Ka50 BLACK SHARK 2

Quick Start Guide

DCS SERIES

HEALTH WARNING

Please read before using this computer game or allowing your children to use it.

A very small proportion of people may experience a seizure or loss of consciousness when exposed to certain visual images, including flashing lights or light patterns that can occur in computer games. This may happen even with people who have no medical history of seizures, epilepsy, or "photosensitive epileptic seizures" while playing computer games.

These seizures have a variety of symptoms, including lightheadedness, dizziness, disorientation, blurred vision, eye or face twitching, loss of consciousness or awareness even if momentarily.

Immediately stop playing and consult your doctor if you or your children experience any of the above symptoms.

The risk of seizures can be reduced if the following precautions are taken, (as well as a general health advice for playing computer games):

- Do not play when you are drowsy or tired.
- Play in a well-lit room.
- Rest for at least 10 minutes per hour when playing the computer game.

Insert the "DCS: Black Shark" disk in your DVD drive and allow the automatic installer to begin. Then follow the on-screen instructions.

Note! You need to be logged into Windows with an account that has Administrator rights in order to install the game.

If the installer did not start automatically, please go to My Computer, double-click on your DVD drive, find the Setup.exe program, and double-click on it to start the installer.

During the installation you will be prompted to select game difficulty level. The default selection is "Game" mode. If you are new to aircraft simulators, or if you prefer console "arcade" games, it is recommended to keep this option selected. You can always change or adjust the difficulty level later from within the game from the Options screen.

This guide assumes that the game is configured using "Game" settings.

Note! Some anti-virus and security programs (DrWEB anti-virus for example) can conflict with the game and cause severe performance degradation when using a joystick.

The indicators of such a conflict are:

1. When moving the joystick the game slows down considerably.

2. If the joystick remains untouched, game performance returns to normal.

If you have encountered this conflict, you will need to adjust your anti-virus accordingly to add the game as a trusted exception.

Note: On the disc there is a "Video" folder that contains a few Producer's Note videos. You can play it with any video player.

Two game manuals in a PDF format are located in the Doc folder:

DCS-BS_gui_manual_eng.pdf - it is user interface and editors manual. All pages, elements and functions of user interface and editors are described in it.

DCS-BS_flight_manual_eng.pdf - it is a Ka-50 flight manual. The modeled Ka-50 helicopter, all necessary information is described for flights and combat implementation.

ACTIVATION

Using the serial number printed on the back of this Quick Start Guide, you will be required to activate your DCS purchase prior to playing. During the activation process, the copy protection system will create a hardware profile of your system and compare that to your current system each time you start the game. If there has been a significant change to your computer like replacing significant hardware items or changing your Operating System, you may be required to reactivate your purchase. You are provided eight Activations. If you require more after using all the ones provided, you may contact customer service at:

http://forums.eagle.ru/forumdisplay.php?f=38

To avoid using Activations, we recommend using the Deactivation option as explained later in this document.

Generally, the Automatic Activation method is the preferred method and will generally work best if you have an Internet connection. Enter your Serial Number printed on the cover of the Quick Start guide and follow the directions. If that fails, you may use one of three Manual Activation methods:

1 - By e-mail.
Using manual activation, you will be provided a hardware code that can be sent to the provided e-mail address for activation.

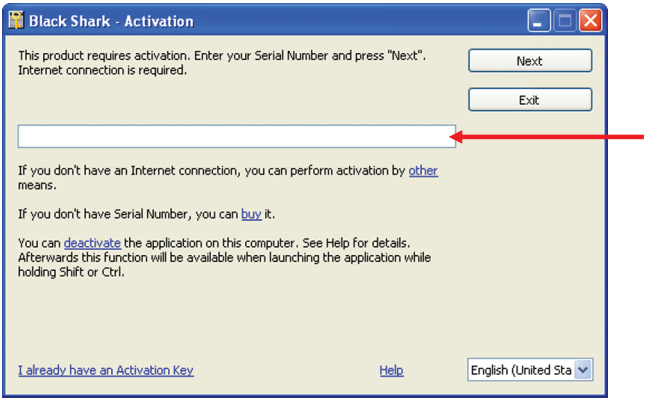
2 - By ProActive WEB site.
A hardware code will be entered into the ProActive WEB site for activation.

Activation by E-mail

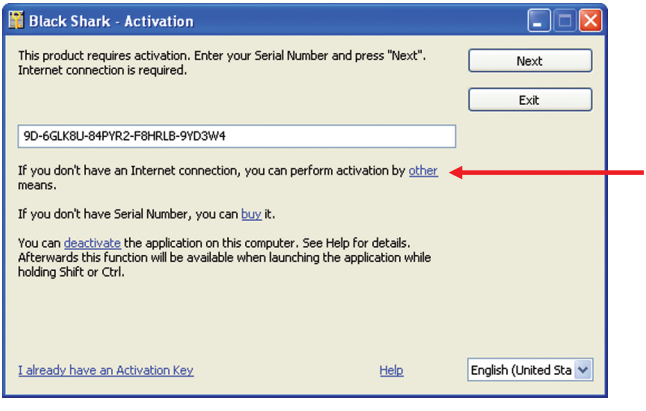
(Internet connection is necessary)

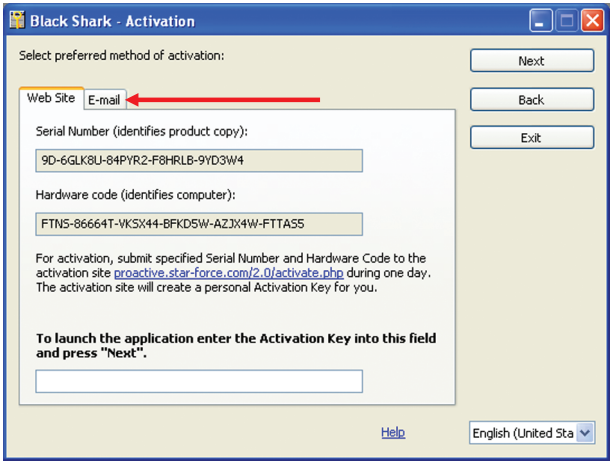
Install DCS on your computer and launch it.

Enter the Serial Number written on the cover of your Quick Start guide.

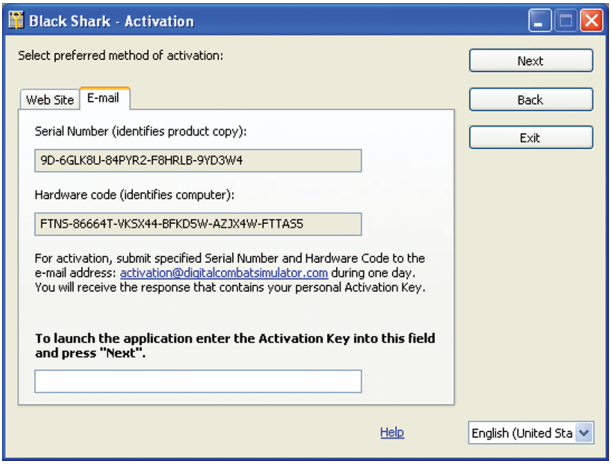


Press the **Next** button. If the automaticactivation failes, press the **Other** link in the Activation window.





Press the **E-mail** tab in the Information window. If you cannot send an e-mail now, copy your Serial Number, Hardware Code, and e-mail address shown in the Information window.



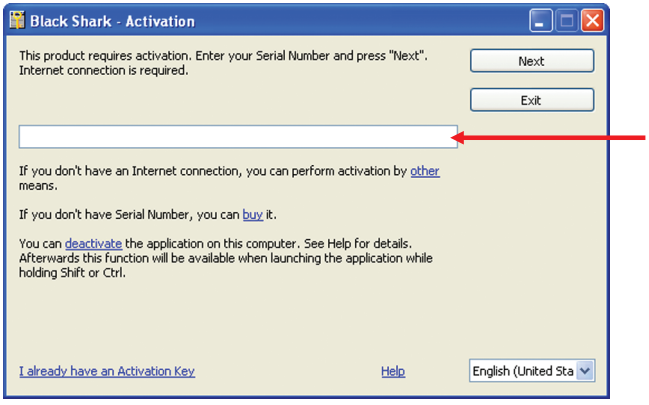
When convenient, open your e-mail and send your Serial Number and Hardware Code to the indicated e-mail address. You will be sent an Activation Key shortly afterwards. Enter your Activation Key to the Activation field and press the **Next** button. Activation by e-mail will now be complete.

Activate by ProActive Website

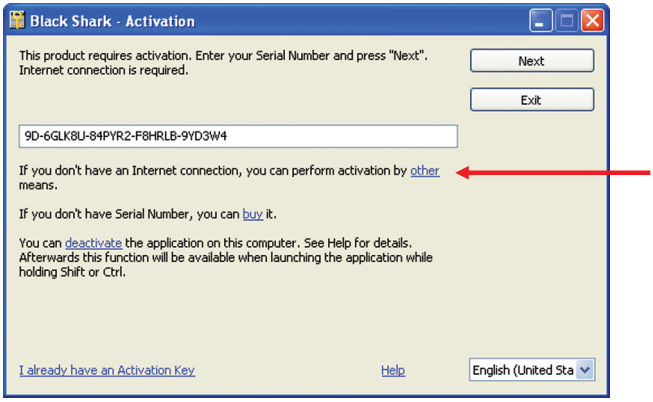
(Internet connection is necessary)

Install DCS on your computer and launch it.

