Graviteam Tactics: Mius-Front
Graviteam (R)

User guide
Version 2016.12.15

CONTENTS

1 QUICK START

Used terminology:

Unit	single squad or vehicle (tank, APC, gun, etc.)
LMB	left mouse button - used for selection
RMB	right mouse button - used for orders or mode changing
MMB	middle mouse button (mouse wheel)
Operational mode	turn-based 2D map mode, in which platoons are moved
Tactical mode	3D mode in realtime, in which battles resulted from the movement of forces in the operational battle are simulated

To start the game click on the QUICK BATTLE menu item, in the appearing list in the TRAINING section, select the type of training mission (it is recommended to start from the "Basic training" mission). Each training mission tells interactively about certain aspects and features of the game.

Table A.1 (in appendix A) shows tactical symbols used in various armies for designation of the forces on a map. To change the display, symbols and color scheme of the forces, click on the OPTIONS item in the main menu, and in the "Game and realism settings" section in the "Markers" group, select the required.

To make a screenshot press **[F12]** key. Resulting image will be placed in the "users\scrshots" folder in the root folder of the game. Images are saved in JPEG format with .jpg extension. Each screenshot name consists from gtmf (game name) with a suffix of form: date in YYYY:MM:DD format, time since the start of the day in seconds and the sequence number of the current game session. To create a screenshot without the interface (in tactical battle or statistics mode) press **[Ctrl+Back]** key combination to disable the interface. Then make a screenshot with **[F12]** key, and then enable the interface again with **[Ctrl+Back]** key combination.

1.1 Questions and answers

1	How to select infantry only, without APC?	There are two ways: hold left **[Shift]** and box select it, or click **[LMB]** on the squad's secondary icon. Only the 2nd sections of squads will be selected in this case.
2	How to select APC without infantry?	Hold left **[Alt]** and box select - only the 1st sections of squads (or vehicle) will be selected. The same can be done by holding left **[Alt]** or **[Shift]** and clicking on the quick select panel, to select the first or second section, respectively.
3	Why morale and stamina icons disappear in the unfolded information panel (to the right)?	This occurs if the characteristics (morale и stamina) are at a satisfactory level for which there are no categorical grades, but only numerical.
4	How to save a battle as mission?	On the operational map, click **[RMB]** on the stylized flame in the center of battle, set options (name, brief description, image) in the appearing table and press the save button.
5	Why some orders icons are colored blue and some modifiers red?	Not all combinations of modifiers are valid for every set of selected units. Modifiers (and orders) which will be not executed or will be executed improperly for the selected set of units are indicated in red (blue) color.
6	How to set a wedge formation for vehicles?	Select only vehicles, set the line formation in 2 or 3 lines.

7	How to make soldiers to move crawling?	Set the covert movement modifier and do not select the fast move modifier. The destination point must not be further than 200 meters from soldiers location.
8	How to call aviation in battle in operations?	In operations, in most cases aviation arrives according to the script, and is not called by spotters.
9	How to make observed fire with crews of machine guns and other heavy weapons?	Turn on the AI control mode for those who will be firing, and select target through the platoon commander. Make sure that the target is in the zone between the minimum and maximum range of fire!
10	I have no tactical diagrams above vehicles, what to do?	For tactical diagram to appear, it is necessary for vehicle to have a target or set it manually by hovering the cursor over target in the line of fire indication mode.
11	What the transfer of units under AI control affects?	Automatic laying of wire links, firing at external target designation (designated manually or automatically), automatically leaving trenches.
12	I installed a DLC, but I cannot find it, what to do, where to find it?	Most DLC constitute a pair of operations and a new battlefield. Battlefield can be selected in the quick battle editor. Operations appear in the CAMPAIGN section, in the list of operations in the corresponding section.

2 OPERATIONAL MODE

In this mode, each command platoon (company commander, battalion commander, regimental commander) has commander's name (or number) shown below it. Below platoon (on in table) a circle of various colors can be displayed: black - platoon will be disbanded, green - platoon has high characteristics, red - platoon has low characteristics, yellow - platoon is historical (a brief background is provided in the FORCES LIST), bright blue - units located in the reserve (several platoons in the same square) and ready for battle.

Each platoon consists of two parts: main and auxiliary, which is selected via reinforcement strategies (Table 2.2).

Table 2.1 - Unit types

⚑	Command squad and commanders	👁	Scouts and snipers (unmounted and motorized)
🧍	Rifle, SMG and infantry squads	🏃	Artillery and air spotters
🔫	Machine-gun squads and heavy weapon squads (ATRs, grenade launchers, flamethrowers)	🛻	Assault guns and tank destroyers
🚚	Motor-rifle squads on APC	🛡	Tanks
⚔	Heavy infantry weapons (mortars, HMGs)	🔫	Towed artillery
🚒	Transport vehicles	ℂ	Signallers
✂	Repair crews	*	Defeated unit
⬚	Empty "slot" in excess of organizational table	.	Empty "slot" according to organizational table

Table 2.2 - Platoon reinforcement strategies*

✚	None, but can be selected	No reinforcement
(tank icon)	Firepower	Platoon is given tanks and SPG or motorized infantry and other reinforcing means with high mobility
(infantry icon)	Manpower	Platoon personnel is reinforced with rifle and infantry units or motorized infantry
(anti-tank icon)	Anti-tank	Platoon is given artillery or SPG and special anti-tank means, or even tanks
(anti-personnel icon)	Anti-personnel	Platoon is given heavy infantry weapons: grenade launchers, mortars and machine-guns or guns or special means
(truck icon)	Mobility	Platoon will be given transport vehicles: trucks and APC without infantry
(support icon)	Reinforced support	Artillery and air spotter will be added to platoon
(car icon)	Patrol	Platoon will be reinforced with scout units (motorized or unmounted) and snipers or motorized infantry
(supplies icon)	Supplies	Auxiliary units will be added to platoon: commanders or signallers or supply troops and repair crews.

*types are listed in the descending order of priority

Table 2.3 - Designations in the platoons table

	Able to attack		Not able to attack
	Not able to move		Able to move
	Platoon is digging in		Historical platoon
	Upcoming reserves with individual units		HQ reserve unit or from the reserves
	Is equipped with captured weapons		
	Take from the reserves all platoons of this company		Take this platoon from the reserves and swap with selected
	Replace defeated platoons with a reserve		Set optimal reinforcement strategies

Battlefield in the operational phase consists of two parts: reserve squares on the perimeter where battles cannot be held (marked by hatching) and active squares located in the center. Each square can contain 1 to 4 platoons. Platoons can move (depending on their mobility) and attack the enemy in areas of contact. Attack platoons (tanks, motorized infantry, scouts, and company commanders) can attack at long range, in this case, as a result of battle, you can move two squares forward along the line of attack. Such attack is initiated with **[Ctrl+RMB]**. In this case, the defender has advantage in forces entering the battle.

Attack on one square **[RMB]** is available to any unit (which can attack) and allows to capture 1 square during the battle, while the attacker will have advantage in the number of troops. Any attack blocks all platoons which can attack in the square where it starts.

Support platoons (guns, ATR, mortars, etc.) and auxiliary platoons (spotters, supply, headquarters, depots, transports and repairers) cannot attack on their own. Also, platoons with characteristics below normal (indicated by a red marker on the map) cannot attack. These platoons are not blocked at the beginning of attack.

In the tactical battles phase (after player's and AI's turn) the most important battle is automatically selected. Area and platoons which enter the battle are highlighted. Also highlighted are the direction of attack which led to the battle and squares which cannot be captured (black squares). Click **[LMB]** on the highlighted area starts the tactical battle phase in the 3D mode. If the attack is successful and the enemy squares are captured as a result of the battle - attacking platoons move into the captured squares automatically.

Square can have a key point, operational points, which determine victory or defeat, are awarded for capturing and holding such points. Capturing and holding of operational points is the main goal of the game.

Platoons, which not moved, nor attacked, dig trenches. Defeated platoons marked by a black marker are disbanded before the beginning of tactical battles.

Units under AI control can move out of the reserve squares into the territory controlled by the player forces, forcing them out. This occurs if the total power of the AI forces exceeds the power of player forces in the square they want to move to. However, the presence of defenses is taken into account for the player forces. Forced out player forces move to neighboring squares. Typically, locations of mass ingress of the AI forces are indicated in the briefing, and correspond to those where this happened in the real battles.

Ammo replenishment and reinforcement of forces occurs at the beginning of each turn automatically. Replenishment is carried out according to logistic lines, which are shown when headquarters, supply trucks, depots, repair crews or draft platoons are selected. Logistic lines are indicated by circles of different colors,

depending on the supply intensity (from green to red in descending order). The outer circle indicates capability of fuel replenishment.

