

# MHD FLASHER USER GUIDE



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## DESCRIPTION:

**MHD Flasher is the first Android handheld application to bring ECU tuning and monitoring to the BMW N54 engine. The MHD Flasher reveals the immense margin of power BMW left on the table with the N54 while still retaining the sophistication of the original engine management program.**

**The MHD Flasher can be downloaded here:**

**<https://play.google.com/store/apps/details?id=com.mhd.flasher.n54>**

**\*\*\*This Product is for Competition/Racing/Off-Road Use Only\*\*\***

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## **WHY CHOOSE MHD FLASHER?**

→ Easy to install

Connect any compatible Android device to your car using a standard K+Dcan cable along with an OTG USB cable, install one of the pre-purchased MHD built-in maps and enjoy the power and performance benefits of the maps by Wedge Performance.

→ Keep an eye on the tuning

Monitor your engine behavior using a configurable gauges layout to keep an eye on any of the 50+ engine monitors like oil temp, boost pressure, actual load or individual cylinder ignition timing. Activate the logging mode to save up to 30 monitors to a standard CSV file for later analysis. Track issues by reading the error codes, and delete them once resolved.

→ Flash your ECU back to stock anytime, as often as you need to. No ECU backup is needed

→ Custom tuning support

As an alternative to built-in maps, several tuners can provide advanced custom mapping for those who have higher or special performance needs.

The MHD Flasher can be downloaded here:

<https://play.google.com/store/apps/details?id=com.mhd.flasher.n54>

Complete features description:

**\*\*\* Flasher module**

- Flash built-in maps (purchased separately), piggyback backend maps or custom user-tuned .BIN files.
- Backup up the stock ECU software, as fast as 5 seconds on most of the cars.
- Provides handy options like power limiter per gear, wastegate rattle fix or idle RPM setting.
- Read / delete engine trouble codes.
- Reset adaptation values (Lambda, Fuel/air, Octane rating, VANOS, Throttle, and Battery).
- 2 minutes map switching; initial install time: 18 minutes on KLINE cars (2007 & Early 2008), 38 minutes on DCAN cars (2008+).

**\*\*\* Monitor module**

- Extensive logging values list, up to 30 values at the same time.
- Save logging session to .CSV files
- Up to 8 configurable gauges

**\*\*\* Optional Built-in maps packs**

- Maps by Wedge Performance
- Stage 1 pack. Four maps: 91/93oct variants, stock / upgraded FMIC variants.
- Stage 2 pack: Two maps: 91/93oct variants. High flow downpipes required
- E40 map (40% e85), requires FMIC+DPs

**Stage 1 Maps:**

1. Two maps included: Stage 1 and Stage 1 + FMIC. Each with 4 octane variants (Octane 91, 91, 93, 95)
  - a. Average Power Levels: 340-385hp using a peak of 15 to 17 psi tapering to 10-12psi in upper RPM's

**Stage 2 Maps:**

1. Two maps included: Stage 2, Stage 2 + FMIC. Each with 4 octane variants (Octane 91, 91, 93, 95)
  - a. Average Power Levels 370-420hp using a peak 16 to 18 psi tapering to 12-14psi in the upper RPM's
  - b. E40 map for Ethanol blends of 40% targeting peak 18psi tapering to 14, 440hp.

**Supported vehicles:**

- 2007-2010 135i, 335i and 535i
- 2011-2013 335is
- 2009-2015 Z4 35i/is
- 2011-2012 1M
- 2008-2010 X6 35i

**\*\*\*\*\*This racing product is for competition closed course use only\*\*\*\*\***

### Required hardware:

- 1 device running Android 3.2 and up, USB OTG compatible.
- 1 K+Dcan cable. The only reliable and affordable provider in the US is:  
<http://bimmersoftware.com/Cables>
- 1 USB OTG cable.

### MHD Licensing and OTS Tune Pricing (licenses are VIN Locked):

- Flasher module: \$99 (needed to read/write DME)
- Monitor module: \$69 (needed for Datalogging)
- OTS MHD maps: \$49/ea. (Requires Flasher module)
- Increased boost limit (from 18 to 22 PSI) module: \$49. For custom tuning purpose. (Requires the Flasher module)
- JB4 backend only flasher: \$79
- Backend Flasher Upgrade \$20 to the full \$99 flasher module.

### MHD Flasher w/JB4 Stacking:

- MHD Flasher can work in conjunction with JB4 from BMS. Through joint efforts of both BMS and MHD Stacking tuning solutions are possible. If you are interested in Stacking, then take head to the information below.

#### 1. Required Software:

- [MHD Flasher](#)
- [BMS Latest Firmware](#)
- [BMS Latest Backend Flash](#)
- [JB4 software](#) or [phone app](#)

#### 2. Required Hardware:

- BMS JB4 G5 ISO tuner w/USB cable
- K & D CAN coding cable
- OTG micro USB to female USB adapter
- 12v Car Battery Charger (first Flash up to ~38 minutes)

**Tested/Known Compatible Cables:** (this is a list of known cables that work with MHD. Please be aware that any of the Cheap EBAY/Amazon cables that are being sold have a 50/50 chance of working)

1. [Bimmer Software Cable](#)
2. UK: switchable Dcan cable from [cable-shack](#)
3. Europe: [My-obd.de](#)

## Flashing with MHD Flasher:

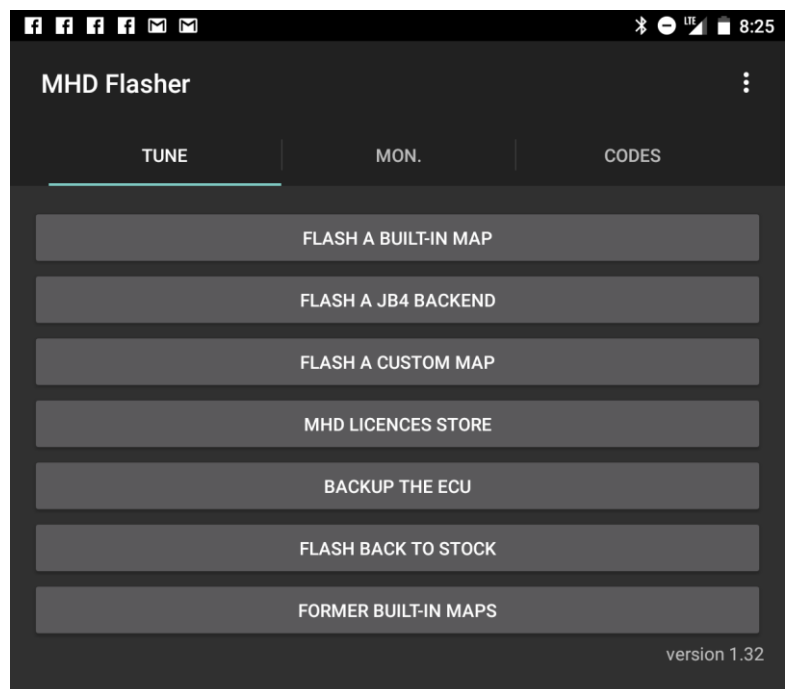
### Initial Setup:

