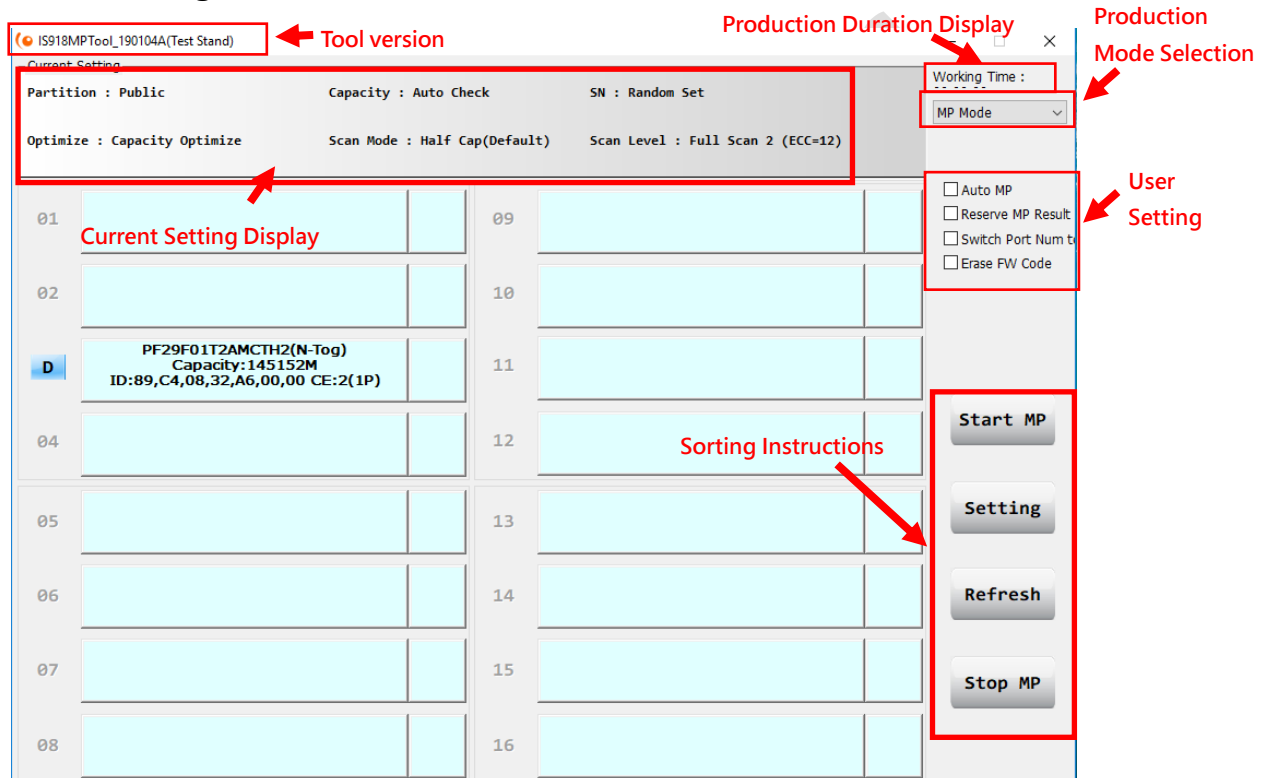
- Execute IS918MPTool.exe.
- Plug in targeted USB drives and tool will auto detect each individual device.
- Either external USB Hub or PC embedded Hub can be applied but not use both at the same time.



4 Tool User Interface Introduction

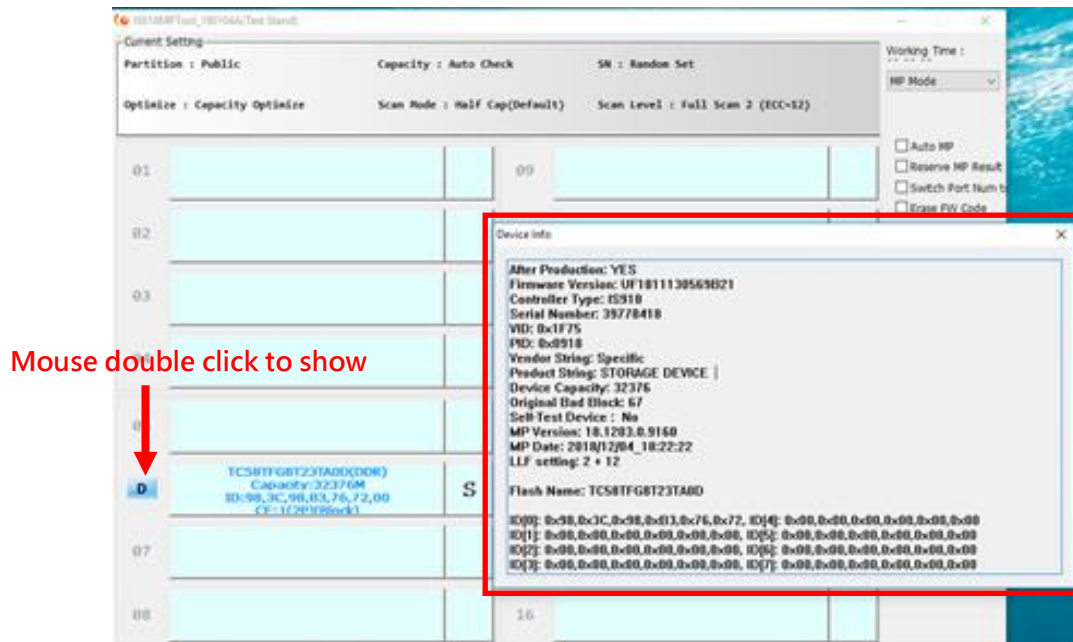
The mass production tool provides a variety of setting information. There are five setting pages, which can be set according to requirements. The specific setting items and setting methods will be described in detail below. Users should first set up all the related parameters before mass production.

4.1 Main Page

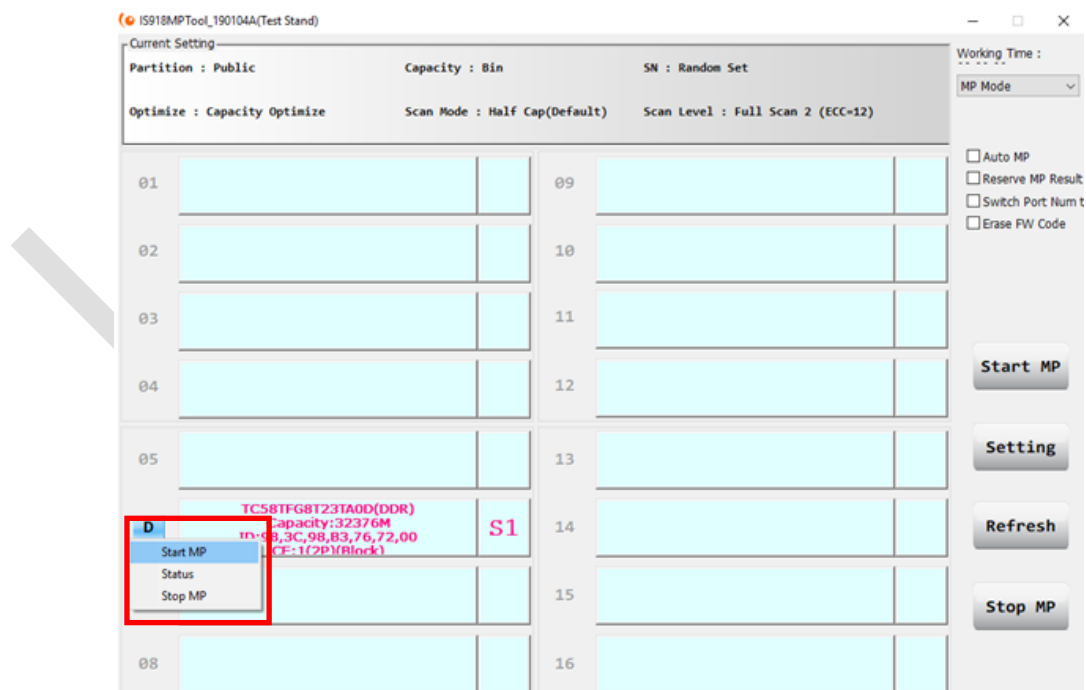


- 4.1.1 **Auto MP** : Check “Automated Mass Production” and press the start button to enter the automatic mass production mode.
- 4.1.2 **Reserve MP Result** : After the mass production is completed, the device mass production completion information still exists, and manually clicking the “Update” then mass production completion information will disappear.
- 4.1.3 **Enable 16/32 Port** : Define no. of ports to do production, 16 ports or 32 ports.
- 4.1.4 **Erase FW Code** : Erase FW code after production done

