

DCS Armed Blackhawk Mod v4.1.1



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For Entertainment Use Only

- This guide is intended for entertainment use only with DCS World. It should not be used for guidance, training, or for the operation of any actual aircraft, or for any other use other than which it is expressly intended for.

Acknowledgments

- Thanks to Kinkkujüüstövöiläipä and the UH-60L mod development team for a superb DCS helicopter.
- Thanks to Tanuki44 for the mini-guns mod and lots of advice.
- Thanks to nibbylot for permission to use the AH-6 GAU-19 model.
- This mod would not have been possible without their exceptional groundwork.
- Thanks to Powderstorm for providing an interim Air-to-Air Stinger capability for the mod & inspiring new options for Armed Blackhawk.

Armed Blackhawk Background

- The advanced weapon system for Black Hawk® helicopters allows pilots to identify and engage static or moving targets with forward firing guns, rockets and laser-designated air-to-ground missiles.
- Fully integrated with the aircraft's digital flight controls, the weapon system calculates the range and the complex ballistics required for pilot gunners to hit targets with high accuracy and reliability from stand-off distances during day and night operations.
- The weapon system brings a cost-effective attack capability to third generation Black Hawk® aircraft while fully retaining the platform's multi-role utility. Ground crews can add or remove external wings and weapons of choice in three hours.
- Sikorsky qualified the weapon system to U.S. military airworthiness standards in 2017 after extensive live fire flight testing. The system is now operational with the UAE.
- Militaries can acquire the weapon system with new Black Hawk aircraft acquired direct from Sikorsky, or as a kit retrofitted onto already-fielded third generation aircraft by a Sikorsky-qualified modification center.
- Additional information: lockheedmartin.com/en-us/products/armed-black-hawk-helicopter.html

Intent and Known Issues

- This mod is presented as an interim solution to provide an Armed Blackhawk like capability to the DCS community for free.
- Known Issues:
 - 1) If multiple pylons have missiles (eg. Hellfires), and are armed, you may need to press the weapons release button multiple times or manually switch between weapon stations to fire missiles. This improves over previous versions, but is issue with the why pylons are “cycled” between shots, and is most prevalent with niche layouts (eg. 12xHellfires). Arming individual pylons is unaffected. Hellfire Guidance must be from a buddy lase (Human JTAC or other aircraft), default code 1688, to execute a LOAL (Lock on After Launch).
 - 2) Asymmetric payloads can cause issues with weapon firing, including:
 - 2.1) Activating and/or deactivating pylons is necessary to switch between multiple missile pylons.
 - 2.2) If using an asymmetric loadout, it is recommended to select the pylons with like weapons when firing, or to use individual weapons stations.
 - 3) Using selective jettison for fuel tanks will disable the AFMS until landed and a rearm/refuel is completed. Thus, if you have four external tanks and attempt to selectively jettison only two of them you will lose all external fuel (but retain the physical models in game for non-jettisoned stations).
 - 4) The LAU-61 APKWS rockets behave differently from the LAU-131 APKWS. Consider this an experimental set up, it is unknown if this will be corrected due to DCS treatment of guided weapons.
 - 5) Jayhawk external fuel tanks are currently cosmetic only (no auxiliary fuel) and will likely be limited to this pending updates to the base UH-60L mod AFMS code & ESSS arguments. Unknown if this will be resolved in the future.
 - 6) Rearming pylons with weapons after having external fuel tanks will result in the weapon(s) appearing out of position. It is unlikely this bug will be correct without access to the base UH-60L mod.
 - 7) You may need to rebind your controls for the UH-60L after installing this mod.

Installation

- Armed Blackhawk requires the UH-60L mod and Tanuki44's Pilot/Minigun mods to be installed **BEFORE** installing Armed Blackhawk.
- The UH-60L mod and install guide may be found here:
<https://github.com/Kinkkujuustovoileipa/uh-60l/releases>
https://docs.google.com/presentation/d/1kCJf5Nk-fU_21eO7W1ozYfb9FKt488ax65lbeulGVtA/edit#slide=id.g10e637a6f4e_4_0
- Tanuki44's Minigun mod may be found here:
<https://www.digitalcombatsimulator.com/en/files/3321772/>

Installation

- Step 1: Install the UH-60L mod. It is recommended to install the UH-60L mod directly to your saved games folder.
- Step 2: Install Tanuki44's Minigun mod (This will overwrite some UH-60L files).
- Step 3: Install the Armed Blackhawk mod (This will overwrite some Minigun mod files).