1. Download and Install MHD Flasher on your respective Android device.
2. Connect D-Can cable to USB OTG cable.
3. Connect Mini-USB end of the OTG cable to the charging port of the Android device
4. Select the checkbox in the “permissions window” pop-up and hit OK
5. Unplug mini-usb from Android device charging port. (If MHD flasher happens to start, just exit MHD and move to step 6)
6. Plug mini-usb back into Android device. MHD Flasher should auto start within 5 Seconds

**\*\*\*\*MHD Flasher is now ready to be used. Go to MHD Store Section Below\*\*\*\***

### MHD Flasher Store:

1. Ensure that the D-Can and OTG cable are connected to each other and connect cables to the vehicle OBD2 port.
2. Open MHD Flasher and select MHD Store. You will be taken to the Following screen to select your purchases.
  - a. NOTE- prior to purchasing, please ensure your Google Play account details are in good standing and are setup appropriately. And you have the latest version of Google Play and Google Play Services.



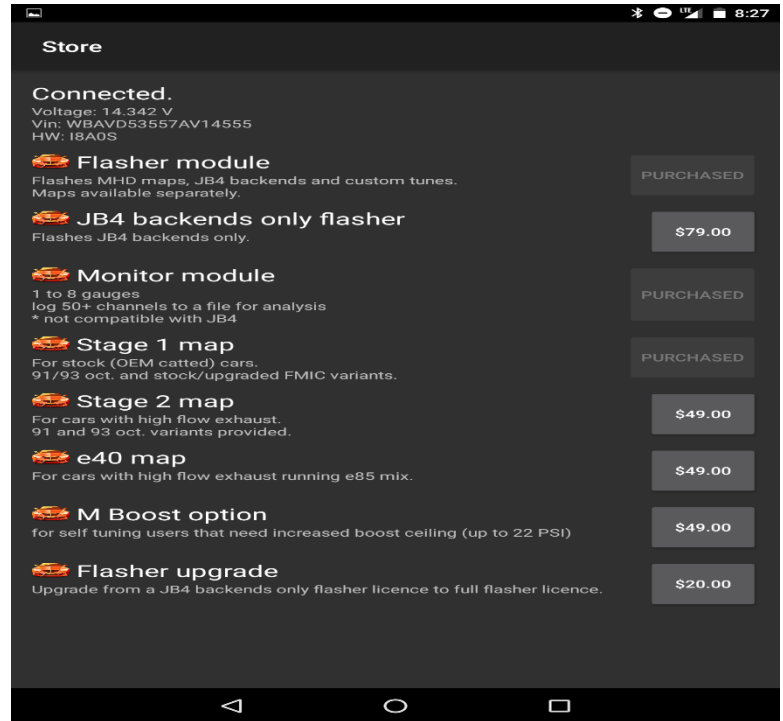
3. Select and Purchase the Modules and Tune Packages you wish to utilize

4. Once purchases are made, proceed to back out to MHD's main screen. PUT ANDROID DEVICE INTO AIRPLANE MODE.

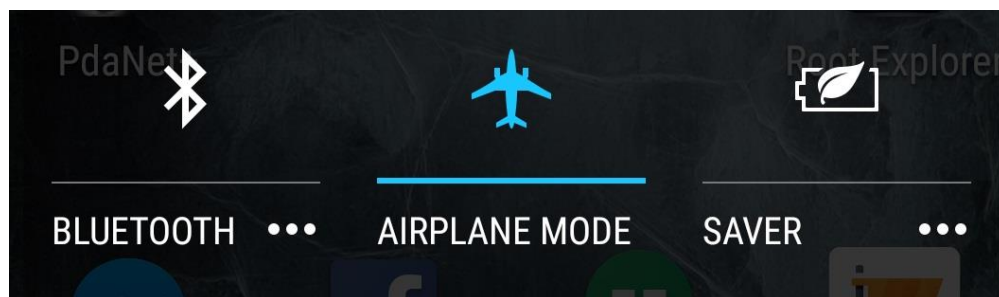
- a. NOTE- When doing any DME flashing or back-up functions ENSURE that the Android device is put into AIRPLANE mode. FAILURE TO DO SO MAY LEAD TO UNWANTED RESULTS.

5. Connect vehicle to charger to ensure Battery stays charged.

- a. NOTE- Charger is NECESSARY for the initial flash process due to initial process taking anywhere from 18-30 minutes depending on the vehicle year/model in question.
- b. NOTE- DO NOT conduct initial flash process without the use of a car/battery charger. DME/Vehicle can become immobile and unusable in the event of the DME voltage dropping.
- c. NOTE- Map flashing after the initial MHD Flash process takes max 2 minutes and a charger is not necessary on a vehicle with a good battery, but is still RECOMMENDED.



