GAME MANUAL



MATRIX GAMES

VR Designs

CONTENTS

1. INTRODUCTION 4

1.1 A WORD FROM VIC 4
1.2 A WORD FROM DAVIDE 5
1.3 THE SETTING 5
1.4 A WORD OF ADVICE 6
1.5 THE SCENARIOS 6
1.6 THE EDITORS 6
1.7 INSTALLING THE GAME 6
1.8 UNINSTALLING THE GAME 7
1.9 PRODUCT UPDATES 7
1.10 REGISTER YOUR GAME, RE-DOWNLOAD YOUR GAME, BETA UPDATES 7
1.11 UNIFIED LOGIN SYSTEM 7
1.12 GAME FORUMS 8
1.13 TECHNICAL SUPPORT 8

2. QUICK START 8

2.1. THE GOAL OF THE GAME 13

3. THE INTERFACE 13

3.1 MAIN MENU SCREEN 13
3.2 WHAT IS MY GAME VERSION? 15
3.3 PBEM++ 15
3.4 SCENARIO SETUP SCREEN 19
3.5 GAME LOOP SCREEN 20
3.6 MAP SCREEN 21
3.7 RIGHT-HAND HEX SIDEBAR 25
3.8 RIGHT-HAND UNIT SIDEBAR 27
3.9 RIGHT-HAND OFFICER SIDEBAR 29
3.10 POPUP WINDOWS 30
3.11 OTHER INTERFACE ELEMENTS 33



4. THE RULES 36

4.1 DEFENSIVE LINE MODE (DLM) 36
4.2 FIRE BRIGADE MODE (FBM) 37
4.3 UNIT UPKEEP AND RECOVERY 37
4.4 NEW WINTER RULES & NEW WEATHER RULES 40
4.5 UNIT MOVEMENT 42
4.6 RECON AND LINE OF SIGHT 47
4.7 LOGISTICAL NETWORK 50
4.8 TROOPS MICRO MANAGEMENT 53
4.9 TRANSPORTING UNITS 54
4.10 HQS AND OFFICERS 54
4.11 COMBAT 55
4.12 BRIDGES 66
4.13 LOCATIONS 67
4.14 REPLACEMENT TROOPS 68
4.15 HEX OWNERSHIP AND FUZZINESS 68
4.16 UNCERTAINTY RULES 68
4.17 AI ADVANTAGES 69

5. CREDITS 70



1. INTRODUCTION

1.1 A WORD FROM VIC

The focus of *DC: Twilight in the East* is on the battles towards and just before Moscow. Allowing the players to either command the Red Army to defeat the rather fragile German spearheads at an earlier point in time or to command the Wehrmacht and try to do the impossible and make it all the way to the Red Square and the Kremlin.

Or just replay a variant of history that's much closer to how we know it.

In all cases, *Twilight in the East* will allow you to relive the operational battles of AGC in 1941 at an unprecedented scale and level of immersion.

The scale in this entry is the same as in the previous game, Ardennes Offensive: 1 km per hex, battalion sized units, 6 hour turns, including a night turn with special rules.

The DC engine provides an optimal mix between lower-scale operational and higher-scale tactical decision-making.

All "illustrational graphics efforts" have been focused on highlighting the level of detail that this mix generates. The new trooptype graphics show the different types of uniforms, like summer, winter and snow camouflage. Same for the vehicles which have regular and whitewash variants. Even the time needed to paint those vehicles over is simulated. These paintjobs are automatically handled by the game.

There are now 7 different ground states that can be visually shown for each landscape type: regular, mud, frosted, snow, half snow, half snow- refrozen and deep snow. There are 6 different kinds of weather. And of course there is the day-night cycle. The landscape illustrations and map graphics change based on all these environmental factors as well as the actual seasons.

Remember that the first Decisive Campaigns game that I released was "Warsaw To Paris". This was all the way back in 2010. One nasty critic could thus say that this fifth entry in the series: *Twilight in the East* is running on a dated engine. But honestly… Since I have been working on it for 20 years almost non-stop, I would rather say it is now a very rich, mature, and stable engine.

My point being: the time of development spent on the engine is actually an advantage.