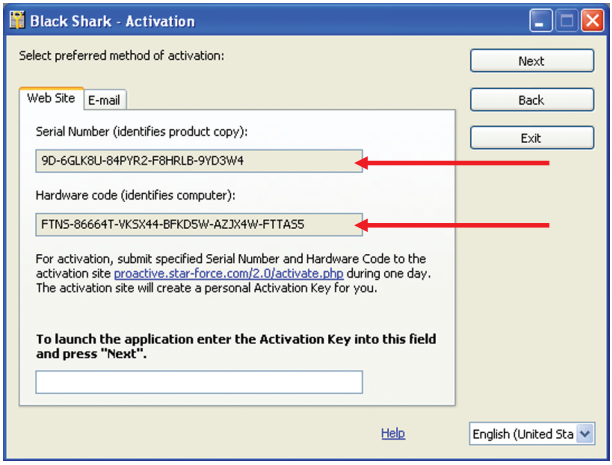
Enter the Serial Number you obtained when purchasing DCS in the Activation window.



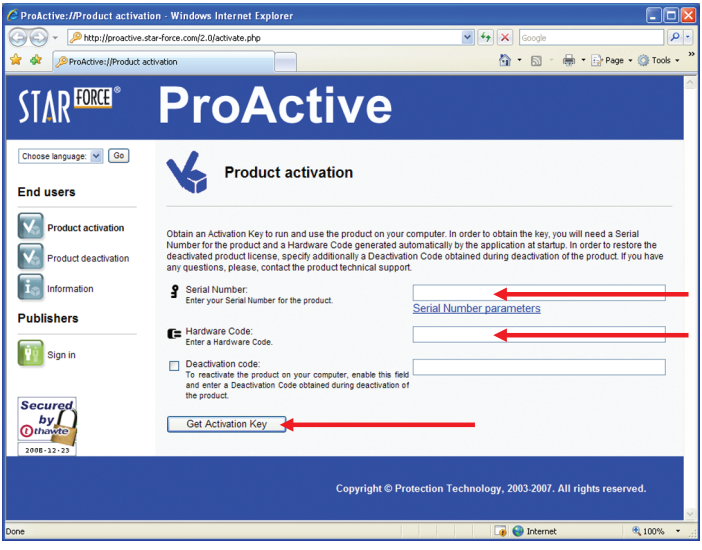
Press the **Next** button. If the automaticactivation failes, press the **Other** link in the Activation window.



Your Hardware Code is then displayed in the Activation window; copy this and save it to a safe location.

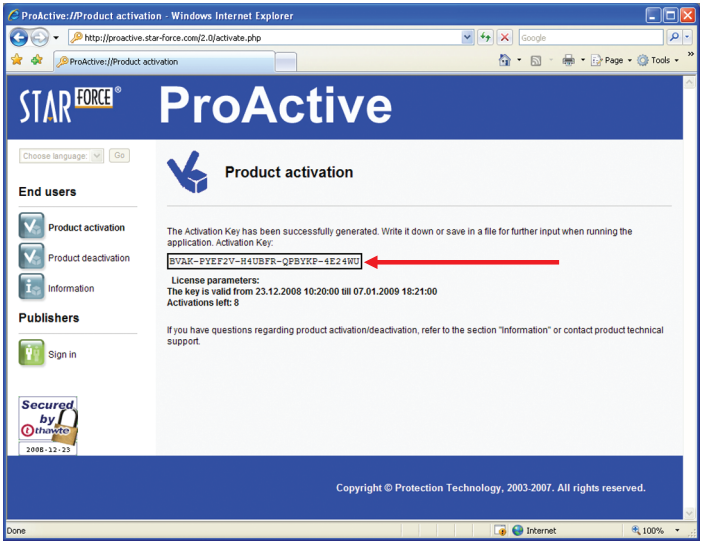


Press the **proactive.star-force.com/2.0/activate.php** link in the Information window. In case your computer is not connected to the Internet, you can write down your Serial Number and Hardware Code and go to the **proactive.star-force.com/2.0/activate.php** using another computer.



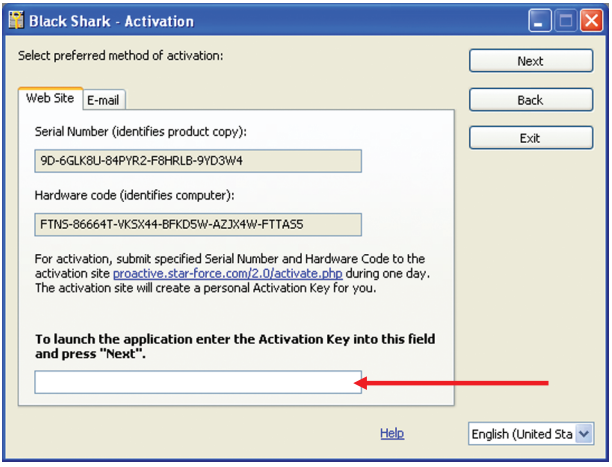
Enter the Serial Number and the Hardware Code to the Serial Number and Hardware Code fields on the website and press the **Get Activation Key** button.

You will then be provided your Activation Key.
Copy this to a safe location.



Enter the Serial Number and the Hardware Code to the Serial Number and Hardware Code fields on the website and press the **Get Activation Key** button.

Enter the Activation Key to the Activation window and press the **Next** button.



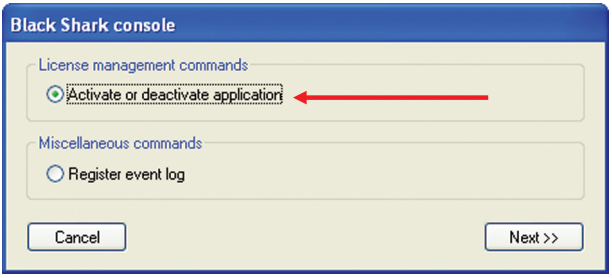
Activation by **ProActive Website** will now be complete. If restrictions on DCS usage have been implemented, the Activation window will display the details. Press **OK** to launch the DCS.

To avoid using a product Activation, you may first Deactivate your installation of DCS, make your changes, and then Activate again. You are provided 10 Deactivations.

You can launch the deactivation procedure by one of the three methods:

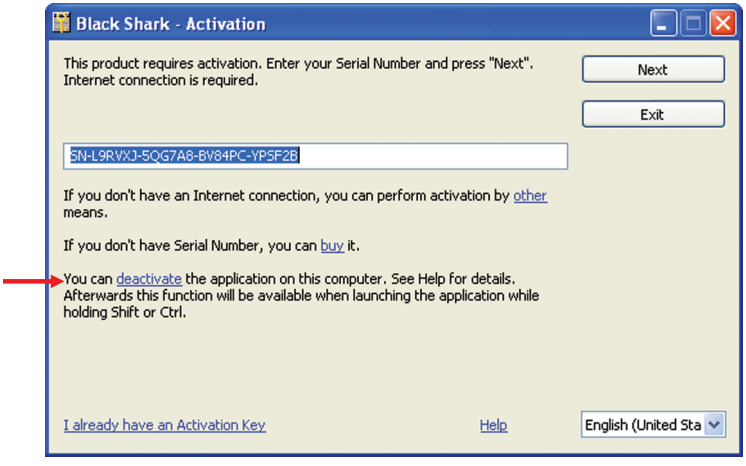
Run the **protect.exe** file, which is located in your **Ka-50\bin\stable** folder.

Select the "**Activate or Deactivate Application**" command as displayed in the window, then press **NEXT** button.

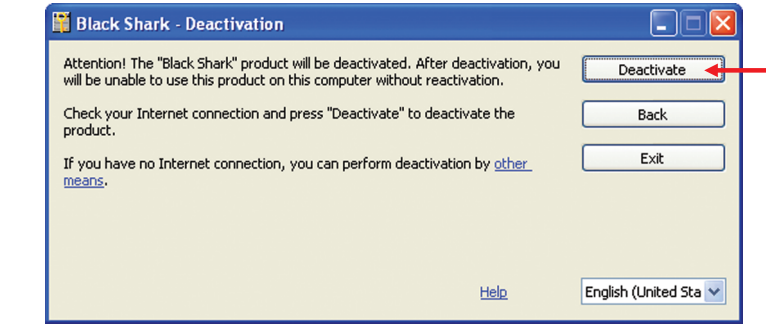


DEACTIVATION

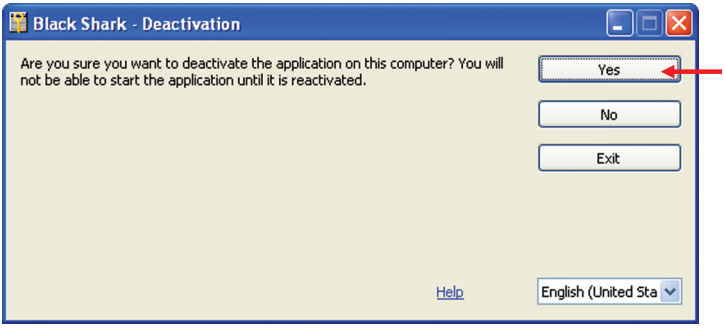
Press the **'Deactivate'** link in the displayed window (the Serial Number used to Activate the application is indicated in this window by default).