Headquarters can supply ammo and fuel while being located in the reserve squares, other platoon types must be located in the active zone. Green dashed lines indicate the fact of supply or reinforcement. Repair units take equipment for repair, and then return it to the original platoon. Draft platoons are disbanded after depletion of personnel.

3 TACTICAL MODE

Tactical mode consists of the following phases: deployment, initial orders, combat and after battle statistics. To quickly select units a special panel at the bottom of the screen is used (Fig.3.1), special abilities of platoons and squads are shown in Table 3.1.
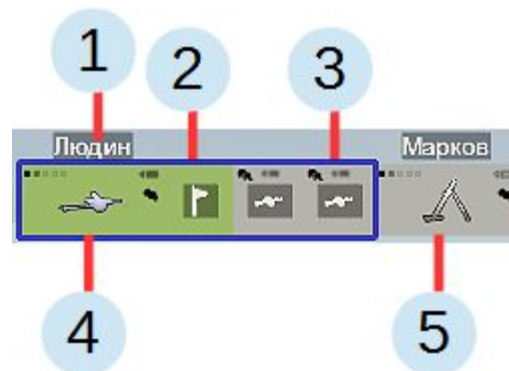
Fig. 3.1 - Quick selection panel	
1) Name (number) of platoon commander	2) Selected squad
3) Squads in the selected platoon (outlined by blue frame) - AT ammo and smoke rounds availability is marked at the top	4) Selected platoon, platoon "state" is conventionally marked at the top, AT ammo and smoke rounds availability are to the right
5) Inactive platoon, clicking **[LMB]** makes it active selecting the first squad of the platoon, clicking **[RMB]** selects all squads	

Table 3.1 - Special parameters of platoons and squads

✚	Platoon has an air spotter	●		Unit is a spotter
⚐	Platoon has a forward artillery observer	◆		Fire adjustment in progress (directing aircraft)
⬟	Smoke is available	●		Fire adjustment in prepare (calling aircraft)
◀■	Effective AT means are available	I II I II		Unit consists of two sections, which can be selected (and operated) independently
◀□	AT means are available	I II		First (main section) is selected **[Alt]**
▬	Unit cannot capture key points or control territory	I II		Second (support section) is selected **[Shift]**

3.1 Deployment phase
Deployment mode interface is shown in Fig.3.2-3.3.
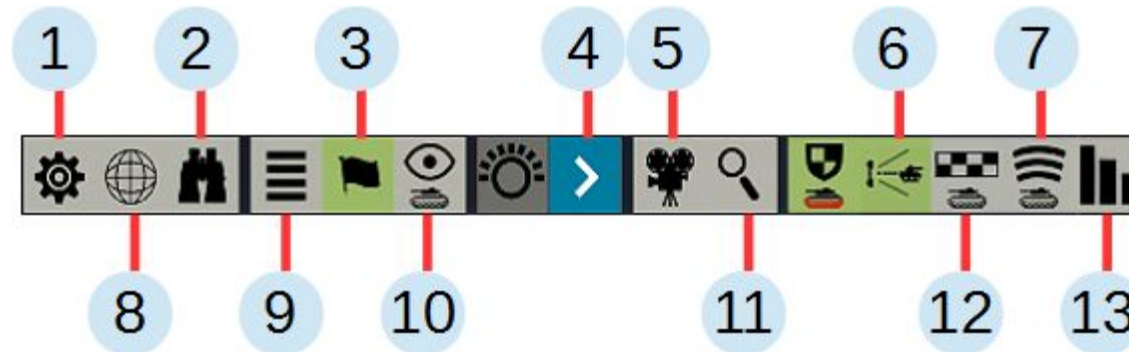
Fig. 3.2 - Unit deployment mode interface

1) In-game menu **[Esc]** (Table 3.2)	2) Binocular mode **[Tab]**
3) Show key points **[F5]**	4) Finish deployment **[Enter]**
5) Lock camera on selected unit **[Q]**	6) Show sight sectors **[{]**
7) Show area of sight **[Ctrl+~]**	8) Switch to map **[F10]**
9) List of displayed information **[F8]** (Table 3.3)	10) Visibility map type: tank, soldier standing, soldier lying **[F2]**
11) Find and jump to selected unit **[Ctrl+F]**	12) Show line of fire **[~]**
13) Show firing capabilities of the selected squads and vehicles **[Ctrl+']**	

Table 3.2 - In-game menu interface elements **[Esc]**
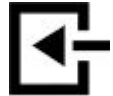
⬅	Back to game **[Esc]**	📖	Return to operation (only for battles from an operation)
⌨	Redefine controls	⚙	Return to main menu
🏃	Withdrawal	🔽	Restore default movement orders settings
↩	Restart battle	⬇	Save battle state before exiting
⏻	Exit game	🔍	Return to after battle statistics **[Esc]**

Table 3.3 - Information display control **[F8]**

Directions	Indicate the direction of every unit
Compass	Show cardinal direction marks above the horizon line
Command hierarchy	Display the command hierarchy using moving arrows
Orders cost	Show the cost of each order on the interface buttons
Paths	Display paths from given movement orders and control points
Paths and orders	Display the same as above, and, additionally, direction on the current target and current movement point for each unit
Fire lines	Show all fire lines of every spotter using small crosses
Countdown	Show time until the battle end, instead of absolute time
Fire sectors	Show designated fire sectors for all units, not just selected
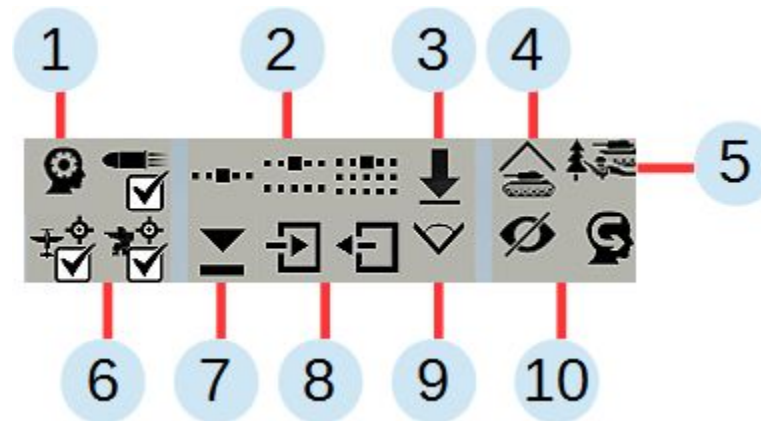
Fig. 3.3 - Unit deployment control

1) Transfer fire control of the unit under AI commander control **[Ctrl+O]**	2) Deploy in several lines **[U]**, **[I]**, **[O]**
3) Deploy automatically in main square **[X]**	4) Deploy in defense **[N]** in such way that there is maximal range of visibility in the given direction, and on the sides and rear - minimal
*5) Prepare ambush after finishing deployment, before the battle **[B]**. When in concealment mode, soldiers will be positioned in any available cover, and if not - only in the specified direction (houses, trenches or shell holes)	6) Fire control **[Ctrl+Y]**, **[Ctrl+J]**, **[Ctrl+H]**
7) Deployment mode: movement **[M]** or rotation **[R]**	8) Mount (dismount) troops into (from) vehicle **[E]**, **[L]**
9) Set fire sector **[V]**, **[RMB]** - sets default sectors, or cancels sector if it is set	10) Squad behavior control **[Ctrl+G]**, **[Ctrl+M]**

*If this option is set, soldiers and vehicles will change their location after the deployment phase!

In the deployment phase the area available for the placement of forces is marked by squares of different color. Blue squares mark locations where the enemy forces will be placed.

The color of the inner contour of a square shows the integral level of concealment in this location: gray - completely open, red and orange - partial cover, yellow and green - good cover.

The color of the outer contour of a square shows the possibility of placement and digging trenches: gray - any unit can be placed and a trench can be dug, orange - any unit can be placed, but no trench can be dug, and red - only infantry units can be placed (without heavy weapons). If a square is not marked, no unit of any type can be placed in this location.

Blue ticks between the outer and inner contours of a square indicate how far a target of the selected type can be seen in a given direction: 100, 500, 1000 and more than 1000 meters. Target type is switched with **[F2]** button.

