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# 1. Safety Precautions

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## 1-1. Repair Precaution

Before attempting any repair or detailed tuning, shield the device from RF noise or static electricity discharges.

Use only demagnetized tools that are specifically designed for small electronic repairs, as most electronic parts are sensitive to electromagnetic forces.

Use only high quality screwdrivers when servicing products. Low quality screwdrivers can easily damage the heads of screws.

Use only conductor wire of the properly gauge and insulation for low resistance, because of the low margin of error of most testing equipment.

We recommend 22-gauge twisted copper wire.

Hand-soldering is not recommended, because printed circuit boards (PCBs) can be easily damaged, even with relatively low heat. Never use a soldering iron with a power rating of more than 100 watts and use only lead-free solder with a melting point below 250°C (482°F).

Prior to disassembling the battery charger for repair, ensure that the AC power is disconnected. Always use the replacement parts that are registered in the SEC system. Third-party replacement parts may not function properly.

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# 1. Safety Precautions

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## 1-2. ESD(Electrostatically Sensitive Devices) Precaution

Many semiconductors and ESDs in electronic devices are particularly sensitive to static discharge and can be easily damaged by it. We recommend protecting these components with conductive anti-static bags when you store or transport them.

Always use an anti-static strap or wristband and remove electrostatic buildup or dissipate static electricity from your body before repairing ESDs.

Ensure that soldering irons have AC adapter with ground wires and that the ground wires are properly connected.

Use only desoldering tools with plastic tips to prevent static discharge.

Properly shield the work environment from accidental electrostatic discharge before opening packages containing ESDs.

The potential for static electricity discharge may be increased in low humidity environments, such as air-conditioned rooms. Increase the airflow to the working area to decrease the chance of accidental static electricity discharges.

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## 2. Specification

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### 2-1. GSM General Specification

Item		GSM 850	EGSM 900	DCS1800	PCS1900
Freq. Band[MHz] Uplink/Downlink		824~849	880~915	1710~1785	1850~1910
		869~894	925~960	1805~1880	1930~1990
ARFCN range		128~251	0~124 & 975~1023	512~885	512~810
Tx/Rx spacing		45MHz	45MHz	95MHz	80MHz
Mod. Bit rate/ Bit Period		270.833kbps	270.833kbps	270.833kbps	270.833kbps
		3.692us	3.692us	3.692us	3.692us
Time Slot Period/ Frame Period		576.9us	576.9us	576.9us	576.9us
		4.615ms	4.615ms	4.615ms	4.615ms
Modulation	GSM/ EGPRS	GMSK/ 8PSK	GMSK/ 8PSK	GMSK/ 8PSK	GMSK/ 8PSK
MS Power		33dBm~5dBm	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm
Power Class		4(GMSK) E2(8PSK)	4(GMSK) E2(8PSK)	1(GMSK) E2(8PSK)	1(GMSK) E2(8PSK)
Sensitivity		-102dBm	-102dBm	-100dBm	-100dBm
TDMA Mux		8	8	8	8

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## 2. Specification

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### 2-2. GSM Tx Power Class

<b>TX Power control level</b>	<b>GSM850</b>	<b>TX Power control level</b>	<b>EGSM900</b>	<b>TX Power control level</b>	<b>DCS1800</b>	<b>TX Power control level</b>	<b>PCS1900</b>
5	33±2 dBm	5	33±2 dBm	0	30±3 dBm	0	30±3 dBm
6	31±2 dBm	6	31±2 dBm	1	28±3 dBm	1	28±3 dBm
7	29±2 dBm	7	29±2 dBm	2	26±3 dBm	2	26±3 dBm
8	27±2 dBm	8	27±2 dBm	3	24±3 dBm	3	24±3 dBm
9	25±2 dBm	9	25±2 dBm	4	22±3 dBm	4	22±3 dBm
10	23±2 dBm	10	23±2 dBm	5	20±3 dBm	5	20±3 dBm
11	21±2 dBm	11	21±2 dBm	6	18±3 dBm	6	18±3 dBm
12	19±2 dBm	12	19±2 dBm	7	16±3 dBm	7	16±3 dBm
13	17±2 dBm	13	17±2 dBm	8	14±3 dBm	8	14±3 dBm
14	15±2 dBm	14	15±2 dBm	9	12±4 dBm	9	12±4 dBm
15	13±2 dBm	15	13±2 dBm	10	10±4 dBm	10	10±4 dBm
16	11±3 dBm	16	11±3 dBm	11	8±4 dBm	11	8±4 dBm
17	9±3 dBm	17	9±3 dBm	12	6±4 dBm	12	6±4 dBm
18	7±3 dBm	18	7±3 dBm	13	4±4 dBm	13	4±4 dBm
19	5±3 dBm	19	5±3 dBm	14	2±5 dBm	14	2±5 dBm
-	-	-	-	15	0±5 dBm	15	0±5 dBm

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## 2. Specification

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### 2-3. WCDMA General Specification

Item	WCDMA2100(B1)	WCDMA1900(B2)	WCDMA AWS(B4)	WCDMA850(B5)	WCDMA900(B8)
Freq. Band[MHz] Uplink/Downlink	1920~1980 2110~2170	1850~1910 1930~1990	1710~1755 2110~2155	824~849 869~894	880~915 925~960
ARFCN range	UL: 9612~9888 DL: 10562~10838	UL: 9262~9538 DL: 9662~9938	UL: 1312~1513 DL: 1537~1738	UL: 4132~4233 DL: 4357~4458	UL: 2712~2868 DL: 2937~3088
Tx/Rx spacing	190MHz	80MHz	400MHz	45MHz	45MHz
Mod. Bit rate/ Bit Period	42.2Mbps(DL) 5.42Mbps(UL)	42.2Mbps(DL) 5.42Mbps(UL)	42.2Mbps(DL) 5.42Mbps(UL)	42.2Mbps(DL) 5.42Mbps(UL)	42.2Mbps(DL) 5.42Mbps(UL)
Time Slot Period/ Frame Period	WCDMA 10ms/0.667ms HSPA 2ms/0.667ms	WCDMA 10ms/0.667ms HSPA 2ms/0.667ms	WCDMA 10ms/0.667ms HSPA 2ms/0.667ms	WCDMA 10ms/0.667ms HSPA 2ms/0.667ms	WCDMA 10ms/0.667ms HSPA 2ms/0.667ms
Modulation	QPSK 16QAM 64QAM	QPSK 16QAM 64QAM	QPSK 16QAM 64QAM	QPSK 16QAM 64QAM	QPSK 16QAM 64QAM
MS Power (dBm)	25.7 ~ -49(↓)	25.7 ~ -49(↓)	25.7 ~ -49(↓)	25.7 ~ -49(↓)	25.7 ~ -49(↓)
Power Class	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)
Sensitivity	-106dBm	-104dBm	-106dBm	-104dBm	-103dBm

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## 2. Specification

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### 2-4. LTE General Specification

Item	LTE Band1	LTE Band2	LTE Band3	LTE Band4	LTE Band5	LTE Band7
Freq. Band[MHz]	1920~1980	1850~1910	1710~1785	1710~1755	824~849	2500~2570
Uplink/Downlink	2110~2170	1930~1990	1805~1880	2110~2155	869~894	2620~2690
ARFCN range	UL:18000~18599 DL:0~599	UL:18600~19199 DL:600~1199	UL:19200~19949 DL:1200~1949	UL:19950~20399 DL:1950~2399	UL:20400~20649 DL:2400~2649	UL:20750~21449 DL:2750~3449
Tx/Rx spacing (MHz)	190	80	95	400	45	120
Channel Bandwidth (MHz)	5/10/15/20	1.4/3/5/10/15/20	1.4/3/5/10/15/20	1.4/3/5/10/15/20	1.4/3/5/10	5/10/15/20
Modulation	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)
MS Power (dBm)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)
Sensitivity (QPSK, BW 10MHz) (dBm)	-96.3	-94.3	-93.3	-96.3	-94.3	-94.3

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## 2. Specification

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Item	LTE Band8	LTE Band12	LTE Band13	LTE Band17	LTE Band20	LTE Band28
Freq. Band[MHz]	880~915	699~716	777~787	704~716	832~862	703~748
Uplink/Downlink	925~960	729~746	746~756	734~746	791~821	758~803
ARFCN range	UL:21450~21799 DL:3450~3799	UL:23010~23179 DL:5010~5179	UL:23180~23279 DL:5180~5279	UL:23730~23849 DL:5730~5849	UL:24150~24449 DL:6150~6449	UL:27210~27659 DL:9210~9659
Tx/Rx spacing (MHz)	45	30	-31	30	-41	55
Channel Bandwidth (MHz)	1.4/3/5/10	1.4/3/5/10	1.4/3/5/10	5/10	5/10/15/20	3/5/10/15/20
Modulation	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)
MS Power (dBm)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)
Sensitivity (QPSK, BW 10MHz) (dBm)	-93.3	-93.3	-93.3	-93.3	-93.3	-94.8

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## 2. Specification

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Item	LTE Band34	LTE Band38	LTE Band39	LTE Band40	LTE Band41	LTE Band66
Freq. Band[MHz] Uplink/Downlink	2010~2025	2570~2620	1880~1920	2300~2400	2496~2690	1710~1780 2110~2200
ARFCN range	UL/DL:36200 ~ 36349	UL/DL:37750 ~ 38249	UL/DL:38250 ~ 38649	UL/DL:38650 ~ 39649	UL/DL:39650 ~ 41589	UL:131972 ~ 132671 DL:66436 ~ 67335
Tx/Rx spacing (MHz)	0	0	0	0	0	400
Channel Bandwidth (MHz)	5/10/15	5/10/15/20	5/10/15/20	5/10/15/20	5/10/15/20	1.4/3/5/10/15/20
Modulation	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)
MS Power (dBm)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)
Sensitivity (QPSK, BW 10MHz) (dBm))	-96.3	-96.3	-96.3	-96.3	-94.3	-95.8



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## 2. Specification

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### 2-5. TD-SCDMA General Specification

Item	TD-SCDMA2010(A)	TD-SCDMA1880(F)
Chip rate	1.28 Mcps	1.28 Mcps
OBW	1.6 MHz	1.6 MHz
Freq. Band[MHz] Uplink/Downlink	2010~2025	1880~1920
ARFCN range	10054~10121	9404~9596
Tx/Rx spacing (MHz)	0	0
MS Power (dBm)	25.7 ~ -48(↓)	25.7 ~ -48(↓)
Power Class	2(max+24dBm)	2(max+24dBm)
Sensitivity (dBm /1.28 MHz)	-107.3	-107.3

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## 2. Specification

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### 2-6. CDMA General Specification

Item	CDMA BC0
Freq. Band[MHz] Uplink/Downlink	815~849 860~894
Tx/Rx spacing (MHz)	45
Channel Bandwidth (MHz)	34

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## 3. Product Function

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### Main Function

Item	Description
OS	Android V8.0 (OREO)
RF	GSM850 / GSM900 / DCS1800 / PCS1900 CDMA : N/A WCDMA: B1/ B2/ B4/ B5/ B8 TDSCDMA : N/A LTE: B1/ B3/ B5/ B7/ B8/ B28/ B40
Battery	3500mAh
Base Band	1.8GHz OCTA core
Other RF	GPS, Glonass, BEIDOU, BT4.2, USB 2.0, WIFI 802.11 a/b/g/n 2.4+5GHz
Camera	Rear(Main): 16M+5MP Dual A/F Front(Sub): 24MP F/F
Display	6.0", FHD+, 2200x1080
<b>SM-A605FN/GN/F</b> RAM	3GB RAM + 32GB eMMC
<b>SM-A605G</b> RAM	4GB RAM + 64GB eMMC
Sensor	Accelerometer, Fingerprint Sensor, Proximity Sensor, RGB Light Sensor, Geomagnetic Sensor, Hall Sensor, Gyro Sensor
Accessory	Charger: 5V/2A Data cable: 3.0pi, 0.8m(Type B/ USB-A) Ear phone: 3.5pi, 4pin

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## 6. Level 1 Repair

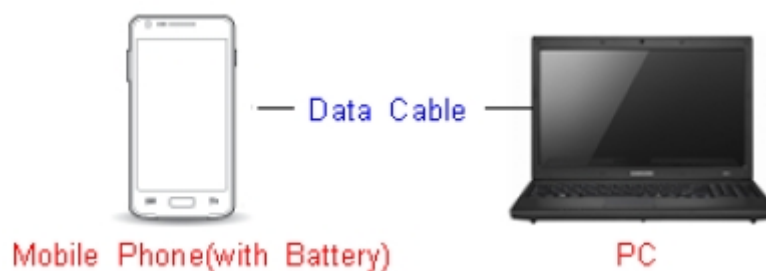
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### 6-1. S/W Update

#### 6-1-1. Preparation

- S/W Update program : [Fenrir 5.17.xxxx](#)
- Mobile Phone
- Data Cable

#### ※ Settings



Data Cable : [GH39-01710D](#)

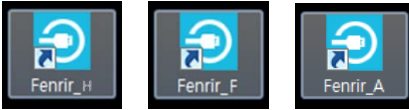
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## 6. Level 1 Repair

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### 6-1-2. How to use 'Fenrir' S/W update program.

1) Launch Fenrir by clicking on the icon on the desktop



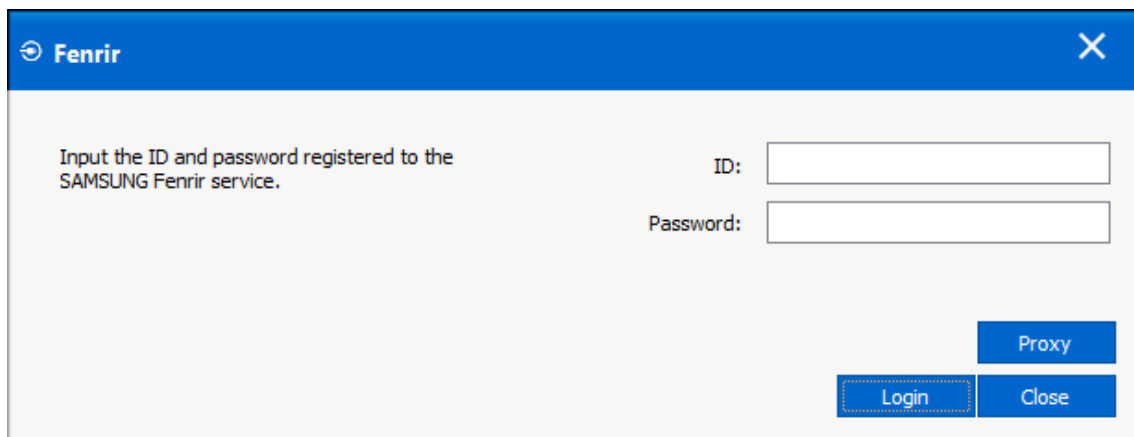
- SVH (Fenrir\_Home) : It uses Home binary which does not have user data area in the memory when flashed to a device. (Keep user data)

- SVC (Fenrir\_Factory) : It uses Factory binary which erases all user data in the memory when flashed to a device. (Clear user data)

- SVA (Fenrir\_All) : It uses Factory and Home binaries. you can download Home and Factory binary in a PC(but requires double HDD storage and NW traffic)

2) Input ID & password

※ You need to reset the ID information in case of PC change and format and repair, hard disk change

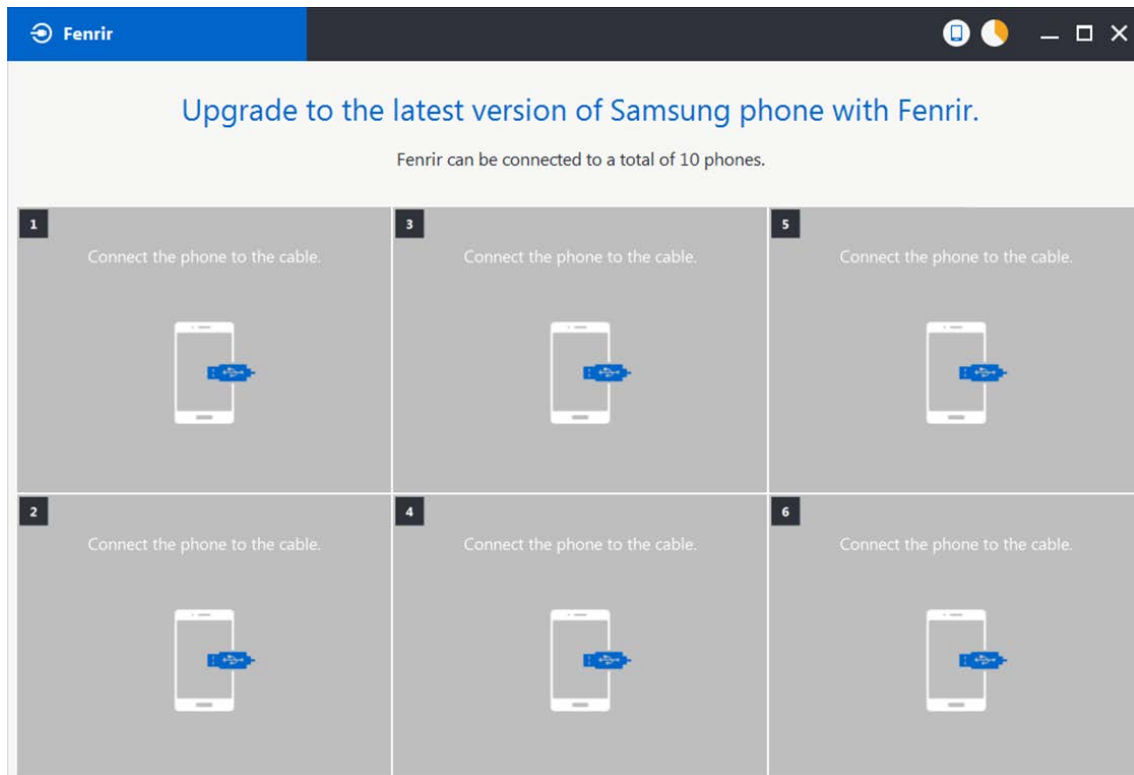
A screenshot of the Fenrir login window. The window has a blue header bar with the 'Fenrir' logo and a close button. The main area is white and contains the text 'Input the ID and password registered to the SAMSUNG Fenrir service.' Below this text are two input fields: 'ID:' and 'Password:'. To the right of the 'ID:' field is a blue button labeled 'Proxy'. Below the 'Password:' field are two buttons: 'Login' (highlighted with a dashed orange border) and 'Close'.