After pressing **'deactivate'** a window requesting deactivation confirmation is displayed.

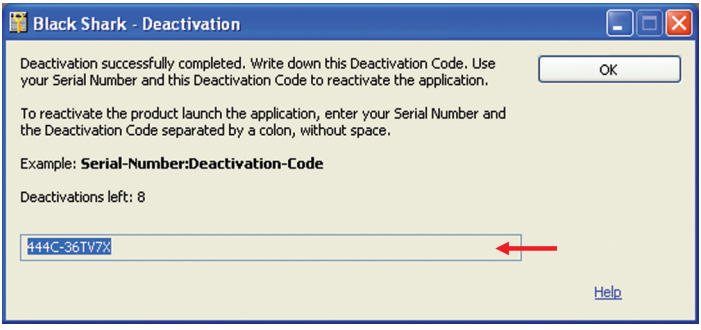


Press the "**Deactivate**" button; the following message is then displayed.



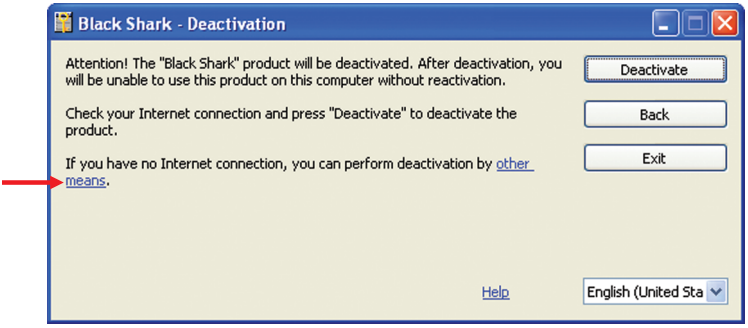
Confirm the application deactivation with the "**Yes**" button.

Your Deactivation Code is then displayed in the Deactivation window. Copy the code to a safe place so that later you can use it along with the Serial Number to reactivate the application.

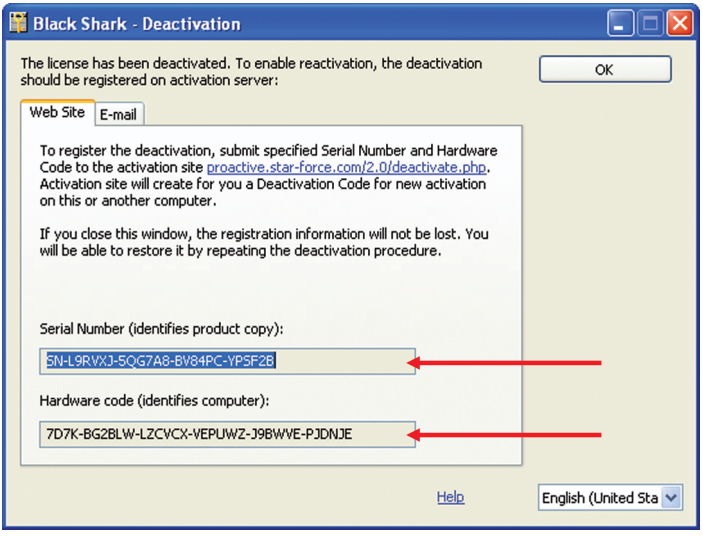


Manual deactivation

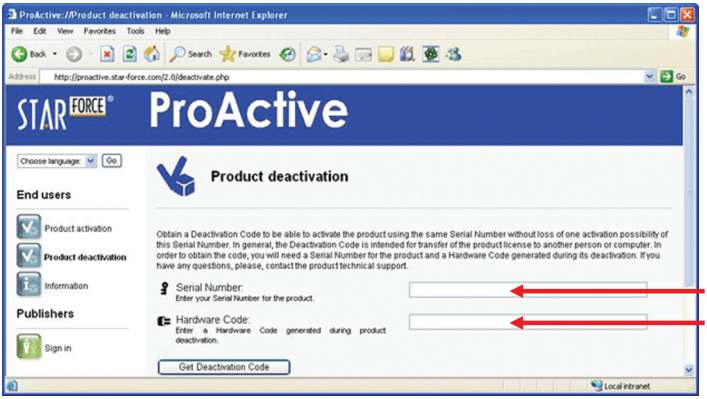
If automatic deactivation failed or your computer is not connected to the Internet, a window suggesting manual deactivation appears. You can call it via **"other means"** link in the Deactivation window also.



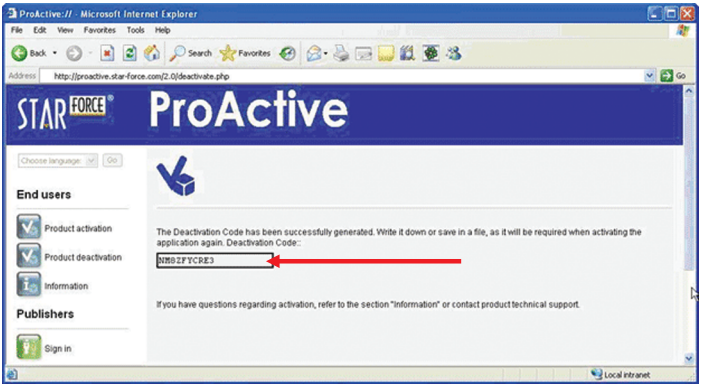
After that the following window is displayed. You can also switch to this window by pressing the **"other"** link in the deactivation confirmation window.



Type the indicated Serial Number and Hardware Code in the corresponding fields in the **End users** section of the ProActive website.



Press the **"Get Deactivation Code"** button. You will then be provided a Deactivation Code. Copy the code to a safe place so that later you can use it along with the Serial Number to reactivate the application.

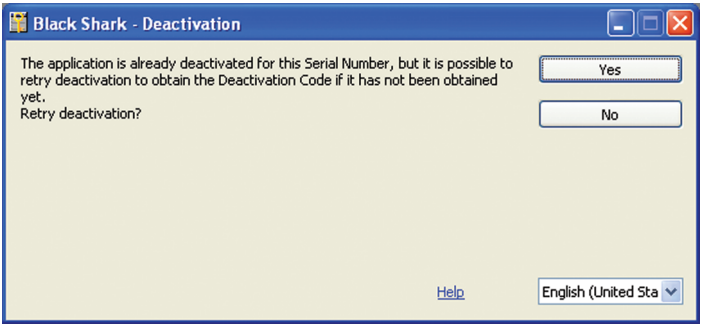


As with Activation, if an Internet connection is not available, you can transfer the obtained Hardware Code and Serial Number to the activation server by one of the methods mentioned about Activation.

Deactivation Retry

As mentioned above, DCS is actually deactivated on the computer after the deactivation confirmation. If you could not complete the process after that for some reason, you can repeat the process to obtain the Deactivation Code. The same should be done to obtain the Deactivation Code once more, if it was lost before you could use it for reactivation.

To do so, launch the deactivation application once more using one of the described methods. After deactivation confirmation, a window requesting the repeated deactivation confirmation is displayed.



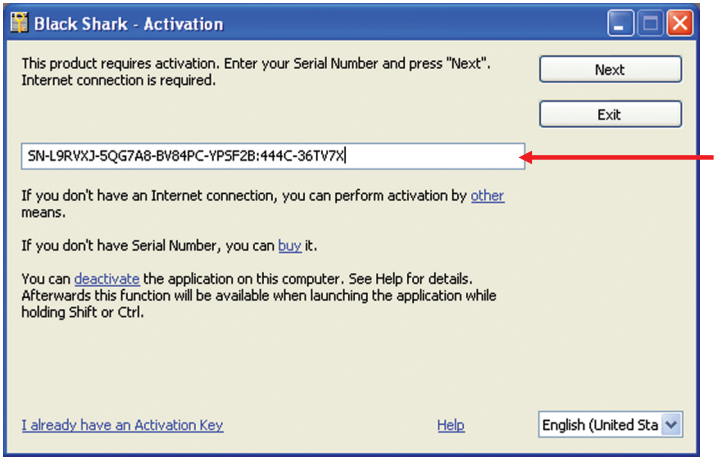
After this confirmation, the above-mentioned process to obtain the Deactivation Code begins.

Application Reactivation

The reactivation method is determined in the same way as a normal Activation.

Automatic Reactivation

The process of Automatic Reactivation is similar to the Automatic Activation except one thing: the *Deactivation Code* should be typed in after the *Serial Number* and a colon in the corresponding edit box.



