



DCS: COMBINED ARMS

User Manual

INTRODUCTION

Thank you for your purchase of DCS: Combined Arms. DCS: Combined Arms adds a new element to the DCS World combat environment by allowing players to directly control AI air and ground forces, including indirect fire systems (like artillery and rocket launchers). All of this is done through the Command Map that provides movement, engagement, formation, and other orders.

Using the Command Map, you can fly missions while at the same time directing your ground forces and air groups.

You can also jump into first person control of most combat armor vehicles and drive them while using multiple types of weapons including main guns, machine guns, and anti-tank guided missiles.

In multiplayer, you also have the option to take control of a Joint Terminal Attack Controller (JTAC), with binocular view, and mark targets for other players using smoke markers, laser designator, and IR pointer.

DCS: Combined Arms works in both single and multiplayer game modes and allows players to jump between the cockpit and command view.

Combined Arms includes the "Fog of War", meaning your side only sees hostile units that are first detected.

We hope you enjoy what DCS: Combined Arms brings to the DCS World experience.

The staff of Eagle Dynamics

12 June 2013

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MISSION EDITOR (ME) CHANGES

To support DCS: Combined Arms, the new "Battlefield Commanders" button has been added to the Mission Editor toolbar:

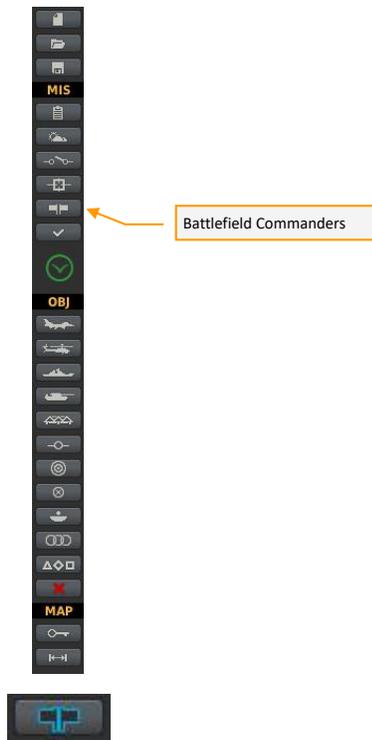


FIGURE 1. BATTLEFIELD COMMANDERS BUTTON

The Battlefield Commanders button opens the Battlefield Commanders panel of the Mission Editor. This panel allows you to set the various player roles for the mission.



FIGURE 2. ASSIGN BATTLEFIELD COMMANDERS

PILOT CAN CONTROL VEHICLE. This checkbox enables/disables the ability of a player assigned to an aircraft to assign movement and targeting commands to AI ground units via the F10 map view during the mission. If you are creating a single player mission, you will probably want to enable this. This allows the player to directly task ground units while in the cockpit.

MULTIPLAYER ROLES (RED, BLUE). This table sets the number of multiplayer slots open in the mission for each of the following command roles on each side:

Game Master. Can observe and play as JTAC and control air and ground AI units for both sides. The Game Master can view all units. As a Game Master, you can dynamically alter the ground war during the mission. This can also be a very useful mode when acting as an instructor.

Note 1: Although there are both Red and Blue side Game Master roles, both sides act the exact same and both control units from both sides.

Note 2: For Head-to-Head multiplayer matches, it is best not to enable any Game Master roles.

Ground Force Command (CMD). Can strategically control air and ground AI units in the battlefield. This includes indirect fire systems like artillery and multiple rocket launcher systems. This also allows first person vehicle control of ground units, including JTAC capability.

JTAC. Has first person ground vehicle control, including JTAC capability, but it does not have strategic control over ground units.

Observer. Cannot play as JTAC or control ground units, but has unlimited camera access to observe the action.

Player Can Drive

When a ground unit is placed in a mission, the "Player Can Drive" option can be selected to allow the group/unit to be controlled by a user. If not checked, the unit cannot be selected for Command Map control or First Person control.

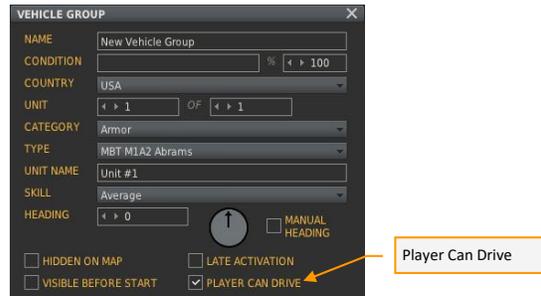


FIGURE 3. PLAYER CAN DRIVE

Mission Start Role Selection

Once a mission has been started, you will choose which command role you wish to play from the Choose Role window. Once you select the desired role, press the Start button.

Aircraft that are set to human control will also be listed.



FIGURE 4. MISSION START ROLE SELECTION

GAME OPTIONS

In DCS: Combined Arms, you have the option to only display enemy units that have first been detected by friendly units. Units not detected will not be displayed on the F10 Command Map. After a contact on an enemy unit has been lost, its icon will fade away. In order to enable this "Fog of War", you must set your F10 Viewing Options to "Fog of War" from the Gameplay tab.

If "All" is selected, all unhidden units are displayed on the Command Map.



FIGURE 5. GAMEPLAY OPTIONS

Fog of War Setting

Additionally, setting your Battlefield Command option to Game Master or Observer will allow you to view all mission units.

From the Special tab, you have additional options from the embedded CA tab. These include:

Compute Firing Solution. When a target is locked, this dashed circle icon indicates proper lead to hit the target. Place the aiming symbology over this icon to increase your chances of a hit. This is true when engaging both ground and air units with guns/cannon.

