



OPERATION ARMA ARROWHEAD

MANUAL

 Bohemia
Interactive

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Installation

System requirements

Minimal PC Requirements

- **CPU:** Dual-core Intel Core 2.4 GHz or AMD Athlon 2.4 GHz
- **GPU:** Nvidia Geforce 8600GT or ATI Radeon 3650 or faster with Shader Model 3 and 512 MB VRAM
- **RAM:** 1 GB
- **OS:** Windows XP or Windows Vista
- **DVD:** Dual Layer compatible
- **HDD:** 10 GB free space

Recommended PC Requirements

- **CPU:** Intel Core i5 or AMD Athlon Phenom X4 or faster
- **GPU:** Nvidia Geforce GTX 260 or ATI Radeon HD 5770 or faster with Shader Model 3 and 896 MB VRAM
- **RAM:** 2 GB
- **OS:** Windows 7
- **DVD:** Dual Layer compatible
- **HDD:** 20 GB free space

Autorun

When you place the Arma 2: Operation Arrowhead DVD in your PC's disk tray and close it, the Autorun application should start. If it does not, you can find it on your DVD drive's root folder (Autorun.exe). The Autorun menu gives you several options, such as viewing the readme file, visiting the Bohemia Interactive Studio website and of course installing the game.

Setup

To install the game, please follow the instructions provided in the setup process.

Warning

Warning: To Owners of Projection Televisions

Still pictures or images may cause permanent picture-tube damage or mark the phosphor of the cathode-ray tube. Avoid repeated or extended use of video games on large-screen projection televisions.

Epilepsy Warning

Please read before using this game or allowing your children to use it. Some people are susceptible to epileptic seizures or loss of consciousness when exposed to certain flashing lights or light patterns in everyday life. Such people may have a seizure while watching television images or playing certain video games. This may happen even if the person has no medical history of epilepsy or has never had an epileptic seizure. If you or anyone in your family has ever had symptoms related to epilepsy (seizures or loss of consciousness) when exposed to flashing lights, consult your doctor prior to playing. We advise that parents should monitor the use of video games by their children. If you or your child should experience any of the following symptoms: dizziness, blurred vision, eye or muscle twitches, loss of consciousness, disorientation, any involuntary movement or convulsion while playing a video game, discontinue use IMMEDIATELY and consult your doctor.

Precautions During Use

- Do not stand too close to the screen. Sit a good distance away from the screen, as far away as the length of the cable allows.
- Preferably play the game on a small screen.
- Avoid playing if you are tired or have not had much sleep.
- Make sure that the room in which you are playing is well lit.
- Rest for at least 10 to 15 minutes per hour while playing a video game.

Arma 2: Operation Arrowhead

One country – Two armies – Four men – 24 hours...

Following the fall of the incumbent monarchy in 1988, tribal Socialist and Royalist groups fought for supremacy in Takistan. Each faction was backed by world-leading superpowers (Royalists by the USA, Socialists by the USSR), providing support to retain strategic control over the nation's rich resources, particularly its vast crude-oil reserves and huge deposits of Coltan, a precious-metal ore.

Reinforced by the open Soviet military support and large shipments of Eastern weaponry, the Socialists prevailed in 1992. Despite this, pockets of local Royalist tribesmen remained. The supply of crude oil at hand was quickly exploited to expand and strengthen the Takistani state police and armed forces. Scud-B ballistic missiles, missile carriers, and the covert research and development of chemical weapons contributed to the proliferation of military stockpiles with the aim of maximizing Takistan's military might—and, by extension—tightening the grip of Soviet rule.

On April 17, 2012, Royalist tribes, with the rumored support of CIA operatives seeking to destabilize the dangerous regime, succeeded in significantly damaging the production of crude oil. A well-coordinated raid on key oil fields dealt the regime three critical blows: the loss of a year's production of crude oil, the destruction of 68% of the country's oil wells, and the sudden lack of resources required to hold Takistan.

Power structures started to disintegrate; voices and actions of discontent spread. In a desperate bid to cling to the reins of power, the Socialist Supreme Bureau threatened the nearby country of Karzeghistan with the use of chemical weapons if the oil-rich Sharig Plateau, an integral part of Takistani territory usurped by the British reign in the times of the Takistani monarchy, was not "immediately returned to the people of Takistan".

On June 1, 2012, a few days after the ultimatum, Alliance forces deployed bases in rebel-controlled territories and instigated Operation Arrowhead, whose objectives are to neutralize the threat of ballistic missile attacks and nullify the possibility of an attack on Karzeghistan before attempting any humanitarian or political actions.

Coltan, abbreviated from columbite-tantalite, is a black metallic ore containing niobium and tantalum. Demand of both metals by the electrotechnical industry make the ore a strategically important commodity. The biggest ore deposits can be found in Africa, the Middle East, Greenland, Brazil and Takistan.

Takistan Armies and Factions Recognition Manual



The United States Army fields several combined-arms, highly-mobile battlegroups, one of them being Task Force Knight, whose commander, Colonel Kane, has to lead his men to strike deep in central Takistan. Soldiers wear ACU-pattern camouflage and most vehicles are painted in a uniform shade of desert tan.



The Czech Republic and the Federal Republic of Germany field their best men in Takistan. Soldiers of the Czech and German special forces wear the desert variations of their respective combat uniforms. Czech Air Force helicopters sport their typical grey and green camouflage pattern.



The Takistani Army is equipped with a mixture of Cold-War-era equipment of both eastern and western origin. Soldiers usually wear distinct steel helmets and khaki or lizard-patterned uniforms, and special military police troops also wear black turbans. Vehicles are painted in irregular amorphous-shaped fields of desert yellow and dark green.





Task Force Knight



Rifleman: CPL Howard Drake, callsign "Hitman"

Drake is an experienced airborne infantry soldier, part of the US Army deployment in Takistan: Task Force Knight.

Athletic and highly trained, the 24 year old is ideally suited to deployment in flashpoints worldwide: operating from helicopter insertion; entering combat zones by parachute; driving light vehicles and operating mounted weapons.



Tanker: 1LT Ben Herrera, callsign "Badger"

Herrera carries himself with the wild attitude of a man used to harnessing the power of a 60-ton steel beast.

A stout man of 28 years, with thick sideburns and a strong "macho" bearing, he is capable of commanding the Abrams MBT and driving various APCs in a variety of combat zones.



Pilot: CPT Garry Pierce, callsign "Renegade 1"

Pierce is a seasoned combat pilot. A veteran of several theatres of war, his experience has endowed a wise and calm attitude.

Trained across a range of military and civilian helicopters, he is 35 and still flying in action with his Apache.



Special Force: SFC Terry Graves, callsign "Gambler"

Graves is team leader of an elite Special Forces unit: trained for direct action, reconnaissance and unconventional warfare.

32 years old and with dark eyes set in a sharp, skinny face with short stubble, Graves is a formidable, battle-hardened warrior. He likes his old M14 with collimator sights - his prized possession - but he often carries the SCAR Mk17 variants in urban engagements.



The Takistani Republican Militia is a paramilitary force composed of armed locals loyal to the Socialist regime. They wear normal civilian clothes combined with camouflaged jackets and vests along with black head scarves, turbans, and caps.



Soldiers of the Chernarussian Defence Force representing the United Nations use their typical camouflaged uniforms. To identify themselves as neutral force, they wear "UN blue" helmet covers and berets. UN vehicles and aircraft are painted white.



Takistani people are not easily oppressed and all kinds of guerilla fighters appear here and there. They are armed civilian groups fighting the regime. When these men remove their canvas bandoliers and put away their hunting rifles and Kalashnikovs, they blend in perfectly with the rest of population. Guerilla vehicles are usually painted khaki.



Arma 2: Operation Arrowhead Controls

The quickest way to learn the ropes is to work your way through the Boot Camp missions. Before that, however, you may want to configure the basic controls to suit you. In the main menu, click "Options", then "Controls," review the controls and adjust them to your preference, then click "OK". Once the controls are configured, return to the main menu, and from there select "Single Player" and then "Boot Camp". The training missions offer a complete package of tutorials for the key aspects of Arma 2: Operation Arrowhead. Remember, there is no substitute for good training and rigorous practice.

Basic Controls

Movement and Orientation

You can move around the environment in a similar manner to any other first person shooter using the mouse and keyboard, but there are additional options:

- Walk/Run: hold Shift to temporarily walk (double tap Shift to toggle between walking and running).
- Free Look: hold Alt to freely look around using the mouse, even while moving.
- Lean: hold **Q** or **E** to lean (double tap to toggle leaning).
- Change Stance: tap **Z** to go prone, **X** to crouch, and **C** to stand up.

Interacting with the Environment

Use the Action Menu to interact with your equipment and the environment in more advanced ways. If there are any actions available to manipulate your gear, vehicle or environment, you can see them in the Action Menu that opens up when you rotate the Mouse Wheel. You can close the menu using the Right Mouse Button (RMB) or perform any action with the Left Mouse Button (LMB). Often, you will also see the action icon near your weapon cursor which indicates a new action available. Press the Mouse wheel to execute this default action, or invoke the Action Menu as usual and select the requisite action with the LMB. Contents of the Action Menu are context sensitive; they depend upon where you point with the cursor and what is currently available to do.

Using Your Weapons

- Press **F** to change your weapon mode; for example, toggling a rifle between single and automatic fire or selecting different types of hand grenades.
- Press **R** or use the Action Menu to reload your weapon.
- Rotate the mouse wheel to use the Action Menu to switch to your secondary weapon (if you have one).
- Click the RMB to toggle between looking down the sights of your weapon.
- Hold the RMB to zoom your view and temporarily hold your breath, which stabilizes your aim.
- Press **G** to display all your gear and pick up new items if you are near a weapon crate or in a vehicle.
- Press PgUp and PgDown to adjust zeroing of scoped optics.

