

GAME MANUAL

ARMORED BRIGADE



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1. INTRODUCTION

ARMORED BRIGADE is a real-time tactical wargame, focusing on realism and playability. In ARMORED BRIGADE the Cold War has turned hot, and Europe is once again torn apart by conflict.

Take command of the deadliest mechanized formations available during an arc of time spanning from the Kennedy-Khrushchev confrontation to the final years of the Cold War and fight your opponents in large and detailed maps all across Europe. Modeled upon real terrain, the maps make each battle a true test of wits. Weather and visibility all play a role and with several munition types, as well as air to air combat and artillery; no battle will be the same.

1.1. SYSTEM REQUIREMENTS

OS: Windows® 7 / 8 / 10

CPU: 1 GHz

RAM: 1 GB

Video/Graphics: OpenGL 2.0 compatible video card with 512 MB VRAM

Sound: Compatible sound card

DVD-ROM: Yes, for boxed version

Please ensure your graphics and sound drivers are up to date before playing the game or you may experience graphical glitches or more serious errors. Check your manufacturer's website for the latest version, as new drivers are released regularly.

1.2. INSTALLING THE GAME

To install the game, insert the game DVD disc into your DVD drive. If you have disabled the Autorun function on your DVD or if you are installing from a digital download, navigate to the DVD or download file location, double-click on the installation file, and if it is a zip archive, unzip it first then double click on the executable (.exe) file that is shown inside the archive. The correct file

name will normally include the words 'SetupRelease'. Follow all on-screen prompts to complete the installation.

1.3. UNINSTALLING THE GAME

Please use the Add/Remove Programs or Programs and Features option from the Windows Control Panel or the 'Uninstall' link in the game's Windows START menu to uninstall the game. Uninstalling through any other method will not properly uninstall the game.

1.4. PRODUCT UPDATES, BONUS CONTENT AND REGISTERING YOUR GAME

In order to maintain our product excellence, Matrix Games releases updates containing new features, enhancements, and corrections to any known issues. All our updates are available free on our website and can also be downloaded quickly and easily by clicking on the 'Check for Updates' link in your Game Menu or by using the 'Update Game' shortcut in your Windows START menu folder for the game.

We also periodically make beta (preview) updates and other content available to registered owners. Keeping up with these special updates is made easy and is free by signing up for a Matrix Games Member account. When you are signed up, you can then register your Matrix Games products in order to receive access to these bonus game-related materials. Follow this process:

1. Sign Up for a Matrix Games Member account: THIS IS A ONE TIME PROCEDURE; once you have signed up for a Matrix account, you are in the system and will not need to sign up again. Go to www.matrixgames.com and click the Members hyperlink at the top. In the new window, select Register NOW and follow the onscreen instructions. When you're finished, click the Please Create My New Account button, and a confirmation e-mail will be sent to your specified e-mail account.

2. Register a New Game Purchase – Once you have signed up for a Matrix Games Member account, you can then register any Matrix Games title you own in your new account. To do so, log in to your account on the Matrix Games website (www.matrixgames.com). Click 'Register Your Game' near the top of the menu in the Members Club to register your new Matrix Games purchase.

We strongly recommend registering your game as it will give you a backup location for your serial number should you lose it in the future. Once you've registered your game, when you log in to the Members section you can view your list of registered titles by clicking My Games. Each game title is a hyperlink that will take you to an information page on the game (including all the latest news on that title).

Also on this list is a Downloads for Registered Games hyperlink that takes you to a page that has all the latest public and registered downloads, including patches, for your registered titles. You can also access patches and updates via our 'Latest Downloads' section (<http://www.matrixgames.com/products/latestdownloads.asp>).

1.5. RE-DOWNLOADING YOUR GAME

If you were logged into your Members Club account when you purchased your game, it will be automatically registered and you can access an automatic re-download link by going to <http://www.matrixgames.com/members/myorders.asp> or using the 'My Orders' link in the Members Club. If your download does not show up there, you can contact our Help Desk at support@matrixgames.com to receive a new download link. This process generally takes one business day, but is often faster during normal work hours.

1.6. GAME FORUMS

Our forums are one of the best things about Matrix Games. Every game has its own forum with our designers, developers and the gamers playing the

game. If you are experiencing a problem, have a question or just an idea on how to make the game better, post a message there. Go to

<http://www.matrixgames.com/forums> .

1.7. TECHNICAL SUPPORT

Should you have a technical problem with the game, the best way to get help is to post a note in the Technical Support subforum of the main game forum at <http://www.matrixgames.com/forums>. You'll then hear back from either our Matrix Games Staff, the development team, or from one of the many helpful players of the game. This is usually the fastest way to get help. Alternatively, you can contact our Help Desk at Support@matrixgames.com . Support requests will generally be answered within 24 hours, except on weekends or national holidays.

1.8. WINDOW SCALING

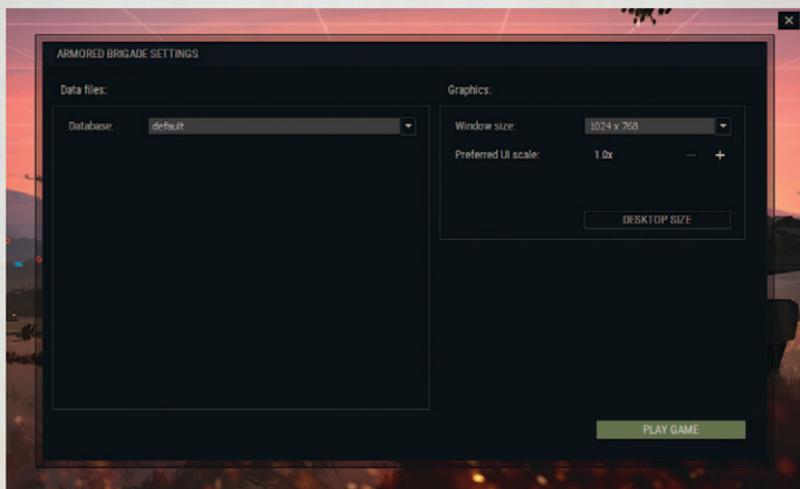
If the game window appears to be too large or is outside your desktop, you should adjust display scaling settings or change application properties to disable display scaling.

To adjust display scaling: Select Display → Change the size of text, apps, and other items, and then adjust the slider to 100%.

To disable display scaling: In Explorer, right-click `ArmoredBrigade.exe` in the game installation folder, select Properties, select the Compatibility tab, and then find the setting for disabling or overriding display scaling on high DPI.

2. STARTING ARMORED BRIGADE

2.1. SETTINGS LAUNCHER



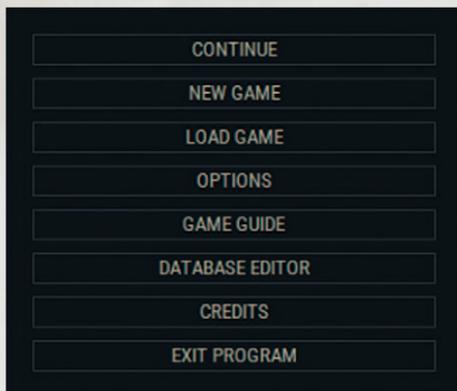
In the settings launcher the game window size can be selected in the 'WINDOW SIZE' dropdown menu. Alternatively, enable the 'DESKTOP SIZE' option to use the current desktop size as the game window size. It is important to note that ARMORED BRIGADE does not change the screen resolution. Only the window size changes, even if the desktop size is used. If the 'DESKTOP SIZE' option is enabled then the 'WINDOW SIZE' selection is ignored.

Use the plus and minus buttons to adjust the preferred UI scale. When the game is started, the system checks if the game window size is large enough for the selected UI scale. If not, the system automatically uses the largest UI scale that fits the game window size.

If there are modifications of the database then they can be selected in the dropdown menu. The 'default' database is the official data set. Its content is locked to avoid incompatibility issues with user-created content.

Click 'PLAY GAME' to run ARMORED BRIGADE.

2.2. MAIN MENUS



In the 'NEW GAME' menu, click the 'SINGLE MISSION' button to open the scenario menu. Pre-made scenarios and user-created scenarios are listed here. 'GENERATE MISSION' starts the Battle Generator wizard that is used to generate an infinite amount of playable content for the game. 'CONTINUE' resumes

the last unfinished battle. In the 'LOAD GAME' menu the manually saved game states or an autosave slot can be loaded.

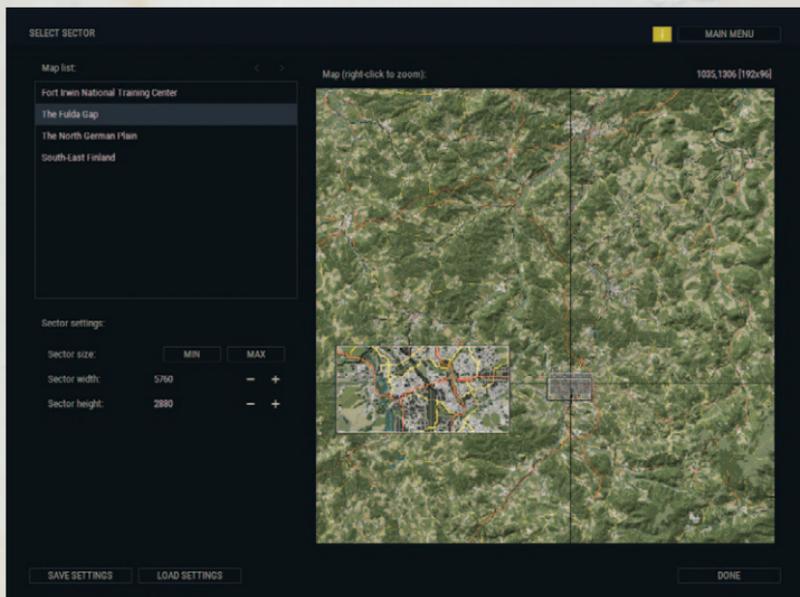
In the 'OPTIONS' menu are the in-game settings. 'GAME GUIDE' has all the in-game hints and all other information readily available. 'DATABASE EDITOR' is used to edit the currently loaded database. The 'default' database is locked and cannot be modified, but user-created database can be edited. 'CREDITS' introduces the development team. 'EXIT PROGRAM' closes the application.

Some screens have tooltips that can be toggled on and off with the 'i' button.

3. BATTLE GENERATOR

In the Battle Generator wizard, the player has instant access to an unlimited number of battles. These can be saved for advanced editing options and distributing them with other players. The saved scenarios are available in the 'SINGLE MISSION' menu.