Platform Shake. As the vehicle rolls over uneven ground, the view will shake and move accordingly. When not selected, aiming weapons is much easier when the vehicle is moving. Having this turned off best represents weapon stabilization on modern tanks and IFVs.

Target Info. When a target is locked, its identity and range is displayed in the lower left corner of the ground unit HUD.

Fixed Units Body. When enabled, the circular compass rotates to indicate heading facing of the hull.

Automatic Transmission. When enabled, the automatic transmission is on. If this option is disabled, manual transmission is used.

Fixed Units Turret. When enabled, the circular compass rotates to indicate heading facing of the selected turret.

Fixed Compass Scale. Compass indicator will remained fixed with north at top, but hull and turret indications will rotate according to hull heading and turret alignment according to hull.

Commented [AC1]:

Commented [AC2]: New

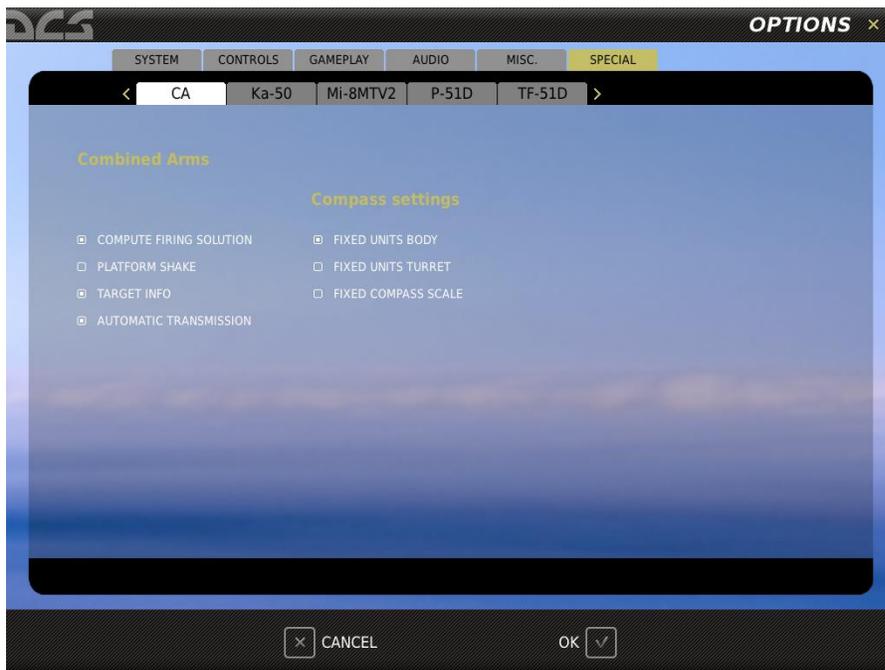


FIGURE 6. GAMEPLAY SPECIAL OPTIONS

COMMAND MAP

When in the simulation and having pressed the **[F10]** key, a map of the simulation world will appear that shows both friendly and enemy units, depending on F10 Map View Options. This is termed the Command Map.

This view is used to monitor the battlefield, select units, and issue movement and firing commands to the AI. Icons are depicted according to general unit type and Blue Side units have blue icons, Red Side units have red icons, and the selected unit has a yellow icon.

"Fog of War" is modeled and only enemy units that have been detected by friendly units will appear on the map. If contact is lost on an enemy unit, its map icon will be faded.

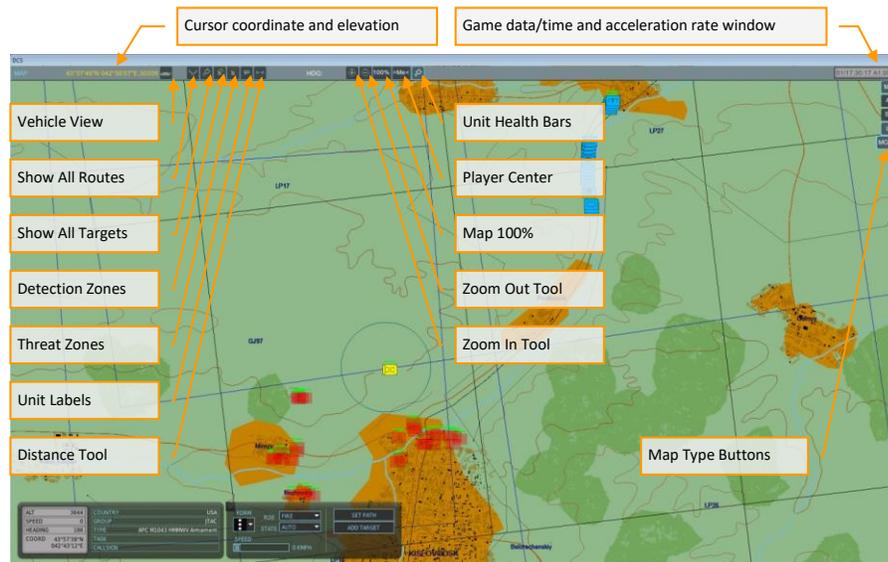


FIGURE 7. COMMAND MAP

Along the top of the screen is the toolbar with the following functions from left to right:

Cursor Coordinate and elevation. As you move the mouse across the map, the geographic coordinate of the cursor's location and elevation is displayed in this field.

1st Person Command View. When a unit is selected on the map, pressing this icon will switch to the 1st person view of the selected unit in the simulation environment. You can also press **[Right Alt + J]**.