3.2 Initial orders and tactical battle phase

Initial orders and tactical battle phase interface is in Fig.3.4-3.5. Movement orders in initial orders phase can be given without restrictions.
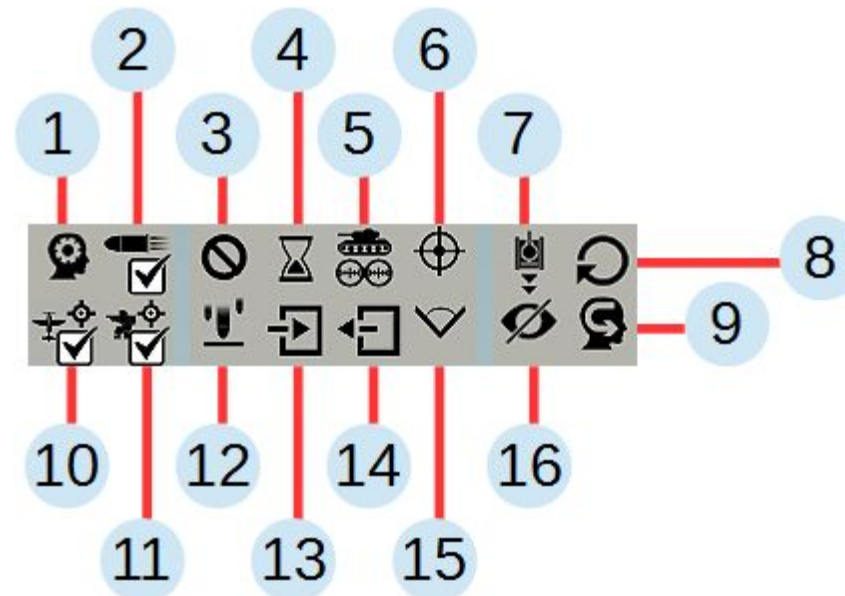
Fig. 3.4 - Instant orders and open fire orders

1) Transfer fire control of the unit under AI commander control **[Ctrl+O]**	2) Fire at will **[Ctrl+Y]**
3) Halt and cancel orders **[X]**	4) Set delay **[B]**
5) Cancel targeting **[N]**	6) Set priority targets **[T]**
7) Reversal **[Y]**	8) Turn **[R]**
9) Transfer the unit under AI control **[Ctrl+M]** (comms establishing, maneuvering)	10) Fire at aircraft **[Ctrl+J]**
11) Fire at infantry **[Ctrl+H]**	12) Commander observed fire **[G]**
13) Mount troops in or on armor and gun towing **[E]**	14) Dismount troops **[L]**
15) Fire sector **[V]** (**[RMB]** - set default sector or cancel sector)	16) Conceal **[Ctrl+G]**

Movement orders (Fig. 3.5, Table 3.4-3.5) are given by clicking **[RMB]** on the map or on terrain in 3D view, or by pressing **[Space]** button when setting a chain of orders.
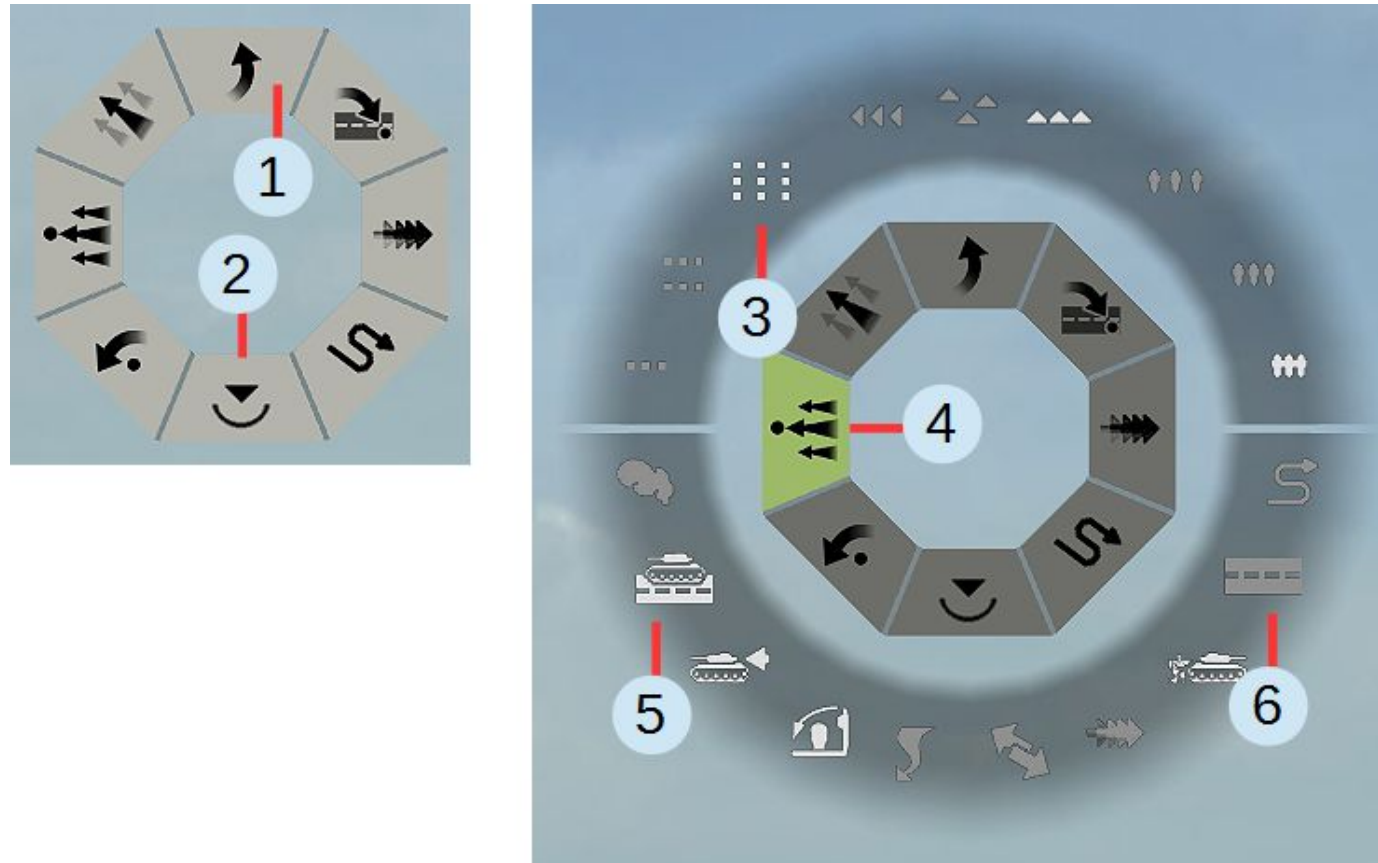
Fig. 3.5 - Movement orders and their modifiers (shown by clicking **[RMB]**)	
1) Movement orders	2) Defense order
3) Formation geometry control	4) Modified order
5) Active modifier	6) Inactive modifier

Orders which will not function (or will not function properly for the selected formation) are indicated by blue color, red color in edit mode indicates incorrect modifiers.

Table 3.4 - Default orders
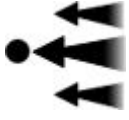
	Move	Column, 3 lines, medium density
	March	Column, 3 lines, high density. Fast move by road, tanks in front
	Fast move	Column, fast move, tanks in front
	Covert move	Column, 1 line, medium density. Move covertly and fast
	Recon	Line, 1 row, medium density. Move fast, active maneuver, interrupt order after contact with enemy
	Assault	Line, 1 row, high density. Buttoned. Troops move in groups behind vehicles
	Attack	Line, 1 row, medium density. Tanks in front, active maneuver, buttoned, set smoke screen
	Take defense	Fast move without formation, find cover at the end of path

Table 3.5 - Movement and formation modifiers

▲ ▲ ▲	No formation	🐾	Dense formation
◀◀◀	Column	♦♦♦	Normal formation
▲▲▲	Line	♦ ♦ ♦	Sparse formation
▪ ▪ ▪	In 1 line	▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪	In 3 lines
▪ ▪ ▪ ▪ ▪ ▪	In 2 lines		

	Tanks in front		Move behind vehicles. If the modifier "tanks in front" - will be only behind tanks
	By road		Vehicles by road (if possible)
S	Select a hidden route to movement		Fast move
	Maneuver (in attack)		Cancel order if enemy spotted
	Button up and turn off the lights		Smoke

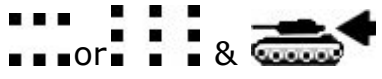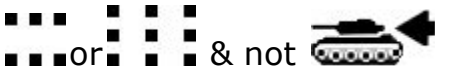Table 3.5 (continued) - Mutual influence of modifiers and modes
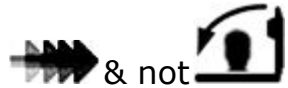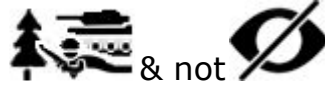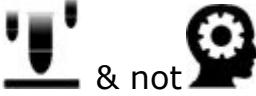
👁̸ & ➤➤	Run while no enemy is seen, then crawl	👁̸ & not ➤➤	Crawl
∷∷ or ∷∷ & 🚂	Move in double wedge, tanks in front SPG behind	∷∷ or ∷∷ & not 🚂	Move in single wedge - tanks and SPG in single line
↔ & ➤➤	Cancel movement order if dangerous target of more than 20% of units in the group is spotted	↔ & not ➤➤	Cancel order if enemy is spotted or more than 20% of units in the group are under fire
👤	Button up and turn off the lights	➤➤ & not 👤	Turn on the lights for fast movement
▼ & 👁̸	Fire with smoke shells	▼ & not 👁̸	Fire with shrapnel and HE shells (or machine gun)
🌲🚂 & 👁̸	Deploy in any available cover	🌲🚂 & not 👁̸	Deploy only in the specified direction

Table 3.5 (continued) - AI control

⊥ & ⚙	Fire at will	⊥ & not ⚙	Hold fire
⚙	Don't transmit external target designation, fire on external target designation	not ⚙	Do not fire on external target designation, do no observed fire
⟳	Leave trenches, lay wire links, return to commander if control is lost	not ⟳	Do not leave trenches, do not lay wire links, do not return to commander if control is lost

3.3 Command level

Command level indicator is located at top center, it shows the possibility of orders execution by selected units (table 3.6), and the time required for their successful issuing. The recovery rate and the initial command level depend on the game settings, as well as the level of commanders on the battlefield.