This new installment brings Decisive Campaigns yet one step further. Not only engine-wise, but also content-scope-wise.

Twilight in the East does not only refer to the Germans seeing "the spires of the Kremlin" and failing to advance any further but also refers to the "whole war in the East" as well, as in the end of 1942 we'll see the same "twilight" happening on an even grander and more catastrophic scale than at the end of 1941.

The East, and here I mean the eastern front from 1941-1945, "The war with the Soviet Union" is in itself the Twilight of the German army as a whole.

Decisive Campaigns ships with all the equipment and troop type graphics needed to create ANY scenario during the whole war on the eastern front from 1941 to 1945. DLCs might well follow. No promise, but it is definitely plausible at the time of writing this manual. But modders won't have to wait on any DLC to create whatever they please in the East, right away.

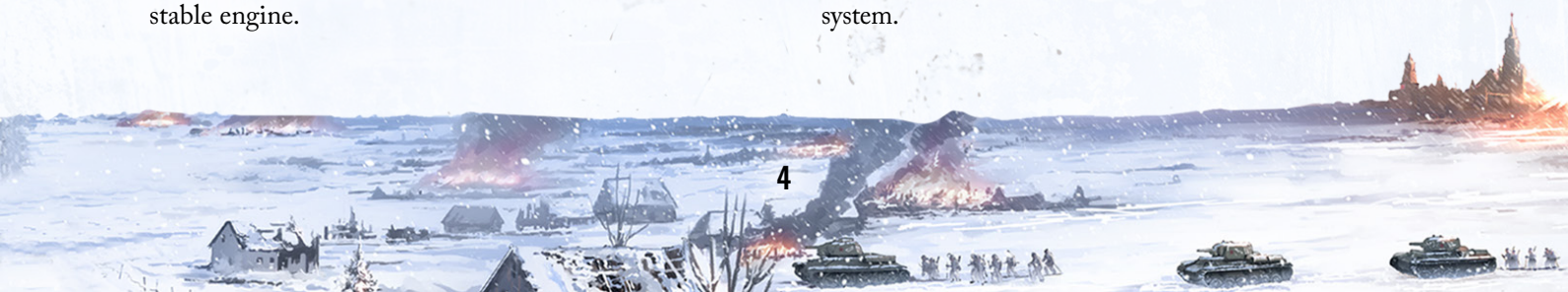
As with Shadow Empire I initially planned to include some AI artwork but in the end I pulled it all out. It was too little of an extra improvement to compromise for. All art is now "human-made" for Decisive Campaigns: *Twilight in the East*.

We also got great new original music (6 tracks) from Dream Sequencer and Ilko Birov.

Davide Gambina, the scenario designer who also did the Ardennes' scenarios has outdone himself as Twilight will ship with: 8 small scenarios, 7 medium ones, 3 big ones and 1 monster one. They are high-quality scenarios that highlight the most famous battles as well as quite a number of lesser known battles. Even the eastern front grognard should find some surprises.

The game also ships with a full set of simple and intermediate scenario and library editors and graphics for the whole war in the east.

On top of that: PBEM++ multiplayer makes a long-awaited return. We had it implemented before in Case Blue & Barbarossa, but we lost PBEM++ in DC4: Ardennes Offensive, due to development time constraints with implementing the updated newer version of the system.



Now we finally found the time and the players can expect to use the latest version of Slitherine's PBEM++ system to play any scenario offered by *Twilight in the East*. The system allows posting and accepting challenges, posting turns and chatting with your opponents as the game rounds advance.

You will be able to outperform your opponents in knife-edge and exciting battles. Or in the case that you are losing, you'll still be able to enjoy the unique experience of playing against a human player.

For the single player experience we have been further improving the AI and are still doing so. It should provide a good opponent, and, in case that you master it, the difficulty level can be increased.

Best wishes,
Vic

1.2 A WORD FROM DAVIDE

First of all, I must say I am happy that Vic wanted me back as the scenario designer for this new installment of the DC series. We worked well together, and the feedback for "Ardennes Offensive" was more than gratifying.

