



MGU7 WORKSPACE

Complete operating guide for service technicians

Connection, diagnostics, Flash, FSC, coding, FA, VIN, replacement, SSH, files and recovery

English · EN

International

For qualified service technicians only. Read the safety and backup sections before any write operation.

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Edition coverage: International

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MGU7 2.2.9

EXE SHA-256: 3C8A6FFB5E0F94ED9D2FB60B697B43C84BB43D2B5F4170D56B50A6AA466310DD

This manual follows the real order of a workshop job: prepare the computer and vehicle, establish a verified connection, make backups, perform one controlled operation, then verify and save the result.

READ-ONLY

Commands that identify the unit or read status. Start here whenever the vehicle history is unknown.

CHANGES SETTINGS

Commands that alter a reversible MGU setting, such as display brightness, Bluetooth or transport mode.

DESTRUCTIVE

Commands that write VIN, coding, FA, FSC, replacement data, flash data, maps or user records. They require stable supply voltage and explicit confirmation.

OFFLINE

File-only tools. They never connect to the vehicle, but the selected output still needs careful version control.

Blue framed captions are exact buttons or fields from the selected interface language. Monospace text is a file name, path, identifier or value that must not be translated.

Screenshots were captured from the signed 32-bit build on Microsoft Windows 10, not from a compatibility layer. The procedures apply to Windows 7 SP1 through Windows 11.

Quick start: the safe first connection

02

Use this sequence for an unfamiliar MGU before opening any write workflow.

- 1 Put the vehicle or bench setup on a regulated programming supply. Use wired BMW ENET and prevent the computer from sleeping.
- 2 Extract the complete distribution ZIP to a normal local folder. Keep `MGU7_Workspace_2.2.exe` and `mgu7.lic` together.
- 3 Start the application. Leave **REMOTE** cleared for a normal direct ENET job.
- 4 Press **SCAN**. Select the detected gateway, or enter `169.254.199.99` only when that is the verified direct address.
- 5 Press **CONNECT**. Wait until the upper summary shows the vehicle VIN, detected head unit, MGU network address and workspace state.
- 6 Open **Diagnostics** and run **READ MGU DTC** plus **READ I-STEP**. Open **Coding / FA** and run **READ CURRENT SVK**.
- 7 Before any coding or FA write, save a fresh coding TXT and FA XML for this exact vehicle.
- 8 Perform one intended operation. After a restart, reconnect, repeat identification and read DTC status before handing over the vehicle.

STOP CONDITION

Do not use a successful TCP connection as permission to write. The connected BTLD, vehicle architecture, VIN and required workflow must also match.

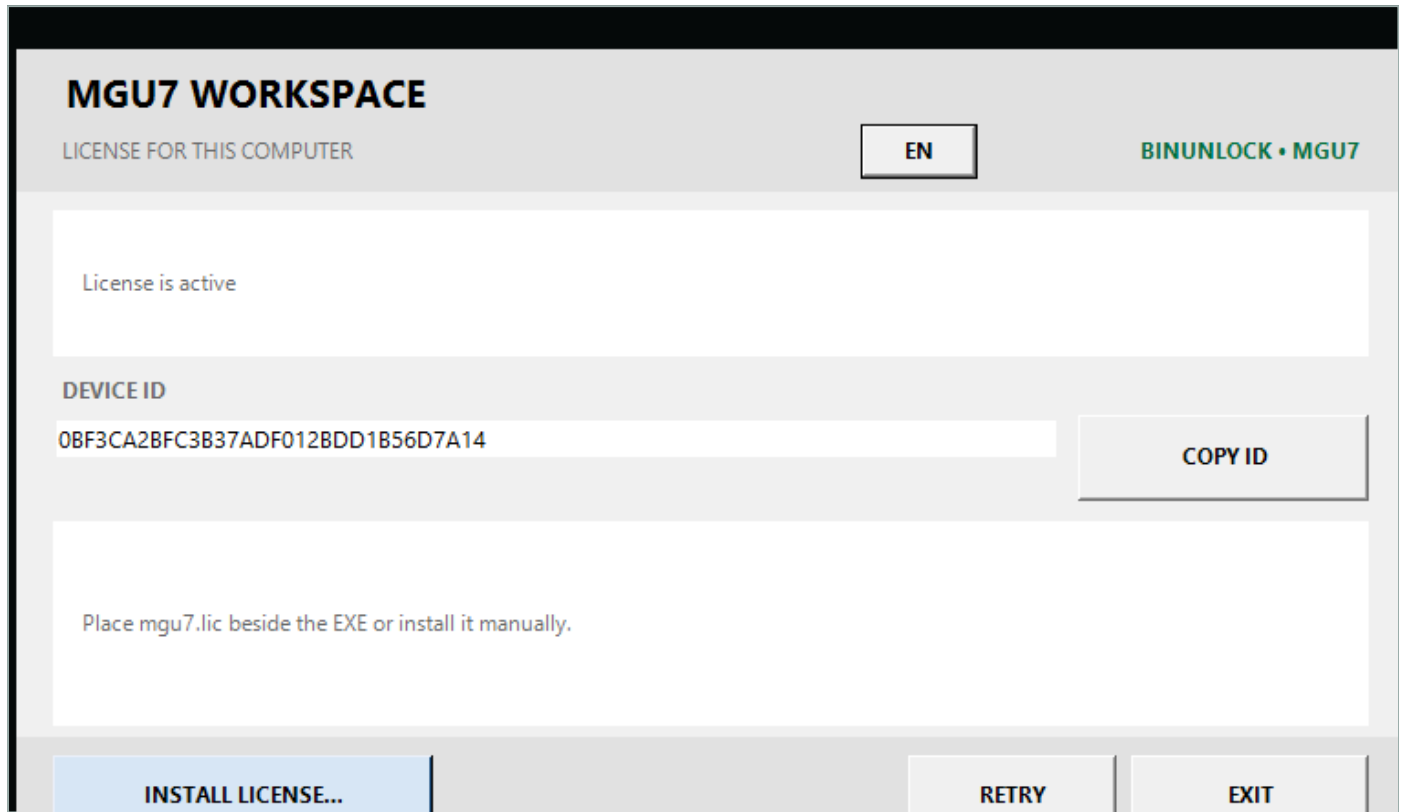
Most serious failures are caused by unstable voltage, an interrupted network path or selecting data for the wrong unit. Prepare these conditions before pressing a write button.

Category	Required condition	Why it matters
Electrical supply	Regulated programming supply with adequate current reserve; secure terminals; no pulse or reconditioning mode.	The MGU can reboot or stop responding during a write if voltage falls.
Network	Wired ENET directly or through a known routed workshop network. Disable Wi-Fi path switching and prevent adapter sleep.	A link change during transfer can leave an incomplete transaction.
Computer	AC power connected, sleep/hibernation disabled, enough disk space, local folder writable.	Backups, reports and generated files must complete without interruption.
Vehicle	Correct chassis, confirmed full VIN and known head-unit generation/architecture.	A plausible response from the wrong address is not a valid match.
Recovery	Coding TXT, FA XML, DTC/SVK report and job notes saved before changes.	These records establish the exact pre-work state.

- Never disconnect ENET, switch ignition, remove the charger or close Windows while the progress bar is active.
- Do not run two diagnostic programs against the same MGU at the same time.
- Do not repeatedly press a command after a timeout. Save the session log and determine whether the MGU restarted, the route changed or the request was rejected.
- If the application says an operation is still running, wait. Closing the window is intentionally blocked while a non-interruptible diagnostic transaction is active.
- Treat **DELETE NAV MAP**, **FACTORY RESET**, **DELETE ALL PROFILES**, FSC deactivation, VIN/FA/coding writes and flash as destructive work.

A final reset can make the endpoint disappear before a normal response is visible. Accept this only when the application explicitly reports the tolerated reset case; do not generalize it to any timeout.

MGU7 Workspace is delivered as one signed executable with embedded runtime components and a computer-bound license file.



License window. Copy the Device ID, install the bot-issued license, then retry.

- 1 Download the current ZIP and verify that its version is [2.2.9](#).
- 2 Extract the whole archive. Do not run the executable from inside the ZIP, an email preview or a temporary browser folder.
- 3 Open file Properties → Digital Signatures and verify [BinUnlock LLC](#). The exact release EXE SHA-256 is `3C8A6FFB5E0F94ED9D2FB60B697B43C84BB43D2B5F4170D56B50A6AA466310DD`.
- 4 Start `MGU7_Workspace_2.2.exe`. If the license window opens, press **COPY ID**.
- 5 Send only the shown Device ID to the official activation bot. Save the returned file as `mgu7.lic`.
- 6 Place `mgu7.lic` beside the EXE or press **INSTALL LICENSE...** and choose it. Press **RETRY** or restart the application.

The license file is bound to the computer. Moving only the EXE to another PC does not transfer the license. Request a new license for the new Device ID.

Updating without losing the job record

- Close the application only when no operation is active.
- Keep the old ZIP, current license and workshop backups until the new build starts successfully.
- Extract the new ZIP to a new folder; copy only the valid `mgu7.lic` when required.

- Do not mix helper files from unrelated versions. The production program itself is the signed EXE.