3.1. SELECT SECTOR



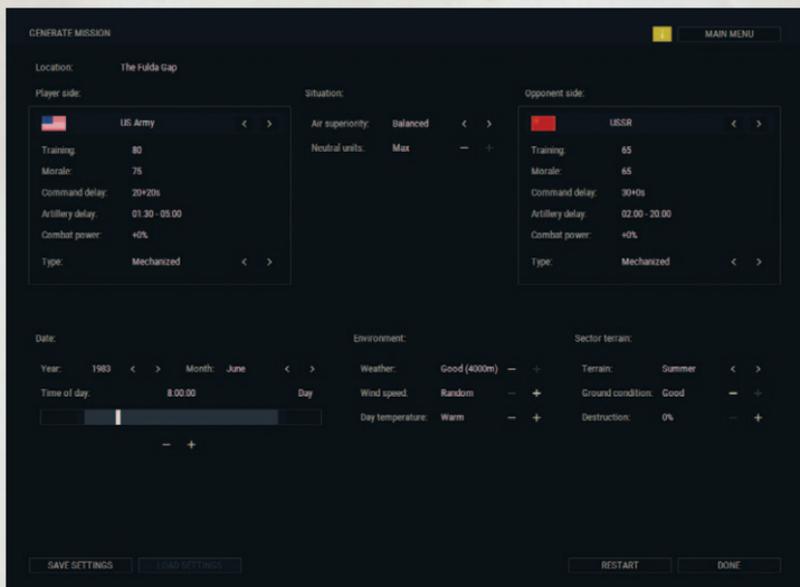
In the first screen, select the map from the list and adjust the sector size. After selecting the sector, the impassable slopes are highlighted with bright red. At this point it is a good idea to pay attention to rivers and lakes, because impassable water can have a dramatic effect on how the scenario will be played.

Top-right are the master map coordinate and the sector size in map cells (in pixels). This is useful information when using advanced features later.

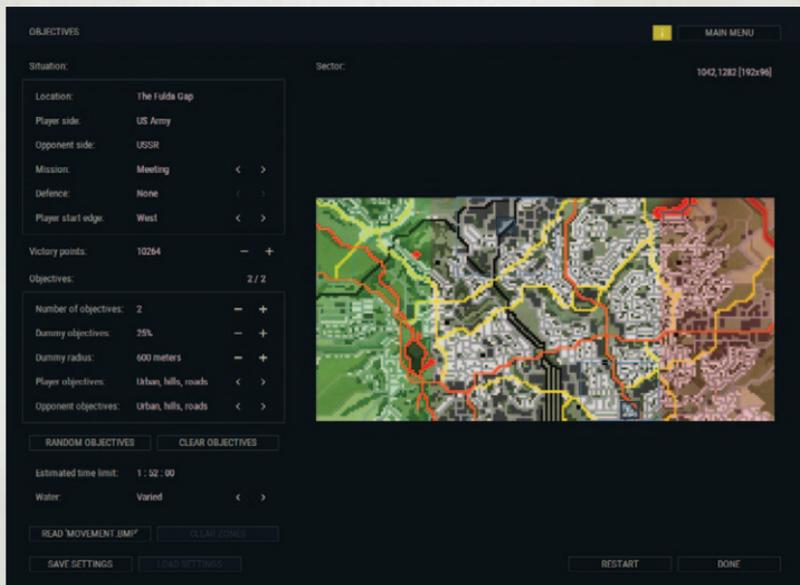
3.2. GENERATE MISSION

In this screen, select the factions and 'force types'.

Select the year and the month. The available equipment and some faction attributes change according to the selected date. The month affects certain environment variables, such as the day, twilight and night lengths. The battle start time can be adjusted in the bar or by using the +/- buttons.



3.3. OBJECTIVES



In the objectives screen, select the mission type. If one side is defending then that side can optionally have its units dug-in for extra protection and also have access to obstacles such as minefields. These options will later determine how much less or more purchase points the opposing side has.

The 'dummy objectives' rate is the chance for any objective to become a dummy. The 'dummy radius' adjusts the area size where the dummy objectives may be placed.

The random objectives are placed according to the 'player/opponent objectives' setting. The default values come from the 'force type' settings.

The 'water' setting changes the water type. 'Varied' uses the default values in the map data. Be aware that 'impassable' water may make the map unplayable. If that's the case, there will be an error message in the bottom of the screen. Impassable water and other impassable areas use bright red color in the sector view.

In the sector view, click and drag the deployment zones bigger or smaller. Remove or place objectives as needed. Objectives cannot be placed on any water, including streams. Any isolated areas are darkened, and objectives or units cannot be placed there.

3.4. COMBAT POWER ALLOCATION

In the basic settings of the combat power allocation screen, adjust the player combat power/purchase points (if 'force type' is not 'dynamic') and give the opponent bonus or penalty points. The opponent base points usually depend on the player points and the mission type.

Use the 'unit selection' variable to set if the player's or the opponent's points should be spent manually or automatically.

In the advanced settings that are based on the 'force type' setting, the player can customize, load and save the category point limitations.

COMBAT POWER ALLOCATION MAIN MENU

Player side: US Army

Combat power: 3000 - +

Force type: Mechanized

Unit selection: Manual < >

Recon:	5%	- +	Settings 1
Infantry:	10%	- +	<input type="button" value="LOAD"/> <input type="button" value="SAVE"/>
Mechanized:	70%	- +	Settings 2
Armor:	70%	- +	<input type="button" value="LOAD"/> <input type="button" value="SAVE"/>
Support:	15%	- +	Settings 3
Air:	30%	- +	<input type="button" value="LOAD"/> <input type="button" value="SAVE"/>
Total:	200%		

Opponent side: USSR

Combat power: 3000 - + +0%

Force type: Mechanized

Unit selection: Auto < >

Recon:	5%	- +	Settings 1
Infantry:	10%	- +	<input type="button" value="LOAD"/> <input type="button" value="SAVE"/>
Mechanized:	70%	- +	Settings 2
Armor:	70%	- +	<input type="button" value="LOAD"/> <input type="button" value="SAVE"/>
Support:	15%	- +	Settings 3
Air:	30%	- +	<input type="button" value="LOAD"/> <input type="button" value="SAVE"/>
Total:	200%		

BASIC

3.5. FORCE SELECTION

FORCE SELECTION MAIN MENU

Player side: US Army Casualty effect on Victory Points: -0%

Total points: 0 / 3000

Available	Details	Selected
M1 HQ 1128	M1 MBT Radio, 315	
M1 Tank Company 3124	M1 MBT Radio, 315	
M1 Tank Platoon 1302	M1 MBT Radio, 315	
M48AS HQ 390	M1 MBT Radio, 315	
M48AS Tank Company () 892		
M48AS Tank Platoon 558		
M60A1 (RSE/Passive) HQ 523		
M60A1 (RSE/Passive) Tank Co() 1198		
M60A1 (RSE/Passive) Tank Pl 749		

Formation Value Modifiers:

Training: 80	Max Speed: 72 kph	Guns (x4): 0	- +
Morale: 75	Armor: 300mm KE, 600mm CE	Artillery minefields: 0	- +
HQ Team: +300%	-100mm M48 Gun [A: 55 NV: 3500m]	HC: 0	Smoke: 0
HQ Vehicle: +150%	-7.62mm Coax MG [A: 10000 NV: 1000m]	DPICM: 0	Illumination: 0
Company Formation: -20%	-12.7mm HMG [A: 900]	TRP: 0	TRP [M]: 0
Scout Helicopter: +700%		ARTILLERY: 0 / 1500	OBSTACLES: 0 / 0

UNITS: 0 / 325 FORMATIONS: 0 / 100 AIR SORTIES: 0 / 50

Select the recon, infantry, mechanized infantry, armor, support, or aircraft category forces, and view the list of available formations or sorties in the left side list view. Purchase them by right-clicking, left-clicking twice or using the 'ADD' button. The purchased formations are in the right side list view, where it is possible to cancel the selections.

Some formations have a training or morale penalty or bonus and that changes their price. For example, second line units may have them lowered, and an elite units has them raised. If this is the case, then the training or morale value number is rendered in a different color.

Below the training and morale values are listed the global cost modifiers.

Off-map artillery is purchased in groups. The size of the group depends on the faction attributes.

The defending side may be allowed to purchase obstacles and pillboxes.

The purchase system can select the formations and other assets automatically. The selections are based on the mission type and database values that vary depending on the historical availability and how favorable it would be for the AI to have that formation available in the battle.

3.6. CUSTOM LAUNCH OPTIONS

In the final screen, the player can customize the scenario launch options to suit his playing style. Please note that these custom options (possibly excluding the 'player character' option) are not saved in the scenario file. They can be different every time when a saved scenario is started.

To play the game using the 'rounds', which is quite similar to the WE-GO system, popular in wargames, adjust the round length. In Armored Brigade, orders can be issued when a round is in progress, but it's not possible to pause or save the game when a round is in progress.

The 'player character' option forces the player to assign himself to a unit on the battlefield.



If the 'show hidden in AAR' option is enabled, then all the enemies, hidden smoke etc. is revealed in the AAR phase. The player will also be able to review the enemy order of battle.

The 'show victory levels' option allows the player to see the victory level bars in real-time, without the fog of war.

If the 'always play enemy sounds' option is enabled then all the

battlefield sounds are always played, even if the sound source is not detected and identified, regardless if the 'player character' option is not enabled.

By adjusting the training and morale modifiers, one side can be made stronger or weaker.

After done, click 'PLAY!' to start the scenario.

4. USER INTERFACE

4.1. GAME MODES

4.1.1. Standard Mode

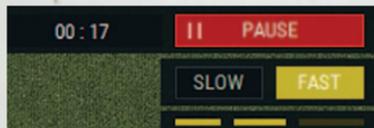
The simulation runs in real-time. In the standard game mode, it is possible to pause the action anytime. Orders can be given while the game is paused.

4.1.2. Round Mode

Optionally, the game can be played by using custom length 'rounds'. The game still runs in real-time, but it is not possible to pause the game

manually. Time stops automatically when a round ends, and the player can start the next round when he wants to. It's not possible to save the game when a round is in progress. The round length is adjusted in the scenario launch options. It can be 30, 60, 90, 180 or 360 seconds. New orders can be issued anytime, during the round or between the rounds.

4.1.3. Time Compression



In addition to the default time compression, there are two other modes available: slow and fast. The slow time compression makes the game run at 25% of the normal speed. It is not available in the 'round' game mode. The fast time compression has three different modes available. They run the game with 4x, 7x, and 10x compression rates.

4.1.4. Player Character

The optional 'player character' unit represents the player on the battlefield. If the unit is lost the scenario ends in defeat.

The player's 'ears' follow the unit's position and orientation, and the player hears every sound on the battlefield if the sound is close and loud enough. The player unit has no command delay and has a static morale value. It can act as an artillery observer and can call HQ CAS (helicopters) for help.

In the setup phase, the player can assign himself to any unit, if the feature has been enabled in the scenario launch options. The scenario designer may have locked the player character unit, and in that case it cannot be reassigned.

4.1.5. Scenario Edit Mode

In the scenario edit mode the player can move his formations to their default positions and change the formation orientation, shape, spacing, and pathfinding. Also, a mechanized formation can start with its units mounted or dismounted. Click the 'SAVE SCENARIO' button to save the changes.

4.2. GAME PHASES

4.2.1. Setup Phase

In the setup phase the formations can be placed to the desired positions unless they are locked by the scenario designer. The recon units can be placed in the 'no man's land' between the main setup zones. Depending on the scenario type, the goal is to defend or occupy the objective locations and to cause maximum casualties to the enemy.