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## 6. Level 1 Repair

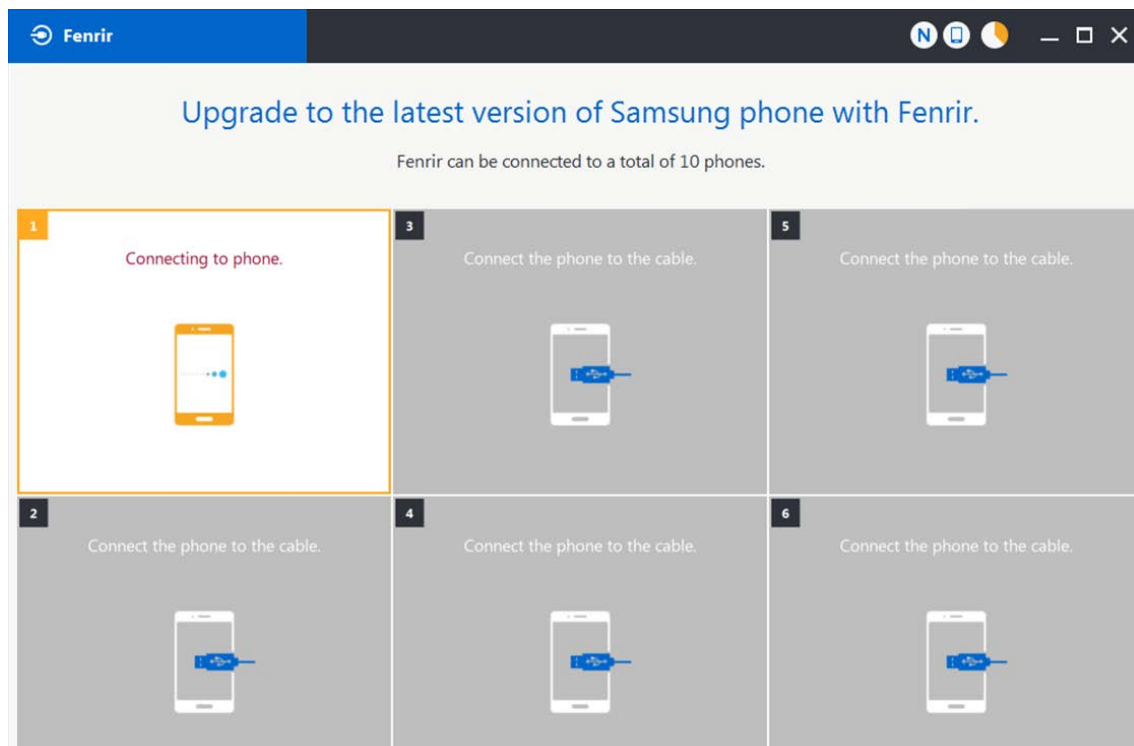
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3) Ensure device has sufficient charge (at least 20%) to start firmware update.



4) Connect the device to PC via data cable.

5) Upon USB connection, you will be presented with below screen.



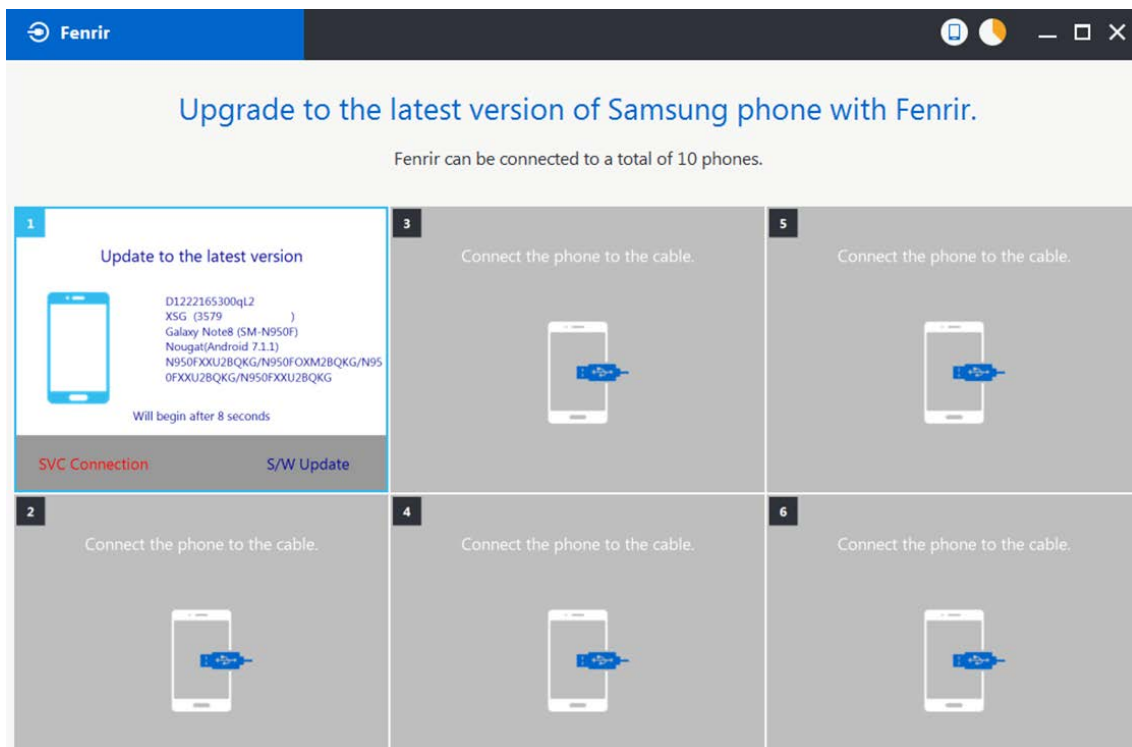
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## 6. Level 1 Repair

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6) Once device is detected, you will be presented with below screen. To update S/W, select “S/W Update” or to exit select “SVC Connection”. If you select “SVC Connection”, only Fenrir connection history (record) will be stored in the FUS server to support warranty validation. (This is known as “Service Connection” history)

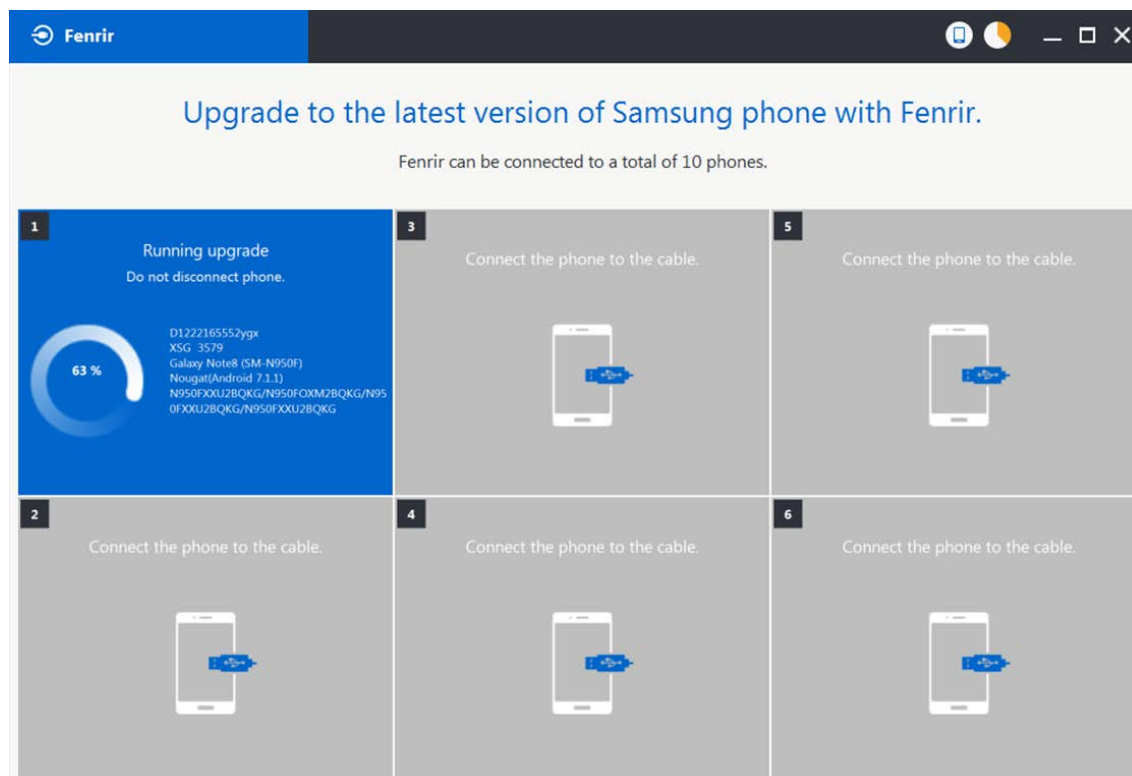


7) Once Fenrir starts, application will display the below screen. And select the Start button & Agree button.

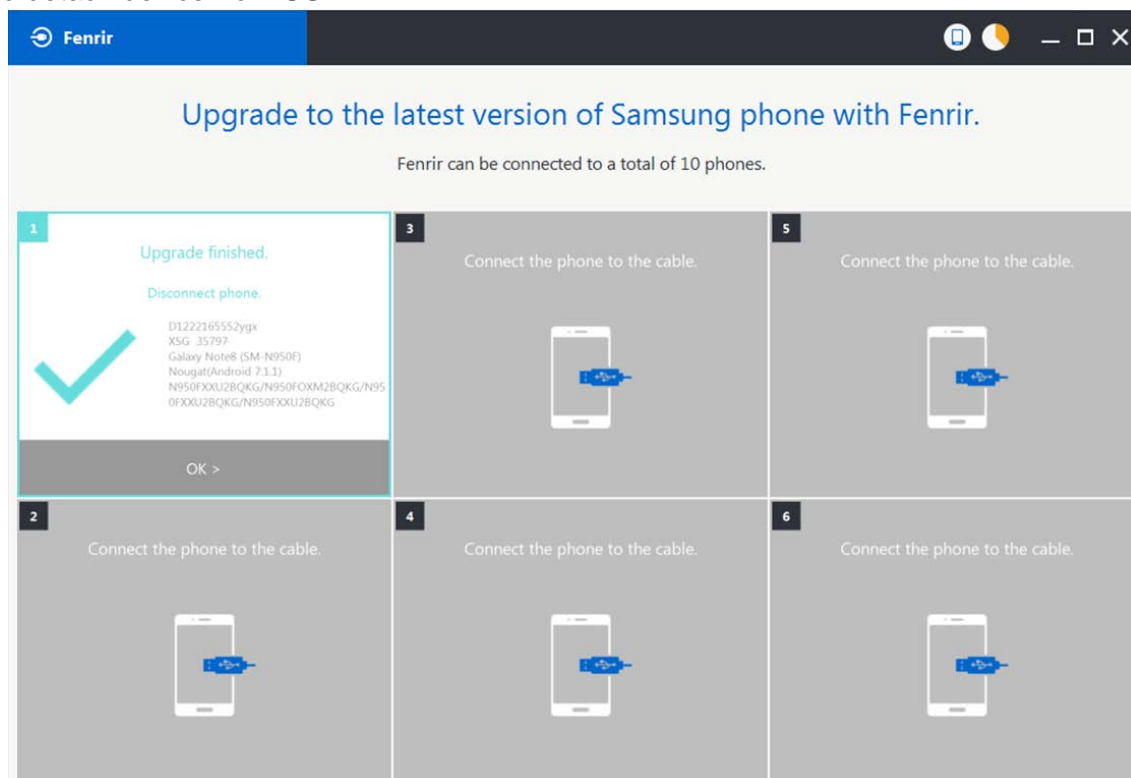


## 6. Level 1 Repair

8) The status circle increases as the update installs. The update process takes approximately 5-10 minutes to complete. Do not disconnect the device from USB during processing.



9) Once complete, application will present the below screen indicating update complete. Click Ok and detach device from USB.





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## 6. Level 1 Repair

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### 6-2. How to use 'Odin' program

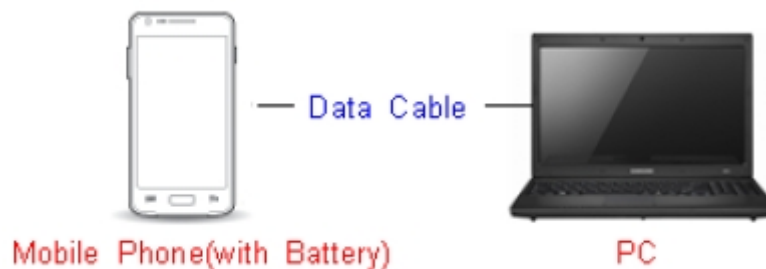
※ S/W Update via Fenrir is mandatory.

Below is the method to use 'Odin' program in any specific case.