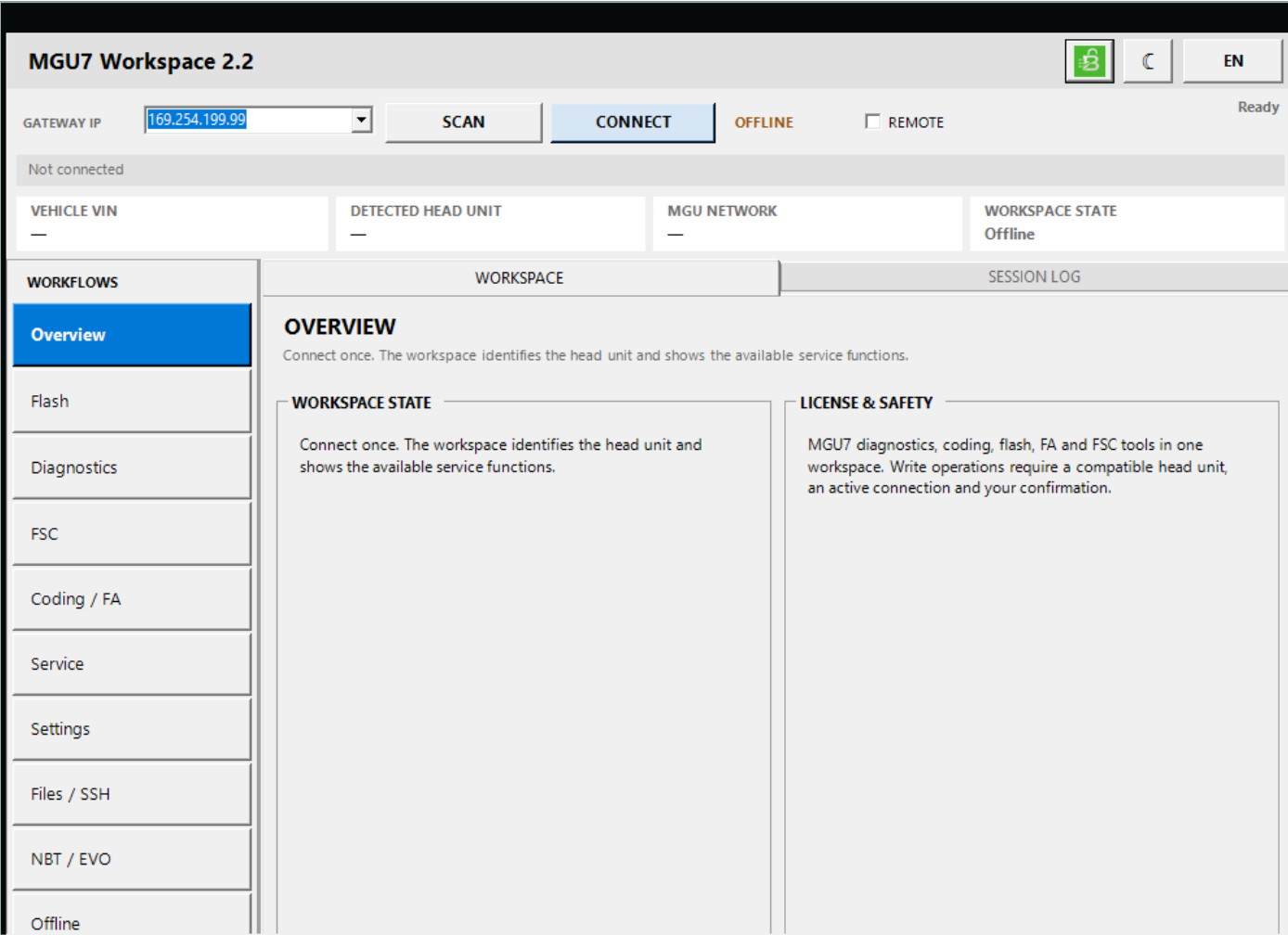
The connection bar accepts a discovered BMW gateway or a manually supplied address. Discovery is the preferred first step because it also provides the independently reported vehicle VIN when available.

- 1 Connect the ENET cable to the vehicle or bench interface and to the Windows Ethernet adapter.
- 2 In Windows Network Connections, confirm that the Ethernet link is up. Leave IPv4 on automatic addressing unless the workshop route has a documented static plan.
- 3 Temporarily disconnect unrelated VPN routes if they capture the BMW subnet. Do not permanently disable the Windows firewall; allow the signed application when prompted.
- 4 Press **SCAN** and wait for the result. If nothing is found, verify ignition, cable, adapter link and power before entering an IP manually.
- 5 For a normal local job keep **REMOTE** off. Enable it only when the MGU address is supplied through a known remote/routed setup and the vehicle-gateway read is intentionally unavailable.

Symptom	Check
No gateway found	Ethernet link LED, ignition/bench wake-up, adapter status, VPN route, cable and electrical supply. Direct IP remains available.
Connect times out	Ping/routing alone is not enough; verify port 6801 path, firewall rule and that another diagnostic tool does not own the connection.
Vehicle VIN unavailable	This is expected in some direct or remote connections. Manually verify the complete VIN against the chassis before write work.
Address changes after restart	Run Scan again and reconnect; do not keep sending commands to a stale endpoint.

The default address shown by the application is **169.254.199.99**. It is a convenience value, not proof that the connected unit is the intended vehicle.

The fixed classic layout keeps all ten workflows visible. Only data grids, lists and technical output areas scroll.



Main workspace after startup. Connection controls stay above every page; all workflows stay in the left column.

Area	What it shows
Top-left	Official BinUnlock favicon opens https://binunlock.com . The moon/sun button switches theme. The language button opens the picker.
Connection row	Gateway/IP, SCAN , CONNECT , offline/online state, REMOTE , current task and progress.
Full-width detail	The complete connection or error message. Read this line before interpreting a disabled button.
Four summary cards	Vehicle VIN, detected head unit/BTLD, MGU network data and workspace support state.
Left navigation	Overview, Flash, Diagnostics, FSC, Coding/FA, Service, Settings, Files/SSH, NBT/EVO and Offline.
Tabs	WORKSPACE contains controls; SESSION LOG contains the chronological technical record.

MGU7 Workspace 2.2

C
EN

GATEWAY IP

169.254.199.99

SCAN

CONNECT

OFFLINE

☐ REMOTE

WORKING • 35%

Connecting to 169.254.199.99 and reading vehicle identification data...

VEHICLE VIN

DETECTED HEAD UNIT

MGU NETWORK

WORKSPACE STATE
Offline

WORKFLOWS

Overview

Flash

Diagnostics

FSC

Coding / FA

Service

Settings

Files / SSH

NBT / EVO

Offline

WORKSPACE

SESSION LOG

OVERVIEW

Connect once. The workspace identifies the head unit and shows the available service functions.

WORKSPACE STATE

Connect once. The workspace identifies the head unit and shows the available service functions.

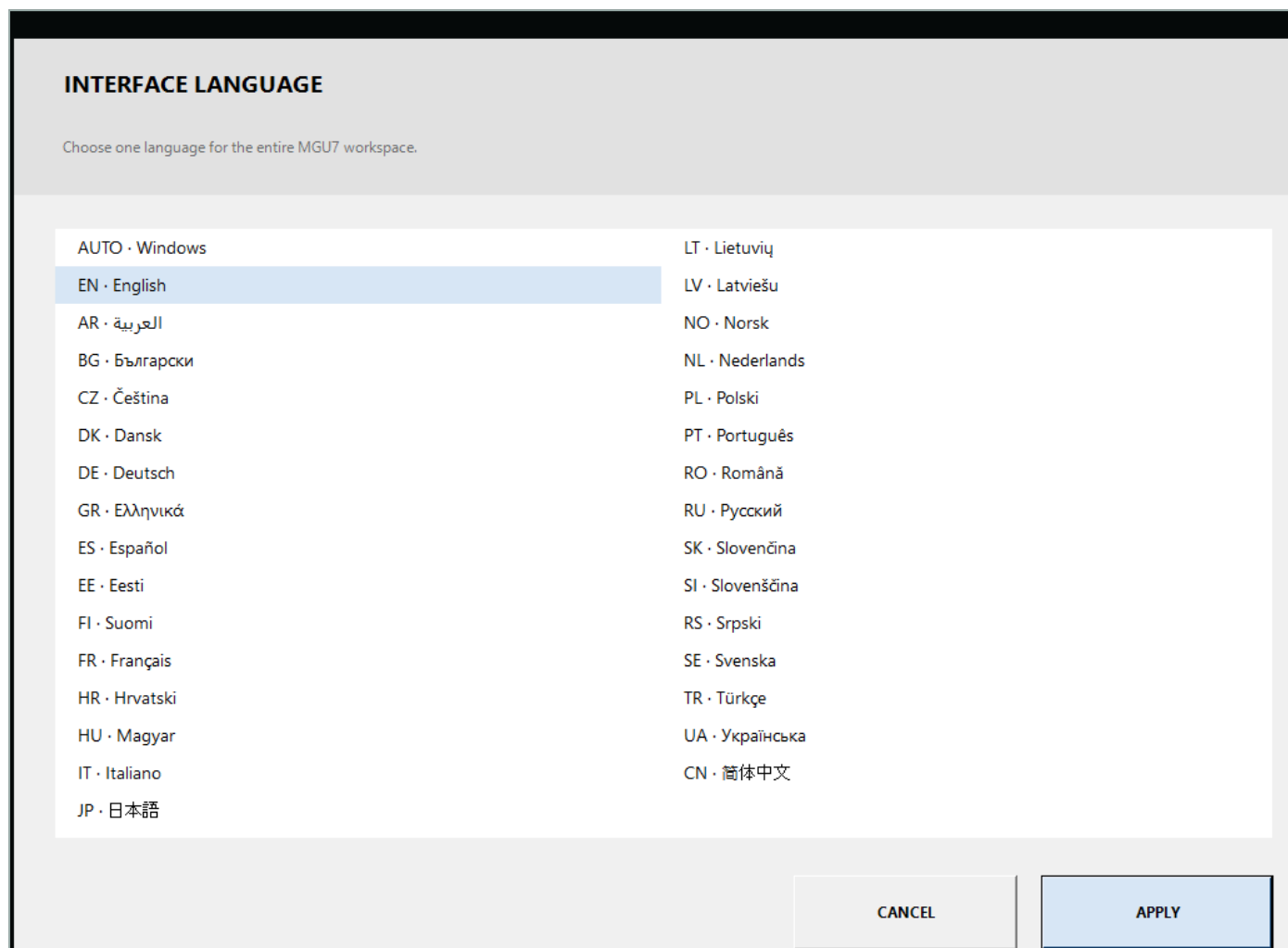
LICENSE & SAFETY

MGU7 diagnostics, coding, flash, FA and FSC tools in one workspace. Write operations require a compatible head unit, an active connection and your confirmation.