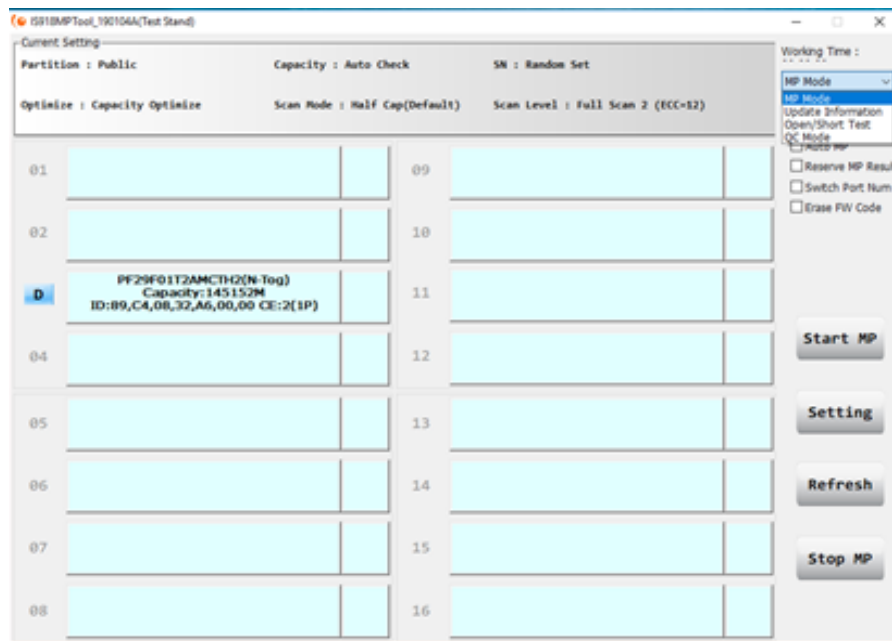
4.1.5 By using mouse to double click information area then related flash sorting information will show.



4.1.6 Start and Stop MP, and Flash Status information can be shown by double click Disk No area.

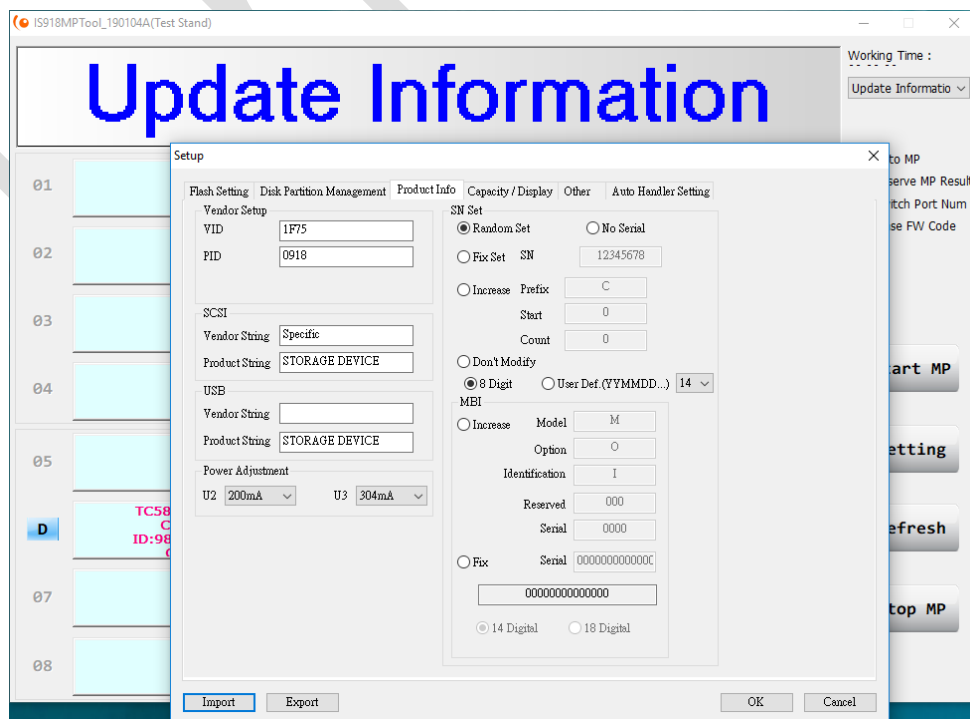


4.1.7 Production Mode Selections :

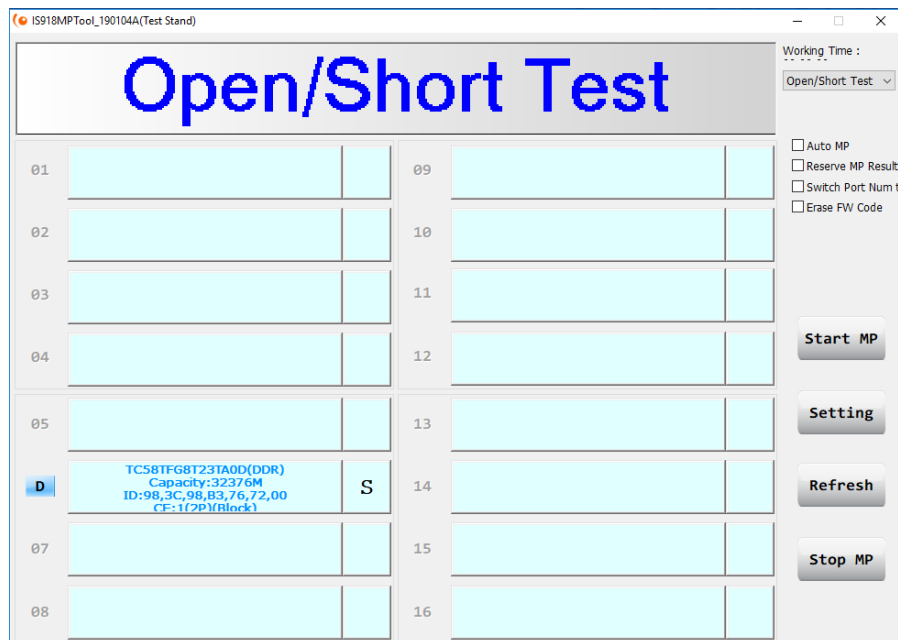


4.1.8 MP Mode : Used to do flash high level and low level format. Select “MP Mode” option in the production mode menu then press the “Start MP” button to work.

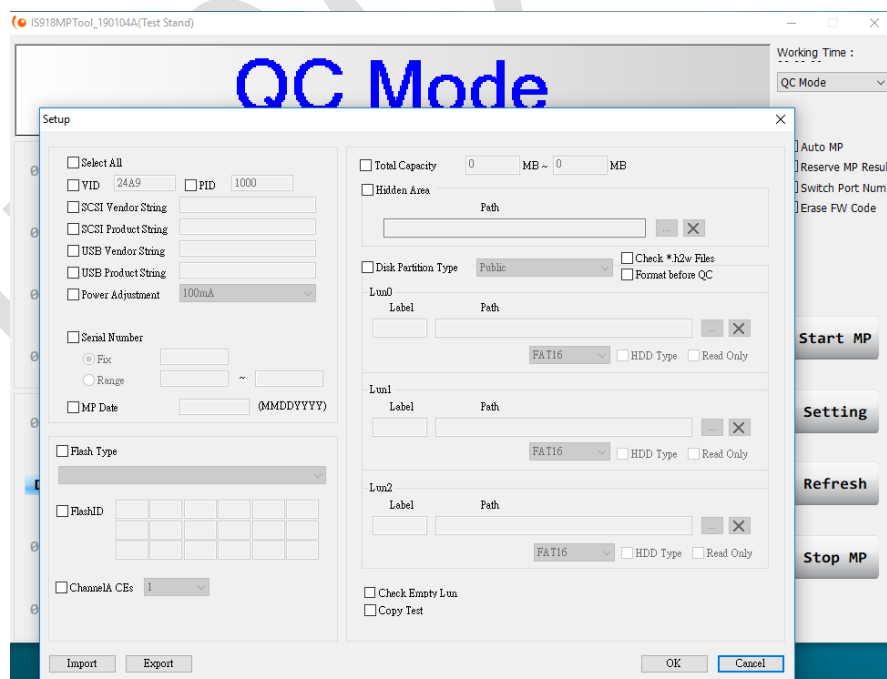
4.1.9 Update information only: Used to update the USB flash drive information only. Select the "Update information" option in the production mode menu, then press the “Setting” button to set the desired USB flash drive information, and finally press the “Start MP” button to work.