**\*\*\*\* AGAIN – ENSURE YOUR ANDROID DEVICE IS PUT INTO AIRPLANE MODE\*\*\*\***



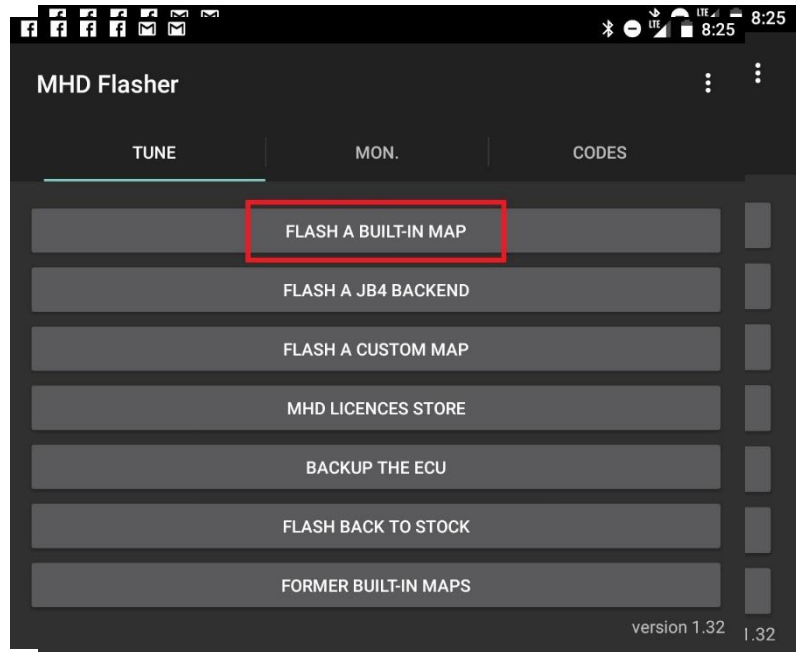


6. Before starting the flash process, ENSURE that you make a back-up of your STOCK DME file by selecting the “BACK-UP ECU” on MHD’s main screen if you plan on self-tuning your own vehicle.

a. NOTE- depending on year and model. ECU back-up can take up to 60 minutes to complete.

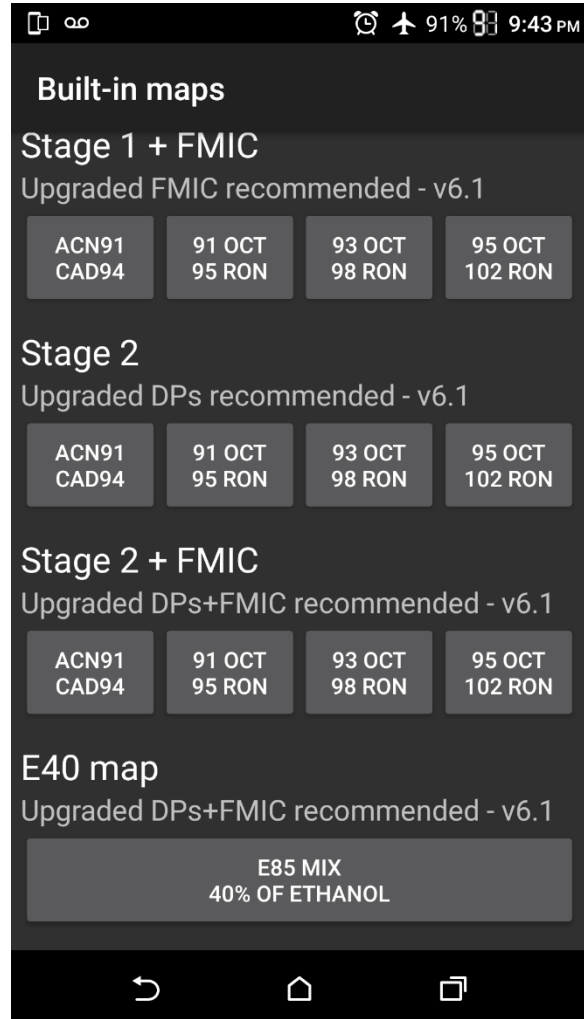
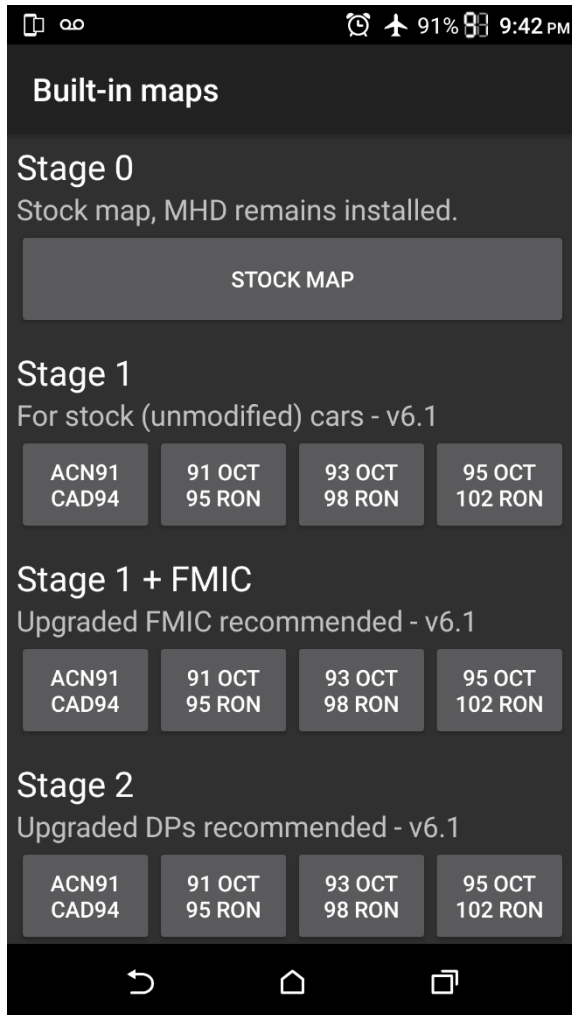
7. Once the ECU is backed up, you are now ready to perform your First initial Flash

8. On the main MHD screen select “Flash a Built-In Map” to choose from one of the MAPS you purchased back in Step 3.



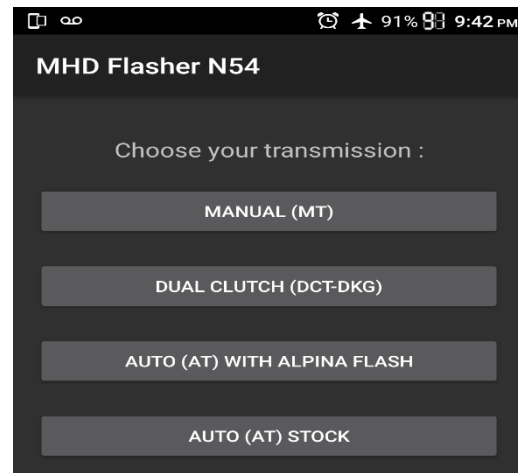
SCREENSHOT OF MAP SELECTION SCREEN ON FOLLOWING PAGE:

## MHD MAP SELECTIONS:



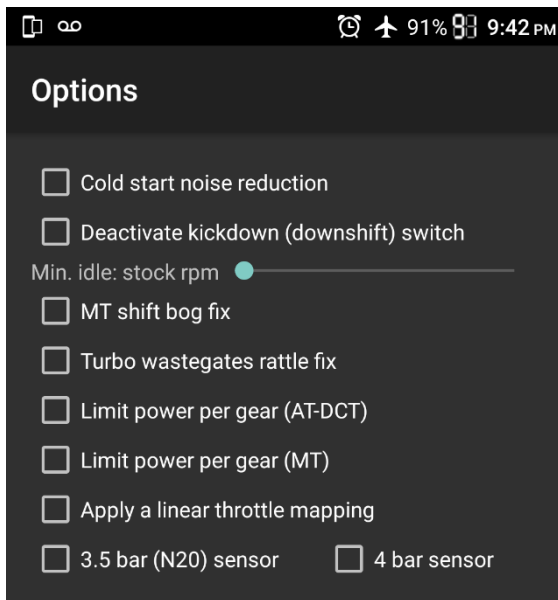
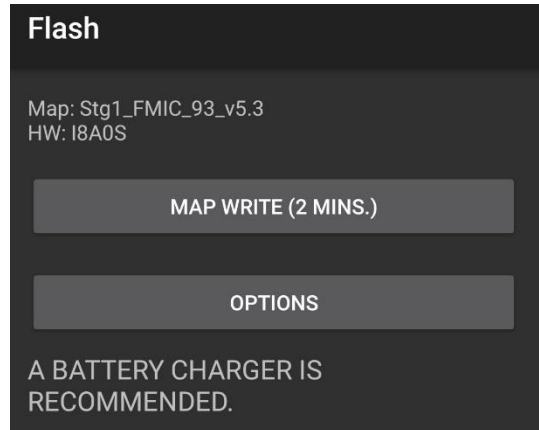
9. Ensure Again, that the Android device is in airplane mode.

10. Now that you have selected your map of choice you will be brought to the following MHD Flash screen where you select your vehicles respective transmission.

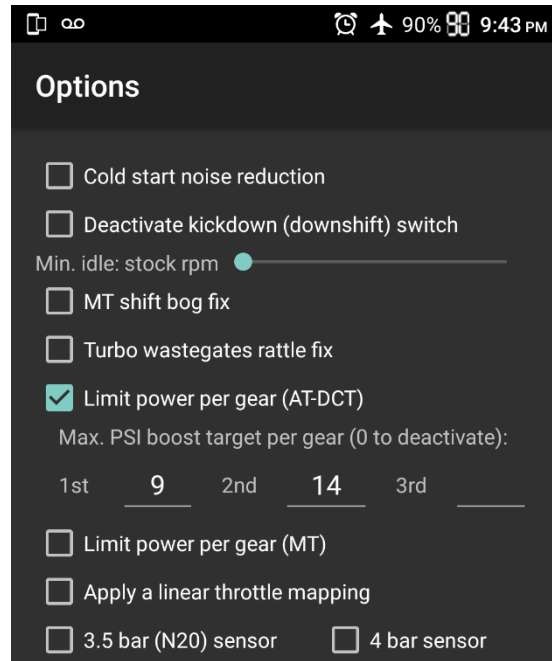


11. After transmission selection you will be brought to the next MHD Flash screen. Here you may choose to flash the selected map as is. Or move to the MAP options selection where features such as:

- a. Wastegate Rattle Fix
- b. Engine Idle Speed
- c. Cold Start Deactivation
- d. Kick-down Deactivation  
(Downshift switch for Auto Trans)
- e. Manual Trans Shift Bog Fix
- f. Power (Boost) Limit by Gear for Manual trans. And AT/DCT trans.
- g. Linear Throttle Mapping
- h. 3.5Bar (N2O) Map Sensor
- i. 4Bar Map Sensor



**\*\*NOTE- AT/DCT Transmission owners, ENSURE you select the correct power limiting method denoted by (AT-DCT). Using the Manual Transmission Power limiting method will cause undesired Shifting issues.**



12. Once MAP options are selected if you chose to do so. Hit the Back button to proceed back to the main Flash screen.

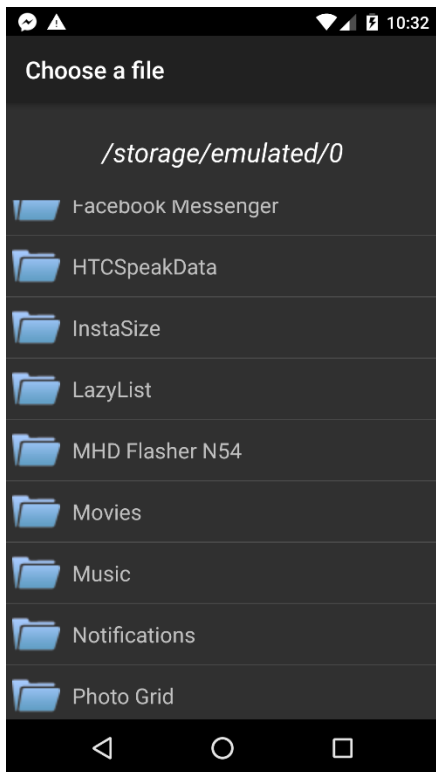
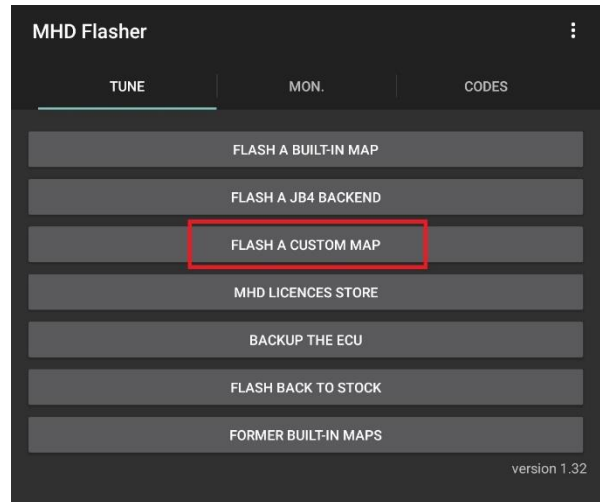
- 13. Double-check to ensure Ignition is in the Ignition on, but Engine Off state, as well as make sure all Cabin accessories and climate controls are turned off and the car charger is connected and on.**
- 14. Select “MAP WRITE/FULL WRITE” (full write for initial flash, and map write for all else) and MHD will begin to flash the vehicle. During this time do not open the windows, do not open the doors, do not turn on anything else in the vehicle whereas to disrupt the flashing process.**
  - a. During this flashing process you may hear a series of chimes, and the fuel pump running. You may also receive some error messages throughout the flashing process. Don’t be alarmed, this is normal.**
- 15. Once MHD flashes the selected map, it will put the DME back into “Normal Operation” and clear codes. Once it does this it will ask you to turn off the ignition.**
- 16. Turn off ignition completely, remove key FOB from slot and wait a minimum of 30 seconds before trying to start the car. The “Service Car” icon may remain illuminated for part of this time.**