Connection in progress. The full detail line remains visible while the right-hand status and progress bar update.

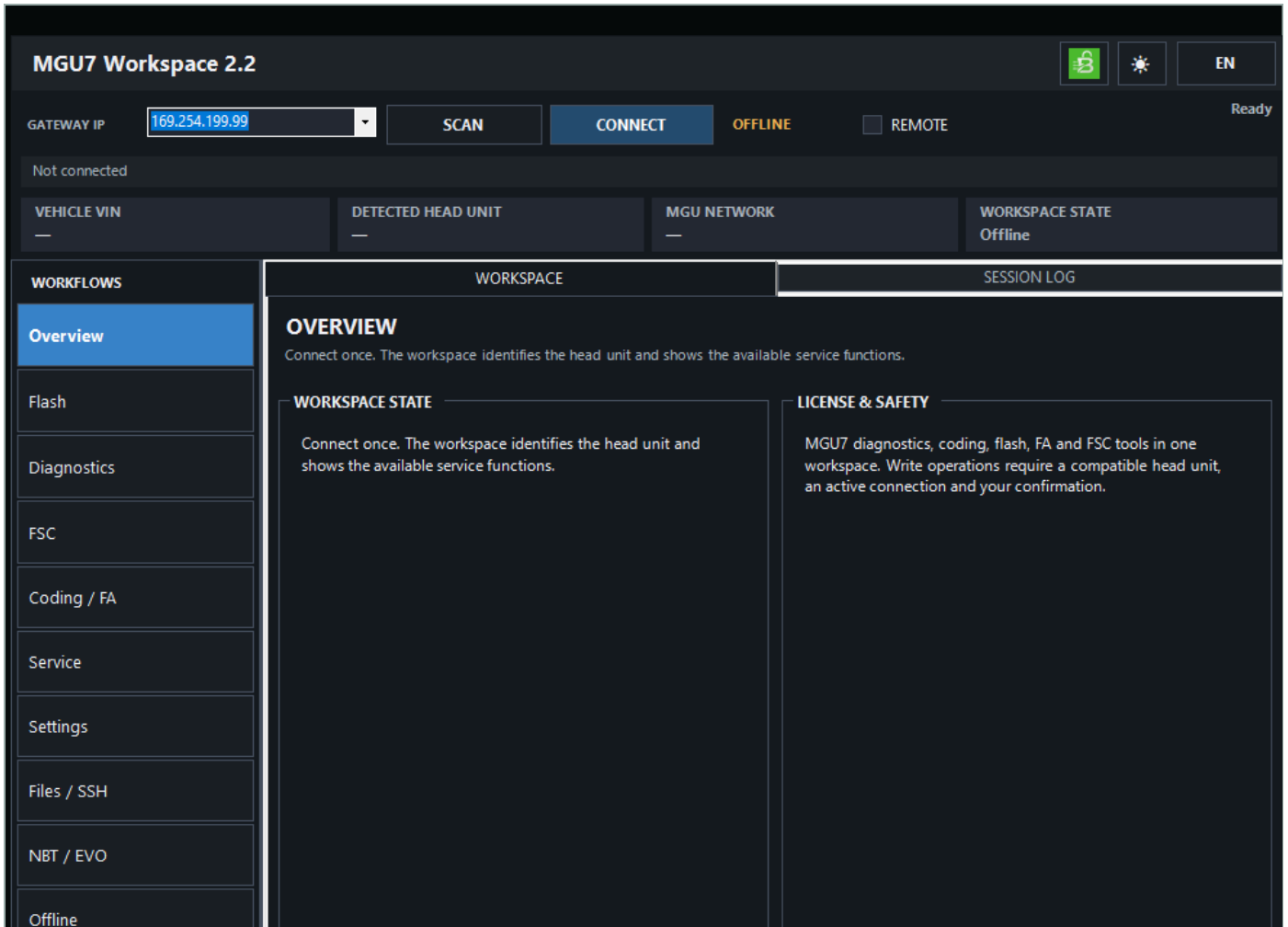
Disabled controls normally mean that the required supported unit is not connected, another task is active, no valid file/row is selected or a prerequisite has not been completed.

Language and theme are stored locally and apply to the main workspace and auxiliary windows.



Language selector at enlarged Windows scaling. Choose one entry, then use Apply; Cancel leaves the current language unchanged.

- 1 Click the ISO language button in the upper-right corner.
- 2 Select one language in the two-column list. **AUTO · Windows** follows the Windows display language when a matching translation exists.
- 3 Press **APPLY**. Reopen any already-open auxiliary window if its text was created before the change.
- 4 Use the moon/sun button between the favicon and language button to switch the complete interface between light and dark themes.



Dark theme uses the same geometry and controls; it does not change any vehicle operation.

- If text is cut off, first update to 2.2.9, close and reopen the application, then verify Windows custom scaling.
- At high DPI, maximize the main window. The left navigation should still contain all ten buttons without a scrollbar.
- Technical session-log content remains consistent English so exported traces can be compared between service centers.

A connection result has several levels. Do not treat them as interchangeable.

- 1 Run **SCAN** or enter the verified address.
- 2 Press **CONNECT**. The button changes to a disconnect action after the session is established.
- 3 Read the full-width detail, then compare the vehicle VIN with the chassis and job card.
- 4 Read the detected BTLD/SVK. MGU ID7/ID8 vehicle workflows require supported BTLD **00003F36**.
- 5 NBT/EVO SSH is a separate path for NBT BTLD **00001275** and NBT EVO BTLD **00001FFD**.
- 6 If identification data was not decoded or the BTLD is outside the catalog, keep the session read-only and investigate the unit/software level.

Workspace state	Meaning	Action
Supported MGU is ready	MGU BTLD and session are suitable for enabled MGU workflows.	Verify VIN and operation-specific prerequisites.
Supported NBT/EVO SSH tools are ready	The unit is NBT/NBT EVO, not an MGU 00003F36 target.	Use only the NBT/EVO page.
Connected — identification not decoded	TCP worked, but compatible SVK records were not extracted.	Save the log; do not write.
BTLD outside known catalog	The unit answered, but it is not an enabled target.	Confirm hardware/software and use the correct tool.

The independently discovered vehicle VIN and the VIN currently stored in the MGU can differ during replacement work. The difference is displayed for operator awareness; verify that it is intentional before continuing.

Flash is the longest and most interruption-sensitive workflow. It is enabled only for a supported MGU and a verified embedded data contract.

MGU7 Workspace 2.2

169.254.199.99

SCAN

CONNECT

OFFLINE

☐ REMOTE

Ready

Not connected

VEHICLE VIN

DETECTED HEAD UNIT

MGU NETWORK

WORKSPACE STATE
Offline

WORKFLOWS

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SESSION LOG

FLASH PATCH

Choose the vehicle architecture, verify the VIN and review the flash data before transmission.

1 PREPARE

VEHICLE ARCHITECTURE

VIN WRITTEN INTO PATCH

VERIFY

☐ Architecture verified against the vehicle (BDC2/3 or BCP)

☐ Stable programming voltage and wired ENET are connected

☐ I understand interruption may leave the MGU requiring recovery

START FLASH

During TransferData the workspace intentionally offers no Cancel button. If an ECU reset returns no response because the endpoint restarts first, only that proven case is tolerated.

2 REVIEW

FLASH DATA

Select a valid VIN to verify

TRANSFER

READINESS

Connect a supported BTLD 00003F36 MGU

FILE VERIFICATION

The included flash data is checked by SHA-256. The VIN, HSFZ frames and file boundaries are verified before transmission.

Flash page. Select the exact architecture, enter the full VIN, verify the contract and complete all three operator checks.

Supported selections

Selection	Use only when
MGU ID7 · BDC2 / BDC3	The vehicle architecture and connected MGU are confirmed as the ID7 BDC2/BDC3 case.
MGU ID8 · BDC3	The target is the ID8 BDC3 case.
MGU ID8 · BCP	The target is the ID8 BCP case.

1

Connect and confirm supported BTLD 00003F36. Read SVK and save the session log before starting.

2

Choose the vehicle architecture. Enter the complete 17-character VIN that must be embedded in the patch data.

3

Press **VERIFY**. Review architecture, verified frame count, transfer parts and total TransferData bytes.

4

Tick all three declarations only after independently checking architecture, stable voltage from the programming supply, wired ENET and recovery responsibility.