#### 6-2-1. Preparation

- Installation program : [Odin3 v3.13.2.exe or above](#)
- Mobile Phone
- Data Cable
- S/W Binary files (downloaded from GSPN)

#### ※ Settings



**Data Cable : [GH39-01710D](#)**

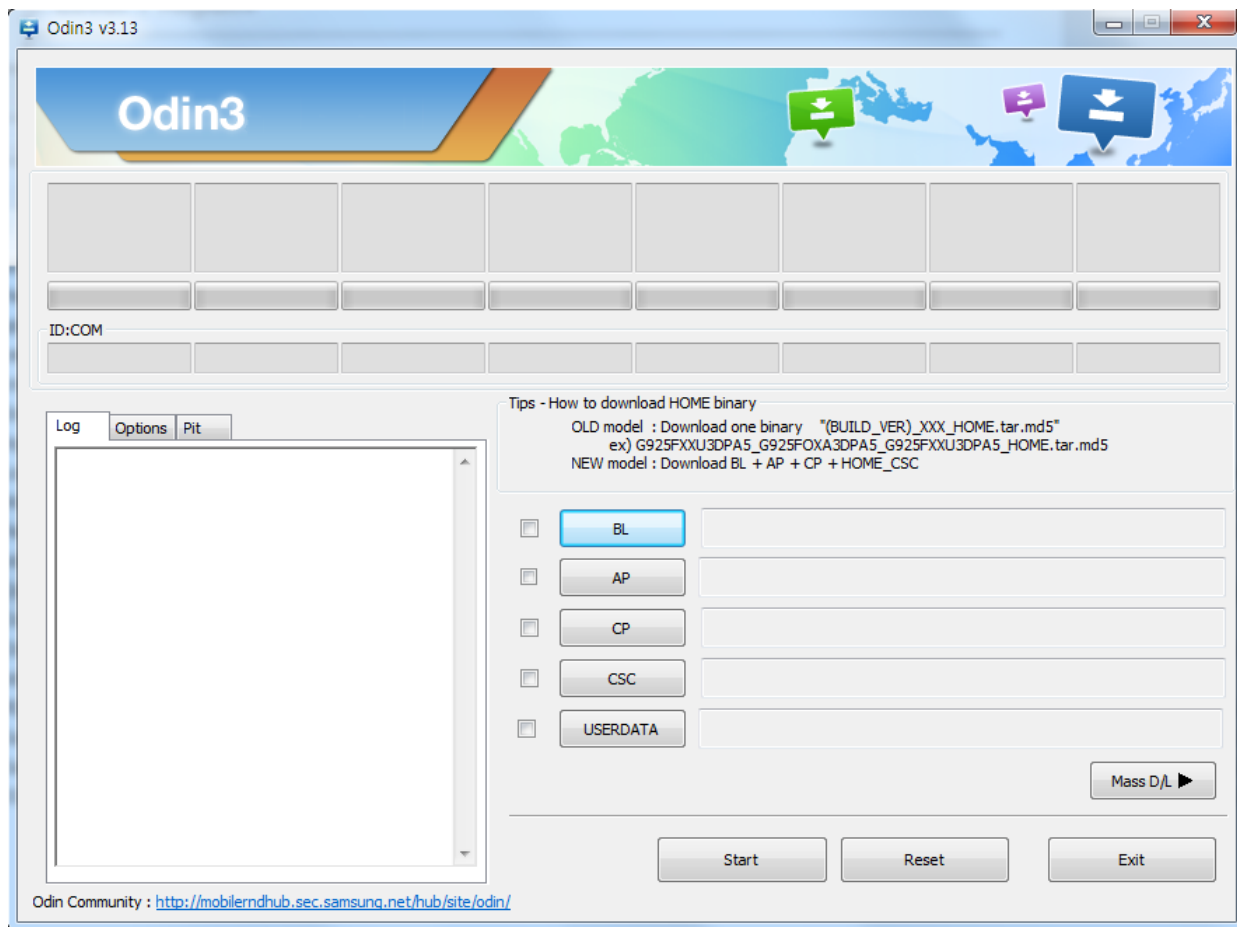
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## 6. Level 1 Repair

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### 6-2-2. S/W Installation Program (Downloader program)

Open up the S/W Installation Program by executing the "**Odin3 v3.13.2.exe**"

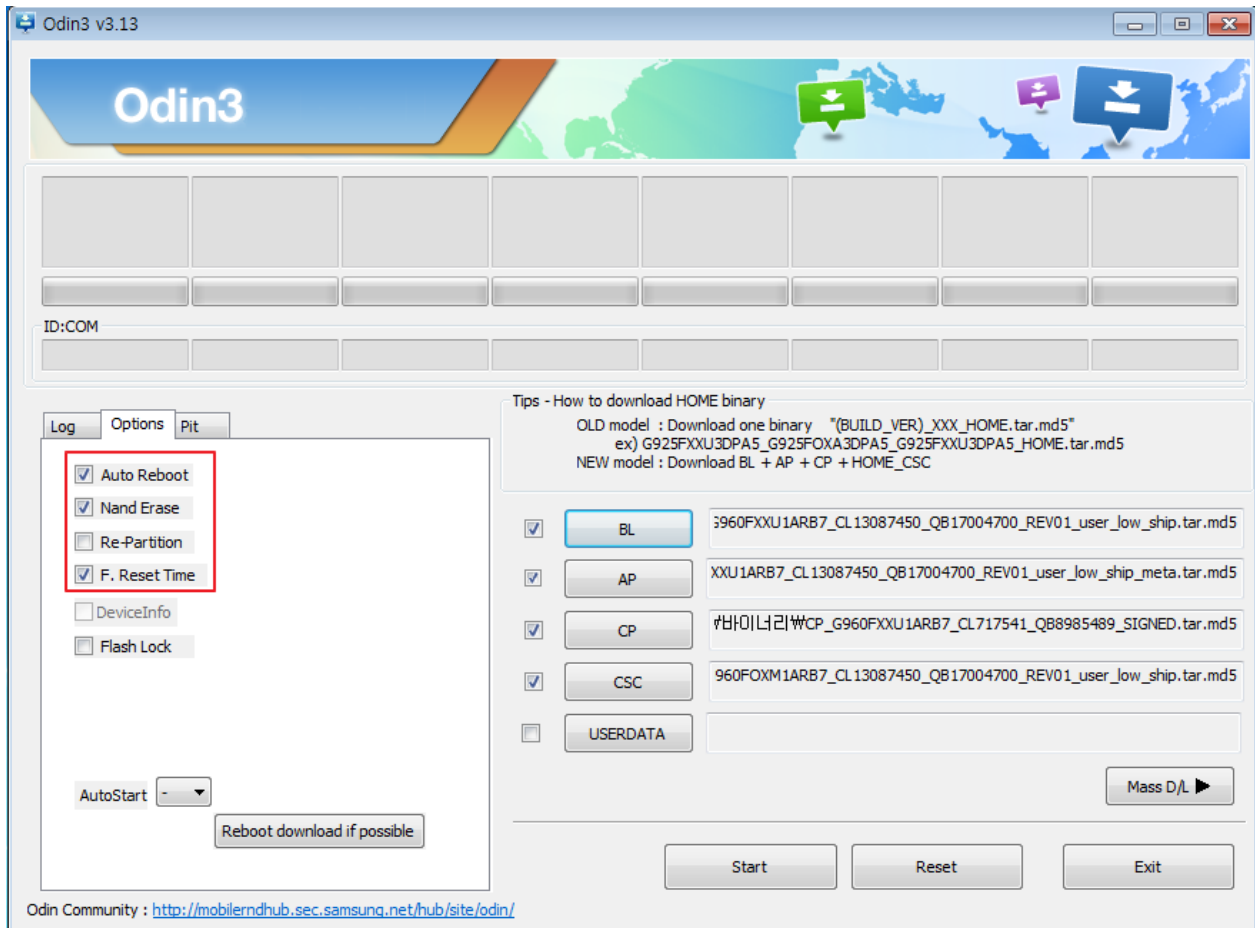


## 6. Level 1 Repair

1. Enable the check mark by click on the following options

- Check Auto Reboot, F. Reset Time, Nand Erase
- Check BL, AP, CP, CSC Files

\* Note : "Odin v3.13.2 or above" checks MD5 checksum just after file selection.



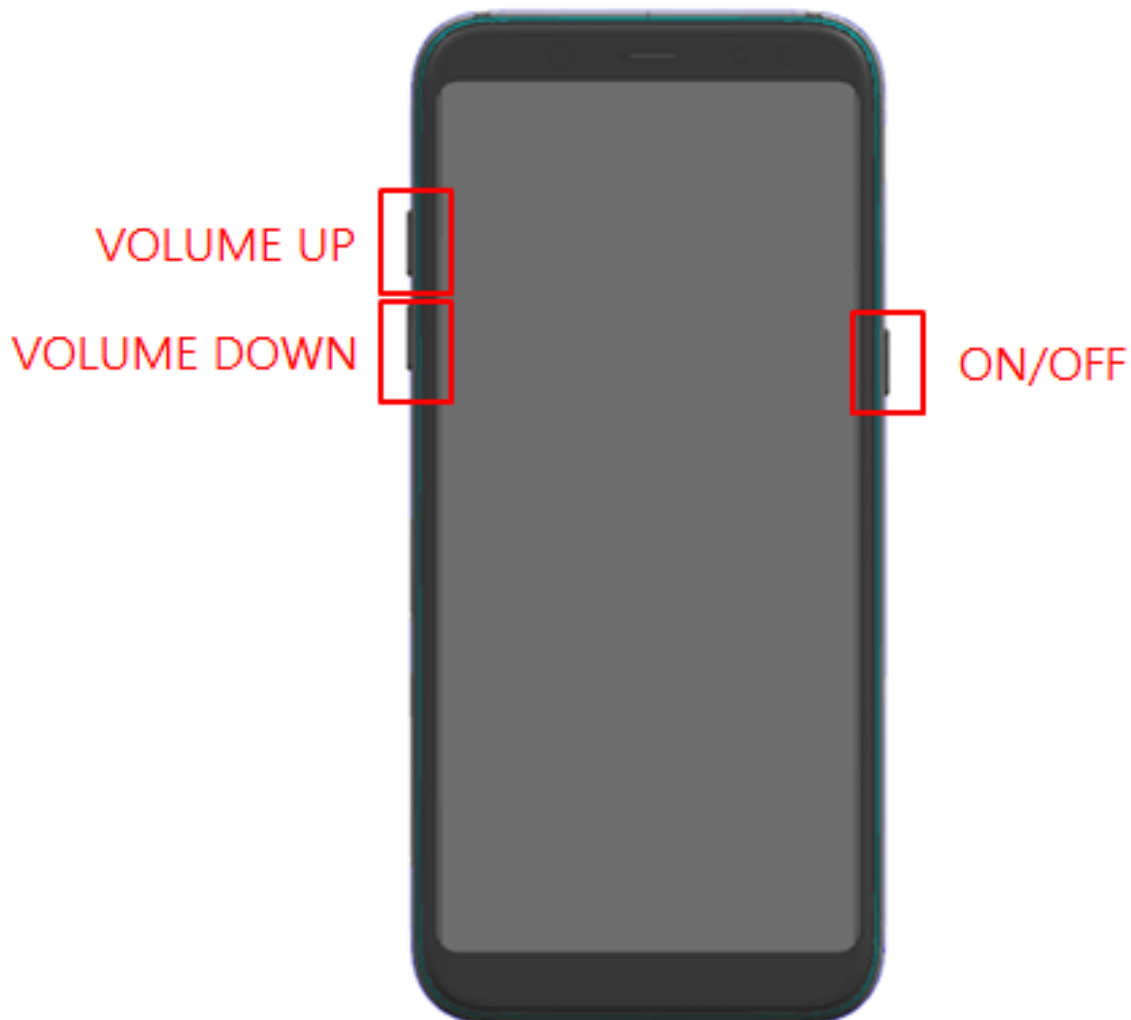
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## 6. Level 1 Repair

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### 2. Enter into Download Mode

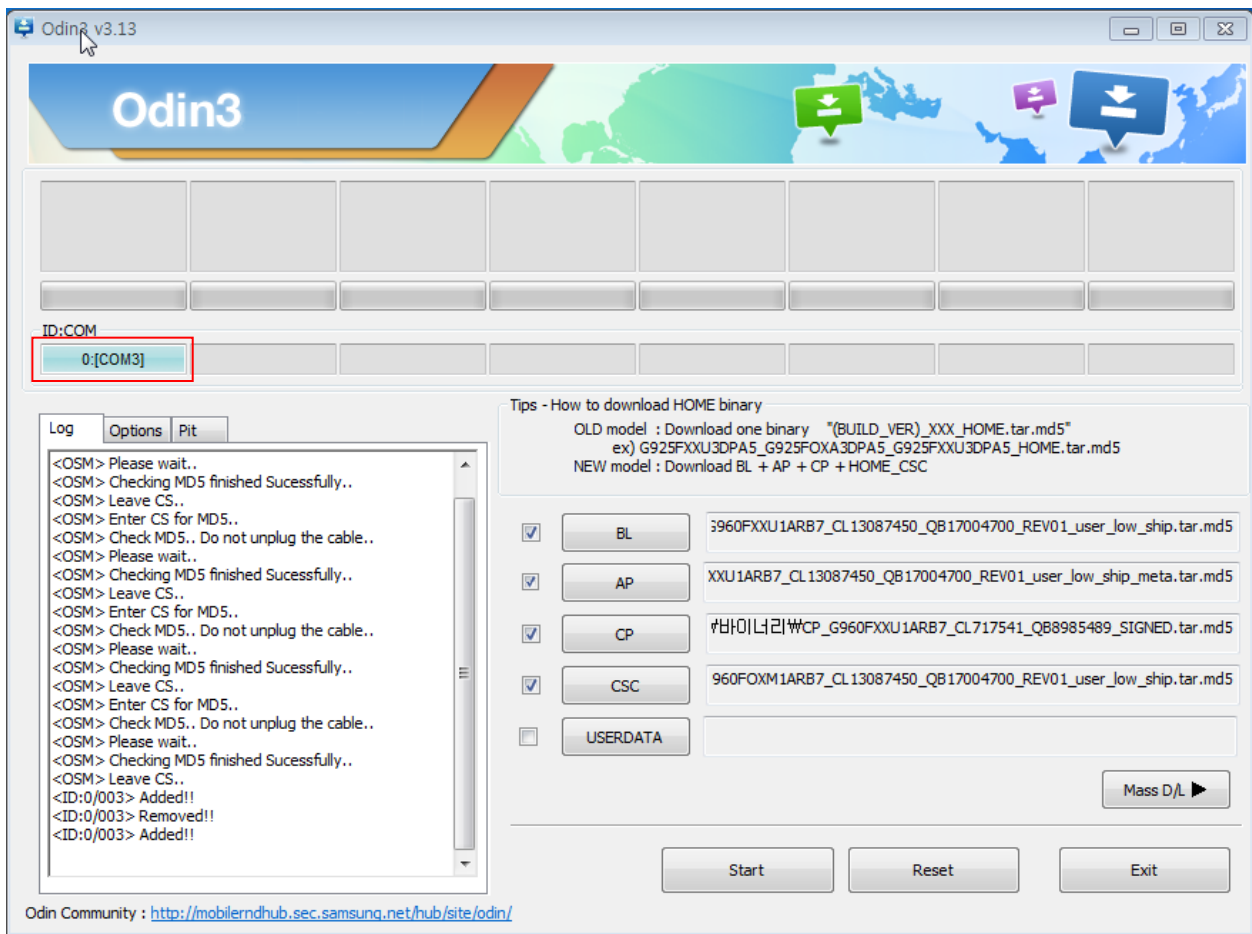
- Enter into Download Mode by pressing Volume Down button, Intelligence button and ON/OFF Button simultaneously followed by pressing Volume up button as a direction of the phone.



## 6. Level 1 Repair

### 3. Connect the device to PC via Data Cable.

Make sure that the one of communication ports [ID:COM] box is highlighted in sky blue.  
The device is now connected with the PC and ready to download the binary files in it.



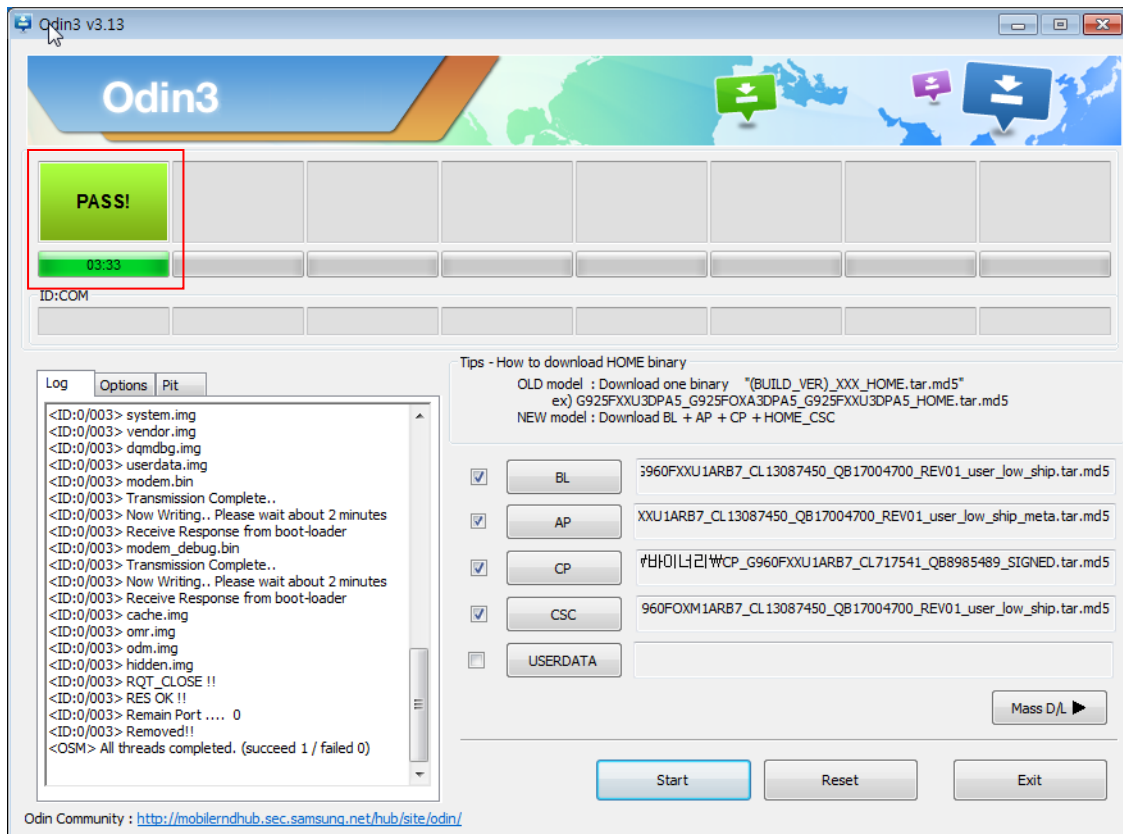
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## 6. Level 1 Repair

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4. Start downloading the binary files into the device by clicking Start button on the screen.