This new Decisive Campaigns chapter "*Twilight in the East*" is in every respect a direct evolution of "Ardennes Offensive": same reliable engine, scale, unit dimension, time scale, and weather systems, yet introduces numerous new features that justify its more than four years of development.

Compared to "Ardennes Offensive", the scenario maps are much larger, as one would expect for the Eastern Front, and the main campaign map in particular, being four times the size of the "Plan Martin" map, required over two years of work.

The goal of "*Twilight in the East*" is extremely ambitious, aiming to ideally cover the entire Eastern Front during World War II through a series of DLCs. Furthermore, all the editors used to create the scenarios are included to encourage you to create your own scenarios. I have added a template scenario and a step-by-step guide for both map and scenario editor.

I am very proud of the final result, and I am sure you will be surprised by the major evolution of the engine in terms of both graphics and gameplay and, not least, the long-awaited PBEM++ functionality.

Ciao,
Davide

1.3 THE SETTING

We are in the Soviet Union, the winter of 1941 is starting. After almost 4 months of heavy fighting, the Wehrmacht's Army Group Center is finally approaching the gates of Moscow. Many of its panzer divisions are depleted while many of its infantry divisions are weathered after months of often heavy fighting as well as having marched a distance of over 1500 km.

In the fall of 1941 AGC faced a similarly sized Soviet force defending the approaches to Moscow when they received the orders to go on the offensive again. Codename: TYPHOON.

It was one of the most high-stakes operations of World War 2. Launched on the 2nd of October 1941, it aimed to encircle and capture the Soviet capital, which would arguably deliver a probably fatal blow to the Soviet war effort.

However, despite enormous early successes, notably the encirclements at Vyazma and Bryansk, the offensive found itself eventually stalled by a combination of logistical challenges, weather, and fierce Soviet resistance. By the end of October, the Germans were only about 60 km from the outskirts of Moscow, but their advance had ground to a halt in the mud of the Russian autumn.

By mid-November, the Rasputitsa had ended as the muddy ground finally froze over, allowing the remaining German panzers to resume their offensive.

This second phase of Typhoon was marked by a renewed push towards the Soviet capital, with three "Panzergruppen" tasked with advancing from the north and south to encircle Moscow.

The Germans now sought to complete yet another final pincer movement to finish the war.

The German 3rd and 4th Panzergroups advanced along the northern pincer quickly and after fierce fighting seized Klin on the 21st of November, and then captured Solnechnogorsk, just four days later. The Soviet resistance was stiff, but the Germans were able to push forward, although the pace of the advance began to slow.

Meanwhile, on the southern pincer, the 2nd Panzergroup bypassed the heavily defended city of Tula and advanced towards Kashira and Kolomna, seeking to link up with the northern pincer at Noginsk, to the east of Moscow.



Despite these advances, the outcome of the battle was far from certain. Optimism had trumped over a sense of reality. Soviet resistance remained strong, and German progress was impeded by well-prepared defensive lines. By the 28th of November, the 7th Panzer Division briefly captured a bridgehead across the Moscow-Volga Canal, only 40km from the Kremlin. The 2nd Panzer Division advancing near Khimky got the closest to Moscow, penetrating to about 20km distance.

So close… This is the time of: *Twilight in the East*!

So far… so close…. but… too slow, not strong enough anymore. Many, especially older books, say something along the lines that the most advanced Germans units "could see the spires of the Kremlin on the horizon." Echoing the imagery from World War One where the Germans could see the Eiffel tower on the horizon, but never made it to Paris either.

The Germans continued their push a few days longer, all the way into early December, launching a direct assault on the Soviet defenses west of Moscow, but Operation Typhoon was now conducted without adequate armored support and against formidable defenses, with soldiers dressed partially still in their summer uniforms, facing plummeting temperatures going below -20°C.

By the 5th of December, after several days of intense fighting and heavy losses, the German offensive just petered out and was stopped right in its tracks.

This happened as much due to weather, logistics, exhaustion as the very stiff opposition from a Red Army that had learned to fight.

The Germans were forced to withdraw, while the Soviet forces, under Zhukov, bolstered by fresh reserves, launched their counter-attack.

Moscow would not be conquered in 1941. Or for that matter: ever.