Installation – Direct to Saved Games

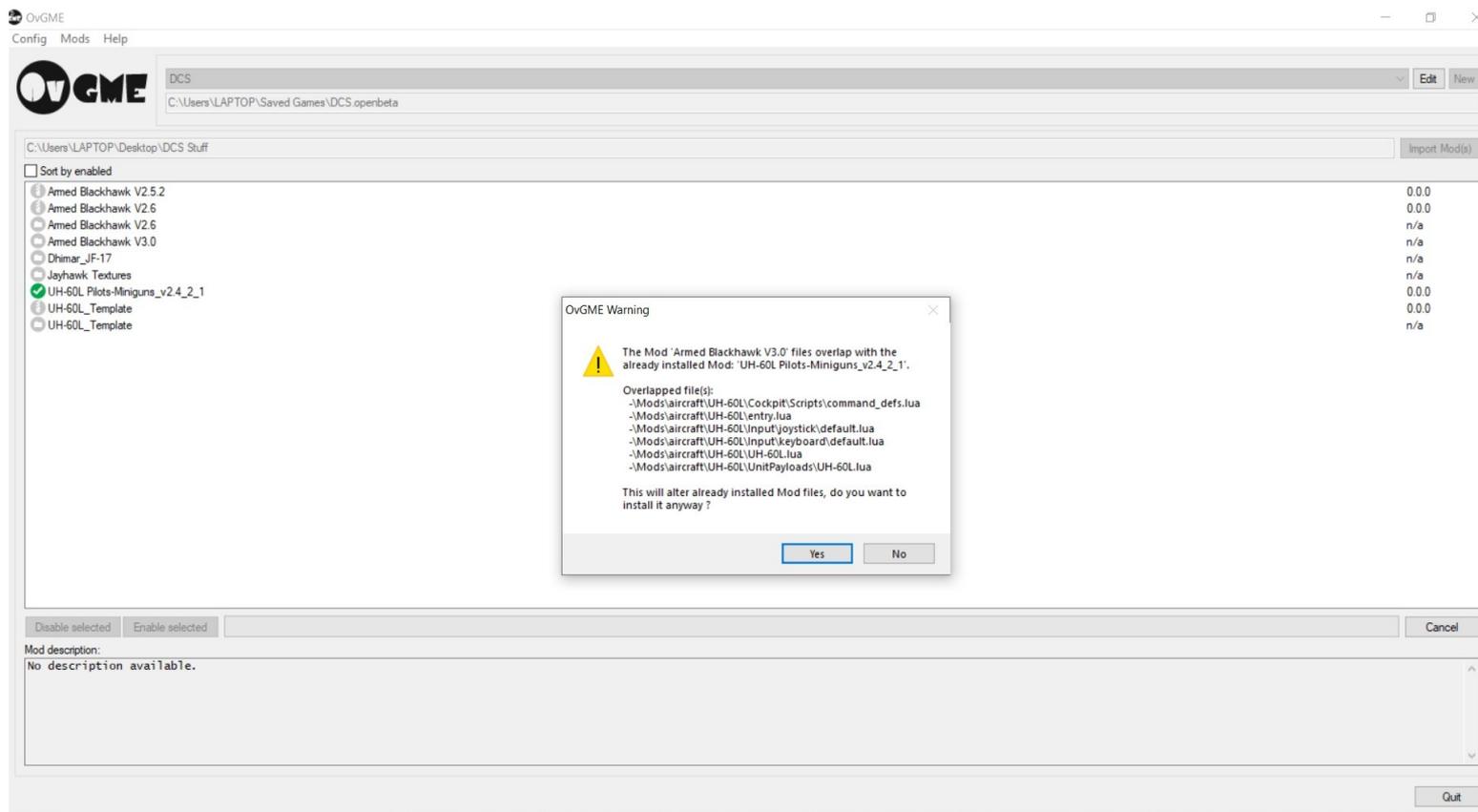
- Installation folder should be: C:\Users\XXXX\Saved Games\DCS.openbeta
- “XXXX” represents your user/computer name. If using the DCS stable client your folder will not reflect open beta as above, but the process is the same.
- Copy the “Mods” folder from the Armed Blackhawk download to your DCS folder as per above.
- Select “Yes” when prompted to overwrite files. Note: Tanuki44’s minigun mod will overwrite files in the UH-60L folder, subsequently Armed Blackhawk will overwrite files in UH-60L and from the minigun mod.

