E-Sys v3.18.4

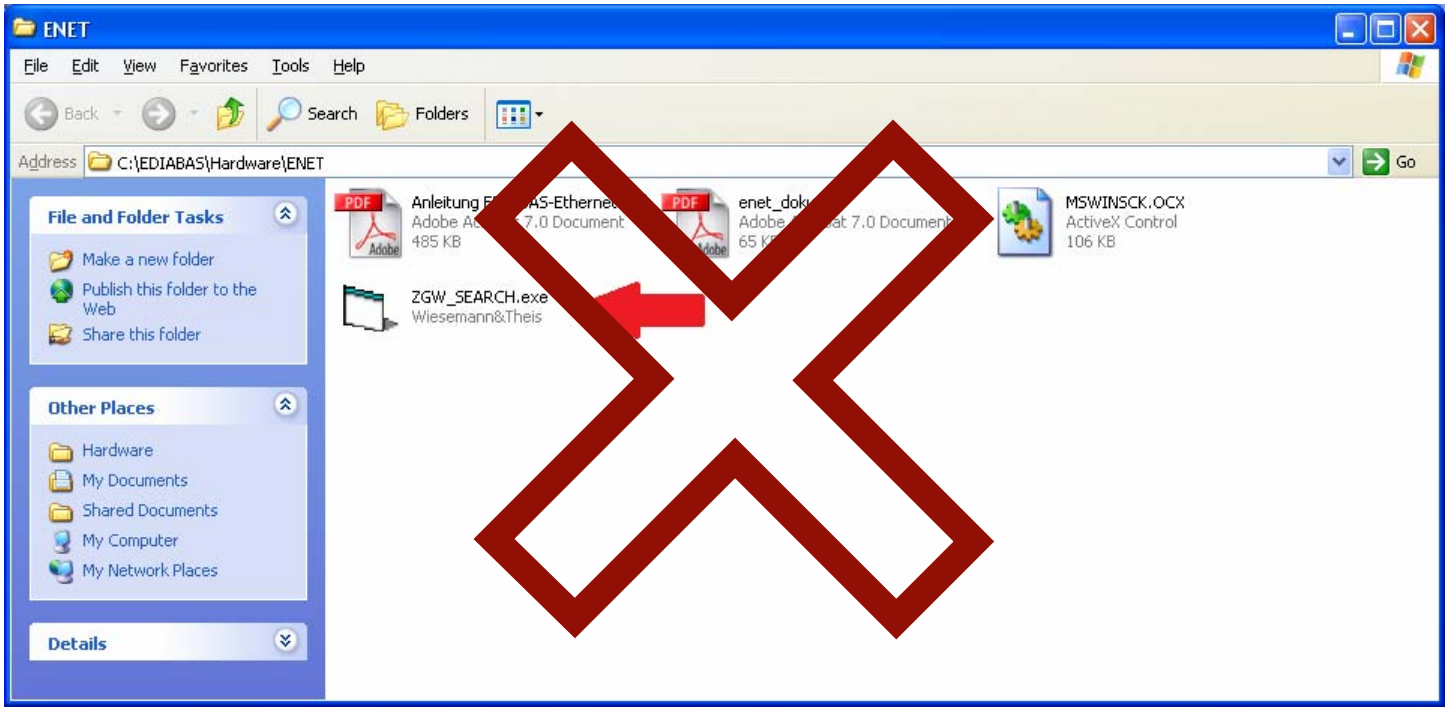
Getting Started: Coding

EST Token Required
Ethernet to OBDII cable
Build cable as per enet_doku.pdf found in C:\EDIABAS\Hardware\ENET
~~Read both PDF documents as they are useful and tell you how to edit eidabas.ini and troubeshoot~~

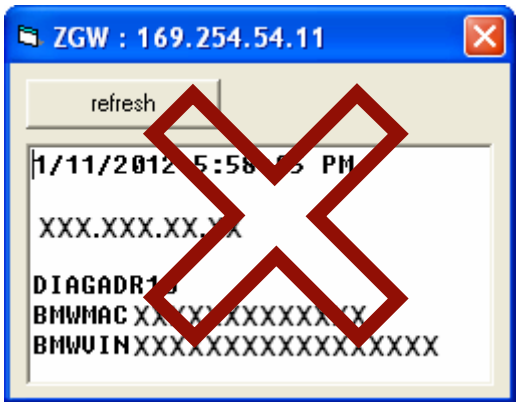
Step 1: Connect cable to computer then to car

~~Step 2: Wait till LAN network adapter in task bar has established limited network capability (no screenshot)~~

~~Step 3: Open ZGW_SEARCH.exe~~



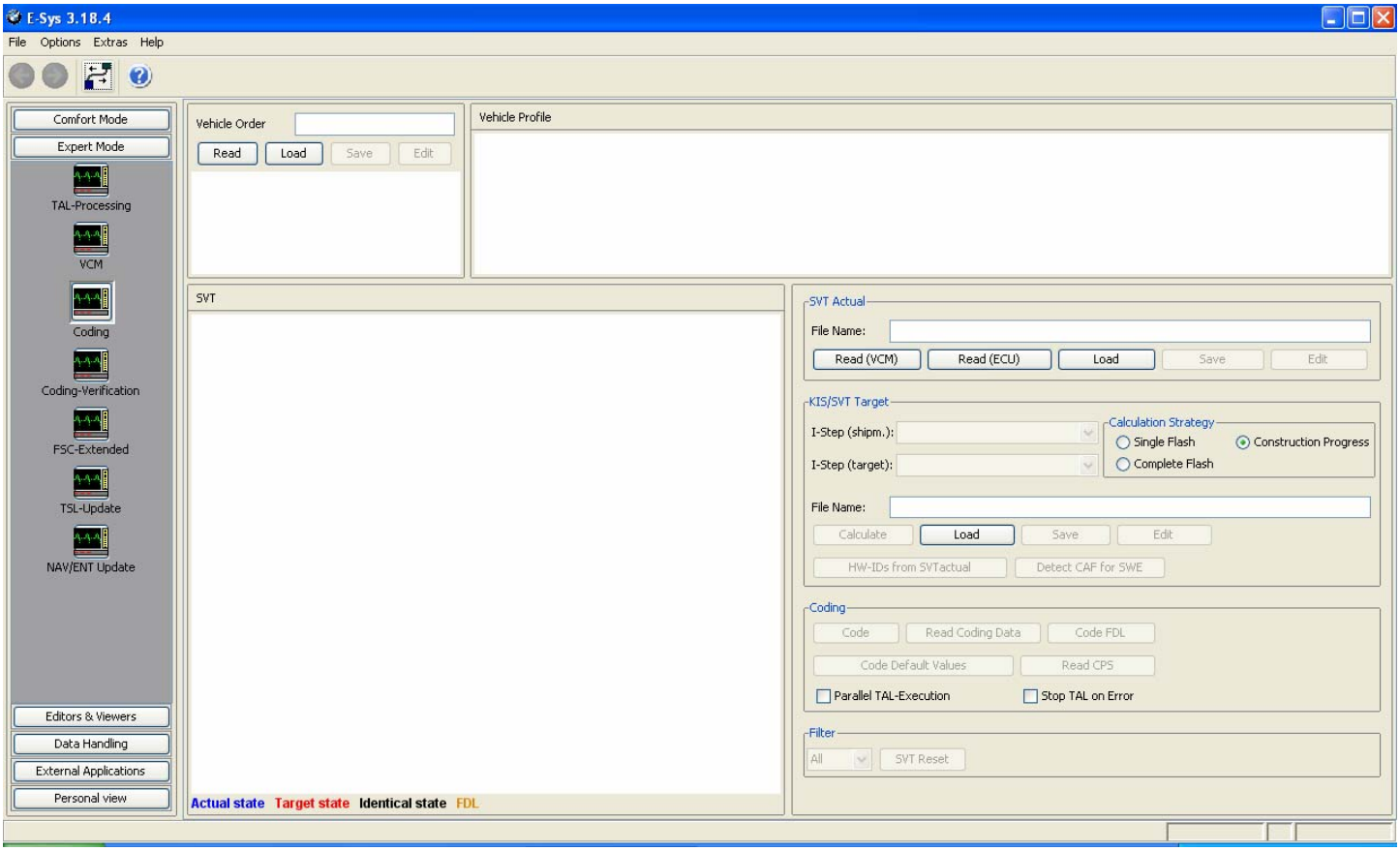
~~Step 4: If cable is built correctly, and EDIABAS.ini is configured correctly you should get (see screenshot)~~



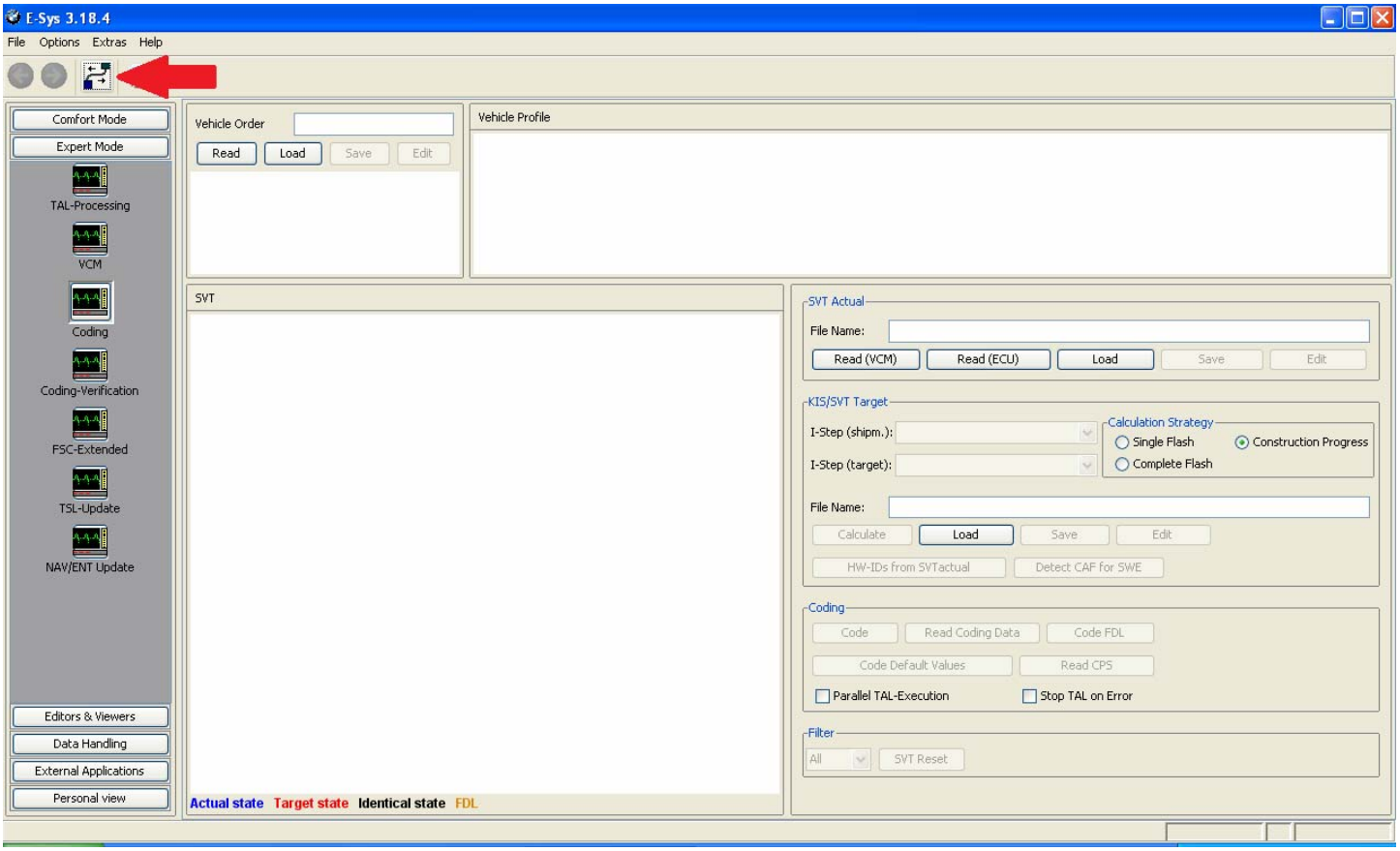
Information Masked for privacy

~~Note: If it is BLANK, it's likely due to the LAN connection is still configuring, wait until it has shown Limited Connectivity and hit refresh~~
~~If you get an error, verify cable is connected to both computer and car~~
~~Further information read Anleitung EDIABAS-Ethernet.pdf found in C:\EDIABAS\Hardware\ENET~~