Manual Reactivation

Manual Reactivation is similar to Manual Activation: go to the activation website and enter the Serial Number, Hardware Code and the Deactivation Code to the corresponding fields. After pressing "Get Activation Key", you will be provided an Activation Key to Reactivate and run DCS.

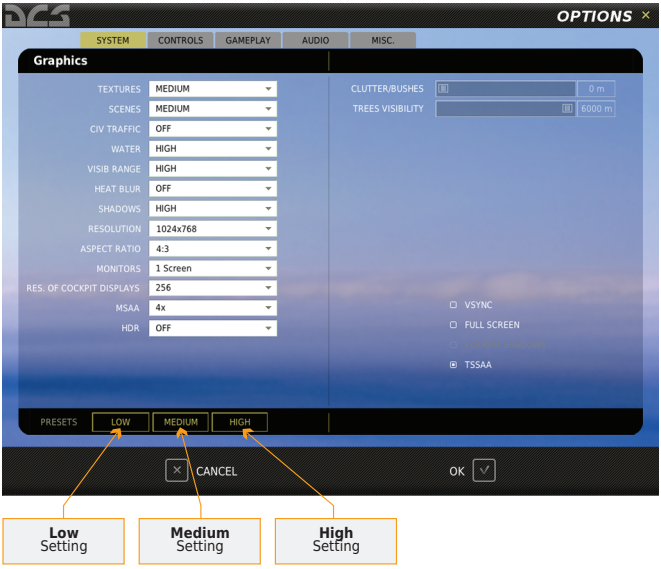
After the installation has completed, you will need to configure the game.

First, launch the game by double-clicking on the **DCS: Black Shark 2** icon on your desktop.

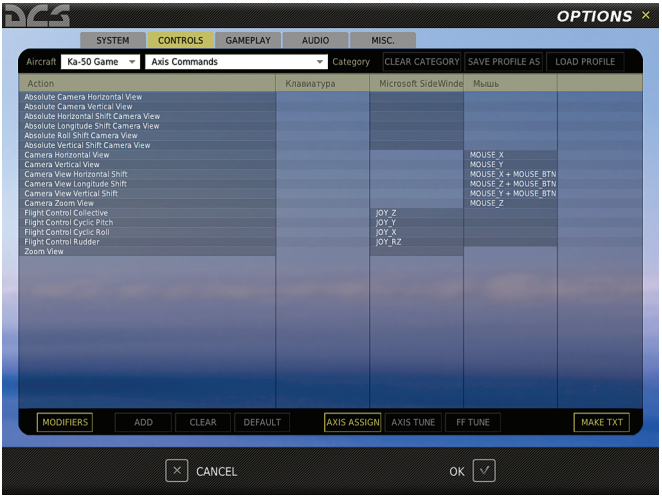
Once the game has launched, you will see the following screen:

From the **Options** screen, press the **System** tab at the top of the screen. This will open the System window that will let you adjust graphics, audio, input, and game play settings.

There are three presets for graphics configuration: **Low**, **Medium**, and **High**. You will need to specify the setting that corresponds to the processing power of your computer. We recommend you start with **Medium** settings, and if the game performance is inadequate, you should switch to the **Low** option.



Please refer to the user interface manual for a detailed description of each game setting option.



It is recommended that you play the game by controlling the helicopter with a joystick. To configure your joystick, please follow the instructions below.

If you do not have a joystick, you can still control the helicopter using the keyboard. In this case, press the **OK** button once you have adjusted the **Graphics** settings and skip to the next chapter.

Press the **Controls** tab to configure your joystick. You will then need to verify joystick axis assignment.

Select **"Ka-50 game"** in the aircraft selection drop down list and **"Axis Commands"** in the **Category** drop down list. Your screen should look similar to the picture above once selected.

Find the column corresponding to the name of your joystick. At this point you will need to verify helicopter control axis assignments and adjust them if necessary:

- Rudder
- Stick control, roll
- Stick control, pitch
- Collective control

To assign a desired joystick axis to any of these commands (**Rudder** for example), please do the following:

- Select the box in the table that is in your joystick column and the row corresponding to **Rudder**. Click on it to highlight it.
- Press the **CLEAR** button. This will clear any existing command assignment (if one exists).
- Press the **ADD** button. When you see the new popup window, move the joystick or axis hat that you wish to assign as the Rudder control back and forth to its limits.
- Press the **OK** button once your control is detected.

Adjust the helicopter pitch, roll, and collective controls using the same procedure.

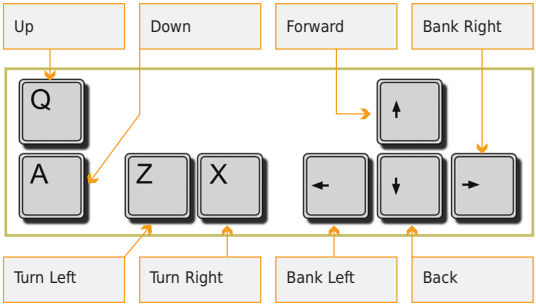
If your joystick does not have a rudder control axis, it is best to leave the rudder control assignment blank. You will then be able to use the keyboard **[Z]** and **[X]** to control the rudder.

Press the **OK** button in the lower screen section after you have adjusted all axis. This will save all your input settings.

You can control the Ka-50 helicopter by either joystick or keyboard. However, a joystick with a rudder axis is strongly recommended. We have provided sample control configurations for both joystick and keyboard below.

Here is a sample control configuration using a 4-axis joystick with a 8-position POV and 6 buttons.

Keyboard Controls...



It is easy to control the helicopter when in simplified mode, and is therefore recommended for players who are not familiar with flight simulators.

Pressing Forward **[Up]** or Back **[Down] on the keyboard** or moving the joystick forward and back will make the helicopter accelerate forward or backward. When the button is released, the helicopter will maintain the desired velocity.

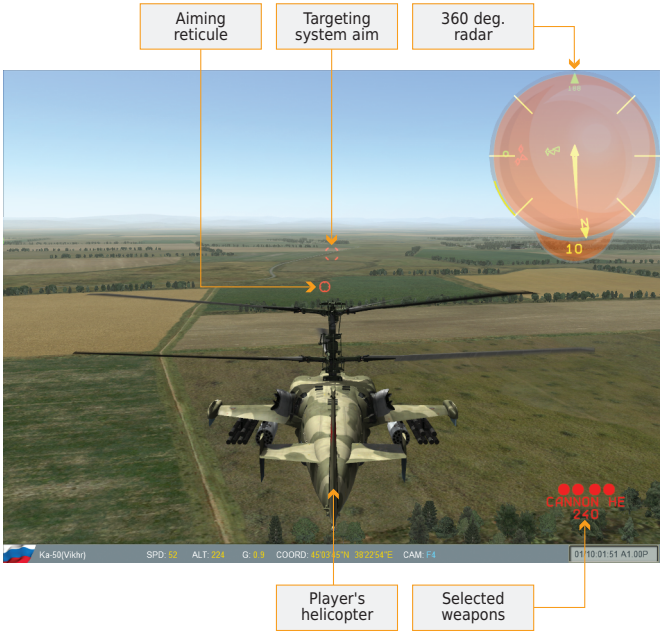
Pressing Roll Right **[Right]** or Roll Left **[Left] on the keyboard** will cause the helicopter to roll to the side, and releasing the button will keep the helicopter at the set roll angle. To fly the helicopter with a **level roll angle**, use the appropriate roll control in the opposite direction or press **[LCTRL-T]** to reset helicopter trim.

Pressing Turn Left **[Z]** or Turn Right **[X]** on the keyboard will cause the helicopter to turn to the left or right (yaw motion), and releasing the button will keep the helicopter flying the current course.

Pressing Up **[Q]** or Down **[A] on the keyboard** will result in the helicopter gaining or losing altitude, and releasing the button will keep the helicopter flying at the current altitude.

In simplified flight mode, the helicopter will maintain the desired altitude during all maneuvers. This makes flying a lot easier.

Players can fly using a third-person, chase camera view when the Game mode is ON. In this view, the camera is located directly behind the helicopter. Players can also jump into the cockpit by pressing **[F1]** (to go back to third-person view press **[F4]**).



The **F4** view presents the player with the following indicators:

AIMING RETICLE.
The location on the ground is the selected weapon's aimpoint.

