Upgrading ECU's on BMW F11 520d



Disclaimer: All content in this document is to be seen as guidelines. No one but yourself can take responsibility if you break something as a consequence of following this guide. The author can in NO WAY be held liable or responsible if you mess up something / anything.

Remember always to create a backups before starting an endeavour like this!

All this could not have been done without primarily shawnsheridan @ <u>bimmerfest</u> and a bunch of other users.

Prerequisites: ENET cable, E-Sys 3.26.0, PsdZData files (54.0 is used in this guide). It's important that the PsdZData files are the FULL version as the Lite version does not include all necessities for flashing. And last prerequisite: a BMW F10 or F11. I'm doing this on my F11 520d. This guide should work for all Fxx chassis.

E-Sys 3.26.0 is used for screen dumps. Other versions may differ slightly.

In this document, I'll be upgrading these ECU's:

- CMB_MEDIA
- HU_CIC
- KOMBI
- ZGW

The steps for upgrading other ECU's should be the same as doing these four. Just remember to identify the dependencies and select appropriately in step 15 in the below procedure.

When flashing involves ZGW it is widely said that the ZGW module should be updated BEFORE other modules. The TAL (transaction list) generated by E-Sys should take care of this. But if you want, you could flash the ZGW all by itself and then restart and do the rest. The steps remain the same. Flashing all modules at once is also as easy as flashing individual modules. Just select all the modules in step 15 (still blFlash, swDeploy, cdDeploy, and ibaDeploy columns)

HU_CIC Depends (PreRequisites) on: 38 + 14 (BOTH ZGW) KOMBI Depends on: 38 + 10 + 14 + 53 + 57 (ZGW + HU_CIC + ZGW + CMB_MEDIA + HU_CIC) CMB_MEDIA Depends on: 57 (HU_CIC) ZGW does not have dependencies.

How to identify dependencies: http://www.bimmerfest.com/forums/showpost.php?p=8688725&postcount=18

HU_CIC:







Basic steps (src: http://www.bimmerfest.com/forums/showpost.php?p=8179840&postcount=29):

- 1. Connect external charger (at least 50AMPs, preferably 70AMPs) to the car battery. Connect laptop to power supply. **This step is essential!**
- Turn lamp switch to parking light this will keep the ignition on beyond 20 minutes. (src: <u>http://www.bimmerfest.com/forums/showthread.php?p=8625168&highlight=parking+light+switch</u> <u>#post8625168</u>). Please refer to Appendix B for further info regarding the light switch and the 20 minutes.
- Connect via "Connection via Gateway URL" (src: <u>http://www.bimmerfest.com/forums/showthread.php?t=698424</u>, post #6) (else flashing ZGW will fail)

| ٥ | Open Connection | × |
|--|--|--------|
| CTarget | | |
| Main series: All V Connection | type: All | ¥ |
| TargetSelector: Project=F001_14_11 | _501, VehideInfo=F001 | ~ |
| TargetSelector: Project=F001_14_11 | _501, VehicleInfo=F001_DIRECT | |
| TargetSelector: Project=F010_14_11 | _501, VehideInfo=F010 | |
| TargetSelector: Project=F010_14_11 | _501, VehideInfo=F010_DIRECT | |
| TargetSelector: Project=F020_14_11 | 501, VehicleInfo=F020 | |
| TargetSelector: Project=F020 14 11 | 501, VehideInfo=F020 DIRECT | |
| TargetSelector: Project=F025 14 11 | 501, VehicleInfo=F025 | |
| TargetSelector: Project=F025_14_11 | 501, VehideInfo=F025 DIRECT | |
| TargetSelector: Project=E056_14_11 | 501, VehicleInfo=E056 | |
| TargetSelector: Project=E056_14_11 | 501 VehideInfo=E056 DIRECT | |
| TargetSelector: Project=1000_11_11 | 500. VehideInfo=1001 | ~ |
| Interface | | |
| | | |
| Connection via bus: | | |
| Connection via geteway URL: | tcp://169.254.85.41:6801 | |
| 44 | | |
| Connection Via IC Direct conne | ction to vehicle via TCP at the specified IP address / TCP port | |
| O Connection via ICOM/Ethernet: | tcp://127.0.0.1:50160 | |
| O Connection via VIN: | DIAGADR 10 (tcp://169.254.85.41:6801) | fresh |
| Number of available vehicles:1 | | |
| Vehicle-specific parameter (optional) - | | |
| • Series, I-step (shipment) | ✓ | ~ |
| Read parameters from VCM | | |
| | | |
| | Connect | Cancel |
| - | | |
| \rightarrow | | |
| Alder and the second | | |
| information | And and a second se | |
| A | | |
| Connection established. [G10 | (d) | |
| | | |
| Y Show the message always. | | |
| ОК | | |