4.1.10 Open/Short Test : Used to check USB drive after production has Open/Short circuit or not. Select the "Open/Short Test" option in the production mode menu then press the start “Start MP” button to work.

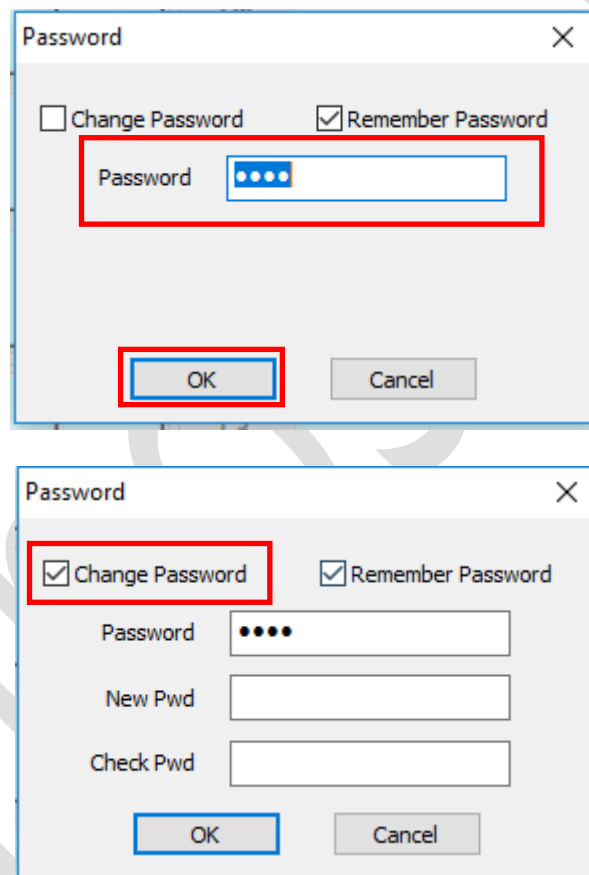


4.1.11 QC Mode : Select the "QC mode" option in the production mode menu then press the “Setting” button to set the items to be detected, and finally press the “Start MP” button to work.



4.2 Password Setting

Tool password is used to prevent operator to change test setting on production line. Password setting dialog box will appear by click "Setting" button on main page. The user must enter the password to enter the setting page. Initially there is no default password. Click "OK" to enter the setting page. If you want to change the password, you need to check "Change Password", and fill in the new password in the "New Pwd" field and then fill in the new password you just entered in the "Check Pwd" field (as shown below).

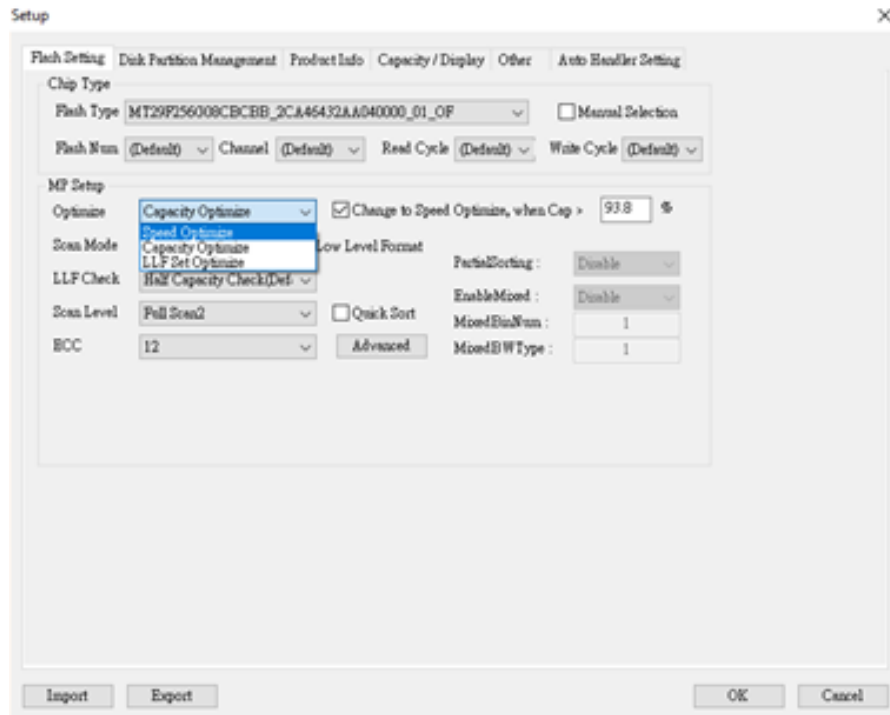


4.3 “Flash Setting” Page

4.3.1 “Chip Type” Setting

- Flash Type : Automatically display the Flash model, or manually select the Flash model.
- Manual Selection : If user check “Manual Selection” , the production tool will not automatically detect the flash type. You must manually select flash in the “Flash Type” field to load related configuration files. If you do not check "Manual Selection", the mass production tool will load the configuration file according to the automatically detected flash type.
- Flash Num : Display the number of currently detected flash, or manually set it.
- Channel : Currently only supports single channel
- Read Cycle / Write cycle : The cycle time of reading and writing can also be set manually.

4.3.2 “MP Setup”



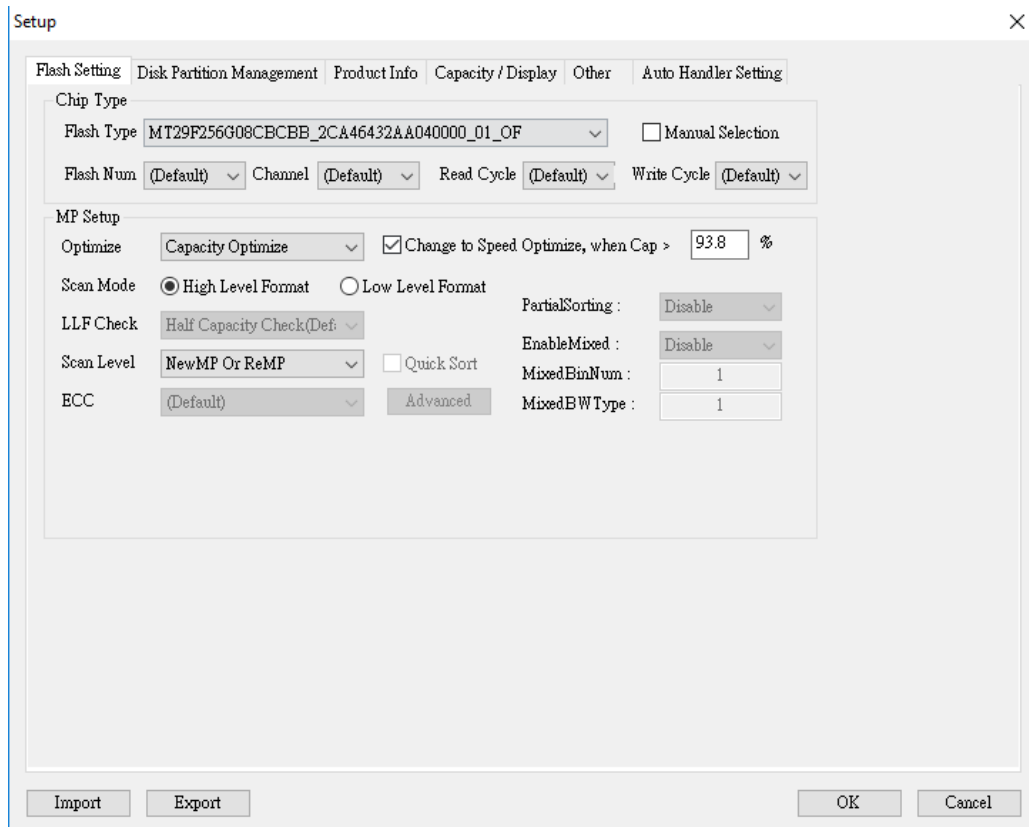
4.3.2.1 Optimize :

The optimization method is divided into: speed priority, capacity priority and original low level sorting setting.