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- 5 Press **START FLASH**, reread the final summary and confirm once.
- 6 Do not cancel or interact with another diagnostic program. During TransferData the application intentionally provides no Cancel button.
- 7 Wait for the completion dialog and allow the MGU to restart fully. Scan/reconnect, then read SVK and MGU DTC again.

FLASH FAILURE

If Flash stops, do not immediately start it again. Save the Session Log, note the last transfer part/frame and verify whether the endpoint restarted or remained reachable. Recovery depends on the exact last accepted step.

The embedded flash data, VIN insertion points, frame boundaries and hashes are checked before transmission. This does not replace the operator's architecture check.

Diagnostics and result export

Use diagnostics before and after every write job. Read operations do not erase memory; erase operations always require confirmation.

MGU7 Workspace 2.2

EN

GATEWAY IP

169.254.199.99

SCAN

CONNECT

OFFLINE

☐ REMOTE

Ready

Not connected

VEHICLE VIN

—

DETECTED HEAD UNIT

—

MGU NETWORK

—

WORKSPACE STATE

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SESSION LOG

DIAGNOSTICS

Read-only identification is grouped separately from erase and restart actions.

DIAGNOSTIC COMMANDS

READ MGU DTC

READ SHADOW DTC

READ I-STEP

ERASE MGU DTC

ERASE SHADOW DTC

ERASE VEHICLE DTC

RESULT

Diagnostic results will appear here.

SAVE

Diagnostics page. Read commands and erase commands share a page, while results remain visible below.

Command	Effect	Recommended use
READ MGU DTC	Reads standard MGU fault memory and decodes recognized catalog entries.	Before work, after restart and during fault diagnosis.
READ SHADOW DTC	Reads shadow fault memory.	Use when normal DTCs do not explain the symptom.
READ I-STEP	Reads current, last and shipment integration levels through diagnostic address 0x10.	Record the software context before coding/flash decisions.
ERASE MGU DTC	Erases standard MGU DTCs and immediately verifies them.	Only after saving the pre-erase result and correcting the cause.
ERASE SHADOW DTC	Erases shadow memory and reads it back.	Only when the job specifically requires shadow cleanup.
ERASE VEHICLE DTC	Sends a five-step functional erase sequence to vehicle control units.	Use with caution: it affects more than the MGU.

1

Run the desired read command and wait for Ready.

2

Review the result box. A message saying no catalogued code was found is different from no response.

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- 3 Press **SAVE** to store a timestamped diagnostic TXT with the job files.
- 4 For erase work, save the original result first, confirm the exact scope, run erase once and read back.

Unknown or vendor-specific raw codes may not have a text entry in the built-in catalog. Preserve the Session Log when the symptom remains but the decoded list is empty.

The FSC page separates status inspection, local file generation/import and confirmed vehicle transactions.

MGU7 Workspace 2.2



EN

GATEWAY IP

169.254.199.99

SCAN

CONNECT

OFFLINE

☐ REMOTE

Ready

Not connected

VEHICLE VIN

—

DETECTED HEAD UNIT

—

MGU NETWORK

—

WORKSPACE STATE

Offline

WORKFLOWS

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WORKSPACE

SESSION LOG

FSC + ACTIVATION

FSC inspection and file handling stay visible in one place; activation is a separate confirmed workflow.

READ FSC STATUS

GENERATE FSC

IMPORT FSC

CARPLAY + ANDROID

Application ID	Upgrade index	Status	Description
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FSC FILE

No FSC loaded

WRITE FSC

DEACTIVATE SELECTED

DEACTIVATE ALL

FSC page. Read status first; a file must pass structural and RSA verification before Write FSC is enabled.

Read and understand FSC status

- 1
- Press **READ FSC STATUS**. The table lists Application ID, Upgrade Index, state and description.
- 2
- Select one row only when a single record must be deactivated. **DEACTIVATE ALL** operates on the eligible rows from the latest status read.
- 3
- After any write or deactivation, read status again and save the session log.

State	Meaning for the job
Accepted	The MGU reports the application record as accepted.
Loaded	A record is present but its final operational state must still be evaluated.
Rejected	The record is present and rejected; verify VIN7, IDs, signature, generation and software compatibility.
Not available	The application is not available in the returned status set.

CREATE SIGNED MGU FSC

Choose only the functions required for this vehicle. Every file is verified locally before export.

VIN — LAST 7 TEST123	GENERATOR ID 212924	ORDER ID 3458605
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APPLICATIONS + FEATURES

ID7 LIVE MAP

ID8 JOY MAP

SELECT CARPLAY + ANDROID AUTO

CLEAR SELECTION

☐ Speech application — Rest of World • 017D0001
☐ Navigation Professional — Rest of World • 01730001
☐ Navigation Business — Rest of World • 01910001
☐ Speech Global • 01CC0001
☐ MGU21 navigation — Rest of World • 01C90001
☐ Speech application — China • 017E0001
☐ Navigation Professional — Asia • 01720001
☐ Navigation Business — Asia • 01900001
☐ MGU21 navigation — Asia • 01C80001
☐ Touch Command • 01710001
☐ SiriusXM connected • 01BE0001
☐ Android Auto • 01CA0001
☐ Apple CarPlay • 017B0001
☐ A4A • 017A0001
☐ Component protection • 01AA0001
☐ Component protection — variant 2 • 01AA0002
☐ Component protection — variant 3 • 01AA0003

No FSC selected

EXPORT SELECTED

USE ONE IN WRITE WORKFLOW

CLOSE

FSC generator. Verify VIN7, Generator ID and Order ID; select only required applications or one map product.

Generate or import

- 1 Press **GENERATE FSC**. Verify the last seven VIN characters; never accept a prefilled VIN without comparing it to the job.
- 2 Verify the six-digit Generator ID and seven-digit Order ID supplied for the job.
- 3 Choose Applications + Features, ID7 Live Map or ID8 JOY Map. Use **SELECT CARPLAY + ANDROID AUTO** only when both applications are required.
- 4 Press **EXPORT SELECTED** to create files, or **USE ONE IN WRITE WORKFLOW** when exactly one diagnostic-write-compatible FSC is selected.
- 5 Alternatively press **IMPORT FSC** and choose an existing `.fsc` file. The application checks structure and signature before enabling **WRITE FSC**.
- 6 Confirm VIN7 and application code, keep supply voltage and ENET stable, perform one write, then press **READ FSC STATUS**.

ID8 JOY map FSC uses Upgrade Index `FFFF` and is exported for USB installation; it is intentionally not sent through the ID7 diagnostic write action.

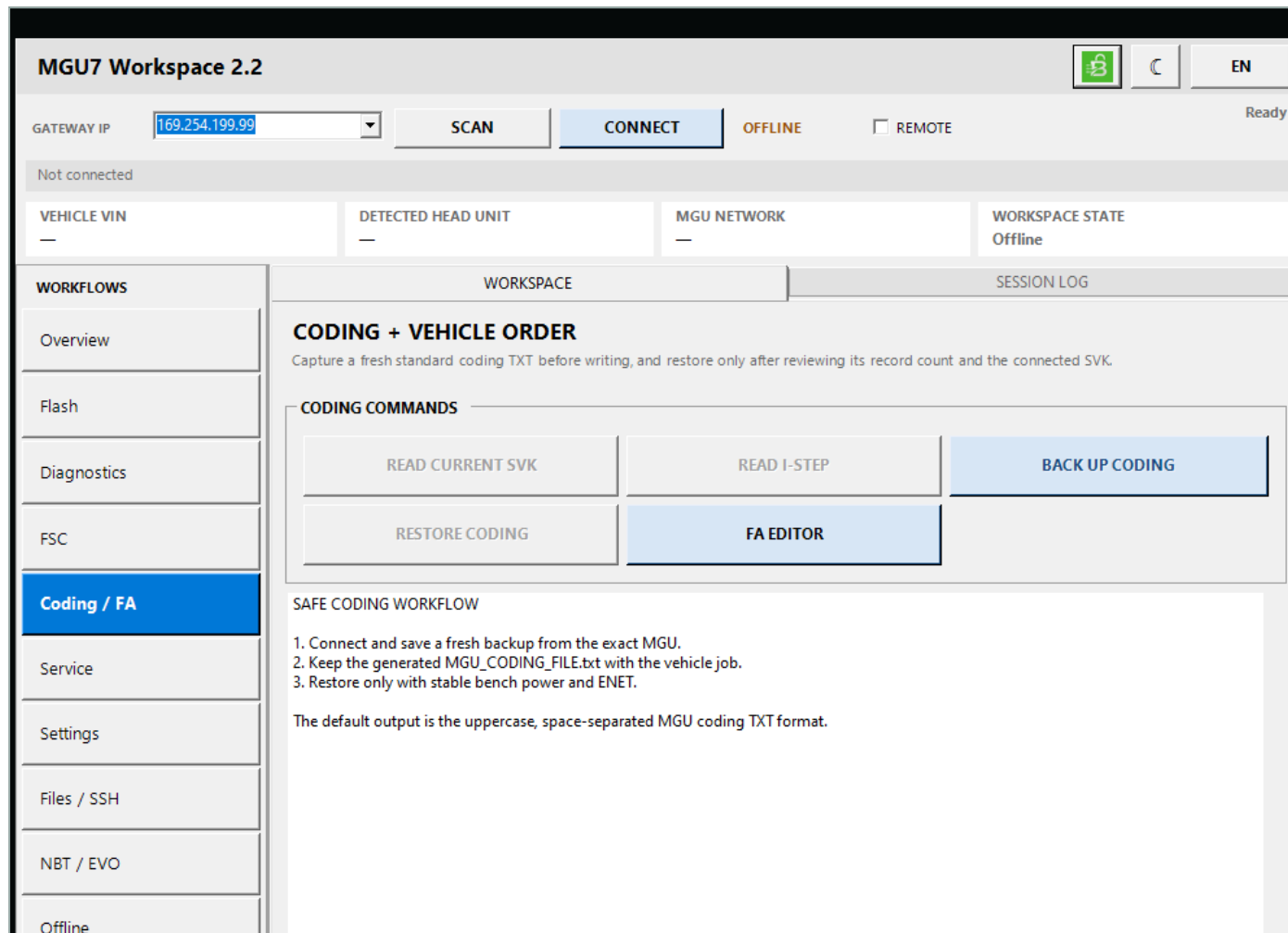
CarPlay + Android Auto

CARPLAY + ANDROID runs the complete provisioning transaction and sends the final MGU restart. Use it only on the intended supported MGU, with the vehicle VIN shown in the confirmation. Reconnect and verify FSC/status

and user functions after restart.