The Map

Press **M** to show the map. It helps you to find your position relative to your objectives and to plan your movement. It often contains additional markers that describe the situation on the battlefield.

The map also contains navigation aids and actual time information. On easy difficulty settings, it also displays enemy contacts with various levels of precision.

You often receive a grid reference in the game. The grid divides the map into squares of 100x100 meters, identified by a six-digit code. The first three digits describe the horizontal position of the square; the last three digits give the vertical position. If you zoom out, the map becomes divided into 1x1 kilometer squares.

On the map screen you will also find a quick menu allowing you to see your tasks, mission objectives, and information about your team members:

- **Map** – Hides the diary and shows only the map.
- **Tasks** – Shows a list of mission objectives. You may activate any available task at any time by choosing the "Set as current task" option. Tasks are often added during the course of a mission.
- **Notes** – The content of this section is often updated during gameplay. The text will often contain hyperlinks which point to the particular places on the map relevant to your current objectives.
- **Briefing** – Short briefing of the current objectives.
- **Situation** – Overview of basic background information and general situations.

- **Mission** – Shows the overview of your mission.
- **Execution** – Guidelines on how you are expected to fulfill your tasks.
- **Support** – List of all support available for you.
- **Chatlog** – Displays the scenario's history of communication, including conversation and radio chatter on all available channels.
- **Units** – Overview of your team. You may access your team's equipment from this section.
- **Server Control** – Dedicated server settings.
- **Players** – Multiplayer-only section showing the list of players.
- Other scenario-specific sections may appear in this menu.

Advanced Controls

Combat

Don't be fooled by the fact that Arma 2: Operation Arrowhead looks like other first person shooters. Forget some of the tactics you might use in other games and try to think and behave as in real life combat, where the cost for a single mistake is often extremely high, and where every bullet can kill.

Movement

Combat Postures

Arma 2: Operation Arrowhead features three distinct combat postures. By default, press **Z** to go prone, **X** to crouch and **C** to stand. Each stance comes with its own strengths and weaknesses:

- **Going prone** will minimize your silhouette, presenting the enemy with only a small target at which to fire. Your aim will be much steadier, yet your movement will be very slow.
- **Standing** allows you to run and sprint from cover to cover, but your body will be more exposed to fire and your aim will be less steady.
- **Crouching** provides a balance of the advantages and disadvantages of going prone and standing.

Movement Speed

Another choice you have while moving is how fast you want to move:

- **Running**: The game's default movement speed, faster than walking. It balances speed with impact upon your stamina.
- **Walking**: Sometimes it may be prudent to very carefully patrol an area, and so you will want to walk slowly. Not only does this give you time to scan the environment for enemies, but you also avoid tiring, which—among other things—affects your aim. To walk, hold Shift by default while using the movement keys.
- **Sprinting**: There are situations when even running is not speedy enough, such as when you're fleeing from an armed grenade. This is when you can use sprinting. Be aware, though, that sprinting long distances tires you very quickly. Double-tap the **W** key by default to sprint.



Raising and Lowering Weapons

Instead of always walking around with your weapon raised, you may choose to lower it. By default, this is achieved by double-tapping the Left Control key. To raise your weapon again, simply press the Fire action (default LMB) or double-tap the Left Control key again.

Stepping over Obstacles

To step over low walls, fences, or any other low obstacle, press **V** when standing next to and facing them.

Leaning

Leaning enables you to peek around the corner of an object, fire your weapon, and still keep most of your body behind cover. The default keys are **Q** to lean left and **E** to lean right. You can also double-tap a lean key to toggle the leaning position (with movement speed locked to walking).

Swimming

As a soldier, you have been trained to swim in order to save yourself from drowning. You may not be fast, however, and it's possible you will lose some of your equipment if you spend too long in the water.

Views

Arma 2: Operation Arrowhead allows you to view your controlled character or vehicle in the following ways:

- **1st-Person View**: This is the default view mode, which lets you view the game from your character's perspective. It is the most realistic and immersive mode, and is ideal for controlling characters on foot.
- **3rd-Person View**: This gives a greater view of your surroundings, and is particularly useful when controlling vehicles. In the Expert difficulty setting, however, 3rd-person view is disabled. By default, Recruit and Regular modes allow you to toggle between 1st and 3rd person view by pressing Numpad Enter.
- **Weapon View**: All weapons in Arma 2: Operation Arrowhead have realistic scope and iron-sight views which can be used to accurately engage targets at a range of distances. The default method of switching to this view is to single-click the RMB. Note that you may also hold RMB to perform different actions: concentrate on the middle of the screen with increased zoom, higher focus and also to hold your breath for a short period of time.
- **Commander's View**: When you are in command of subordinates, you may press Numpad **.** (Decimal) to engage the team commander's external view, which enables better management of your squad. This view is disabled on Expert difficulty settings.

Navigation

To make sure you have full situational awareness at all times, the following options are available to you:

Compass and Directions

When communicating in a squad, two different methods are used to indicate direction.

The first method is based on a standard compass and uses a 360-degree system to indicate direction: 000 = North, 090 = East, 180 = South, and 270 = West. Use the numbers on the outer ring of your compass to get an exact reading. This method is often used when issuing a movement order.

The second method is based relative to the current movement of your group

and refers to front, right, left and back. This method is most commonly used to indicate your current direction or the direction of an object or enemy contact. It is particularly effective if used in combination with the map view. Vehicles with a target radar on board display your compass heading at the top of the screen. In the Recruit mode, a yellow line is displayed on your compass, indicating the direction of your current waypoint.

Peripheral Vision

To support your orientation and situational awareness, Arma 2: Operation Arrowhead features peripheral vision indicators. These are translucent dots indicating the direction of known enemies, as well as friendly or neutral objects, which appear to the edge of your screen, indicating the general direction of objects nearby but outside of your current view angle. Note that this is a simulation of real world peripheral awareness, which is restricted by the constraints of a computer monitor as well as biased by your character's detection capabilities. For the lowest difficulties, it's possible to allow these rectangles to also appear on screen on various characters and vehicles to make it easier to distinguish friend from foe.

GPS

To help you locate your position, some missions provide you with a GPS device in the map view. This device displays the exact grid reference of your current position, which can be cross-referenced with your map; additionally, the GPS displays altitude above sea level and your orientation (azimuth). If you have a GPS in your inventory, or GPS is part of the vehicle, you may activate the in-game minimap by pressing Right Ctrl + **M**.

Custom Waypoints

On Recruit and Regular difficulty settings, you may use Shift + Left Mouse Button (LMB) to mark a location when viewing the map. In game, a light-green waypoint icon is displayed on that position.





Targeting and Firing

As in real life, an unsupported weapon is never fully stabilized. The degree of stability is dependent upon both your stamina and posture, and is impacted upon by injuries. Your character's stamina is reflected in the intensity of his breathing and the extent of his injuries. Going prone or crouching always allows you to shoot with greater accuracy, and limits the effect of the weapon's recoil.

Ballistics

Arma 2: Operation Arrowhead simulates weapon ballistics: bullets will take time to reach their target, and are also affected by gravity. Remember this when firing at targets over a long distance; particularly, when firing at moving targets. Your current level of precision is indicated by your weapon cursor: the closer its animated parts appear to be, the higher is the accuracy. To improve your accuracy, use concentration mode. In this mode you hold your breath and focus your attention on one particular area for an accurate hit. By default, holding the RMB invokes this mode (note that holding and pressing a button are distinct actions).

Zooming the Sights

You may adjust field of view and magnification (zoom) in many optical sights; the change of field of view can be either continuous or discrete. For both, press

Numpad **[+]** to zoom in and Numpad **[−]** to zoom out. When looking through iron sights, you may zoom a little by holding RMB. Some optical sights (e.g. the integral sight on a G36 or an ACOG sight on a SCAR) are fitted with additional (usually red dot) sights, which may prove useful when firing in full-automatic fire mode or in close quarter battles. Press **[4]** to switch between a weapon's long-range and CQB optics.

Zeroing the Sights

Ammunition in Arma 2: Operation Arrowhead has a set ballistic trajectory. To accurately hit using your weapon's sights, properly Zero your weapon - adjust the range to which the sights are calibrated. Range is increased by pressing Page Up and decreased by pressing Page Down. The zeroing value is displayed in the top right of the weapon HUD.

Personal weapons have default zeroing on following distances:

- 50m – pistols
- 100m – suppressed rifles
- 200m – SVD, AK74 with PSO-1 optics, grenade launchers
- 300m – most assault rifles
- 500m – most machineguns

Ballistic Computer

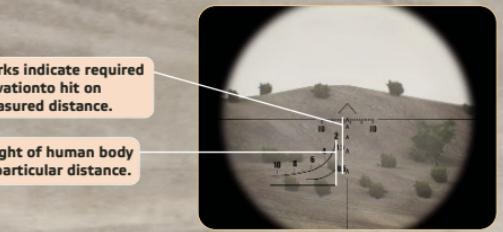
Several modern vehicles (M1 Abrams, M2 Bradley, AH-64D Apache helicopter) use simple simulation of ballistic computations. Use RMB to lock the target and aim your cursor directly on the locked target to hit it. Several optics are capable of displaying the set range.



Weapon Sights Features

The reticles of many optical sights contain visual aids which enable you to quickly estimate the range to target and adjust the elevation accordingly. Note that the aids work properly only with the default zeroing of weapon sights.

Some of the optical sights—those found mostly in vehicles—provide additional info of the weapon or sight mode, rangefinding or zeroing settings.



PSO-1 rifle optical sight



Display mode

Rangefinder

M1 Abrams commander display

Weapon Lock

Some guided missile launchers (e.g. Stinger, Javelin) require a sustained period of acquisition before the target is fully locked. After selecting a target using the RMB, a square marker is displayed over the enemy, while the round marker gradually centers on the target.