4. Select Comfort Mode \rightarrow TAL Calculating



5. Read and save FA

| le Options Extres Help | | Vehide Orde | r Dilpi | MWDeta (FA) | A_20141113.xml |
|--|---------------|-------------|---------|--------------|----------------|
| 3 🔘 🎢 🧕 | | Read | LOOD | Sape | Est |
| Confort Hode Di TAL Exit Memory PSC | Verkole Order | | attive) | <i>ii</i> ta | |

6. Activate FA



7. Read and save SVT Actual as "SVT_ist"

| Name: | | | | |
|------------|------------|------|------|------|
| Read SVT (| Read (ECU) | Load | Save | Edit |

- 8. Create an SVT Target:
 - a. Select Complete Flash

| KIS/SVT Target I-Step (shipm.): F010-14-11-501 I-Step (target): F010-14-11-501 | ¥ ¥ | Calculation Strategy - O Single Flash | O Construction Progress |
|--|--------|--|-------------------------|
| File Name: | | | |
| Calculate Load | Save | Edit | |
| HW-IDs from SVTactual | | | |

- Select I-Step (shipm.) to match vehicles shipment I-Step level (src: <u>http://x3.xbimmers.com/forums/showthread.php?t=715297</u>)
 - i. Select Expert Mode VCM button



ii. On the right bottom box, select "Master" tab

| File Master Backup | | | |
|--------------------|--|------------|--------------|
| FATE | I-Steps | SVT Target | SVT Actual |
| Read FA FP | Read Write | Write SVT | Generate SVT |
| Write FA FP | | Read SVT | Read SVT |
| | ECU exchange detection | | |
| | Detect exchanged ECUs | | |
| | الــــــــــــــــــــــــــــــــــــ | | |

iii. In I-Steps box, click on "Read" button.

| er Backup | | |
|-----------|---------------------|-------|
| | -I-Steps | Svī |
| ad FA FP | Read | Write |
| ite FA FP | - reduc | |
| | ECU exchange detect | tion |

iv. Integration Steps boxes above will be populated with the data. Note down the I-Step (Shipment).

| Integration steps (EC | CU) × |
|-----------------------|---|
| I-Step (current): | F010-10-09-522 |
| I-Step (last): | F010-10-09-522 |
| I-Step (shipment): | F010-10-09-522 |
| File Master Backu | I-Steps - Read ECU exchange detec Detect excha |

c. I-Step (target.) will be unselectable as it is fixed based on current PSdZData I-Level. Select the appropriate level in I-Step (shipm.) as obtained in step above

| KIS/SVT Target | v | Calculation Strategy – O Single Flash | O Construction Progress |
|--|------|--|-------------------------|
| I-Step (target): F010-14-11-501 | ¥ | Complete Flash | |
| File Name: | 6 | | |
| Calculate Load HW-IDs from SVTactual | Save | Edit | |

d. Do a KIS/SVT Target Calculation and Save as "SVT_soll"

| -KIS/SVT Target — | | | | |
|---------------------|-------------------|----------|--|-------------------------|
| I-Step (shipm.): F(| 010-10-09-522 | • [| Calculation Strategy – O Single Flash | O Construction Progress |
| I-Step (target): F(| 010-14-11-501 | ~ | Ocmplete Flash | |
| File Name: | | | | |
| Calculate | Load | Save | Edit | |
| HW-IDs from | m SVTactual | | | |
| \rightarrow | | | | / |
| Generiere SVT | | | | |
| | | | | |
| Generiere SVT | | | | |
| \rightarrow | | | | |
| File Name: D: | \BMWData\SVT\SVT_ | soll.xml | | |
| Calculate | Load | Save | Edit | |
| HW-IDs fr | om SVTactual | | | |