FSC deactivation changes vehicle authorization records. Read status first, preserve the list and deactivate only records required by the documented repair workflow.

A fresh coding backup from the exact MGU is the first protection before coding or replacement work.



Coding / FA page. Read identification, create the standard TXT backup, restore reviewed records or open the FA editor.

Create the backup

- 1 Connect the intended MGU and run **READ CURRENT SVK** plus **READ I-STEP**.
- 2 Press **BACK UP CODING**. Choose a job folder and keep the suggested `MGU_CODING_FILE.txt` name or an equally clear vehicle-specific name.
- 3 The workflow reads current identification, probes DID `37FE` and requests coding blocks `3000` through `3016`.
- 4 The standard TXT stores every available coding block as uppercase, space-separated hexadecimal records. A normal complete capture contains 23 block lines.
- 5 Read the completion summary. If records are missing, keep the file as diagnostic evidence but do not call it a complete backup.

Restore reviewed data

- 1 Open the TXT in a text viewer only; do not reformat, wrap or add comments. Confirm the record count and source vehicle/job.

- 2 Press **RESTORE CODING** and select the reviewed file. The application reports legacy/integrity format, count and any VIN notice.
- 3 A differing stored VIN is an operator warning. Decide whether cross-unit coding is actually intended.
- 4 Confirm stable bench supply voltage. Every non-empty record is restored in file order; finalization, current CAFD version write and restart follow.
- 5 After the MGU restarts, reconnect, read SVK, read DTC and confirm the customer functions affected by coding.

Never restore an incomplete or unknown TXT merely because the application can parse it. Parsing proves the file shape, not that its data belongs to this hardware/software level.

Keep the original TXT byte-for-byte with the work order. If a copy is annotated, save notes in a separate file.

Vehicle Order / FA workspace

The FA editor reads and writes the ZGW Vehicle Order, supports BMW-compatible XML and preserves option order. A vehicle read is also needed to select the matching ZGW write key.

VEHICLE ORDER • FA

FA EDITOR • ZGW

Local ZGW read, strict editor, BMW-compatible XML and guarded signed write

READ FROM VEHICLE

OPEN XML

SAVE XML

VALIDATE

WORKFLOW HELP

VEHICLE IDENTITY + CORE FA

Fixed-length values are checked before a file can be saved or written.

FA VERSION

LONG VIN

3

PRODUCTION CRITERION

SERIES

TYPE KEY

PAINT CODE

UPHOLSTERY CODE

SOURCE

New draft

VALIDATION

Not validated

BINARY RECORD

Not encoded

Write FA uses the ZGW key selected by the last successful vehicle read. No extra identification frames are sent.

WRITE FA TO VEHICLE

OPTIONS

Keep the original order. Duplicates and invalid lengths are blocked.

SA / SALAPA

E-WORT

HO-WORT

Three-character factory option codes, such as 609 or 1CA.

ADD

REMOVE

FA workspace. Identity fields are on the left; SA/SALAPA, E-WORT and HO-WORT lists are on the right.

Field/group	Expected content
FA Version	Raw FA version value; normally a small decimal version.
Long VIN	Vehicle VIN metadata from the FA/XML. Verify against chassis before write.
Production criterion	Four-character production time criterion.
Series	Four-character vehicle series.
Type key	Four-character type key.
Paint / upholstery	Four-character paint and upholstery codes.
SA / SALAPA	Three-character factory option codes, kept in listed order.
E-WORT / HO-WORT	Four-character option records, kept in listed order.

- 1

Press **READ FROM VEHICLE** first. Save the original FA with **SAVE XML** before editing.
- 2

Use **OPEN XML** only for a file whose vehicle and intended change are known. Review every identity field

and all three option lists.

- 3 Use **ADD** and **REMOVE** in the correct list. Preserve the intended order; do not add an option merely to silence a later coding error.
- 4 Press **VALIDATE**. Fix every reported structural length/error before saving or writing.
- 5 Save a second XML containing the planned FA. Keep original and modified files with different names.
- 6 Press **WRITE FA TO VEHICLE**, reread the final warning and verify the target vehicle. The write uses the key selected by the last successful vehicle read in this workspace.
- 7 After success, reread FA, compare the result and perform the required vehicle coding in the appropriate engineering tool.

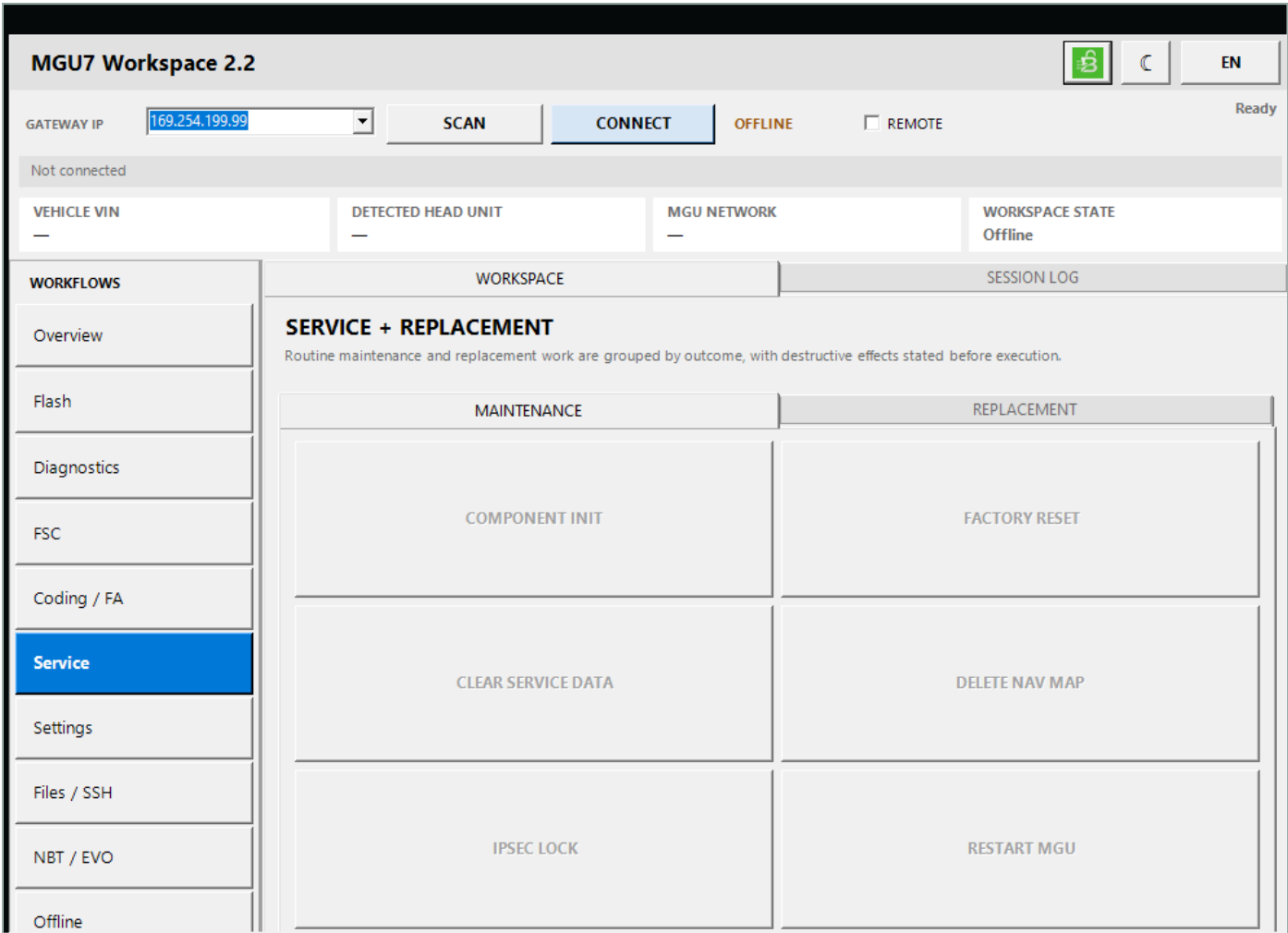
Opening an XML file is not a substitute for Read from vehicle. Without a successful vehicle read, the editor does not have the required current ZGW key context for the exact write workflow.

Structural FA rules and vehicle compatibility determine whether a write is valid. Review the complete planned record before confirmation.