The green colored "PASS!" sign will appear on the upper-left box if the binary files have been successfully downloaded into the device.



5. Disconnect the device from the Data cable.

6. Once the device boots up, you can check the version of the binary file or name by pressing the following code in sequence; **\*#1234#**

You can perform Factory data Reset by Settings → General Management → Reset

**※ Caution. Never disconnect during the S/W downloading.**

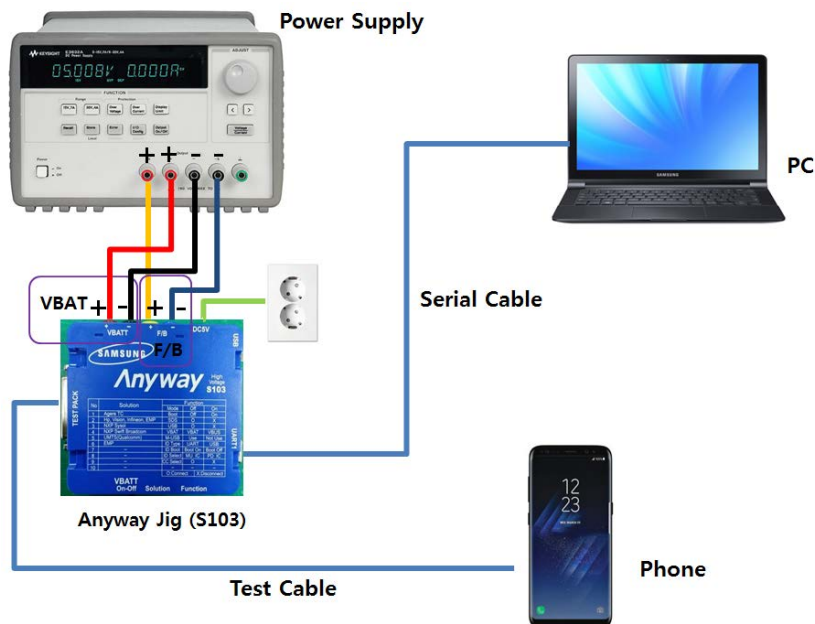
## 6. Level 1 Repair

### 6-3. IMEI writing




#### 6-3-1. Preparation

- New IMEI writing Program has been released.
- Supported Model : Models which CAB files are uploaded on HHPsvc INI File category, instead of ini file.
- Refer to below IMEI writing procedure.

#### - H/W



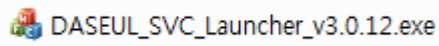
#### - S/W

① Library Install	To use Daseul, library files should be installed. Refer to SVC Bulletin “(11-82) Daseul (New IMEI writing Program) Library Install guide_rev1.0”
② Launcher	<b>DASEUL_SVC_Launcher_v3.0.12</b> or higher -Uploaded on HHPsvc Notice
③ Runtime File	1. <b>DASEUL_IMEI_ALL_Runtime_3.1.348.0_r00519.CAB</b> or higher -Uploaded on HHPsvc Notice 2. Make 'ModelName' folder at the same position with launcher & Runtime file. <div> DASEUL_IMEI_ALL_Runtime_3.1.348.0_r00519.CAB  DASEUL_Launcher_v4.0.0.exe  SM-G960F_SS(CSC)_IMEI_Ver_3.1.343.10.CAB</div>
④ Model File	Copy Model File under the 'SM-A600FN' folder

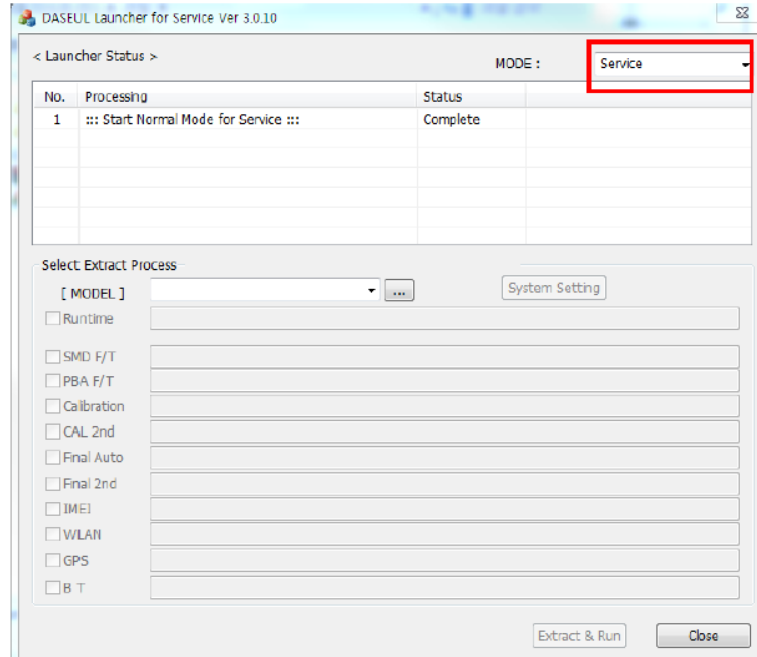
## 6. Level 1 Repair

### 6-3-2. IMEI writing Process

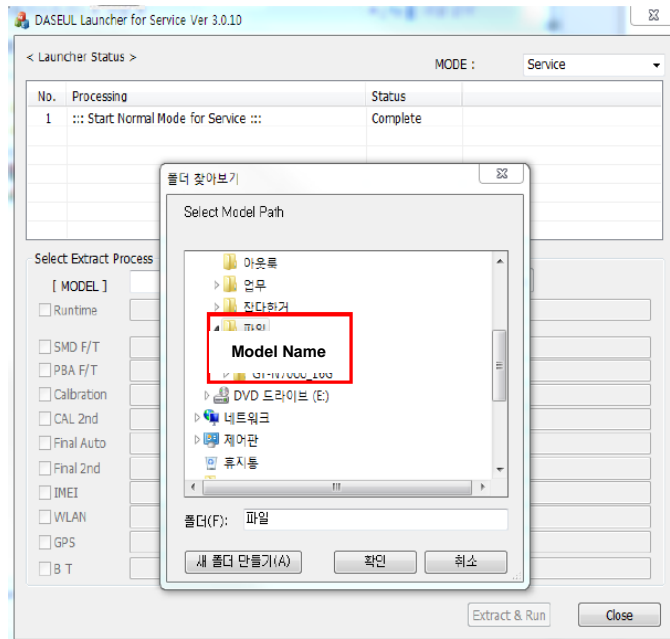
1. Run DASEUL\_SVC\_Launcher\_v3.0.12.exe



2. Select Service Mode



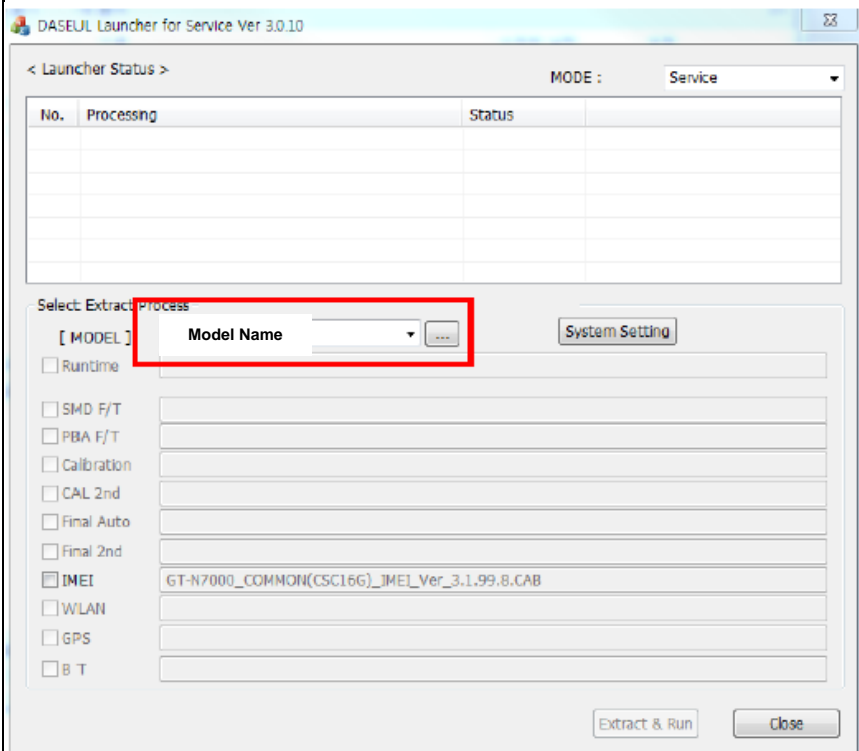
3. Click  and Select folder where the Launcher exists





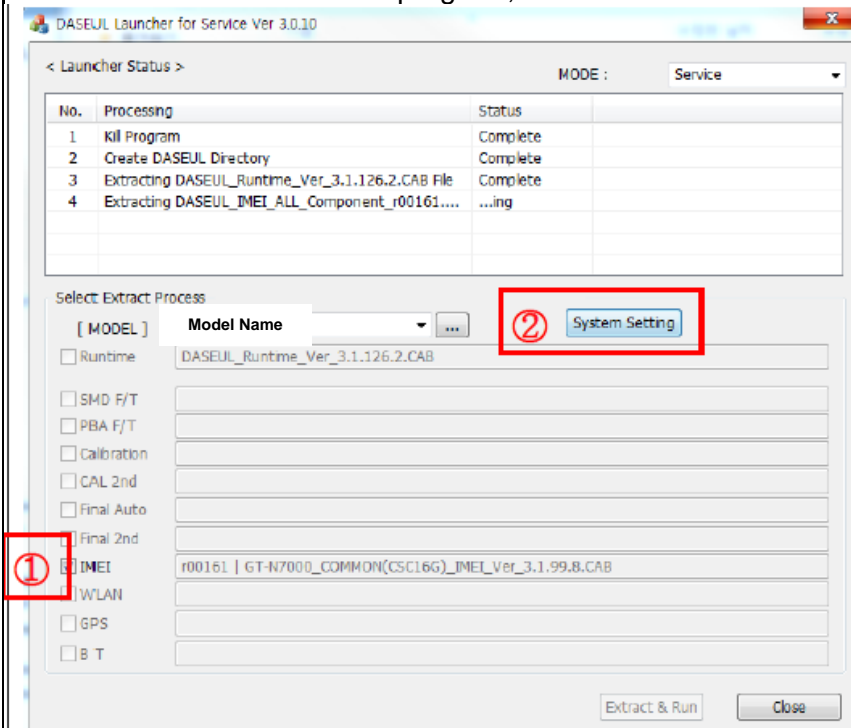
## 6. Level 1 Repair

### 4. Select Model



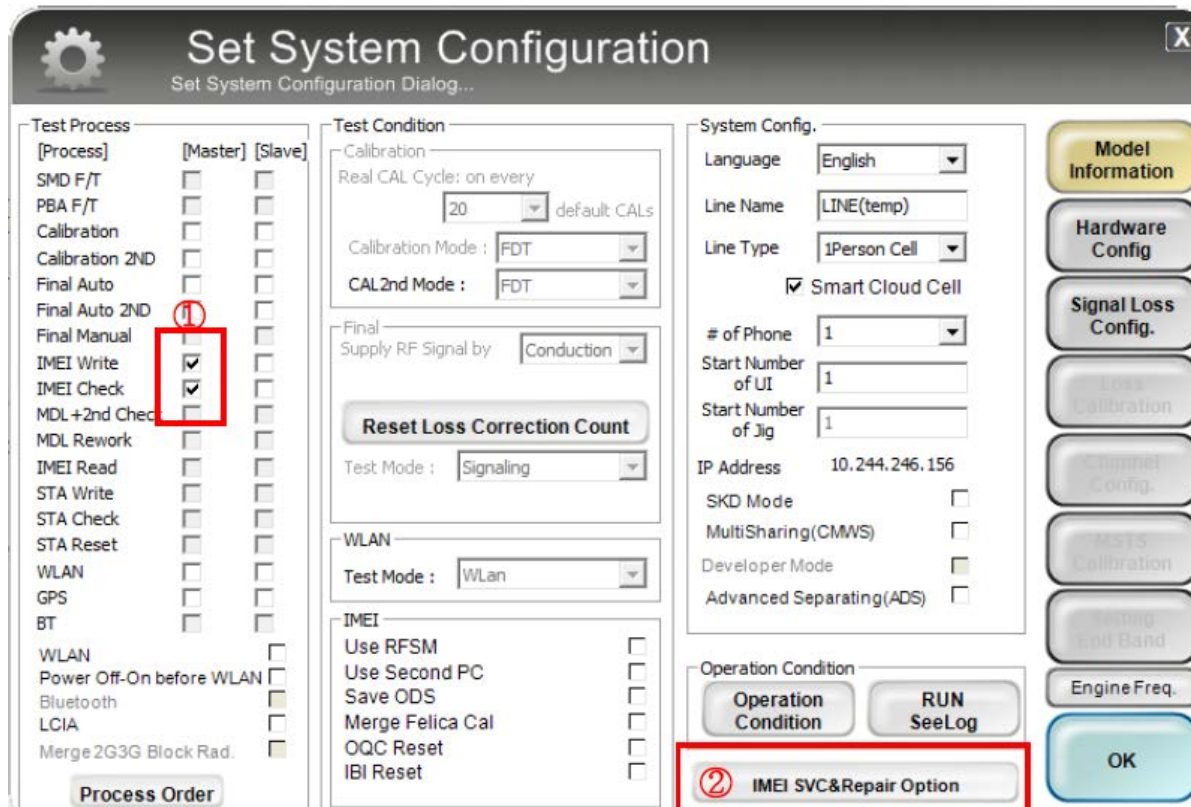
### 5. Check IMEI and click System Setting

※ Once you setup the setting, you don't have to do it again, unless there is change.  
From second run of the IMEI program, check IMEI and click Extract & Run.