- **Speed Optimize** : The read/write speed of the Drive is the first priority. When "Speed Priority" is selected, the optimization mode can be set to "Capacity Priority" when the capacity is less than a few percent of the total capacity, and after mass production is completed. [C] will be displayed on the interface to indicate capacity priority.
- **Capacity Optimize** : The capacity of the USB Drive is the first condition, regardless of the read and write speed of the USB Drive. When "Capacity Priority" is selected, it can be set to automatically optimize to "Speed Priority" when the capacity is greater than a few percent of the total capacity. After mass production is completed, [S] will be displayed on the interface to indicate speed priority.
- **LLF Set Optimize** : Advanced formatting is performed using the optimization method and ECC value selected when the previous low level is selected.
- Supports USB Drive capacity priority and speed priority conversion, you can change the ECC selected when the low cell is selected (that is, the selected ECC value can be different from the ECC value selected in the

previous production).

- Supports two pcs after low level formatting done flashes to make capacity double design by “High Level Format” + “NewMP Or ReMP” Setting”.



4.3.2.2 Scan Mode

- **Scan Mode = High Level Format** : Directly read Flash bad block information during scanning, suitable for original Flash and IS918M/IS818 low-level scanning done flash. The Scan Level is divided into following levels:
 - New card opening or mass production (the tool will automatically judge whether to perform a new card opening or mass production):
 - New card opening: Direct reading of the original bad block information, mass production speed.
 - Mass production: directly read the bad block information written in the previous mass production (must be produced by the mass production tool), and the U disk that has been

scanned by the advanced production tool can be used. Produced" for advanced formatting; this option is not recommended for advanced formatting of low-sampled samples. Please use "Original Low-Level Settings" to execute.

- II. Empty (mark the original bad block): In addition to the original bad block information, all other information stored in the Flash is cleared.
- III. Clear (mark the original bad block and RBB): In addition to the original bad block information and new bad block information, all other information stored in the Flash is emptied.
- IV. Clear all: Clear all other information stored in the Flash.
- V. Clear the card: directly read the original bad block information and then clear all other Flash storage information.
- VI. Clear all + Open card: First clear all other information stored in Flash, then read the original bad block information to open the card.
- VII. New card opening + emptying (marking the original field block): After the new card opening, perform the emptying (marking the original bad block) action. In addition to the original bad block information, all other information stored in the Flash is emptied.

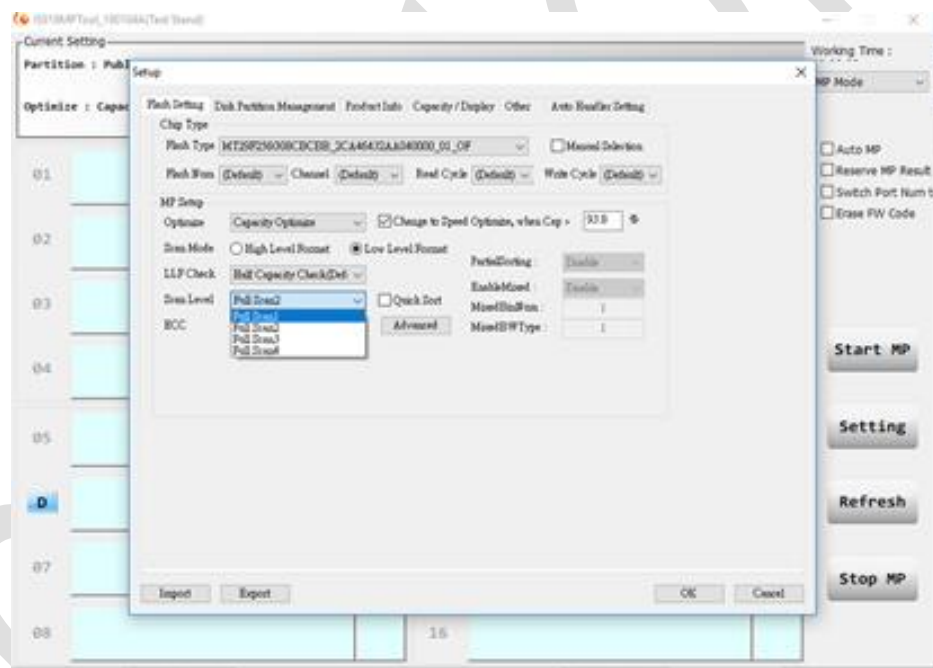
■ **Scan Mode = Low Level Format** : When scanning, the data is written to the flash and then read out to determine the bad block. Select this feature when flash quality is not guaranteed by flash vendors or has been mass produced by other controller brands.

- I. LLF Check :
 - i. **Normal Detection** : The detection is performed in the normal way, which is faster.
 - ii. **Half Capacity Detection** : Check the status of flash condition. If the condition is good, tool is performed according to the normal detection mode. If the condition is poor, tool is performed with the cut capacity. It takes time to detect, and the recommended condition is Flash. Select this detection method.
 - iii. **Forced Half Capacity Detection** : It is directly mass-produced in half capacity, mainly for special flash.

II. Scan Level :

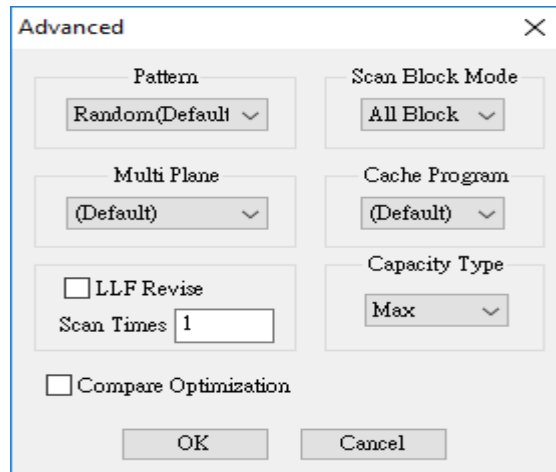
- i. Full Scan 1: general detection of Flash. Full scan refers to scan when writing data to flash and then reading back to do comparison and determine the bad block.
- ii. Full Scan 2: Flash for more rigorous testing.
- iii. Full Scan 3: With full sweep 1, but the check is more detailed.
- iv. Full Scan 4: Detect with a full scan of 1-3 different scanning methods.

III. If you want to shorten the scanning time, it is recommended to check “Quick Sort” option. At present, Quick Sort can only support normal detection, that is, only do block mode scanning, do not support page mode scanning.



- ECC : ECC selection will determine bad block judgement is strict or relaxed. ECC=0 will have better quality and copy compare passing rate than ECC=15 however available block count/capacity will be lower.