Waypoints and other unit command have no command delay in the setup phase, so it is usually a good idea to plan forward by adding waypoints and setting the unit states at this point. See a later section for information about 'disabled' waypoints that can be activated during the action phase.

If the 'player character' option has been enabled, the player can be assigned to any friendly unit. As the default, he is assigned to a HQ unit.

All obstacle assets must be used. Click the 'BUILD' button to place minefields, anti-tank obstacles, and wire-obstacles. Left-click and drag on the map to place or remove obstacles. Right-click to change the selected obstacle type.

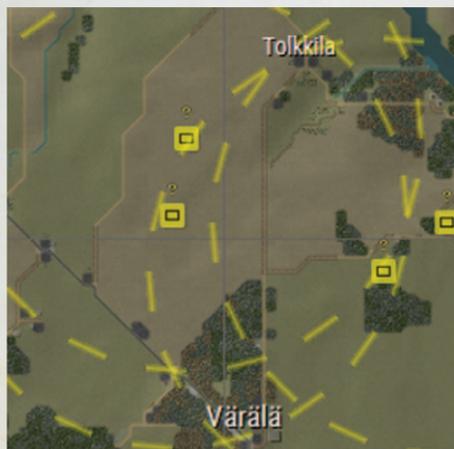
Artillery and artillery mine Target Reference Points (TRP) must be designated in the setup phase. Click the 'TRP' button, and left-click on the map the place or remove them. Right-click to change the selected type between the standard and the mine TRPs. The standard TRPs reduce off-map artillery delay if the target area is close to them. Artillery mines cannot be used outside a TRP [Mine] radius.

If the player has helicopter support, the helicopter Battle Positions (BP) and TRPs must be designated in the setup phase. Click the 'AIR SUPPORT' button to see the list of available aircraft. The helicopter flights have the 'Undesignated' status label next to them. Fixed-wing air strikes cannot be used in the setup phase.

▶ **START**

Click the 'START' button to enter the next game phase. If everything has not been set as required, such as placing TRPs or obstacles, then the related mode is activated automatically and the player is prevented from proceeding before completing the tasks.

4.2.2. Pre-Battle Recon Phase



The pre-battle recon phase is conducted automatically between the setup and action phases. When the battle starts, some of the estimated enemy unit positions may be revealed. The base chance depends on the training level of the side conducting the reconnaissance. Vehicles are easier to detect than infantry units. HQ units and units with

radios have a higher chance to become revealed, and recon units have a lower chance. Obstacles may be detected too. Minefields are harder to detect than other obstacles.

4.2.3. Action Phase

The actual fighting occurs in the action phase. The main goals are to inflict maximum casualties to the enemy and to capture and hold victory objective areas. The action phase ends when one side runs out of victory points that are shown in the screen top as two bars or when the 'player character' unit is killed. They are partially hidden by the fog of war, depending on the scenario launch settings.

4.2.4. After Action Report Phase

Location: The Fulda Gap (322,1476)
Scenario: Sample Scenario #1

Player side: US Army Opponent side: USSR

	Deployed	Lost	Routed
Troops	123	3	0
Vehicles	14	0	0
Guns	0	0	0
Mortars	4	0	0
Forts	0	0	0
Aircraft	0	0	0

	Deployed	Lost	Routed
Troops	7	4	0
Vehicles	7	4	0
Guns	7	0	0
Mortars	7	0	0
Forts	7	0	0
Aircraft	7	0	0

Neutrals: 7 Artillery: 7

Based on the victory point levels in the end after action phase, the end result can be a draw or tactical/major/total victory/defeat. If the 'player character' unit was killed then the victory points are ignored.

In the after action report view, the player can review the battle statistics and watch the recorded replay. In the separate OOB window it may be possible to view the enemy order of battle. To see the enemy hidden positions, statistics, and order of battle the 'show hidden in AAR' option must be enabled in the battle launch options.

02:20

4.3. CONTROLLING UNITS

4.3.1. Selecting Units



'Formations' in the game can be companies, platoons, or sections. They are represented by the flag icons. Individual units are represented by the standard NATO icons. If the player selects a formation, then any sub-unit attached to it cannot be selected. If its sub-unit is detached from the formation, then the player can

select and command the formation and the sub-unit separately.

The formations and units are selected with the standard 'lasso' tool. Hold down the 'shift' key to make new selections without de-selecting the old ones. Right click on a formation or unit to select only it and open the command menu instantly.

Hold down 'control' and press a 1-9 number key to create a 'quick-group'. Press the number twice to move the screen to the quick-group.

4.3.2. Right-Click Commands



A mouse right-click opens a command menu for the selected formations and units. By using this menu, the player can add and delete waypoints, set maximum engagement ranges, and use other special commands, depending on the unit type. In the setup

phase, the player can place formations and units by using the 'PLACE' (hotkey 'spacebar') command, which is the recommended way, or by dragging the selections on the map. The scenario designer may have locked the formation positions, and in that case they cannot be moved. Foot recon formations can try to 'INFILTRATE' the enemy area. On-map mortar and artillery units can use indirect fire or cancel fire missions in the menu. The munition and spotter type, if any, are shown when setting the target position. The 'player character' unit can be reassigned, if the scenario allows it.

When an order is given to a formation it automatically controls all its attached sub-units. When giving an order to an individual unit it becomes detached from its formation. To reattach it back, the player should select 'ORDERS' -> 'REATTACH'. When commanding individual units they have a longer command delay than when commanding formations.

The player can plan forward by using 'disabled' waypoints. If a disabled waypoint is placed after the setup phase, the command delay must pass before the order will be ready to be executed. To add a new disabled waypoint, select a waypoint type and then hold down the 'control' key and click on the map to place the waypoint. The disabled waypoints have a red symbol. When the player wants the unit to execute the plan, the waypoint must be activated. To do this, hold down the 'control' key again and click on the waypoint. A disabled waypoint acts like a 'hold' button. Elaborate coordinated plans can be made with numerous units and formations by using disabled waypoints, since if command delays are already paid for, units immediately begin acting when a waypoint is activated.

4.3.3. Formation



FORMATION

The formation options control the preferred formation shape. The vehicle turret default scan direction depends on the formation shape. If the units should not reorganize between waypoints then the 'FREE' formation type should be used. For road marches, the 'MARCH' formation type should be used. 'REGROUP' moves the attached units in formation back

to their default positions. The 'SPACING' +/- setting controls the distance between the units. The dots next to the formation flag indicate the formation shape and spacing. The formation options are not available in the setup phase if the scenario designer has locked the formation.

4.3.4. Orders



ORDERS

In the orders menu the player can give commands to the selected formations and units. If a single unit is selected then only the available order buttons are visible. Otherwise all the buttons are visible, even if they may not be usable. HQ units and the 'player character' unit can use the 'HQ CAS' order to call on-map helicopters for help. Transport vehicles can 'LOAD' or 'UNLOAD' their passenger units. The 'POP SMOKE' order creates a smoke screen, if the unit has them available. The 'REATTACH' order attaches a detached unit back to the formation structure.

4.3.5. Standard Operating Procedure



SOP

The Standard Operating Procedure (SOP) has unit behavior options. Some of them are subject to the command delay.

Pathfind

SHORT

QUICK

COVER

There are three pathfinding options

available in the SOP menu: 'SHORTEST' (the most straightforward), 'QUICKEST' (the best trafficability), and 'COVERED' (the best protection). Formations and units form their paths based on this option. If a formation is controlling its sub-units then the formation pathfind option is used. If orders are given to an individual unit then the unit pathfind option is used. In some cases the units can temporarily override the selected pathfind option. For example, when an infantry unit starts retreating, it automatically uses the covered path. The active formation pathfind option is indicated by the character next to the flag: (S)hortest, (Q)uickest, or (C)overed.

The soft and hard target engagement ranges, the preferred rate of fire, and the unit main armament usage option can be set in this menu. Transports

can be set to unload their passengers automatically when in contact with the enemy. If a vehicle has a smoke generator it can be toggled on and off.

4.3.6. Indirect Fire

FFE

1 ROUND

HOLD

If the selected formation or units have a designated indirect fire

target, then these controls can be used to adjust the number of rounds in the firing queue. 'FFE' orders the units to fire until the player stops it manually. '1 ROUND' adds one more round to the queue. The number of rounds can be seen next to the target line. 'HOLD' removes all rounds from the queue.

4.3.7. Enemies Detected By The Selected Unit



When a single friendly unit is selected, the enemies seen by that unit have a blue circle around them.

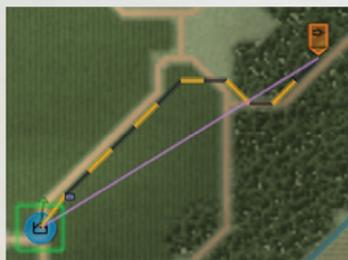


In the selected unit close-up view in the bottom left, in addition to the unit graphics, there are arrows pointing to the enemy units and muzzle flashes the selected friendly unit can see. When this mode is active, the view background image becomes brighter. The hostile aircraft symbols have a shadow under them.

4.3.8. Unit Stats Panel

HQ contact: 73%	Ready	105mm M68 Gun	38
Pathfind: QUICKEST	Motivated	7.62mm Coax MG	3200
Range: MAX MAX		12.7mm HMG	100
Rate of fire: FAST [Main: YES]			
Smoke: OFF [2 / 2]			
ORDERS	SOP		

When a single friendly unit is selected, its information in the stats panel is shown. The information includes the HQ contact, the active pathfind option, the maximum engagement ranges for soft and hard targets, the rate of fire and main armament usage, the automatic unload option, and the smoke generator option. Most of these are controlled from the SOP menu. Other information includes the unit state, morale, casualties, and damage statuses. Next to them is weapon and ammunition data. If a weapon needs to be emplaced, there is '[E]' next to its name.



4.3.9. Unit Path

The path the selected unit follows is shown with a two-color line.

4.3.10. Unit Specs Window

The unit specs window shows information about the selected unit. The unit can be

UNIT SPECS ✕

M60A3 (TTS) MBT Click to rename



Length: 6.9m / 3.6m	Training: 83	
Width: 3.6m / 2.4m	Morale: 83	
Height: 1.7m / 1.5m	Fatigue: 0	
	Kills: 0	
Max Speed: 47 kph	Radio	
Reverse: 24 kph	Thermal Imaging	
Off-Road: 85%	2-Plane Stabilization	
Mobility: Tracked	Smoke Generator	
Survivability: Good	NBC Protection	
Visibility: Good		
Smoke Screens: 2 / 2		

WEAPONS		ARMOR	
Weapons		Ammunition [ready / stowed]	
105mm M68 Gun		APFSDS	21 / 14
7.62mm Coax MG		HEAT	11 / 7
12.7mm HMG		HEP	6 / 4
Night Vision:	3500m	Range:	0 - 3000m
Obscurants:	-175	Anti-Armor:	KE
Emplace Time:	0s	Damage vs Soft:	Low
Alt Time:	4s	Targets:	Hard, Air
Time to Fire:	8s	Max Target Speed:	50 mps
Limited Elevation		Signature:	360%

	0m	600m	1200m	1800m	2400m	3000m
Range	0m	600m	1200m	1800m	2400m	3000m
Accuracy	90	87	81	71	57	40
Penetration	377	367	357	347	337	328

renamed in this screen. The vehicle dimensions are for the hull and the turret. When the unit is damaged, or has lost men, the shown attributes are updated and reduced capabilities are rendered with a different color.