Show All Routes. Pressing this button will show all assigned unit routes on the map.

Show All Targets. Pressing this button will show all current targets for all units.

Detection Zones. When enabled, the detection zones of air defense units are displayed as circles around the units.

Threat Zones. When enabled, weapon engagement zones around all ground units are displayed.

Unit Labels. When enabled, a label that indicates unit type is displayed next to each unit on the map.

Distance Tool. By left mouse clicking on the map and then dragging the cursor to a new location, a line will be drawn between the two points. Right of the Distance Tool button will be displayed the distance of the line and next to the HDG (heading) label will be displayed the heading from the start point to the end point of the line. Next to the icon, the distance is displayed in NM or KM.

Zoom In Tool. To zoom in on the map, click this button and the cursor will become a magnifying glass with a "+" symbol in the center. Left click on the map where you want to zoom in to and re-center your map on.

Note: To disable this mode, you must click this button a second time.

Zoom Out Tool. To zoom out of the map, click this button and the cursor will become a magnifying glass with a "-" symbol in the center. Left click on the map where you want to zoom out from and re-center your map on. To disable this mode, you must click this button a second time.

Map 100%. To quickly zoom the map out to its full, 100% size, press this button.

Player Center. To center the map screen on the player, press this button.

Unit Health Bars. When enabled, green bars are displayed above unit icons and airbases that indicate the health level of the unit / base.

Map Type. In the top right portion of the screen are three choices of map type. These include:

MAP. Displays map view of world without elevation data.

ALT. Displays map view but with elevation data relief.

SAT. Displays satellite map view of world.

Playing as Ground Commander



FIGURE 8. COMMAND BAR

To control and gather more information about a friendly ground unit displayed on the map, you may left click on it and the Command Bar will appear. The selected unit's icon will turn yellow.

On the left side of the window, the following information, depending on the unit type, is displayed:

- Unit altitude
- Unit speed
- Unit heading
- Unit's current coordinates
- The center pane displays additional information about the selected unit:
- Unit country
- Name of group
- Type of selected unit
- Task assigned to the unit
- Callsign of unit

In the right pane are your command functions. From left to right:

- Select formations. Click on drop down list of possible formations.
- Column
- Line Abreast
- Diamond
- Vee
- Cone
- Echelon Right
- Echelon Left

Select ROE. Click on the Rules of Engagement (ROE) list to view possible ROE states.

- FIRE – engage any enemy group in contact. Target prioritization is performed automatically by the group based on the situation.
- RETURN FIRE – return fire only; do not engage first.
- HOLD – do not fire under any circumstances. Units with radars, like SAMs, will turn their radars off.

Select State. Click on the State list to view possible states the unit can be.

- GREEN – group is not combat ready. It does not perform target search or engagement and maintains sensors off and stowed if possible.
- RED – group is combat ready and actively searching for targets. Depending on the unit, it may or may not be able to move while in combat ready state.
- AUTO – default setting, where the group is not combat ready until the presence of enemy units is detected. Note, the AI may “sense” the presence of enemy units without actually detecting them with own sensors.

Speed. Move the slider left or right to adjust the speed of the selected unit.

Set Path. After clicking the Set Path button, the cursor turns into a cross hair. You can then left click on the map to set a waypoint.

Rem Path. Remove Path button deletes the current path set for the unit.

Add Target. After clicking the Add Target button, the cursor turns into a cross hair. This is only available for indirect fire units (like artillery).

Unit Movement

After selecting the Set Path button, you can set a single destination point or a string of waypoints to create a route. To do so, left click to mark each waypoint; when complete, press the Set Path button again. You can also direct units to drive "cross country" or use roads. Waypoints not set on roads appear red.



FIGURE 9. SET WAYPOINTS



FIGURE 10. CONFIRM ROUTE

Set Road Follow

To have units follow a road, you can set a single destination or route using roads by left clicking on a road. Road follow route points are marked in green.



FIGURE 11. CREATE ROAD FOLLOW ROUTE

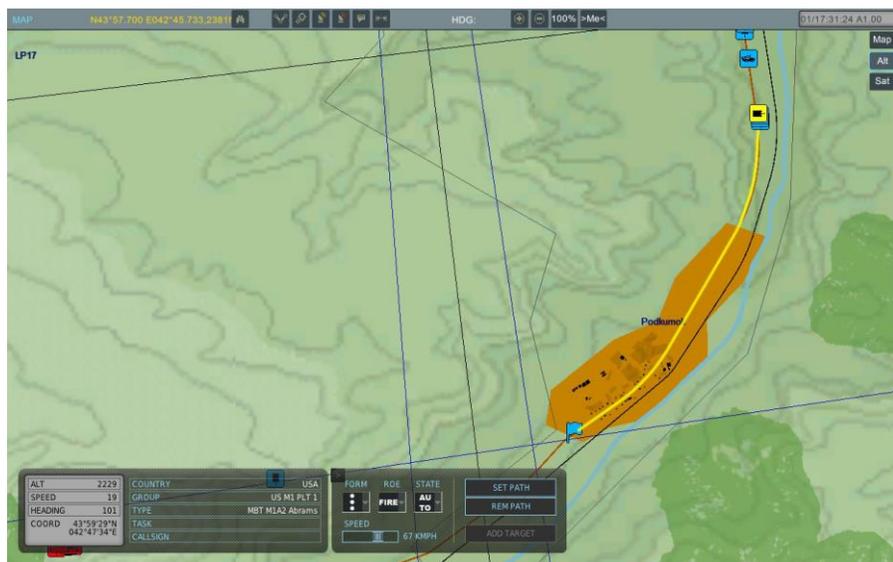


FIGURE 12. SET ROAD FOLLOW ROUTE

FIRST PERSON GROUND UNIT CONTROL

In addition to controlling ground units from the F10 Command Map view, you can also jump into the world and control them from a first person perspective. You can drive them and operate their weapons. Night vision can be enabled by pressing [N].