Installation – OvGME

- If installing via OvGME, you will be prompted to overwrite files from the minigun mod. Select yes to install Armed Blackhawk.

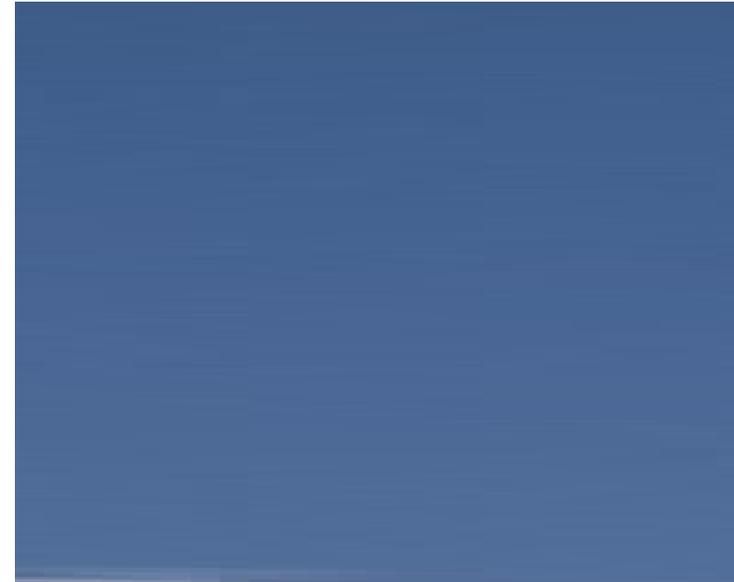
- Additional information on using OvGME for DCS World may be found here:

<https://forums.eagle.ru/applications/core/interface/file/attachment.php?id=87665>



Controls

- Armed Blackhawk adds new key and HOTAS bindings which must be set to use the weapons. **There are no clickable controls for the weapons in the cockpit.**
- Go to the Weapons section of the UH-60L control options to set bindings.
 - Master Arm
 - M134 Fire
 - Minigun SAFE/FWD (Left / Right / Both)
 - Weapon Release Button
 - Left / Right Inboard / Outboard Pylon ARM/SAFE
 - Weapon Selection Inc/Dec (Optional, but necessary to use the virtual rotary selector)
 - Jettison commands (Optional, but recommended)