**CONGRATULATIONS YOU HAVE JUST FLASHED YOUR FIRST MHD FLASHER OTS TUNE**

## FLASHING CUSTOM TUNES:

Along with the ability to flash MHD's own OTS tunes that are available in the MHD store. MHD Flasher can also be used to flash custom tunes as well. Whether the tune file is made by you or any of the Protuners in the community.

1. Transfer the custom tune that you wish to flash to your Android device and put it in the MHD Flasher folder. (NOTE- you can save the Tune anywhere you wish on your phone, just remember where you placed it)
2. Open MHD Flasher and connect to your vehicle
3. Select "Flash a Custom Map" from the MHD Flasher main menu



4. Navigate to the said tune on your Android device and select it
5. You will now see the same screen you would see if you were flashing an OTS tune. If you wish to add some flash time options, go ahead and do so.
6. If no flash time options are needed/wanted, ensure your ignition is turned on and select "Map Write" to flash the tune.

**NOTE-** if this is the first flash of the custom map, MHD will perform a long write process just like when you did your first flash of an OTS map. So a charger is 100% recommended for this to keep your battery charged. **FAILURE TO USE A BATTERY CHARGER CAN RESULT IN UNWANTED RESULTS AND DEEM YOUR VEHICLE UNDRIVABLE.**

7. Follow MHD prompts to complete flash of custom map. When directed to turn ignition off. Do so, and remove the key completely for 30 seconds before starting the vehicle.

## DATALOGGING WITH MHD FLASHER:

MHD Flasher also includes a comprehensive logging/monitoring feature. This feature can be used to gauge the condition of the vehicle, the quality of the tune being used and many other things.

MHD's monitoring module includes over 50 logable parameters, of which 30 can be logged at once. And total of 8 of those selected parameters can be viewed as gauges within the MHD application.

## AVAILABLE PARAMETERS:

Accel Ped. Pos.

Actual Load

Boost

Boost Error D-Fact

Boost Error P-Fact

Boost Mean

Boost Set Limit

Boost Setpoint

Boost Target

Coolant Temp

Timing Correction Cylinders 1-6

Fuel Low pressure Sensor

Fuel Mode

Gear

IAT

Lambda Bank 1 and 2

LTFT 1 and 2

MAF

MAF Req

MAF Req (wgdc)