Service: maintenance operations

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The Maintenance tab contains commands with different scopes. Read the description and confirmation every time; several commands restart the MGU automatically.



Service page, Maintenance tab. Every tile describes its consequence before confirmation.

Command	What it changes	After the command
COMPONENT INIT	Runs replacement-component initialization and restarts the MGU.	Reconnect, identify and read DTC.
FACTORY RESET	Deletes paired devices and user data, then restarts.	Allow customer setup to be recreated; verify Bluetooth/Wi-Fi.
CLEAR SERVICE DATA	Clears MGU service history and restarts.	Use only for the documented repair case.
DELETE NAV MAP	Permanently deletes navigation map data.	Plan the correct map reinstallation before running it.
IPSEC LOCK	Runs the IPsec repair/lock command for the diagnosed state.	Read DTC and verify communication.
RESTART MGU	Sends the standard hard reset.	Wait for a full boot, then reconnect.

Factory Reset is not the same as coding reset, donor preparation or FA write. It removes user data and pairings; it does not replace the other workflows.

Do not use Delete Nav Map as a generic navigation repair step. Ensure that compatible replacement map data and the required FSC procedure are available first.

The Replacement tab intentionally separates a direct VIN-only write from donor preparation, vehicle assignment and the Linux-side FSC patch.

MGU VIN SERVICE

Read or write the complete 17-character VIN stored in diagnostic identifier F190

DIRECT DIAGNOSTIC OPERATION

This workspace changes only the MGU VIN. It does not prepare donor Linux data, erase FSC records or virginize the unit.

CURRENT MGU VIN

NOT READ

READ FROM MGU

DETECTED VEHICLE VIN

NOT AVAILABLE

Not independently available on this connection

TARGET VIN

☐ Use detected vehicle VIN
 ☒ Enter and verify VIN manually

Enter exactly 17 letters or digits

☐ I verified all 17 characters against the target vehicle

Sequence: extended/programming session • SecurityAccess • write F190 • return to default session

Keep stable power and ENET connected until all six steps complete.

Enter the complete 17-character VIN to continue.

WRITE VERIFIED VIN

CLOSE

MGU VIN Service changes only diagnostic identifier F190. It does not prepare donor data or erase FSC records.

Direct MGU VIN service

- Open **MGU VIN SERVICE** and press **READ FROM MGU**.
- Compare Current MGU VIN with the independently detected Vehicle VIN when available.
- Choose the detected VIN or enter the complete 17-character target manually. Check all 17 characters against the chassis.
- Tick the verification box and press **WRITE VERIFIED VIN**. Keep supply voltage and ENET connected through all diagnostic/security/write/reset steps.
- Reconnect and read the MGU VIN again.

Donor preparation and assignment

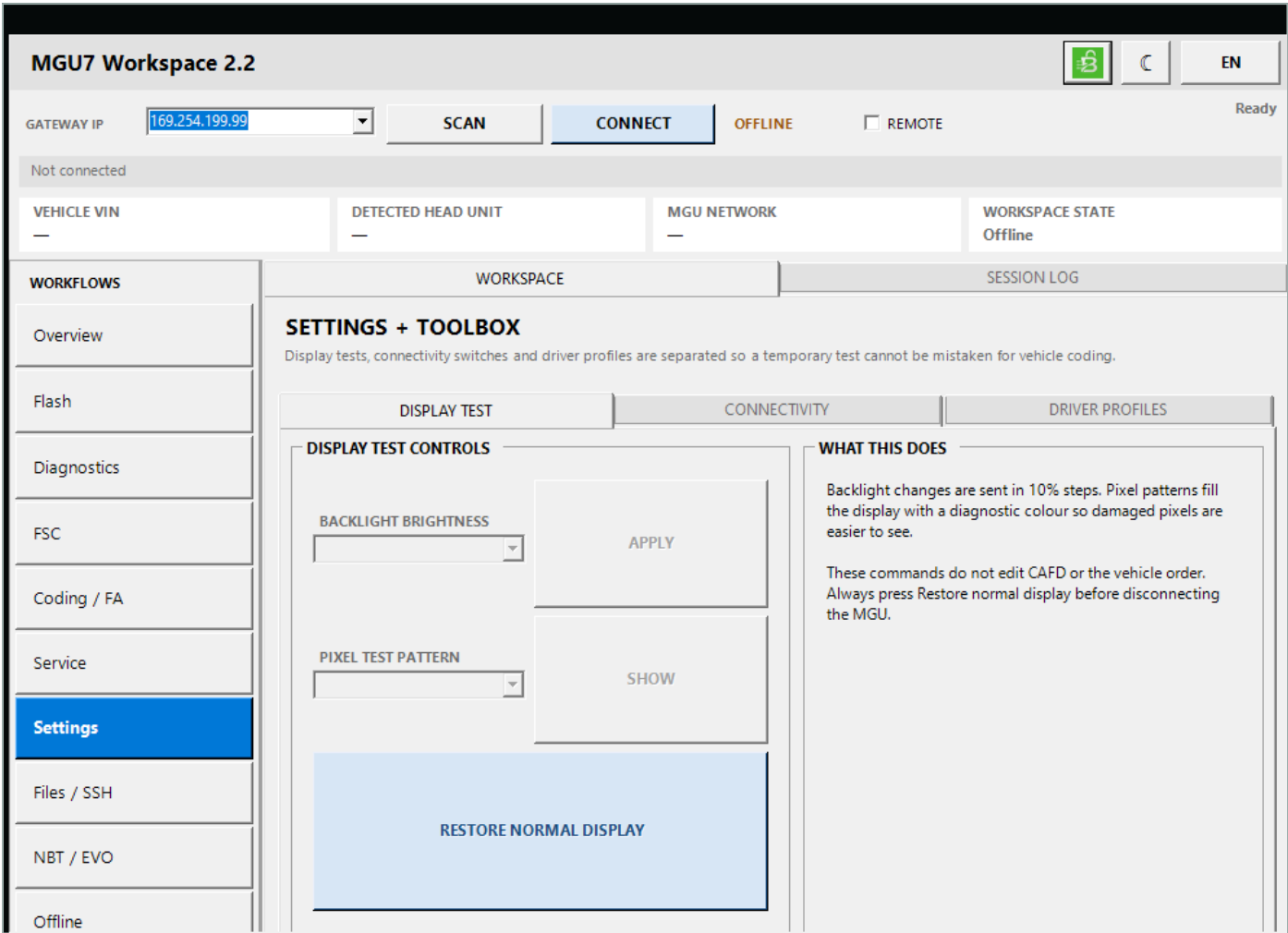
Workflow	Purpose	Important distinction
PREPARE DONOR	Installs the generation-matching persistent block and writes a zero VIN.	ID7 removes the legacy .public.edeka marker; ID8 preserves it.

Workflow	Purpose	Important distinction
ASSIGN TO VEHICLE	Verifies and writes the target 17-character vehicle VIN as part of the replacement workflow.	Choose the correct MGU generation and verify chassis VIN.
LOCAL FSC PATCH	Installs the verified Linux-side FSC support patch.	Run only after the matching patched SWFL is already flashed and the expected signature is present.

The direct VIN function and Prepare Donor are not interchangeable. The direct VIN function changes F190 only; donor preparation changes persistent replacement data and zeroes VIN.

After any replacement workflow, allow a complete restart, reconnect, identify BTLD/SVK/VIN, read DTC, restore or code FA/CAFD as required and verify FSC status.

Settings are divided into Display Test, Connectivity and Driver Profiles so temporary diagnostics cannot be confused with coding.



Settings page. The screenshot shows Display Test; Connectivity and Driver Profiles are adjacent tabs.

Display Test

- 1 Select backlight brightness from 0% to 100% in 10% steps and press **APPLY**.
- 2 Choose Black, Blue, Red, Green, White, No signal or Normal and press **SHOW**.
- 3 Inspect the physical display for dead pixels, tint, backlight or signal behavior.
- 4 Always press **RESTORE NORMAL DISPLAY** before disconnecting the MGU.

Connectivity and read-only toolbox

Command	Result
BLUETOOTH ON / BLUETOOTH OFF	Enables/disables the MGU Bluetooth function; Off does not delete pairings.
WI-FI ON / WI-FI OFF	Enables/disables the MGU Wi-Fi function.
TRANSPORT MODE ON / TRANSPORT MODE OFF	Enters transport/storage mode or returns to normal operation.

Command	Result
READ MODE STATUS	Reads DID 100A.
READ CPS	Reads DID 37FE.
READ UID	Reads DID 8000.
READ SW NAME	Reads DID 4002.
READ REFURBISH VIN	Reads the FSC refurbish-VIN result.
READ IP CONFIG	Reads MGU address/mode data from DID 172A.

Driver Profiles

- 1 Press **CHECK PROFILES** to read the three normal slots.
- 2 Use **CREATE PROFILE** only when a normal slot is available; the MGU creates its default name.
- 3 To rename, enter 3–9 printable ASCII characters in the intended slot and press **RENAME**.
- 4 **DELETE ALL PROFILES** removes every normal profile after confirmation. Guest remains managed by the MGU.

Display tests do not edit CAFD or FA. Connectivity switches do change live MGU settings, so return temporary test states to the required vehicle configuration.

The MGU file browser uses the service SSH/SFTP channel and starts in /home/root. It confirms replacement and deletion, and never recursively removes a directory tree.