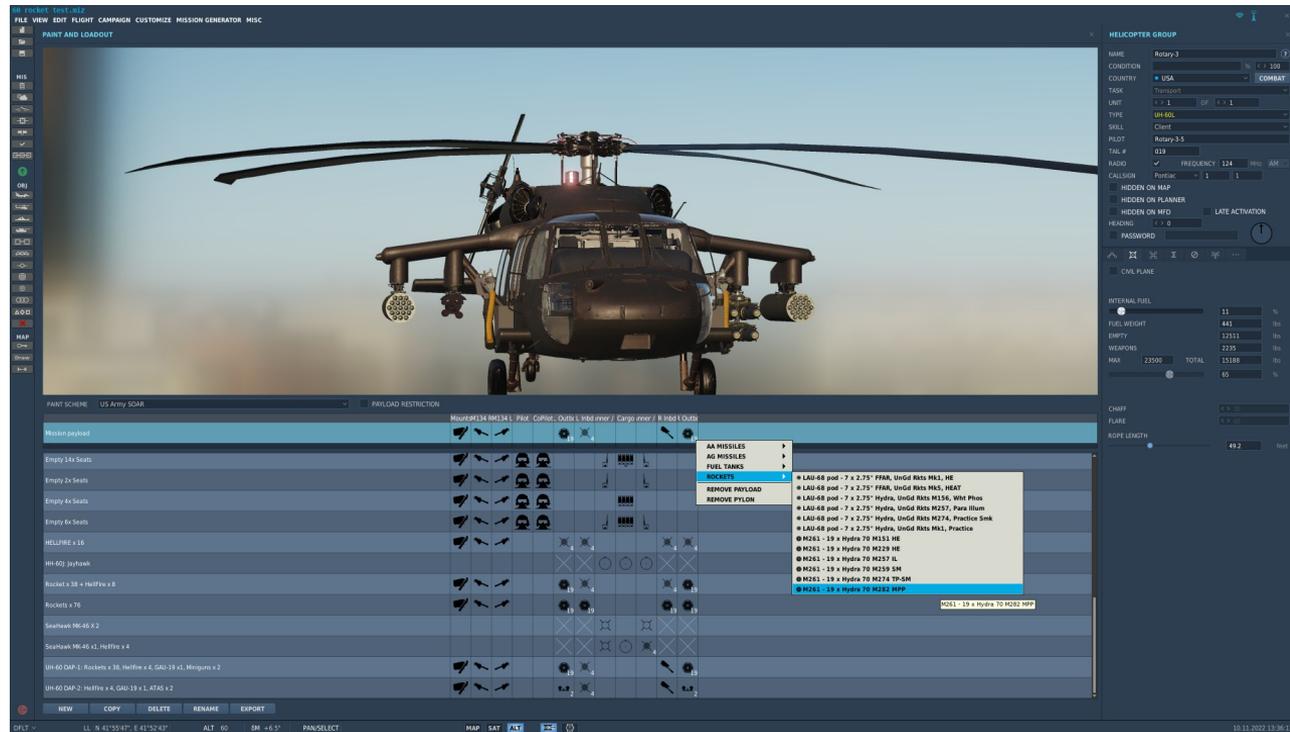
Use - Armed Blackhawk

AFMS System – Changes from Original Mod

- Jettisoning external fuel tanks now disables the AFMS system until completion of a Rearm cycle.
- This becomes an issue if using multiple tanks with a selective jettison, ie jettison empty outboard tanks but retain full inboard tanks as you will not be able to use the non-jettisoned external fuel. This is a non-ideal solution to prevent pilots from jettisoning external tanks and retaining the fuel without the associated weight due to my current understanding of and access to the UH-60L AFMS code.

Use - Armed Blackhawk

- Armed Blackhawk can mount guns, missiles, and rockets.
- Loadouts may be selected from the predefined unit loadouts provided, via the mission editor, or via the in mission Rearm/Refuel window.
- Ordnance may be loaded on the Left Outboard, Left Inboard, Right Inboard, and Right Outboard Pylons of the ESSS.
- Miniguns may also be forward mounted as with Tanuki44's mod.



Use - Armed Blackhawk

- Launching Ordnance:
 - Turn on Master Arm (an aiming reticle will appear in the cockpit).
 - Select the pylon(s) you wish to fire.
 - If “Infos Panels” enabled, you will receive a user message for arming statuses. See UH-60L special options in game.
 - Press the Weapon Release Button.



Master Arm ON message and aiming reticle.

Pylon arming via individual pylon selection.

Pylon arming via virtual rotary switch. Note: While this image shows all the options, only one weapon type may be armed at a time via this method.

Use - Armed Blackhawk

- Gun Employment
 - M-134 (7.62mm) and GAU-19 (.50 Cal), and M230 (30mm) may be mounted on the inboard pylons.
 - Pylon mounted guns may be fired, after the pylons are armed, via either the Weapon Release Button or the “M134 Fire” command.
 - Weapon Release Button will fire only pylon mounted guns.
 - M134 Fire will fire the forward facing M134s and pylon guns (if mounted and armed).
 - Note: M-134s, GAU-19s, and M230s have different points of impact, adjust your aim accordingly.



Use - Armed Blackhawk

- Rocket Employment

- Various rocket types may be mounted on all pylons.
- Single or Multiple rocket pylons may be armed simultaneously.
- If mounted and simultaneously armed, rocket and gun pylons will fire simultaneously with the Weapons Release Button.
- Weapon Release Button will fire armed rocket pylons.
- A custom LWL-12, twelve shot launcher is also included with the mod using MPP rockets or a combination of Red Phosphorus and MPP. It serves as a “middleweight” option, providing more rockets than the LAU-68 pods, but less weight than the M261 pods.



Use - Armed Blackhawk

- Missile Employment

- Armed Blackhawk requires an external laser source (JTAC, other aircraft, etc.) to guide laser guided ordnance (eg. Hellfire).
- Hellfires currently only track in the Lock-On After Launch, or LOAL, mode via laser code 1688 (default code is the only one available at this time).
- When a missile pylon is armed, no other pylons can be armed until the missile pylon is SAFE.