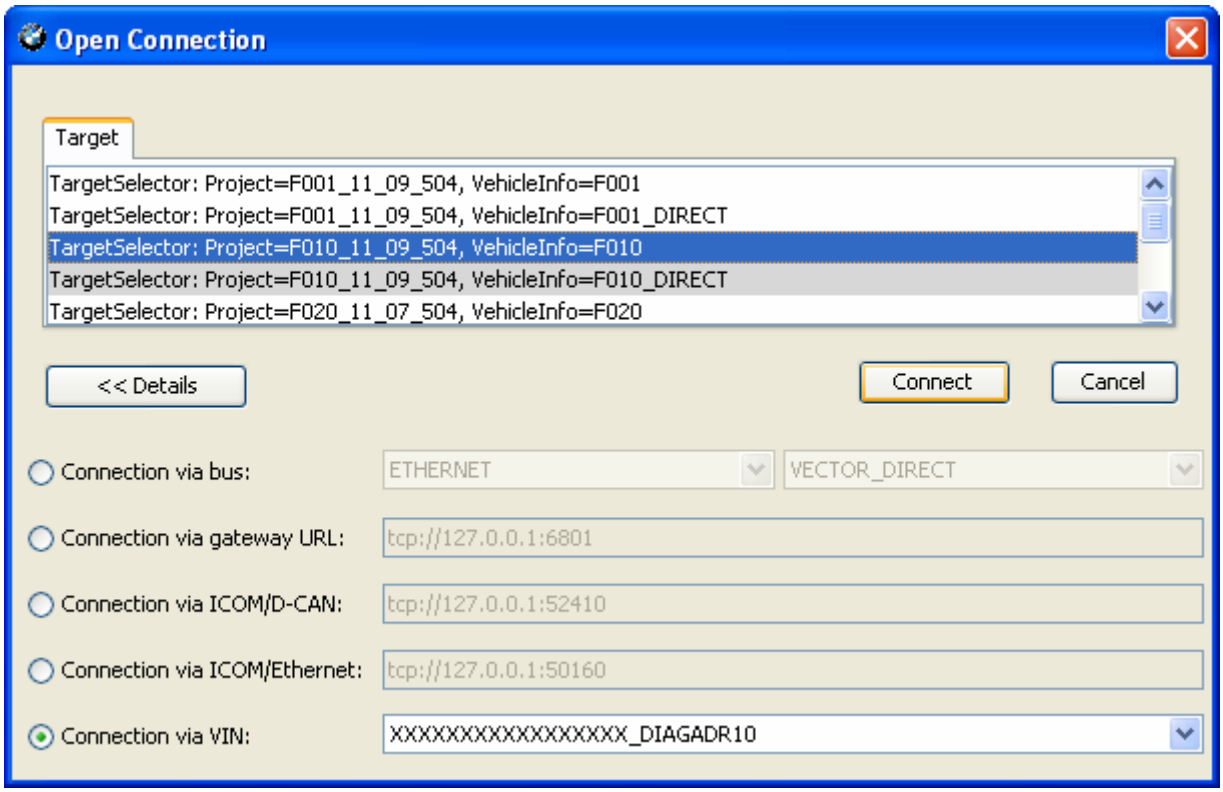
Step 5: Open E-Sys



Step 6: Click the Connect button

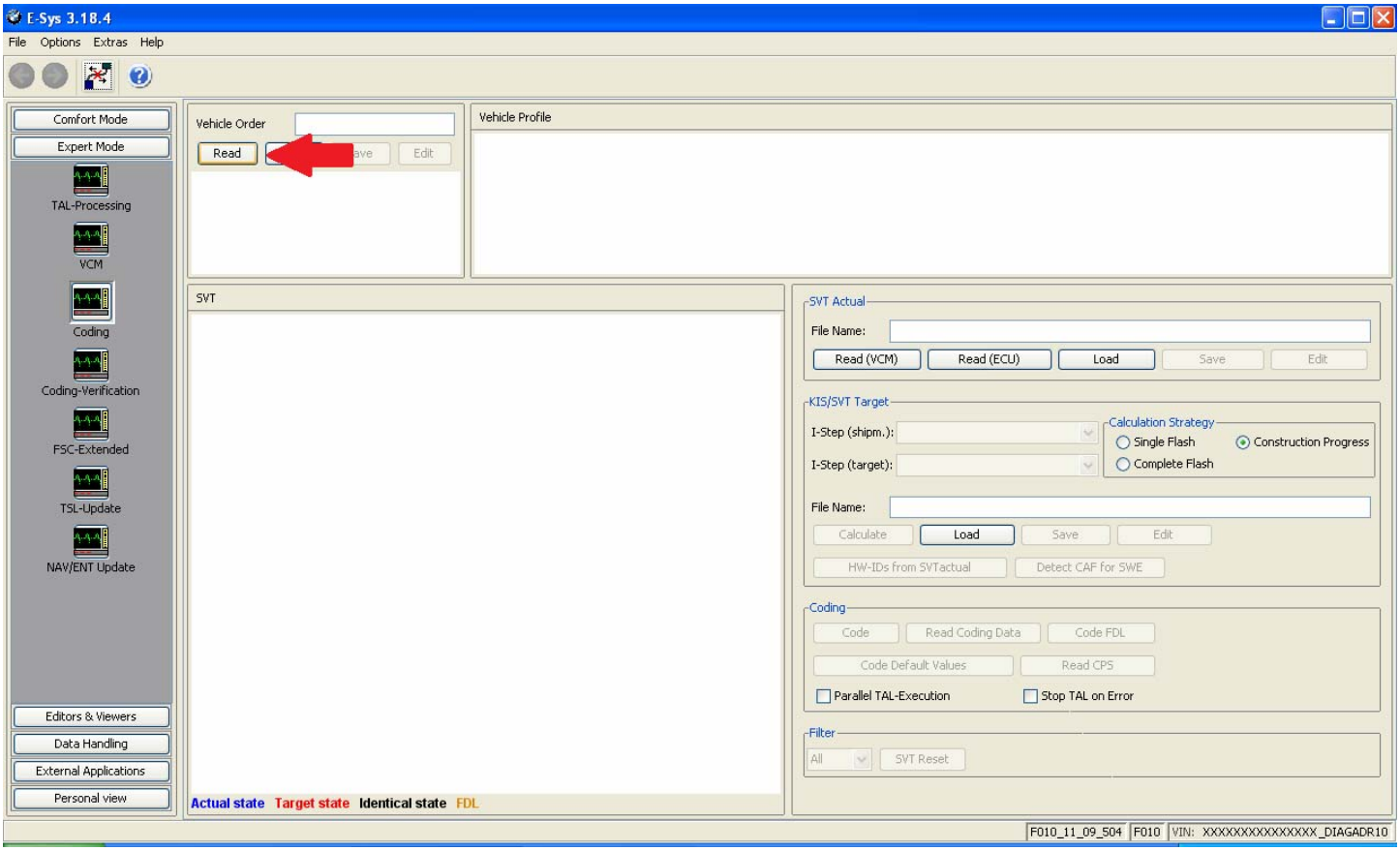


Step 7: Select F series you are working on, my case F10 and select Connection via VIN and click “Connect”



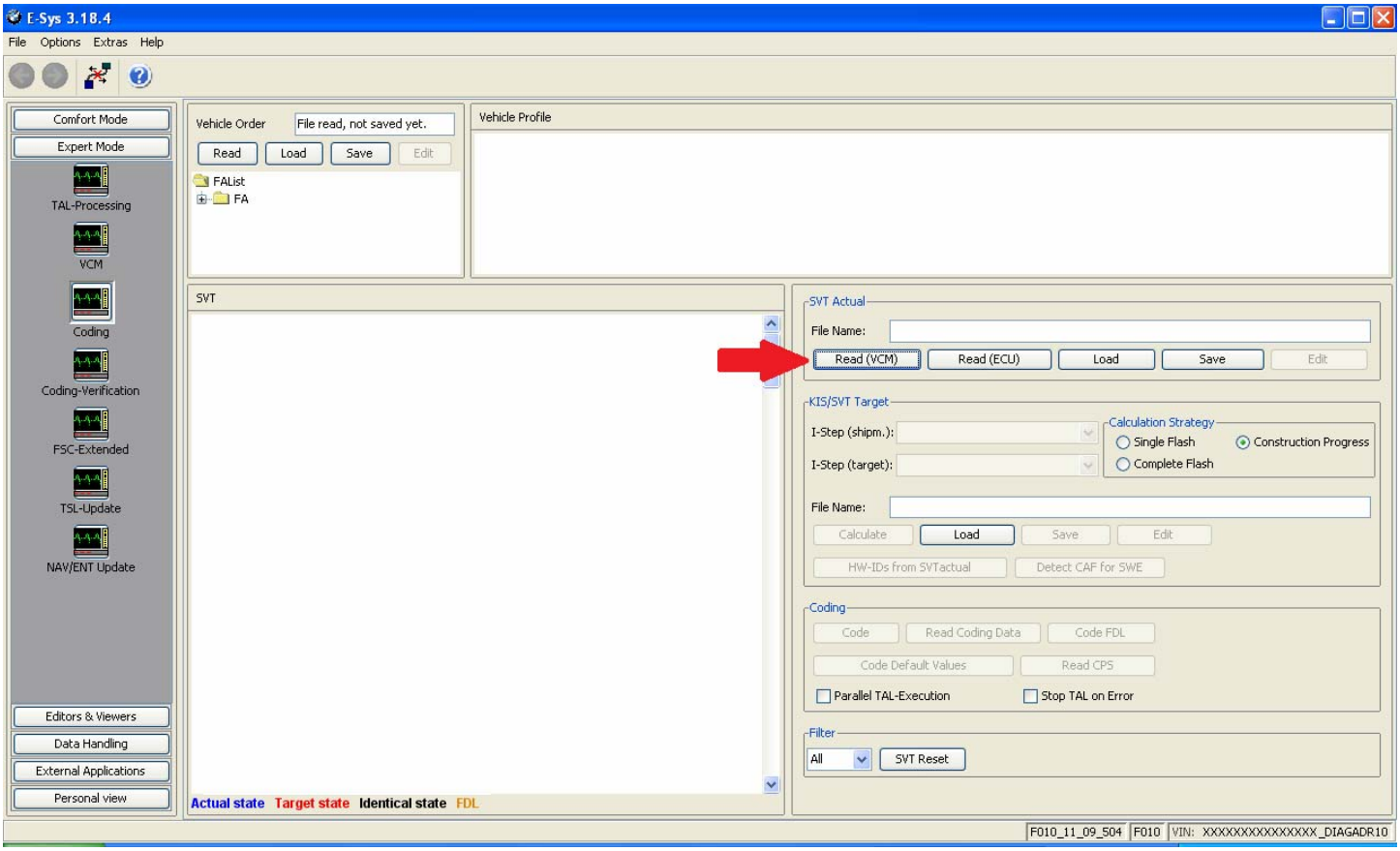
Step 8: Click “OK”

Step 9: Click “Read”