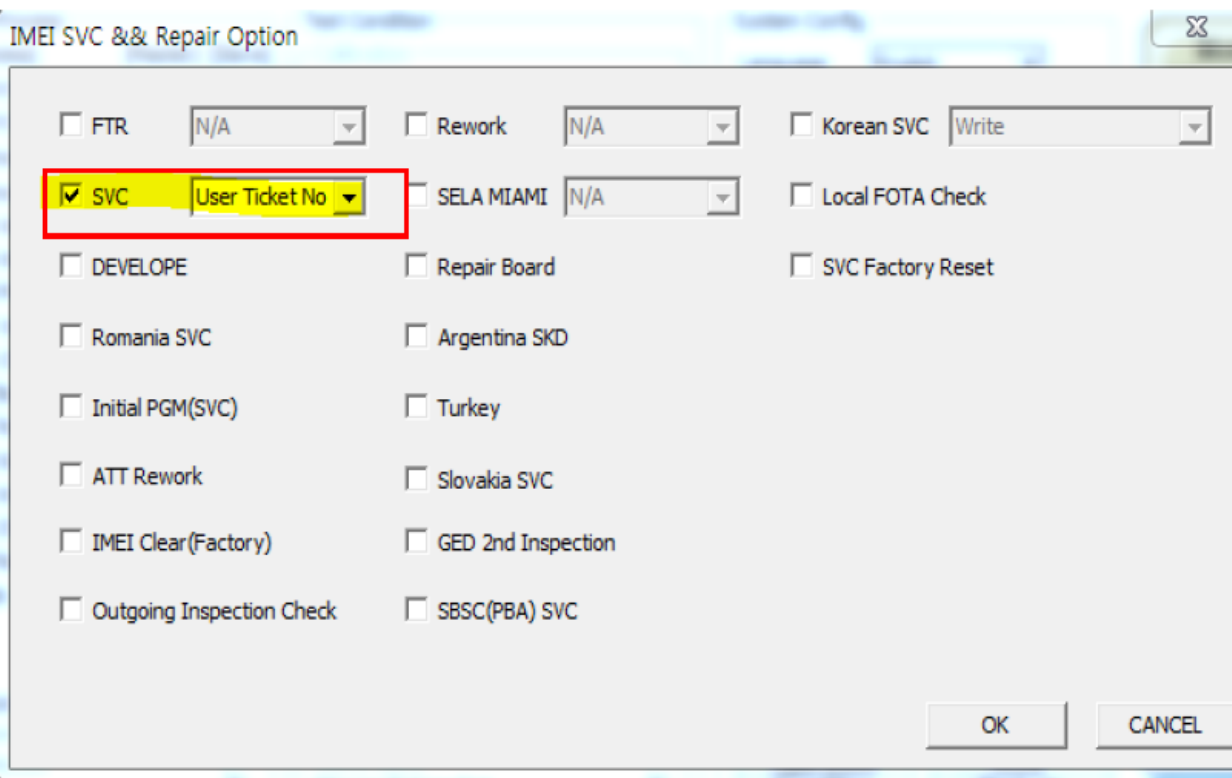
## 6. Level 1 Repair

6. Check IMEI Write / IMEI Check and click IMEI SVC & Repair Option.



The 'Set System Configuration' dialog box is shown. It has a title bar with a gear icon and a close button. The main area is divided into several sections: 'Test Process' on the left with a list of processes and checkboxes for Master and Slave; 'Test Condition' in the middle with settings for Calibration, Final Supply RF Signal, and WLAN; 'System Config.' on the right with settings for Language, Line Name, Line Type, Smart Cloud Cell, and various modes; and a vertical sidebar on the far right with buttons for Model Information, Hardware Config, Signal Loss Config, Loss Calibration, Channel Config, MMS Calibration, Setting End Band, and Engine Freq. At the bottom, there are buttons for 'Process Order', 'Reset Loss Correction Count', 'Test Mode', 'WLAN Test Mode', 'IMEI' settings, 'Operation Condition', 'RUN SeeLog', and 'IMEI SVC&Repair Option' (which is circled in red with a '2'). The 'IMEI Write' and 'IMEI Check' checkboxes in the 'Test Process' section are also circled in red with a '1'.

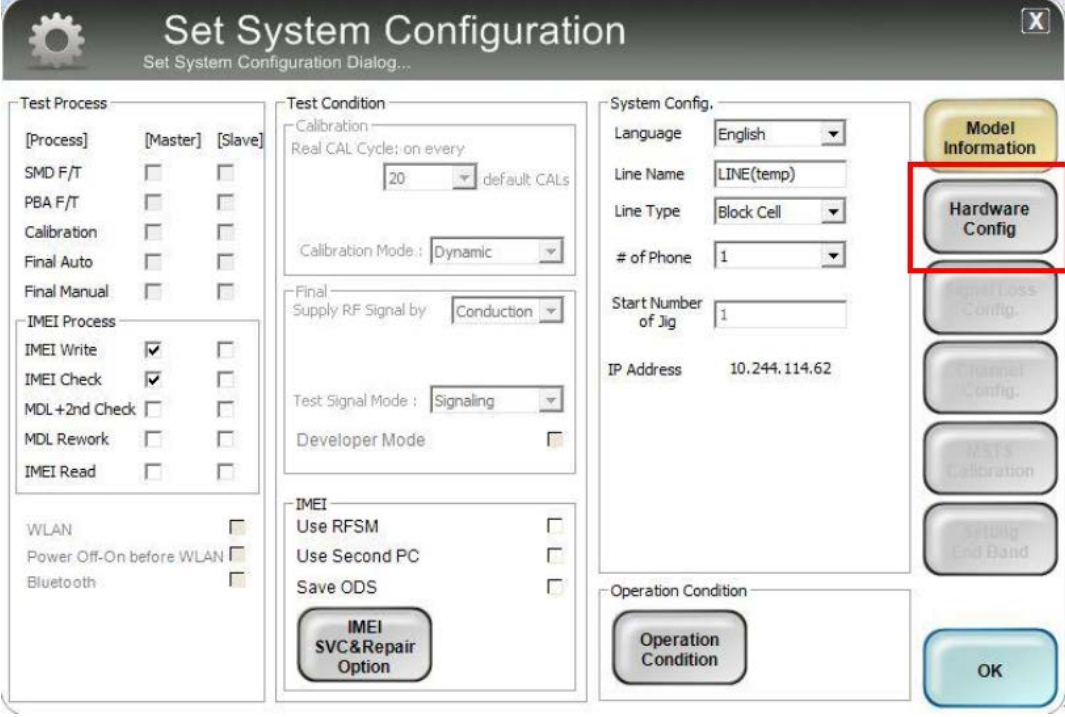
7. Check 'SVC , User Ticket No' and click OK



The 'IMEI SVC & Repair Option' dialog box is shown. It has a title bar with a close button. The main area contains a grid of checkboxes and dropdown menus. The 'SVC' checkbox is checked, and the 'User Ticket No' dropdown is selected. Other options include FTR, Rework, Korean SVC, Sela Miami, Local FOTA Check, DEVELOPE, Repair Board, SVC Factory Reset, Romania SVC, Argentina SKD, Initial PGM(SVC), Turkey, ATT Rework, Slovakia SVC, IMEI Clear(Factory), GED 2nd Inspection, Outgoing Inspection Check, and SBSC(PBA) SVC. At the bottom, there are 'OK' and 'CANCEL' buttons. The 'SVC' checkbox and 'User Ticket No' dropdown are highlighted with a red box.

## 6. Level 1 Repair

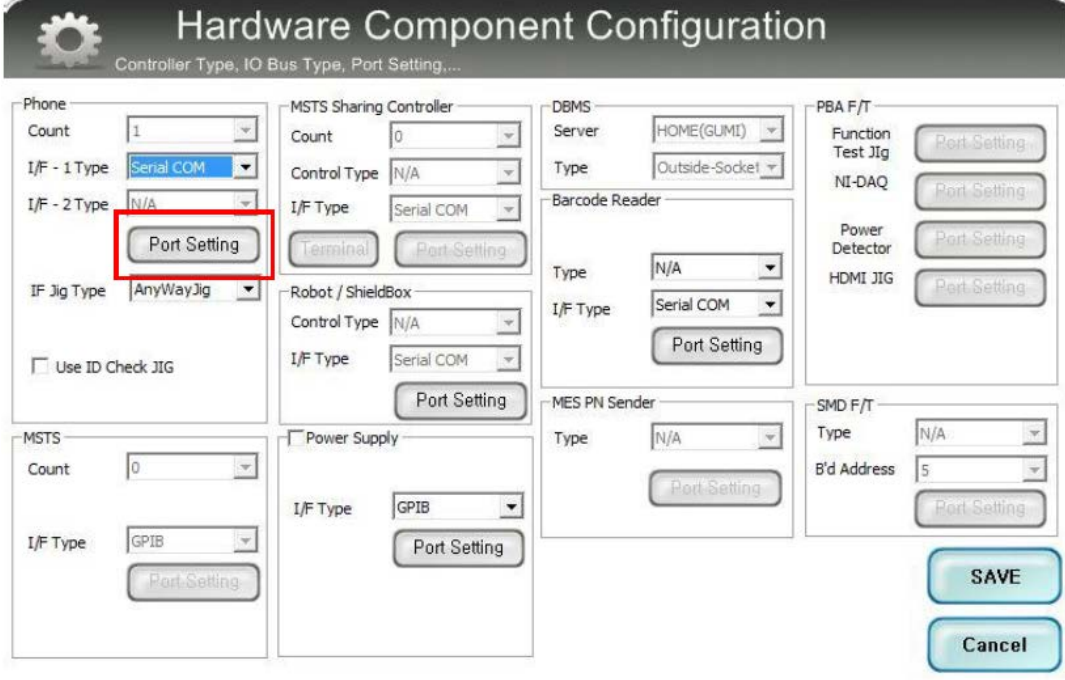
### 8. Click 'Hardware Config'



The 'Set System Configuration' dialog box is shown. It has a title bar with a gear icon and the text 'Set System Configuration Dialog...'. The dialog is divided into several sections:

- Test Process:** Includes checkboxes for [Process], [Master], [Slave], SMD F/T, PBA F/T, Calibration, Final Auto, Final Manual, and IMEI Process (IMEI Write, IMEI Check, MDL+2nd Check, MDL Rework, IMEI Read).
- Test Condition:** Includes a 'Calibration' section with 'Real CAL Cycle: on every' and a dropdown for '20' (default CALs), and a 'Calibration Mode' dropdown set to 'Dynamic'. It also has a 'Final' section with 'Supply RF Signal by' set to 'Conduction', a 'Test Signal Mode' dropdown set to 'Signaling', and a 'Developer Mode' checkbox.
- System Config.:** Includes 'Language' (English), 'Line Name' (LINE(temp)), 'Line Type' (Block Cell), '# of Phone' (1), 'Start Number of Jig' (1), and 'IP Address' (10.244.114.62).
- Operation Condition:** Includes a button labeled 'Operation Condition'.
- Model Information:** A vertical sidebar on the right with buttons for 'Model Information', 'Hardware Config' (highlighted with a red box), 'Signal Loss Config.', 'Channel Config.', 'MATS Calibration', and 'Setting End Band'.
- WLAN/Bluetooth:** Checkboxes for 'WLAN', 'Power Off-On before WLAN', and 'Bluetooth'.
- IMEI SVC&Repair Option:** A button labeled 'IMEI SVC&Repair Option'.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

### 9. Click 'Port Setting'



The 'Hardware Component Configuration' dialog box is shown. It has a title bar with a gear icon and the text 'Controller Type, IO Bus Type, Port Setting,...'. The dialog is divided into several sections:

- Phone:** Includes 'Count' (1), 'I/F - 1 Type' (Serial COM), 'I/F - 2 Type' (N/A), and 'IF Jig Type' (AnyWayJig). A 'Port Setting' button is highlighted with a red box.
- MSTS Sharing Controller:** Includes 'Count' (0), 'Control Type' (N/A), 'I/F Type' (Serial COM), and a 'Port Setting' button.
- DBMS:** Includes 'Server' (HOME(GUMI)), 'Type' (Outside-Socket), and a 'Port Setting' button.
- Barcode Reader:** Includes 'Type' (N/A), 'I/F Type' (Serial COM), and a 'Port Setting' button.
- MES PN Sender:** Includes 'Type' (N/A) and a 'Port Setting' button.
- SMD F/T:** Includes 'Type' (N/A), 'B'd Address' (5), and a 'Port Setting' button.
- Power Supply:** Includes 'I/F Type' (GPIO) and a 'Port Setting' button.
- Buttons:** 'SAVE' and 'Cancel' buttons at the bottom right.

## 6. Level 1 Repair

### 10. Select Port Number and SAVE

Set IO BUS Configuration

Phone IO Bus Setting

**Common**

BaudRate: 115200  
Data Bit: 8  
Parity: No  
Stop Bit: 1

No.	Port #1
1	1

SAVE

Cancel

### 11. Click OK to proceed

Set System Configuration

Set System Configuration Dialog...

**Test Process**

[Process]	[Master]	[Slave]
SMD F/T	<input type="checkbox"/>	<input type="checkbox"/>
PBA F/T	<input type="checkbox"/>	<input type="checkbox"/>
Calibration	<input type="checkbox"/>	<input type="checkbox"/>
Final Auto	<input type="checkbox"/>	<input type="checkbox"/>
Final Manual	<input type="checkbox"/>	<input type="checkbox"/>

**IMEI Process**

IMEI Write	<input checked="" type="checkbox"/>	<input type="checkbox"/>
IMEI Check	<input checked="" type="checkbox"/>	<input type="checkbox"/>
MDL +2nd Check	<input type="checkbox"/>	<input type="checkbox"/>
MDL Rework	<input type="checkbox"/>	<input type="checkbox"/>
IMEI Read	<input type="checkbox"/>	<input type="checkbox"/>

WLAN ☐  
Power Off-On before WLAN ☐  
Bluetooth ☐

**Test Condition**

Calibration  
Real CAL Cycle: on every 20 default CALs  
Calibration Mode: Dynamic

Final  
Supply RF Signal by: Conduction

Test Signal Mode: Signaling

Developer Mode ☐

**IMEI**

Use RFSM ☐  
Use Second PC ☐  
Save ODS ☐

IMEI SVC&Repair Option

**System Config.**

Language: English  
Line Name: LINE(temp)  
Line Type: Block Cell  
# of Phone: 1  
Start Number of Jig: 1  
IP Address: 10.244.114.62

**Operation Condition**

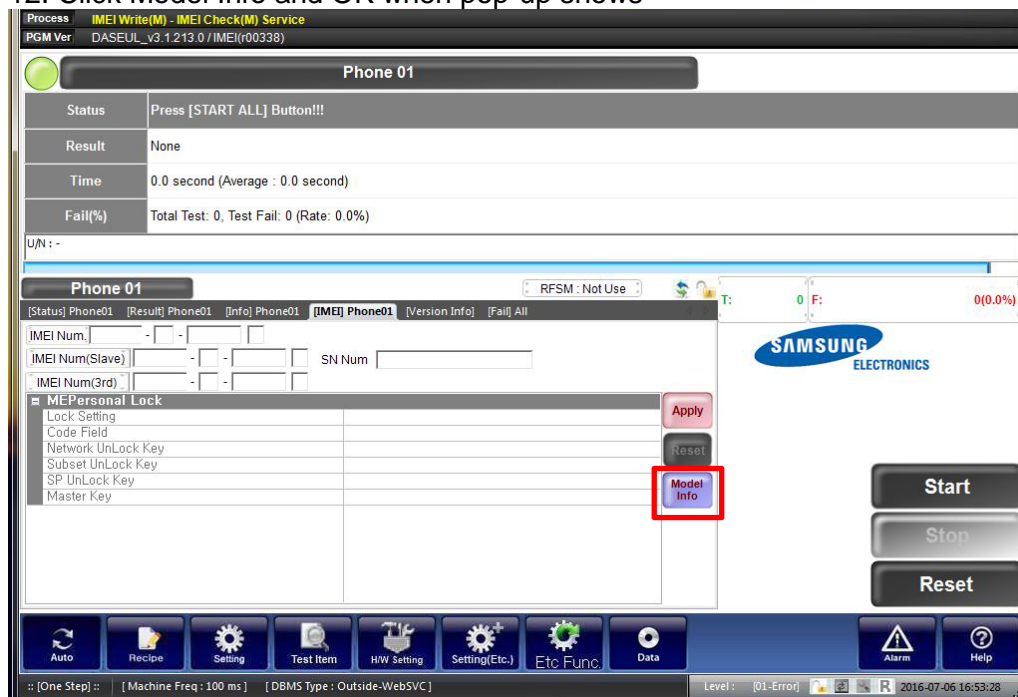
Operation Condition

Model Information  
Hardware Config  
Signal Loss Config.  
Channel Config.  
UART Calibration  
Setting End Band