Selecting a Unit

Left click on the friendly ground group you wish to jump to and then click the Vehicle View icon or press [Right Alt + J]. If instead you wish to jump to a group and use it as a JTAC location, enter the unit and then press the [B] key.

Most ground units are selectable to be occupied, but a few are not. These include:

SAM sites that are comprised of multiple radars and launchers.

Radar sites

Man Portable Air Defense Systems (MANPADS)

Infantry units

Utility and transport units

Once in the simulation world, you can also press [F7] to cycle through ground units in the mission.

Driving a Unit and Other Controls

Once occupying a unit, you can drive it using the following key commands:

Accelerate - [W]

Brake - [S]

Turn Left - [A]

Turn Right - [D]

Hand Brake - [H]

Autopilot - [C] Group will follow route set in Command Map

Each unit has a manual transmission and you will need to shift to the appropriate gear. To move backwards, shift down to the lowest, reverse gear.

Shift Gear Up - [X]

Shift Gear Down - [Z]

Other controls available to most vehicles include:

Launch green flare - [Left Alt + 2]

Launch red flare - [Left Alt + 1]

Launch white flare - [Left Alt + 3]

Night vision - [N]

Night vision increase gain - [Right Alt + N]

Night vision decrease gain - [Right Ctrl + N]

Group Movement Command



FIGURE 13. GROUP MOVE COMMAND

While in the simulation world, you can also direct the other units of the group where to drive. To do so, hold down the [G] key and a green arrow will appear in the center of your screen. Slew your view / arrow to where you want your units to go and while holding the [G] key press the left mouse button to execute the order. The members of your group will then drive to the location.

Group Radio Command

When in 1st person command of a ground group, you can also give radio orders to the other members. Enter the radio menu by pressing [N].

From the radio menu, you may:

In the right pane are your command functions. From left to right:

Select formations.

- Column
- Line Abreast
- Diamond
- Vee
- Cone
- Echelon Right
- Echelon Left

Note: in order from the other group members to stay in formation with you when you manually drive the unit, you must first select a formation.

Select ROE. Click on the Rules of Engagement (ROE) list to view possible ROE states.

- FIRE – engage any enemy group in contact. Target prioritization is performed automatically by the group based on the situation.
- RETURN FIRE – return fire only; do not engage first.
- HOLD – do not fire under any circumstances. Units with radars, like SAMs, will turn their radars off.

Select and Control Weapon Turret

Many combat vehicles have more than a single weapon turret. Often there is a main turret with a main gun and/or missile system and a separate machine gun turret (cupola). Each turret will have its own weapon or set of weapons.

To cycle between a unit's turrets - [Q]

Turret to center - [Numpad 5]

Turret stabilization - [V]

Selecting a Weapon

With the desired turret selected, you can cycle through each weapon of the turret by pressing [E]. Depending on the selected weapon, different data and symbols may be displayed. Repeated presses of the [E] key can also cycle between ammunition types of a weapon (such as Armor Piercing (AP) and High Explosive (HE)).

Weapon Resupply

Replenishment of ammunition is carried from a warehouse or truck, URAL -375 for the red coalition and the M818 for the blue coalition. To replenish ammunition, the unit must be within 100 meters from a warehouse of player's coalition and press the [LALT + ']. AI vehicles replenish their ammunition when near a warehouse or supply truck of their coalition once every 60 seconds.

To replenish the ammunition at the airfield or FARP, move close to the warehouse that supplies the FARP or airfield.

Using Weapons

To slew the weapon, move the mouse in the direction you wish to slew the weapon to. You can also use your joystick as a weapon controller.

Note: If your aiming wants to drift and not stayed centered, be sure to adjust your input options to remove conflicting axis controllers, or set a dead zone in the active controller.

In all cases, left mouse button or the [Space Bar] will fire the selected weapon.

To toggle zoom the weapon view, either right mouse button click or press [=] to zoom in and [-] to zoom out. Use the zoomed in view for more precise aiming.

Machine Guns, Auto-Cannons, and Anti-Aircraft Guns

These guns can either be attached to a separate turret or as a supplement weapon to the main gun. In either case, a standard fixed cross sight is displayed to assist in aiming. In the lower right portion of the screen are the remaining machine gun rounds of the selected weapon and the type of machine gun selected.

Note: When using anti-aircraft guns, it is advised to enable aiming assist from the Option screen.