Use - Armed Blackhawk

- Missile Employment – Additional information
- The main things of note:
 - The Hellfire seeker has a limited FoV, and can't pick up targets at close range (between 7-9km from target required)
 - Sideways FoV is just as limited, and you practically have to fire straight at the target (smoke markers are very useful here)
 - You can't see the target itself at the required firing ranges, so you have to rely on the F10 map, and your spotter, for a valid attack vector
 - The Hellfires can be fired whilst hovering right over the ground, as the 60 has a slight nose-up tendency, even with the heavy load.
 - You can see a Gaz's laser via NVG's, which can be turned down enough to work during daytime. Can be useful for target spotting.
- Constant communication with a human JTAC is vital, so you actually know where to aim and when to fire.
- If using Armed Blackhawk in single player the base DCS World JTAC functions do not work, but you can use scripts (ie CTLD, etc.) to lase for the missiles.

• Information provided by Alighierian

Use - Armed Blackhawk

- Air-to-Air Missile Employment

- Armed Blackhawk mod currently features an interim Air-to-Air Stinger (ATAS) capability, with C, E, and J models of Stinger available.
- Only one ATAS pylon may be selected/fired at a time. You must manual switch between ATAS or other missile pylons if multiple missiles are mounted.
- ATAS is armed and fired like all other missiles on Armed Blackhawk.



Use - Seahawk

- Seahawk Loadouts

- The Seahawk functions in the Armed Blackhawk mod are accessed via the “L Gunner / Torp”, “Cargo”, and “R Gunner / Torp” selections in the mission editor and Rearming screen.
- Seahawk may use up to two MK-46 torpedoes, and when the “Seahawk Pylon” is mounted either Hellfire or APKWS missiles.
- When using Seahawk Pylon mounted weapons, ensure you trim the aircraft appropriately to account for the significant offset, asymmetrical weight.
- The LAU-61 (19 rocket) APKWS should be considered experimental and may not perform as intended. APKWS (LAU-131 and LAU-61) may not properly track lasers – APKWS functions should be considered developmental for the Armed Blackhawk mod. Further testing is required.
- When using Seahawk weapon configurations the ESSS pylons are disabled.



Use - Seahawk

- Seahawk Weapon Employment
 - Seahawk Hellfire and APKWS use is identical to missile employment covered in the Armed Blackhawk section.
 - APKWS guidance should be similar to that for Hellfires (ie external laser source), but needs further testing.
 - Torpedo employment is similar to other weapon pylon employment, and is the final “switch” on the virtual rotary selector. If selecting individual pylons, the torpedoes are armed via the inboard pylons.
 - It is recommended to launch torpedoes low and slow, less than 20kts airspeed, and 30 ft altitude.



Photo by Alighierian

Use - Jayhawk

- Jayhawk Loadouts

- The Jayhawk functions in the Armed Blackhawk mod are accessed via the “L Gunner / Torp”, “Cargo”, and “R Gunner / Torp” selections in the mission editor and Rearming screen. The Jayhawk “Pod” adds cosmetic models for a weather radar, rescue winch, and left pylon.
- Jayhawk may use a variety of 120 and 80 gallon external fuel tanks.
- Jayhawk fuel tanks are currently only cosmetic and do not provide auxiliary fuel.
- When using Jayhawk configurations the ESSS pylons are disabled.



Use – Pavehawk & MH-60L

- Loadouts

- The Pavehawk & MH-60L functions in the Armed Blackhawk mod are accessed via the “Cargo”, selection in the mission editor and Rearming screen. The “Pods” add cosmetic models for a radar, rescue winch, and FLIR camera.
- Pavehawk & MH-60L may use standard pylon mounted weapons.



Use – Stub Wing

- Loadouts

- The Stub Wing function in the Armed Blackhawk mod is accessed via the “L Gunner / Torp”, “Cargo”, and “R Gunner / Torp” selections in the mission editor and Rearming screen.
- When using the Stub Wing, the standard weapon pylons are disabled. A limited selection of weapons may be mounted via the L Gunner and R Gunner stations.
- Weapons are armed with the Left and Right Inboard Station Arm / Safe commands or the virtual rotary selector.
- External fuel tanks cannot be used with the stub wing.
- If liveries do not update on the Stub Wing when changing liveries in the mission editor, remove and remount the Stub Wing “payload”.