In the 'WEAPONS' view, the weapon attributes are shown under the weapon list, and the ammunition attributes are shown under the ammunition list for that weapon. In the bottom is the accuracy and penetration table for the selected ammunition. In the 'ARMOR' view, protection levels against ammunition with different anti-armor effects is shown.

4.3.11. Unit Lock

The game view and the player's 'ears' follow the locked unit's position and orientation. To activate the lock, click the 'camera' button, click on the unit twice, or select the unit in the OOB view.

4.4. OBJECTIVES

Objectives are the key element in the game. They are captured and held by having units located in the objective area. Recon units and retreating units cannot occupy them. The objectives have several different states that can be seen from the color and rectangle style: 'neutral', 'player', 'opponent', 'controversial', and 'dummy'. An objective becomes 'controversial' if the defending side has lost it once, and the side cannot get a full victory point benefit from it anymore. The 'dummy' objectives don't affect victory points at all and can be seen in different locations by the opposing sides; dummy objectives are revealed in the after action report phase.

4.5. VICTORY LEVELS



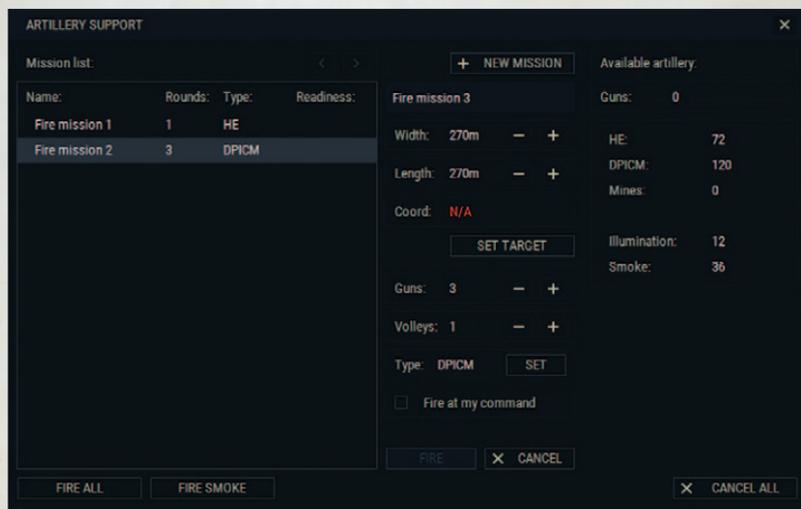
The battle ends when one side runs out of 'victory points'. The victory levels are shown as the bars in the screen top, but may be partially hidden by the fog of war.

4.6. ARTILLERY



ARTILLERY

The number of available guns and artillery ammunition depend on the scenario and faction parameters.



In the artillery menu the player designates targets for off-map artillery. To create a fire mission, select the round type and the number of guns for that fire mission. Then the target area coordinate and dimensions can be set. If the coordinate is not set then 'N/A' is displayed. The fire mission starts to adjust right after setting the target area. The target area can be readjusted after the delay. Small adjustments and targeting areas close to Target Reference Points (TRP) reduces the delay. Artillery fire missions that are planned in the setup phase have no delay.

A fire mission needs to have its target area designated. The size can be adjusted by holding down the 'shift'/'control' keys and using the mouse wheel. TRPs affect the delay, which is shown above the target area when setting it. A spotter makes artillery fire more accurate. HQ units and the 'player character' unit are the best spotters. Other units with a radio can act as a spotter. The spotter, if any, is shown below the target area.

The fire mission name can be edited in the text box.

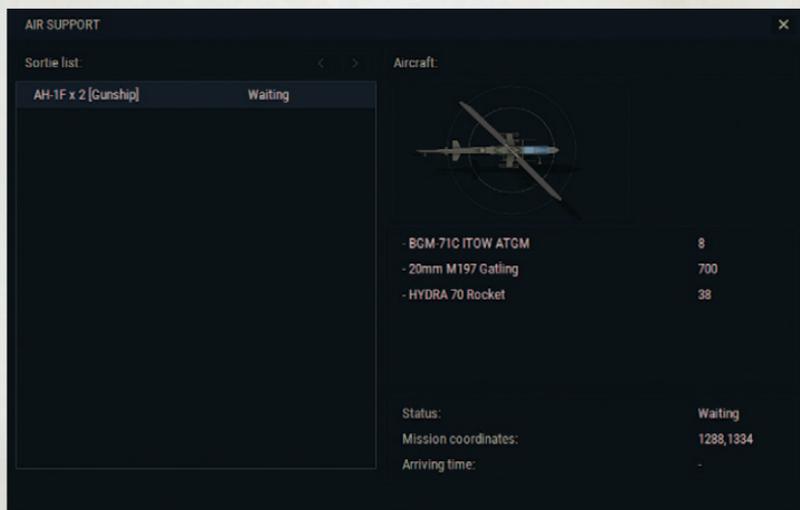
'Volleys' is the number of shots per gun.

If the 'fire at my command' option is enabled (and always after the first volleys) the order to fire must be given manually by clicking the 'fire' or 'fire all' buttons. To fire all smoke fire missions, click 'fire smoke'. To delete fire missions click the 'cancel' or 'cancel all' buttons.

The list of fire missions shows the name, the number of rounds, the shell type, and the current status.

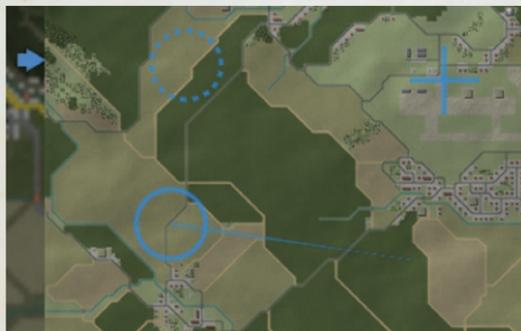
4.7. AIR SUPPORT

 **AIR SUPPORT** Select the aircraft sortie from the Air Support window menu to give it orders. There is a random delay before the called close air support arrives. After fixed-wing aircraft have exited the map, there's a chance that they will not be available anymore. Rotary-wing aircraft are never available again once they leave the map. Aircraft can leave the area if they take heavy fire, are damaged, or are running out of ammunition.



Fixed-wing aircraft carry iron bombs, napalm, and cluster bombs among other weapons. The aircraft fly towards their designated waypoint. They attack ground targets inside the smaller circle, and anti-aircraft units inside the SEAD (Suppression of Enemy Air Defenses) circle.

Helicopter entry points, Battle Positions (BP), and Target Reference Points (TRP) must be designated before the battle. During the battle, when the player calls the helicopters, they fly to the first BP and observe their TRP. The player can order them to change the BP. HQ units and the 'player character' unit can use the 'HQ CAS' order to call on-map helicopters for help. If there's an on-map helicopter flight available, it will fly to a position close to the caller, and engage any enemies there.



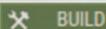
The blue arrow is the entry position. The circles are the BPs. The active BP is a solid circle, and the other positions are dashed circles. When designating the TRPs, the main weapon range

and the maximum helicopter LOS (Line of Sight) range are shown as circles. A red line indicates that there's no LOS to the mouse cursor position from the BP maximum pop up altitude. The helicopters use 'pop up' tactics when they are in a BP. They change their altitude between 8 and 50 meters, or less if they can have a line of sight to the TRP without going up to 50 meters.

Scout helicopters report their sightings to their owner.

Air-to-air combat can happen if two or more opposing flights are present on the map and possess suitable weapons, for example air-to-air missiles. Aircraft will try to engage hostile targets automatically.

4.8. OBSTACLES



If there are obstacles available, all of them need to be placed before the battle can start.

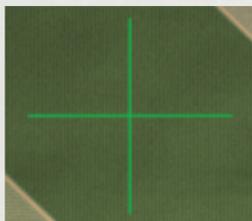
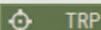


The defending side may have been allowed to purchase obstacles. Minefields, anti-tank obstacles, and wire obstacles disturb movement and can disable or even destroy ground units. A vehicle that has a mine plow can breach obstacles. Pillboxes with machine guns are available, but they are

easily destroyed by anti-tank weapons. Their firing slit is unarmored.

Anti-tank and wire obstacles can be detected from a distance, if there is a LOS. To detect minefields, the observer must get close to them. Some of the obstacles can be detected in the pre-battle recon phase. Pillboxes follow the standard unit spotting rules.

4.9. TARGET REFERENCE POINTS



All artillery Target Reference Points (TRP) must be placed in the setup phase before starting the battle. TRPs make the off-map artillery respond faster. Artillery-delivered mines need to have a special TRP, without which they cannot be fired. Each such TRP supports a limited number of minefields.

4.10. LOS TOOL



The line of sight (LOS) tool shows the ground-to-ground LOS two meters above the ground level. Smoke is not taken into account, since not all smoke is visible to the player. When the LOS tool is used on a ground unit, the unit spotting capabilities are taken into account. This is known from the

green symbol. Air detection ranges are considerably longer than the ground detection ranges. The LOS value can be anything from 0% to 100%. 0% means that there's no LOS at all, and 100% means that the target is fully visible. Change the LOS color mode to display the results differently ('shift'+ 'L').

The LOS tool displays the range to the location under the cursor.

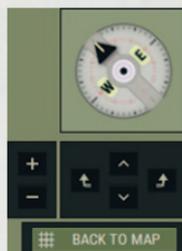
Outside the LOS tool, when a single unit is selected, next to the cursor is the distance to that location. The number is green if the unit can see that location, or red if it cannot be seen. Similarly to the LOS tool, smoke is not taken into account.

4.11. MAP MARKERS

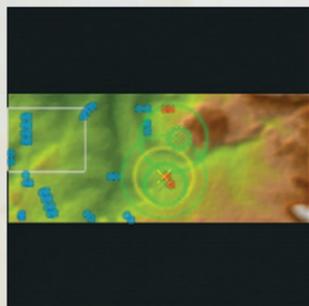
! MARK Map markers can be placed as reminders that help in planning the course of action.

4.12. ISO VIEW

ISO The ISO mode shows an isometric view of the battlefield. The elevation scale can be adjusted with the plus and minus UI buttons to get a better idea of the height differences. The other controls are for rotating and tilting the map. The compass helps to find North.



4.13. MINI-MAP



Mini-map shows the terrain map or the elevation map as the background, depending on which mode is selected for the main map, and the LOS tool graphics. The known player and enemy unit and message locations are displayed.

In the standard view, the map can be panned by click on the minimap. In the ISO view, there is a marker showing the viewing direction.