e. Do a TAL Calculation and Save as "SVT_tal"

| ſTAL |
|---|
| Use data backup Directory: |
| Include ECUs from SV |
| Use TAL-filter File Name: |
| TAL: |
| Calculation Save Edit Execute |
| → · · · · · · · · · · · · · · · · · · · |
| ſTAL |
| Use data backup Directory: |
| Include ECUs from SV |
| Use TAL-filter File Name: |
| TAL: D:\BMWData\TAL\SVT_tal.xml |
| Calculation Save Edit Execute |

9. Go to Expert Mode \rightarrow TAL-Processing



10. Load TAL [SVT_tal) created in step 8.e

| TALI | | D EAL |
|--------------|--------------------------|--------------|
| SVT: | | Open a file. |
| FA: | | Read FA Edit |
| read VEN out | telFA Deter VDt Read VDN | |

11. Load SVT Target ("SVT_soll") created in step 8.d

| Dr. Dr. MHINDash/7A | Instat, 1997 | | | | | | | | | | | | | 0.00 |
|--|---------------------------------------|------------|----------------|----------|-----------|----------------|------------|--------------|-----------------|-----------|---------------|----------|---------------|----------------|
| PTI . | | | | | | | | | | | | | - | |
| a. | | | | | | | | | | | | - mi | Read fA | Open a file. |
| Freet WintoffA CD | rier VIII: | | | Read VDI | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Out the Or | it erfrære el effek | 6 | | | | | | | | | | | | |
| Diet 100 De CU Parameters Log D-Base | a satawa a shek | h-Denated | hulastal | 1Padi | suCleptor | athetere | daha | dDebris 1 | ciDapley | Adapter - | hdietue | tabaptay | hdit.jpdate | geterneyTabl- |
| Shirk too Or CV Paymeters Log D-Base | n antoine a' albh (Mill) (Mill) | hi-Denatal | hutatel (5) | Mart. | suClepker | affectore 2 | alaha V | dDatata 2 | ciliques (2) | fellepter | hdietue 20 | taDeploy | hdit.jodata : | geterosyTable. |

12. Click the "Read FA" button

| | | Edit | | |
|---------------------|--|---------------|--|----------------|
| | in the second | Edit | | |
| | Reap FA | Edit. | | |
| 4 from | master, if this fails read | d FA from bac | | |
| | | | | |
| | | | | |
| | | | this will result in the FA_aus_VCIVI.xml file: | |
| | | | | |
| TNL: | D: WHIND #bV7AL VVT_bill w | N.S. | 191 | 6dt |
| tau: svti: | D-WHADats/7A, WVT_tal.w D-WHADats/pvT/pvT_sell.w | 4 | | idt 541 |
| TALI SVT: FAT | D. WHINDIAN YA, WYT, SA W D. WHINDIAN SYT SYT, ed. o D. WHINDIAN FA FA JAM, YO | n M | and a second | 68 58 68 |

13. Check radio button for "read VIN out of FA" and click the "Read VIN" button

| read VIN out of FA | O Enter VIN: | WBAMX11070 | Read VIN |
|----------------------|--------------|------------|----------|
| O read VIN out of FA | Enter VIN: | WBAMX1107 | Read VIN |

14. On ECU Tab, uncheck let top box in column "All" (All checked boxes should toggle to unchecked)

| ECU Parameters Log | | | |
|--------------------------|---------------------|-------------|---|
| ID-Base | All | hwDeinstall | |
| | | ✓ | |
| ACSM 01 - tl_29, tl_54 | - | ✓ | |
| AHM 71 - tl_17, tl_42 | ✓ | ✓ | _ |
| ECU Parameters Log | | | |
| ID-Base | All | hwDeinstall | ł |
| | | | |
| ACSM 01 - tl_29, tl_54 | | | |
| AHM 71 - tl_17, tl_42 | | | |
| lana is it a it as it as | | | |