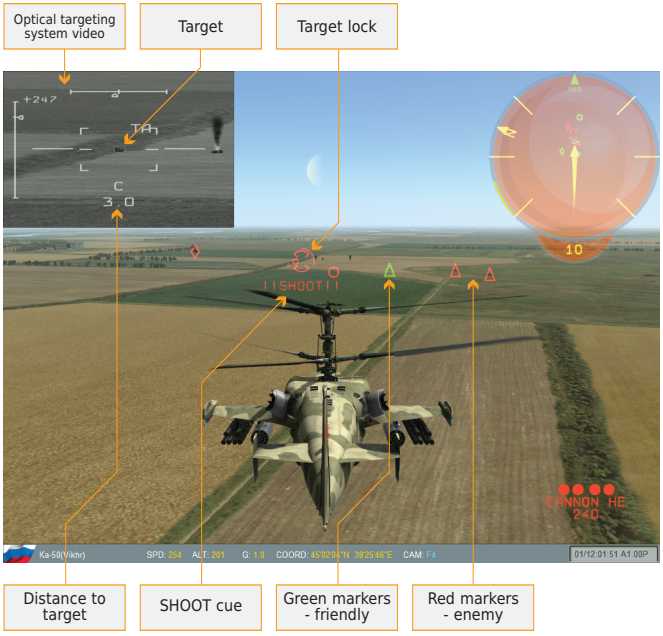
TARGETING SYSTEM AID.
The location where the helicopter's nose is pointing.

360 DEGREES RADAR.
The radar screen displaying all the units around the helicopter.

PLAYER'S HELICOPTER.
The view directly behind the player's helicopter.

SELECTED WEAPONS.
Indicates currently selected weapon system including its type and remaining ammo.

- **ATGM** - anti-tank guided missiles.
- **ROCKETS** - unguided air-to-ground rockets.
- **CANNON HE** - cannon, high explosive rounds.
- **CANNON AP** - cannon, armor piercing rounds.
- **UPK** - under-wing external cannons.
- **BOMBS** - under-wing bombs.



OPTICAL TARGETING SYSTEM VIDEO.
The video from the "Shkval" optical targeting system.

TARGET. The target locked by the targeting system.

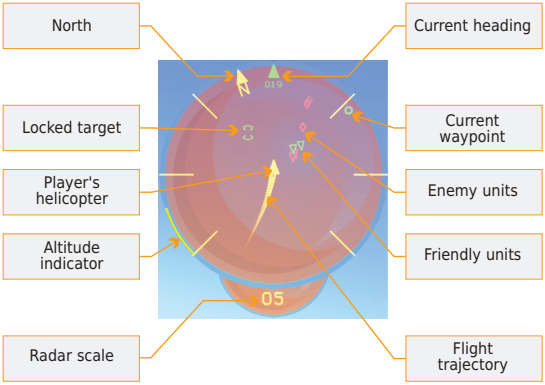
TARGET LOCK. The indicator around the currently locked target.

ATTACK COMMAND.
Flashing indicator that indicates you can now engage the target.

DISTANCE TO TARGET. Distance to target in kilometers.

GREEN MARKERS - FRIENDLY.
Friendly objects are marked with green indicators.

RED MARKERS - ENEMY.
Hostile objects are marked with red indicators.



LOCKED TARGET.
Currently locked target. Green indicates friendly unit.

PLAYER'S HELICOPTER.
Helicopter's location is always assumed in the center.

FLIGHT TRAJECTORY. The trace of helicopter's flight path.

ALTITUDE INDICATOR.
Helicopter's altitude above ground. One tick - 300 meters

NORTH. Compass north indicator.

RADAR SCALE. Radar screen scale (1, 5, 10, 20, or 50 km).

CURRENT HEADING.
Indicates helicopter's current flight direction.

CURRENT WAYPOINT. Helicopter's current waypoint.

ENEMY UNITS. Red markers - enemy units.

FRIENDLY UNITS. Green markers - friendly units.

SIMPLIFED AVIONICS - INDICATORS

	Red	Aiming reticle.
	Red	Currently selected weapon aim point.
	Red	Locked enemy target indicator including range scale and maximum engagement range cue.
	Green	Locked friendly target indicator including range scale and maximum engagement range cue.
	White	Aimpoint marker. Outside the firing range.
	Red	Aimpoint marker. Inside the firing range.
	Green	Current waypoint.
	Red	Enemy SAM.
	Green	Friendly SAM.
	Red	Enemy vehicle.
	Green	Friendly vehicle.
	Red	Enemy aircraft.
	Green	Friendly aircraft.
	Blue	Airbase, landing area.

Below is a list of basic commands used in simplified game mode.

- Automatic helicopter start: [**Home + LWin**]

- Lock center aircraft: [**P**]
- Lock nearest aircraft: [**O**]
- Lock previous aircraft: [**[**]
- Lock next aircraft: [**]**]
- Lock center ground target: [**V**]
- Lock nearest ground target: [**B**]
- Lock previous ground target: [**N**]
- Lock next ground target: [**M**]
- Reset target lock: [**Delete**]

- Radar, increase scale: [**=**]
- Radar, decrease scale: [**-**]

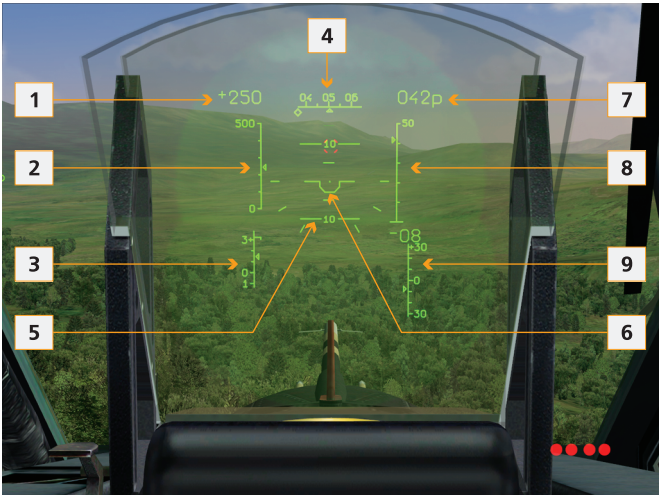
- Cycle weapons: [**D**]
- Fire selected weapon: [**Space**]
- Release flares: [**Insert**]

- Outside view: [**F4**]
- Cockpit view: [**F1**]

Cockpit gauges and indicator are shown below.

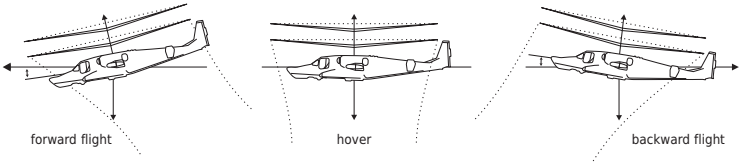
1. **Variometer.** Vertical velocity indicator
2. **Artificial horizon.**
3. **Accelerometer.**
4. **Velocity indicator.**
5. **Radio altimeter.** Indicates altitude up to 300 m.
6. **Rotor RPM indicator.**
7. **Barometric altimeter.** Indicates altitude above sea level.
8. **Clock.**
9. **Rotor blades pitch indicator.**
10. **Planning and navigation indicator.**
11. **«Shkval» television system.**
12. **Backup artificial horizon.**
13. **«ABRIS» navigation system.**
14. **Engines temperature indicator.**
15. **Engines RPM indicator** in percent.
16. **Fuel level indicator.**

Flight information is displayed on the **HUD** (heads-up display). Below is the description of the **HUD** when viewed in navigation mode.

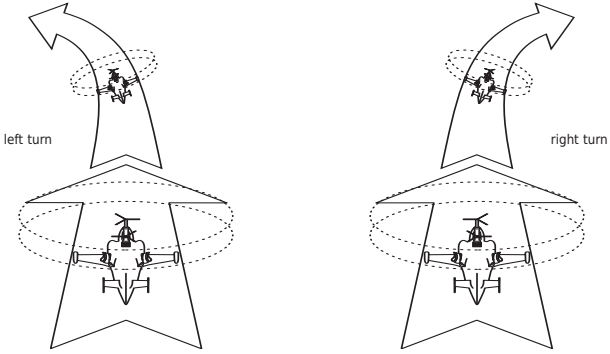


1. **Velocity indicator.**
2. **Velocity scale** from 0 to 500 km/h and **velocity indicator.**
3. **G scale and indicator.**
4. **Heading scale and indicator.**
5. **Pitch indicator.**
6. **Roll indicator.**
7. **Altitude indicator.**
   The **"P"** indicates altitude from the radio altimeter.
8. **Radio altimeter indicator and scale.**
   The scale will appear when the altitude is 50 m or less.
9. **Vertical velocity indicator and scale.**

To fly forward, move the helicopter's nose down (push the stick forward). To slow down, raise the nose up (pull the stick back). If you keep the helicopter's nose raised after it stopped moving forward, it will begin to fly backwards. Use the collective ([Num+]/[Num-] keys) to increase/decrease the engine RPM and with it the amount of lifting power being generated by the rotors.

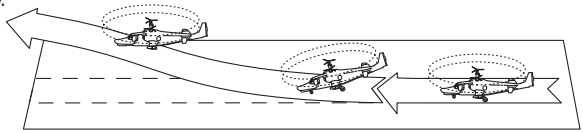


When maneuvering the helicopter out of a hover position, keep in mind that the vertical component of lift is reduced as the lift vector moves forward, which means the vertical velocity will decrease and the helicopter will begin to lose altitude. To compensate for this, increase collective in order to maintain altitude. Once airspeed increases with the air moving over the rotor disc faster, the vertical component of lift will increase again and collective may need to be reduced to maintain altitude.