1.4 A WORD OF ADVICE

It is recommended that you start playing on some of the smaller scenarios to get a hang of the game and its rules and then progressively move on to the medium-sized scenarios and, only then, tackle one of the big campaign scenarios.

Of course, you are at liberty to ignore this advice.

1.5 THE SCENARIOS

Scenarios include their own flavor texts and documentation of their specific rules. This way later content, mods and player-made scenarios will not cause the manual to be incomplete.

1.6 THE EDITORS

The ruleset for this game is well-suited for basically all battles of the Eastern European theater and even those outside the scope of this title.

It is, however, by far the easiest to make scenarios that take place on the eastern front 1941-1945, especially 1941 as most of the data and graphics have already been created and are available as troop-, model- and officer libraries. You'll just need to use the simple editor to import maps and libraries to set things up.

However, if you are willing to use multiple intermediate editors you can make your own libraries and maps to create something completely different from the current scenarios.

Documentation for the editor is not included in this manual. This was partly done to keep the manual size to a handy format. Help with scenario designing will be provided in a separate scenario design pdf.

1.7 INSTALLING THE GAME

If you have purchased the game from our store, follow this procedure:

Navigate to the download file location. If the file you downloaded is a zip file, first extract all files within the zip archive, then go to that location. Double-click on the installation (executable, exe) file. The correct file name will typically include the words "SetupRelease". Follow all on-screen prompts to enter your serial key and complete the installation.

If you have purchased your game from the Steam Store, you can download the game by finding it in your Steam library and then pressing the INSTALL button.

Any games purchased from the Slitherine or Matrix stores available on Steam can also be registered for a Steam Key (as long as the game is part of our Steam catalog), allowing you to add the game to your Steam library.



If you purchased the game from our store while already logged into your site account, your game will have been automatically registered for you. Otherwise, go to https://www.matrixgames.com/member/mypage , or click on MY PAGE in the top navigation bar on our site and choose REGISTER SERIAL, pick the name of this game and enter your serial number that came with the download to register.

In either case, once registered you will see your game in your list of Registered Games and a button labeled **STEAM KEY: GET YOUR KEY!** Click on that to get a Steam Key which you can activate to also get this product added to your Steam account.

1.8 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 correctly uninstall the game.

1.9 PRODUCT UPDATES

To maintain our product excellence, Matrix Games and Slitherine release updates containing new features, enhancements, and corrections to any known issues. All our updates are free on our website (see more details in the section below) and can also be downloaded quickly and easily by clicking on the Check for Updates link in your Game Launcher.

1.10 REGISTER YOUR GAME, RE-DOWNLOAD YOUR GAME, BETA UPDATES

We also periodically make beta (preview) updates and other content available to registered owners. Keeping up with these special updates is easy and accessible by signing up for a Slitherine Group Member account. When you are signed up, you can then register your Slitherine Group products to receive access to these game-related materials. Doing so is a simple two-step process:

Sign up for a Slitherine Group Member account - THIS IS A ONE-TIME PROCEDURE; once you have signed up for an account, you are in the system and will not need to sign up again. Go to www.slitherine.com and click the SIGN UP button on the top-right, then click "Register" on the subsequent page after filling in your personal information. When you're finished, a confirmation email will be sent to your specified email account.

Register a New Game Purchase - Once you have signed up for a Slitherine Group Member account, you can register any Slitherine/Matrix title you own in your new account. To do so, log in to your account on either the Matrix Games website (www.matrixgames.com) or the Slitherine website (www.slitherine.com). Click MY PAGE at the top and then REGISTER SERIAL on the right to register your new 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.

If you have already logged into your main member account when you purchased your game, it will be automatically registered for you as part of the purchase process.

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 Page. 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 hyperlink that takes you to a page with all the latest public and registered downloads, including patches, for that particular title.

You can also access patches and updates via www.matrixgames.com/ member/mypage Once there, select the game you wish to check updates for, then check the downloads link. Certain valuable content and additional downloads will be restricted to Group Members, so signing up there is always worthwhile.

Remember, once you have signed up for a Member account, you do not have to sign up again, though you may need to login again if you have signed out. At that point, you are free to register any product you purchase.