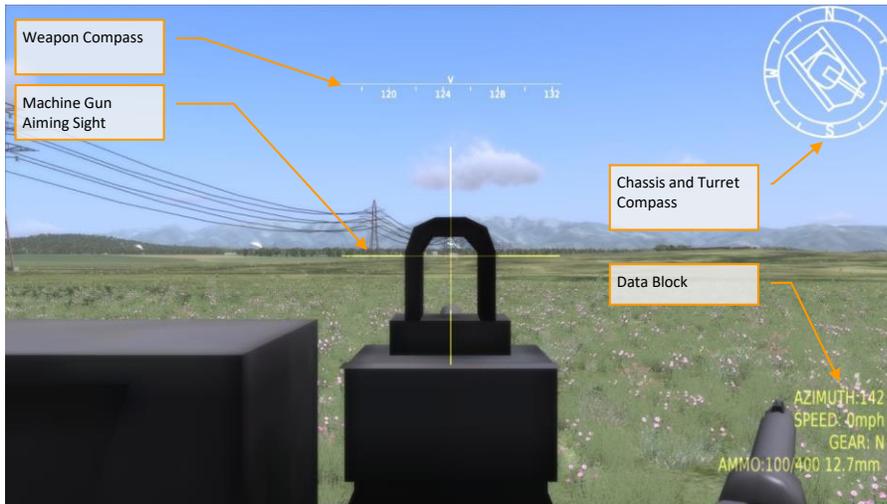


FIGURE 14. MACHINE GUN CUPOLA

Main Gun

When first selected, the main gun is indicated as a cross in the center of the screen. This is true for all ground units. When zoomed in, the large cross disappears and is replaced by weapon aiming symbology that is more specific to the vehicle country of origin. As with the lighter guns, remaining rounds and round type are indicated in the lower right corner.

The main gun of an armor unit often has options for both armor piercing (AP) and high explosive (HE) ammunition. This can be cycled by pressing the **[E]** weapon key.



FIGURE 15. MAIN GUN ZOOMED OUT

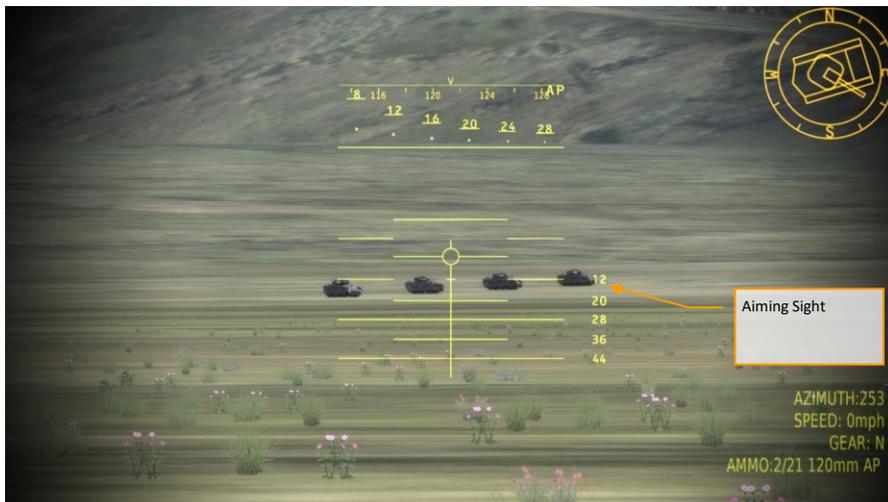


FIGURE 16. NATO MAIN GUN ZOOMED IN

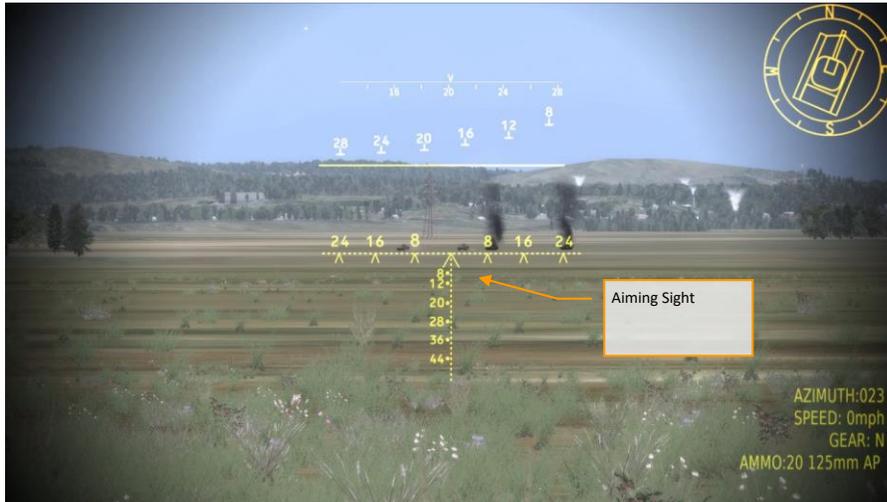


FIGURE 17.RUSSIAN MAIN GUN ZOOMED IN

Guided Weapons

Guided weapons are in regards to any guided missile from a ground unit. These can be anti-tank guided missiles or guided anti-aircraft missiles. Both use the same engagement procedure.

Once a target is visually acquired, the larger reticle must be slewed to place the target in it. Once this is done, press the **[ENTER]** key to lock the target. A locked target is indicated by the red/yellow bars displayed around it. Initially the bars will be red until a solid, yellow lock is achieved. You can unlock a target by then pressing **[]**.

Once the weapon is launched, you must keep the target within the large reticle to allow the missile to guide and retain lock. For anti-tank missiles, keep the center of the cross centered on the target the entire missile time of flight.



FIGURE 18. GUIDED WEAPON HUD

Playing as JTAC

The JTAC view can be attached to any friendly ground unit. To set the view to the unit and then view the world from that perspective, first select the unit you wish to act as the JTAC and then press the 1st Person Command View or **[RALT-J]** and then the **[B]** key.

After entering the JTAC mode **[B]**, the simulation view will switch to the JTAC point of view in the simulation environment located directly on the selected unit. Using the JTAC view, the camera can be panned up and down and to either side using the mouse, the **Numpad [2], [4], [5], [6], [8]** keys or a head-mounted view control device. The view can also be optically zoomed out using the **[RCTRL + Num/]** keys and optically zoomed in using the **[RCTRL + Num*]** keys. To return to normal zoom, press the **[RCTRL + Enter]** key.