Table 3.6 - Command level indicator

☼	Orders will be executed for all	☼	Orders will be executed by part of units. Shows time until all units will be able to execute order (in seconds)
☼	Orders will not be executed. Shows time until at least one unit will be able to execute order (in seconds)		
◥	Order has a high "cost"	◥	Order has a low "cost"

Order cost depends only on its type and how many times it has been issued, and does not depend on the number of units it is issued. The cost of every order equals 0 on the initial orders phase. Therefore, the optimum is to issue orders to large groups or to plan tasks on the initial orders phase.

3.4 Information display

Selected units information panel is to the left in the center (Table 3.7).

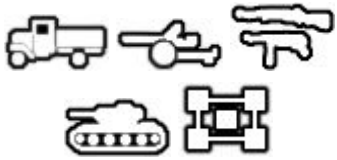Table 3.7 - Parameters description (vehicle condition)

Symbol	Designation	Comment
	Group type (unit type): transport, artillery, infantry, tanks and SPG, mixed	Number indicates the number of heavy weapons (Weapon condition, % for a single unit)
	Vehicle stuck	Repeated movement order removes this indication
	Vehicle or heavy weapon immobilized	
	Heavy weapon dismounted or not ready to use	For weapons which are dismounted into parts, carried, or rolled
	Vehicle or heavy weapon requires repair of the main armament	

Table 3.7 (continued) - Parameters description (personnel)

Symbol	Designation	Comment
	Personnel	Number of active men (number of unfit for combat)
	Panic	Personnel is panicking, commander can stop panic
	Surrendered	
	Completely destroyed	Entire personnel is unfit for combat
	Suppressed by enemy fire	
	Part of personnel is contused	Contused soldiers become combat-ready after a while
	Level of enemy firing	

Table 3.7 (continued) - Parameters description (personnel parameters)

Symbol	Designation	Comment
	Command level	Determines how well soldiers will obey orders. Blue indicator signifies no link with the superior commander
	Experience	
	Morale	
	Stamina	Soldiers with high fatigue (low stamina) will move slower, reload weapons slower, and also fire less accurately
	Average movement speed of formation, km/h	
	Spotters	Such units can control artillery fire or call air support

Table 3.7 (continued) - Parameters description (supplies)
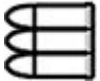
Symbol	Designation	Comment
	Ammunition, % of full ammo load	Detailed list of weapons and its available ammo will be shown when hovering over this icon
	Smoke ammunition	
	Weapon overheating	Red indicator signifies significant overheating, weapon cease firing in this case
	Fuel, % of full tank	
	Observability	Indicates how well a unit is observing. Estimation is done relative to a single person (level 33), a lower value is shown in red. Blue color indicates values from 33 to 99 (observability of three people).
	Sights and observation devices quality	

Table 3.7 (continued) - Parameters description (communication)

Symbol	Designation	Comment
	Can lay a wire link	
	Can lay a wire link using special vehicle	
	Has signal flares	Can designate targets without established communications
	Wire link can be established	
	Has radio station	Red color indicates half-duplex link, blue - requirement to stop
	Voice communication	Red color indicates limited voice communication ability (under fire)
	Wire link condition	Red color indicates communication break, blue - link is establishing
	Radio link condition	Red color indicates receiving communications only (half-duplex)

Marks about transmission of messages via communication channels: wired, radio, and voice, and also received messages and constraints on message reception and unit's response to messages are shown above units (Table 3.8).

Table 3.8 - Communication system and targeting indication

▷◁	Target designated for subordinates from the superior commander (priority target)	○	Information exchange within squad or vehicle crew
▷◁	Target designated for subordinates inside platoon	▭	Received target designation from commander
👁	Unit executes AI order or is firing on external target designation	☎	Received target designation by wire (or is establishing wire link)
👁	Unit cannot execute AI order or fire on external target designation (or AI orders are locked)	📡	Received target designation by radio
⬇	Unit is under fire and has limited ability to follow orders		
⇄	Unit has lost control and is returning to the platoon commander	⇄	Unit has lost control, but cannot return to the platoon commander (AI control is turned off)

The main types of communication in the game: voice, wire, radio. Additional types: flares, tank phone. Available types of communication are shown in the bottom of the selected units properties panel (to the right).

Voice communication is available to any unit (for closed vehicles it is necessary for the crew to open hatches). The maximum range of this type of communication in the best conditions is ~100 meters. Range and quality of this type of communication is significantly reduced in combat, which is indicated by the red color of the indicator.

Wire communication is established by signallers (AI control should be enabled for them), from a higher commander to subordinates. In addition, signallers should be a part of the platoon of the higher commander. If platoon is on the defensive, wire links will be established before battle start. Signallers move in pairs, covertly whenever possible (not by the shortest distance), thus a single signaller squad can simultaneously lay up to three wire links or repair them. For a wire link to be established it is required that units which it connects would not change their position. Wire links can be broken in intense combat. Wire communication make it possible to transmit accurate target designation in all conditions. Some types of signallers have special equipment or vehicles in service, in this case, one channel is laid using vehicle.

Radio communication is typically used for vehicle and tank communication (sometimes portable radio sets are encountered). In addition, radio communication can be bidirectional or unidirectional (from commander to subordinates) - the connection type indicator will be red. Also, there are radio stations which only work if vehicle is stationary (or their range is reduced when moving).

Main types of communication require both units, between which a connection is being established, to support the same type of communication. That is, for radio communication two units must have a radio station, for wire communication between units a wire link must have been laid, for voice communication units should not be located in a closed vehicle and should be close to each other.

Signal flares - allow to give a rough target designation on the enemy (draw attention of allies), and usually each commander has them. In the daytime smoke signals are used, and at nighttime - flares of different colors.

Tank phone enables communication of a tank and nearby infantry, in this case the crew does not open hatches and climb out of them.

Communication is the most important factor influencing the control of troops. Units left without communication with commander can no longer be controlled, or require a high command level for complying with orders (see Section 3.3). Also, commander uses main types of communication to support morale of subordinates, not allowing them to panic and surrender when suffering losses or under fire. The command level is transmitted

both from commander to subordinates, and within platoon from unit to unit, or between platoons, if they are within the voice communication range.

Also, communication channels are used for transmission of target designations, for example, from a spotter (forward observer) to the firing assets. Typical layout of target designation transmission consists of an observer connected using wire (or voice) link with the battery commander. Which in turn is connected using wire link with the firing platoon commander, which designates targets for battery guns or mortars using voice.

If commander control is lost, units with AI control enabled will try to regain control, automatically moving into the commander's voice communication radius, if they are not in trenches, or had not received a movement order.

Table 3.9 - Color indication for unit markers (default)

Enemy markers			
Yellow	Has been visible and recognized, but currently is not visible	Light-yellow	Has been visible and recognized, but currently is not visible by selected units
Blue*	Visible and recognized	White	Visible and recognized by selected units
Gray	Destroyed, abandoned or non-combat-ready		
Player and allied markers			
Red*	Player unit	Orange*	Allied unit
Purple**	Selected player unit	Yellow blinking	Having problems (no ammo, weapons not functioning, not enough crew for operating, no commander)
Light-red (orange) blinking	Under fire	White blinking	Under heavy fire
Black blinking	Lost control (panic, not enough command level)	Gray blinking	On hold fire

*Color for the default layout, if the layout is changed in the settings - colors will be different

**Assigned in the settings

Messages and groups combined by an order panel is to the right in the center (Table 3.10). Clicking **[LMB]** allows to jump to the message or select the group.