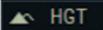
4.14. MAP SCROLLING AND ZOOMING

The map can be scrolled to a location with a mouse right-click or with the keyboard arrow keys. Hold the mouse middle-button to pan the map.

 The mouse wheel zooms the map. Above the mini-map are the UI buttons for zooming in and out. There are several keyboard shortcuts for zooming.

4.15. MAP MODES

4.15.1. Elevation Map

 The elevation mode shows the color-coded height map. It is possible to change the colors in the options. Rivers and other deep water are shown with a blue color. Impassable areas, such as steep slopes and no-go zones, are shown with a red or dark color, depending on the elevation map settings. Click the 'HGT' button below the minimap to activate this mode.

4.15.2. Paper map

 As an alternate main map mode, a 'paper map' style is available. It does not render the terrain textures or other detailed graphics when zooming in. Click the 'MAP' button below the minimap to change the map style.

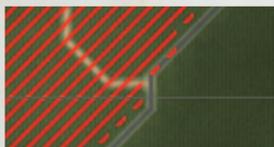
4.15.3. Contour Lines

 Below the minimap is a button for toggling the contour lines on and off.

4.15.4. Grid Lines

When zooming out, the grid lines show square kilometers, and numbering starts from the North-West corner of the master map. When zooming in, the map cell grid is shown. Both can be toggled on and off in the game options.

4.15.5. No-Go Zones



A scenario can have 'no-go zones', set up by the scenario designer. These areas are not accessible to any ground units. These are displayed with a red or dark color, depending on the map mode.

4.15.6. Water Crossing Points



Deep water can be made passable by the scenario designer. When zooming out, the areas are displayed with a green color.

4.16. TERRAIN INFO BOX

i The terrain info box is toggled on and off by clicking the 'i' button below the mini-map. The info box tells the map cell coordinate and other information. The first number of the 'height' attribute is terrain elevation in meters, and the second number is the height of terrain objects in that cell, for example the building height.

4.17. MENU



The 'MENU' button opens the in-game menu. The menus for saving and loading game states can be accessed from here, as well as the game options menu. The 'SAVE AND EXIT' button saves the current state and enters the main menu. The game can then be resumed from the main menu by clicking the 'CONTINUE' button.



The game has an autosave feature. The state is saved automatically after the setup phase and at regular intervals after that. The generated save slot can be loaded in the load game menu.

It is possible to delete save slots in the save and load game menus.

4.18. HOTKEYS



The 'keyboard' icon button shows the list of hotkeys and other useful controls.

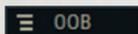
4.19. HINTS



The 'question mark' icon button shows a hint, if one is available. If there is no hint available then the button is disabled. If the hint is visible then the button opens the next hint page or closes the hint. It is possible to toggle the hint mode on or off and to reset the hints in the game options. All of the hints are readable in the 'game guide', accessed from the game main menu.

The hotkeys for the hints is 'F1'.

4.20. ORDER OF BATTLE



The order of battle view gives an overview of the units. In the setup phase and during the battle the sides can see their own units only. In the after action report phase, if the 'show hidden in AAR' option has been enabled in the battle launch options, the player can view the enemy order of battle.

ORDER OF BATTLE			X				
ALL			RECON	INFANTRY	MECHANIZED	ARMORED	SUPPORT
Formations: < >			Units: < >				
A	Dismounted Scout Section	2 / 2	H/0	M1A1 MBT			Dug in
B	Dismounted Scout Section	2 / 2	H/1	M1A1 MBT			Dug in
C	M113A2 Scout Section	4 / 4	H/2	M1A1 MBT			Dug in
D	M113A2 Scout Section	4 / 4	H/3	M1A1 MBT			Dug in
E	M113A2 HQ	3 / 3					
F	M2A2 Mech Inf Platoon	8 / 8					
G	M113A2 Mech Inf Platoon	8 / 8					
H	M1A1 Tank Platoon	4 / 4					
I	M901A1 AT Section	2 / 2					
J	TOW-2 ATGM Section	2 / 2					
K	M106A2 SP Mortar Section	2 / 2					

All 'recon', 'infantry', 'mechanized', 'armored', or 'support' category formations can be listed. In the left side menu are listed the formations. Next to the formation names are the current and original number of units in that formation. Click on the formation to select it, and again to move the screen to it. In the right side menu are listed the units and their states in the selected formation. Click on a unit to lock the screen to it.

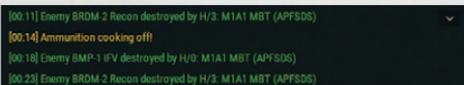
4.21. BRIEFING



BRIEFING

In the briefing window the player can see the scenario description for his faction.

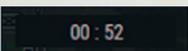
4.22. MESSAGES



The event messages have different colors, depending on the message type. The

timestamp indicates the battle duration at the moment of the event. Click on the message to scroll the view to the message location. The message view can be expanded by clicking the arrow button. The message locations are shown briefly as they occur on the mini-map.

4.23. BATTLE TIME ELAPSED



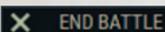
The time is the elapsed battle duration. This time is used in the message timestamps.

4.24. ENVIRONMENT INFO



The environment info view tells the clock time, ground visibility in meters and other information. It can be expanding by click the arrow button.

4.25. END BATTLE



If the battle is ended prematurely, the end condition will be a draw. It will take a few more seconds of battle time before the action phase will end.

4.26. NATO ICONS

	Friendly	Hostile
Main Battle Tank		
Main Battle Tank with Mine Plow		
Heavy Tank		
Heavy Tank with Mine Plow		
Medium Tank		
Medium Tank with Mine Plow		
Light Tank		
Light Tank with Mine Plow		
Infantry Fighting Vehicle		
Wheeled Armored Fighting Vehicle		
Armored Personnel Carrier		
Self-Propelled Artillery		
Self-Propelled Heavy Mortar		

Self-Propelled Medium Mortar		
Self-Propelled Anti-Aircraft Weapon		
Self-Propelled Anti-Tank Weapon		
Self-Propelled Flamethrower		
Pillbox		
Infantry		
Grenade Machine Gun		
Heavy Machine Gun		
Medium Machine Gun		
Light Machine Gun		
Reconnaissance		
Artillery		
Heavy Mortar		
Medium Mortar		
Light Mortar		
Man-Portable Air-Defense System		
Anti-Aircraft Gun		
Anti-Aircraft Missile		

Anti-Tank		
Anti-Tank Gun		
Anti-Tank Missile		
Flamethrower		
Fixed-Wing Aircraft		
Rotary-Wing Aircraft		

The formation flags and the unit symbols follow mostly the NATO standard. The blue color is used for friendly units, the green color for neutral units, the yellow color for unidentified units, and the red color for known hostile units. If a unit's exact location is not known then a question mark is shown next to the icon. If the visual contact is lost to a unit and it moves then it may need to be identified again. Friendly units taking fire flash with a red color.

A blue line is rendered between a friendly unit and its current target. The line flashes when the unit fires. Friendly aircraft show the line only when firing.

Detected muzzle flashes from undetected enemies are shown with the symbol with a circle around it, indicating the estimated area where the enemy unit is supposed to be.

4.27. UNIT STATUS SYMBOLS

	Carrying passengers
	Loading/unloading passengers
	Passengers dismounted
	Suppressed or buttoned-up
	Casualties or damaged vehicle

	Slowing down
	Immobilized
	SOP: Do not use main armament
	SOP: Engagement range (hard)
	SOP: Engagement range (soft)
	SOP: Slow rate of fire
	Radar contact
	Unknown

4.28. OBSCURANTS AND TERRAIN FIRES

Smoke, dust, and fire are rendered with different symbols in the zoomed out map view and in the ISO view. Thermal Imaging (TI) smoke from smoke shells and terrain fire that is in the rain have their own symbols.

5. APPENDICES

5.1. UNITS

5.1.1. Training

The initial training value is based on the faction attribute for the selected year and month, the unit formation attribute, and the scenario launch parameters. Some randomization is added in the beginning of a battle.

The training value affects spotting, hiding, firing accuracy, pre-battle recon detection, breaching, infiltration, purchase cost, fatigue, slowness caused by suppression, breaching speed, and the chance to find and enter a defilade position.

5.1.2. Morale

Morale affects a unit's purchase value, and the initial morale value is based on the faction attribute for the selected year and month, the unit formation attribute, and scenario launch parameters. Some randomization is added in the beginning of a battle.

Morale is reduced by suppression, casualties, damage, immobilization, flamethrower attacks, and lightning strikes. When the unit sees friendly units killed, retreating, or becoming routed, then the unit takes a morale hit. The player character unit has a constant morale value.

Units with high morale are less likely to retreat and recover faster from suppression. Vehicles with high morale button-up (close the hatches) less quickly when taking fire and un-button faster. The higher the base morale, the faster the unit can recover from morale hits. Aircraft with high morale tend to stay longer in the battle area before leaving due to damage.

5.1.3. Retreating



Mobile non-vehicle units can retreat to cover automatically. If the unit sees enemies when it starts retreating it may pop smoke.

The unit must be reattached to its formation manually after it has stopped retreating. A HQ contact can prevent the unit from retreating. Low morale increases the chance of retreating.

When the unit is retreating, the player loses control of it. The retreating unit cannot engage enemies or use indirect fire, capture or hold objectives, or enter its transport. The unit's spotting capability is very limited. If it is guiding a non-fire-and-forget missile and retreating at the moment of impact accuracy goes to the minimum. Retreating HQ units cannot call on-map helicopter for CAS.

All units automatically try to move away from terrain fires.

A unit that is about to retreat may become routed instead, or it may abandon the vehicle it has crewed. Such a unit is lost for the remainder of the battle. This is more likely to happen to static and immobilized units.

5.1.4. Fatigue

Fatigue slows down infantry movement and affects spotting, hiding, and firing accuracy. If the level of fatigue is high then suppression recovery is slower.

Infantry units tire when they move. 'Fast' movement, extreme temperatures, and suppression make the units tire faster. Units with high training level do not get tired as easily.

5.1.5. Suppression

When a unit is suppressed its morale level starts going down, and there's a risk that the unit will retreat, or in the worst case it can rout or the crew can abandon its vehicle. Suppression affects movement speed, fatigue, spotting, hiding, rate of fire and firing accuracy. A vehicle can button-up when it is suppressed, depending on the morale value. A vehicle cannot un-button if it is suppressed.

Suppression can be caused by incoming fire, casualties, damage, immobilization, explosions, terrain fires, aircraft crashes, and lightning strikes. Low morale, high fatigue, and casualties make the unit recover from suppression slower.

Units switch between targets to keep multiple identified enemy units suppressed.

5.1.6. Armor And Penetration

All ammunition has two separate damage types: 'soft' and 'armor-piercing' (AP). AP ammunition has three different round types: Kinetic Energy (KE), Chemical Energy (CE), and Tandem-charge projectiles. Vehicles have separate levels of protection against each of these anti-armor effect types.