Oil Temp

Rail Pressure

RPM

Speed

STFT 1 and 2

Throttle Position

Timing Cylinder 1-6

Torque Actual

Torque Limit Active

Torque Limit Mod

Torque Output Req

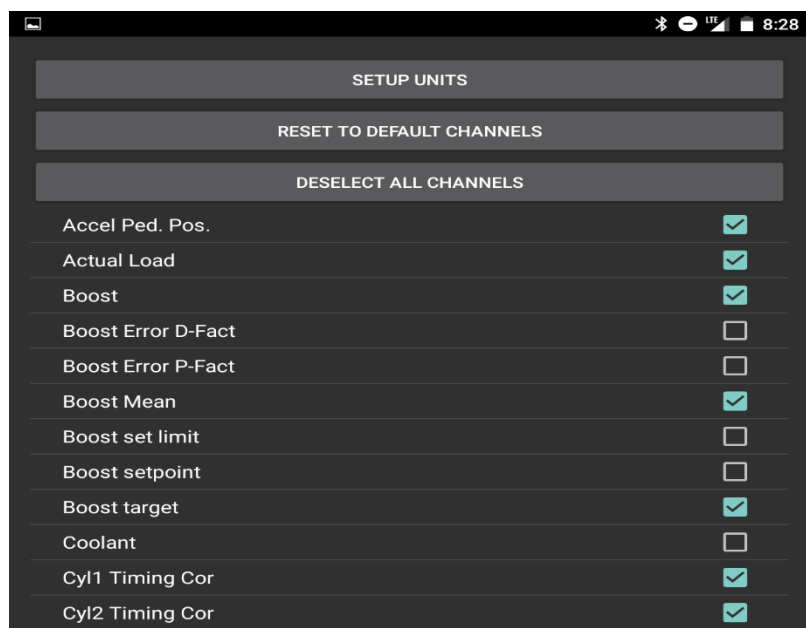
VANOS Exhaust Act/Req

VANOS Intake Act/Req

WGDC After PID

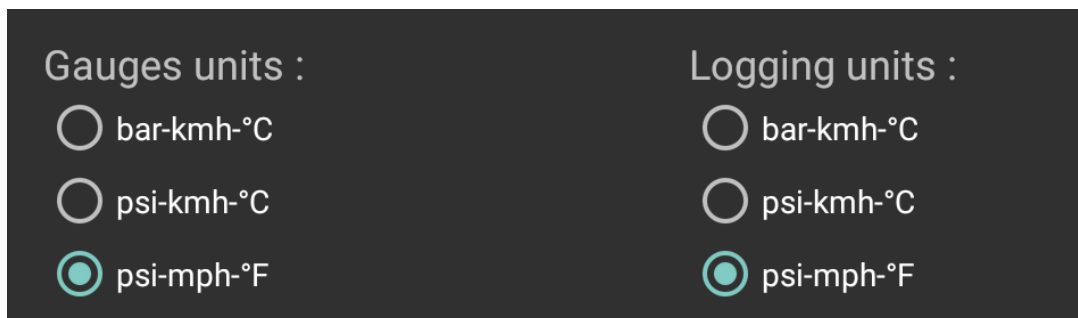
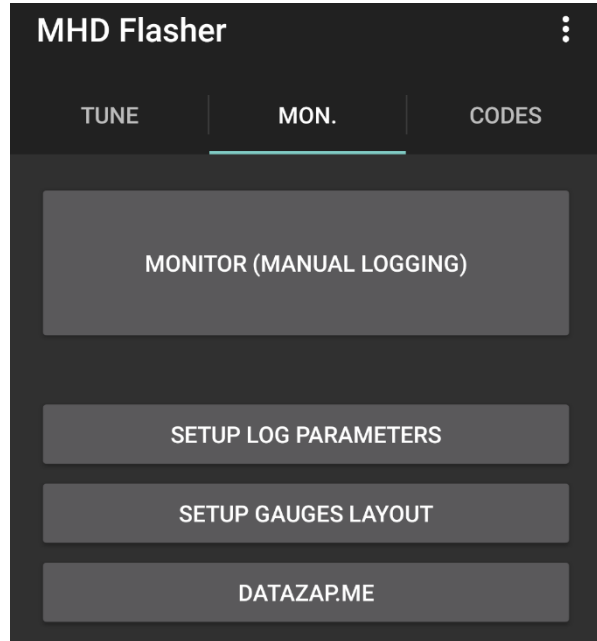
WGDC Bank 1/2

WGDC Base Value



**SELECTING PARAMETERS:** By default MHD has some of the main parameters already selected for logging purposes. But you can go in and select or deselect any of the parameters you wish.

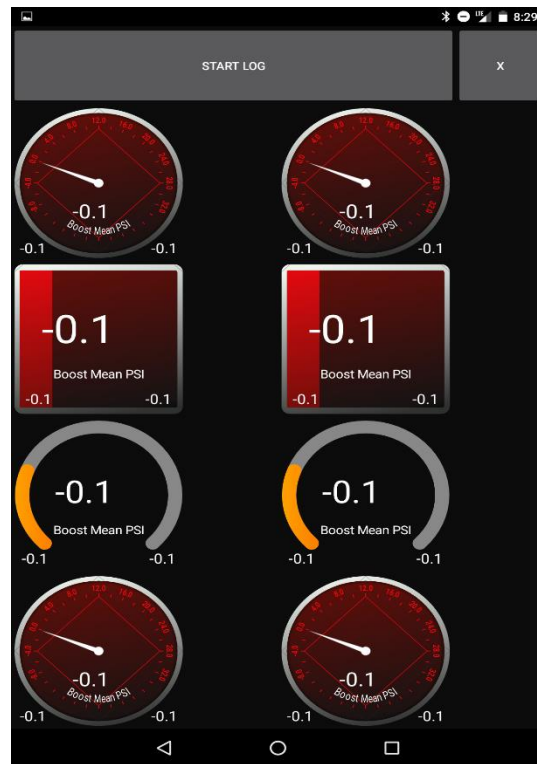
1. Select the monitor tab “MON” from the MHD main menu
2. If you want to verify or change which parameters you want to log, you will select “SETUP LOG PARAMETERS” and proceed to make your selections. Logged parameters will be identified by a blue checkbox to the right of the parameter.
3. From this Area of MHD you can also select how your units are displayed by selecting the “SETUP UNITS” button inside the Parameter setup window. Metric/Standard units are selectable.



4. Once you have finished making any changes to your monitor tab press the back button to go back to the main monitoring screen.
5. Select “Setup Gauges Layout” to setup how many you would like to have showing while monitoring.

**NOTE: you can have up to 8 gauges or as little as one gauge showing at any given time. But they must be one of the parameters that you have selected when you had setup your logging parameters.**

**NOTE: the MHD Monitoring module has 3 different types of gauge view. They are BAR, SWEEP, and**



**NOTE: Changing the Gauge Type is done once logging has begun and you're in the MHD logging screen by tapping on the respective gauge that you wish to modify. Once all changes have been made. You are now ready to start logging.**

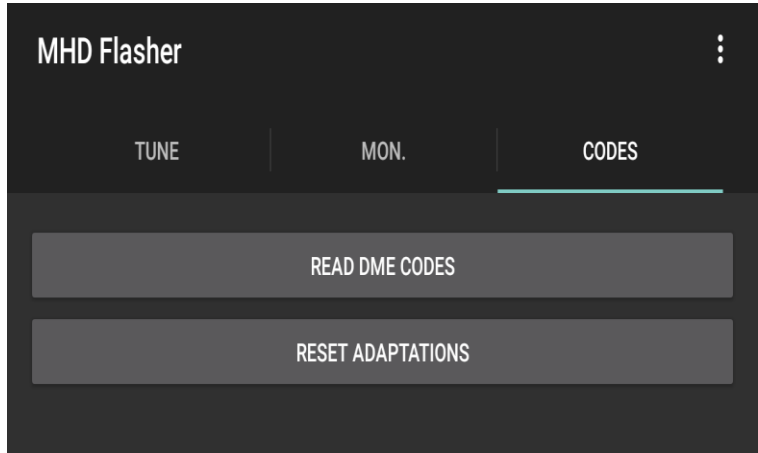
6. Go back to the main MHD logging menu and select "MONITOR (manual logging)"
7. To begin recording the log, select "Start Log" at the top.
8. To stop recording the log, select "Stop Log" at the top while recording

**NOTE: If you do not wish to record the log and just want to view the gauges, simply do not select "Start Log".**



**DME Code Clearing and Adaptations Reset:** MHD also includes a comprehensive DME code reading/clearing module which also has the ability to reset DME adaptations for free. All you need to do is install the app and have the before mentioned cables.