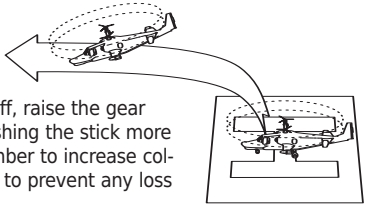
When hovering, use the rudder pedals or [**Z**]/[**X**] keys to turn the helicopter left/right. Some joysticks include a stick twist function to control the rudder. If the helicopter is in forward flight, turn by rolling in the direction of the turn (left/right arrow keys or stick input to the left/right). Turn rate can be increased with some additional rudder input into the turn and a slight pull of the stick.

The helicopter can takeoff vertically from a standing position or after some initial acceleration on the ground (called a rolling takeoff). A vertical takeoff requires the most power, so a rolling takeoff is a better option when carrying a heavy payload or when taking off from a high altitude location (such as in the mountains), where a vertical takeoff isn't possible, because the air density is insufficient to lift the helicopter vertically.



When performing a rolling takeoff, first make sure the parking brake is off [**LSHIFT + W**] and the wheel brakes are not held down ([**W**] key). Carefully increase collective [**Num+**]. Push the stick slightly forward to begin moving forward and gaining ground speed. As the ground speed reaches 30-40 km/h, gently increase collective and pull the stick back to lift the helicopter off the ground. Raise the landing gear ([**G**] key) and continue to accelerate to 100-120 km/h, which is a good speed for gaining altitude.

To perform a vertical takeoff, gently increase collective [**Num+**]. At the same time, also push the stick forward to prevent the helicopter from tipping backwards. After lifting off, raise the gear ([**G**] key). Then lower the nose by pushing the stick more forward to begin accelerating. Remember to increase collective as you move the stick forward to prevent any loss of altitude.



One of the essential skills of helicopter control is hovering. Learning how to hover well requires a lot of practice. The Ka-50 FCS features an automatic hover mode that will maintain a hover for you. However, this mode should only be engaged [**LALT + T]** after a stable hover is established manually.

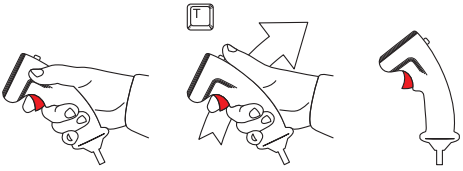
Like takeoff, the helicopter can perform either a vertical or a rolling landing. First, remember to lower the gear ([**G**] key). When performing a rolling landing, ensure your landing speed is not greater than 70 km/h. As your altitudes reaches about 1 meter above the ground, gently pull the stick back to raise the nose and reduce the sink rate. After touchdown by the main landing gear, gently lower the nose for nosewheel touch down to prevent damage to the nose gear.

To perform a vertical landing, try to enter a stable hover approximately 1 meter above the touchdown point, then slightly reduce collective to lower the helicopter to a landing. Doing this accurately and confidently requires some practice.

The FCS of the Ka-50 makes the pilot's life much easier, but a lack of understanding of the FCS or its misuse can cause severe control problems. The FCS stabilizes the helicopter's altitude, bank angle, pitch angle, and heading.

The FCS channels are turned on and off individually using the four blue buttons in the cockpit. The image above shows the four FCS channels of Altitude (**B**), Bank (**K**), Pitch (**T**), and Heading (**H**), with the Altitude channel disabled. In the simplest case, the FCS remembers the helicopter's flight parameters when it is trimmed and attempts to maintain these during flight.

To avoid having to hold the stick forward all the time when flying the helicopter, press and release the Trimmer button ([**T**] key), then return the stick to the neutral position. Doing so will enter the helicopter's flight parameters at the point when the Trimmer button was released into the FCS, which will attempt to maintain the programmed parameters. Trimming should only be done when the helicopter's flight parameters are stabilized. You can cancel trim and revert the FCS to neutral by pressing [**LCTRL + T**].



1. Establish a stabilized flight attitude

2. Press and release the Trimmer button, return the stick to neutral

3. The helicopter will continue to fly in the trimmed attitude

Because the FCS includes a Heading channel, every time the helicopter is trimmed, the FCS will attempt to keep the helicopter at the designated heading. This means you need to trim often and whenever the helicopter's heading is changed with a turn.

If the trimming system proves too difficult to master initially - no problem. Simply disable the Heading FCS channel (blue button "**H**" in the cockpit) and fly without using the trimmer.

The helicopter is equipped with the **ABRIS** satellite navigation system, which makes navigating fairly easy.

To turn on the digital moving map display, press the right-most button on the ABRIS, labeled **NAV** on the indicator (1):

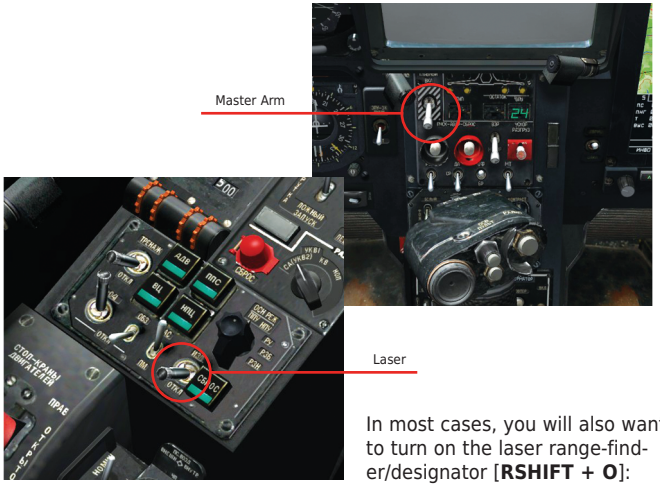
The flight plan (route) will be indicated on the map as a series of blue lines connecting the flight plan waypoints. To change the map scale, first press the button labeled **MAP** (2):

NAV mode

MAP mode

Then press the **SCALE+(«МСШТБ+»)** (3) / **SCALE-(«МСШТБ-»)** (4) buttons to adjust the scale as desired.

Before entering a combat area, turn on the Master Arm [**LALT + W**]:

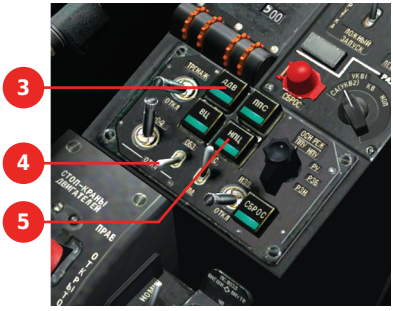


In most cases, you will also want to turn on the laser range-finder/designator [**RSHIFT + O**]:

Weapons are carried by the Ka-50 on four external hardpoints - two on each stub-wing. Weapons are chosen by selecting either the outer hardpoints ([**I**] key) (2) or the inner hardpoints ([**Y**] key) (1).

The "Shkval" targeting system can automatically track stationary and moving targets using a space-stabilized camera. One of the easiest ways to point the Shkval to the target is the Helmet-Mounted Designator (HMD) system.

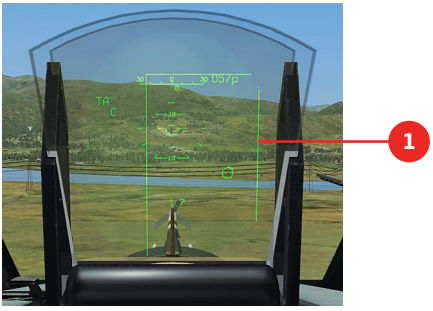
First, turn on the HMD by clicking the switch (4) or pressing the [**H**] key. Using the view control keys ([**Num2**], [**Num4**], [**Num6**], [**Num8**]), place the HMD reticle over the target (1). Press the [**O**] key to turn on the Shkval targeting system. If desired, the HMD can be disabled with another press of the [**H**] key or by setting the switch to the down position (4). Press the Shkval slew commands [**;**] [**,**] [**.**] [/] to position the tracking gate of the targeting system directly over the target (2). You can zoom the targeting system to get a better view of the target by pressing the [**=**] key. To return to normal zoom, press the [**-**] key.



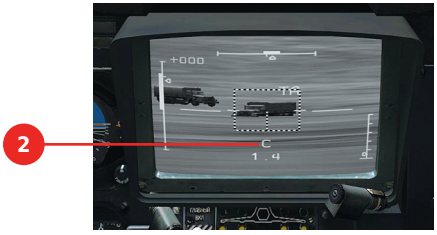
If the target is moving, turn on Ground Moving Target mode by pressing the corresponding button in the cockpit (5) or the [**N**] key. Place the tracking gate over the target. Adjust the size of the tracking gate by pressing the [**[**]/[**]**] (open bracket/close bracket) keys so that it surrounds the target. Lock the target by pressing [**ENTER**]. If necessary, the Lock button can be held down while the location or size of the tracking gate is adjusted for a better track of the target. The Ka-50 also features an Automatic Turn to Target mode ([**Q**] key) or pressing the button in the cockpit (3), which will automatically turn the helicopter in the direction of the designated target. To reset the targeting system, press [**BACKSPACE**].