You need to keep your target in your weapon's sights until the round marker is fixed in position over the target to achieve a hit. Depending on the particular system, aural feedback in the form of a tone indicating target lock status may be present.



missile - locking



missile - locked

Tracer Rounds

For weapons with higher magazine capacity and rates of fire, every fifth shot is usually a tracer round, which glows in the dark or emits light only in close infrared wavelength (thus, it can be seen only through night vision goggles). Observing tracers can help you to discern friend from foe by colour: ammunition of eastern origin uses yellow-green tracers while western ammunition uses red tracers.

Did you know...

...incoming tracer rounds cannot be spotted, as the glowing phosphorus load is fitted to the rear of the bullet?

Hand Grenades and Smoke Shells

The degree of power with which a hand held projectile is thrown can be controlled. Press and hold LMB to prepare the weapon, pause, and release to throw. Holding LMB for longer time increases the distance.

Night Combat

When darkness falls, features of your equipment, weapon or vehicle may still allow you to participate in combat:

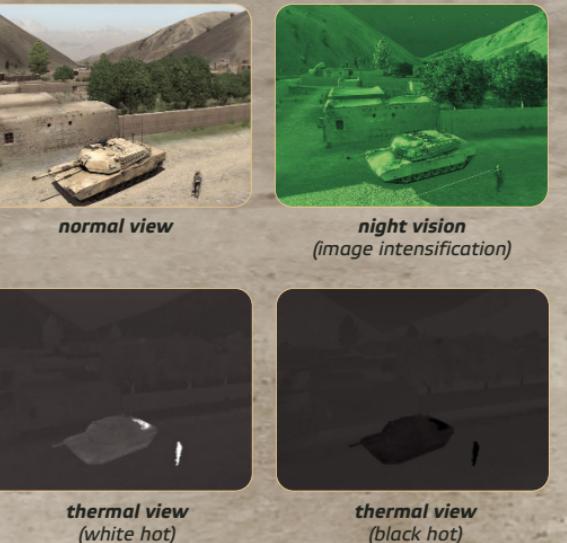
- Night Vision Goggles (NVG)** – Press **N** to activate image-intensifying goggles. This device also allows you to see close-infrared radiation; namely, beams of laser target pointers and infrared strobes. Note, looking through optics is impossible with a NVG device positioned over your eyes, thus the goggles are removed automatically when you look through a scoped weapon optic (NumPad **0** or RMB). Some weapon optics have their own night-vision mode.

- Weapon-Mounted Target Pointer** – Many personal weapons are fitted with a target pointer / illuminator / aiming light (TPIAL), which can emit a beam of light visible only through night-vision equipment. This aiming aid compensates for the inability to look through scoped weapon sights with your NVGs on. However, it is not designed to mark targets in the same way as a laser marker device. Press **L** to activate the target pointer.

- Weapon-mounted Flashlight** – Some personal weapons have a small flashlight attached. Press **L** to turn on the light.

- Infrared Strobes** – There are two kinds of strobes available, visible only in NVG: The Marker strobe and Target strobe. The Marker strobe blinks and is only practical as a position marker provided your opponent is not equipped with NVGs. The Target strobe can be targeted by vehicles and aircraft (machineguns, unguided rockets); it can be used for marking targets at night.

- Thermal Weapon Sights and FLIR** – Some weapons and many modern vehicles support thermal imaging. This vision model is activated automatically once you look through optics of a weapon with thermal sights. In vehicles, you can cycle through available modes by pressing **N**. Thermal imaging highlights objects with a temperature higher than their surroundings (engines, firing weapons, burning wrecks, people) in a monochromatic spectrum. In most cases, the spectrum is grayscale, and you can toggle between "white-hot" (displays hot objects in white) and "black-hot" (hottest objects are black) mode.



Gear

The Gear screen lets you organize gear for you and your subordinates. It is also how you pick up items found in the environment or drop items onto the ground. In the top-left corner of the Gear screen there is a list of all objects around you that you can interact with. These can be members of your squad, ammunition crates, dead bodies, etc. Selecting any of these objects shows you the items they hold. The "Available Items" list below this shows all items that are nearby in the environment. These items can be placed into an inventory by dragging it to one of the objects in the list above. Selecting "Take" will place the item directly into your own inventory. You can get more information on a certain item by clicking on its picture. With an item selected you are also able to 'Drop' it to the ground.

Backpacks

The Backpack allows you to carry an additional number of objects. Objects in the Backpack are visualized in the Gear section as usual, but their quantity is displayed on left side, while the rest of the items in Gear are displayed on the right side. Capacity of backpacks varies by type. Some backpacks are capable of carrying weapons, taking 10 slots of inventory space.

Did you know...

...when you drop a weapon, you will automatically drop all of its associated ammunition?

Redeployable Static Weapons

Many of the static weapons in the game (machine guns, mortars) can be disassembled using the "Disassemble" actions. Once disassembled, they turn into several backpacks, which can be carried to a different position and reassembled using the 'Assemble' action once one part of the weapon is put onto the ground. Static weapons are assembled facing in the same direction you are.

First Aid *

Administering First Aid

When you are a member of an elite team trained to handle first aid, you stay alive after hits which would otherwise eliminate you. Instead, you become severely injured, which is indicated by blurred red vision. Severely wounded soldiers bleed, and if first aid or proper healing is not administered in time,

they may die. In the event of severe injury, you may call for help as usual (radio "Action" ► "Injured").

When someone is assigned to provide first aid to you, you will see a blue First Aid icon marking his position. In the event you are healed by a medic, you will return to a state of full combat readiness. The more experienced the medic is, the less time it will take to heal.

If your teammate is hit, you will see the red First Aid icon on your HUD indicating his position, unless you play on high difficulty. You may approach him and start administering first aid by user action "First Aid". If you need to interrupt the healing, you may cancel the process with the user action "Cancel First Aid". While injured, when you double-tap forward key (2 x **W**), you may start crawling and you can shoot. However, you cannot reload your weapon or use the weapon sights.

Battlefield Clearance

Severely wounded soldiers may be dragged or carried away from dangerous positions. To drag someone, approach him and aim your cursor on the upper part of his body. Start dragging by activating the action "Drag". To put the wounded buddy on your back, change your stance to standing while dragging by pressing **C**. This takes some time, but enables you to move faster and fire your personal weapon. You may cancel dragging or carrying either with the user action or by changing your stance to low **X** or prone **Z**.

Conversations

It is possible to talk to various non-player characters in the game. This option is indicated by a "Talk" icon when you point at the character with the cursor (note, unless you want to threaten the character it is recommended to lower your weapon by double-tapping Left Ctrl). You initiate conversation using Action Menu. Sometimes conversations with you will be initiated by the other party automatically.

During conversations, you may be given certain options to select. These are shown in the form of a communication menu, where you can either press the associated number or use the Mouse Wheel to mark the selection and click the LMB to confirm it.

Vehicle Controls

Various types of keypresses are recognized by the game: "single tap", "double tap" and "hold". Also, various combinations of two different inputs are possible and for many actions it is possible to use both analog and digital inputs.

This section refers to default controls—please note, you can view and configure the controls freely by selecting "Options", then "Controls" at any time in the game Menu. In vehicles it's also possible to use the mouse to steer; to freely look around (the same as for infantry units) hold Alt (double tapping to toggle between the two modes). The Numpad keys are used to control the camera direction at all times and Numpad \star can be used as an alternative method to toggle freecam mode, which also changes if your camera direction control is permanent or will auto center again. Note, your vehicles consume fuel and often may also need repair.

Driving Vehicles

Keyboard controls:

- **W**: Forward
- Shift + **W** or **E**: Fast Forward
- **Q**: Slow Forward
- **A**: Turn Left
- **D**: Turn Right
- **S**: Halt / Reverse

Mouse controls:

- Move Mouse Left/Right: Turn Left/Right
- Move Mouse Up/Down: Look Up/Down
- LMB: Car Horn



Armed and Armored Vehicles

It's important to understand that very often military vehicles are crewed by more than one person. In tanks, for example, the crew consists of a commander, a gunner and a driver. Each has a different role in the vehicle.

Commander

The commander is often equipped with a radar that shows enemy targets in red. Commanders can assign orders to the driver and gunner. The tank commander often has a machine gun mounted on his turret. LMB fires the commander's machine gun, while **F** changes the weapon mode (if possible).

Orders to the driver are:

- **Q**: Slow Forward
- **W**: Forward
- **E**: Fast Forward
- **A**: Turn Left
- **D**: Turn Right
- **S**: Halt / Reverse

Order to the gunner are:

- Tab: Lock next target
- Ctrl + LMB: Fire/Cease Fire
- Ctrl + **F**: Switch weapon
- RMB: Target object

Action Menu:

- Lights on/off
- Turn in/out (open or close the protective hatch)

Commander optics controls: **N**: Switch optics mode (daylight, night vision, thermal imaging) Numpad **+** / Numpad **-**: Optics zoom control

Gunner

- F**: Switch weapon
- LMB: Fire weapon
- RMB: Lock target
- N**: Switch optics mode (daylight, night vision, thermal imaging)
- Numpad **+** / Numpad **-**: Optics zoom control



Aircraft Controls

Piloting aircraft is not easy; "practice makes perfect" is particularly relevant to this role. Despite the aircraft controls being simplified to be a level similar to the normal infantry controls in Arma 2: Operation Arrowhead, it requires a lot of experience to truly master aircraft in the game. As with other armed vehicles, certain aircraft types contain multiple human-controlled positions; typically, pilot and gunner.