Thank you, and enjoy your game!

1.11 UNIFIED LOGIN SYSTEM

Slitherine and Matrix now have a new "Unified Login System". This system allows you to access the Slitherine and Matrix Games sites using just one username and password.

To merge your accounts so that they work for all Slitherine Group sites, go to (http://samelogin.slitherine.com/) and enter the details of one of your accounts (ie, either your Matrix or your Slitherine login).

You will then be presented with the option to merge your accounts (listed as "[Merge my accounts]"), which will then allow you to combine any other accounts you have or generate a user for another website using the exact details (For instance, if you were called "JohnSmith123" on the Slitherine site but had no account on Matrix, you could enter the details into the site and it would create a "JohnSmith123" account for Matrix as well, with the same password as the Slitherine login.)

1.12 GAME FORUMS

Our forums are one of the best things about Matrix Games. Every game has its forum with our designers, developers, and gamers playing the game. If you are experiencing a problem, have a question, or have an idea on improving the game, post a message there. Go to **http://www.matrixgames.com** and click on **COMMUNITY** and then **FORUM** in the top site navigation bar.

1.13 TECHNICAL SUPPORT

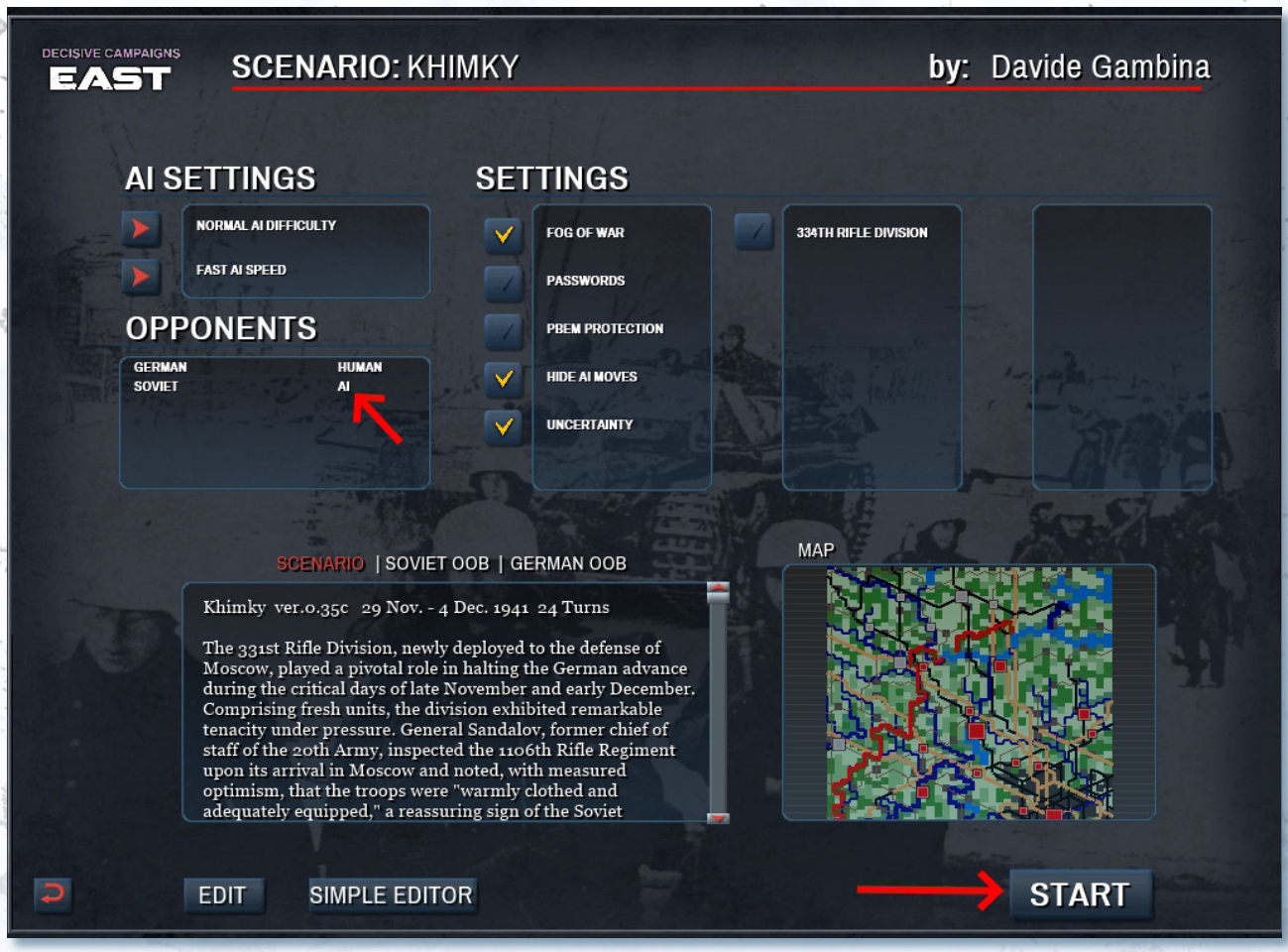
Should you have a technical problem with the game, the best way to get help is to post a note in the Technical Support sub-forum of the main game forum at http://www.matrixgames.com/forums. You'll then hear back from either our Matrix Games Staff, the development team, or one of the many helpful players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