The JTAC view also provides NVG capability. NVGs can be toggled on and off by pressing **[N]**.

When using NVGs, the view will also include an IR pointer (green line).

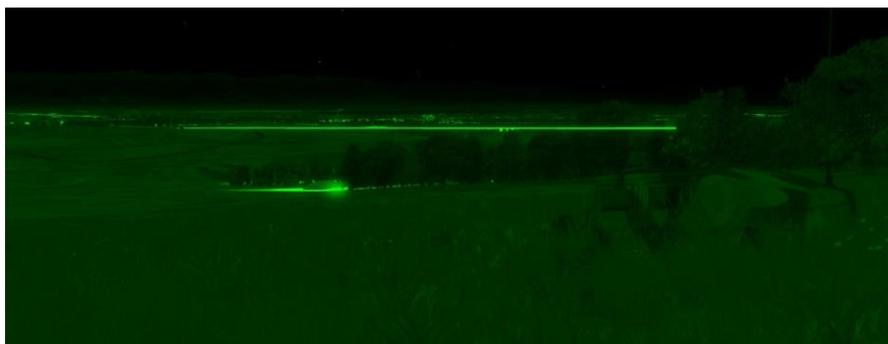


FIGURE 19. NVG WITH IR POINTER

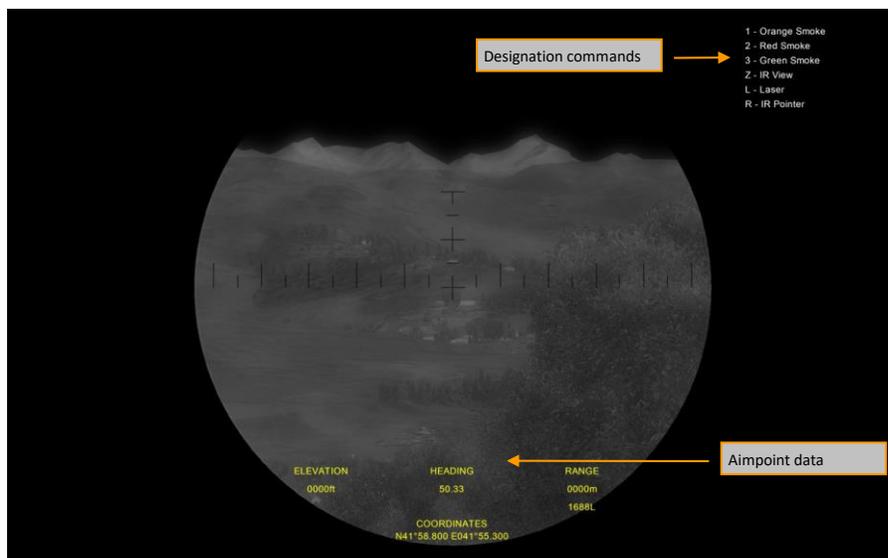


FIGURE 20. BINOCULAR VIEW OPTIONS

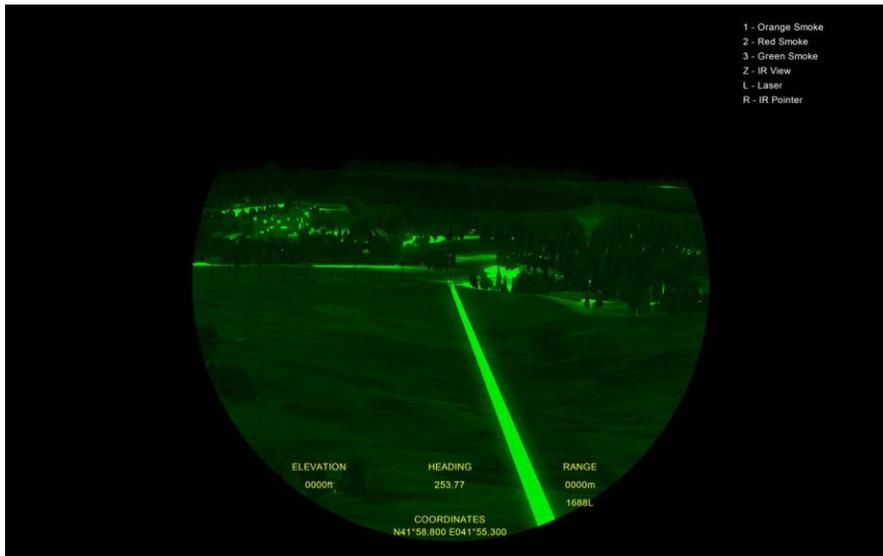


FIGURE 21. IR POINTER

The JTAC Bino View includes the primary visual display of a monocular optical sight, the aimpoint data block at the bottom of the display and the target marking commands in the top-right corner of the display. The JTAC Bino View can be panned up and down and to either side using the mouse, the **Numpad [2], [4], [5], [6], [8]** keys or a head-mounted view control device. The view can also be optically zoomed out using the **[RCTRL + Num/]** keys and optically zoomed in using the **[RCTRL + Num*]** keys. To return to normal zoom, press the **[RCTRL + ENTER]** key.

The JTAC Bino View also provides NVG capability. NVGs can be toggled on and off by pressing **[N]**.