Keyboard controls:

- **A**: Bank Left
- **D**: Bank Right
- **W**: Pitch Down (Forward)
- **S**: Pitch Up (Backward)

- **X**: Rudder Left
- **C**: Rudder Right
- **Q**: Helicopter Increase Height / Plane Increase throttle
- **Z**: Helicopter Decrease Height / Plane Decrease throttle
- 2x **V**: Activate auto hovering (available also in the Action menu)
- **V**: Deactivate auto hovering (available also in the Action menu)

Mouse controls:

- Move Mouse Left/Right: Default turn (Yaw or Rudder Left/Right, based on current speed)
- Move Mouse Up/Down: Nose Up/Down
- Double tap Alt or \star on Numpad to change between Mouse Steer and Mouse Look modes.
- Hold Alt to to temporarily switch to Mouse Look mode.

There are specific actions usually available when in aircraft, accessible from the Action Menu by rotating the Mouse Wheel:

- Landing Gear Up/Down
- Eject
- Auto Hovering
- Flaps Up/Down (protrude flaps once when taking off and twice before landing)
- Manual Fire (directly control when the gunner fires his weapon)
- Automated landing



Flying Helicopters

Here are some tips for beginners and experts on how to control helicopters efficiently.

Flight Controls

There are 3 controls in a chopper:

- Cyclic - controls the attitude of your chopper, it is the stick in the middle of the cockpit, between the legs. It banks the airframe left and right, and pulls nose up or down.
- Collective - controls the amount of lift generated by the rotors. Essentially, when it is pulled, the chopper gains altitude; when it is pushed, the chopper loses altitude.
- Rudder - controls the power applied to the tail rotor or the differential of power applied to both main rotors in coaxial-rotor helicopters like the Ka-52. It makes the chopper change heading without banking or changing attitude.

Flight controls have secondary and in some cases, tertiary effects. Only a few of them are modelled in Arma 2: Operation Arrowhead:

- pulling the nose up at significant speeds causes the helicopter to gain altitude;
- on other hand, when you push the nose down to gain speed, you lose altitude;
- the rudder loses authority when speed increases due to the forward velocity "pushing you straight" up to a point where it has nearly no effect;
- by pulling power in from the ground, the aircraft will want to turn the opposite way to the blades turning. This is an effect of torque. Counter it by using the tail rotor (anti-torque rotor).

Landing Tips

- Ensure the area under your chopper is clear of trees, buildings and other obstacles. Since it is difficult to look directly down, you will want to pick a suitable landing area before your final descent.
- The airframe gets damaged if you drop down at full speed from a hover higher than 4m above ground, so land smoothly.
- 80 meters is a perfectly safe altitude for parachute drop at any speed. You can drop from lower altitudes at lower speeds.

Emergency Landing

If you lose engine power, you can still try to survive the landing by following this procedure:

- Immediately reduce thrust (Z or Page Down keys, by default) and maintain level flight.
- Keep the descent key pressed.
- Engage Auto-Hover (Action Menu or double-tap V) to reduce horizontal speed.
- When approximately 30 meters above ground level and less than 30 kmph forward speed, increase thrust and land.

Dropping Troops Off in a Combat Zone

Use the following tips to improve the chances of a successful sortie:

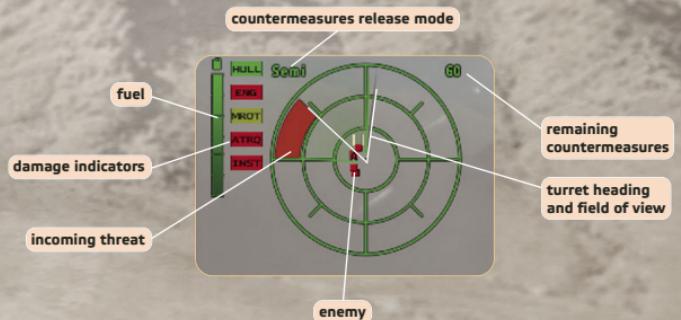
- Where possible, avoid flying directly over the area of engagement to prevent yourself from becoming a target.
- Keep the engine running when waiting on a landing zone.
- Eject from the helicopter on the ground by using the "Eject" command and not the "Get Out" command; the engine will remain running to enable a much faster take-off.

Helicopter UAV

You will have opportunity to use the Unmanned Little Bird – an experimental helicopter drone capable of designating targets and the remote launch of guided missiles. To switch to UAV, select the "UAV" option in the Action Menu. To return to your normal view from a UAV's camera, select "Leave UAV" in the Action Menu. You may also command movement of your drone through High Command (explained later).

Unmanned Little Bird Controls:

- Mouse: Camera control
- LMB: Activate laser marker
- [C] [X]: Yaw aircraft
- Q: Fly Up 50 meters
- Z: Fly Down 50 meters, land
- M: Switch to Map view and set waypoints using LMB.



Countermeasures

You may defend against incoming threats by active countermeasures, depending on whether you fight in an armored vehicle or fly an aircraft:

- Flares – Available on the majority of military aircraft to distract an incoming missile. The number of available flares is displayed on the top left part of the screen, right to the top-down radar. Note, some missiles don't use infrared guidance, rendering flare defenses ineffective against them. Press R to release a pair of flares.
- Smoke Screen – Smoke shell launchers are available on most armored vehicles to cover a vehicle's movement or to counteract laser designation. As a vehicle commander, select the "Smoke" weapon and fire smokes by clicking LMB.





Damage Warning Indication

You may notice that the top-left corner of your screen contains a fuel capacity bar and a varying number of indicators. These icons indicate damage caused to various parts of your vehicle: hull, instruments, tracks, wheels, engines or rotors. Green indicates full operability, but as damage accumulates it will transition to yellow, orange, and then red. Once an icon turns red, the corresponding part of your vehicle is no longer functional.

HULL	vehicle's overall structure
ENG	engine
FUEL	fuel tank (damage causes fuel leak)
INST	instruments
GUN	main gun
TRRT	turret (tanks and armored vehicles)
MROT	helicopter's main rotor
ATRQ	helicopter's tail rotor
WHL	wheels (wheeled vehicles)
L-TR	left track (tracked vehicles)
R-TR	right track (tracked vehicles)

Head-up Display (HUD)

Many military aircraft sport a green readout displayed on a transparent screen in the front of a cockpit. This is the HUD. The HUD displays information about your heading, altitude, orientation relative to an artificial horizon. If you approach for landing onto a functional runway, the instrument landing system's (ILS) visual aids are displayed on the HUD. Some aircraft are equipped with head-mounted display (HMD), which is a personal HUD attached to a pilot's helmet. The HMD remains centered within your field of view as you look around.

Command and Communication

There are various methods of communication in both singleplayer and multiplayer modes of Arma 2: Operation Arrowhead. When operating in an AI controlled squad, there's often no need to frequently use these report functions. However, in multiplayer game modes - interacting with people who might not speak the same language - these simple commands can be used as an effective form of communication during a mission. Usually, combat communication between units is done from the Quick Command Menu, activated by the Spacebar.

Subordinate Unit

Hold the Spacebar (or tap it to show the menu permanently) and select one of the following messages:

- Copy
- Repeat
- Done
- Fail
- One less
- Where are you?
- Radio - the content of this menu is contextual, used mostly for long range and other more advanced communication like requesting artillery support or air strikes

Taking Command

There are multiple methods of commanding the troops at your disposal. Each is handy in certain situations and may well suit different playing styles.

Quick Command

As commander, your Command Menu is already full of commands, but for instant access to communication options, use **[5]** and **[0]**. However, the radio is still available through the Quick Command Menu. Hold Spacebar to temporarily activate the Quick Command system or tap Spacebar to display it permanently.

Your cursor will now change to command mode, which is context sensitive—its functionality and appearance changes depending upon where the cursor is pointed. By default, you will have everybody selected after you enter Quick Command mode. You can select an individual unit by clicking the LMB on it (hold Shift and click if you want to select the entire team to which this unit

belongs). You may quickly command any subordinate unit by pressing the F# key (i.e. F1, F2, F3...) associated to its designated number. You can also order your selected subordinates using the command cursor (unless it is pointing on your squad member):

- To move somewhere by clicking on any position on the terrain
- To engage a target by clicking on the target
- To mount a vehicle by clicking on the vehicle
- To watch in a direction or on a unit, vehicle or object if you click while holding Left Alt
- To hold fire by clicking anywhere while holding Ctrl

If you want to issue multiple commands to your subordinates, hold Ctrl before giving them the order and they will remain selected and wait for further orders. After you release Spacebar (or press again to exit permanent Command Mode), all units are deselected and you return to normal mode.

Complex Commands

More detailed commands can be accessed any time by using the Complex Command Menu, which offers the full range of commands available to a group commander. You can see the commanding bar at the bottom of your screen showing you all your subordinates, their designated number and status. You may have some communication options available in the commanding menu even as a single or subordinate unit. To invoke the Complex Command Menu at any time (also when in the Quick Command mode) press Backspace to display the root menu of complex commands, or directly press the associated number on the main keyboard to enter the command menu dedicated to particular area:

- | | | |
|------------|-----------------|------------------------|
| ● 1 Move | ● 5 Status | ● 9 Team |
| ● 2 Target | ● 6 Action | ● 0 Reply |
| ● 3 Engage | ● 7 Combat Mode | ● Backspace: Root Menu |
| ● 4 Mount | ● 8 Formation | |

When in the menu, you can use the keyboard shortcuts—number keys for commands; F# keys for unit selection—to quickly navigate at any time. Alternatively, use the Mouse Wheel to select, LMB to confirm selection, and RMB to step one level back in the menu. Press a number key (from the main keyboard, not Numpad) to directly issue an associated command or open a related sub-menu of commands.

Please note that you can also type a sequence of numbers to directly issue more complex commands. Example: if you command a subordinate unit 2, pressing F2 ► 1 ► 1 will issue the command "Return to Formation" to this unit.

Teams

Units can be assigned to five different color groups for quick selection, which is useful if you command larger numbers of units. In some missions, units may already be preassigned to teams; as a commander, you can also assign units to a team at any point while playing.

- Select the units that should make up the team and choose Assign **[9]** from the commanding menu.
- Now assign the units to a particular team color (the white team is used for any unassigned units).