2. QUICK START

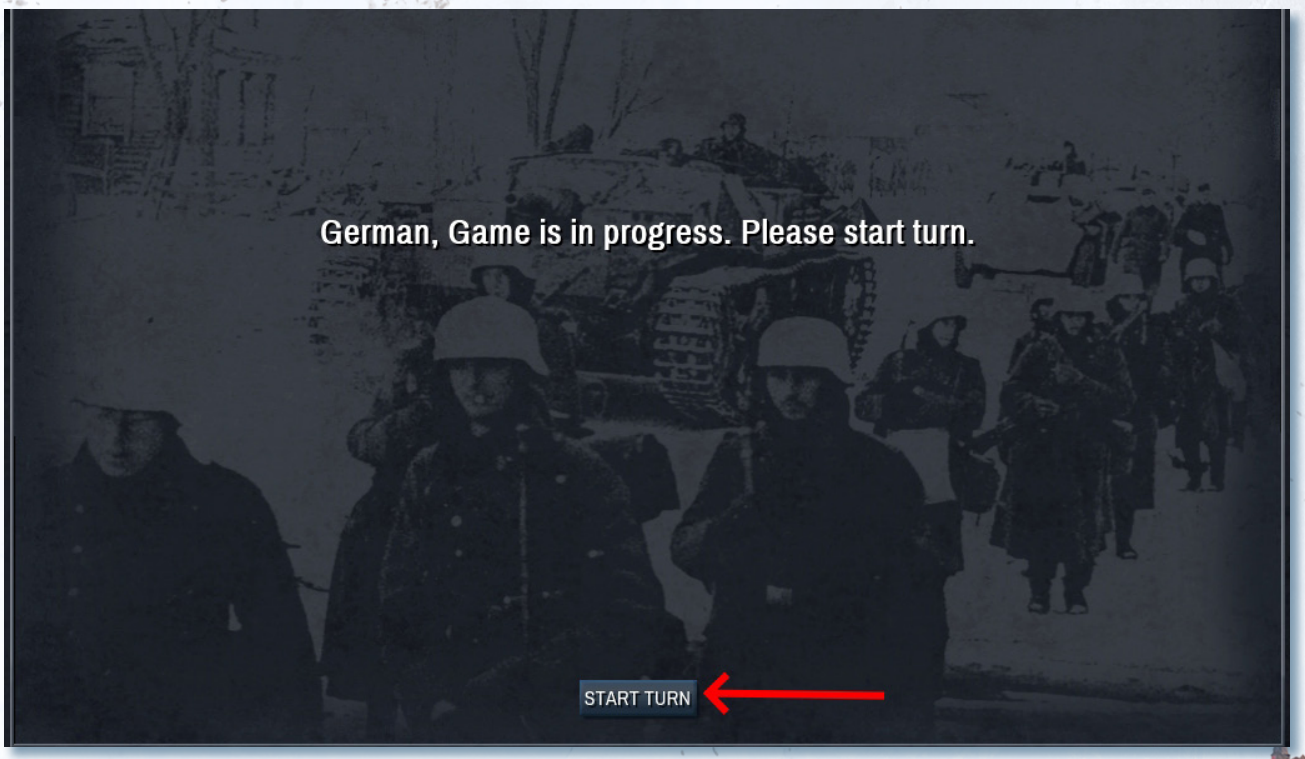


To give you an idea how to play, we'll briefly walk you through how to start a new game, move your units and go to the next turn.