OK

## 6. Level 1 Repair

### 12. Click Model Info and OK when pop-up shows



### 13. Click OK

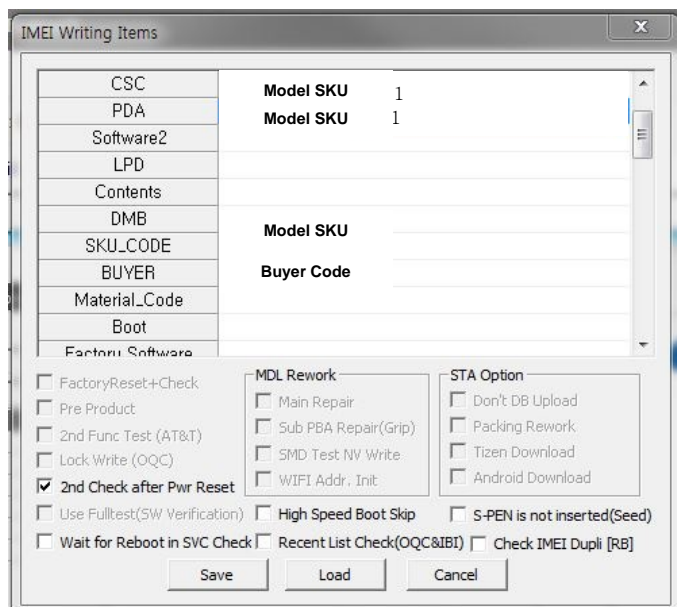




## 6. Level 1 Repair

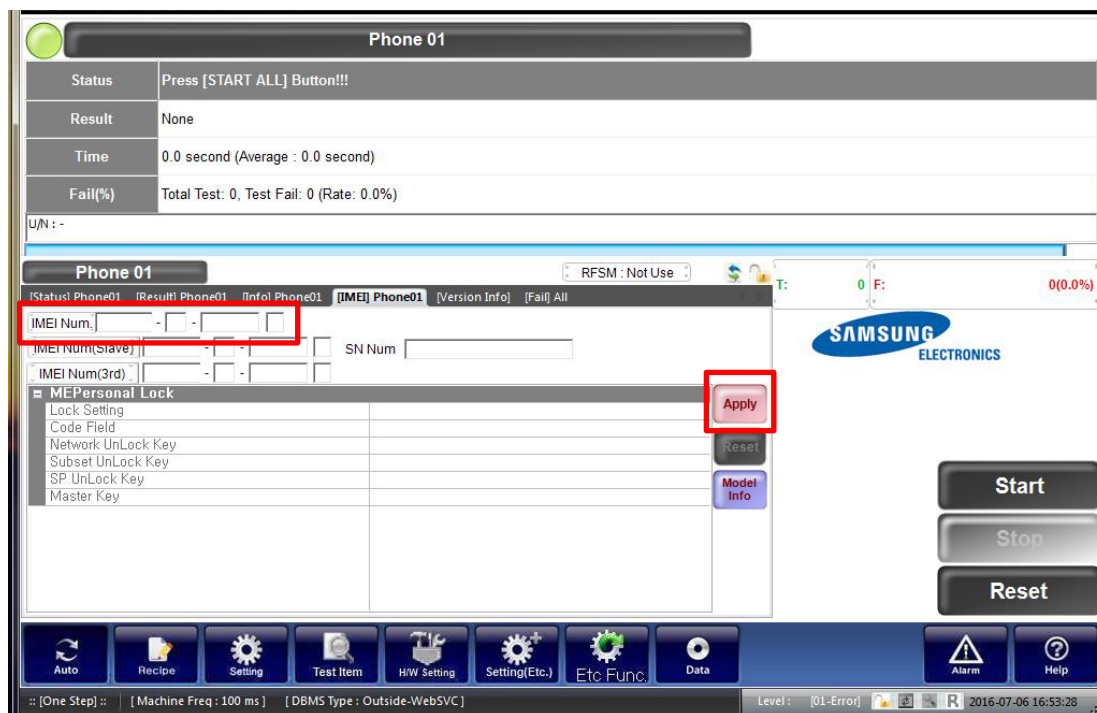
14. Input SKU\_CODE and BUYER, then click Save button.

※ Refer to HHPsvc→IMEI Review to check SKU Code and buyer



The 'IMEI Writing Items' dialog box contains a list of items on the left and input fields on the right. The items listed are CSC, PDA, Software2, LPD, Contents, DMB, SKU\_CODE, BUYER, Material\_Code, Boot, and Factory Software. The input fields on the right are for Model SKU (with a value of 1), Buyer Code, and a checkbox for 'Factory Reset+Check'. Below the list, there are several checkboxes for various options: 'Pre Product', '2nd Func. Test (AT&T)', 'Lock Write (OQC)', '2nd Check after Pwr Reset' (checked), 'Use Fulltest(SW Verification)', 'Wait for Reboot in SVC Check', 'MDL Rework' (Main Repair, Sub PBA Repair(Grip), SMD Test NV Write, WIFI Addr. Init), 'STA Option' (Don't DB Upload, Packing Rework, Tizen Download, Android Download), 'High Speed Boot Skip', 'S-PEN is not inserted(Seed)', 'Recent List Check(OQC&IBI)', and 'Check IMEI Dupli [RB]'. At the bottom are 'Save', 'Load', and 'Cancel' buttons.

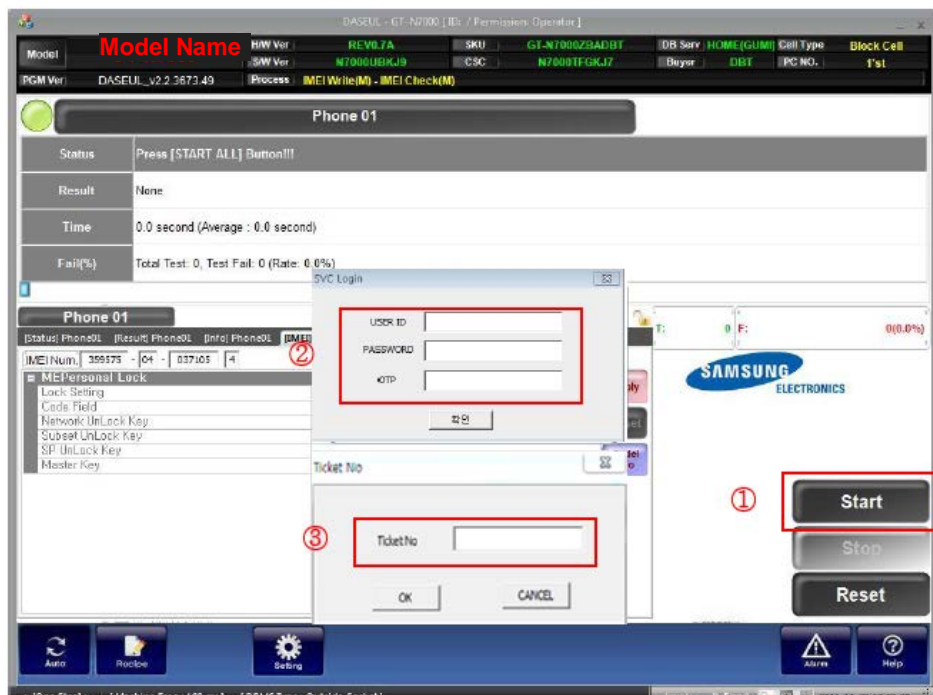
15. Input IMEI Number and click Apply



The 'Phone 01' interface shows a status bar at the top with 'Status: Press [START ALL] Button!!!', 'Result: None', 'Time: 0.0 second (Average : 0.0 second)', and 'Fail(%): Total Test: 0, Test Fail: 0 (Rate: 0.0%)'. Below this is a table with columns for 'Status', 'Result', 'Time', and 'Fail(%)'. The table contains one row with 'Status: Press [START ALL] Button!!!', 'Result: None', 'Time: 0.0 second (Average : 0.0 second)', and 'Fail(%): Total Test: 0, Test Fail: 0 (Rate: 0.0%)'. Below the table is a section for 'Phone 01' with a 'RFSM : Not Use' button. The 'Phone 01' section has a 'Status' tab selected, showing 'IMEI Num.' and 'SN Num.' fields. The 'IMEI Num.' field is highlighted with a red box. Below the 'IMEI Num.' field is a 'MEPersonal Lock' section with a list of items: 'Lock Setting', 'Code Field', 'Network UnLock Key', 'Subset UnLock Key', 'SP UnLock Key', and 'Master Key'. The 'Apply' button is highlighted with a red box. To the right of the 'Apply' button are 'Reset' and 'Model Info' buttons. At the bottom of the interface are several icons: 'Auto', 'Recipe', 'Setting', 'Test Item', 'HiW Setting', 'Setting(Etc.)', 'Etc Func.', 'Data', 'Alarm', and 'Help'. The status bar at the bottom shows 'Level : [01-Error]', 'DBMS Type : Outside-WebSVC', and the date '2016-07-06 16:53:28'.

## 6. Level 1 Repair

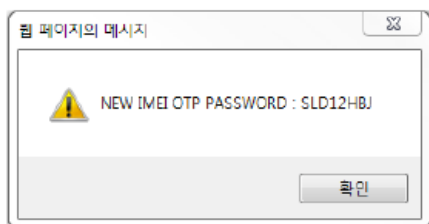
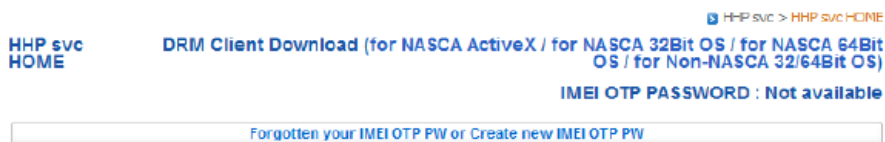
16. ① Click Start → ② Input IMEI writing ID and Password & OTP → ③ Input Ticket No



※ OTP(One time Password) : OTP is valid for 6 hours.

After that, you can get new OTP by click the “Forgotten your IMEI OTP PW or Create new IMEI OTP PW” button.

☞ OTP Location : GSPN → Knowledge → HHP svc → Home

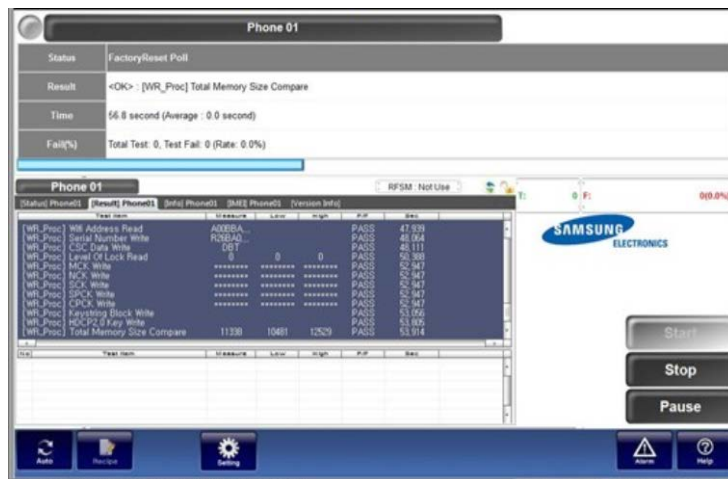


## 6. Level 1 Repair

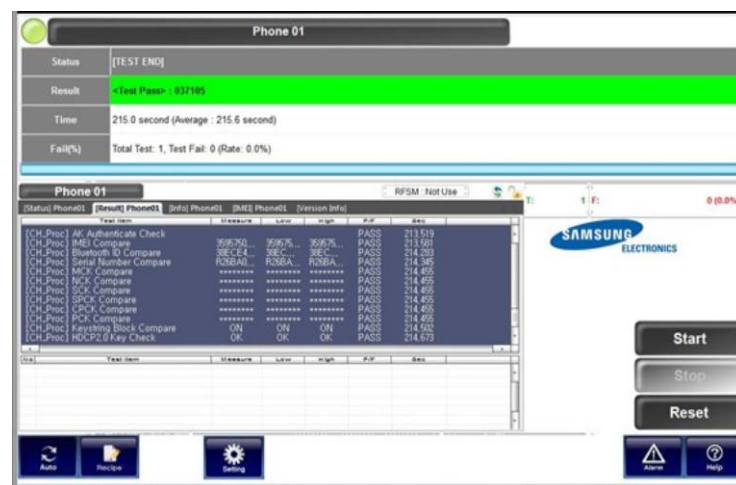
## 17. Connect the phone to Anyway JIG

- ※ When you connect the phone, the phone should be turned off.  
After connecting the phone, the phone will be booted automatically.

## 18. IMEI Writing Proceeding



## 19. IMEI Writing Success





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## 6. Level 1 Repair

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### 6-4. RF Calibration





#### 6-4-1. Required items in order to calibrate RF

- Installation program: RF Calibration Program
    - Daseul\_Launcher\_vx.x.xx.exe
    - Daseul\_CAL\_ALL\_Runtime\_x.x.xxx.x.CAB
    - Model File
- : **SM-xxxx\_OPEN\_CALIBRATION\_Ver\_x.x.xxx.x.CAB**

※ It is required to use the latest program.

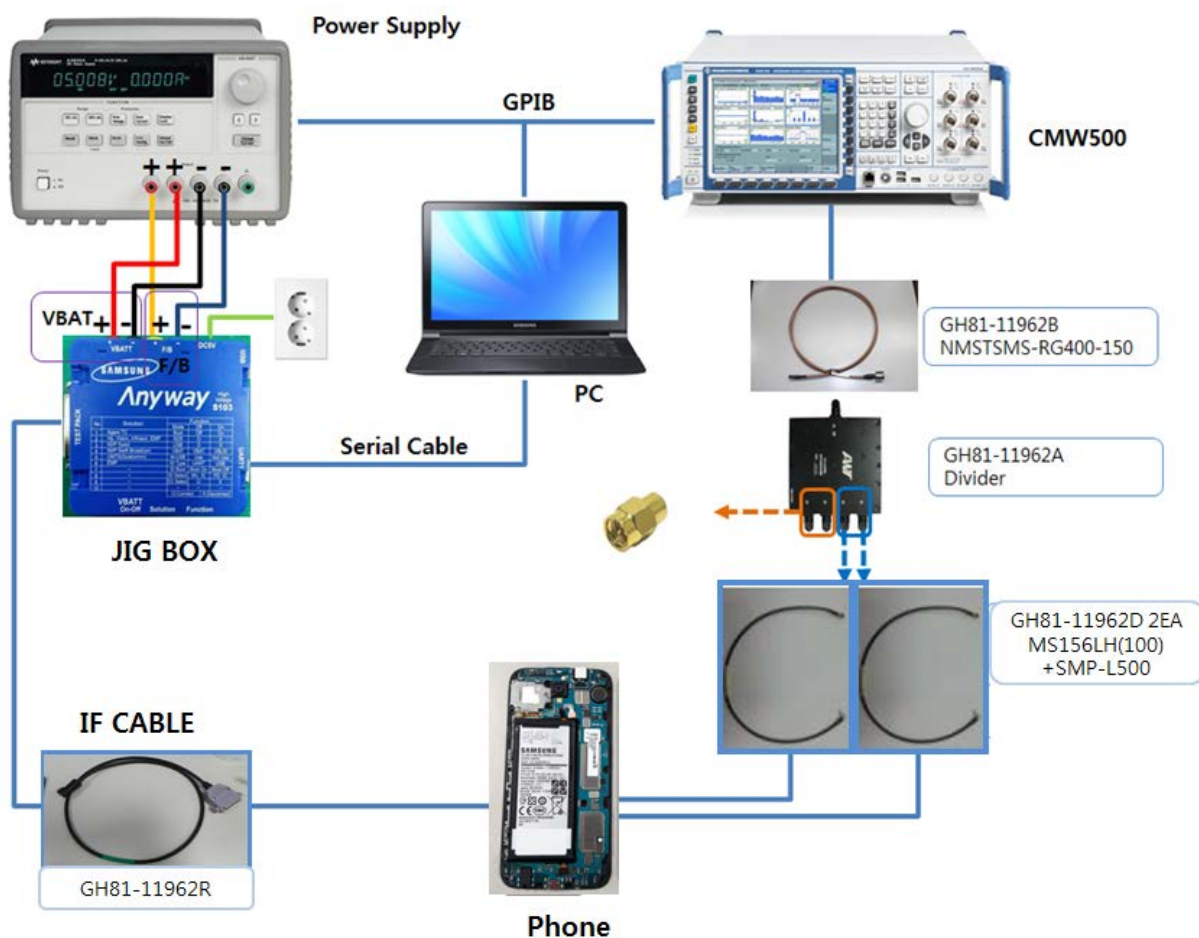
- Mobile Phone
- R&S CMW500
- E3632A Power Supply
- GPIB Cable (2ea)
- JIG BOX (S103)
- Adapter
- UART Serial Cable
- IF Cable (GH81-11962R)

#### ❖ Table of test cables

RF Cable (Manual)	GH81-11962D 2EA		
	1.35T Short 		
4 Port Divider	GH81-11962A 	GH81-11962B 	GH81-11962E 2EA 
	Divider	Divider Cable	50Ω terminator