The soft damage value is used against non-vehicle 'soft' targets, such as infantry, anti-tank guns, and mortars. Soft damage is usually constant for all ranges, because in many cases it is based on the ammunition shrapnel effect that is not affected much by distance. High soft damage considerably increases the probability to hit, can kill several men in a unit with a single hit, and can start terrain fires. High soft damage ammunition has a 15% chance of achieving

a critical hit against a gun unit, such as an anti-tank gun or on-map artillery unit. A critical hit destroys the unit.

The AP damage value is used against armored and unarmored 'hard' targets. These include vehicles, pillboxes, and aircraft. The KE round damage is usually reduced as the range increases. CE rounds and tandem-charge projectiles, on the other hand, behave like their soft damage values, and maintain their penetration over distance, because it is not based on the projectile speed.

The tandem-charge warheads are effective against reactive armor, which is designed to protect vehicles against anti-tank munitions.

Armor-piercing projectile penetration is measured against the armor protection level. The final result depends on various factors, such as the hit location in the target, the angle of impact, armor shape and a potential weak point hit.

The armor is usually the weakest or even absent in the vehicle top, so it may be a beneficial tactic to seek higher ground or buildings, so there's a higher chance to hit the top armor. However, the angle of impact can be very high in such cases, and that can make the top armor harder to penetrate.

5.1.7. Impact Angle

Vehicles can be hit in the hull or in the turret, in the front, side, rear or top armor. If the vehicle is dug-in or hull-down, then only the turret can be hit. The impact angle is calculated horizontally and vertically. The 'complex' armor shape in certain vehicles adds some randomization to the hit angle. There's a chance for a weak point hit, where only 20% of the standard armor protection applies. The pillbox front side has a 5% chance to be hit in the slit that has no armor. A very high angle of impact can result in a ricochet. The impact angle and special hits are shown in the hit messages.

5.1.8. Damage And Survivability

The better the vehicle or aircraft survivability value, the more it can withstand critical damage beyond the armor. After taking damage the vehicle

performance and abilities are degraded. If the level of damage is very high, the vehicle will start burning and secondary explosions may follow later.

Passenger units have a better chance to survive if the vehicle they are riding in has been lost, if the vehicle is destroyed by a low caliber weapon. For example, if an unarmored truck with low survivability is shot with an assault rifle or machine gun, there may not be much internal damage and all the passengers can survive. On the other hand, even if the vehicle is armored and has a high survivability value, that may not save the vehicle or the passengers from a single hit of a HEAT round.

Firing accuracy, rate of fire, and movement speed of a damaged vehicle or aircraft is reduced. Damaged aircraft can abort their mission and leave the area. Vehicles can pop smoke automatically when they are damaged.

5.1.9. Indirect Fire Damage

Artillery, mortar, and aircraft delivered munitions attack the ground units from above. There can be direct hits, area and shrapnel damage, and area suppression. Aircraft crashes have a similar effect. Water impacts have a smaller blast radius.

The top armor of vehicles and pillboxes can receive a direct hit. The direct hit radius depends on the unit's hull size. A single hit to the weak top armor can be catastrophic.

Outside the direct hit radius, all ground units can receive area damage. As an example, a heavy artillery HE shell's maximum damage radius is 50 meters. If the unit is dug-in or protected by terrain cover, then the radius is decreased. Similar to the direct fire damage, vehicles are protected by the hull or turret armor against area damage, which is considered to be kinetic energy in the game. However, even if the vehicle is protected by heavy armor, it can receive minor shrapnel damage, or become immobilized if the hull is hit. Suppressed and stationary infantry have extra protection against the shells, because they are taking cover.

An area damage blast wave suppresses a radius of twice the radius of the damage area. The radius is reduced for dug-in and stationary infantry.

5.1.10. Casualties

After taking casualties, units recover more slowly from suppression, and they can lose weapons and ammunition. An important weapon may be picked by another soldier, like a squad machine gun.

5.1.11. Immobilization

Both vehicles and non-vehicle units can become immobilized. A vehicle can be immobilized due to damage or traveling on terrain other than roads. Terrain-based immobilization depends on the temperature and the unit's off-road attribute.

Non-vehicle units can become immobilized if they do not have enough men left to carry the unit's equipment (due to losses).

Immobilization makes a unit suppressed and unable to move. In addition, vehicle units suffer reduced morale as well.

5.1.12. Slowing Down

In some cases, when a vehicle is very close to becoming immobilized because of not moving on a road, it will temporarily slow down instead. After a while it can continue its normal advance.

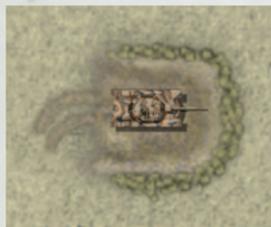
5.1.13. Size

Size affects how easy the unit is to hit and see. Large vehicles make more dust when they move. The larger the unit is the bigger explosion it can make when it explodes.

The ground vehicle and pillbox size is based on the hull and turret dimensions. If a vehicle is dug-in or in defilade then only the turret is visible. If the vehicle has no turret, then 1/3 of the hull is visible. The size is compared to the size of an 'average' sized vehicle, which is the size of a T-72 tank. Based on this, the vehicle is considered smaller or larger than average.

Infantry and mortar size is based on the number of soldiers. When men are lost the unit becomes smaller. Gun units, such as anti-tank guns, have a fixed size. When dug-in, the size of these units is halved.

5.1.14. Dug-In And Defilade



The defending side can have all its units dug-in in the beginning of the battle, if the scenario parameter allows it. The dug-in positions cannot be on water, roads, bridges, railroads or buildings. After the unit has left the position it cannot be entered again.



A vehicle can automatically enter defilade when it stops. The chance is based on the terrain relief value and the training level of the unit.

When dug-in or in defilade, the unit appears as smaller to the observer, and it is better protected against direct and indirect fire. Dug-in units have somewhat reduced spotting capability. If the unit is a vehicle, it is 'hull-down', with only the turret visible to the observer, or 1/3 of the hull if the vehicle has no turret. The dug-in state covers 360 degrees, but if in defilade only the direction of the visible arc is covered.

Non-vehicles in dug-in positions can hide from the enemy.

5.1.15. Hiding



Non-vehicle units can remain completely hidden from the enemy, if they do not fire and are dug-in, remain stationary in terrain that has a concealment value greater than zero, move inside buildings, or move between adjacent buildings. A unit is spotted if an enemy unit tries to enter the location. If the enemy has detected the unit then the line of sight must be broken before the unit can hide effectively again.

5.1.16. Buttoning-Up

When a vehicle is 'buttoned-up' it usually means that the hatches are closed, and the crew has a limited and narrower field of view. Vehicles have a 'visibility' attribute that determines how much the spotting capability is hindered.

Damage reduces the capability even more. Some weapons cannot be fired when buttoned-up. A buttoned-up vehicle cannot establish a visual HQ contact.

Suppression can make vehicles button-up. Vehicles with high morale button-up less quickly when taking fire, and un-button faster. A vehicle cannot un-button if it is suppressed.

5.1.17. 2-Plane Stabilization

If a vehicle has a 2-plane stabilizer, its spotting capability is less hindered when moving, and weapon accuracy is not affected at all. Its turret traverse is independent of the hull.

Older vehicles without a 2-plane stabilizer may need to aim and acquire the target again after moving. These weapons have an emplace time greater than zero and the vehicle stops to fire a shot every 150 meters.

5.1.18. Recon Units

Recon units cannot occupy objectives, but they can be placed in the no-man's-land in the setup phase. They are harder to detect than other units, including in the pre-battle recon phase, and they have an improved spotting capability.

In the setup phase, if their starting position is not locked by the scenario designer, they can use the 'infiltrate' capability to try to start in the enemy setup zone.

5.1.19. Passenger Units

A transport unit can load its dedicated passenger unit only. A line is rendered between these two units. The color of the line indicates if the passenger is close enough to the vehicle to get inside. The unit cannot be loaded if it's retreating.

5.1.20. Mine Plows

The advancing side has one mine plow per platoon on average. All vehicles cannot be equipped with a plow. The mine plows can be used to clear any obstacle in the game. The chance for success and breaching speed depend on the unit's training level. While breaching minefields, the unit moves slower and traverses its turret backwards.

5.1.21. Neutral Units

The neutral units represent friendly or civilian units that are not controlled by the player or the opponent. They can resemble infantry, vehicles, mortars, guns or ships. Neutral unit density depends on the scenario setting. The most common places for the neutral units are roads and urban areas.

5.1.22. Smoke Generators

Units with a smoke generator can generate smoke screens that can prevent the enemy from seeing advancing or retreating friendly units.

5.1.23. Wheeled And Half-Tracked Vehicles

Wheeled and half-tracked vehicles cannot rotate their hull when they are stationary. If the weapon is fixed forward then they cannot engage targets outside its field of fire.

5.1.24. Burning Vehicles

Destroyed vehicles can burn up to 15 minutes. If there are secondary explosions then a vehicle can burn for a longer time. The more intense the fire is, the higher chance there is for more explosions. Fire illuminates everything around it and the explosions can be dangerous to nearby units. The explosion power depends on the vehicle size. After the vehicle has stopped burning the map cell is free for other units to enter.

5.1.25. Purchase Cost

The unit purchase cost is calculated automatically, but can be overridden by the database attribute. The base purchase cost is based on the unit efficiency that

consists of protection, weapons, ammunition, night vision, 2-plane stabilization, radar, and other attributes. There are other variables that can change the final formation cost, such as the formation training and morale levels.

5.1.26. WEAPONS AND AMMUNITION

5.1.27. Vehicle Weapons

Vehicle weapons can be located in the hull or in the turret. Some weapons are operated by the un-buttoned commander and cannot be used when buttoned-up. A weapon can be paired to hull or turret movement, or can rotate independently. The weapon elevation can be limited.

5.1.28. Line Of Sight And Spotting

The spotting cycle loops through all player and enemy units in about three seconds. During this cycle all detections are updated. Ground units are assumed to be two meters above the ground level. Air detection ranges are considerably longer than the ground detection ranges. The Line Of Sight (LOS) value can be anything from 0% to 100%. Ground objects, such as trees and buildings, reduce the LOS gradually, depending on the object density. 0% means that there's no LOS at all, and 100% means that the target is fully visible.

Most units have two fields of view. For ground units, one field of view is based on the turret direction or points forward if there's no turret. The secondary field of view scans around in random directions. If there's a visible commander (like an unbuttoned tank commander), he follows the secondary scan direction. Vehicles prefer scanning the direction of movement. If a vehicle is buttoned-up, its field of view becomes narrower, and its spotting capability is reduced, based on the unit's 'visibility' attribute. Damaged vehicles have even more limited spotting abilities when buttoned-up. Pillboxes can see forward only.

Spotting capability is affected by many factors, such as thermal imaging systems, recon ability, movement type, training level, suppression, fatigue, being dug-in or buttoned-up, retreating, the vehicle visibility attribute, and damage.

How well a unit can remain undetected depends on the movement type, the weapon muzzle signature when firing, training, suppression, fatigue, terrain concealment, recon ability, and size. If a non-vehicle unit is dug-in, hiding, or in a building it can remain almost completely hidden from the enemy.