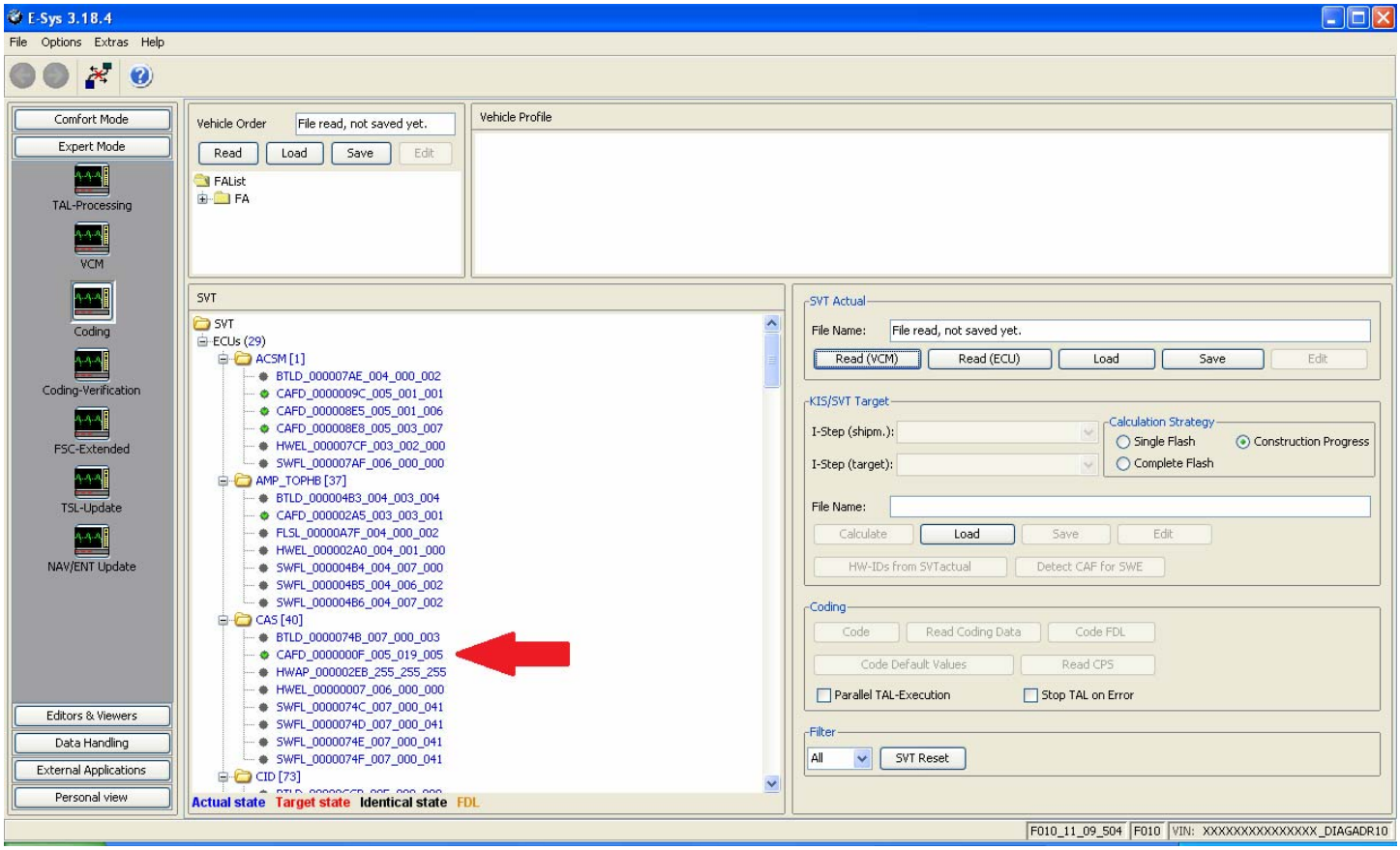


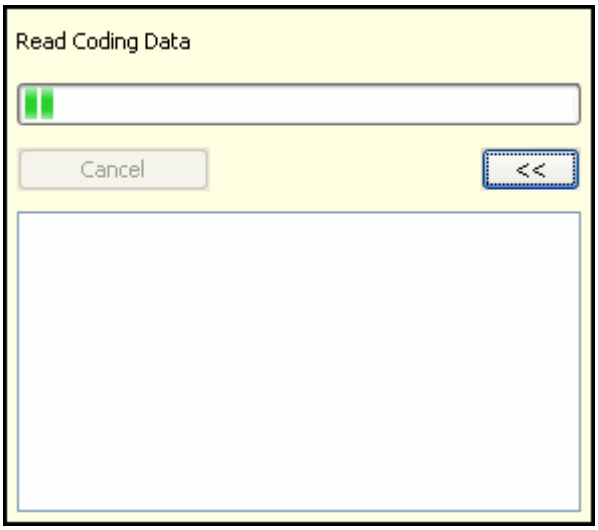
Note: Option to save or not to save

Step 10: Click “Read (VCM)” (Read SVT in newer E-Sys versions)



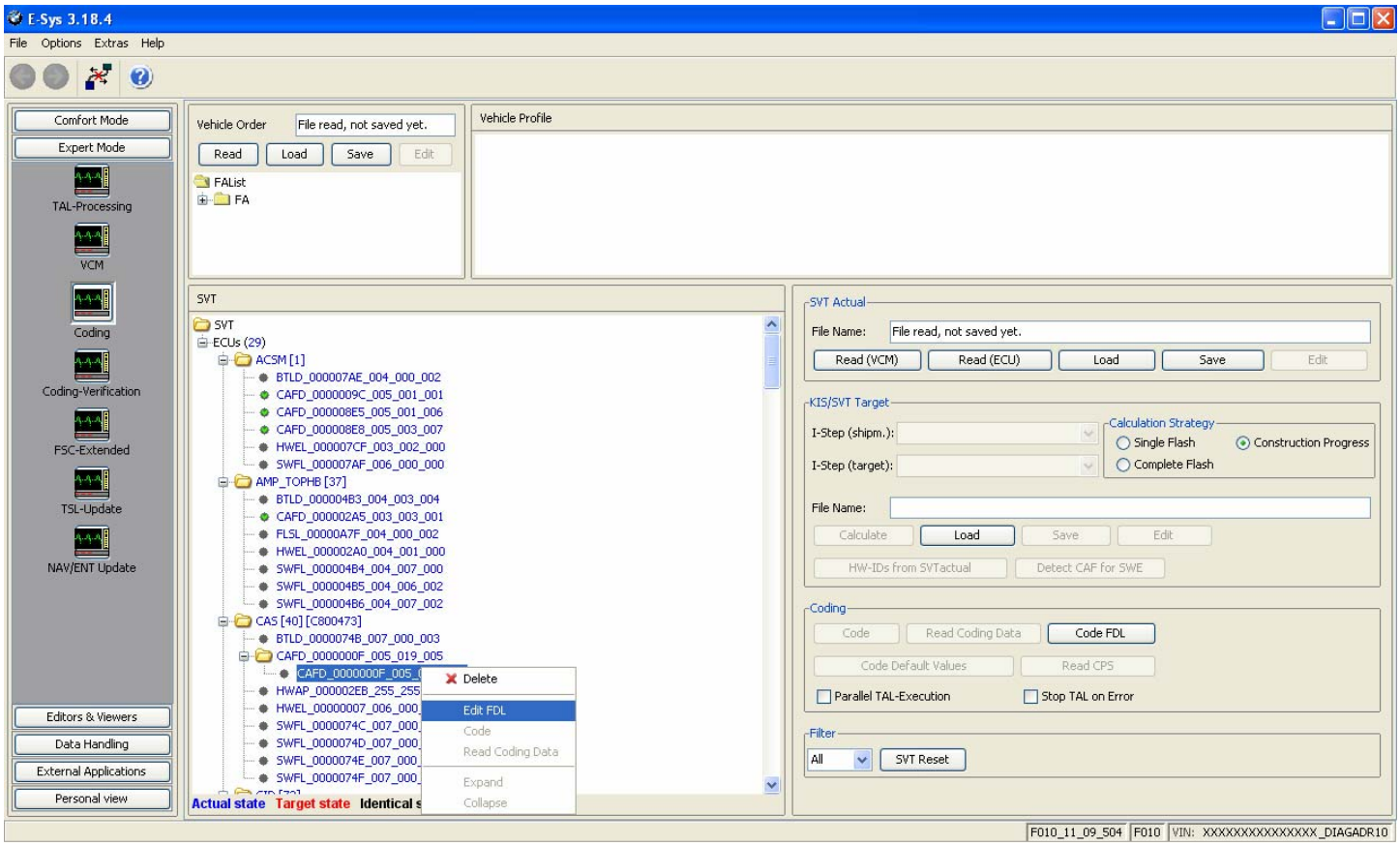
Step 11: Select CADF (only one with a green Check mark) file under the module you want to read and select “Read Coding Data”



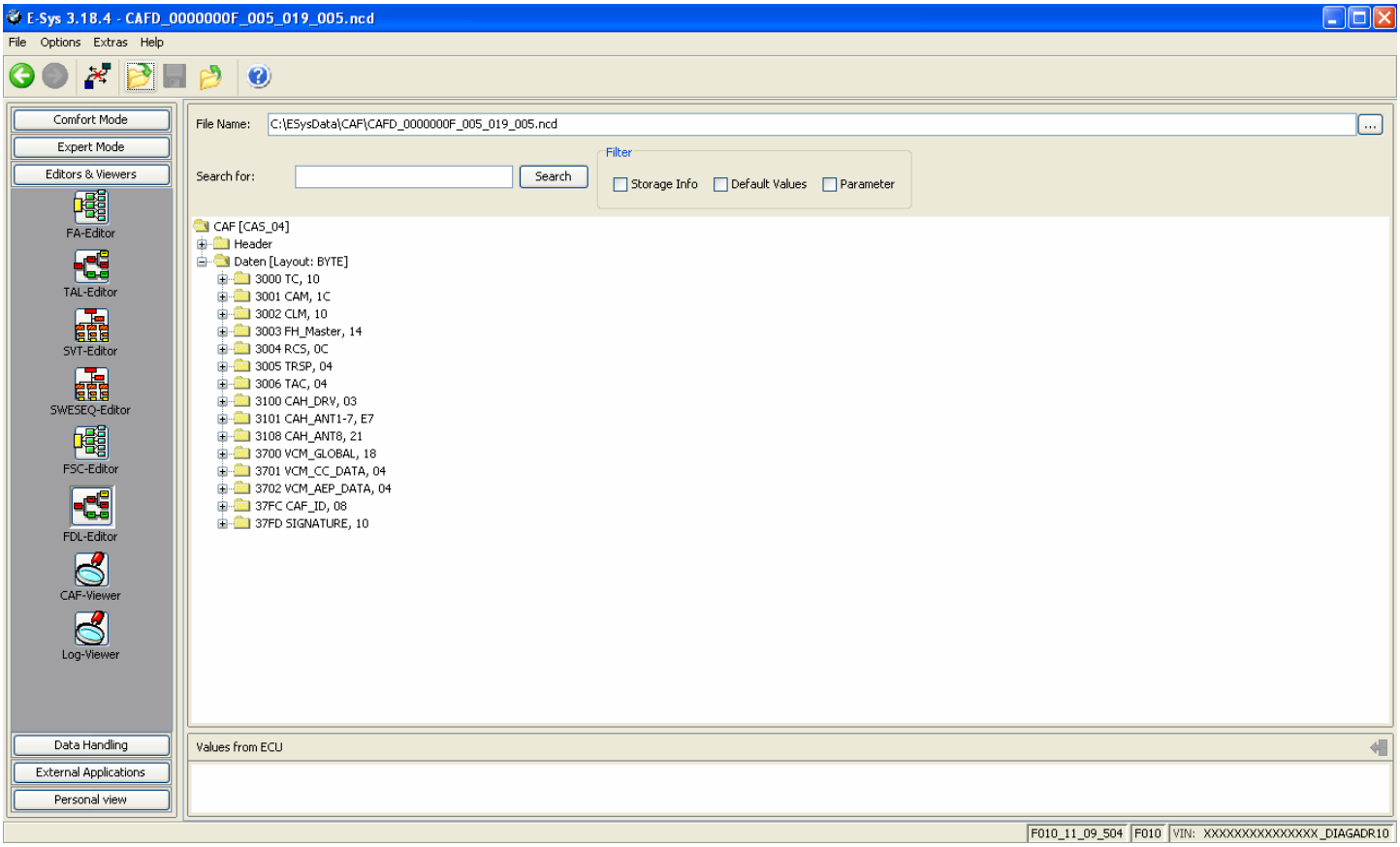


Step 12: Error Report, Click “Close” (or save if necessary)