Armed Blackhawk Livery Pack



- A livery pack featuring 3 color US/NATO inspired camouflage patterns is available here:

<https://www.digitalcombatsimulator.com/en/files/332787>

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Change Log

- v1.0 - Initial Release
- v1.1 - Corrected weapon station information
- v1.2 - Added ability to fire pylon mounted guns with "M134 Fire" (trigger) in conjunction with FWD door guns; Updated Read Me
 - v1.2.1 - Updated Pylon selection messages (--> ARMED / SAFE)
- v1.3 - Updated Auxiliary Fuel System to operate with jettison commands (corrected bug which allowed pilot to jettison fuel tank(s) and weight, but retain and use auxiliary fuel)
- v1.4 - Partial fix to asymmetric weapons loads - Weapons pylons can now only be armed with compatible pylons (ie Hellfire only with other Hellfire pylons, Guns and Rockets with the same)
- v1.5 - Added virtual rotary selector which allows for HOTAS or keyboard binding to cycle between all pylons safe, pylons with guns, and pylons with missiles.
 - v1.5.1 - Corrected minor Weapon Pylon lua command bug
- v1.6 - Added Unit Payloads (Hellfire x 16; Rockets x 78, and Hellfire x 8, Rockets x 38). Additional payloads available via mission editor or rearm menu. -v1.61 - Refinement of weapons release commands
- v1.7 - Improved comparability with Tanuki44's mini-gun mod, including "Info Panels" special function.
- v1.8 - Updated pylon minigun model courtesy of Tanuki44. GAU-19 model provided by nibbylot, thank you!
- v2.0 - Added torpedoes to provide a SeaHawk like capability. Updated virtual rotary selector.
- v2.1 - Major overhaul of "SeaHawk" to improve torpedo armament and multiplayer compatibility.
- v2.2 - Updated weapon release commands and Info Panels interactions. Second Public Release.
 - v2.2.1 - Updated Folder and Lua structure to improve efficiency
- v2.3 - Removed v2.2 torpedo pylons and added torpedoes to the left and right gunner positions. Still allows "SeaHawk" capability while correcting the v2.2 bug which prevented the right outboard pylon from being visible in the ReArm menu. Fixed bug related to selective jettison.
- v2.4 - Updated folder structure to better support OVGME users. Third public release.
- v2.5 - Overhaul of shell types allow more control and to account for prior changes to DCS treatment of shells. Added a fewer tracer option to M134s, and a no tracer option to the M134s and GAU-19 to assist with night/NVG operations. Fourth public release.
 - v2.5.1 - lua file update
 - v2.5.2 - Corrected GAU-19 texture issue for some users.
- v2.6 - Added a Seahawk style left pylon with the ability to use Hellfires and APKWS rockets.
- v3.0 - Added Jayhawk models for external fuel tanks, radar, and rescue winch (all cosmetic only). Added an interim Air-to-Air Stinger capability. Initial user guide.
- v3.1 - Added LAU-61 (19 round) APKWS launcher for Seahawk function. Fifth Public Release.
 - v3.1.1 - Added Seahawk style 120gal external fuel tanks (cosmetic only).
 - v3.1.2 - Updated Mission Editor images for Armed Blackhawk variants
- v3.2 - Added custom LWL-12 rocket launcher option. Corrected LAU-61 APWKS rockets not appearing in launcher.
- v3.3 - Added HH-60G Pavehawk and MH-60L SOAR Blackhawk cosmetic models.
- v3.4 - Conversion of suitable texture files from .PNG to .DDS.
- v3.5 - Replacement of the 9M120 launcher with a custom ATAS launcher.
- v3.6 - Refinement of pylon weapon parameters.
- v4.0 - Addition of "Stub Wing" and M230 30mm cannon models. Sixth Public Release.
- v4.1 - Incorporated pylon ARM/SAFE status to "M134 fire" logic. Replaced 2xHellfire on SeaHawk with a different launcher model. Seventh Public Release.
 - v4.1.1 - Added key binds for Flare & Chaff Counters; Initial multi-missile pylon cycling added.

Armed Blackhawk / Seahawk / Jayhawk



Feedback or questions? Join us in the Armed Blackhawk channel of the DCS World: H-60 Project discord:

<https://discord.gg/PKAUCY35>