Using the Gun

The Ka-50 is equipped with a cannon mount with a limited degree of motion on the right side of the fuselage. Engaging targets with the cannon is quite simple: lock the target using the Shkval targeting system and select the gun by pressing [**C**]. Turn the helicopter so that the target is inside the gun tracking gate on the Heads Up Display (HUD) (1).



When the target is placed inside the gun tracking gate and is within firing range, the "C" shoot cue appears on the HUD and Shkval monitor (2), which means you are cleared to fire. Press [**SPACE**] to fire the gun.



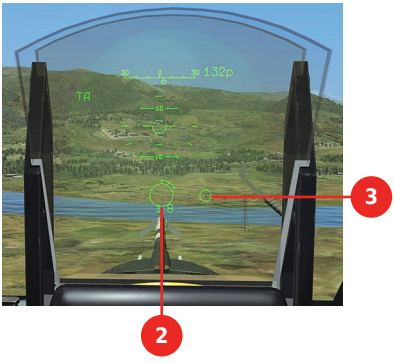
Remember to disable the gun by pressing [**C**] again if you want to use other weapons.

Unguided rockets are also quite easy to use. Unfortunately, unguided rockets are not very precise and are generally used against area targets, such as a group of lightly armored vehicles.

To use unguided rockets, first prepare the helicopter for combat as described above and select the hardpoints loaded with unguided rockets.

Place the rocket aiming reticle on the HUD over the target (1) and press the Weapons Release Button [**RALT + SPACE**] to fire the rockets. To maximize accuracy of fire, try to maintain stable forward flight without any side-slip.

The "Vikhr" anti-tank guided missile system is far more accurate than unguided rockets and can be used to effectively engaged individual targets, such as a tank. Begin by preparing the helicopter for combat as described above. Lock the target using the Shkval targeting system. Select the outer hardpoints to bring up the Vikhr. The Vikhr uses the laser system to guide to the target, so don't forget to turn on the Laser Range-Finder/Designator [**RSHIFT+O**].

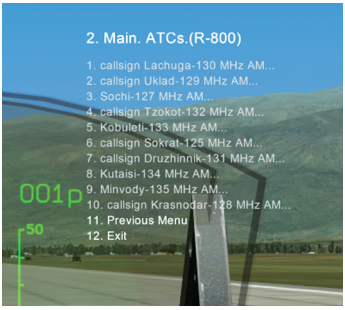


Turn the helicopter to place the target (3) (small circle) inside the Vikhr aiming reticle (2) (large circle). If the target is within firing range, the "C" shoot cue will appear on the HUD and Shkval monitor. Press and hold down the Weapons Release Button [**RALT+SPACE**] to fire the missile. Once the missile is launched, all you have left to do is watch it fly down range and hit the target.

Using Bombs and Radio Communications

The Ka-50 is capable of dropping bombs. Unfortunately, there is no aiming reticle specifically for bombs, so they have to be delivered visually. Prepare the helicopter for combat as described previously and select the hardpoints loaded with bombs. Fly the helicopter toward the target and release the bombs so that they will fall near it by pressing the Weapons Release Button [**RALT + SPACE**].

The Ka-50 is equipped with the R-800 radio set, which is used to communicate with wingmen, ATC, FARP controllers, etc. To use the radio, first open the radio menu by pressing [\]. Then use the [**F1**] - [**F12**] keys as diagrammed in the menu to communicate with your desired recipients.



Intelligent use of your wingmen can greatly increase your combat effectiveness.

Aircraft Trim

When using the simulation level flight model of the Ka-50, using trim properly can have a great affect on how easy it is to fly and control the aircraft. Without properly setting trim, you will find yourself fighting the aircraft.

When trim is set by pressing and releasing the trim button, the cyclic is locked at the location when trim button is released. All further movements of the cyclic are then from that starting point until trim is reset. After you release the trim button, be sure to move your joystick back to its neutral, center position within .5 seconds. This is because the trim position has re-positioned the center position of the virtual cyclic and if you continue to hold the stick at the position it was when trimmed, the stick position will be added to the new trimmed position.

Generally, you want to re-trim the aircraft if airspeed changes dramatically. If you remember to trim with pitch changes, you will find the aircraft much easier to fly.

The trim function is not working after pressing the trim button and neutralizing the joystick; the cyclic in the cockpit also returns to neutral.

If you have other controllers plugged in, such as a racing wheel, they are probably being recognized by the sim and are commanding the cyclic to re-center. You can try either unplugging the unused controllers or disabling the FF in-game function in the configuration files. To do so, open \...\Config\Producer.cfg and change the "ForceFeedbackEnabled" line from "true" to "false".

The Ka-50 will pitch up having trimmed the helicopter in level flight after pressing the trimmer again.

The flight control system is not perfect and accumulates errors in the angles/speed (depending on the mode) it is assigned to maintain. When you press the trimmer for the second time, the new angles/speed assignments include the errors accumulated since the previous trim setting. To avoid excessive pitch changes when trimming, trim often when airspeed has changed.

Additionally, as is the case with many other helicopters, the cyclic trim required to hold the Ka-50 still on the ground and the trim required to hover are not the same. Ground trim is somewhat aft of hover trim. In other words, if the pilot trims the helicopter to keep it standing still on the ground with the rotors spinning, he will have to push the stick forward when taking off to prevent the helicopter from pitching back. Because most flights in the simulation are started on the ground, the ground trim setting is used as the default neutral position of the virtual cyclic. This position is designed to prevent the helicopter from rolling on the ground, not to keep it level in flight. In flight, it pitches the nose up. To prevent this, simply re-trim the helicopter for take-off. This is a necessary procedure in real life.

Also note, canceling trim in flight will revert the virtual cyclic to its default neutral position and, once again, pitch the helicopter up. The real helicopter is not equipped with a "cancel trim" function. It was added for the benefit of flight simmers based on high demand, but should not be used as part of the Ka-50 simulation.

How the trimmer works and best to use it.

Like in most other helicopters, the trimmer mechanism on the Ka-50 is activated by the trimmer button (cyclic). The trimmer mechanism then neutralizes the forces on the cyclic and pedals, which maintains the helicopter controls in their trimmed position. In the Ka-50, the trimmer is also used to command the Flight Control System to maintain aircraft flight parameters when the Pitch, Bank, Yaw FCS channels are on (as they should normally be). However, it's important to understand that the FCS is commanded by the trimmer when the button is **released**, not when it's pressed. The FCS stabilization functions are temporarily disabled while the trim button is held down. Once the button is released, the stabilization functions are reactivated under the newly commanded flight parameters.

It's also important to remember that the FCS in the Ka-50 has 20% authority over the motion range of the flight controls. In some cases, it may be unable to maintain commanded trim settings because of this limitation.

The best way to simulate proper trim mechanics in the simulation is through a Force Feedback joystick. However, because many flight simmers use non-FF sticks, the solution implemented is to introduce a short pause in control input when the trim button is released, to give the player a moment to recenter his joystick. The player's physical joystick and the virtual forces on the helicopter controls are then both neutral.

In reality, the trim button is used very often and you would be advised to do the same. Trim the helicopter whenever your flight parameters change, but be sure to only trim when the helicopter flight path is stable. Trimming in increments may help you avoid undesired control input when trimming.

You may trim in either discreet presses/releases of the button or by holding the button down while you maneuver the helicopter into the desired position. Once the helicopter is stable, you can release the trim button to command the FCS to stabilize the current flight parameters. In reality, the second method is not advised or typically used by Ka-50 pilots, because holding down the trimmer button while maneuvering the helicopter can easily lead to oversteering.

Hover the Ka-50

Although there are many different methods to do this, one of the most simple is to increase pitch to 10-15 degrees, while simultaneously lowering the collective to maintain altitude. Pay close attention to the VVI to minimize altitude changes and use pedal input to maintain heading. Prevent the helicopter from greater than 3 m/s negative VVI or you may enter a vortex ring state. When you are in a stable deceleration, you can trim the helicopter in this position while you bleed off the airspeed. Keep watching the VVI and provide collective input as needed to keep the needle as close to '0' as possible. Generally, as you approach a low airspeed, you will need to increase the collective back up to prevent the helicopter from falling into a vortex ring state (uncontrollable vertical descent). When your speed falls to around 10 kph, press the auto-hover button and set trim again when the nose falls to the horizon.

Smooth collective input is key to a successfull hover entry. Begin with gentler and longer decelerations (lower pitch angles). As you get better, you can become more aggressive and increase the pitch angles. Be careful, however, hot-shot pitch-ups can not only throw you into the vortex ring, but also break the helicopter!

To adjust your hover position, move the controls smoothly and re-trim to set the FCS to maintain the new position. Do not resume normal flight while in auto-hover.

Once established in a hover, you may want to lock a ground location with the Shkval and use the automatic turn to target to stabilize your yaw movement.

VISTA

Because of the way Windows Vista handles memory, we strongly recommend not playing missions with large unit counts spread over a large area when using Vista. Windows XP however can handle such missions much better, but even Windows XP can crash if mission sizes are made too large.