Most aircraft do not share the spotting information with the player, but operate independently. Only the scout helicopters report their sightings.

5.1.29. Muzzle Flash Detection



Muzzle flashes can be detected from a long distance, especially at night. Every type of ammunition has a 'muzzle signature' value that affects the detection chance. The exact position is not revealed, but an estimated area where the firing unit is shown. For example, a scout helicopter can see the on-map mortar muzzle flashes, and then artillery can be used to deliver flares to illuminate the area.

5.1.30. Obscurants

'Obscurants' represent smoke and dust. They can be generated by terrain fires, explosions, smoke shells, smoke generators, and vehicle movement. All generated smoke and dust is not automatically visible to the opposing side, so for example smoke generators do not always reveal the enemy positions. The spotting distance depends on the general visibility and the smoke density. Obscurants have an infinite height in the game. All smoke and dust can be revealed in the after action report phase, if the relevant option is enabled.

Smoke shells burn for a while and during that time they produce Thermal Imaging (TI) smoke, making them even more effective against thermal imaging systems.

5.1.31. Night Vision Devices

Weapons with Night Vision (NV) can see better in low-light conditions and more clearly through smoke and dust. Their performance is seriously reduced

by poor weather and damage. Even if one weapon is enough to see enemies, the other weapons with poorer NV capability may not see the target and thus are not able to engage it.

5.1.32. Thermal Imaging Systems

A vehicle or aircraft that has a weapon with NV range of 3500 meters (the Cold War default value) or more is considered to have a Thermal Imaging System (TIS). Compared to the ordinary NV devices, it allows an improved spotting capability and the unit can see through smoke and dust better. If the unit takes light or heavy damage it loses the TIS capability.

5.1.33. Ground-To-Air Radars

A ground unit with a radar can engage targets that are outside the visual detection range. The player can see the aircraft position and direction that are updated every few seconds. The standard LOS rules apply, so the radars cannot see through hills or other dense obstacles. In the game, the ground radars are always active.

5.1.34. Radar Warning Receivers

Aircraft with a Radar Warning Receiver (RWR) are aware of the ground units that use a radar to detect the aircraft.

5.1.35. Target Identification

Units need to be identified as hostile before they can be engaged. There are neutral units scattered around the battlefield, so the observer cannot always be sure that a new visual contact is hostile. When a unit fires it triggers a chain reaction, automatically marking the units around it as 'known hostile'. For example, if there's a column of vehicles and one of them fires, the enemy can then engage any of them.

Vehicles have two states of identification before becoming fully identified: 'vehicle' and 'wheeled/tracked/half-tracked vehicle'. Other ground units are known as 'fortification', 'gun', 'mortar' or 'troops'.

Tracers from unidentified units are not seen. They can be heard, if a relevant option is enabled in the scenario launch options.

5.1.36. Probability To Hit

Probability to hit is determined by the weapon's base accuracy for a given range to the target and the soft damage value, if the target is a non-vehicle. It is affected by the firer's training level, suppression, fatigue, target acquisition, movement type, damage level, and the target's size, speed, and cover.

5.1.37. Target Acquisition

Once a vehicle or gun unit has fired at another vehicle, pillbox, or gun unit with non-guided ammunition, then the target has been 'acquired'. A vehicle can acquire the target with any weapon, but a gun unit (e.g. anti-tank gun) has to use its main armament. This increases the probability to hit with following shots. When the unit stops engaging the target, the acquisition is lost. If the weapon emplace time is greater than zero, which can be the case for weapons without 2-plane stabilization, the target has to be reacquired after moving.

5.1.38. Ready And Stowed Ammunition

Units can have stowed ammunition that is used to replenish the ready ammunition (machine gun ammo boxes, cannon rounds or missiles stored in different parts of the vehicle etc.). To reload ammunition, the unit has to be stationary and not engaging targets.

5.1.39. Emplaced Weapons

Some weapons need to be emplaced before they can be used. The time it takes depends on the weapon 'emplace time' attribute. To emplace the weapon, the unit has to be stationary. Some older tanks need to stop to fire their cannon, and that's why their main armament has an emplace time. They stop automatically every 150 meters, if they are moving while engaging a target.

5.1.40. Ammunition Restrictions

All ammunition has minimum and maximum ranges. Fast-moving targets can be engaged if the maximum target speed attribute allows it. For example, some units may be able to engage slow-moving aircraft such as helicopters, but not jet aircraft. Targets are divided into three categories: soft targets, hard targets and air targets. Ammunition can be used against any of these targets, if the parameter is set in the ammunition database to allow it.

5.1.41. Guided Missiles

Guided missiles need to be guided to the target. If the firing unit loses LOS to the target, is retreating, or is buttoned-up and the weapon is not allowed to be fired when buttoned-up, at the moment of impact the accuracy of the guided missile is reduced to the minimum. Suppression at the moment of impact reduces accuracy. If the unit guiding the missile is killed before the impact, the missile is guaranteed to miss its target.

Units with a radar can guide the missiles beyond its normal LOS range, depending on the radar capabilities.

5.1.42. Fire-And-Forget Missiles

After the launch, fire-and-forget missiles do not need further guidance from the owner unit. Even if the owner is killed to missile will resume tracking the target.

5.1.43. Top-Attack Missiles

Top-attack missiles hit its target from above, where the weak top armor is.

5.1.44. Flamethrowers

Flamethrower attacks damage morale, and can start terrain fires.

A flamethrower hit on an unarmored vehicle, weak point hit on an armored vehicle with no NBC protection, or critical hit on a gun unit destroys the target and its passenger unit instantly. If an armored vehicle is NBC protected then only weak point hits can damage the vehicle.

5.2. COMMAND AND CONTROL

5.2.1. Factions

Faction attributes such as training, morale, command delay, and many artillery parameters vary, making every faction unique to command. The faction attributes can be different for different dates. For example, the faction training level can increase towards the end of the available era.

5.2.2. Formations

'Formations' in the game can be companies, platoons, or sections. They are represented by the flag icons. When given an order a formation automatically controls all its attached sub-units. If the player gives an order to an individual unit it becomes detached from its formation. When commanding individual units there is a longer command delay than when commanding higher level formations.

The in-game formations are not textbook organizations with all their support weapons, but instead they are maneuver groups that are optimized for gameplay. For example, to build a full company the player selects the platoons, the HQ section and then the support sections (mortars, extra MGs etc.).

5.2.3. HQ Units And Command Delay

HQ contact: 86%

In general, the headquarters (HQ) units represent company HQs. They reduce the friendly unit command delay and improve morale inside the HQ radius circle. HQ units can act as artillery and mortar spotters and can call on-map helicopters for help. The HQ capability is not functional if the unit is retreating.

The command delay is the time it takes for the order to travel from the player to the unit in question. It is affected by the faction attribute and the HQ contact state. When commanding individual units the command delay is usually longer, compared to commanding formations. In real life a Cold War commander would probably have had just a map and radio, but since in the game the player has the luxury of seeing all the action everywhere in real-

time, artificial means of creating friction are needed. The command delay prevents the player from having the maximum benefit from micromanaging everything, and most of the time the AI opponent controls full formations, not individual units.

The best way for a HQ unit to communicate with another unit inside its command radius is by radios. Otherwise, they need to be un-buttoned and see each other to communicate.

Two units in a same formation can share information and thus reduce the command delay. They need to be un-buttoned and within 150 meter distance from each other so they can communicate via voice, or up to 300 meters to communicate using visual signals if they see each other.

The 'player character' unit is not subject to command delay.

5.3. WAYPOINTS

5.3.1. Advance



'ADVANCE' is the standard movement order.

5.3.2. Scout



The 'SCOUT' waypoints make the units advance more cautiously. Vehicles can pop smoke and move out of LOS when they detect an enemy.

5.3.3. Fast



A unit with the 'FAST' waypoint moves with increased speed.

5.3.4. Rotate



The 'ROTATE' waypoint makes the unit face the direction.

5.3.5. Reverse



The 'REVERSE' waypoint makes the unit move backwards if possible.

5.3.6. Contact



Units with the 'CONTACT' waypoint stop when they meet hostile units.

5.3.7. Defend



The 'DEFEND' waypoint makes the unit find a battle position and watch the given direction. The unit will try to acquire a line of sight to the location, while maintaining the best possible cover and concealment and minimizing movement from the current position.



5.3.8. Unload



If the 'UNLOAD' waypoint is given then the unit advances to the waypoint and unloads its passengers.

5.3.9. Infiltrate



Foot recon formations can try to infiltrate the enemy setup zone. The chance for success depends on the enemy area depth and the recon unit training level. If a hostile unit has a LOS to the target location then the attempt fails. That is why low visibility and closed terrain (for example urban areas and forest) may be better targets than open terrain.

5.3.10. Place

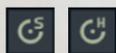


In the setup phase the units can be placed to locations inside the setup zone, unless the scenario designer has locked their positions. The hotkey for placing units is 'spacebar'. Recon units can be placed in the 'no man's land' between the main setup zones.

5.3.11. Disabled Waypoints

The player can plan ahead by adding 'disabled' waypoints. That can be done by holding down the 'Ctrl' key when adding waypoints. The disabled waypoints have a red symbol. Later, when the player wants the unit to execute the plan, it can be done by holding down the 'Ctrl' key again and clicking on the waypoint to activate it.

5.3.12. Engagement Ranges



The player can ambush enemies or save ammunition by limiting the maximum engagement ranges. The 'soft targets' include infantry and non-vehicle gun and mortar units. The 'hard targets' include vehicles and pillboxes. The range settings are not used against aircraft, because these are considered high value targets, and should always be engaged with all weapons.

5.4. INDIRECT FIRE

5.4.1. Artillery And Mortars

Off-map artillery can fire HE, DPICM, smoke, and illumination rounds anywhere on the map. Artillery mines are available, but they need their own special target reference point to be fired. To use off-map artillery, the player must create a fire mission, and select the round type and the number of guns for that fire mission. Then the target area coordinates and dimensions can be set.

On-map units with a main weapon that has the indirect fire capability can fire shells within its minimum and maximum ranges. They react faster if they have a HQ unit nearby.

5.4.2. Artillery Spotters

A spotter makes indirect fire more accurate. HQ units and the 'player character' unit are the best spotters, but any unit with a radio is capable of doing it. To observe the target area, the unit must have a clear line of sight to the location. Units cannot act as spotters when they retreat.

5.4.3. Target Reference Points

All artillery Target Reference Points (TRP) must be placed in the setup phase before starting the battle. TRPs make the off-map artillery respond faster. Some factions may be forced to use TRPs for all artillery fire mission, because otherwise the time to fire will be extremely long. Artillery delivered

mines need to have a special TRP, without which they cannot be fired. Each such TRP supports a limited number of minefields.

5.4.4. HE

High Explosive (HE) shells are the most common round type for killing and suppressing the enemy.

5.4.5. DPICM

Dual-Purpose Improved Conventional Munition (DPICM) rounds burst into submunitions that cover a large area. They are very effective against massed armor and personnel targets. Vehicles automatically try to escape DPICM strikes.