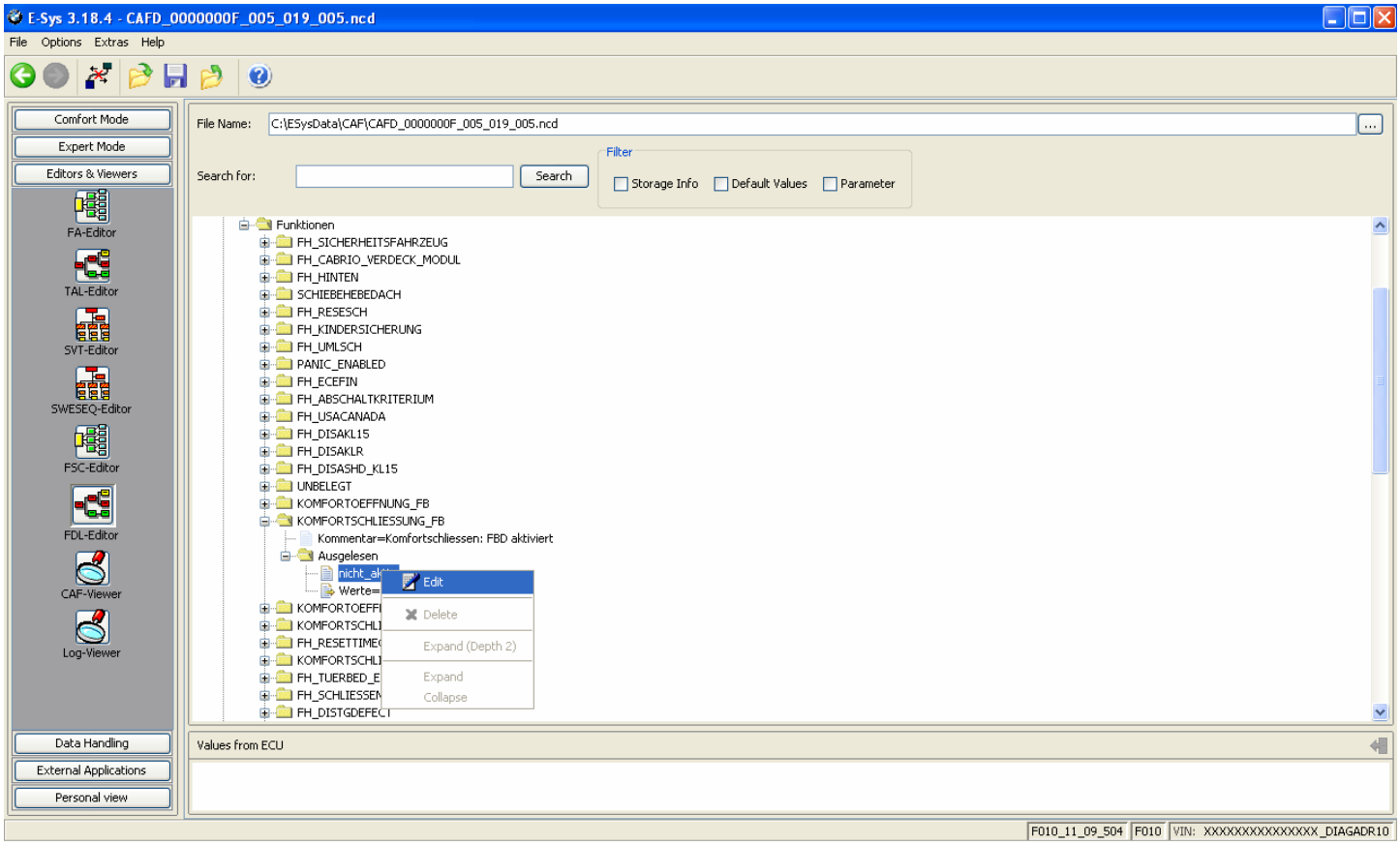
Step 13: New option under CADF, a folder. Expand the folder by clicking + and right click that file, Select “EDIT FDL”



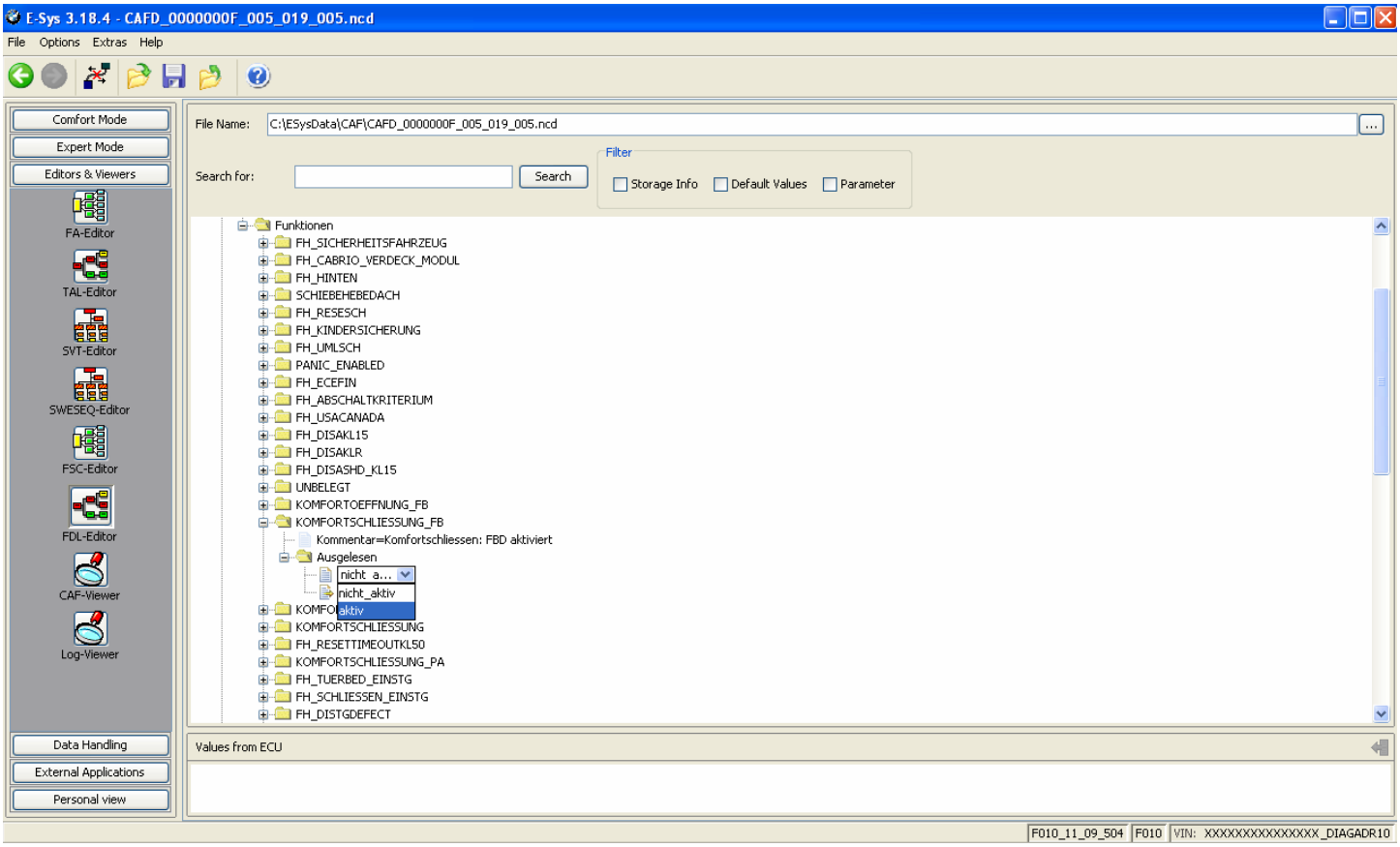
Step 14: Browse the folders till you find your option, I want option KOMFORTSCHLIESSUNG_FB



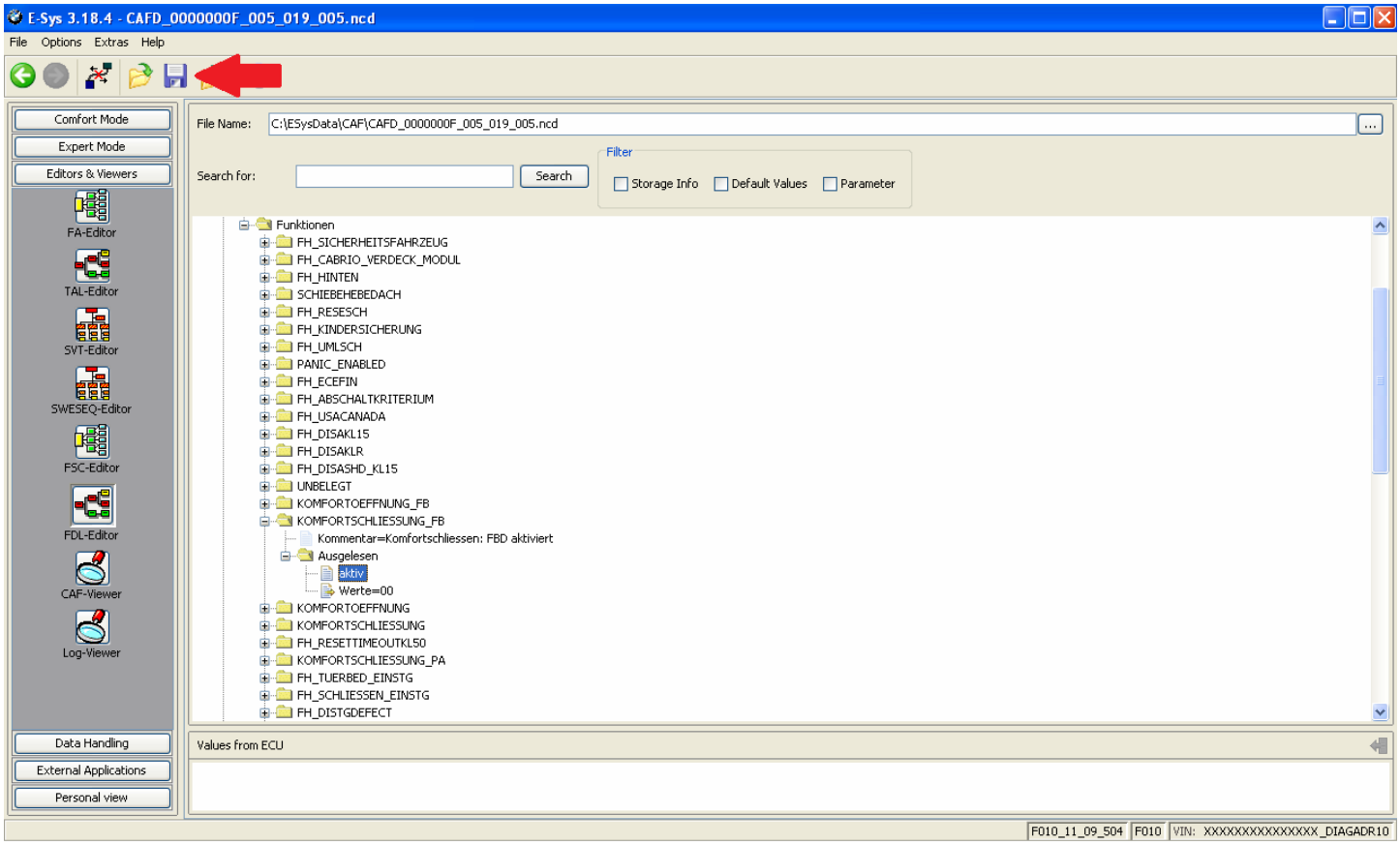
Step 15: Factory option set to nicht_active. Right click, select “Edit”



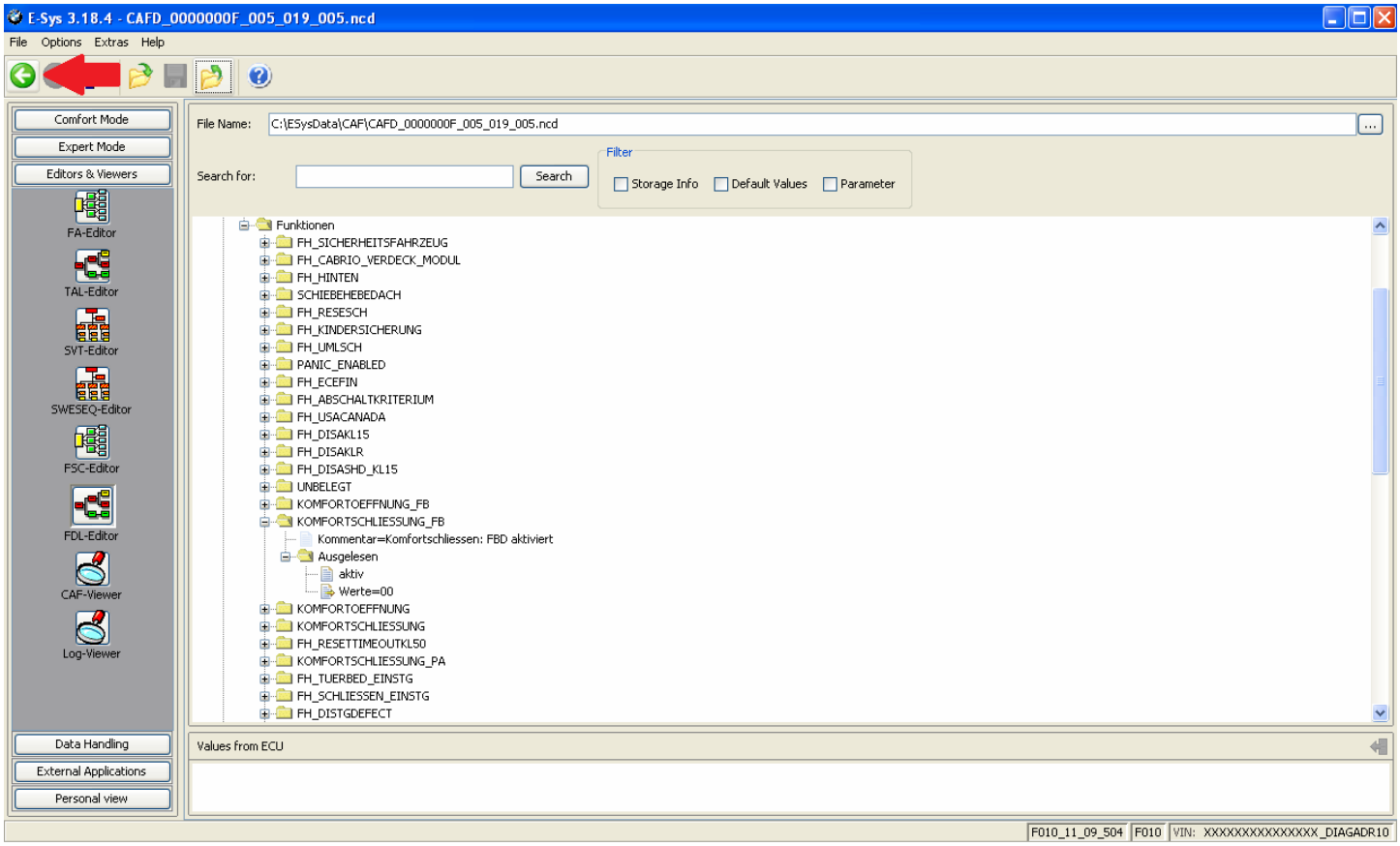
Step 16: Select option desired, in this case, select “aktiv”