- “Advanced” Settings

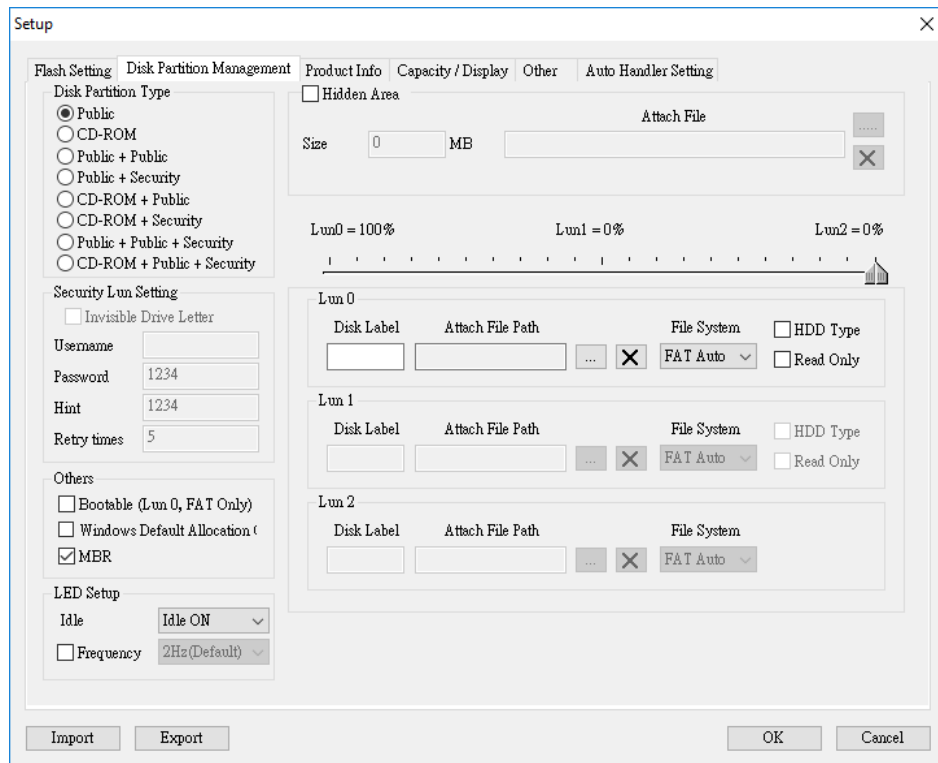


- I. Patten : Different Patten can be selected for scanning, mainly for the more special flash.
- II. Multi Plane : Manually select to turn Multi Plane function ON or OFF. Default "ON".
- III. LLF Revise : To do ECC twice can make ECC scanning more accurate, but it will take more time and take effect when checked.
- IV. Scan Times : The number of Low Level Scan can be set manually to make the scan more accurate, but it will take more time to take effect when checked.
- V. Scan Block Mode : Manually select only even block or odd block.
- VI. Cache Program : Manually select Turn cache program command ON or OFF.

4.4 Disk Partition Management

4.4.1 Disk Partition Type

USB drive partition can be defined as public, CD-ROM, public+security or other combinations. Please note that the security feature is not fully supported at this time.



- The mouse slider indicates that the type disk can be partitioned, and dragging the slider in the partition setting can adjust the capacity of the partition.
- The "Disk Label" edit box can be used to enter a custom label name (each drive letter label supports Chinese and English numbers, one Chinese character occupies two characters), and the "Label" space is the default value of the Windows system. After formatting, it is in Simplified Chinese. The "Removable Disk" is displayed under the system.
- Additional file path: The file can be written to the USB flash drive through a mass production tool. Click the attach file path next to the button and select the file you want to copy, and the selected document will be written to the USB flash drive when mass production.

- Security LUN settings : In the disk partition mode to click on the security segmentation method, you can security LUN settings to modify the password, password prompt.
- File System : Currently can support FAT, ExFAT and NTFS three kinds of system.
- LED Setup :
 - Set the LED value when the USB flash drive is operated, "on" indicates that the LED light is on when the idle state is on, and the LED light goes off when the off indicates an idle state.
 - LED frequency : Tick "frequency" to manually adjust the LED flash frequency.

4.5 Product Info

The screenshot shows the 'Setup' window with the 'Product Info' tab selected. The window is divided into several sections:

- Vendor Setup:** VID is set to 1F75, and PID is set to 0918.
- SCSI:** Vendor String is 'Specific' and Product String is 'STORAGE DEVICE'.
- USB:** Vendor String is empty, and Product String is 'STORAGE DEVICE'.
- Power Adjustment:** U2 is set to 200mA and U3 is set to 304mA.
- SN Set:** This section contains multiple radio button options:
 - Random Set:** Selected.
 - Fix Set:** SN is 12345678.
 - Increase:** Prefix is 'C', Start is 0, and Count is 0.
 - Don't Modify:** Selected.
 - MBI:**
 - 8 Digit:** Selected.
 - User Def. (YYMMDD...):** 14 (dropdown).
 - Model:** M
 - Option:** O
 - Identification:** I
 - Reserved:** 000
 - Serial:** 0000
 - Fix:** Serial is 0000000000000000.
 - 14 Digital:** Selected.
 - 18 Digital:** Unselected.

At the bottom, there are buttons for 'Import', 'Export', 'OK', and 'Cancel'.

4.5.1 Vendor Setup

- VID : Manufacturer ID, consisting of 4 16-binary characters with a default value of 1f75.
- PID : Product ID, consisting of 4 16-binary characters with a default value of 0918.

4.5.2 SCSI

- Vendor String : User can write up to 8 characters, Chinese or English text, a Chinese text occupies two characters.
- Product String : User can write up to 16 English characters, the default is "STORAGE DEVICE". This information appears in the properties of the USB flash drive.

4.5.3 USB

- Vendor String : User can write up to 15 characters, Chinese or English text, a Chinese text occupies two characters.
- Product String : User can write up to 16 English characters, the default is "STORAGE DEVICE". This information appears in the Information window "Discover new Hardware" when the first time the USB flash drive is plugged into the computer.

4.5.4 SN Set : can select the number of digits, 8-bit serial number or 20-bit serial number.

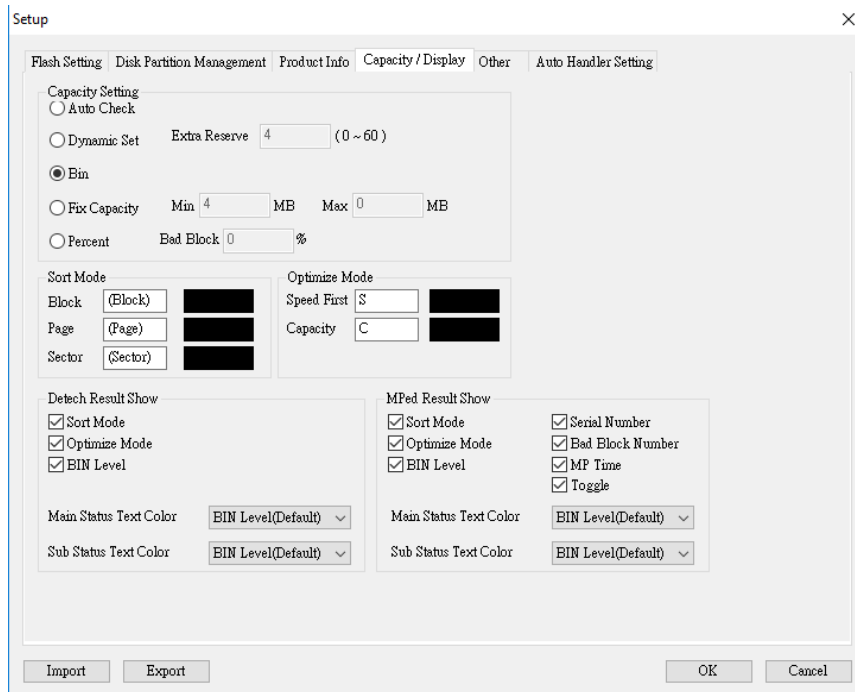
- Random Set : Randomly produce a 8-bit ordinal number or 20-bit ordinal number consisting of 16 decimal characters.
- No serial : No serial number is generated.
- Fix Set : Fixed ordinal mode, by the customer input unified serial number (16 into the characters).
- Increase : You can set the front start and count numbers, and each output of a USB flash drive number is automatically incremented.
- When you select 8-bit ordinal, the front is 3-bit 16 decimal characters, starting with 5-bit 16 decimal characters.
- When you select User customization, you can have the user choose a serial number of 9 to 20 yards in length. The front is 10-bit 16 decimal characters, starting with 10-bit 16 decimal characters. If the serial number exceeds 14 yards, the first six yards of the serial number are acquiesced to the system day

4.5.5 Power Adjustment :

- U2 disk can be set to 100mA, 200mA, 300mA, 400mA, 500mA.
- U3 disk can be set to 104mA, 200mA, 304mA, 400mA, 496mA.

4.6 Capacity / Display

There are 5 ways to automatically calculate capacity, dynamic setting, Bin level, fixed capacity, total percentage.



- 4.6.1 **Auto Check** : Capacity display is based on the actual capacity after flash auto-formatting and the bad blocks count to produce the final capacity.
- 4.6.2 **Dynamic Set** : Additional blocks can be reserved, the larger the reserved area the lower the final format capacity.
- 4.6.3 **Bin** : The flash capacity can be defined and separated into different BINs after mass production. The BIN1~BIN10 capacity settings must be set in order from large to small, with a default value of 0 for each level, and the mass production tool is judged in the order Bin1 to Bin10. If the "fix" is not checked, the disk final capacity is the actual capacity, and will show which BIN the disk belongs to. If the "fix" is check, the disk final capacity will be the same capacity as the BIN which it belongs. If the actual capacity is less than the minimum value for all BINs, mass production is unsuccessful and shown "bad sectors are too much". Each BIN level contains S, G, A and P four different types. Mentioned BIN level display is only available in low level format and the original low level settings to be effective display and does not support high level format settings. The reset button restores the settings to the default values.