5.4.6. Smoke Shells

Smoke shells can provide temporary concealment for friendly units and can blind the enemy. A 'burning' smoke shell can even hinder thermal imaging systems. After the shell has stopped burning it does not generate more smoke. Smoke drifts with the wind.

5.4.7. Illumination Flares

Illumination rounds can illuminate units in low-light conditions.

5.4.8. Artillery Mines

Artillery can deliver mines close to the mine TRPs.

5.4.9. Rocket Artillery

Depending on the faction attributes, there's a chance that the rounds will arrive as rockets instead of shells. The main difference is the rate of fire.

5.5. ENVIRONMENT

5.5.1. The Grid

The maps are made of 30x30 meter cells. The cells have a ground elevation value, and the possible ground object type (trees, buildings, rocks etc.) has an additional height value. The observer unit is usually two meters above the

ground level. If the observer enters a building it's lifted to the building roof level. The ground objects have a density value, and depending on it the LOS is blocked up to 100% when it hits the object. For example, buildings always block 100% of the LOS. A dense forest blocks less, and sparse trees are even easier to see through. It's possible for the observer to be on a hill and see another hill beyond a valley with buildings.

5.5.2. Movement Restrictions

A map cell can have only one unit at a time. When a non-vehicle unit is killed or routed its cell becomes unoccupied. Destroyed vehicles occupy the map cell as long as they burn.

Vehicles and immobile units cannot enter buildings. None of the units can enter impassable water, steep hill slopes, or 'no-go zones'. Sides of the bridges can be impassable to all units.

5.5.3. Year And Month

The available equipment and some faction attributes change according to the selected year and month.

The month affects certain environment variables, such as the day, twilight and night lengths and the default terrain type and temperature.

5.5.4. Time Of Day

The player can select the clock time when the scenario starts. The day, twilight and night lengths depend on the map and the month.

5.5.5. Terrain Types

The default terrain type depends on the map and the month, but it can be changed in the scenario settings. The available terrain types are summer, autumn, winter, spring, desert, jungle and barren.

5.5.6. Weather

The weather affects visibility and night vision device performance. The worse the weather, the higher the chance for thunderstorms, if the 'terrain' variable allows them.

5.5.7. Thunder Storms

Thunder storms can appear if the weather and the map terrain type allows them. The storm move with the wind. The rain clouds speed up putting out terrain fires and lightning strikes can suppress units.

5.5.8. Wind

The wind speed and direction affect smoke, illumination flares and thunder storms.

5.5.9. Temperature

Temperature affects troop fatigue, vehicle breakdowns and terrain fires.

5.5.10. Ground Condition

Bad ground condition hinders movement.

5.5.11. Dust Rate

Desert maps generate dust more easily than other terrain types.

5.5.12. Destruction

The higher the global destruction rate, the more collapsed buildings and burnt forest there will be.

A scenario can have local destruction zones that affect all buildings and forest in them.

5.5.13. Terrain Fires

Terrain fires are caused by explosions, napalm and flamethrower attacks. Different terrain has different probability for fires to start. High temperature increases the risk. Rain slows down the fire intensity. Terrain fire suppresses

units in the map cell, illuminates units around it, and generates smoke. All units automatically try to move away from terrain fires.

5.6. IMPORTANT MISSION PARAMETERS

5.6.1. Force Types

The force type determines how many points can be spent on different equipment categories, and it sets the basic AI opponent behavior template. If the force type is 'infantry' then the AI usually advances with its infantry units dismounted in front, and tanks follow behind, supporting the infantry. The infantry AI favors covered terrain instead of open ground. Purchase points can be used freely if the 'dynamic' force type is selected. If the player has the dynamic force type, the opponent purchase points are calculated from the amount of points the player spends. However, if the generated battle is saved for later use, then the opponent side will not be playable, because the original player side has no AI template.

5.6.2. Mission Types

There are three mission types: advance, defend and meeting engagement. In a meeting engagement the player and the opponent have the same goals, and both sides are maneuvering their formations. In the advance and defend missions, one side is defending and the situation is usually more static. If one side is defending then that side can optionally have its units dug-in for extra protection and also has access to obstacles such as minefields.

5.6.3. Victory Points And Objectives

The battle ends when one side runs out of 'victory points'. During the battle the player can prevent them from going down by occupying objective locations. Casualties make the victory points drop quickly. The balance between objectives and casualties is affected by the mission type. The Battle Generator default value is based on the sector size and the force types. For example, if the sector is large and the force type is infantry, then it will probably take a

long time for the units to travel across the map, so the system estimates that it will be a long battle and the victory point level should be high. The scenario designer can adjust the value as he sees fit. If the value is too low then the scenario can end too soon. If the value is too high then there can be prolonged waiting even after all the objectives have been taken.

The defending side has 50% less victory points than the advancing side. In meeting engagements, casualties affect scoring 50% more than in other mission types.

Depending on the mission type, the objectives are placed on the player deployment zone, the opponent deployment zone or the 'no man's land'. Objectives cannot be placed on any kind of water.

Retreating and recon units cannot occupy objectives. If the defending side has lost an objective, the side cannot get a full victory point benefit from it anymore, even if it is recaptured. In a meeting engagement, the player is not told which objectives have been occupied by the enemy before the after action report phase.

5.6.4. Dummy Objectives



The dummy objectives are revealed in the after action report phase. Before that, the player and the AI do not know which objectives are 'real'. Both sides usually see a dummy objective in different locations, and the objective does not affect victory points. The system makes the AI behavior less predictable, because the player does not know if the AI

will eventually be in that exact location, and the player is less tempted to stack his units to defend one single objective.

5.6.5. Combat Power

Combat power is used as points to purchase units and other assets. The player side combat power is set in the scenario parameters, and the opponent base points usually depend on the player points and the mission type.

It's important to use as much of the available purchase points as possible, unless buying for the player side with the 'dynamic' force type, so the victory point system works optimally.

5.7. ADVANCED SCENARIO EDITING

5.7.1. Developer Mode

To activate the developer mode, edit the development.cfg file in the scenario main folder and change the 'developerMode' value from '0' to '1'. This activates the developer mode hotkeys, shown in the hotkeys menu, and scenarios can be loaded in the editor mode, allowing the scenario designer to place formations and adjust their initial statuses.

5.7.2. Scenario.xml

After a scenario has been saved, the scenario.xml file is generated. It contains editable scenario variables.

In a scenario, there can be 'no-go zones' that restrict movement, 'destruction zones' where all buildings are converted into rubble and trees are burnt, and 'water crossing points' that convert deep water into passable water. These are read from the scenario 'movement.bmp' file. In the Battle Generator objectives screen, click the 'READ 'MOVEMENT.BMP'' button to read the 'movement.bmp' file in the scenario user folder. The image size must match the scenario sector size in pixels, shown top-right between the brackets. The image uses an 8 bit grayscale BMP format. When the scenario is saved, the file is automatically copied to the generated scenario folder.

The movement.bmp file is a grayscale image. The colors are:

No-go zones: 0

Destruction zones: 64

Water crossing points: 128

Passable terrain: 255

5.8. HOTKEYS AND OTHER CONTROLS

Drag & drop - Place units/formations

Space - Place units/formations

Shift+Space - Infiltrate

Space - Pause/Resume, Start a round

Tab - Fast time compression on/off

Shift+Tab - Slow time compression on/off

Shift+C - Custom fast time compression

F1 - Show/browse/close a hint

Shift+F1 - Show hotkeys

Ctrl+F1 - Tutorial mode on/off

Ctrl+Shift+F1 - Reset tutorial

F2 - Order of battle

F11 - ISO view

F12 - Screenshot

Arrows/Right-click - Scroll the map

Middle-click & hold - Pan the map

Enter - Show the selected unit specs

H - Elevation map

L - Line-of-sight tool

Shift+S - Toggle sound

V - Call artillery support

Shift+V - Call air support

+ . → = Wheel-Up - Zoom in

- , ← _ Wheel-Down - Zoom out

Wheel-Up - OrBat scroll up

Wheel-Down - OrBat scroll down

Esc - Cancel/Menu

5.8.1. Waypoints

Ctrl+New WP - Add a disabled WP

Ctrl+Left-click on a WP - Activate/disable the WP

Delete - Delete the last WP

Backspace - Delete all WPs

A - Advance

C - Contact (advance)

D - Defend/Battle position

F - Fast (advance)

R - Reverse

S - Scout

W - Rotate

Z - Unload

5.8.2. Graphics Options

Shift/Ctrl+F10 - Adjust the map detail distance

Shift+F11 - Framerate on/off

B - Toggle NATO icons

Shift+B - Adjust the unit sprite scale

Ctrl+B - Toggle target lines

Shift+F - Toggle engagement ranges

G - Map grid on/off

Shift+G - Terrain grid on/off

Ctrl+G - Map info on/off

Shift+H - Elevation map color mode

Ctrl+H - Elevation map color sensitivity

J - Toggle spotting ranges

Shift+L - Line-of-sight tool color mode

Ctrl+L - Map locations on/off

Shift+W - Toggle waypoints

5.8.3. Selecting Units/Formations

Left-click & hold - Select multiple units

2x Left-click - Follow the unit

Right-click - Open the command menu

Right-click on a unit - Select one unit and open the command menu

Shift - Keep selections

1-9 - Select a quick-group

2x 1-9 - Go to a quick-group

Ctrl+1-9 - Create a quick-group

5.8.4. Orders

Ctrl+V - Call HQ CAS

Ctrl+W - Create a smoke screen

Shift+Z - Unload

Ctrl+Z - Load

5.8.5. Standard Operating Procedure

E - Rate of fire: Slow

Shift+E - Rate of fire: Fast

K - Do not use the main armament

Shift+K - Use the main armament

M - Hold fire (soft targets)

Shift+M - Hold fire (hard targets)

N - Effective range (soft targets)

Shift+N - Effective range (hard targets)

P - Unload on contact
Shift+P - Do not unload on contact
Q - Smoke generator: On
Shift+Q - Smoke generator: Off
X - Set range (soft targets)
Shift+X - Set range (hard targets)
Ctrl+X - Clear the range settings

5.8.6. Formation

F3 - Formation: narrower
F4 - Formation: wider
F5 - Formation: form column
F6 - Formation: form line
F7 - Formation: form wedge
F8 - Formation: form vee
F9 - Formation: form echeloned line
Shift+F5 - Formation: form echelon left
Shift+F6 - Formation: form echelon right
Shift+F7 - Formation: march
Shift+F8 - Formation: regroup
Shift+F9 - Formation: free

5.8.7. Indirect Fire

T - IF: HE
Y - IF: Smoke
U - IF: Illumination
I - IF: 1 Round
Shift+I - IF: Fire for effect
O - IF: Hold fire
Shift+O - IF: Cancel

5.8.8. Pathfinding

Ctrl+C – Covered path

Ctrl+Q – Quickest path

Ctrl+S – Shortest path

5.8.9. Developer Mode

Ctrl+Shift+D – Show AI on/off

Ctrl+Shift+S – Start a thunderstorm

Ctrl+Shift+T – Fast day-night cycle on/off

6. CREDITS

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