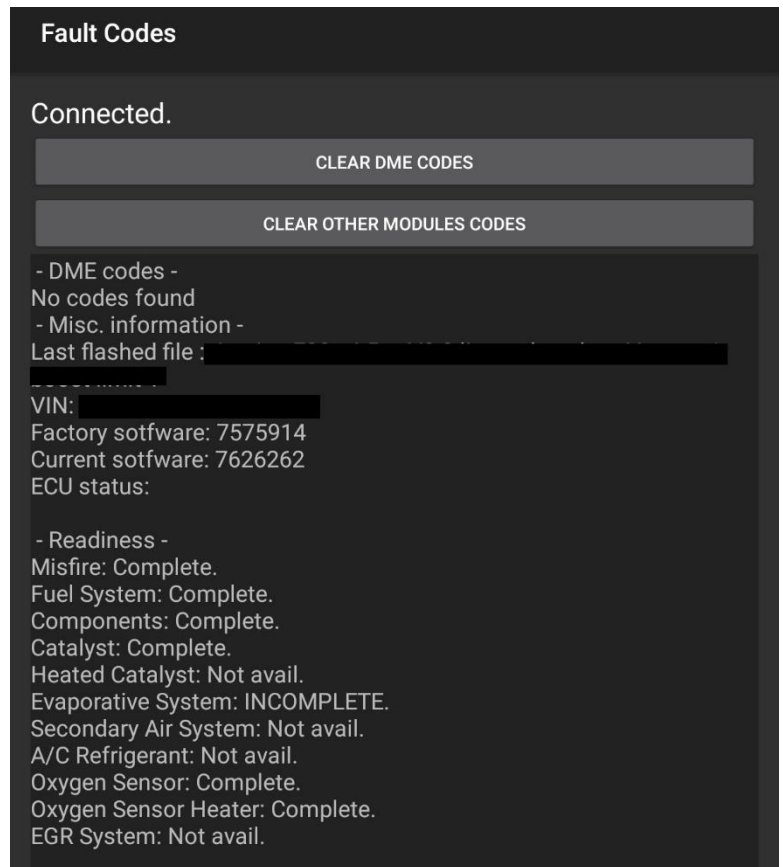
1. Select the “CODES” tab from the MHD Flasher main menu
2. Ensure that you are connected to your vehicle with the ignition on but engine off state.
3. Select “READ DME CODES” to query the DME for any Hard or Shadow codes



**NOTE:** MHD’s codes module has the ability to read and clear DME shadow codes as well. Something that not all OBD2 DTC scanning solutions can do.

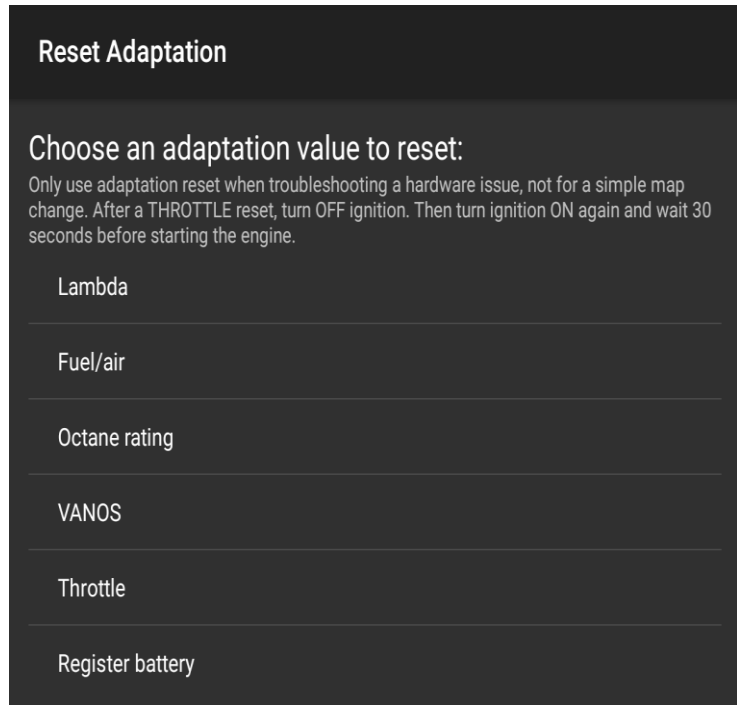
4. Once you select the “READ DME CODES” function you will be brought to a screen with the results. This screen will also include your vehicle VIN, DME ROM ID, software ID, and current ROM file name that is Flashed on the DME, and emissions readiness monitor status.

**NOTE:** If the DME has active or shadow codes, it will show under “DME CODES” above last file flashed. To clear codes, select “CLEAR DME CODES”



**DME ADAPTATIONS RESET: (Adaptations resets show only be used if you are having a particular issue and you are troubleshooting and you want to eliminate LEARNED behavior or values from the equation as a root cause of the issue you are having)**

- **What can be Reset?**
  1. **Lambda**
  2. **Fuel/Air**
  3. **Octane Rating**
  4. **Vanos**
  5. **Throttle (Throttle inputs and correlation, after reset turn ignition off and then back on, wait for 30 seconds before starting the engine)**
  6. **Register Battery (only works for when replacing batteries of the same type and power rating)**



**NOTE: When resetting adaptations, Ensure the vehicle engine remains off, but ignition is on.**

## Flashing Flowchart: (Thanks to Forum Member Chris aka LCVETTE)

Once you have all the required latest versions of hardware and software, you will need to update the firmware in the JB4. It is recommended to create folders for both JB4 firmware files and BMS Backend Flash files to keep them organized and be familiar with their location for future use. The MHD Flasher and JB4 phone app will prompt you to select a file version from these files. Knowing where they are makes things easier.

### JB4 Firmware updating:

1. Connect the JB4 USB cable to your OTG micro USB to USB adapter and to your phone.
2. Open the JB4 phone app on your phone/tablet device and enable a connection to the JB4.
3. Select: settings tab, then scroll down to the firmware tab and select it.
4. You should now see the N54tech forum inside the jb4 app. Select the N54 section, then in the "stickies" section, select the "N54 G5 ISO Firmware & Notes" thread.
5. Scroll down and find the latest firmware version listed at the bottom of the first post. **READ THE NOTES!** It shows the changes and any required internal jb4 setting changes you will need to perform. Select the file download link listed for the latest firmware version. This will begin the installation of the firmware through the jb4 phone app. Follow the guided steps in the app to complete the process.
6. OK. You are now running the latest firmware version.
7. If you will be flashing a BMS/MHD Backend Flash, you will now need to set the JB4 to MAP "0" before continuing.
8. Now go into the jb4 phone app and Under the settings tab, read only tab, find the correct version of your car, IJEOS or I8AOS. Write this down for future use in selecting the correct Backend Flash you'll need in the upcoming steps.
9. Congrats you have completed the first task in preparing the JB4 to use a Backend Flash with the latest firmware installed! Future firmware updates will be installed in the same manner unless Terry changes it.