## 6. Level 1 Repair

### ❖ Setting



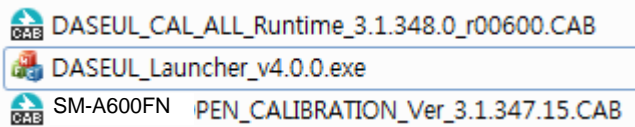
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## 6. Level 1 Repair

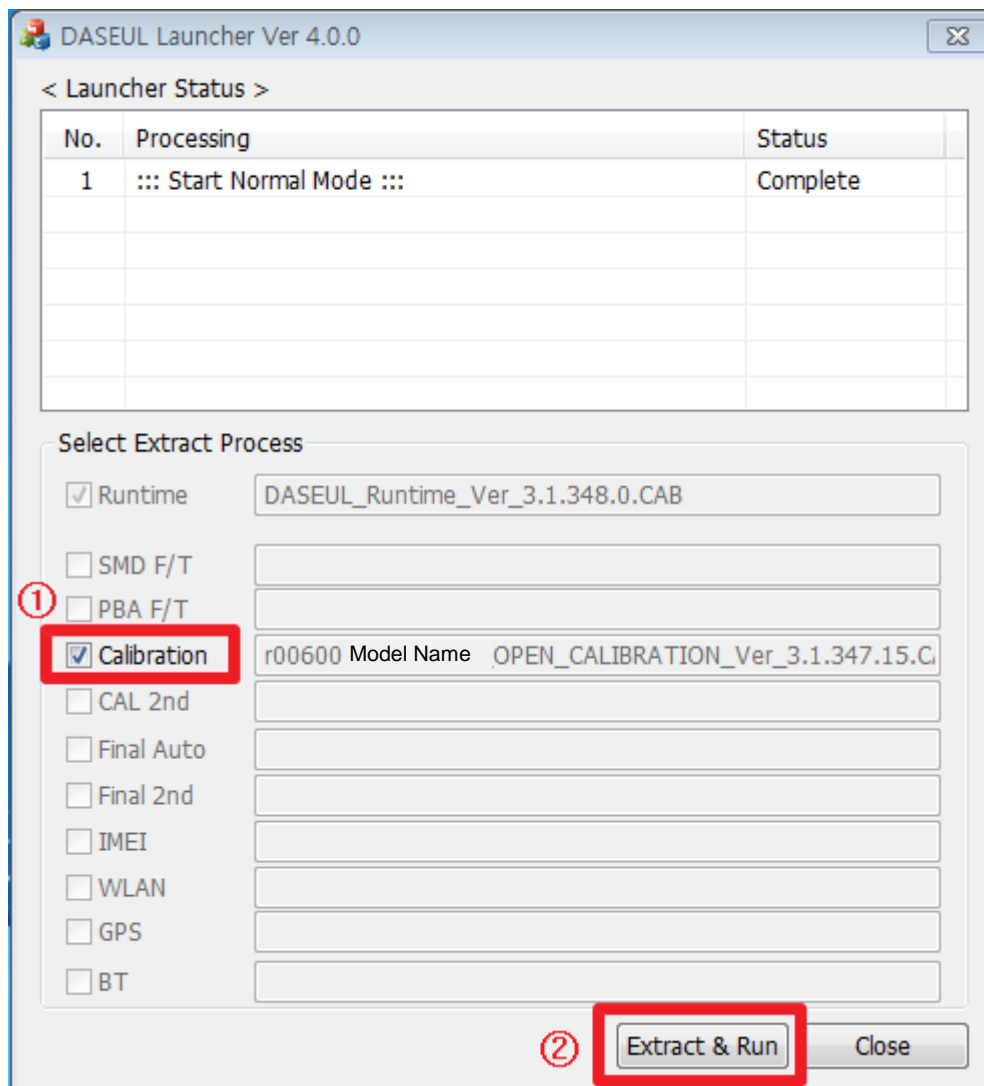
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### 6-4-2. RF Calibration Program

1. Run the RF Calibration Program Launcher, '[DASEUL\\_Launcher\\_vx.x.xx.exe](#)'.

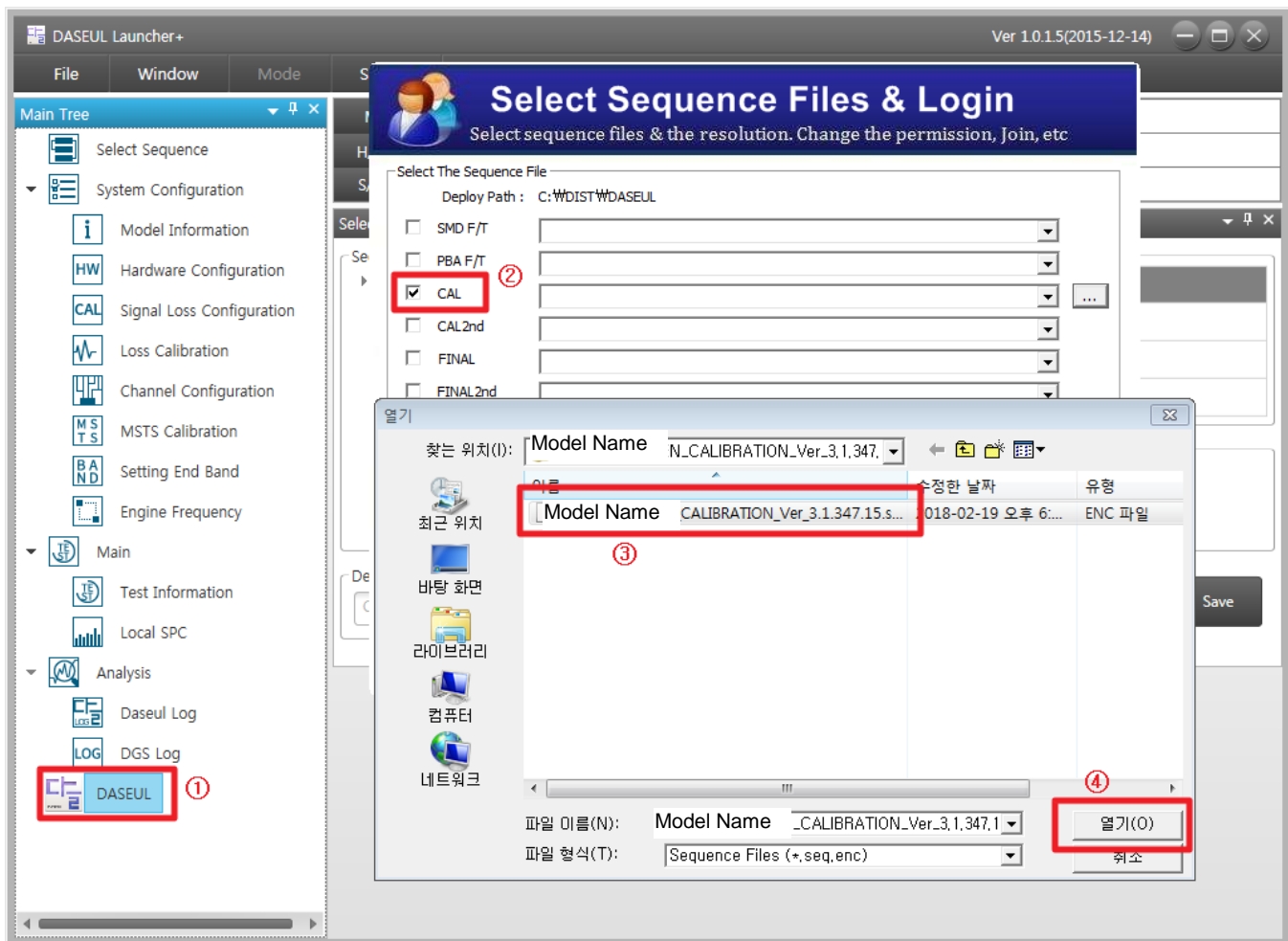


2. Check the '[Calibration](#)' option and Click '[Extract & Run](#)'.



## 6. Level 1 Repair

3. Check the 'CAL' and open the [model file](#), then select 'Start' button.



## 6. Level 1 Repair

4. Change the Line Type to 'Block Cell' and disable 'Smart Cloud Cell'.

**Set System Configuration**  
Set System Configuration Dialog...

**Test Process**

[Process]	[Master]	[Slave]
SMD F/T	<input type="checkbox"/>	<input type="checkbox"/>
PBA F/T	<input type="checkbox"/>	<input type="checkbox"/>
Calibration	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Calibration 2ND	<input type="checkbox"/>	<input type="checkbox"/>
Final Auto	<input type="checkbox"/>	<input type="checkbox"/>
Final Auto 2ND	<input type="checkbox"/>	<input type="checkbox"/>
Final Manual	<input type="checkbox"/>	<input type="checkbox"/>
IMEI Write	<input type="checkbox"/>	<input type="checkbox"/>
IMEI Check	<input type="checkbox"/>	<input type="checkbox"/>
MDL+2nd Check	<input type="checkbox"/>	<input type="checkbox"/>
MDL Rework	<input type="checkbox"/>	<input type="checkbox"/>
IMEI Read	<input type="checkbox"/>	<input type="checkbox"/>
STA Write	<input type="checkbox"/>	<input type="checkbox"/>
STA Check	<input type="checkbox"/>	<input type="checkbox"/>
STA Reset	<input type="checkbox"/>	<input type="checkbox"/>
WLAN	<input type="checkbox"/>	<input type="checkbox"/>
GPS	<input type="checkbox"/>	<input type="checkbox"/>
BT	<input type="checkbox"/>	<input type="checkbox"/>
WLAN	<input type="checkbox"/>	<input type="checkbox"/>
Power Off-On before WLAN	<input type="checkbox"/>	<input type="checkbox"/>
Bluetooth	<input type="checkbox"/>	<input type="checkbox"/>
LCIA	<input type="checkbox"/>	<input type="checkbox"/>
Merge 2G3G Block Rad.	<input type="checkbox"/>	<input type="checkbox"/>

**Test Condition**

Calibration  
Real CAL Cycle: on every  default CALs

Calibration Mode :

CAL2nd Mode :

Final  
Supply RF Signal by

**Reset Loss Correction Count**

Test Mode :

WLAN  
Test Mode :

IMEI  
☐ Use RFSM  
☐ Use Second PC  
☐ Save ODS  
☐ Merge Felica Cal  
☐ OQC Reset  
☐ IBI Reset  
☐ OQC SKD USER D/L

**System Config.**

Language

Line Name

Line Type

☐ NP Cell ☐ Smart Cloud Cell

# of Phone

Start Number of UI

Start Number of Jig

IP Address

SKD Mode ☐

MultiSharing(CMWS) ☐

Developer Mode ☐

Advanced Separating(ADS) ☐

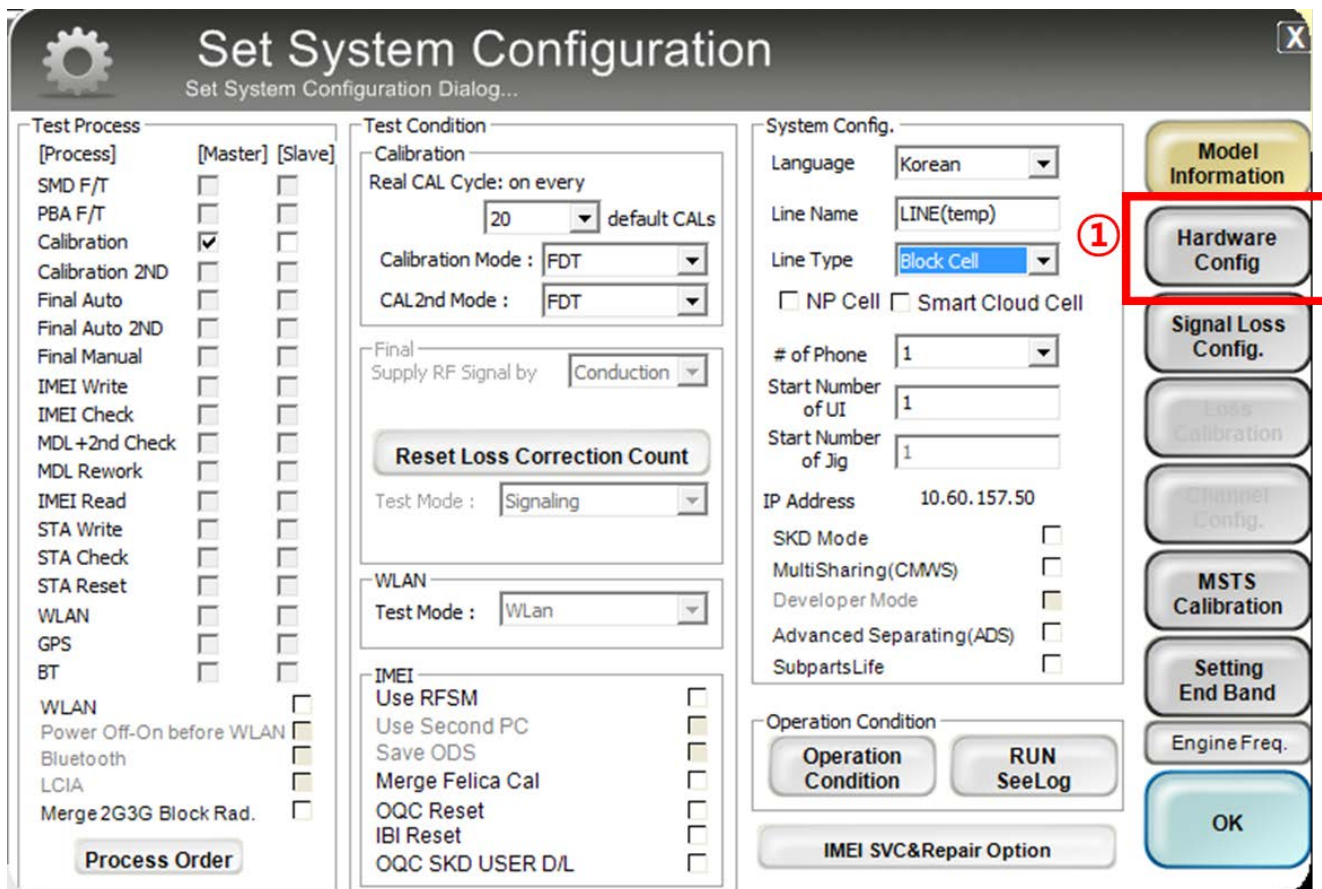
SubpartsLife ☐

**Operation Condition**

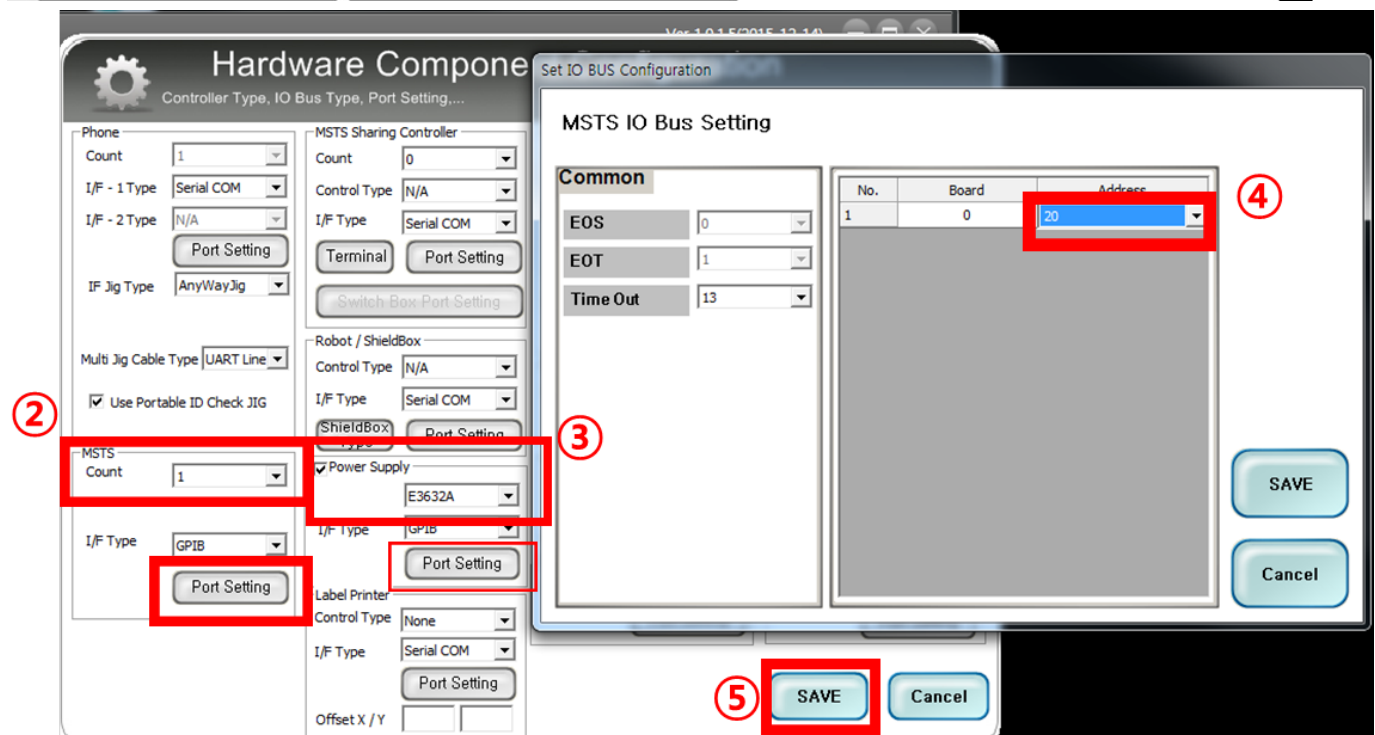
**Model Information**

## 6. Level 1 Repair

5. Set the GPIB address of MSTS(CMW500) and Power Supply(E3632A) to enter 'Hardware Config' and 'Save'. (Check the GPIB address of equipments in advance)



The 'Set System Configuration' dialog box is shown. It has a title bar with a gear icon and a close button. The main area is divided into several sections: 'Test Process' on the left with checkboxes for various tests; 'Test Condition' in the middle with dropdowns for calibration and test modes; 'System Config.' on the right with dropdowns for language, line name, and line type, and checkboxes for various system options; and a vertical sidebar on the far right with buttons for 'Model Information', 'Hardware Config' (highlighted with a red box and a red circle with the number 1), 'Signal Loss Config.', 'Loss Calibration', 'Channel Config.', 'MSTS Calibration', 'Setting End Band', 'Engine Freq.', and 'OK'. The 'Hardware Config' button is the target of the first step.