- One Pass bin level definition description (Only applies on “Low Level Format” and “LLF Set Optimize” settings):

- S : SSD is applicable, if you need to select the SSD applicable flash, please check below setting:

If the flash mass production results are met, the results will be displayed in the Bin level window:

- G : High-speed U3 is applicable, if you need to select High-speed U3 applicable flash, please check below setting:

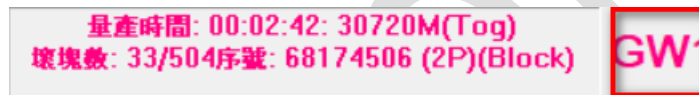
If the flash mass production result is met, the results will be displayed in the Bin level window:

- III. A : Low speed U3 or U2 applicable, if you need to select U2 or low-speed U3 applicable flash, please check below setting:

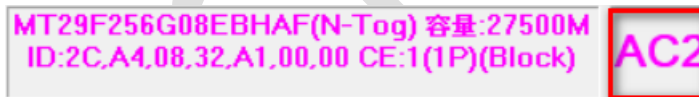


If the flash mass production result is met, the results will be displayed in the Bin Level window as shown below:

- i. For Low Speed U3 to use : displays GW, GR, GC and GP. Customers can determine whether GW, GR, GC and GP can be applied to U3 product based on the need for speed. If the write speed does not reach the demand, it can be applied to the U2. The following illustration shows a GW BIN display as an example.



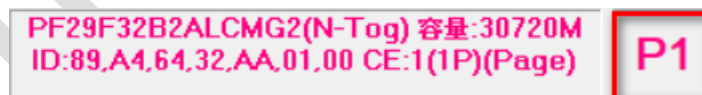
- ii. For U2 to use : there are two Bins level to display, AS (More than 1-Plane R/W) and AC (Only 1-Plane R/W).



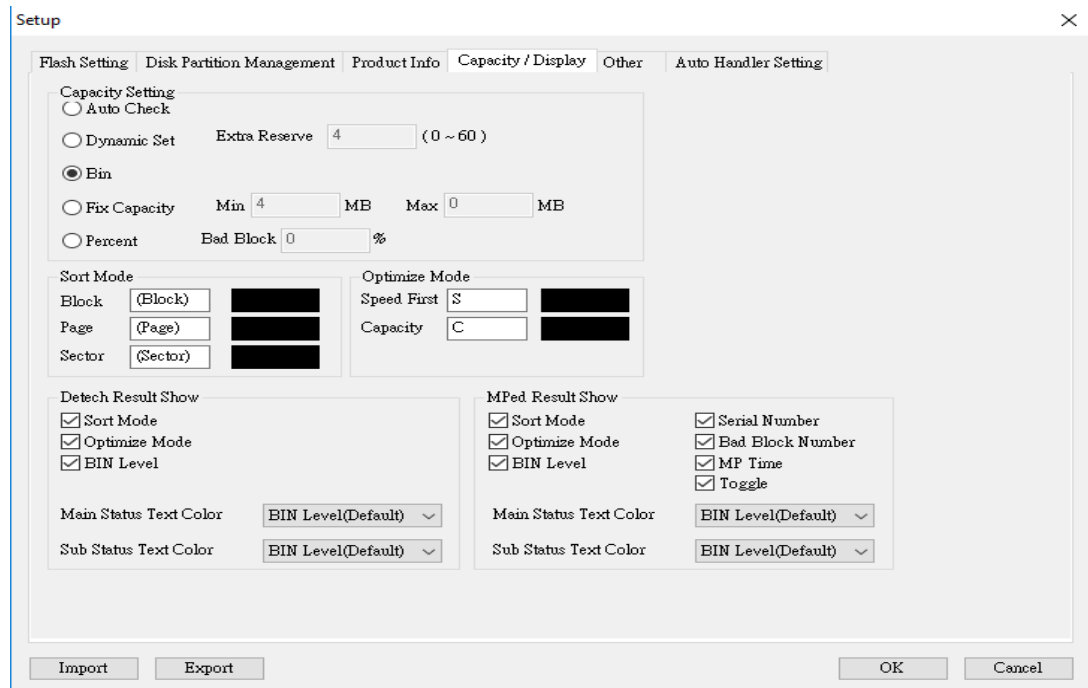
- IV. P : U2 applies, if you need to select U2 applicable page mode Flash, please check below setting:



If the flash mass production result is met, the results will be displayed in the Bin level window:



- 4.6.4 **Fixed Capacity** : Tool will filter out the USB drive which capacity is between the minimum and maximum setting values. If the actual capacity is greater than the maximum or less than the minimum value, the tool will report FAIL.
- 4.6.5 **Percent** : Tool will reserve some sectors for writing information or replacing bad blocks according to the percentage of total block of flash memory. At least 2% is reserved.
- 4.6.6 The Bin level display without SGAP check will show "Bin level + Priority string"
- 4.6.7 Optimize Mode : Priority string can be set in the "Optimize Mode"



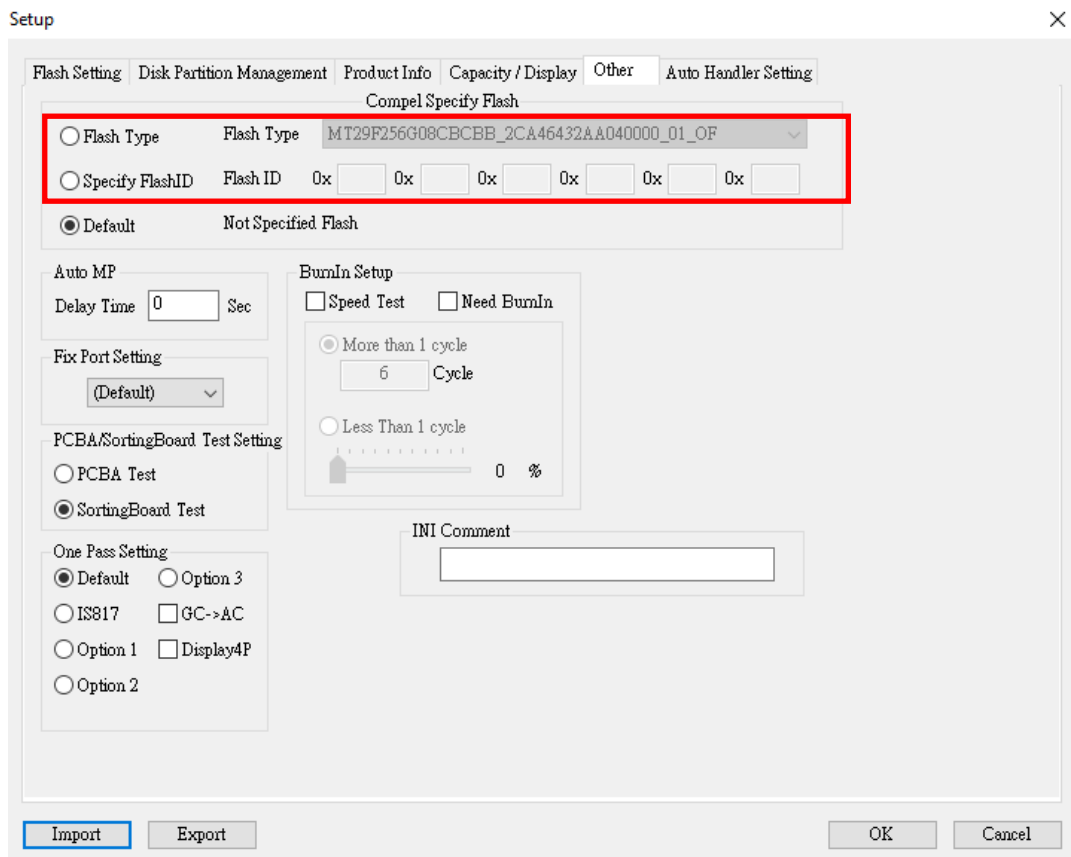
- The following figure shows the Bin level display by using the speed Priority option:



- 4.6.8 If the mass production result does not meet the all defined options, the tool message will display 62535 error messages as follows:

62535: DG_NO_ENOUGH_GOOD_BLOCK
Bad Blocks: 918/504

4.7 “Other”



4.7.1 Compel Specify Flash:

- I. Flash Type: User can manually specify the flash type if tool auto selected type does not match the used pcs.
- II. Specify Flash ID: This feature only takes effect if the Flash type is selected then user can specify the flash ID to do production, that is, mass production when MP recognizes the ID of Flash as the specified ID, and does not perform mass production if the Flash ID does not match the specified ID.
- III. Default: Flash type is auto selected by tool and user not specified.