15. On ID Base Row for HU_CIC, CMB_MEDIA, KOMBI and ZGW check the boxes in blFlash, swDeploy, cdDeploy, and ibaDeploy (please see Appendix C) columns.

| ECU Pyraneters Log | | | | | | | | | | | | | |
|------------------------------------|-------|--------------------------|------------|-----------------------|--|-----------------------|------------------------------|---------|----------|---|-----------------------|-----------------------|-----|
| ID-Game | AI . | InvOetratal | hydrostall | billiash: | syDeploy | idRestore | steadup | dDelete | odDepicy | RecDepicy | futfieldup | EuCepicy | 1 |
| Permit 21 10_12, 0_94 | 1.1.1 | 1 | had | E M | 1 | 1.1 | 1 | 1 14 | | 2.1 | | | 100 |
| CAS 40 - 8_6, 8_26, 8_51 | | | | | | | | | 1.2.2 | | | | |
| THE POIL OF A 11 & TT + TD | 1 14 | | | | | | | | | | | The second | - |
| AND MELLA SHI 1, B, B, SHI 1, SH | | | | a | | | | | 4 | | | 4 | |
| SHE 12-9(3, 9) 10, 9(4) | - | | 111 | | | | | 14 | 1.1.1 | 1 | | | |
| 09C 29 - 11_22, 11_47 | | | | | 1 | | | | | | | | |
| EGS 18 - 8_4, 8_19, 8_44 | 0 | <u> </u> | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| EHC1 38 - 6_36, 8_62 | 1.0 | 0 | | | | | | | | | | | |
| EKPM 17-8_55 | | | | | | | | | | | 0 | | |
| EMF 3A - 8_2, 8_16, 8_41 | | | | | | 0 | | 1 | | | | | |
| PRM 72 - E_5, E_24, E_49 | - 0 | | 11 | | | 1 1 | | | | | | | - |
| F7D 56 - # 32, # 58 | | | | | | | | | | | | | - |
| QWS SE - # 23. 8 48 | 10 | | | | | 1 | | | | 6 | | | _ |
| | | | - 10 | - 100 | | | | 10 | 10 | | | | |
| NJ CIC 63 - 8 10, 8 31, 8 39, 8 57 | | | | 4 | 2 | | | | | | | 4 | |
| 107 10 10 10 10 10 10 | - | the second second second | | and the second second | STREET, STREET | and the second second | and the second second second | | 1000 | and the second se | and the second second | and the second second | |
| BHKA 78 - 8_7, 8_27, 8_52 | 1 | 10 | | 111 | | | 1 | | 1 | | | 1 | - |
| 1009F 00 - 5 L 1 15. 1 40 | | | | | | 1 | | | | | | | |
| 004EE 60 - 1_13, 1_37, 1_63 | | | | 1 | | | | | V | | | | - |
| 200.04-0.12, 9, 10, 0, 01 | | | | | | | | | | | | | - |
| ISM 6E - 11_21, 11_40 | 1.1 | | | | | 0 | | | | | 0 | | - |
| ISM 60 - 1 34, 1 60 | | 1 | | | | 0 | | | | - D. | G | | - |
| 521 LWS 02 - # 20, # 43 | | | - | | | 20 | | | | | | | |
| 5W 10 - E 14 E 3 | | | | 10 | 9 | | | | 1 | | | 2 | - |

16. Press Check software availability (this, among other, ensures that you have the correct PSdZdata and the FULL version of them)

| Start Stop Check | software availability | | |
|-------------------------|-------------------------|-------------------|-----------------------------|
| ECU Parameters Log | Checks if all soft | ware required for | TAL execution is available. |
| \rightarrow | | | |
| Informatio | n × | | |
| All software units (SWE |) are available. [G062] | | |
| ОК | | | |

17. Press Start and it will proceed with processing TAL to flash Kombi with new firmware



18. Cross your fingers and watch it work

Troubleshooting

If coding ACSM, the airbag needs be locked. This can be done by using the following procedure (src: <u>http://www.bimmerfest.com/forums/showthread.php?t=796371</u> post #3) (another good src: <u>http://www.bimmerfest.com/forums/showthread.php?t=809906</u>).