To select the entire team (alternatively, if you already have the entire team selected, you can deselect them using the same method):

- Hold Shift and click by mouse using Commanding Cursor on any team member.
- Hold Shift and press the F# key of any team member.

Tactical View

Numpad **[.]** (Decimal) switches between Normal View and Tactical View. In the Tactical View you see the immediate area from above and you can use all commanding techniques available in Normal View to command troops. The Tactical View allows the commander to pan and zoom the camera to reveal a greater scope of the surrounding environment, which enables more strategic real-time command of troops. In order to switch to the Tactical View, "3rd Person View" must be enabled in your difficulty settings.

Support Units

The ammo, repair, and fuel trucks that provide support are vital to the success of any combined-arms operation. Move your vehicle close to any of these support units and select the appropriate action to either repair, rearm, or refuel your vehicle. To call a support vehicle, select the appropriate item in the 'Support' section of the command menu. Note that support vehicles may not be available in a particular scenario or may already be occupied. The following support can be called in on the battlefield:

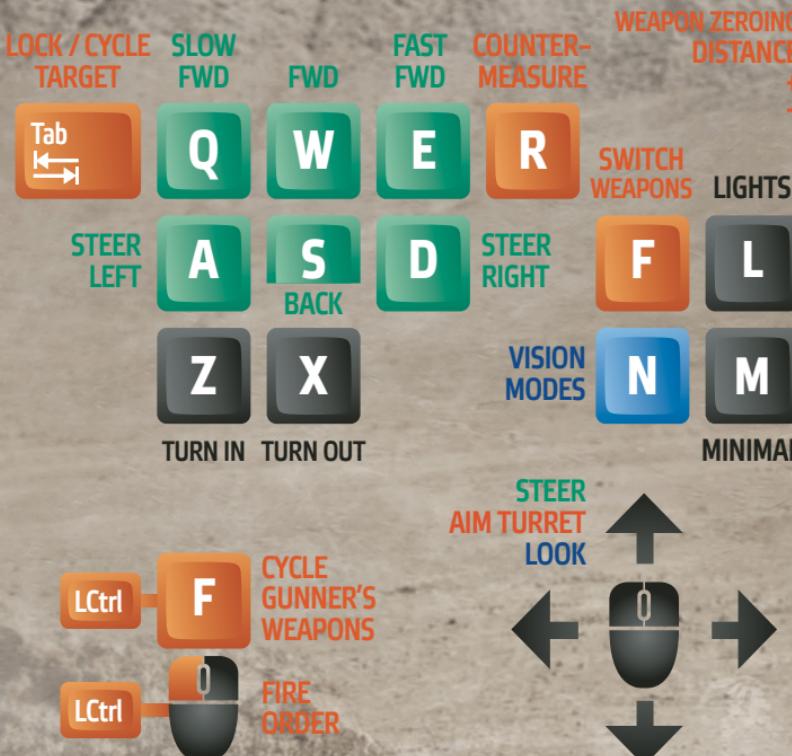
Medical Support

When injured, you can inform the rest of your team using the Command Menu option "Status" ► "Injured". To receive treatment, you can walk over to a medic,

BASIC INFANTRY CONTROLS

■ MOVEMENT ■ VIEW ■ WEAPONS ■ MISC ■ MENU

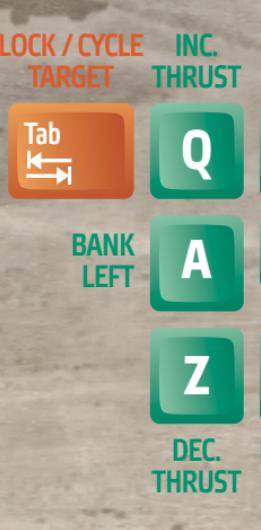

* DOUBLE TAP - FUNCTIONS ARE ACTIVATED BY DOUBLE-TAPPING THE KEY



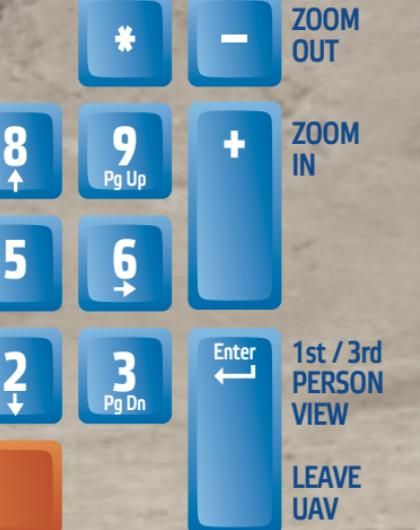
VEHICLE CONTROLS



AIRCRAFT CONTROLS



FREE LOOK TOGGLE



COMMAND CONTROLS



PREVIOUS UNITS NEXT UNITS

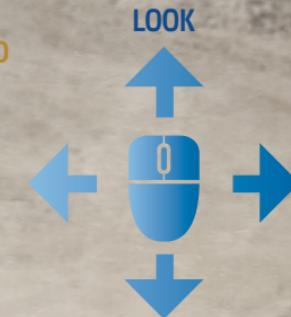
F11 F12

← →

COMPLEX COMMAND MENU

COMPLEX COMMAND MENU SHORTCUTS:

- 1 MOVE
- 2 TARGET
- 3 ENGAGE
- 4 MOUNT
- 5 STATUS
- 6 ACTION
- 7 COMBAT MODE
- 8 FORMATION
- 9 TEAM
- 0 RADIO



- ZOOM OUT

+

ZOOM IN

1st / 3rd PERSON VIEW

Enter ↵ LEAVE UAV

TACTICAL VIEW

LCtrl + Space

or

Space

TOGGLE HIGH COMMAND INTERFACE

ambulance, or field hospital, and select "Heal at ..." from the Action Menu. If you are unable to move, or can't find a medic, you can call out for one using the Command Menu option "Call support" ▶ "Medic!". If you are the subordinate in a squad, your commander can also send a medic to your position.

- As a commander, assign a medic to injured squad members by selecting the injured soldier and calling radio "Action" ▶ "Heal at Medic"
- If you are an injured commander, select a medic from your squad and order him to come close to you. When the medic gets close, you will get the action "Heal" in your Action Menu.

Ammo Resupply

High-tech weaponry is worthless without the proper ammunition, and an extended firefight can drain your ammo in seconds. Tanks and helicopter gunships can return to base to replenish their ordnance, but an infantry squad or a tank platoon in combat zone has to be much more cautious about their rate of ammo consumption. Getting bogged down in stalemate engagements and over-extending a mission's duration should be prevented at all costs. If absolutely necessary, it is possible to pick up weapons and magazines from fallen friendly or enemy troops. You can do this by walking up to a corpse and using the Action Menu to pick up any of the weapons or magazines available.



Vehicle Support

Due to their size and tactical significance, vehicles are important on the battlefield, and require support. As well as damage sustained, vehicle crews also have to monitor their fuel and ammunition consumption, and should therefore refuel and rearm whenever possible. However, their ability to quickly break away from enemy contact often allows vehicles to receive support out of the range of direct enemy fire.

High Command

Switch between squad and High Command with Ctrl + Spacebar or Win App key (if you are allowed to take the role of "High Commander"). In some cases, i.e., when you become a main commander in a large-scale scenario, you may command whole groups in a similar way as your subordinates.

Group selection and controls are akin to the unit management described in the "Taking Command" section of this manual. You may notice that groups are represented by simplified NATO unit markers, which vary according to the side, size and type of group. Enemy groups are also marked in this way when High Command is active.

Groups can be controlled either in the 3D world or in your map. Your map offers some additional command options:

- Add multiple waypoints for a group by holding Ctrl when assigning waypoints.
- Move the waypoints by dragging them with LMB.
- Click on a waypoint with 'RMB' to activate a menu to edit the waypoint's properties; e.g., to change the group's formation or combat mode.
- The "Interact" option in the high-level command menu is context-sensitive. You may use it to load or unload infantry from vehicles or assign an enemy to be attacked by a selected group.

Group Type Reference Sheet

Unit size
 Sides
 Unit type

Sides:		
BLUFOR - US Army, Army of Czech Republic, German special forces	OPFOR Army of Takistan, Takistani Republican Militia	NEUTRAL Independent (Chernarussian United Nations contingent), Takistani royalist guerilla, civilians

Unit type: Infantry Mechanized infantry Motorized infantry Armor

Artillery	Reconnaissance unit	UAV drone
-----------	---------------------	-----------

Fixed-wing Aircraft	Rotary-wing Aircraft
---------------------	----------------------

Unit size:		
Single	Section	Team
Squad	Platoon	Company



Supports

If you are in the role of group commander, it is sometimes possible to call in various kinds of support, ranging from an artillery strike to overhead cover by aerial reconnaissance drones. Newly-available support options are indicated by translucent white icons on the right edge of the screen. You may call in support by accessing the option "Communication" ▶ "Request Support" in the Quick Command Menu (or hold Spacebar). Once a support option is highlighted, you may either confirm its target in the 3D world with the LMB or you may return to the menu by pressing RMB.



Rules of Command

Remember, simply attacking from the front is usually far from the best solution. In order to become a successful commander, abide by the following rules:

- Always try to flank and outmaneuver your enemy.
- In open areas, never let infantry advance alone without the support of combat vehicles.
- In urban areas, combat vehicles need to be protected by infantry.
- The attacking side requires at least a 3:1 numerical advantage to stand a good chance of victory.
- Reconnaissance is important. Use the UAV to scout the objectives whenever it's available.
- If you encounter heavy resistance or get into trouble, it is safer to call in artillery or CAS support.



Playing Arma 2: Operation Arrowhead

Single Player

By selecting "Singleplayer" in the Main menu, various game modes providing single player experiences are listed. Each of them is described below.