Aimpoint data block. This field includes the following data for the aiming point:

- Elevation (available only when laser is firing)
- Heading
- Range in meters (available only when laser is firing)
- Laser code set for the laser designator
- Coordinates (updated only when laser is firing)

Target marking commands. This field provides the following command options:

- 1 – **Orange Smoke.** Will release an orange smoke marker on the position of the aimpoint.
- 2 – **Red Smoke.** Will release a red smoke marker on the position of the aimpoint.

3 – Green Smoke. Will release a green smoke marker on the position of the aimpoint.

Z – IR View. Toggles IR view.

L – Laser. Toggles laser range-finder/designator on/off. You can press [C] to activate the laser designation code. Maximum laser designation range is 9,998 meters.

R – IR Pointer. Toggles IR pointer wand on/off.

JTAC Commands

Toggle Bino view	B
Bino view laser range-finder/designator	L
Bino view IR Pointer	R
Bino view NVG	N
Bino view IR	Z
Bino view object padlock	Num_.
Bino view release padlock	Num_NumLock
Bino view orange smoke marker	1
Bino view red smoke marker	2
Bino view green smoke marker	3

Using Artillery and Multiple Rocket Launchers

Clicking on an indirect fire unit (artillery, multiple rocket launcher, or mortar), allows you to set fire missions. As other units, the selected unit will be colored yellow and the command bar will have the ADD TARGET button.

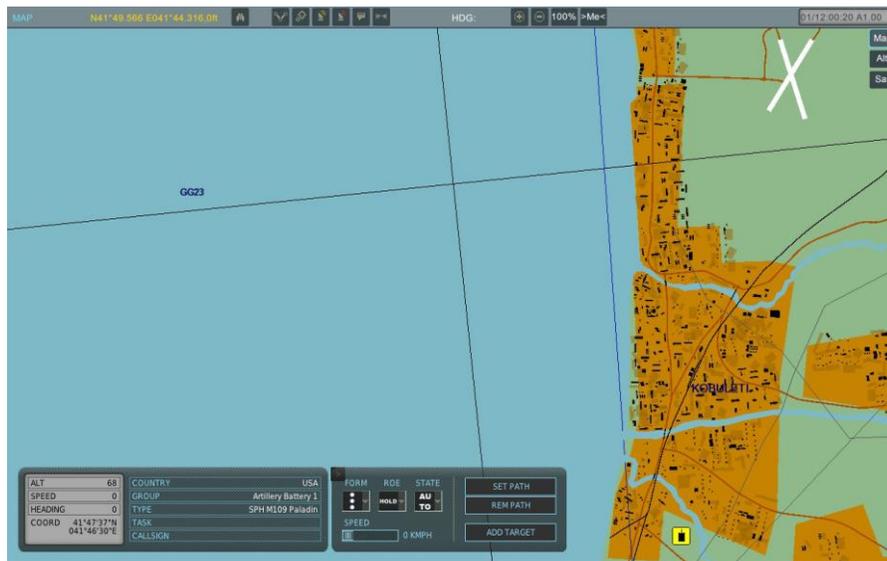


FIGURE 22. INDIRECT FIRE TASKING

Having selected the unit and pressing the ADD TARGET button, the cursor will turn into a crosshair that is positioned with the mouse. Place the crosshair over the desired target and left click to set the fire mission. Upon doing so, a blue circle will appear at that location with a connecting blue line back to the firing unit. The blue circle represents the area that rounds will randomly fall in. The size of this circle can be adjusted with the TARGET RADIUS slider on the command bar. To initiate the fire mission, press the START FIRE button. To cease the fire mission, press the REMOVE TARGET button.

Note: The designated fire mission location must fall between the maximum and minimum range rings.

Once a fire mission has been set, the "Aiming" countdown timer on the Targeting Panel will start counting down until when the fire mission will start.

Once a target has been set, you can left click and hold on the targeting icon and move it.

In addition to the ADD TARGET button to set targets, you press [Left Ctrl + Right Mouse Button] with the mouse cursor over the target to assign it.

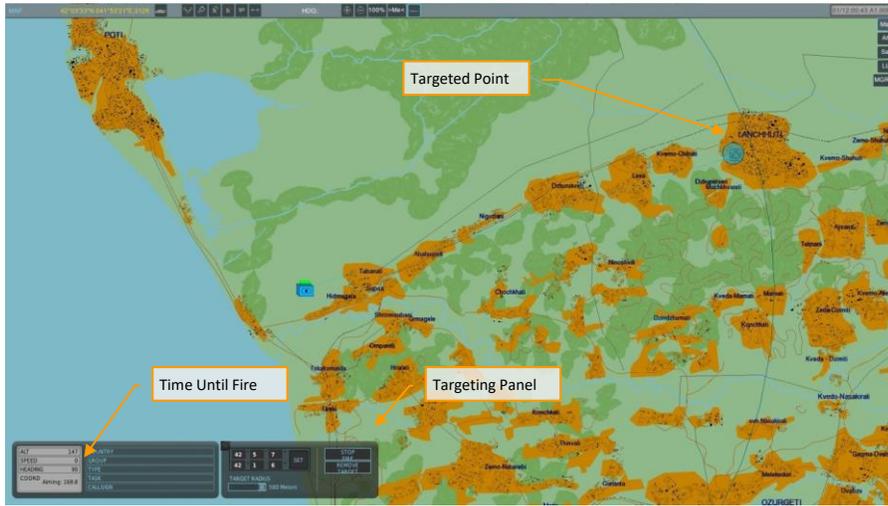


FIGURE 23. TARGET SET



FIGURE 24. RANGE RINGS

First Person Indirect Fire Control

In addition to setting indirect fire missions from the Command Map, you can also aim artillery and MRL units from the 1st person view.