E-Sys Transmitter:

- 1) Click "External Applications" in the left menu.
- 2) Click "External Application"
- 3) Double-click "Transmitter"
- 4) Double-click "ACSM verriegelung_schreiben"

Appendix A – list of ECU's

Thanks to shawnsheridan on bimmerfest.com for compiling this list. (src: http://www.bimmerfest.com/forums/showthread.php?t=808412).

AAG - Trailer Hitch Module ACC - Active Cruise Control ACSM - Advanced Crash and Safety Management AHM - Trailer module **AMP** - Amplifier AMPH - HiFi Amplifier AMP_TOPHB - Top HiFi Amplifier/System AMP - Amplifier/System AMP_TOPHB - Top HiFi Amplifier/System ASA - Active steering ASD - Active Sound BDC - Body Domain Controller (ZGW, FEM, REM, SZL, IHKA, TCB, CAS, JBBF Combined) CAS - Car Access System **CID** - Central Information Display CMB ECALL - Combox Emergency Caller CMB MEDIA - Combox Media CVM - Soft top module (Convertable Top) DKOMBI - MFID Instrument cluster (6WB) **DDE - Digiatl Diesel Electronics DME - Digital Motor Electronics** DSC - Dynamic Stability Control DWA - Immobilizer (Alarm) **DVDC - DVD Changer** EGS - Electronic Transmission Control Unit EHA - Electronic ride-height control EHC - Electronic ride-height control

- EKPM Electronic fuel pump control
- EMF Electromechanical parking brake
- EPS Electronic power steering
- FEM_BODY Front electronics module (ZGW, FRM, CAS, and JBBF Combined)
- FEM_GW Front electronics module gateway
- FKA Rear-cabin automatic A/C
- FLA Automatic High Beam Camera Only
- FRM Footwell module (Lighting)
- FRR Active cruise control
- FZD Function unit roof
- GWS Gear selection switch
- HKFM Rear Lift-Lid (Trunk)
- HKL Rear Lift-Lid (Trunk)
- HU_ENTRY Head Unit Entry Level (no iDrive System)
- HU_CHAMP (Head Unit CIC Mid) (iDrive system)
- HU_CIC Head Unit CIC High (iDrive system)
- HU_NBT Head Unit NBT (iDrive system)
- HC2 Lane Change Warning
- HUD Heads-Up Display
- ICM_QL Integrated Chassis Management
- ICM_V Integrated Chassis Management Vertical (Vertical dynamics management)
- IHKA Integrated automatic heating/air conditioning system
- JBBF Junction box electronics
- JBE Junction box electronics
- KAFAS Cameras System (LDW, AHB, SLI)
- KOMBI Instrument cluster

LHM - LED Headlights main light modules (fan and LEDs for the cornering light, low-beam and high-beam headlights).

- NIVI Night Vision Camera
- PDC Park distance control

- PMA2 Parking Assist
- RDC Tyre pressure control
- REM Rear Electronics Module
- RSE Rear Seat Entertainment
- SM Seat module / Seat Memory
- SME Accumulator-management electronics
- SMBF Seat module / Seat Memory Passenger
- SZL_LWS Steering column control unit
- SVT Servotronic
- TCB Telematics Communications Box (BMW Assist)

TMS - LED Headlights (stepper motors for the Adaptive LED Headlights and LEDs for the side marker light, the positioning light and the turn indicator)

- TRSVC -All around view camera
- TBX iDrive Controller Touch Handwriting Module
- VDM Vertical dynamics Management
- ZBE iDrive Controller
- ZGW Central gateway module

Appendix B

On new cars (7/2014 F30) the ignition will not stay on even if you turn light switch. After 15 minutes or so ignition will turn off. This is not a problem though, just remember to cycle ignition before svt soll calculation and before starting TAL processing (actual flash). Ignition will stay on as long as the TAL is running.

Thank you ap90500, src: <u>http://www.bimmerfest.com/forums/showpost.php?p=8737326&postcount=2</u>

Appendix C

ibadeploy is needed only if you are flashing a headunit that has IBA (electronic user manual). It doesn't do any damage if it is selected without a reason though.

Thank you ap90500, src: http://www.bimmerfest.com/forums/showpost.php?p=8737326&postcount=2