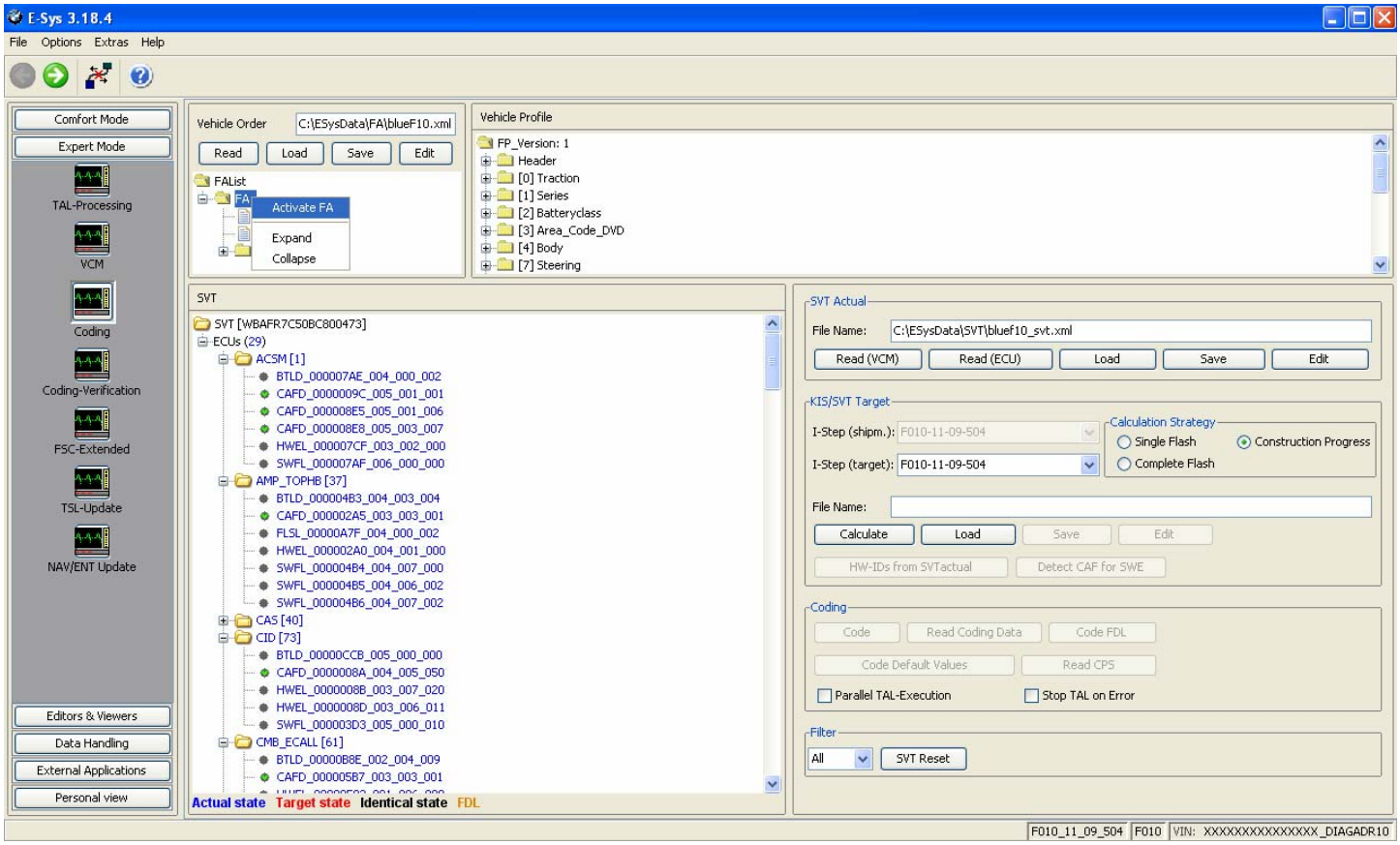
Step 17: Once all changes have been made, Click the “Save” icon



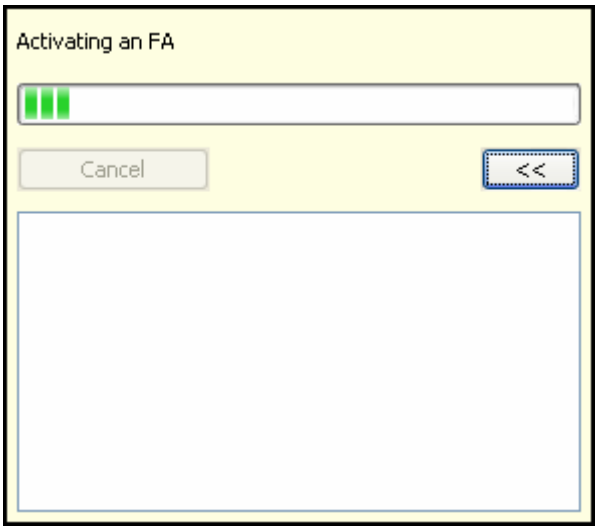
Step 18: Once saved, click the green back arrow



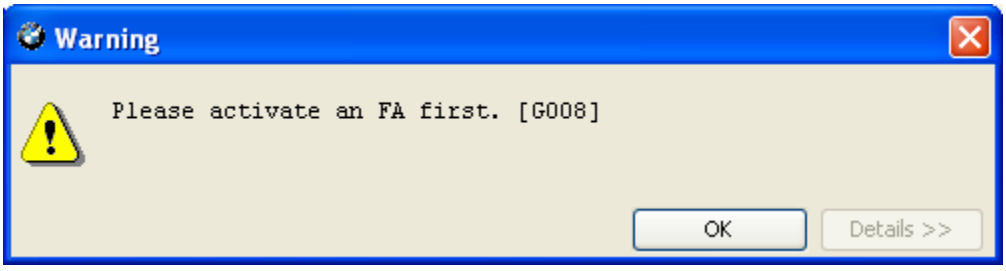
Step 19: Right click FA, select “Activate FA”



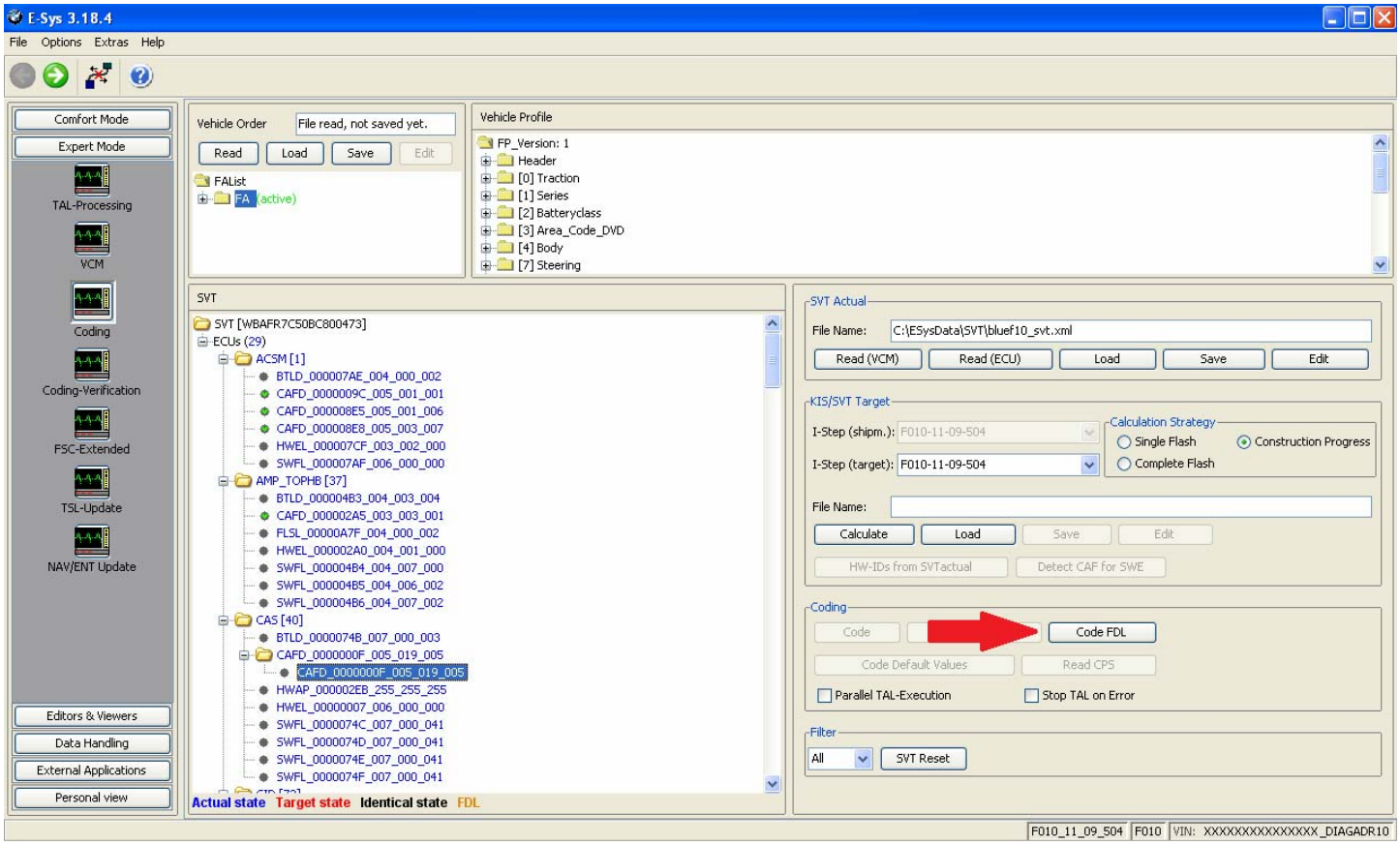
Activating FA, just wait till it finishes. Once finished, FA should show (active) in green. If not, try again.