MGU7 Workspace 2.2

169.254.199.99

SCAN

CONNECT

OFFLINE

☐ REMOTE

Ready

Not connected

VEHICLE VIN

DETECTED HEAD UNIT

MGU NETWORK

WORKSPACE STATE
Offline

WORKFLOWS

Overview

Flash

Diagnostics

FSC

Coding / FA

Service

Settings

Files / SSH

NBT / EVO

Offline

WORKSPACE

SESSION LOG

FILES + SSH

Open a safer SFTP browser on the MGU service channel. Folder deletion is never recursive.

MGU SSH ADDRESS
Connect MGU

ENET GATEWAY
Connect MGU

SSH SERVICE
Not checked

OPEN FILES

CHECK MGU SSH

CLOSE MGU SSH

SAFETY

The browser starts in /home/root, exposes hidden files only when requested, confirms overwrites and deletion, and never removes a directory tree recursively. CLOSE MGU SSH is intended only for clearing a diagnosed Debug / SSH-open state.

Files / SSH page. Verify the detected MGU and SSH state before opening the file workspace.

MGU FILE WORKSPACE

Direct SFTP access • folders are never deleted recursively

MGU 169.254.199.99

ENET gateway 169.254.1.1

SSH identity • verified host key

UP

HOME

REFRESH

/home/root

☐ Show hidden

TYPE	NAME	SIZE	MODIFIED	PERMISSIONS
DIR	.ssh	—	2026-08-10 03:40	drwx-----
FILE	sifirlama.sh	6.2 KB	2026-08-10 03:40	-rwxr-xr-x
FILE	id8.sh	4.8 KB	2026-08-10 03:40	-rwxr-xr-x

DOWNLOAD

UPLOAD

DELETE FILE

3 items • /home/root

SFTP file workspace. Path navigation, hidden-file filter and file actions remain visible around the directory list.

- 1
- Connect a supported MGU and press **CHECK MGU SSH**. A port-22 result shows availability but does not replace host-key verification performed by the file service.
- 2
- Press **OPEN FILES**. Wait for the identity line and initial `/home/root` listing.
- 3
- Use **UP**, **HOME** or **REFRESH**. Enter an absolute remote path only when it is known and required.
- 4
- Enable Show hidden only when the job requires dotfiles. Record the original path, size, modification time and permissions before changing a file.
- 5
- DOWNLOAD** works on a selected regular file. Save it to a job folder and keep its checksum.
- 6
- UPLOAD** writes the chosen local file to the current directory and confirms a cached name collision before overwrite.
- 7
- DELETE FILE** is irreversible. The browser permits only deletable non-directory entries and never performs recursive folder deletion.
- 8
- Close the browser after transfers. Use **CLOSE MGU SSH** only to clear a diagnosed Debug/SSH-open state; it disables file and patch access until the compatible service is restored.

Do not rename or replace Linux files by guesswork. A correct filename with wrong content, owner, mode or software level can prevent the service application from starting.

If a download fails, a partial local output may remain. Compare size/hash before using it as a backup.

This page is only for NBT BTLD 00001275 and NBT EVO BTLD 00001FFD. It is not the MGU 00003F36 Files/SSH workflow.

MGU7 Workspace 2.2

GATEWAY IP: 169.254.199.99 **SCAN** **CONNECT** OFFLINE ☐ REMOTE Ready

Not connected

VEHICLE VIN	DETECTED HEAD UNIT	MGU NETWORK	WORKSPACE STATE
—	—	—	Offline

WORKFLOWS

- Overview
- Flash
- Diagnostics
- FSC
- Coding / FA
- Service
- Settings
- Files / SSH
- NBT / EVO**
- Offline

WORKSPACE

NBT / EVO SSH

SSH service tools for NBT BTLD 00001275 and NBT EVO BTLD 00001FFD.

HEAD UNIT	HEAD UNIT IP	SSH STATE
Connect NBT / EVO	Connect NBT / EVO	Not checked

SESSION LOG

CHECK NBT SSH **OPEN NBT SSH** **CLOSE NBT SSH** **COPY CONNECTION**

CONNECT FIRST

Use the ENET connection bar above. Controls are enabled only for BTLD 00001275 or 00001FFD.

NBT/EVO SSH page. Controls are enabled automatically only for a detected supported NBT or NBT EVO.

- 1 Connect the head unit and verify the detected BTLD is 00001275 (NBT) or 00001FFD (NBT EVO).
- 2 Press **CHECK NBT SSH**. An open state is associated with diagnostic status DTC B7F8E5.
- 3 To open, press **OPEN NBT SSH**, confirm stable supply voltage and allow the complete security-access sequence to finish.
- 4 Press **COPY CONNECTION** to copy the detected host, port and service login. Do not publish or store those details outside the job record.
- 5 Perform only the required service work, then press **CLOSE NBT SSH**.
- 6 Run **CHECK NBT SSH** again and verify the open-state DTC is cleared.

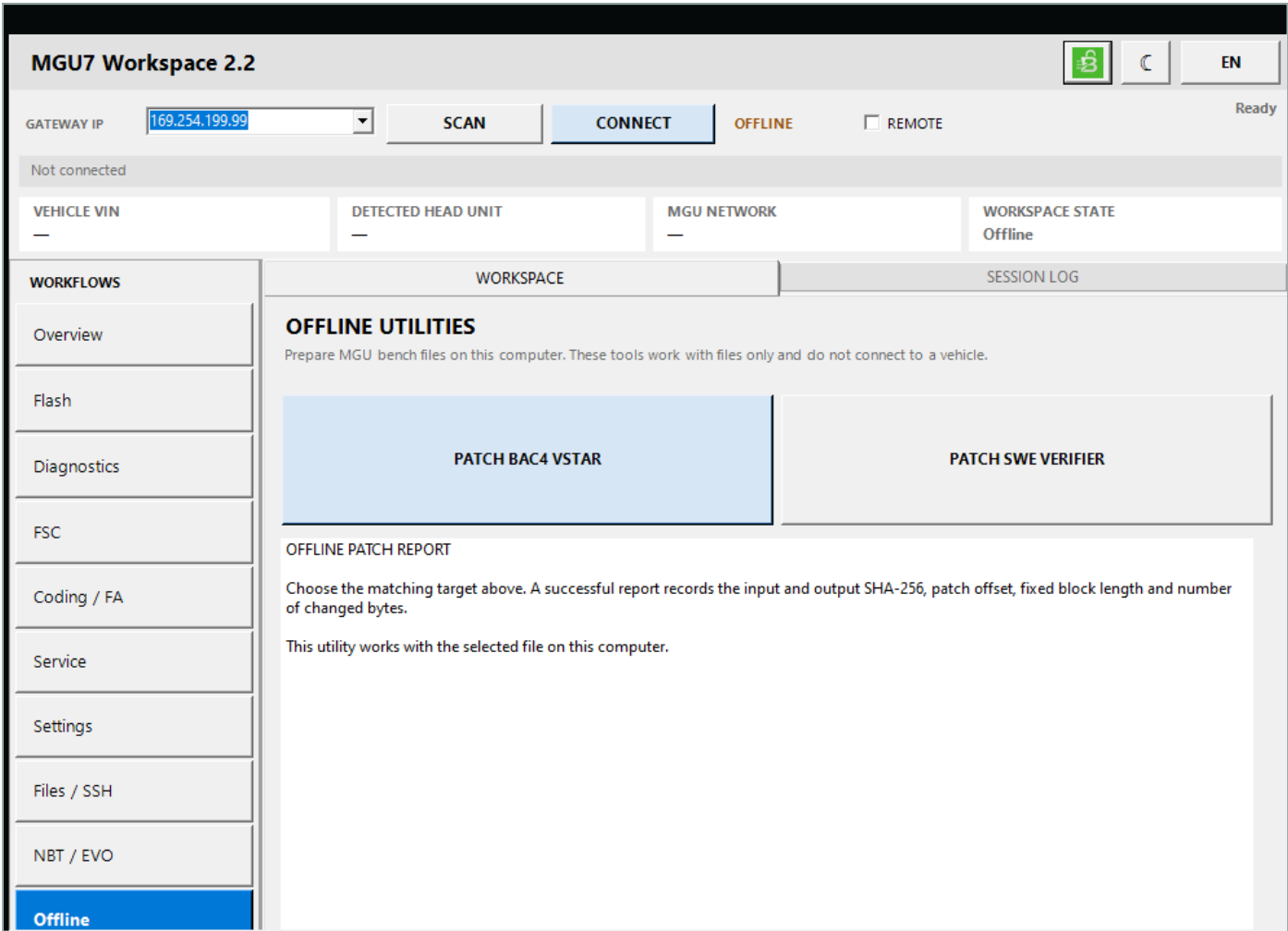
If any open step fails, the workflow stops without sending later service commands. Save the log; do not skip directly to an unverified shell login.

Closing SSH is part of job completion. Leaving a debug/service state open is not a harmless convenience.

Offline BAC4 VSTAR and SWE verifier patching

19

Offline utilities inspect and patch files on the computer only. They do not require an ENET connection and never write the vehicle directly.



Offline page. Choose the target matching the selected file and review the complete report before using the output.

Tool	Expected source	Validation
PATCH BAC4 VSTAR	BAC4x_VSTAR_i386_Eth_Application.out	Expected file size 6,515,808 bytes plus known source/patched signature.
PATCH SWE VERIFIER	libSWESignatureVerify.so	Expected file size 83,952 bytes plus known source/patched signature.