At the top of the screen is the aiming azimuth indicator where the caret position on the scale indicates the aiming azimuth of the artillery barrel.

Displayed vertically on the display is the range scale, indicates in meters.

Left of the range scale is the set range, indicates in the chevron box.

To fire at a target, align the barrel along the correct azimuth and adjust evaluation to known target range.

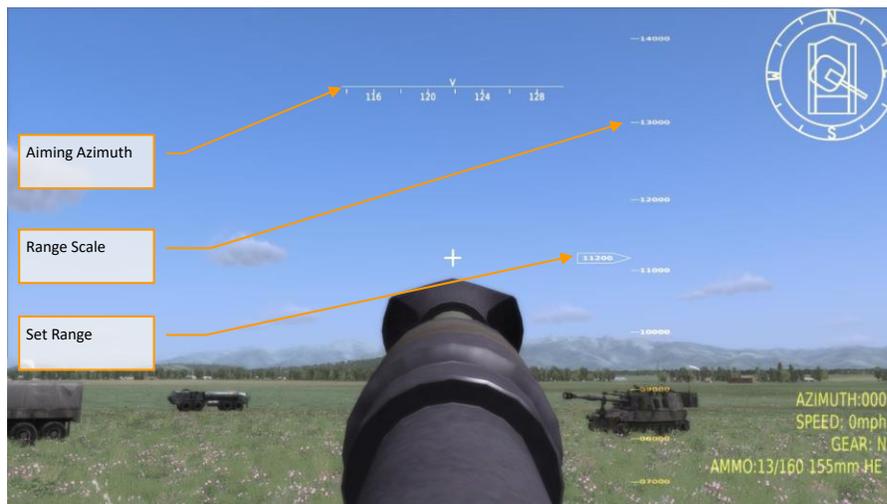


FIGURE 25. FIRST PERSON ARTILLERY AIMING

Vehicles with Laser Rangefinder and Fire Control Computer

Commented [AC3]: New

Some modern vehicles have a laser rangefinder and fire computers with automatic gun elevation.

Laser range acquisition - [L]

Laser range reset - [RCtrl -L]

At the bottom edge of screen placed range counter (in meters) and 3 status lamps:

- Red – target out of range. Fire is not permitted.
- Green – target in range. Gun is ready. Weapons free.
- Yellow – gun is aiming by fire control computer.



FIGURE 26. TARGET OUT OF RANGE



FIGURE 27. GUN IS AIMING BY FIRE CONTROL COMPUTER



FIGURE 28. TARGET IN RANGE

To use, place the aiming cross on the target and press the **[L]** key; after short delay for gun elevation, open fire if you have a green lamp.

If the target out of range the red lamp will be lit.

PLAYING AS AIR COMMANDER

In addition to commanding AI ground units, you also have the ability to control AI air units (both fixed and rotary wing). This allows the commander to issue movement and attack orders to all air units displayed on the Command Map (based on role selection).

Assigning Unit Movement

Much like giving movement commands to ground units, you will first select the air group you wish to provide movement orders to, and then press the Set Path button. Each left click of the mouse on the Command Map will place a new waypoint. When complete, press the Set Path button a second time to initiate the order.

Once an air unit has reached its final waypoint, it will orbit there, waiting for new orders.

On the command windows in the bottom left corner of the Command Map, you can use the sliders to set the speed and altitude of the selected air group.

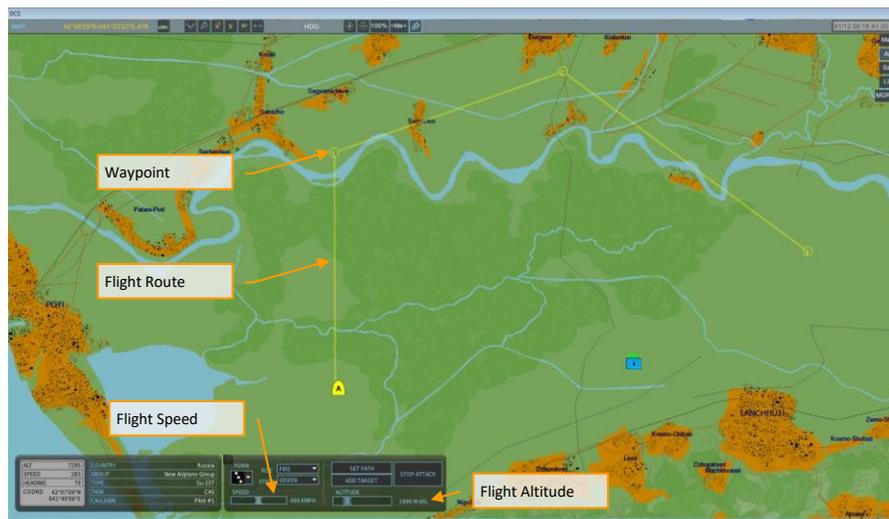


FIGURE 29. ASSIGNING AIR ROUTES

As with ground groups, you can also use this menu to set formation, Rules of Engagement (ROE), and response state.

Assigning Targets

With the desired air group selected, press the ADD TARGET button and then click on the desired target. This can be either an air, land, or sea target. If the selected air group has valid weapons to attack the selected target, a green icon will be placed over the target and follow it if the target moves. If the target is invalid for the unit's weapons, the icon will be red.

After assigning a valid target, you can press the STOP ATTACK button to cancel the attack.

After the air group has destroyed the assigned target, it will resume its navigation route.



FIGURE 30. ASSIGNING AIR TARGETS

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