Table 3.10 - Messages from allied forces

Symbol	Designation	Comment
	Contact	Allied forces spotted enemy forces moving
	Under fire	Allied forces are under enemy fire
	Message	
	Wire link	Wire link is established or broken
	Panic	Allied forces panicked and left their positions
	Capture	Allied forces surrendered
	Commander killed	

Table 3.10 (continued) - Messages about heavy weapon and vehicle condition

Symbol	Designation	Comment
	Bogged down	Vehicle bogged down
	Main weapon broken	
	Vehicle abandoned	Heavy weapon or vehicle are abandoned by crew or destroyed
	Vehicle crewed	Vehicle or heavy weapon were crewed
	Group order	After movement order issuing to any group, its icon is placed on the message panel. Click on group icon to quick select it.

Table 3.10 (continued) - Events

Symbol	Designation	Comment
	Point capture	Key point was captured (or lost)
	Airstrike	Airstrike begins - aircraft is over the battlefield
	Artillery strike	Artillery strike begins - battery is opening fire on the specified fire line
	Cease fire	Enemy offered cease fire, the offer will be accepted after pressing this button
	Continue battle	Enemy rejected a cease fire offer
	New objective	
	Objective accomplished	
	Objective failed, timeout	Objective failed, or time allotted for objective is over, but objective still has not been accomplished

3.5 Air and artillery support

Air and artillery support control panel is also to the right in the center (Table 3.11), when such support is available. For the support to be available you need to take an air or artillery spotter into battle (in quick battle it is selected with the reinforcement strategy - reinforced support). In operation, in most cases, aviation arrives according to the scenario.

Table 3.11 - Parameters used for controlling artillery fire and calling aircraft

	Artillery battery		High-explosive shells, can operate in two modes: with delay for blast or for splinter (immediate) effect
	Air flight		Shrapnel shells, can operate in two modes: on impact (immediate action) and airburst
	Fire intensity (shells per gun): 3, 5, 15 ... all		Smoke shells
	Fire line on which fire will be opened: time to fire, accuracy, m		Incendiary shells
	Set fuze for immediate action (for high-explosive and shrapnel shells)		Flare shells

3.6 Tactical diagrams and armor penetration charts

A pair (unit and weapon) is required for displaying tactical diagrams and armor penetration charts in a tactical battle. In game: select a unit, it should have a target (orange line). Or second option, select a unit and point at a visible target in the line of fire mode **[~]**. In figure the pair is KV-1S (diagram is drawn for it) and Pak-38 gun. Diagrams and charts are shown by using **[}]** button.

Vertical portion - armor penetration chart similar to the one shown in the encyclopedia (chapter 4.2), level of armor penetration is shown vertically, distance - horizontally. Horizontal blue line indicates the armor level of the projection from the direction of the target for the selected part of the vehicle (lower hull, top hull, turret). The example in figure shows top hull selected. To toggle the vehicle part click **[RMB]** on the tactical diagram toggle button. Broken lines indicate the level of armor penetration for gun projectiles (yellow line - APCR, red - armor-piercing).
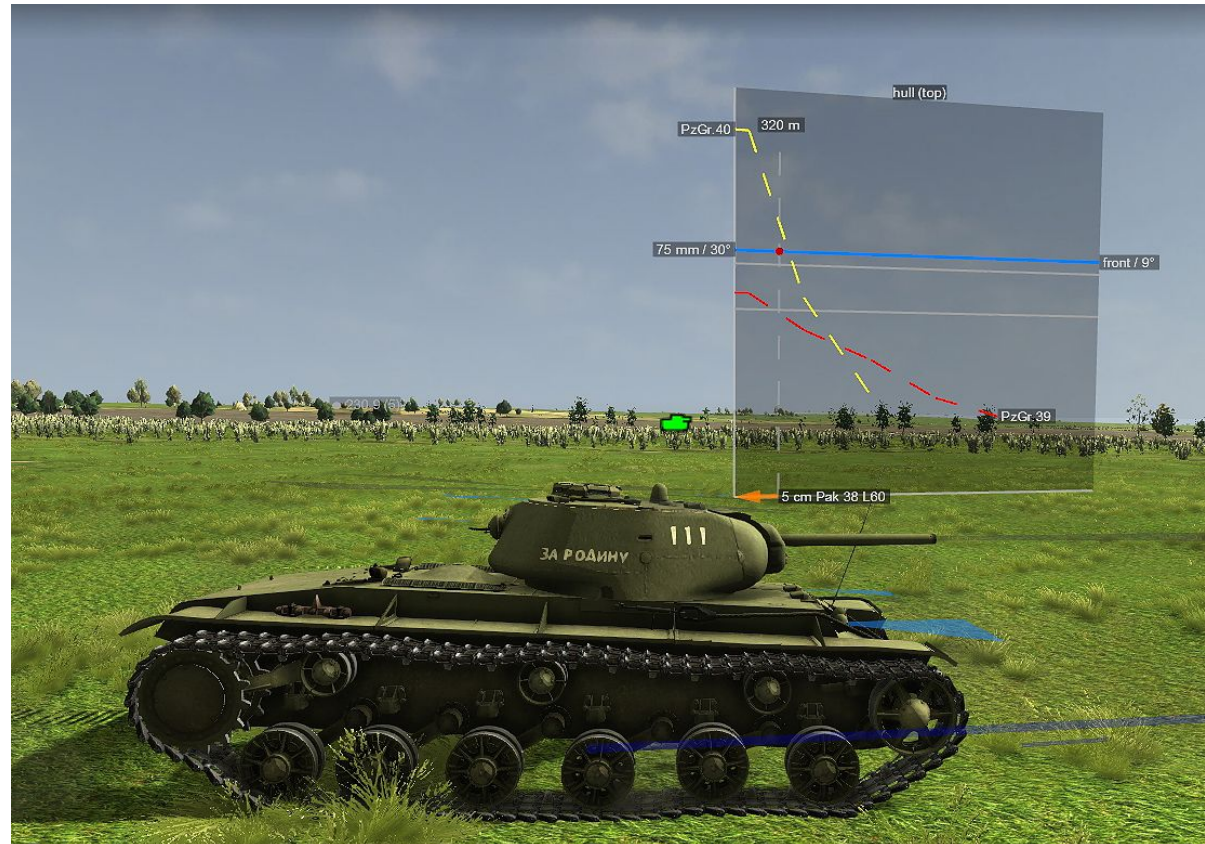
Orange arrow indicates the distance to the gun - 320 m. Red dot - indicates current position of the selected tank part in the coordinate system of the chart. If the red dot is below the broken line, the projectile indicated by the line penetrates the selected vehicle part from the given angle and distance. Figure shows that PzGr.40 projectile penetrates from this distance, but PzGr.39 projectile - does not.

Horizontal portion is the tactical diagram. It shows from what distance and what angle the gun projectiles penetrate the selected vehicle part. The distance axis is along gray lines, represented by tear-shaped curves in each quadrant (front, rear, left, right). Each tick mark corresponds to 100 meters distance. Yellow and red lines indicate the distances of armor penetration for two types of gun projectiles (colors are similar to the armor penetration chart).

Orange arrow indicates the position of gun. If the blunt end of the arrow is located inside the the closed line, then the gun penetrates the selected vehicle part with this projectile from current angle. The figure shows that only PzGr.40 projectile (yellow color) is able to reliably penetrate the front and rear. And sides can be penetrated by two projectiles (PzGr.40 - from 700 m, PzGr.39 - from 500 m). If the arrow become blue, it means high probability of penetration.