- 1 Copy the source from the exact software package/job into a working folder. Preserve an untouched original elsewhere.
- 2 Choose the matching offline tool and select the input. The filename is a hint; size and exact signature decide compatibility.
- 3 Choose a clear output path. The tool patches the first supported source signature, or reports that a patched signature is already present.
- 4 Review input/output SHA-256, patch offset, fixed block length and changed-byte count in the report.

- 5 Use the output only in the compatible documented flash/service workflow. Keep source, output and report together.

A rejected file is not made compatible by renaming it. Wrong size, absent signature or unknown content means stop and obtain the correct software source.

The Session Log is the primary technical record for support. The upper detail line summarizes the current connection or failure without forcing the window to be maximized.

- 1 Open **SESSION LOG** before a risky job and confirm the initial identification lines are present.
- 2 During an operation, watch the task name, percentage and last log entry. Do not infer success from a moving progress bar alone.
- 3 After success, press **SAVE** in Session Log and store the timestamped TXT with backups and screenshots.
- 4 When an error dialog appears, copy the complete message and save the Session Log before disconnecting or retrying.
- 5 Use **CLEAR** only after saving the previous job record.

Message class	Interpretation
No gateway / timeout	Network, power or routing problem until proven otherwise.
Unsupported BTLD	Connection exists, but the enabled workflow does not match this software/hardware.
Negative diagnostic response	The ECU rejected or deferred the requested diagnostic operation; preserve the exact code and step.
Verification/hash failure	Local or returned data differs from the expected contract. Do not write or reuse the file.
Reset/no endpoint	May be normal only in the explicitly tolerated final reset case; otherwise investigate.

For support, send: application version, EXE hash, vehicle/head-unit identification, exact button used, timestamp, full error text and saved Session Log. Do not send only a cropped dialog.

Work from the earliest failed prerequisite instead of repeatedly running the final action.

Symptom	Most likely checks	Do not do
Scan finds nothing	Power/wake state, Ethernet link, ENET cable, adapter, VPN route, firewall permission.	Do not start write work from an unverified guessed address.
Connected, no decoded identification	Save raw log, check software level and target type, reconnect after full boot.	Do not treat TCP success as supported MGU identification.
Buttons disabled	Supported state, active task, file/row selection and page-specific prerequisite.	Do not modify configuration files to force-enable controls.
Flash Verify rejects VIN/data	17-character VIN, selected architecture, intact signed distribution.	Do not edit embedded assets or bypass verification.
Coding backup incomplete	Power/network stability and missing 30xx response; preserve incomplete TXT and log.	Do not label or restore it as a known complete backup.
FSC write disabled	Import/generate one valid non-FFFF FSC, signature verification, supported connected MGU.	Do not write ID8 USB-only JOY map through ID7 diagnostic workflow.
FA write unavailable	Successful Read from vehicle in the same workspace, valid field lengths and supported ZGW key.	Do not use XML load alone as write authorization.
SSH browser will not open	Supported MGU, port 22, compatible service state, host-key/session log.	Do not repeatedly open/close SSH without diagnosing state.
MGU vanished after restart	Wait for full boot, rescan, verify address and electrical supply.	Do not send the next command to the old socket/address.

What to do after an interrupted or failed write

Recovery begins by preserving evidence and determining the last confirmed step. Random retries destroy that information.

- 1 Do not cycle power immediately unless electrical safety requires it. Note the visible MGU state, progress percentage and last log line.
- 2 Save the Session Log and photograph/copy the complete error. Record whether the Ethernet link and endpoint are still present.
- 3 Identify the workflow: Flash, coding, FA, VIN, FSC, replacement, SSH/file or offline file patch. Each has different safe recovery boundaries.
- 4 Confirm whether a final restart was expected. If so, wait for the full boot interval, Scan again and identify from the beginning.
- 5 Compare the job's original coding TXT, FA XML, FSC files and hashes. Never substitute a different vehicle's backup simply to make the parser accept it.
- 6 Run read-only identification and DTC/SVK checks when the unit responds. Do not resume a destructive workflow until the last accepted step is understood.
- 7 Escalate with the complete log and artifacts when the unit does not return or the state is ambiguous.

There is no universal 'press again' recovery procedure. Flash transfer, coding blocks, FA, VIN and Linux file operations have different atomicity and restart behavior.

Use these compact lists on every vehicle even after the longer procedure is familiar.

Before any write

- Correct vehicle and complete VIN verified against chassis/job card.
- Supported BTLD/generation/architecture identified.
- Regulated supply voltage and wired ENET stable; Windows sleep disabled.
- Fresh DTC, SVK/I-Step, coding TXT and FA XML saved as applicable.
- Input file source, size, signature/hash and intended operation reviewed.
- Recovery artifacts and correct software data available.

During the operation

- No ignition, cable, supply-voltage, network, VPN or application changes.
- No second diagnostic application connected.
- Read every confirmation; verify VIN/application/record count one final time.
- Wait through deliberate restart delays; do not close the application.

After the operation

- Allow full MGU boot, then Scan and Connect again.
- Verify VIN, BTLD/SVK and network identity.
- Read standard and relevant shadow DTC; save result.
- Verify FSC/coding/FA/profile/display/SSH state affected by the job.
- Save Session Log, outputs and checksums with the work order.

This table is a quick index, not a substitute for the procedure and confirmation shown by the program.

Page	Action	Class	Purpose
Header	SCAN	Read/discovery	Find ENET gateways.
Header	CONNECT	Session	Connect and identify; press again to disconnect.
Flash	VERIFY	Local verification	Validate architecture/VIN and embedded flash contract.
Flash	START FLASH	Destructive	Transmit the complete guarded flash sequence.
Diagnostics	READ MGU DTC / READ SHADOW DTC	Read	Read normal/shadow fault memory.
Diagnostics	ERASE MGU DTC / ERASE SHADOW DTC / ERASE VEHICLE DTC	Destructive	Erase the selected fault-memory scope.
FSC	READ FSC STATUS	Read	Decode application records and states.
FSC	GENERATE FSC / IMPORT FSC	Local	Create or verify a signed FSC file.
FSC	WRITE FSC	Destructive	Write one verified diagnostic-compatible FSC.
FSC	DEACTIVATE SELECTED / DEACTIVATE ALL	Destructive	Deactivate one or all eligible latest-read FSC records.
FSC	CARPLAY + ANDROID	Destructive	Provision both functions and restart MGU.
Coding	READ CURRENT SVK / READ I-STEP	Read	Record software/coding context.
Coding	BACK UP CODING	Read/file	Save available coding records to standard TXT.
Coding	RESTORE CODING	Destructive	Restore reviewed TXT records and restart.
Coding	FA EDITOR	Workspace	Read, edit, validate, save and write Vehicle Order.
Service	COMPONENT INIT / FACTORY RESET / CLEAR SERVICE DATA	Destructive	Maintenance and reset functions.
Service	DELETE NAV MAP / IPSEC LOCK / RESTART MGU	Destructive	Map, IPsec and reset service commands.
Replacement	MGU VIN SERVICE	Destructive	Direct F190 VIN read/write workspace.
Replacement	PREPARE DONOR / ASSIGN TO VEHICLE	Destructive	Prepare or assign replacement MGU.
Replacement	LOCAL FSC PATCH	Destructive	Install verified Linux-side FSC support patch.
Settings	Display / connectivity / profile controls	Mixed	Temporary display tests, live switches, toolbox reads and profiles.
Files	OPEN FILES	Remote files	Open verified SFTP workspace.
Files	CHECK MGU SSH / CLOSE MGU SSH	Read/destructive	Probe or close MGU SSH service.
NBT/EVO	Check / Open / Copy / Close SSH	Mixed	NBT/NBT EVO SSH service lifecycle.
Offline	PATCH BAC4 VSTAR / PATCH SWE VERIFIER	Local files	Validate and patch the supported bench files.

Consistent filenames make recovery and support much faster.

Artifact	Suggested job storage
Application ZIP + hash	Software/2.2.9
Coding backup	Backups/Before/MGU_CODING_FILE.txt
Original and modified FA	Backups/Before/FA-original.xml and Planned/FA-modified.xml
DTC/SVK/I-Step reports	Diagnostics/Before and Diagnostics/After
FSC files	FSC/<VIN7>/<application-upgrade>.fsc
Downloaded MGU files	Files/Original with SHA-256 list
Offline patch source/output/report	Offline/<software-level>/Original and Patched
Session Log	Logs/MGU7_session_YYYYMMDD_HHMMSS.txt

Never overwrite the only original backup. Store the untouched source, planned input, final output and saved log as separate artifacts.

Terms used throughout the application and this manual.

Term	Meaning
MGU	BMW Media Graphics Unit head unit used by ID7/ID8 systems.
ENET	BMW Ethernet diagnostic connection used by the workspace.
HSFZ	Diagnostic transport framing used over the TCP connection.
BTLD	Bootloader software identifier used to distinguish supported unit families.
SVK	Installed software-component list including BTLD, SWFL, CAFD and related records.
I-Step	Vehicle integration level: current, last and shipment states.
CAFD	Coding application data identity and coding blocks for the ECU.
FA / Vehicle Order	Vehicle configuration record containing identity and option codes.
FSC	Feature/application authorization document for navigation and other functions.
DTC	Diagnostic Trouble Code stored in normal or shadow fault memory.
ZGW	Central gateway used by the FA read/write workflow and ENET discovery.
SFTP	File-transfer subsystem over SSH used by the MGU file workspace.
VIN7	The final seven characters of the complete vehicle VIN.

End of the operating guide. Keep this PDF with the exact 2.2.9 release and replace it when the application workflow changes.