Note: If you do not activate FA as described in Step 19, you will receive this message

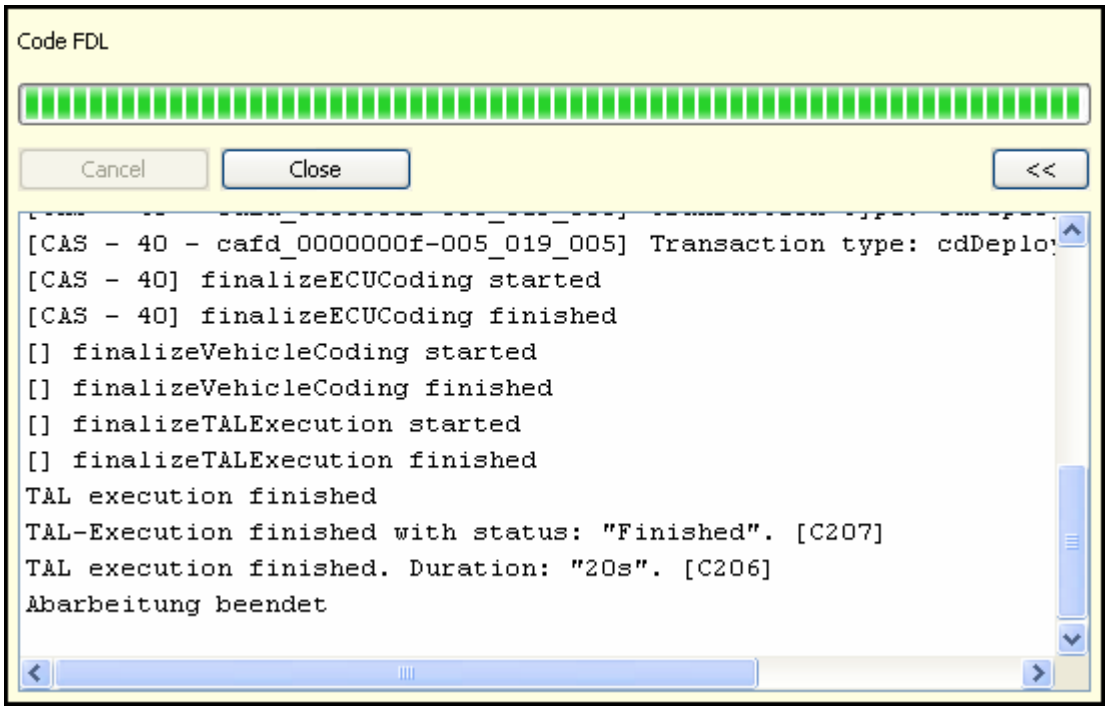


Step 20: Select the CAFD file that you just edited and then click “CODE FDL”

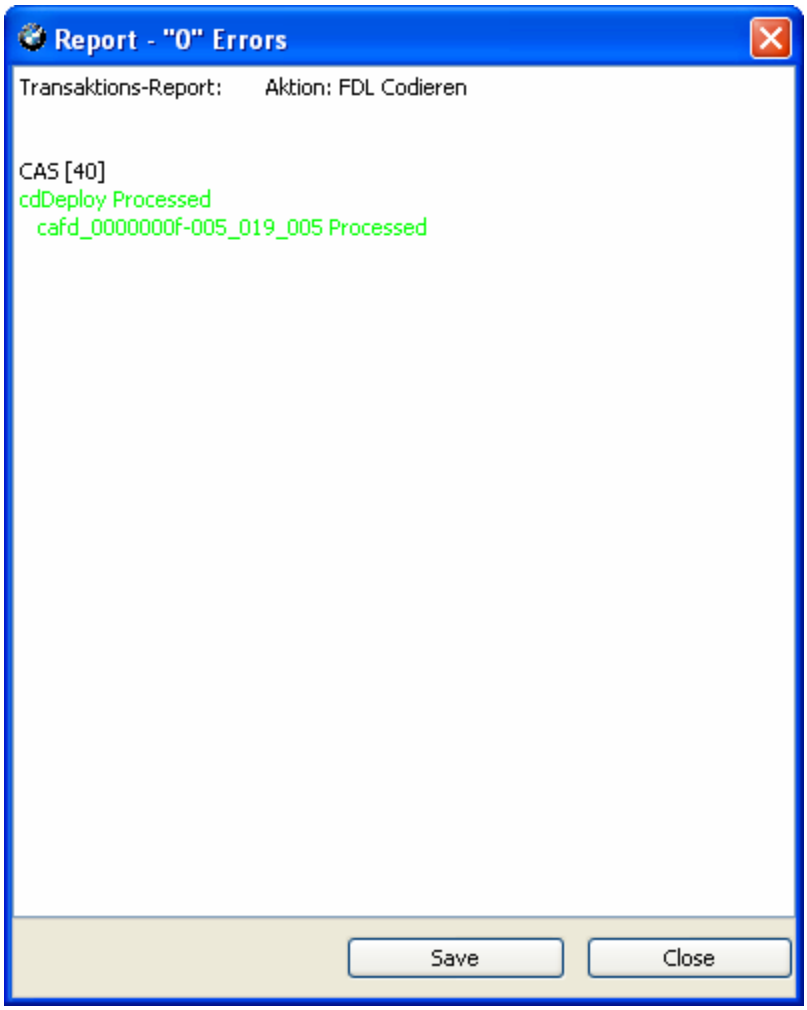


Step 21: Coding FDL (progress)

Step 22: After it completes, Click “Close”



Step 23: Error report will open, view and click “Close” (or save if necessary)

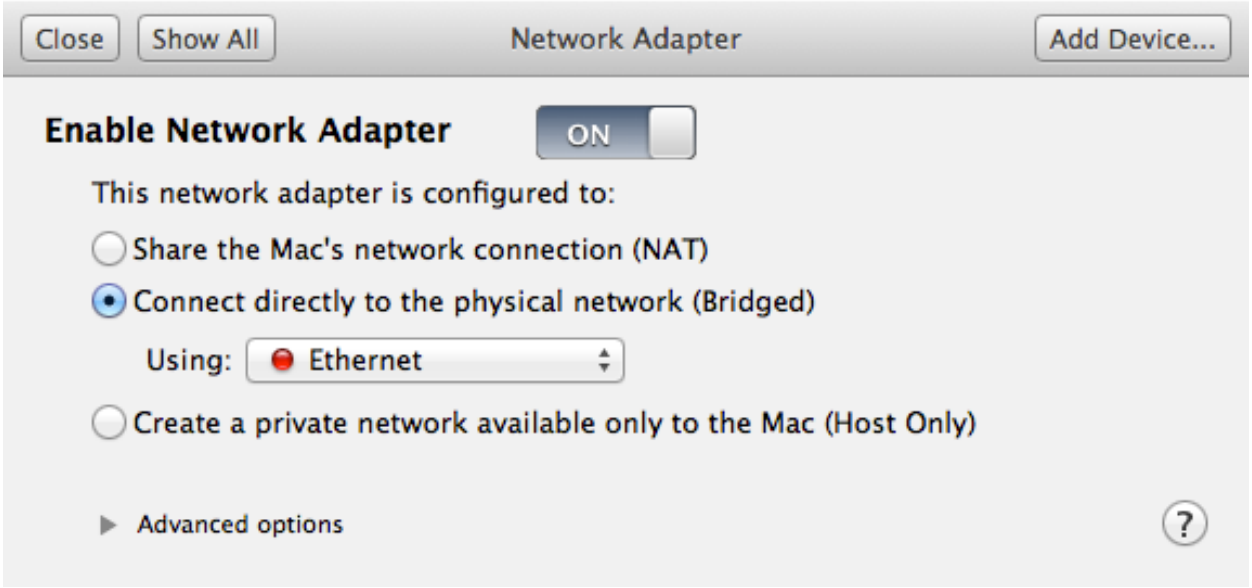


Instructions for getting E-Sys running in a Virtual Windows environment running under MacOSX.

Please note that these instructions have been prepared from a MacBook Pro running MacOS version 10.7.4, along with VMWare Fusion version 4.1.2 (not in bootcamp mode), running Windows 7 (x86) SP1.

The configuration and instructions prepared for E-Sys can be followed exactly as they have been prepared for the Windows environment here within the virtual windows as well.

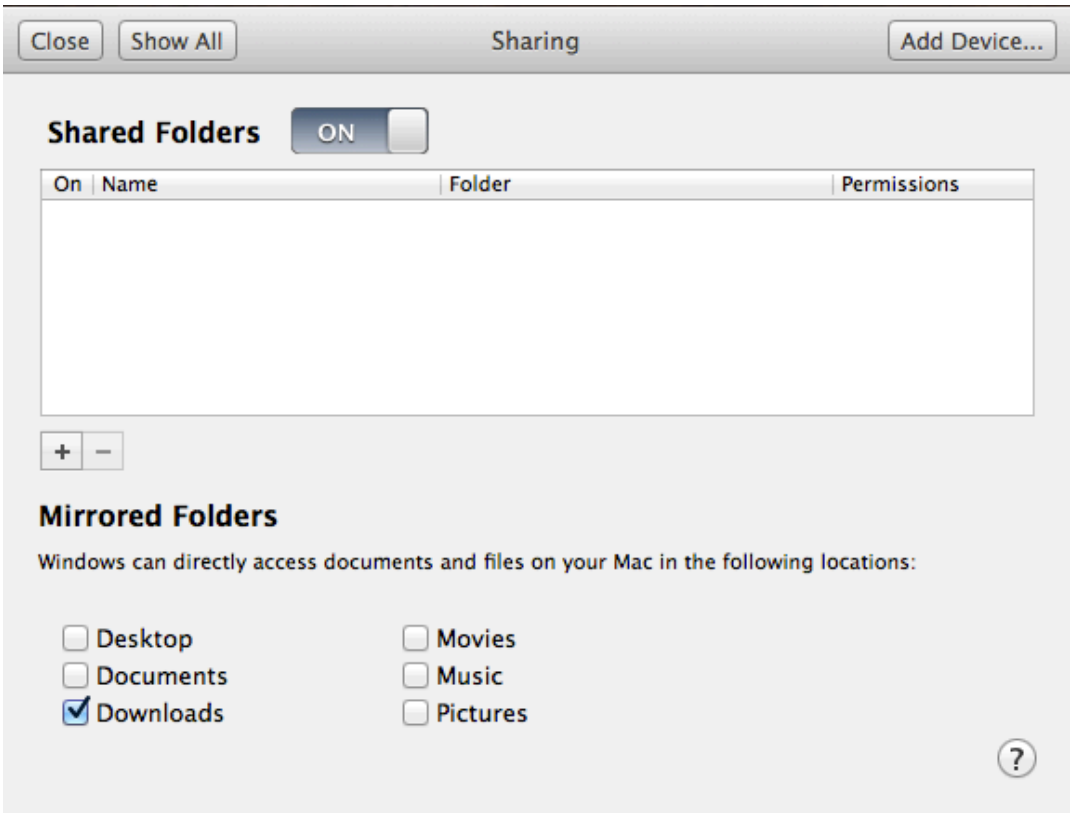
Please configure the VMWare Network Adapter to have a bridged connection to the OSX physical adapter, as in the following screenshot:



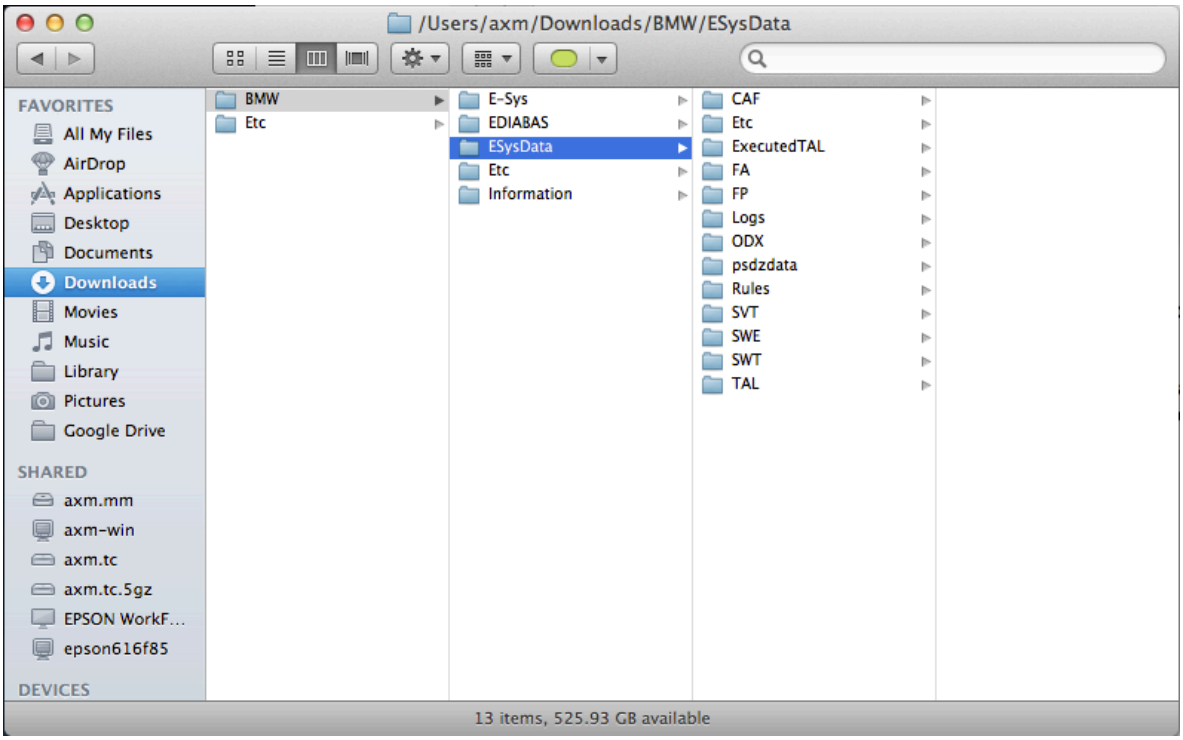
Note: at the time this screenshot was captured, the Ethernet wire was not connected to the car, hence it is shows a red circle in front of the title "Ethernet". Once connected to the car (or any active ethernet wire), the circle will be green.