The chart and diagram are connected to each other along the axis indicated by the orange arrow - the "ideal" direction from which the gun projectiles will hit the tank.
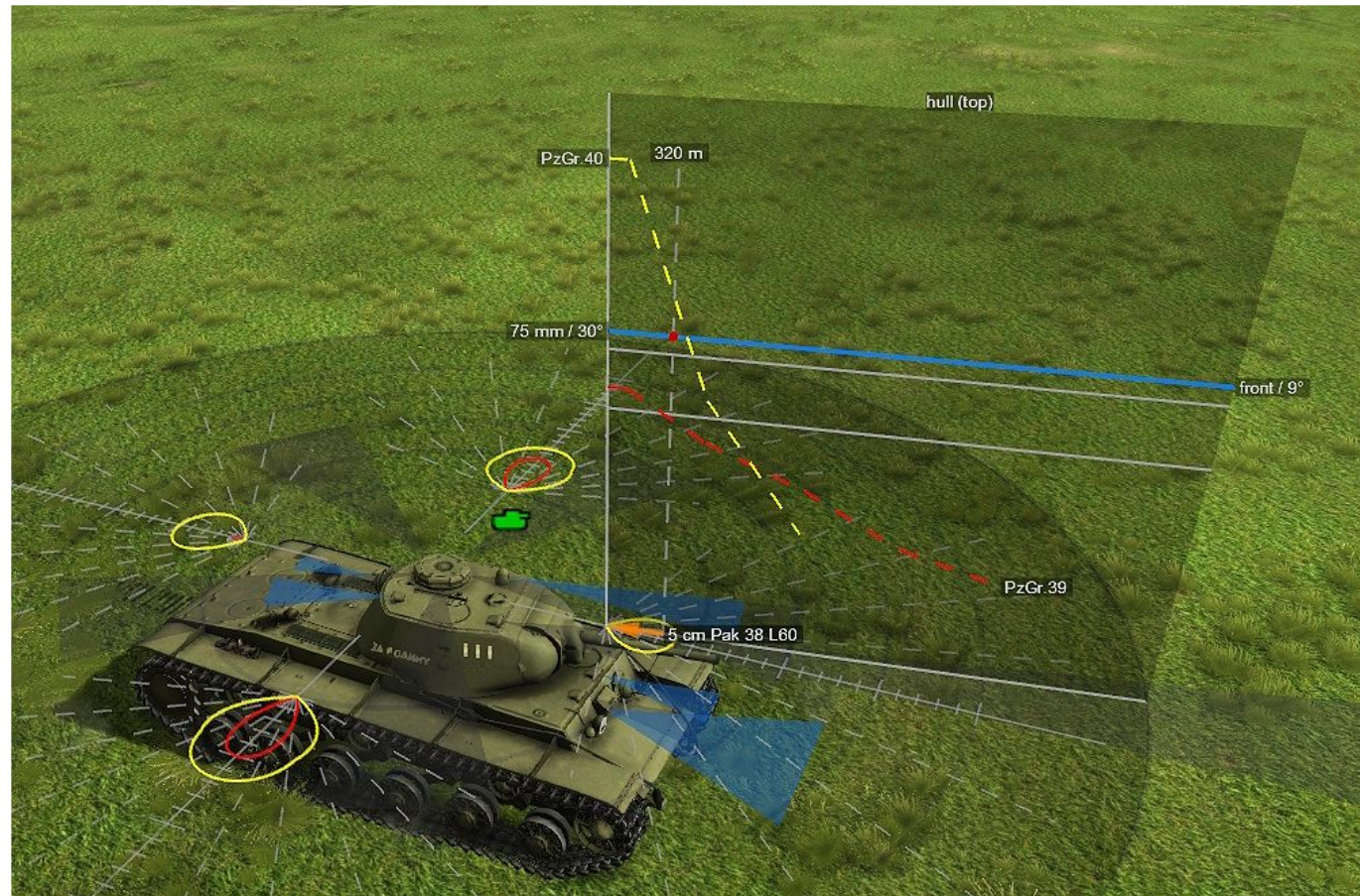
Real armor penetration diagram and chart examples.

Armor penetration of German artillery projectiles of Soviet tanks of the early war
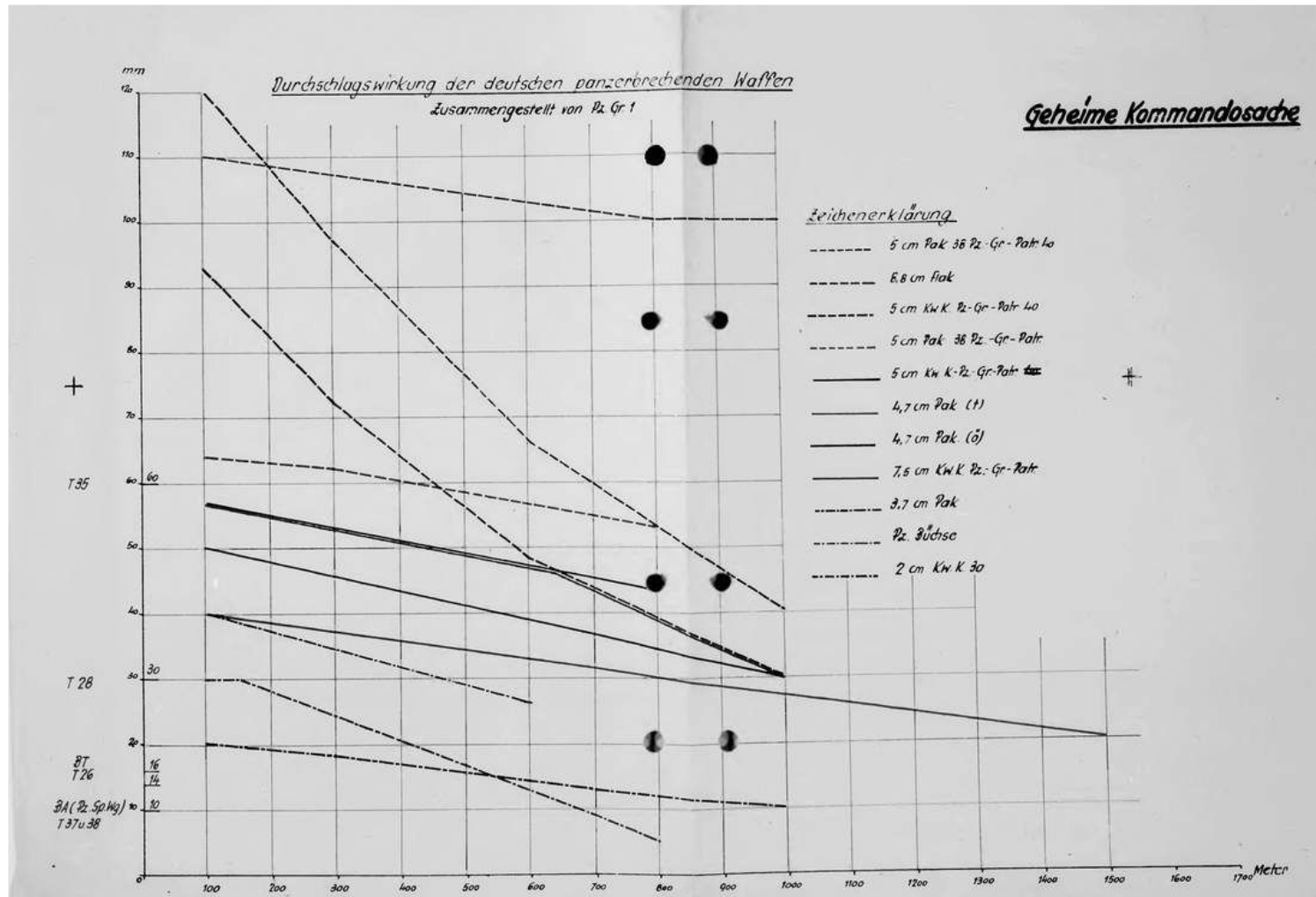
Tactical diagram of T-34 tank which shows armor penetration distances for 37 and 50 mm German projectiles
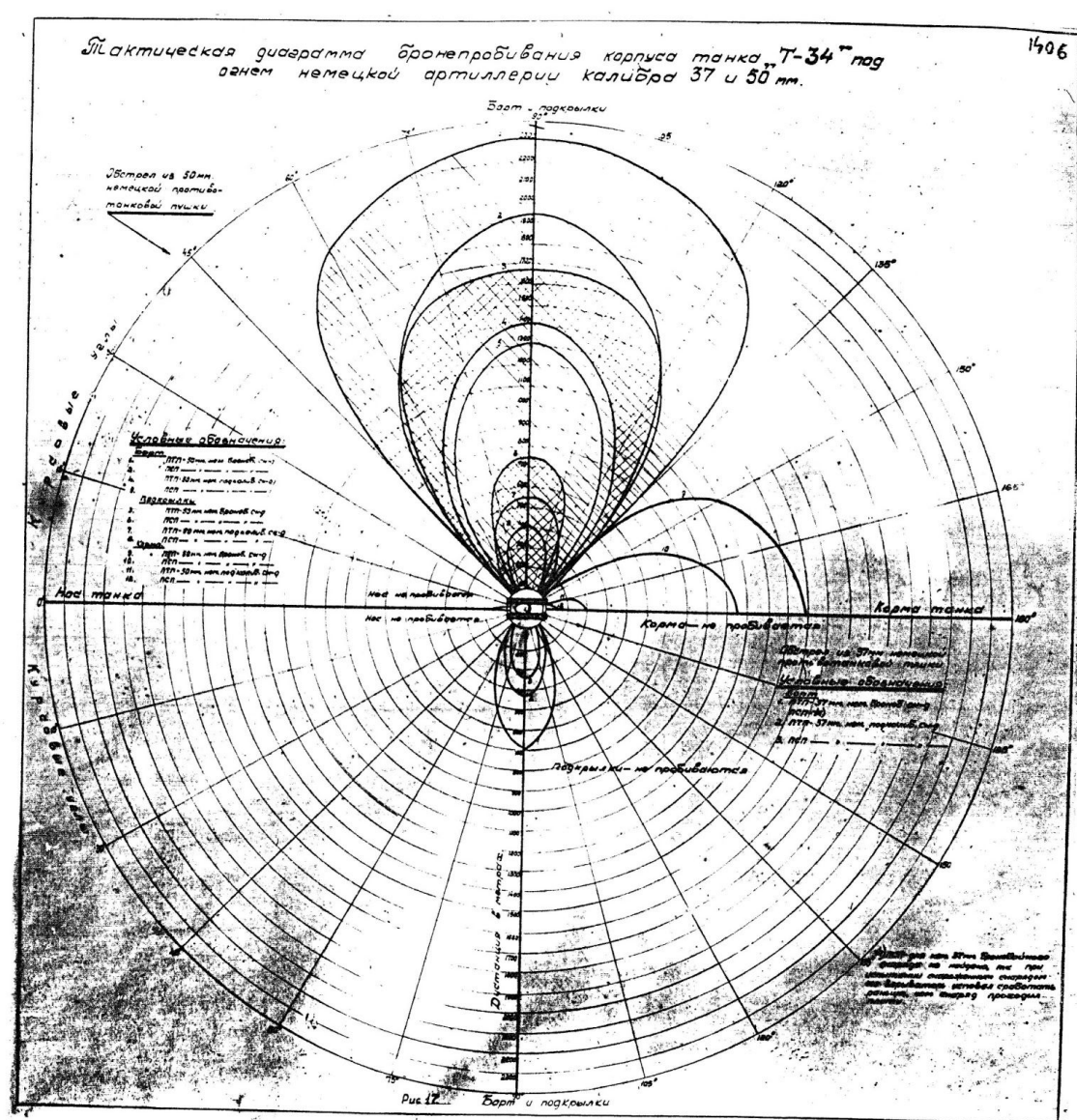
3.6 Statistics phase