Campaign

The campaign is a series of scenarios which take place within an overarching plot. You can begin a new campaign in the main screen; later, you will also be able to replay completed parts of a campaign as you wish. Note that each time you quit the campaign, your current position is saved and you will be able to continue from the same position. At times, you may feel things didn't go too well and you want to try something again. For that, use the "Revert" option in the main campaign screen.

Operation Arrowhead

Participate in Operation Arrowhead and experience modern warfare through the eyes of ordinary soldiers on a merciless battlefield. The conflict begins, and Task Force Knight is moving out. Become immersed in combat as an infantry soldier, aircraft pilot, tank commander or a member of an elite special-forces team. Do your best over several interconnected missions, fighting intense battles from the borders to the very heart of enemy territory: Zagarbad city, the stronghold of the Pakistani Army!

Scenarios

Scenarios are another core part of the single player experience offered by Arma 2: Operation Arrowhead. Providing not only an alternative experience to the main campaign, scenarios also provide an opportunity to hone essential combat skills for the campaign and online multiplayer battles. The order of the scenarios reflect their overall complexity. It is recommended to try the simple battles first before taking part in large-scale operations. Aside from full-blown scenarios, it's also possible to fully customize some of the preset mission templates.

Mission Wizard

A good first step into mission design is the in-game mission wizard. This visual design tool lets you quickly move around starting points, objectives and other key mission elements, and export the results as a brand-new mission. Access the single mission wizard by pressing "Singleplayer", followed by "Scenarios". Open the "My Missions..." folder and double-click "< New Mission >". First you will be asked to select one of three available mission templates. These are the basic outlines of your scenario and determine things like how many enemy bases and patrols will be generated. The available templates are Basic (reach the destination point alive) and Combat (accomplish sequence of the randomly generated tasks in a sandbox battlefield).

When you are satisfied with your choice of template, press "Load". The menu will now display which sides this template is available for and you can choose any of them. Pressing "Load" once more takes you to a screen where you can fine tune the mission settings:

- Units - Pick the number and type of units your squad will have.
- Map - Choose any of the maps available to you.
- Name - Enter a name for your mission.
- Map - In the 2D map view you can edit the position of various mission elements here. Press and hold the LMB over any of the named markers and drag them to the desired location. Double click LMB to insert a unit (or to edit a waypoint or unit if your cursor is over one). Click the RMB to add a waypoint to the currently-selected unit. Press Delete to remove a unit or a waypoint.
- Time & Date - Prefer to play during a cold winter evening or a warm spring day? Pick your time and date settings here.
- Weather - Both cloud cover and fog can be altered for your mission.

When you are happy with these settings, press "Preview" and select a difficulty in the next screen. Pressing "Preview" again will directly place you in your newly created scenario.

Did you know...

...advanced mission designers can create completely new templates?

Boot Camp

Boot Camp provides you with various scenarios where you sharpen up combat skills, whether it's infantry, armor, or aircraft. You may also practice accurate parachute insertions, commanding your squad members or forces consisting of multiple squads, and learn about the new features of Arma 2: Operation Arrowhead.

Armory

The Armory is a playground for all of the vehicles, weapons and creatures in the game. It provides background information on equipment and units and enables you to view everything in detail. Most importantly, the Armory lets you try out all available content. You will be assigned dynamic challenges which will test your skills in many core areas. When first starting the Armory, not all content is unlocked. Completing challenges earns points, which in turn unlocks items. Another way to unlock all items is to complete the singleplayer Scenarios or the Campaign. After choosing an item, several modes are available to interact with the unlocked items.

- Scene - Select "Scene" to be presented with a dynamic cutscene featuring that item. In this mode, you can view a text description with background information and statistics.
- Viewer - Select "Viewer" to really inspect all those nice little details. In this mode, 'RMB' with mouse gestures rotates the item, LMB with mouse gestures pans around it. Holding LMB + RMB with vertical mouse gestures zooms in and out. Double-click the LMB to reset to the default rotational camera.
- Try - This mode enables you to simply play with an item or accept dynamic challenges that allow you to unlock more items for experimentation.
- "Primary Challenges" are short, dynamic missions such as "Attack Location" or "Taxi".
- "Secondary Challenges" may be presented at any time, even during a Primary Challenge. Sometimes their goals conflict—it's up to you to decide which you want to complete (or try to get them both!).
- If you just want to experiment, you can disable challenges from the Pause menu. This interface allows you to abort active challenges and return to item selection.

Editor

The basics of the mission editor are easy to grasp, allowing beginners to create "instant action" style missions in a matter of minutes. Other mission editing functions are often far more complex and cryptic. Creating a complex mission can take weeks of editing, and will require knowledge of scripting and the creation of some supporting text files outside of the game. Multiplayer missions create some further complexities that will also need to be considered. You will find basic descriptions of how to use the Editor later in this manual (see "Mission Editor"), but more advanced references can be found online at <http://community.bistudio.com>.

Multiplayer

Session browser

Your first step on the way to play Arma 2: Operation Arrowhead's multiplayer modes is the Session Browser. Pressing "Play" followed by "Multiplayer" will take you there. From here, you can choose to join an existing session or host a new one yourself, on either Local Area Networks (LAN) or the Internet.

Address

By default, your browser is set to search for games on the internet. If you want to change this, click "Address: Internet" once. You will now search for sessions on the LAN; click this button again to switch back. When looking for LAN sessions, you may also need to change the network port that is used, which can be done by clicking the default "Port: 2303" button once.

Sorting

Filters at the top of the Session list allow you to sort sessions using a different parameters. Clicking any of these, e.g., "Host", will sort the sessions by this parameter in ascending order. Pressing it again will sort them in descending order. From left to right, the columns show:

- Whether the session is password protected or not
- Host name
- Mission currently playing
- Amount of players currently in the session / maximum amount of players for this session
- Quality of your connection to this host

Filtering

Sometimes you may be overwhelmed by the number of sessions available and it may be hard to pick a good one. This is where "Filter" settings facilitate your search. In this menu a number of properties are available to filter:

- Host - Description of the host.
- Max. ping - Maximum ping (ms) to hosts.
- Min. players - Minimum amount of players already in this session.
- Max. players - Maximum amount of players in the session.
- Full servers - Toggle to show or hide sessions that are full.
- Mission - Description of the mission name.
- Passworded servers - Toggle to show or hide password protected servers.

Refreshing

The "Refresh" button empties your session list and gathers new information about available sessions.

Passwords

To the lower-left of the browser the game displays the password you are using (no password is entered by default). If you do enter a password here and then start a new hosting session, the session will be protected by this password. A player wishing to join a protected session needs to enter the correct password before joining.

Joining a Game

There are two ways of joining an existing session: pick a session listed in the browser or manually enter a host's address. To join a session from the browser, double-click the LMB on a session, or click "Join" with a session already selected. If you would like to join a specific host, press "Remote" and enter the host's address plus port number. If the host has password protected the session, you need to enter this password in the main Session Browser before you join.

Choosing a Role

After you have joined, you will enter the Multiplayer Setup Lobby. This screen shows mission details, the available roles for all sides, and a player pool. Upon joining, the game automatically assigns an available role to you. To choose a different role, do so by dragging your name from the player pool to another available role with the LMB. Alternatively, you can click the role you want to switch to with the LMB. Note, sometimes the session host will determine your role. If this has been done, you can no longer change your role yourself; to switch roles, your best bet is to politely ask the host. When you are ready to start, click "OK", which will notify the other players.

Did you know...

...you can disable the AI taking over from a player who disconnects by clicking the AI icon next to this player's role?

Hosting a Game

To host a new session, click "New" or double-click "Host Session" from the Session Browser. You will now be asked to select an existing mission on any of the maps or to create a new one with the editor or wizard. Having done this, you will find yourself in the Multiplayer Setup Lobby, where you can assign player roles and change host settings.

- Players highlighted red in the Player Pool have not yet been assigned a role.
- Players highlighted yellow have picked a role, but have not confirmed that they are ready.
- Players who are ready to start are shown in green.
- Clicking "OK" launches the session.

Kicking a Player

A situation may arise where you need to kick a certain player. You can do this by selecting the player in the Player Pool and clicking "Kick Off".

Mission Settings

Some missions allow the host to alter the mission settings; e.g., the number of kills required to win the scenario, or the maximum duration of the mission. Mission designers are free to create new mission settings, which are displayed under Player Roles.

Host settings

- 'Disable/Enable all AI players' - toggling this setting will empty all roles on all sides that are currently filled by AI players, or it will fill all empty roles with AI players.

- 'Lock/Unlock server' - by locking the session, you can prevent any more players from joining the game.

Dedicated Server Settings

You are allowed to run a dedicated server from the Multiplayer Setup Lobby. To access dedicated server functions, click on "Dedicated Server" button.

Multiplayer Communication

A multiplayer game is much more tactical and enjoyable when you can communicate with the other players. Arma 2: Operation Arrowhead offers various tools to achieve this without needing to use external applications:

Channels

To ensure you don't get overwhelmed by radio chatter, the game uses several different communication channels.

- Global Channel – Communication to all players.
- Side Channel – Communication to all players on your side.
- Command Channel – Communication to all players on your side who currently command a group.
- Group Channel – Communication to all members of your command group.
- Vehicle Channel – Communication to all players in the same vehicle as you.
- Direct Communication – Communication to all players within earshot.

To switch to another channel press either (period) or (comma).

Text Chat

One method of communicating is sending and receiving text messages.

- To start typing a message, press (forward slash).
- The Message Box appears, where you can type a message.
- Send the message by pressing Enter.

Typed messages are sent via channels. While typing a message, you can change the channel it will be sent to by pressing the Up Arrow and Down Arrow keys.

Voice Chat

Another method is Voice Chat, which is generally much faster, as you can keep playing while communicating with other players. If a microphone is set up, press and hold Caps Lock to commence broadcasting. Voice chat uses the same channels as text chat, and it follows the same rules as to who will be able to hear it.

Did you know...