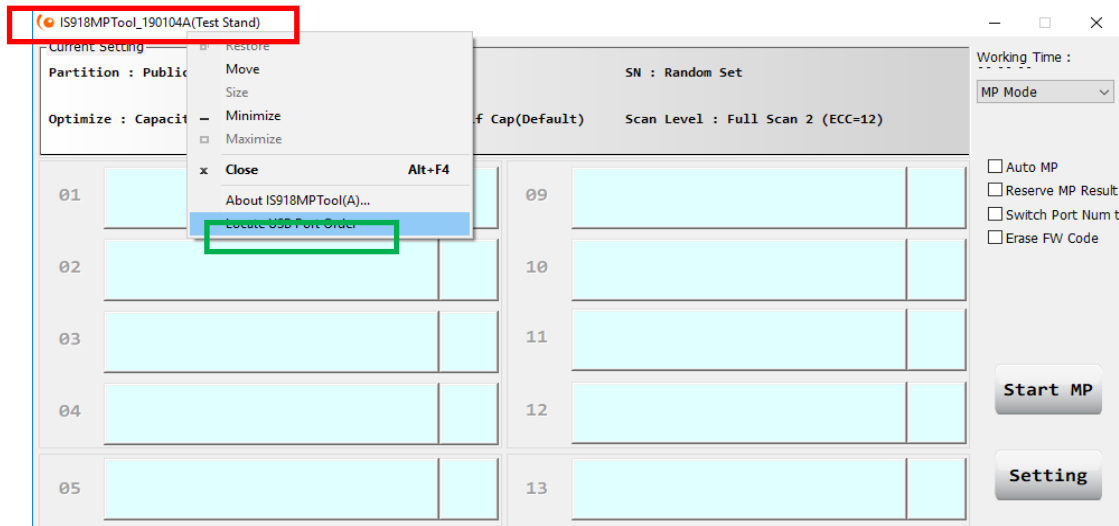
4.7.2 Auto MP : This option is to set delay time to kick off production right after device plug-in or power on. To check “Auto MP” on main interface is necessary to enable this delay time setting.

4.7.3 Fix Port Setting :

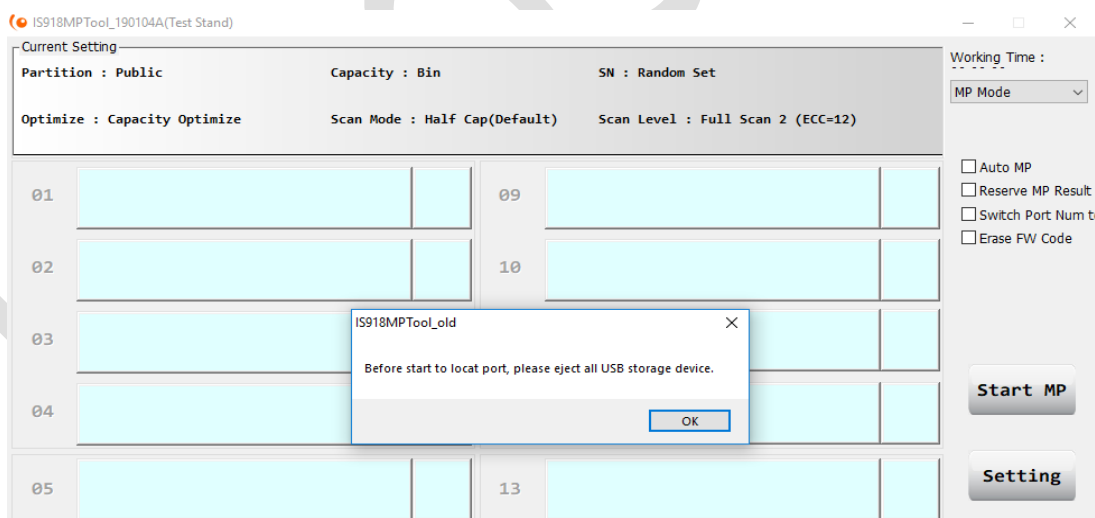
- I. Default : Tool port display sequence will just follow USB port order or USB hub pre-defined sequence.

II. User Define : User can define the port sequence step by step as below statement. Please note, setting information will be stored in “PortLocation” file and tool power on will always restore this setting.

i. Step 1 : Right-click title bar as shown in the Red box and click “Locate USB Port Order”.

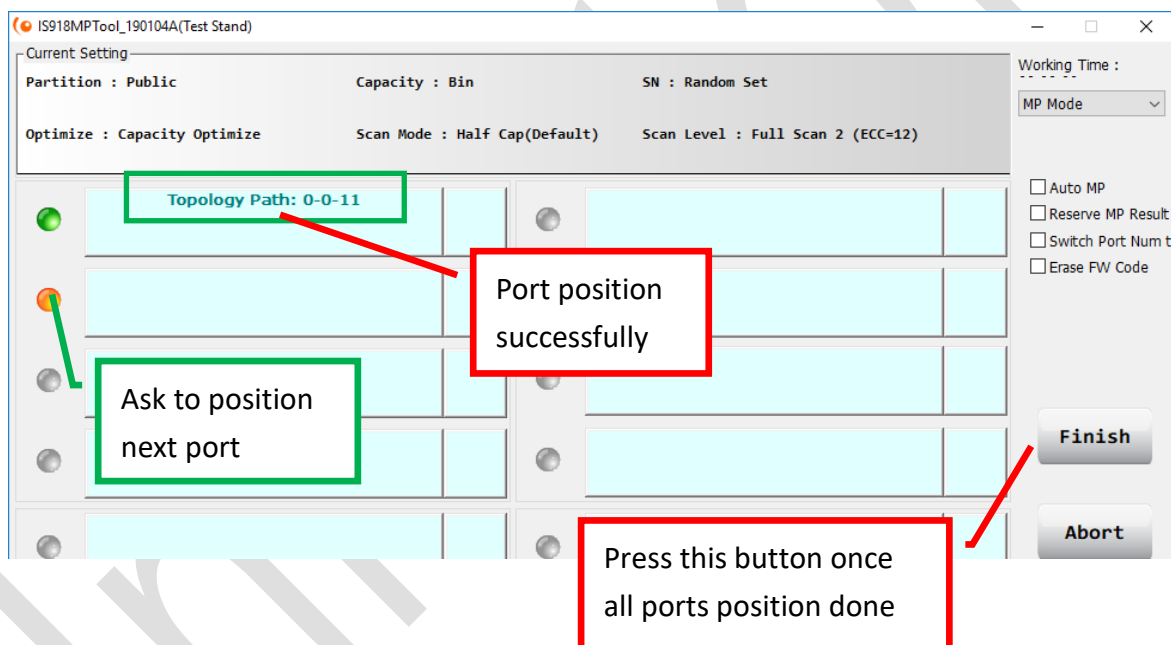
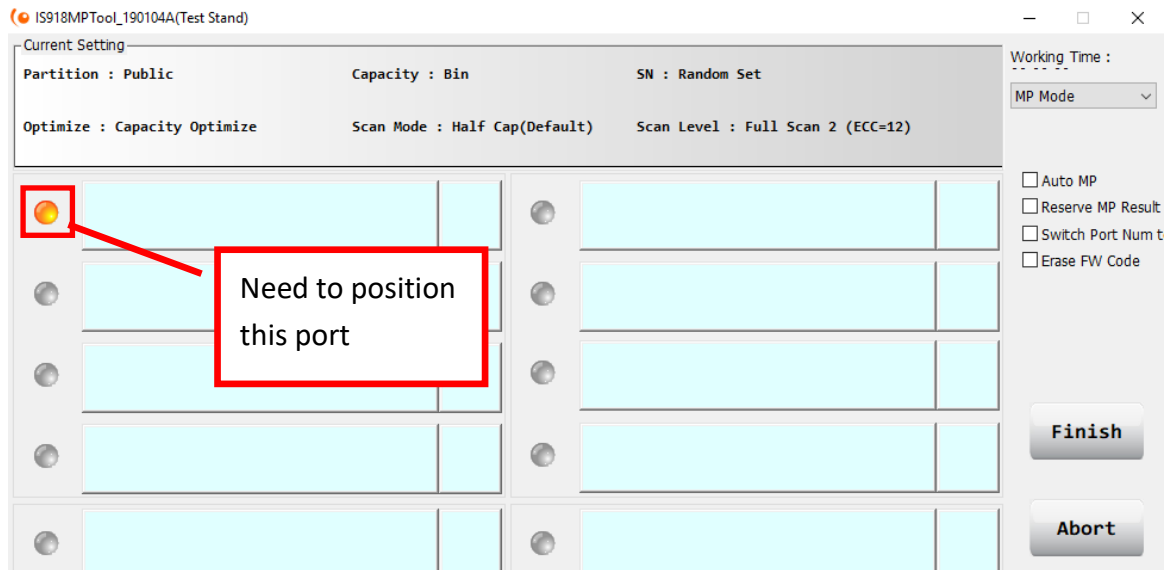