In this phase (Fig. 3.6) the condition of all units, allied and enemy (Fig.3.7) after the battle (Table 3.12) and vehicle hits (Table 3.13-3.14) can be viewed.
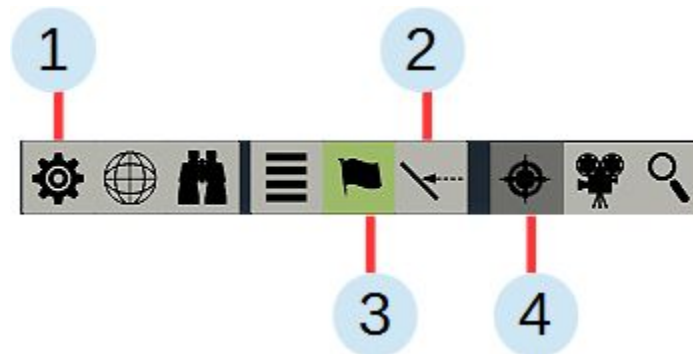
Fig. 3.6 - Statistics control interface	
1) Back to overall statistics parameters **[Esc]**	2) Toggle hit vectors display mode: all, penetrations, only damage
3) Enable area ownership indication	4) Jump to unit which destroyed the selected unit
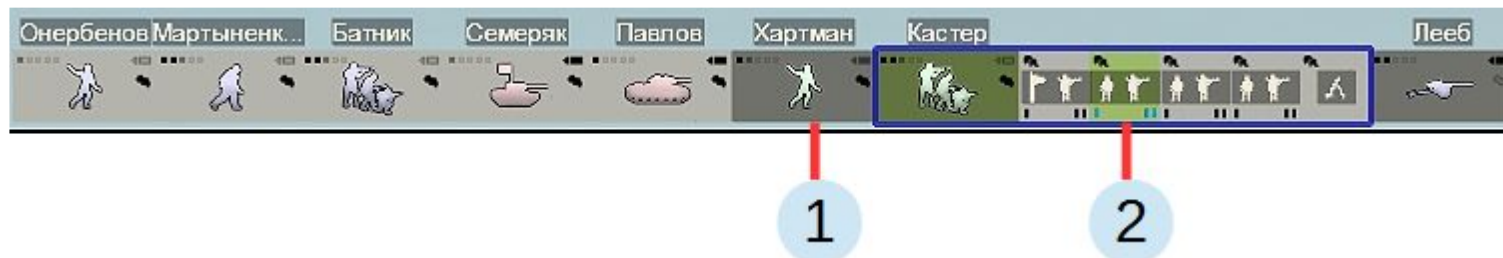
Fig. 3.7 - Quick select panel in statistics	
1) Enemy platoon (on gray background)	2) Selected unit from enemy platoon

Table 3.12 - Additional information in statistics phase

Symbol	Designation	Comment
	Hits received	
	Fire	Vehicle burned down beyond repair
	Vehicle lost	
	Vehicle needs repair	Man-hours required for vehicle damage repair
	Enemy vehicles destroyed (captured) by this unit, units	
	Enemy personnel destroyed (captured) by this unit, men	
	Main weapon fire accuracy %	Shots fired to hits to enemy ratio
	Secondary weapon fire accuracy %	

Table 3.13 - Ammunition color coding

cyan	shrapnel or canister	yellow	subcaliber
blue	high-explosive or high-explosive plastic	green	shaped charge
white	smoke or incendiary	red	cavity armor-piercing or solid armor-piercing

Table 3.14 - Damage types

light	illumination devices	*, ammo	fire, ammo storage
sight	sighting and observation devices	transm, chassis	transmission, chassis
dr	driver-mechanic	radio, bat	radio, accumulator battery
gn, mg	gun-layer, machine-gunner	fuel	fuel tanks
ld, 2l	loader and his assistant	gun, turret	gun and turret mechanisms
cm	commander	trk, wheel	caterpillar track, wheel
FCS	fire control system	stab	stabilizer
eng	engine	weap	weapons

3.8 Using captured weapons and vehicles

Captured weapons and vehicles are centrally collected after battle, in the controlled area. The collected weapons are distributed to the units participated in battle (shown in the "CASUALTIES AND CAPTURES" table). Captures are distributed based on the distance and applicability in a particular unit: small arms to infantry units, equipment to tank and artillery units.

Captures are used in two cases:

1) If a unit has not enough ammo (less than 25%) for standard weapons, in this case it will be rearmed to captured small arms.

2) If vehicles or heavy weapons are in IV category (non-repairable), in this case captured equipment will be used.

To use captures, their quantity, of the appropriate type, must be greater than or equal to 1 (in the "CASUALTIES AND CAPTURES" table). Personnel experience is reduced when rearming to captures. Units armed with captures are marked with '?'.

Captured weapons can be selected in the quick battle editor as well, by setting a value of less than 25% in the ammo quantity section.

4 MISCELLANEOUS

System requirements:

CPU	AMD FX 8120 or Intel i5 3 GHz
RAM	4 GB
Video card	ATI Radeon 7800 or nVidia GeForce 680 2 GB
Operating system	Windows 7 SP1, 8.1 or 10

You need to install additional software from the "docs\support\redists" folder in the main game folder to run it properly. It is recommended to install the latest drivers for your video card.

Latest updates can be downloaded here:
Microsoft DirectX – https://www.microsoft.com/en-us/download/details.aspx?id=8109
nVidia drivers – http://www.nvidia.com/page/home.html
ATI/AMD drivers - http://www.amd.com/en-us

When installing the game the required software will be installed automatically.

It is strongly recommended to disable forced anti-aliasing (smoothing) setting in the drivers!