If disk space is of no concern, then the rest of the instructions below can be ignored. However, considering the size of the psdzdata folder (approximately 15 gigabytes and growing per release), and usually virtual machines do not have as much disk space available to them as the parent OS, one can store the psdzdata folder on the Mac side and allow E-Sys to see the files from within the virtual windows.

Ensure that Windows is able to see a folder on the MacOS environment as a standard shared resource. The easiest way to do this is to enable Shared Folders and Mirror the Downloads folder to be the same between the virtual Windows and MacOS:



Now, create a folder called “BMW” or anything else that is desired on the Mac’s Downloads folder. The contents of the MacOSX downloads folder will be available in Windows via Z:\Downloads under Windows Explorer.



In the ~/Users/*username*/Downloads/BMW folder, create a folder called: “ESysData”, and copy the contents of the folder “C:\EsysData” to the “Z:\Downloads\BMW\EsysData” folder. Now extract the entire downloaded “psdzdata” folder content in the psdzdata folder of the MacOS environment. Lastly, copy (**not move**) the contents of the following folder:

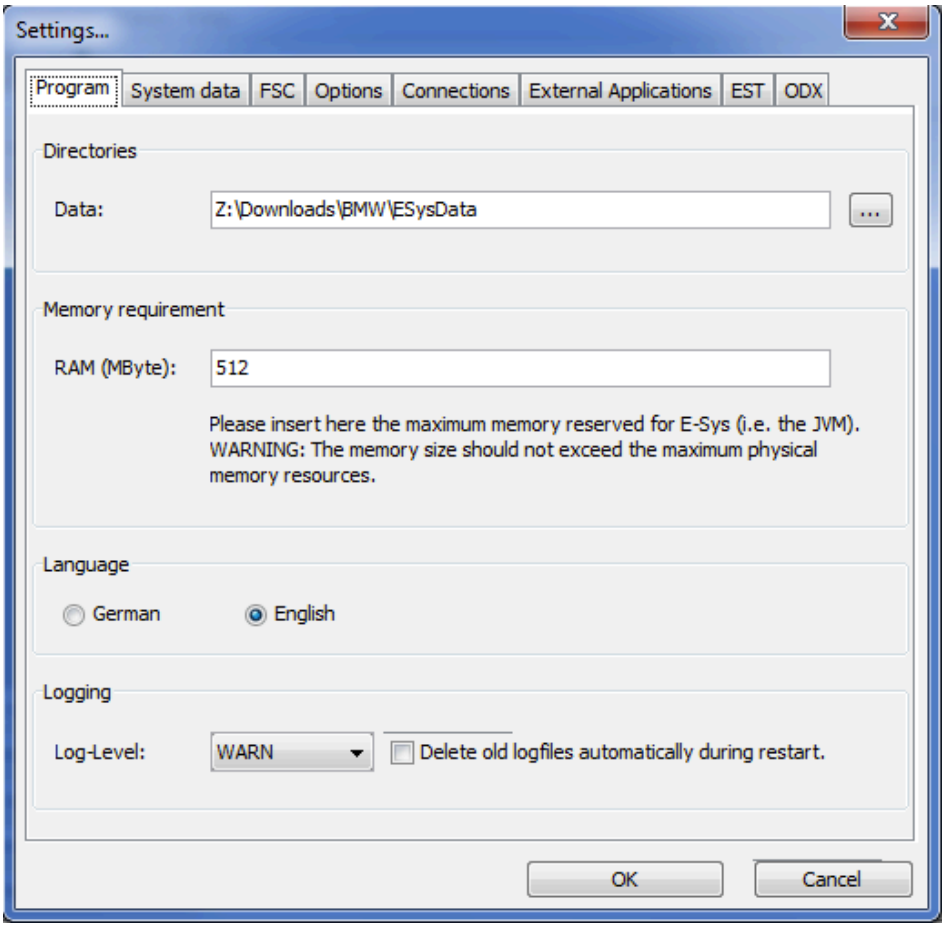
~/Users/*username*/BMW/EsysData/psdzdata/swe

to the following folder within the EsysData folder structure created above:

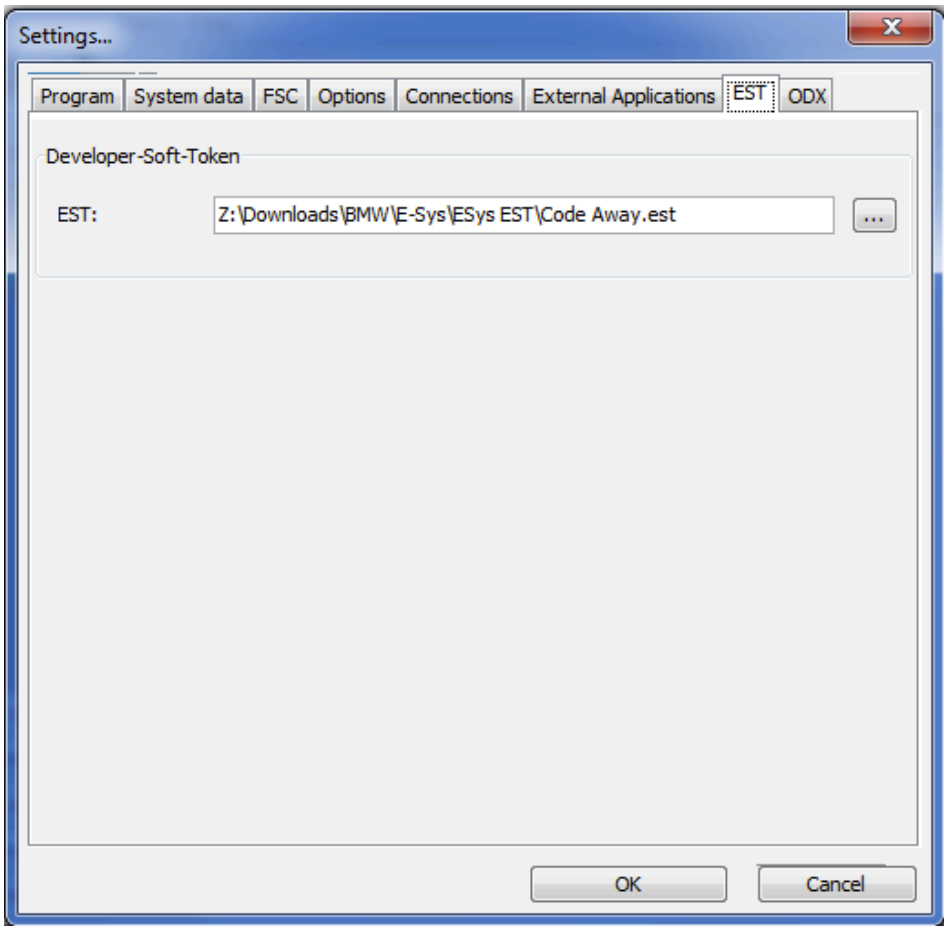
~/Users/*username*/BMW/EsysData/SWE

Please note that the “*username*” that appears in the above two paths will be the MacOS user’s username. Also, considering the fact that the Windows filesystem does not support case-sensitivity, the folder name cases specified above do not have any significance other than readability.

In E-Sys, from the “Options” menu select “Settings...” and then select the “Program” tab. Ensure that the EsysData folder path is correctly specified with respect to where they are on the MacOSX environment and the Windows shared folder path. See screenshot:



The EST file also needs to be mapped to E-Sys, and this file can be stored on the Mac side as well. Although it does not have a significant file size, it is advantageous to have this file on the Mac side for those who use Time Capsule as a backup solution and would like these files to be backed-up. In this case, the following illustration shows where the location of the EST file can been configured:



The rest of the instructions that have been prepared for windows need to be followed in order to alter the coding of a BMW via E-Sys running in VMWare Fusion and MacOSX.

INSTALL E-SYS

---

01) Run "E-Sys_Setup_x_xx_x_xxxxxx.exe" to install program to default location (i.e. "C:\EC-Apps\ESG\E-Sys\")

02) When prompted during installation, accept the default installation location Data Path (i.e. "C:\Data\"), and if prompted to "Override Existing Files", select Yes.

*** NOTE 1**: If upgrading from a previous E-Sys version, first uninstall current E-Sys version via Windows Control Panel.

* **NOTE 2**: Newer PSdZData versions require newer E-Sys versions. Do **NOT** use older version of E-Sys.

* **NOTE 3**: Newer E-Sys versions do **NOT** require an .est Token solution for FDL Coding.

INSTALL PSdZData (Lite or Full)

---

03) Extract the PSdZData_Lite or PSdZData_Full .rar archive using **latest** version of **7-Zip** (https://www.7-zip.org/download.html) to produce the "psdzdata" folder.

*** NOTE 3:** If PSdZData Full is packaged as a multipart archive (e.g., .part001.rar, part002.rar, etc. or .zip.001, .zip.002, etc., or .z01, .z02, etc., Open **ONLY** the 1st part and extract it, and **ALL** parts will be automatically processed.

04) If existing "psdzdata" folder exists in "C:\Data\" (i.e. "C:\Data\psdzdata") **DELETE** it.

05) From the PSdZData_Lite or PSdZData_Full extraction folder, copy the "psdzdata" folder to "C:\Data\" (i.e. "C:\Data\psdzdata" **NOT** i.e. "C:\Data\psdzdata\psdzdata)".

*** NOTE 4:** If upgrading from a previous PSdZData version, **DELETE** old PSdZData folder and **REPLACE** with new PSdZData folder (Do **NOT** copy (merge) new PSdZData folder on on top of old PSdZData folder).

*** NOTE 5:** PSdZData Lite Version has all ECU Firmware files removed, which are needed only for flashing new firmware onto ECU's and which ARE **NOT** needed at all for any Coding. PSdZData Full Version is needed **ONLY** for Programming (flashing) ECU's with new Firmware. PSdZData Lite is all that is needed to VO (FA) Coding and FDL Coding.

INSTALL BimmerUtility

---

06) Extract the BimmerUtility-Install.zip archive **using latest version of 7-Zip** (https://www.7-zip.org/download.html) to produce the "BimmerUtilityInstall" folder.

07) From the extracted "BimmerUtilityInstall" folder, Run "BimmerUtility_Installer.exe" to install program to default location (i.e. " "C:\BimmerUtility\".

08) Run BimmerUtility from Desktop Shortcut and on 1st run, enter your License Key received via email with your order.

*** NOTE 6:** During installation, make sure internet connection is present throughout **ENTIRE** install.

*** NOTE 7:** If error ".NET CORE required" pops up, install "Framework_Fix.exe" from the extracted "BimmerUtilityInstall" folder.

*** NOTE 8:** For **FDL Coding**, E-Sys requires a 3rd Party "Mapping" application such as BimmerUtility as it Provides CAFD Mapping. BMW AG made changes to PSdZData beginning with 54.2 PSdZData where they removed (trimmed) all descriptive text from CAFD and FAFP files, making FDL Coding of ECU's difficult, as the FDL Codes can no longer be easily located. The "Mapping" application dynamically maps the trimmed data back into CAFD file making FDL Coding possible. BimmerUtility is **NOT** needed for VO (FA) Coding nor ECU Programming (Flashing) as these can be performed with E-Sys direct.

CONFIGURE E-SYS

---

09) On E-Sys Menu Bar, select "Options" and then "Settings", and verify / set the following Options:

A) On the "PROGRAM" Tab, verify / set the Directories => Data: path to "C:\Data"
B) On the "OPTIONS" Tab Uncheck the boxes for "Update VCM after TAL execution" and "Update MSM after TAL execution".

10) Press "OK" to close the Settings Dialog Window and then from the Menu Bar press "File" and then "Exit" to shut down E-Sys application.

CONNECT to Car with BimmerUtility / E-Sys via ENET Cable

---

11) Make connection from car's OBDII port to computer LAN port with OBDII-ENET interface cable.

12) Ensure Car has adequate power, either by running the motor or connecting to an external charger and is switched on (fuel gauge registering fuel level).