Vista Installation Note: To install DCS on a Vista system, run the *setup.exe* executable as the system administrator (right click and select). If you still experience problems, you can try disabling Vista's User Account Control (UAC) when starting Black Shark for the first time.

Multi-core Processors

DCS: Black Shark uses a modified version of The Fighter Collection Simulation Engine (TFCSE), which was not originally designed to take advantage of multi-core processor technologies. Nevertheless, such systems do generally provide better game performance as a result of their native capabilities. You can try manually setting the core affinity for DCS to all of the CPU cores, which may boots your game performance. To do this, Alt-Tab out of a running mission, set the CPU affinity for DCS and Alt-Tab back in. You will have to do this every time you run the sim.

External Controllers

The trim is reversed on the Microsoft Force Feedback 2 joystick.

This is a peculiarity of the device. Normal axis functionality can be restored by checking the "Swap Axes" checkbox in the "FF Tune" panel of the Controls set-up window in the game options.

The default collective axis is assigned as Slider_0 instead of Axis_Z.

This is a peculiarity of the device. To use Saitek throttle controllers as the collective axis, you need to manually assign this function in the Controls set-up window in the game options.

TrackIR is not working in Black Shark.

Black Shark requires the latest TrackIR drivers (v. 4.1.036 at the time of writing) and game updates.The latest drivers and updates are available on the official Natural Point website:

http://naturalpoint.com/trackir/06-support/support-download-software-and-manuals.html.

Make sure you run the "Check for Game Updates" option next to "Check for Software Updates" in the TrackIR software.

The sim does not respond to some keyboard commands including un-pause.

If you are running NewView, this is probably the source of the problem. You need to either Alt-Tab out and back into the sim or rename the NewView folder prior to starting the sim.

For non-FF sticks, is it possible to increase the time provided to neutralize the joystick after trimming the helicopter (i.e. the time between releasing the trim button and the trim setting taking effect).

Open the following file: \...\Scripts\Aircrafts\Ka-50\FMOptions.lua. Look for the following line: "TrimmerTauInverse". The lower this number, the longer the trim setting delay. Warning! Altering this value will likely result in a failure to reproduce track recordings accurately when they include a player-controlled helicopter.

Print out a keyboard/HOTAS commands list

Navigate to the following folder: \...*Config**Input**Input_parser*\. Make sure you read the readme file contained in the folder. To generate command lists in English, run the *Input_to_TXT_eng* batch file. To generate command lists in the language based on your OS, run the *Input_to_TXT_national* batch file. This will generate command list text files for all input devices in the same folder. You can then open the text files in a text or spreadsheet editor, such as MS Excel and edit the information as required.

Mission Editor

AI aircraft will not attack targets assigned to them in the Mission Editor.

This is a complicated subject and there are a few possibilities. Most likely, the attack profile is not properly set in the route. Make sure the AI attack waypoint *and the consecutive waypoint* are placed such that the AI will always detect the target. Target detection is not an instantaneous event - it's a continuous process that begins at the attack waypoint and ends at the consecutive waypoint, unless the AI locates the targets in between. The AI scans the assigned target area and may not always detect the targets immediately after reaching the attack waypoint. Therefore, you should place the consecutive waypoint further in the general direction of the target to give the AI more time to search for targets.

Also, make sure you pick the right tool for the job. Because DCS: Black Shark models the individual capabilities of attack sensors on each aircraft, some are better suited for a particular mission than others. For example, an Su-24 equipped with air-to-ground radar and optics will likely detect targets much further than an Su-25, which is limited to attacking what the pilot can detect visually. In some cases, such as night time or poor visibility conditions, some aircraft may be severely limited in or completely unable to detect targets without targeting aids, such as illumination flares or target firing activity. DCS also accounts for cockpit visibility restrictions of each aircraft. In some cases, the aircraft may miss targets that are outside of the cockpit view limits. This problem can be minimized by setting the post-attack consecutive waypoint at a lower altitude and/or slightly off-center. This may help the AI locate the targets by placing the target area "above the rail." For more information on target detection logic in DCS, see the following thread (some of the information may no longer be accurate):

http://forums.eagle.ru/showthread.php?p=457097#post457097

Finally, the attack routine depends heavily on mission factors, such as threats detected in the target area, number and type of munitions carried on-board, wind conditions (the AI will line up/down wind to drop free-fall bombs), line-of-sight obstructions, attack waypoint speed and altitude, the number of targeting areas in the route, etc. Experiment with different settings to become familiar with AI attack routines.

Display buildings on the Mission Editor map.

Click on the Map Options icon (binoculars) and check the 'Buildings' option.

The Activate Group trigger is not working.

Make sure you set a Time Hold value to the group. Time Hold can be set in the route settings of the ground vehicle group properties. For example, you can set it to 23 hours or 99 days.

Populating FARPS

It is best to use the map ruler. The FARP is 180 m. across. When placed due north, approximately 1/3 of the left side is the empty area where you can place units. Here is an example:
http://forums.eagle.ru/showpost.php?p=575170&postcount=9

Also, it may be helpful to add a 90 m. (radius) trigger zone over the center of the FARP to give you a better visual landmark.

Finally, keep two instances of Black Shark open - one singleplayer and one multiplayer. Edit the map units in the singleplayer and save, then Alt-Tab into multiplayer and launch the mission to check. Given the continuous Alt-Tab'ing, it may be desirable to run the simulation at a lower resolution and not in full screen mode when doing this.

Multiplayer

The game will not un-pause when hosting a dedicated server.

Currently remote administration software will not transmit the 'pause/break' key to the remote computer. You will have to re-map the pause key to a more common key, such as 'p'.

Select payload in a multiplayer game.

The payload can be chosen "live" in the mission by connecting with the ground maintenance crew. Make sure you are in a serviceable area (airbase apron or FARP). When stationed on a FARP, appropriate resources, such as a weapons depot, will need to be present in your proximity. Communication with the ground crew is possible by "voice" if the cockpit door is open and the APU/engines are off or by radio when the cockpit door is closed and/or the APU/engines are running. To link up with the ground crew by radio, you need to configure the radio accordingly (turn on the intercom, switch the radio to ground link ("???")).

Aircraft Systems

The back-up ADI seems to be malfunctioning.

If the back-up ADI is not functioning, you either failed to provide it power (switch by your right elbow) or to uncage it. To uncage the back-up ADI, simply roll the ADI knob to the left and it will "unlock" the safety. To cage it back up, press and hold the right mouse button to pull the knob back while rolling the mouse wheel to roll the knob to the right and "lock" it in place.

The back-up ADI accumulates significant errors in flight. To avoid this, you can simply leave it caged until the times comes for you to use it.

Using the Ka-50 Data Link.

The Data Link can be used to store target positions or other points of interest (POI) that were sent to you by your wingman or that you locked up with the Shkval. You can also send these information to your wingman if you want them to move to or recon a certain location, or to attack a designated target. The following assumes that you have set up your targeting system, data link, frequency and ID according to the manual.

How to store targets/POI in the ABRIS:

1. If your wingmen send you data that you want to store, just click the send/mem (???/???) button after you received the EKRAN message and the target type and wingman number buttons started to flash. You will then see the target/POI on the ABRIS map.

2. If you want to store targets/POI using the Shkval, first lock them up, then press the corresponding target type button and after that the send/mem button. Do not press any of the wingman buttons, as you do not want to send data.

Important note:
after you have stored new targets/POI, reset the targeting system.

Sending targets/POI to your wingmen:

1. You can datalink targets/POI that are stored in the ABRIS. To do that, select the desired target by pressing the corresponding target type button, then press the button for the wingman number. When both buttons and ABRIS icons flash, press the send/mem button to send the data.

2. You can also send target points (TP) stored in the PVI navigation computer. To do that press the TP (??) button on the PVI and the number of the target point. The target point will be shown as a flashing square on the ABRIS. Select the wingman and press the send/mem button.

3. Finally you can send a location although it has not been stored in the ABRIS/PVI. To do that, lock it up with the Shkval, press the respective wingman number button and then send/mem. Do not press any target type button as you do not want to select an already stored target.

Important notes: In case 1 and 2 the Shkval has to be caged. When storing or selecting a target in the ABRIS, be sure that you do not have a taget point selected from the PVI and vice versa, otherwise you will get problems because the computer does not know if you want to use the PVI or the ABRIS.

After sending the target location/POI, you have to tell your wingman via radio what you expect him to do, i.e, fly to the datalinked position, recon the position or attack the datalink-designated target(s).

Ingress Points (IP): If you want your wingman to use an ingress point for attacking a datalinked target or flying to a POI, first transmit the ingress point, then the target position/POI and finally send your orders via radio. The wingman will then fly to the ingress point and turn to the target/POI once he reaches it. Note that ingress points can only be used in conjunction with other target points, otherwise wingmen ignore them.

END-USER LICENCE AGREEMENT

IMPORTANT - YOU SHOULD CAREFULLY READ THE FOLLOWING BEFORE INSTALLING THE SOFTWARE.

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