## **BMS/MHD Backend Flashing Flow Chart:**

- 1. Have your K&D CAN Cable, micro USB to USB adapter, phone/tablet device, and car battery charger out and ready for the next steps. NOTE- this flashing process can vary from 15-40 minutes depending on your DME Version.**
- 2. Open hood and connect your battery charger to the car (follow BMW Procedure for this). I used the 12amp charger setting, as the fuel pump draws a good bit while flashing.**
- 3. Turn on your car without starting, key in ignition, start button pressed without foot on clutch or brake. Now turn off all accessories such as the hvac system and radio etc.**
- 4. Plug the K&D CAN Cable into the obd2 port near the left kick panel near door opening. Connect the OTG micro USB to USB adapter to the K&D CAN Cable, and connect to your phone. Open the MHD Flasher APP on your phone/tablet device. It should begin recognizing the connection to the vehicle.**
- 5. Once the connection has been established. Go to the store tab, this is where you will purchase the BMS Backend Flash license. Select the BMS Backend license for purchase, currently \$79. This can be paid with your Google play account. Once payment is made you are ready to begin flashing.**
- 6. Verify you are in jb4 map "0".**
- 7. In the MHD app select "Flash a JB4 Backend"**
- 8. This will open your phones SD card directory. Find the file you downloaded previously from N54tech MHD Flash discussion first post on page 1, currently version 6/6. You should have already unzipped the file as directed during initial download. If you are not seeing the Backend Flash files in your folder, you probably did not unzip them. Go back and unzip and repeat the last steps.**
- 9. You should be looking at a list of Flash files to choose from. Based on the requirements listed on the first post in the MHD Flash discussion thread, select the appropriate Flash level and DME compatibility type for your car. E.g. I8AOS PUMP FLASH etc.**
- 10. Once selected the MHD app will go through a read process and then ask you to begin the Flash. If everything has been done as expressed above, you can click to continue. Once flashing its recommended to let it complete without touching anything or opening doors or flipping switches. I setup everything so I was not inside the car so I wouldn't be trapped for possibly up to 40 minutes with nothing to do.**

- 11. Once the Flash is completed follow the instructions it provides to finalize the procedure. Once done, power down the car, remove the key from ignition, remove the cables from the obd2 port, unplug the battery charger and remove the positive and negative charging leads from the car.**
- 12. Power up the car without starting, enter the jb4 steering wheel controls, select 4/2 to enable Backend Flash compatibility. Set your jb4 to your appropriate map setting for your car. Start the car. Pending it runs, you're done.**

**Congrats! You're all done with installation! Now drive the car and use the logging function of the jb4 app connected to the jb4 via the USB and OTG adapter to capture some data for review. Post the data logs in the support section of the N54tech forum. You will get a clear idea of how everything is working and how you can advance into more aggressive maps, flashes or both to further Increase power. This will be based on how your car is doing with your current bolt on modifications as well as advice in what to add as your next bolt on mods to allow further tuning increases.**

## **FAQ**

**Q: Can I test the connection before making a purchase?**

**A: Yes, simply tap the MHD Store button. The ECU connection is checked before displaying available purchases.**

**Q: Does my Android device need to be permanently plugged to the OBD port?**

**A: No. Once a flash is performed you can unplug your device.**

**Q: Do I need to purchase a new license each time I flash a map?**

**A: No, you can ref lash as many times as needed.**

**Q: Is a battery charger required?**

**A: It is highly recommended for long flashes (install, uninstall). A healthy battery will handle short flashes (map changes) fine but the use of a battery charger remains recommended.**

**Q: Can I flash a Cobb OTS or Cobb Custom tune to my vehicle using MHD Flasher**

**A: Short answer is NO, Cobb tunes are a completely different format than the BIN and MHD file extensions that are used in MHD. They are not compatible. However, if you have access to the values used in your Custom tune or OTS Cobb tune, you can copy over the values into Tunerpro to use with MHD.**

**Q: I want to flash using MHD but I don't see my ECU ROM ID listed as supported. Can I still flash and is it safe?**

**A: If by chance your DME was never updated by the dealer to the latest ROM versions (Which MHD uses) then you can still flash and be fine. MHD Flasher updates your DME to the most recent ROM version automatically. But, ensure you perform an ECU back-up prior to flashing.**

**Q: I'm about to flash my car with an OTS or custom tune. What should I do before flashing?**

**A: Recommended upgrades include replacing spark plugs and ignition coils if they are aged. If you brought the car used and it has decent mileage and don't know if they were changed or not, we recommend changing them for piece of mind.**

**Q: I don't have a FMIC installed on my car yet, is it safe to run one of the FMIC maps and is it safe.**

**A: Yes, you can run one of the FMIC OTS maps, but it is recommended that you datalog, and ensure the car is not knocking, and the IATS and fueling remain healthy. We advise against using Step up MAP on cars without the recommended parts if using for track days and sustained aggressive driving. USE AT YOUR OWN RISK, MHD is not responsible for any damage done to your car using MAPs intended for modified vehicles without the recommended upgrades.**

**Q: When trying to purchase licenses or OTS Maps from MHD Store I receive error messages from Google Play that will not allow me to complete my purchase. What can I do?**

**A: Rejection is most of the time it is due to the following:**

- 1. Your Google account being new**
- 2. Your payment method that was not so far used with Google (or since a long time)**
- 3. Using your account to pay on several devices**

**That restriction from Google is cleared after some days (4). You can try first to complete your payment information on Google Wallet website (some fields may be missing, like the credit card 3-digit security code).**

**Here you can request a call from Google, other customers resolved this issue quickly with a call**

**<https://support.google.com/wallet/#contact=1&topic=3209987>**

**Q: MHD Flasher will not connect to my car, I have a known good cable and phone is in airplane mode. What is the issue?**

**A: Make sure that the Android device you are trying to use is 100% USB OTG ready. Not every Android device has this functionality.**

**Q: Is MHD flasher compatible with my vehicle.**

**A: MHD Flasher is only compatible with N54 equipped BMW models. It does not work with other vehicles at this time.**