...Arma 2: Operation Arrowhead has a voice chat build into the game, which allows better bandwidth balancing and 3D sound positioning in the game world?

Map Markers

A map marker is a visual aid placed on the Map. Double-click the LMB anywhere on the map to place a map marker on that location. This marker is visible to everyone in the selected chat channel (e.g. placing a map marker while in the Side channel ensures only other players on your side will see it). Use markers to point out enemy forces, plot routes, assign artillery targets and convey any other useful information required.

- While placing a map marker, you can enter text to go with your marker.
- The Up Arrow and Down Arrow keys will select another type of marker.
- To change the marker's color, press and hold the Shift key while pressing the Left Arrow or Right Arrow keys.
- Pressing Enter finalizes the marker and places it on the map.
- A marker can be deleted by hovering your mouse cursor over it and pressing Delete.

Expansions

Arma 2: Operation Arrowhead allows you to install various user created addons and modifications. It is recommended to store modifications to your Documents/Arma 2 folder; however, you can also install such content directly to your main game directory.

You can use the "Modifications" option in the Main menu to enable or disable any installed modification (restart of the game will be needed).

Combat Tactics

When on the battlefield, one of the most important aspects isn't simply the thought of killing the enemy; rather, it is preventing the enemy from killing you. Think before you act. Here's a list of some good tactics that could help you survive on the battlefield, and beat your enemy.

Get Down

- Lay prone whenever possible. It reduces your silhouette and the target it represents, plus it steadies your aim.
- If you can't lie down, try to crouch.
- Don't get caught with the horizon or open sky behind you, as it makes your silhouette easy to recognize and target.

Stop to Fire

- You cannot fire while running or sprinting. You may do so while walking, but for higher accuracy it's always better to stop and, even better, to crouch or go prone.
- Your aim is less accurate if you are breathing heavily after running. Wait to catch your breath first for more accurate aim and note that you may also want to hold your breath for a few seconds.

Look Around

- Scan the area to your front as well as sides, rear and above—avoid tunnel vision. The main reason flanking is so effective is because of tunnel vision.
- The sun and other bright lights can adversely affect your eyesight, so be aware that attacking enemies with the sun behind them puts you at a significant disadvantage.
- You can look around while moving by holding 'Alt' and moving the mouse simultaneously.

Take Cover

- Reload only behind full cover.
- Don't get suppressed to the extent that you can't peek out of cover. The enemy might close with your position and shoot you easily.
- Use cover and concealment whenever possible when changing positions. The enemy can't see you coming if there is a tree between the two of you.
- A bush is concealment, not cover, since bullets can and will go pass through them. The same applies for other materials; for example, a wooden fence does not provide good cover either.

Stay Undetected

- Firing an unsuppressed weapon gives away your position, especially at night.
- Your radio chatter and orders can be heard by enemies nearby. Speaking or giving orders can also give away your position.
- Flashlights and laser pointers are easy to spot at night.

Combat Movement

- When moving under fire, zig-zag randomly. This makes it more difficult for the enemy to determine a point of aim on you.
- Don't move across a friendly unit's front, especially if he might be about to fire.
- Keep moving. It forces the enemy to continually search for and track you.
- When stopping, do so behind partial or full cover.
- The longer you stay in one position, the more likely you will be flanked.

Confuse the Enemy

- Try not to be predictable when moving from cover to cover—all the enemy has to do is aim and wait for you to run into his sights.
- When moving out from cover to fire, do not move out to the same position twice in a row. This will keep the enemy from predicting where you will appear next.
- Use smoke to conceal your movement.



Options

Video Options

Standard Video Options

- Resolution - Select the optimal screen resolution for your system. Generally, a higher resolution provides a sharper image; however, it can negatively affect your frame rate.
- Visibility - The visible distance in meters. This option is mostly dependent upon your CPU performance.
- Fillrate Optimizer - Allows you to upscale or downscale rendered images (without influencing the resolution of user interface elements). A lower resolution may improve game performance. A higher resolution will improve the overall sharpness of the image. This option is mostly related to the performance of your graphics card.
- Brightness - Use the slider to adjust the overall brightness.
- Gamma correction - Controls the overall brightness of the image you see.
- Quality preference - Select a quality settings preset (note that this influences other video options).
- Default - Restores all custom settings to default.
- Advanced - Show more advanced video options.



Advanced Video Options

- Terrain Detail - The higher the terrain detail, the finer the mesh that makes up the ground will be rendered.
- Objects Detail - Sets the overall quality of object models. A lower setting renders lower levels of detail for objects.
- Texture Detail - The overall quality of textures in the game. A lower setting may cause blurrier textures.
- Shading Detail - Affects all of the special shading techniques used in the game.
- Postprocessing - Affects some special effects like depth-of-field.
- Shadow Detail - Detailed shadows can make a scene come alive, yet also demand a lot from your hardware. If you experience performance issues, try lowering this option.
- Anisotropic Filtering - A method of enhancing the quality of textures on surfaces that are far away.
- Antialiasing - This technique attempts to minimize aliasing (jagged edges) caused by showing high-resolution content at lower resolutions.
- Blood - Configures the level of gore and also allows the disabling of in-game blood completely.
- Refresh - Choose the best refresh rate for your screen.
- UI Size - Customize the size of all game user interfaces (it requires a restart of the application).
- Aspect ratio - Toggle between normal CRT monitor (4:3), widescreen TV (16:9), LCD (5:4), widescreen LCD (16:10), or any other aspect ratio (it requires a restart of the application).

Audio Options

- Effects - The volume of general sound effects (e.g. weapon reports, explosions and engine noises).
- Radio - The volume of radio chatter.
- Music - The volume of the in-game music.
- VON - The volume of sounds transmitted by the game's own voice-over-network.
- Samples - Maximum amount of simultaneously-played sound samples.

Controls

The Controls option enables a detailed configuration of all aspects related to controls. In the main Controls option dialog, a list of all available actions is displayed. Filter the types of actions displayed with a drop-down box. To manage control configuration of an action, select it from the list and click with the LMB. A configuration dialog will be displayed.



Configure Action

In this dialog you can configure the selected action, and assign numerous input methods to each action. Most actions are assigned by simply pressing/clicking/moving the desired input. Some exceptions (like the mouse) are listed to the right side of the dialog; drag and drop them to the action field to bind it.

A few tips:

- If a keyboard/mouse input has more than one function assigned to it, it will be marked red. To reveal which other input has been assigned to it, double click it with the LMB in the controls dialog. Providing there are no actual conflicts, it is possible to keep it as is—sometimes it's beneficial to assign two functions to the same key/mouse input.
- Various key combinations are supported: hold a switch key (i.e., Shift or Alt) and tap the additional action key.
- Double-tapping input keys is supported: rapidly double-tap a key in the configuration dialog to assign a double-tapped key.
- You can not use the 'Delete' key to remove controls from an action, as this key is also a supported input option; you always need to use the mouse and the Delete button.

Mouse Settings

You can configure the orientation of the vertical axis of the mouse, and the vertical/horizontal mouse sensitivity.

Controllers/Joysticks/Driving Wheels

Compatible joysticks and/or driving wheels can be used with Arma 2: Operation Arrowhead for optimum control and enjoyment. You can configure multiple joysticks and controllers at the same time. There are two main types of devices supported: configurable controllers (most general-purpose sticks and wheels) and controllers with schemes (essentially, Xbox controllers for Windows).

To manage your controllers, go to "Options", "Controls", and click the "Controllers" button. A list of all supported controllers is displayed, split into two categories: "Customizable Controllers" and "Controllers with Schemes". Note, your controller may be shown in both, but you can freely enable it for the preferred usage type.

Essentially, "Customizable Controllers" are those which can be freely mapped to any action using the "Configure" action dialog. Adjust the sensitivity for each analogue input by pressing the "Customize" button.

Some controllers can be used in different modes based on schemes. This is chiefly the case with Xbox controllers for Windows. With this mode enabled, the scheme will define all aspects of the controller configuration and there's no option to configure it. To access the Scheme configuration, click "Customize" when you have selected any enabled controller with a scheme.

TrackIR

Arma series is one of the premier first-person shooters to fully support Naturalpoint's TrackIR system, which tracks the movement of your head using infrared technology. For more information on TrackIR, please visit Naturalpoint's website at <http://www.naturalpoint.com/>.

Game Options

Various game options can be changed:

- Language - To select the language of in-game text (requires restart of the game), available only if your game version is sold in multiple languages.
- Subtitles - To enable or disable subtitles for in-game dialogs.
- Radio Subtitles - To enable or disable subtitles for in-game radio communication.
- Blood - To configure the level of blood displayed in the game.
- Aiming Dead Zone - Your weapon cursor floats in a certain zone in the middle of the screen. Change the size of this zone, or completely disable this behavior by scrolling the slider all the way to the left.
- Head bob - The head of your character moves realistically as he travels on foot. Tune the strength of this effect, or completely disable this behavior by scrolling the slider all the way to the left.

Difficulty

Four difficulty modes are available within Arma 2: Operation Arrowhead; namely, Recruit, Regular, Veteran and Expert. The difficulty menu, activated by pressing "Difficulty" in the game's Options dialog, allows you to fine-tune most of their settings. Note, in a multiplayer game, the difficulty settings of the host applies to all players in that session. In the list of settings there are two columns: the setting description and the configured difficult level. If a setting is red, you cannot change it in the particular difficulty. All the other settings can be enabled or disabled to match your personal preferences. Below the settings list you are able to set the difficulty of the AI units, both on your side and the enemy's. This affects how smart the AI units are in general, how fast they aim and how accurate they fire at their target.

Did you know...

...that the difficulty you run your game last with is automatically transferred to the editor and will be used in all editor previews?

Mission Editor

When you enter the Editor, you will first be asked to select a map to set your mission on. Simply choose the desired map and click "Ok". This will open the Editor interface.