***NOTE 9:** For newer vehicles (e.g., Gxx cars), if using an external charger in lieu of running the motor, a new terminal control concept was introduced whereby the Start/Stop button needs to be pressed 3 times in succession within .8 seconds in order to switch vehicle over to diagnosis mode (PAD).

***NOTE 10:** A continuous power source of at least 12.6 Volts is needed. Failure to maintain proper voltage can lead to corruption of ECU Data. As such, ideally the car is connected to an external charger. In lieu of using an external charger, the car can instead be coded with the engine running in order to maintain proper voltage, which is acceptable for coding all ECU's **EXCEPT** the DME (Digital Motor Electronics) ECU or DDE (Digital Diesel Electronics) ECU. The DME/DDE are typically not coded anyway, so this ECU limitation is generally not an issue.

13) Wait a few minutes until the Laptop Windows wired network adapter icon shows a Connection with the yellow exclamation point over it.

***NOTE 11:** The car **does NOT** have a DHCP server, so it **does NOT** assign an IP Address to the computer. Both the computer and the car will go into DHCP fallback mode, each assigning themselves a random Class-B IP Address so that they can talk to each other. This can take up to 60 seconds, so you have to wait until the PC has an IP address before you try to connect). Class-B IP Address range is from 128.0.0.0 to 191.255.255.255. Automatic Private IP Addressing (APIPA) is a network client-side process used as a fall-back position when DHCP services are not available on the network but the client devices are configured to use DHCP for their IP address configuration. APIPA allows the client device to randomly choose one of the 65,534 addresses available in the Class B network address of 169.254.0.0/16.

14) Run BimmerUtility from Desktop Shortcut, at which point both BimmerUtility will Open and it will automatically open E-Sys at same time.

15) On E-Sys Toolbar Press the "Connect" Button and in the "Open Connection" window under "Target", select desired Target Vehicle based on car's Chassis.
(e.g., "TargetSelector:Project=F010-xx-xx-xxx, VehicleInfo=F010")

***NOTE 12:** Do **NOT** select the Target with the "_DIRECT" suffix (e.g., TargetSelector:Project=F010-xx-xx-xxx, VehicleInfo=F010_**DIRECT**).

***NOTE 13:** If Connection Target) has more than one Target I-Step without the "_DIRECT" suffix, select the newer (bottom) one.

***NOTE 14**: Choose Connection Target Series based on the following:

F001 psdzdata covers:
F001/F002/F003/F004/F007/RR04/RR05/RR06 (5-Series GT is an F07 **NOT** an F10)
F010 psdzdata covers:
F005/F006/F010/F011/F012/F013/F018
F020 psdzdata covers:
F020/F021/F022/F023/F030/F031/F032/F033/F034/F035/F036/F080/F082/F083/F087/F088
F025 psdzdata covers:
F015/F016/F025/F026/F085/F086
F056 psdzdata covers:
F039/F045/F046/F047/F048/F049/F052/F054/F055/F056/F057/F060
I001 psdzdata covers:
I001/I012/I015
I020 psdzdata covers:
I020
K001 psdzdata covers:
K010/K018/K019/K021/K022/K023/K032/K033/K034/K035/K045/K046/K047/K048/K049/K050/K051/K052/K053/K054
/K061/
K063/K067/K069/K080/K081/K082/K083/K084/KM03/KM09
KE01 psdzdata covers:
K007/K017
KS01 psdzdata covers:
K002/K003/K008/K009/K060
RR21 psdzdata covers:
RR21/RR22/RR25
S15A psdzdata covers:
F090/F097/F098/G001/G002/G011/G012/G013/G030/G031/G032/RR11/RR12/RR31
S15C psdzdata covers:
G008/G038
S18A psdzdata covers:
F040/F042/F044/F091/F092/F093/F095/F096/G005/G006/G007/G009/G014/G015/G016/G018/G020/G021/G022/
G023/G024/
G026/G028/G029/G042/G080/G081/G082/G083/G087
U006 psdzdata covers:
F065/F066/F067/F070/F074/F078/U006/U010/U011/U012/U025/U028

***NOTE 15:** If the "Open Connection" window under "Target" is empty (no targets), verify the following:

A) That the "psdzdata" folder is installed properly (See Step 05).
B) That the "Directories => Data: path is set properly (See Step 9A).
C) That the psdzdata chassis folders **EACH** have an empty "dist" folder (e.g., "C:\Program Files (x86)\BMW\ISPI\TRIC\ISTA\PSdZ\data_swi\psdzdata\mainseries\F001\F001_22_03_552_V_004_000_001\odx\dist\")

16) In the "Open Connection" window under "Interface" select "Connection via VIN".

***NOTE 16:** If "Connection via VIN" is grayed out and Vehicle VIN is not shown verify the following:

A) ENET Cable connection to car is good.
B) Car has proper voltage (Make sure Charger voltage is at least 12.6 Volts or motor is running if car is not on a Charger).
C) Laptop Windows Firewall and any Antivirus software is disabled and not running.
D) Laptop Lan Adapter has a 169.254.xxx.xxx IP address (Make sure it is using DHCP and does not have a Static IP address assigned to it).
E) Some PC's do not support simultaneous WAN (Wi-Fi) and LAN (Wired) network connections, in which case you will need to disable your WAN Adapter in order for the LAN Adapter to work:
1. Right-click Start and choose Device Manager from the pop-out menu.
2. Unfold the Network adapters.
3. Right-click the WAN (Wi-Fi) adapter and choose Disable device from the popup menu.

17) In the "Open Connection" window under "vehicle-specific parameter (optional)" select "Series, I-Step Shipment", and **leave the two Dropdown boxes blank**. Do **NOT** select "Read parameters from VCM".

18) In the "Open Connection", select "Connect" button.

***NOTE 17:** Window should pop up confirming successful connection and car can now be accessed with E-Sys. **At this point, car can be coded with E-Sys using BimmerUtility as needed for FDL Coding**. **See E-Sys Guides below.**

E-SYS GUIDES:

---

https://mega.nz/folder/5lJkVaIA#lo1TtlzwtQ696iO2LnRSVA

Most Guides were developed for original F-Series car architectures and using older versions of E-Sys, which since then there have been some minor changes as follows:

- Use "Read (ECU)" instead of "Read (VCM)"
- Use "Edit <SvtCompareView.edit.fd.name>" instead of "Edit FDL"
- Use "Code NCD" instead of "Code FDL"

INITIAL BACKUP:

When 1st connecting to car, you should back up Key Profiles as well as both FA and SVT (ECU List) files from car.

KEY PROFILES:

Backup your Vehicle Key Profiles to USB Drive using standard iDrive functionality as saved settings including seat settings and hotkeys can be erased during certain coding.

FA:

PROCESS: Connect => Expert Mode => Coding => Read FA (VO) => Save => Select Folder (e.g, Desktop) Enter a File Name (e.g., My_FA) => Save.

Desktop will now have Backed up FA (e.g., "MY_FA.xml") on Desktop.

SVT:

PROCESS: Connect => Expert Mode => Coding => Read (ECU) => => Save => Select Folder (e.g, Desktop) Enter a File Name (e.g., My_SVT) => Save.

Desktop will now have Backed up FA (e.g., "MY_SVT.xml") on Desktop.

***NOTE 18:** There is no need to backup coding data from each ECU as these can be easily generated by VO Coding an ECU with backed up FA (See Note 20 Above).

CODING:

There are two kinds of coding, VO (FA) Coding and FDL Coding:

VO Coding (**Default ECU Coding** - see **E-Sys - VO Coding Guide.pdf**)

DEFINED: VO = Vehicle Order (aka FA, which is short for Fahrzeugauftrag)

CONCEPT: VO Code = **Coding of all FDL's (100% of the ECU) to predetermined settings based on the Vehicle Order**.

PROCESS: Connect => Expert Mode => Coding => Read FA (VO) => Activate FA (VO) => Read (ECU) => Right-Click on ECU (the ECU itself not the underlying CAFD) => Select **CODE**.

You can VO Code using your factory FA, or modified FA. To modify FA using BimmerUtility, see following Video:

> **Bimmer-Utility – VO (FA) Edit**
> https://www.youtube.com/watch?v=wUng0yC7vPM&t=4s&ab_channel=BimmerUtility

NOTE 19: Changing FA by itself does nothing. After modifying FA, you **MUST** subsequently VO Code all ECU(s) that need to be affected by the FA modification. If you unsure which ECU(s), you can VO Code them all; however, as explained previously in Note 10, do **NOT** ever VO Code DME/DDE if Motor is running.

NOTE 20: VO Coding an ECU will override any previous FDL Coding in ECU if it was previously custom coded.

NOTE 21: Using original unmodified FA and VO Coding an ECU will restore factory original coding. Do **NOT** ever use the "Code Default Values" button. It is not what it appears. This sets ECU to a default condition without regard to your car's actual FA. **Often after using, the ECU is not recoverable**.

NOTE 22: If you ever encounter an ECU that should have CAFD (not all should, e.g., ZGW, FEM_GW, BDC_GW, etc.) and it is either missing or you have a corrupted CAFD showing "cafd_ffffffff-255_255_255", you need to Inject CAFD and VO Code the ECU as follows:

Connect => Expert Mode => Coding => Read FA (VO) => Activate FA (VO) => Read (ECU) => Left-Click on desired ECU => Click on "Detect CAF for SWE" => Select the CAFD from latest I-Level shown (bottom one) => Select OK => Right-Click on ECU (the ECU itself not the underlying CAFD) => Select CODE.

FDL Coding (**Custom ECU Coding** – see **E-Sys - Getting Started Coding v.2.pdf**)

DEFINED: FDL = Function Data Line

CONCEPT: FDL Code = **Coding of individual FDL's in an ECU, overriding the VO Coding**.

PROCESS: Connect => Expert Mode => Coding => Read FA (VO) => Activate FA (VO) => Read (ECU) => Right-Click on the ECU CAFD and select Read Coding Data => Expand the CAFD Folder by clicking + symbol => Right-Click on the CAFD file and select Edit <SvtCompareView.edit.fd.name> => "**Edit CAFD as desired**" => Click the Blue Floppy Disc Icon to Save CAFD => Click the green back arrow icon => Right-Click on the CAFD file => Select **Code NCD**.

To "**Edit CAFD as desired**" most cases involve changing an FDL's value using a dropdown box of predefined values, which in turn automatically changes that FDL Code's corresponding Werte value. That is to say the predefined dropdown box values and the Werte values are a matched set, so when you change the dropdown box setting, the corresponding Werte value automatically changes with it. So, for example, if you change a dropdown box settings from nicht_aktiv to aktiv, the Werte value automatically changes from Werte=00 to Werte=01. That said, it's the Werte value only that matters. However, since hexadecimal values are hardly descriptive, the dropdown box settings serve to provide a more descriptive way of representing what the Werte value's mean, and to ease changing them.

In some FDL Coding instances though, the dropdown box of predefined values does not provide you with the choice you want, in which case you must change the Werte value directly (see **E-Sys - How to Change Werte Values.pdf**). When you change a Werte value directly to a custom value (e.g., Werte value = FF), the predefined dropdown box values, which does not have a match for the custom Werte value, will display "Unknown". The custom Werte value though is most certainly active so long as it is a valid value. Under no scenario will you ever change both the drop-down selection and the Werte Value directly. It is one or the other, but never both. The vast majority of the time, you will just change the value using the predefined dropdown box values, and leave the Werte value alone.

To FDL Code using BimmerUtility, see following Video:

> **Bimmer-Utility - FDL Coding**
> https://www.youtube.com/watch?v=Vz6RoYC1ohs&t=72s&ab_channel=BimmerUtility

---

MISCELLANEOUS:

A) Coding KOMBI (Instrument Cluster) module will cause the car to chime and the dashboard to reset including the clock. Simply reset the vehicle Date and Time via iDrive when done coding module.

B) Coding Head Unit (e.g., HU_CIC, HU_NBT, etc.) will cause iDrive system to reboot.

C) Coding some ECU's can result in a variety of initial Error Messages appearing on CID Screen. This is common. Just click on "Ok" to dismiss them, and they should NOT reappear again. If you have any persistent Error Messages, clear DTC (Diagnostic Trouble Codes) using BimmerUtility:

Bimmer-Utility - Reading & Clearing Errors
https://www.youtube.com/watch?v=VZTh8arfeVA&ab_channel=BimmerUtility

D) Some ECU's take a long time before the changes begin working (e.g,. trunk and mirror close). If still not working after a full hour of car being shut off, try recoding the module again, even if it looks like the correct parameter (e.g.,"nicht_aktiv") is set.