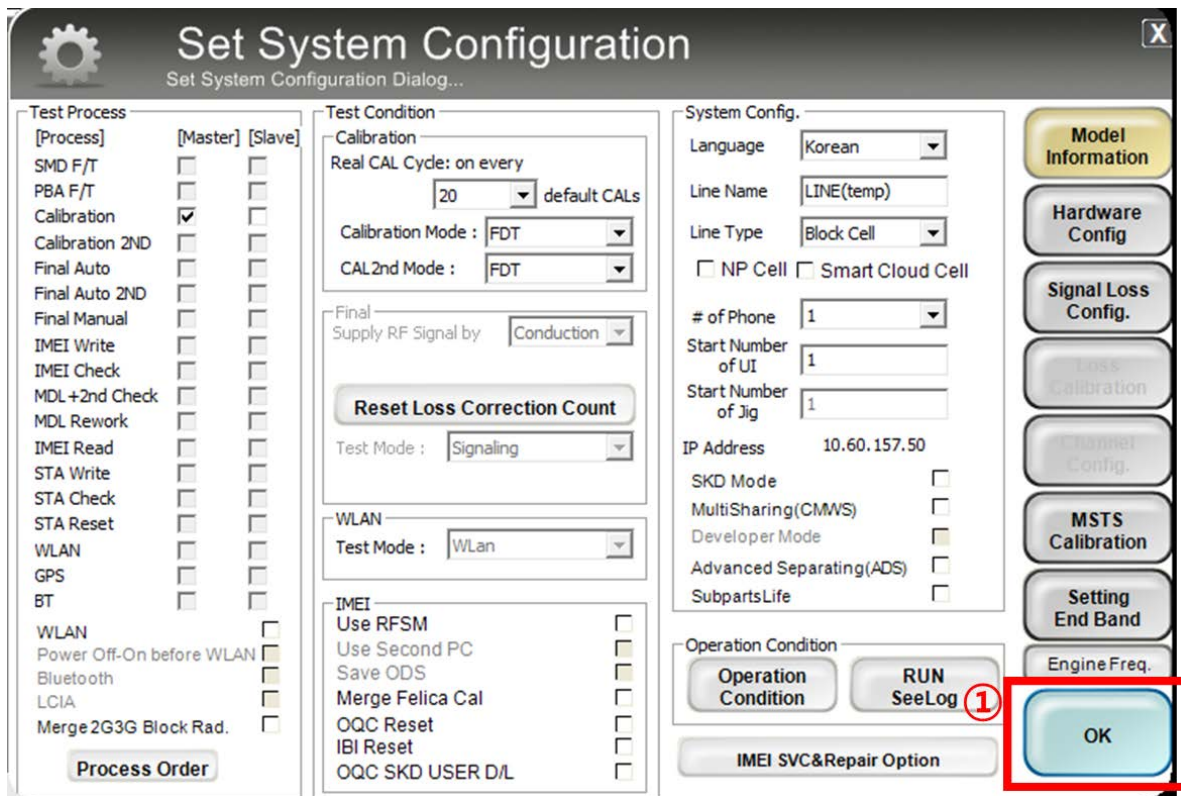


The 'Hardware Component' dialog box is shown, which is a sub-dialog of the 'Set System Configuration' dialog. It has a title bar with a gear icon and a close button. The main area is divided into several sections: 'Phone' on the left with dropdowns for count and I/F type; 'MSTS Sharing Controller' in the middle with dropdowns for count, control type, and I/F type; 'Robot / ShieldBox' on the right with dropdowns for control type and I/F type; and a 'MSTS' section at the bottom with a dropdown for count and a 'Port Setting' button. The 'MSTS' section is highlighted with a red box and a red circle with the number 2. The 'Port Setting' button is highlighted with a red box and a red circle with the number 3. The 'MSTS IO Bus Setting' dialog box is shown, which is a sub-dialog of the 'Hardware Component' dialog. It has a title bar with a gear icon and a close button. The main area is divided into a 'Common' section with dropdowns for EOS, EOT, and Time Out, and a table with columns 'No.', 'Board', and 'Address'. The table has one row with 'No.' 1, 'Board' 0, and 'Address' 20. The 'Address' dropdown is highlighted with a red box and a red circle with the number 4. The 'SAVE' button is highlighted with a red box and a red circle with the number 5.



## 6. Level 1 Repair

6. Press 'OK' to start RF Calibration after completing all settings.



The 'Set System Configuration' dialog box is shown. It contains several sections: 'Test Process' with checkboxes for various tests; 'Test Condition' with settings for calibration cycles and modes; 'System Config.' with fields for language, line name, and IP address; and a 'Model Information' sidebar with buttons for different configuration types. The 'OK' button is highlighted with a red box and a red circle with the number 1.

**Test Process**

[Process]	[Master]	[Slave]
SMD F/T	<input type="checkbox"/>	<input type="checkbox"/>
PBA F/T	<input type="checkbox"/>	<input type="checkbox"/>
Calibration	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Calibration 2ND	<input type="checkbox"/>	<input type="checkbox"/>
Final Auto	<input type="checkbox"/>	<input type="checkbox"/>
Final Auto 2ND	<input type="checkbox"/>	<input type="checkbox"/>
Final Manual	<input type="checkbox"/>	<input type="checkbox"/>
IMEI Write	<input type="checkbox"/>	<input type="checkbox"/>
IMEI Check	<input type="checkbox"/>	<input type="checkbox"/>
MDL+2nd Check	<input type="checkbox"/>	<input type="checkbox"/>
MDL Rework	<input type="checkbox"/>	<input type="checkbox"/>
IMEI Read	<input type="checkbox"/>	<input type="checkbox"/>
STA Write	<input type="checkbox"/>	<input type="checkbox"/>
STA Check	<input type="checkbox"/>	<input type="checkbox"/>
STA Reset	<input type="checkbox"/>	<input type="checkbox"/>
WLAN	<input type="checkbox"/>	<input type="checkbox"/>
GPS	<input type="checkbox"/>	<input type="checkbox"/>
BT	<input type="checkbox"/>	<input type="checkbox"/>
WLAN	<input type="checkbox"/>	<input type="checkbox"/>
Power Off-On before WLAN	<input type="checkbox"/>	<input type="checkbox"/>
Bluetooth	<input type="checkbox"/>	<input type="checkbox"/>
LCIA	<input type="checkbox"/>	<input type="checkbox"/>
Merge 2G3G Block Rad.	<input type="checkbox"/>	<input type="checkbox"/>

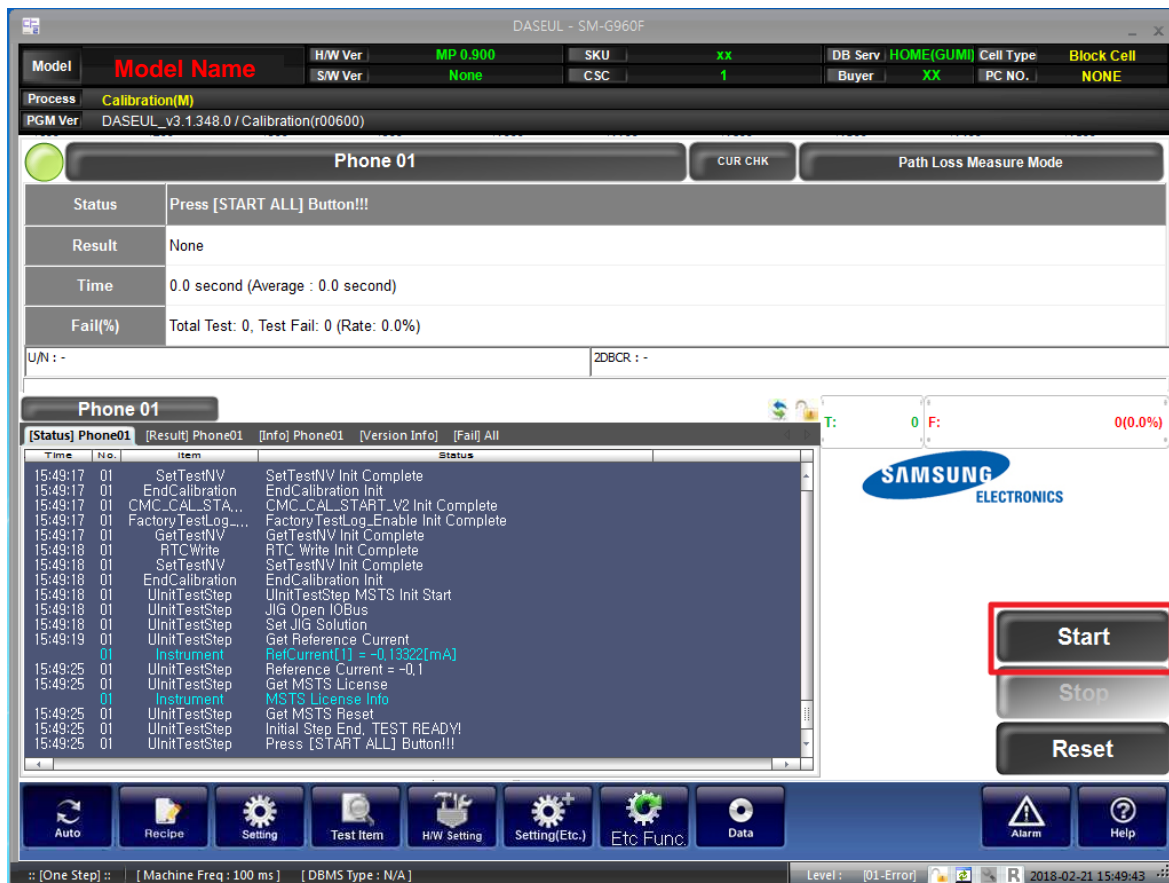
**Test Condition**

Calibration  
Real CAL Cycle: on every  default CALs  
Calibration Mode :   
CAL2nd Mode :   
Final Supply RF Signal by :   
Reset Loss Correction Count  
Test Mode :   
WLAN  
Test Mode :   
IMEI  
Use RFSM ☐  
Use Second PC ☐  
Save ODS ☐  
Merge Felica Cal ☐  
OQC Reset ☐  
IBI Reset ☐  
OQC SKD USER D/L ☐

**System Config.**

Language :   
Line Name :   
Line Type :   
☐ NP Cell ☐ Smart Cloud Cell  
# of Phone :   
Start Number of UI :   
Start Number of Jig :   
IP Address : 10.60.157.50  
SKD Mode ☐  
MultiSharing(CMWS) ☐  
Developer Mode ☐  
Advanced Separating(ADS) ☐  
SubpartsLife ☐  
Operation Condition     
IMEI SVC&Repair Option

**Model Information**



The 'DASEUL - SM-G960F' test interface is shown. It displays a table of test results for 'Phone 01'. The 'Start' button is highlighted with a red box. The interface includes a status bar at the bottom with various icons and a timestamp.

**Model** **Model Name** **H/W Ver** **MP 0.900** **SKU** **xx** **IDB Serv** **HOME(GUMI)** **Cell Type** **Block Cell**  
**SW Ver** **None** **CSC** **1** **Buyer** **XX** **PC NO.** **NONE**  
**Process** **Calibration(M)**  
**PGM Ver** **DASEUL\_v3.1.348.0 / Calibration(r00600)**

**Phone 01**

**Status** Press [START ALL] Button!!!  
**Result** None  
**Time** 0.0 second (Average : 0.0 second)  
**Fail(%)** Total Test: 0, Test Fail: 0 (Rate: 0.0%)  
U/N : - ZBCR : -

**Phone 01**

[Status]	Phone01	[Result]	Phone01	[Info]	Phone01	[Version Info]	[Fail]	All
15:49:17	01	SetTestNV	SetTestNV Init Complete					
15:49:17	01	EndCalibration	EndCalibration Init					
15:49:17	01	CMC_CAL_STA...	CMC_CAL_START_V2 Init Complete					
15:49:17	01	FactoryTestLog...	FactoryTestLog_Enable Init Complete					
15:49:17	01	GetTestNV	GetTestNV Init Complete					
15:49:18	01	RTCWrite	RTC Write Init Complete					
15:49:18	01	SetTestNV	SetTestNV Init Complete					
15:49:18	01	EndCalibration	EndCalibration Init					
15:49:18	01	UnitTestStep	UnitTestStep MSTS Init Start					
15:49:18	01	UnitTestStep	JIG Open IOBus					
15:49:18	01	UnitTestStep	Set JIG Solution					
15:49:19	01	UnitTestStep	Get Reference Current					
15:49:25	01	UnitTestStep	RefCurrent[1] = -0.13322[mA]					
15:49:25	01	UnitTestStep	Reference Current = -0.1					
15:49:25	01	UnitTestStep	Get MSTS License					
15:49:25	01	UnitTestStep	MSTS License Info					
15:49:25	01	UnitTestStep	Get MSTS Reset					
15:49:25	01	UnitTestStep	Initial Step End, TEST READY!					
15:49:25	01	UnitTestStep	Press [START ALL] Button!!!					

**Start** **Stop** **Reset**

**Auto** **Recipe** **Setting** **Test Item** **H/W Setting** **Setting(Etc.)** **Etc Func.** **Data** **Alarm** **Help**

Level : [01-Error] 2018-02-21 15:49:43

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## 9. Reference Abbreviation

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### Reference Abbreviation

- **AAC**: Advanced Audio Coding.
- **AVC** : Advanced Video Coding.
- **BER** : Bit Error Rate
- **BPSK**: Binary Phase Shift Keying
- **CA** : Conditional Access
- **CDM** : Code Division Multiplexing
- **C/I** : Carrier to Interference
- **DMB** : Digital Multimedia Broadcasting
- **EN** : European Standard
- **ES** : Elementary Stream
- **ETSI**: European Telecommunications Standards Institute
- **MPEG**: Moving Picture Experts Group
- **PN** : Pseudo-random Noise
- **PS** : Pilot Symbol
- **QPSK**: Quadrature Phase Shift Keying
- **RS** : Reed-Solomon
- **SI** : Service Information
- **TDM** : Time Division Multiplexing
- **TS** : Transport Stream