Basic Controls

The mission editor offers several modes, all accessed through the associated function keys or the toolbox in the menu on the right side of the screen:

- F1 Units
- F2 Groups
- F3 Triggers
- F4 Waypoints
- F5 Synchronize
- F6 Markers
- F7 Modules

Basic navigation and controls apply in all the editing modes:

- To pan around the map, click and hold the RMB anywhere on the map and move the mouse.

- To change the level of zoom, use the Mouse Wheel and Numpad \leftarrow/\rightarrow keys.
- To create a new entity, double-click LMB on an empty space using the required editing mode.
- To select an entity, LMB click on it. Selected entities are opaque; non selected entities are translucent.
- To select multiple entities simultaneously, click and hold the LMB in empty space to begin a drag box and drag the box's borders across the entities.
- To select multiple entities individually, hold Ctrl and select the appropriate entities with the LMB, or with a drag box.

- To cut selected entities to the clipboard, hold Ctrl and press **X**.
- To copy the selected entities to the clipboard, hold Ctrl and press **C**.
- To paste a copy of entities from the clipboard, hold Ctrl and press **V**.
- To paste a copy of entities on their original position, hold Ctrl and Shift and press **V** (useful when copying units between missions).

- To move an entity, click and hold the LMB on an entity and move the mouse. Note, it's not possible to move units in Group mode or move Waypoints in Synchronize mode.

- To rotate an entity, hold Shift, click and hold the LMB and move the mouse.
- To edit an entity's parameters, double LMB click on an entity to open its Editing dialog.
- To delete an entity, press Delete while hovering the mouse cursor over an entity.
- To select all entities associated with that entity's group, hold Shift and click the LMB on an unit or Waypoint.
- To open an entity's dialog with a waypoint on it (rather than the waypoints), hold Shift and click the LMB on an entity.
- To create a waypoint for a group attached to the clicked entity, in Waypoint Mode, double LMB click on the entity.

Did you know...

...Copy and pasted named entities automatically have a number appended to their names to avoid conflicts?

Placing Units and Groups

Units are the primary elements of most missions; insert them by double-clicking the LMB somewhere on the map. In the pop-up window that appears, a number of properties for this unit can be edited, such as its side, type, health status and azimuth. You can also set which unit will be controlled by Player and which by the AI. If you need to place a number of units, which typically belong together, at the same time, press F2 and insert a group in much the



same way as you used for units. Note, after you place a group, that you in fact placed a collection of individual units joined together with blue links. You can manually create and remove such links in Group mode by clicking on a unit, holding the LMB and dragging the line showing where the unit belongs to.

Did you know...

...that when you place a unit as "Playable", you can switch to it using Team Switch or this unit is playable in multiplayer mode?

Waypoints

Giving Units Waypoints

Your unit will be a completely sentient AI being within the game world and it will react to nearby events. Most likely however, you will want the units to move about. This can be achieved with waypoints. The different types of waypoints are:

- Move - Move to this location.
- Destroy - Move to the target location and destroy whatever the waypoint is placed on.
- Get in - Try to board the vehicle this waypoint is attached to or, if synchronized with a vehicle's waypoint, the vehicle will stop and wait to be boarded.
- Seek and Destroy - Move to this location and start actively searching for enemies.
- Join - Synchronize this waypoint with another group's waypoint to join the two.
- Join and Lead - As above, but now become the resulting group's leader.
- Get out - Get out of the vehicle.
- Cycle - Used to create a loop of waypoints. This is explained in the section below.
- Load - Wait for others to board as cargo.
- Unload - Wait for everyone in the vehicle to get out.
- Transport Unload - Wait for passengers of the vehicle who are not in the same group to get out (usually Get in waypoint of another group synchronized with this group).
- Hold - Unit or group will stay at this position. Only a "switch" trigger or

scripting can move the group from this point.

- Sentry - Hold position until an enemy is detected.
- Guard - Any of the units within the Guard waypoint will also intelligently engage enemies anywhere on the entire game map and in the meantime will find ones Guarded by ... trigger and protect this location.
- Talk - Speak a sentence from the Effects section of the waypoint.
- Scripted - Executes the script file in the Script text field of the waypoint.
- Support - Wait until another unit calls for support (only works for support units).
- Get in nearest - Board in the vehicle nearest to this waypoint
- Dismissed - Units are freely roaming around this waypoint until an enemy is detected.

Waypoint Synchronization

Synchronization mode is used to make different groups carry out their waypoint orders at the same time, and optionally only under specific circumstances. Synchronization can seem like a hard concept to understand at first, but it's a very powerful and easy-to-use tool. For example, synchronization can be used to organize friendly forces to wait until everyone is in position before launching a mass attack, or wait in ambush until an enemy convoy is in the perfect location before opening fire. You can synchronize the waypoints of two or more separate groups by pressing and dragging a link between their waypoints. Neither group will proceed to the next waypoint until they both finished the synchronized waypoints. Synchronizing links can be made between any of a group's waypoints and any number of another group's waypoints, and any number of triggers. A synchronized waypoint will not complete until all waypoints it is linked with are ready to complete, and all synchronized triggers are activated. Synchronizing links are displayed by a dark blue line connecting the entities. To create a synchronized link between a waypoint and another group's waypoint or a trigger, select Synchronized editing mode (F5), click and hold on the waypoint with the LMB, move the mouse to the desired waypoint/trigger, and release. To remove synchronization lines from a waypoint or trigger, select it, hold and drag a line into empty space. Note, this will remove all synchronizing lines from that entity.

Waypoint Cycle

A Cycle Waypoint can be used to make the group move in an infinite loop—a simple method to create a patrol. If you want your group to repeat any of its previous waypoints, simply insert a new waypoint with type set to Cycle nearby the previous waypoint and this will be the waypoint executed. Note, the automatically generated first waypoint (the leader's initial position as seen in

the map editor) is considered as a Move type waypoint, and can be used by the Cycle waypoint as well. Only a Switch trigger or script can be used to "break" a group out of a cycle loop.

Simple Triggers

Triggers are used to set up a lot of the mission gameplay. Triggers can be used to detect a virtually unlimited amount of conditions in the game world and react to those. The simpler forms of triggers are explained below.

Presence Detection

A very common use of triggers is detecting the presence (or absence) of units. To do this, place a trigger at the position where you would like to detect this presence, and scale it using the "Axis a" and "Axis b" properties. The encompassing area is where your trigger will detect units. The Activation drop-down-box will let you select a particular unit side to listen for. If you don't need to make a distinction between sides, pick "Anybody". Next, choose whether you want to check for presence, absence or maybe whether the units have been detected by another side. This is achieved by selecting one of the options in the toolbox.

Mission Ending

Any trigger can be classified as an Ending Trigger using the Type property. In the drop-down-box you can select one of 7 endings (including Lose), which corresponds to endings in the mission briefing HTML file.

Modules

It is possible to insert more advanced components to your mission using the Modules mode (F7). The advanced injury system, volumetric cloud or ambient life are just one double click away from your mission. Some of the modules need to be synchronized (F5) with another units or objects.

Intel

To tweak the mission name, description, time of day and weather, you can click on the Intel button in the top-left corner of the editor. You will find four sliders, controlling your starting weather, weather forecast, starting fog and fog forecast. Finally, you can choose which side the Independent faction will ally with in this mission.

Mission Management

Loading

Clicking "Load" from the editor shows a pop-up window where you can select any missions previously saved for the loaded map. If you want to look for a mission on a different map, you can do so with the Map drop-down-box. The map will be loaded after pressing OK.

Merging

Sometimes it is beneficial to merge two separate mission files. This can be achieved with the Merge button. If you save the merged mission under a new name, the original two missions will be unaffected.

Saving

Having worked on a new mission for a long time, you will want to save your work somewhere. Do this by clicking "Save". Several exporting options are then displayed:

User mission - The mission is saved as an editable mission, which can later be re-opened in the editor. This is the default option and it is always recommended to save your latest version this way before using any of the other export options.

Export to Single Missions - The mission is exported to the Single Missions screen as a published mission. All mission content is compressed into a single file, which makes it easy to share with friends.

Export to Multiplayer Missions - The mission is exported as a multiplayer mission in a single compressed file. You can now select the mission when you are hosting a session.

Playing your Missions

There is no better way to see if your mission works than to try it for yourself. Do this by simply clicking "Preview". When you are back in the editor, you can make changes and use "Continue" to resume play. Note, the changes you made will not be processed until the next time you click "Preview".



Troubleshooting

Game Updates

It is recommended to keep your game updated to the latest version. Game updates and patches contain various bug fixes and other improvements and may also contain additional content for the game.

Visit <http://www.arma2.com> to see if there's a new update available. Note, when you apply an official BI patch, make sure you have all the original game files intact - if you've altered any of the official game files, the patch is prone to failure.

Technical Support

Before contacting our technical support, please prepare a detailed specification of your computer and an exact description of the problem. It will help us to provide you with support in a fast, efficient way.

Information Required:

Computer model (CPU, CD-ROM, RAM, Video/Sound card, DirectX version, Windows version).

In order to get this information, please go to **Run** in your Windows Start menu and type 'dxdiag' in the command line then press the enter key.

The DirectX diagnostic program will start. This will show you all the relevant driver files installed on your system.

In order to receive a text file of this information, please click the button **Save All Information**. You can then save a text file with all the information we require on your hard drive.

You will then be able to send this information to us via e-mail. Contact us via email at: support@bistudio.com

Please use the email address provided. All support enquires to the company address, or phone number(s) cannot be answered by our staff.

For more information and updates please visit: <http://www.arma2.com>

Useful Links:

<http://community.bistudio.com>; <http://forums.bistudio.com>

The Community Wiki and Official Forums are an excellent source of information and troubleshooting guidance for all aspects of the game, they also contain a large amount of information and guidance for anyone wishing to explore enhanced mission creation or addon/mod creation.



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