4.1 Game updating and add-on installation

Add-ons (DLC) and game mods are installed using special utility (Fig.4.1), which can be accessed by clicking on the game version in the main menu (in the top right corner of the screen).
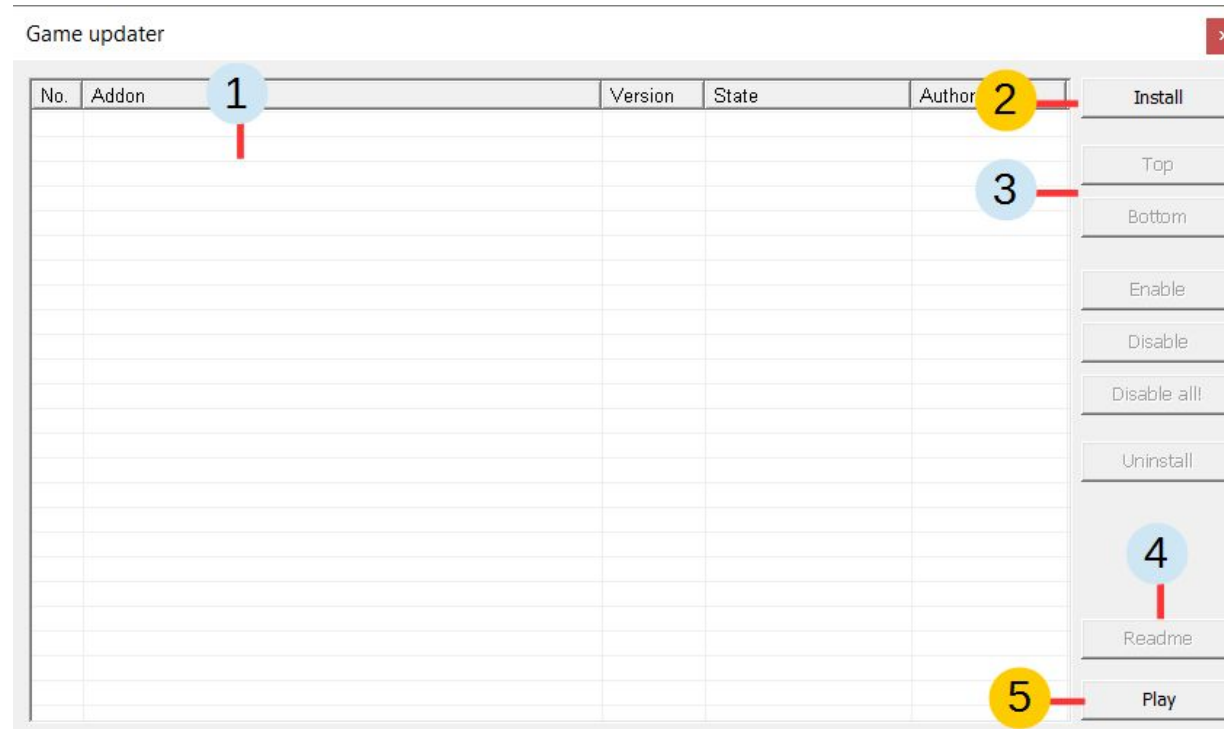
Fig. 4.1 - Add-on and mods installation utility interface

1) List of installed add-ons	2) Press to install new add-on
3) Add-ons rearrangement	4) Information about selected add-on
5) Play the game!	

Add-on located higher in the list Fig.4.1/1 has a higher priority. If add-ons don't modify the same game resources, their order is not important. Add-ons can be installed automatically, if they are placed (downloaded) in the new_updates folder in the root folder of the game, or by clicking on a file with .gt3ext extension in Explorer.

4.2 Armor penetration diagrams in the encyclopedia

Armor penetration diagrams can be viewed in the ENCYCLOPEDIA (Fig. 4.2). Diagram depicts the relationship of armor penetration of shell to the distance, and the shell ability to penetrate the selected vehicle part from a certain angle (to switch the vehicle part for which the diagram is shown - click on the diagram margin).
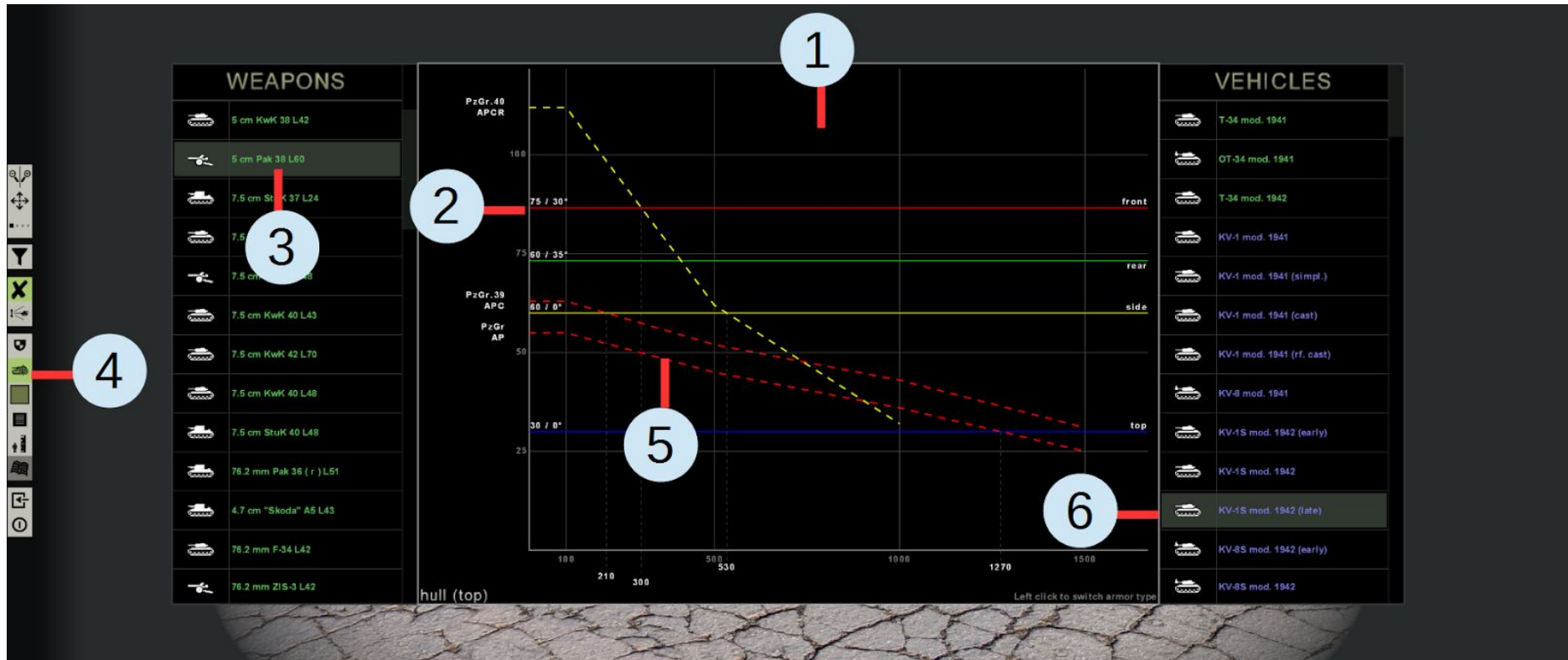
Fig. 4.2 - Armor penetration diagrams

1) Diagram image	2) Horizontals - armor thickness and typical armor angles
3) Vehicle for which diagrams are drawn	4) Button enabling the diagrams view
5) Broken lines - armor penetration	6) Weapon for which diagram is drawn (Table 4.1)

Table 4.1 - Chart colors for various shell types

Red	Cavity armor-piercing (APHE) or solid armor-piercing (AP)	Cyan	Shrapnel (SH) or canister shells (CAN)
Yellow	Subcaliber shells of all types (APCR, APDS, APFSDS)	Green	Shaped charge (HEAT) and high-explosive plastic shells (HESH)
Dark-blue	Fragmentation (FRAG) or high-explosive shells (HE, HE-T, HEP-T)	White	Smoke (SMK) or incendiary (FLAM) shells

Diagrams should be used to determine a pessimistic estimation of the distance at which a gun penetrates (not destroys!) an enemy armored vehicle, or to determine the distance at which the fire of the selected enemy weapon will be ineffective with a high probability.

4.3 Creating modifications

Game has ability to create user modifications: single missions, sounds and textures of soldiers and vehicles. To create a modification you need to go to the "Modifications" section by pressing the appropriate button (in the shape of a wrench) in your profile. After that, choose the modification type from valid options (Table 4.2) and set a name for it.

Table 4.2 - Modifications

Type	Description
Missions	Set of single-player missions. Set will include all missions with .mispack extension from the mod folder. After installation, mission will appear in the appropriate section of game
Sounds	Sounds of engines, explosions, shots, collisions, fire burning, and others. Modified sounds should be placed in the modification folder in WAV format 44 kHz, 16 bit, Mono with .wav* extension (_sounds_list.txt)
Textures	Textures of soldiers and vehicles. Modified textures should be placed in the modification folder in DDS format (DXT1 or DXT5) with .dds* extension (_textures_list.txt)

*Sounds and textures replace game files, so there is no need to duplicate every game file - only the ones changed.

After creating a modification it is necessary to set the folder ("Select folder") where the files to replace will be stored. If needed, you can get list of game files (by clicking "Source files" button) with the names and formats (for sounds and textures) and the game files themselves for modifying (for textures) - they will be placed in the modification folder.

After making all changes and creating the modification files, press "Build" button. Modification archive will be created in the mod folder, which can be used in the game. To test the modification press "Install" button - the game updater utility (see Section 4.1) will be launched, which will install the modification.