ii. Step 2 : After the click, a pop-up window will show up and press OK to start port definition process.



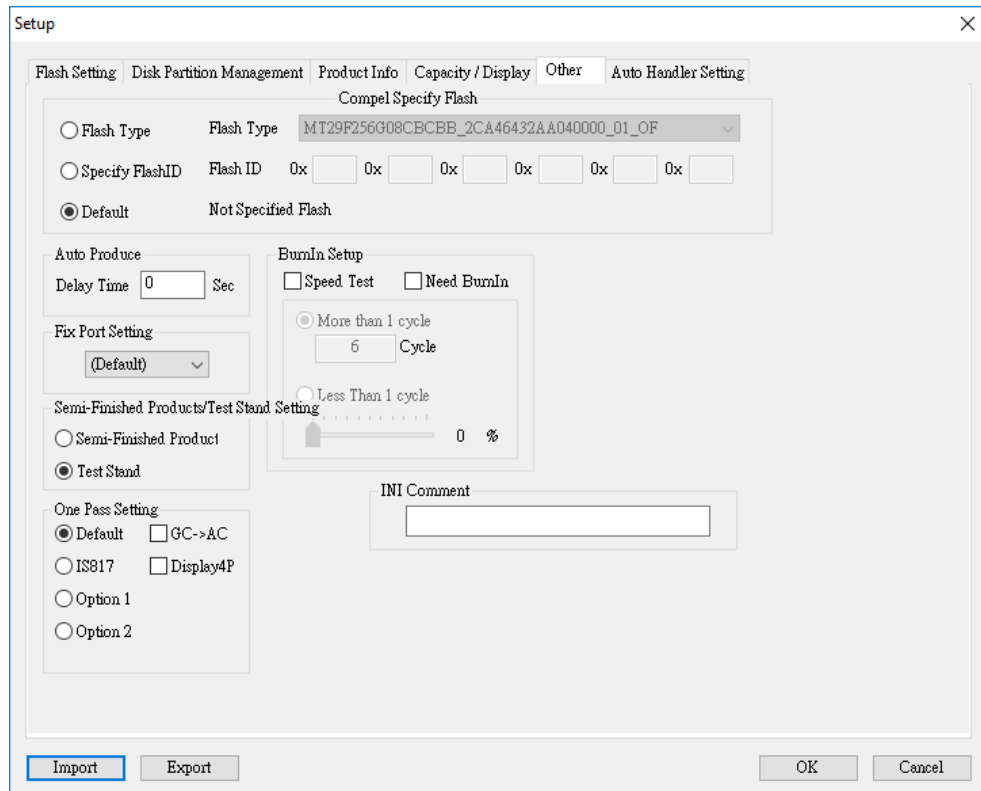
iii. Start positioning the 1st port device as shown in the figure. When tool prompts to insert an USB flash drive and insert, tool will automatically finish port position and ask user to plug in device into next port to repeat the process.

iv. Once all port position task done, press “Finish” button to close the setting.



4.7.4 PCBA / Sorting Board Test : Used to specify current testing device is PCBA form factor or just doing pure flash pcs test. Same information will be asked every time when enable this tool. User can check to fix the answer to skip pop-up window next time.

4.7.5 One Pass Setting : This tool supports customized BIN define and display as shown in the following :



- I. Default : IS918M default BIN setting will be applied including S, GS, GW, GR, GC, GP, AS, AC and P total 9 different BINs define.
- II. Please reference separated document for customized BIN define description.

4.7.6 BurnIn Setup :

- I. Speed test : data size about 8kb~512kb will be generated by tool to write then read generated data to simulate the end product operation.
- II. Need BurnIN : this function is used to do aging test. Equivalent to the general Burnin test software, after the scanning format is complete, a random generated file will be written into the disk and then read out to do a comparison. User can manually set how many laps to age, or can swipe to % to select a read and write operation that is less than one lap.

4.8 Auto Handler Settings

Setup

Flash Setting | Disk Partition Management | Product Info | Capacity / Display | Other | **Auto Handler Setting**

☒ Enable Auto Hand

☐ LAN

IP Address: 172.17.109.62 | Port: 7000

☐ RS232

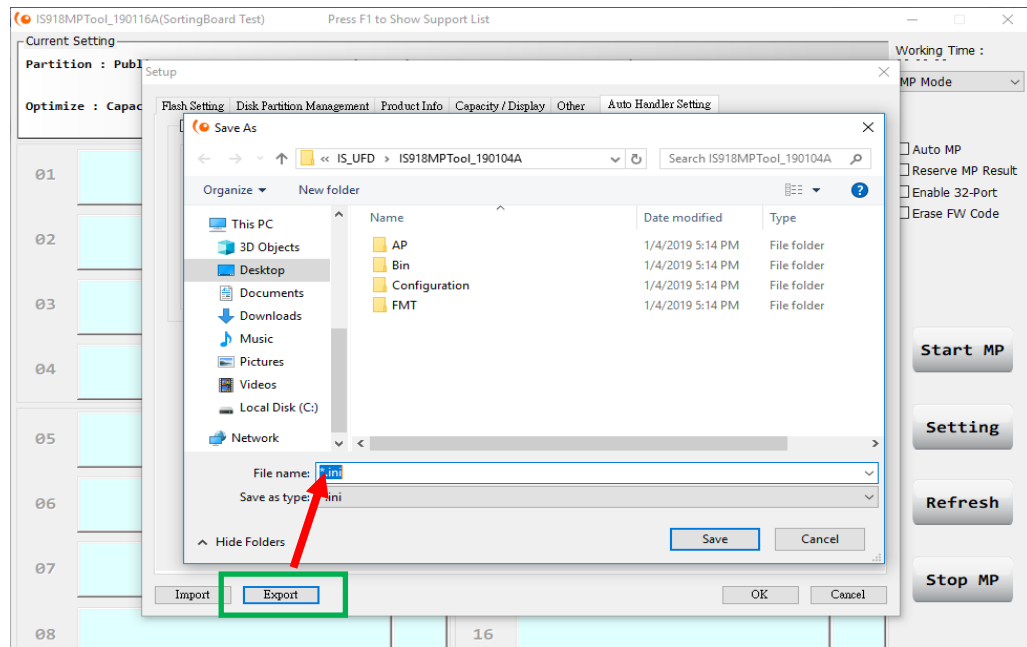
COM Port: 1 | Baud Rate: 115200 | Data Bit: 8 | Parity: No Parity | Stop Bit: 1

Import | Export | OK | Cancel

Check “Enable Auto Hand” to enable communication with handler machine either by LAN or RS232 port.

4.9 Configuration File Import and Export Functions :

4.9.1 Export : Used to store all the settings information for next time to use. Click the “Export” button and tool will pop up the file selection dialog box. Select the configuration information save path and enter the save name then the tool setting information will be kept.



4.9.2 Import : Used to import the stored setting information file into current opened tool. Clicking the “Import” button to select the files to be imported, the tool will automatically recognize the import information and finish setup.