After launching the game you'll find yourself on the main menu screen. Click the "Khimky" scenario button. It is a small scenario and an excellent introduction to playing the game.



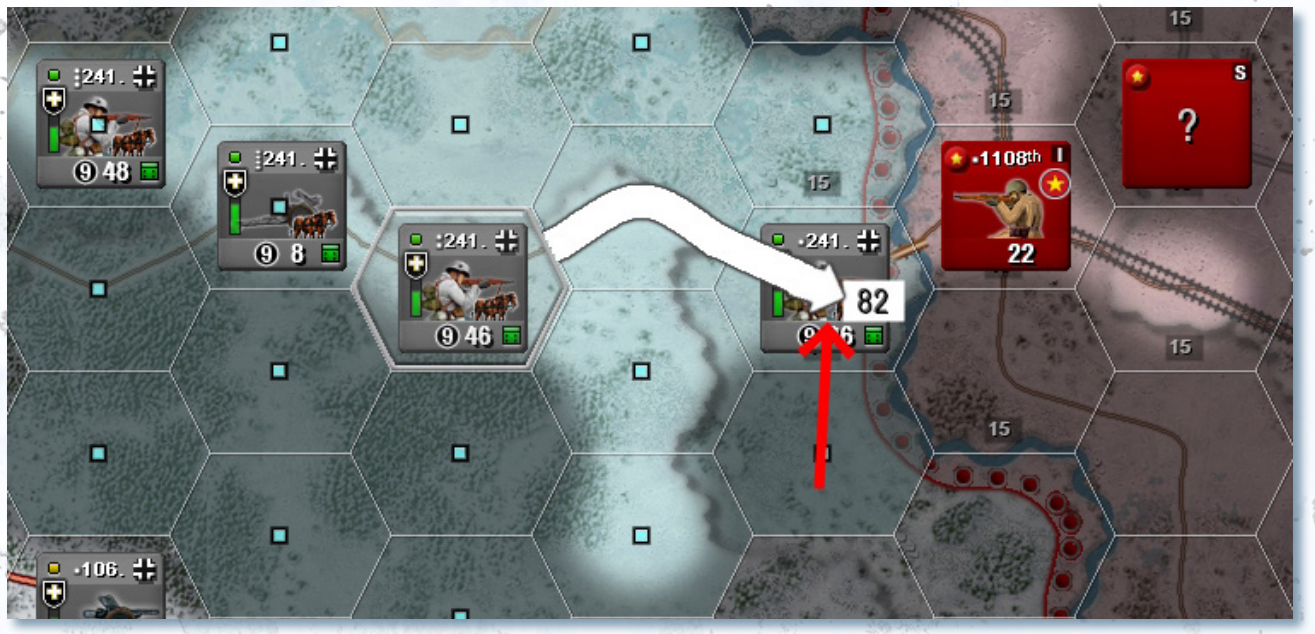
This will bring you to the scenario setup screen. Here you will have to set the Soviet in the "opponents" section to AI and German to HUMAN. You of course will be playing the "human" side. You can switch between AI and human by clicking on the line in question. When that is done, click the big start button.





You'll have seen some text flashing on the screen, indicating a number of processing events and non-playable phases being executed. Eventually you'll be asked to start your turn, which you can do by clicking the only button on the screen (or by pressing space key). You'll get a number of messages, which you can quickly click through since you can always re-read them later in the REPS tab.

After clicking through all of the start of turn messages you'll find yourself in the map screen. Now... to move a unit you need to first have a unit selected. You do this by left-clicking on the unit on the map. And then you'll need to click on the "MOVE" order mode tab. (or vice versa)

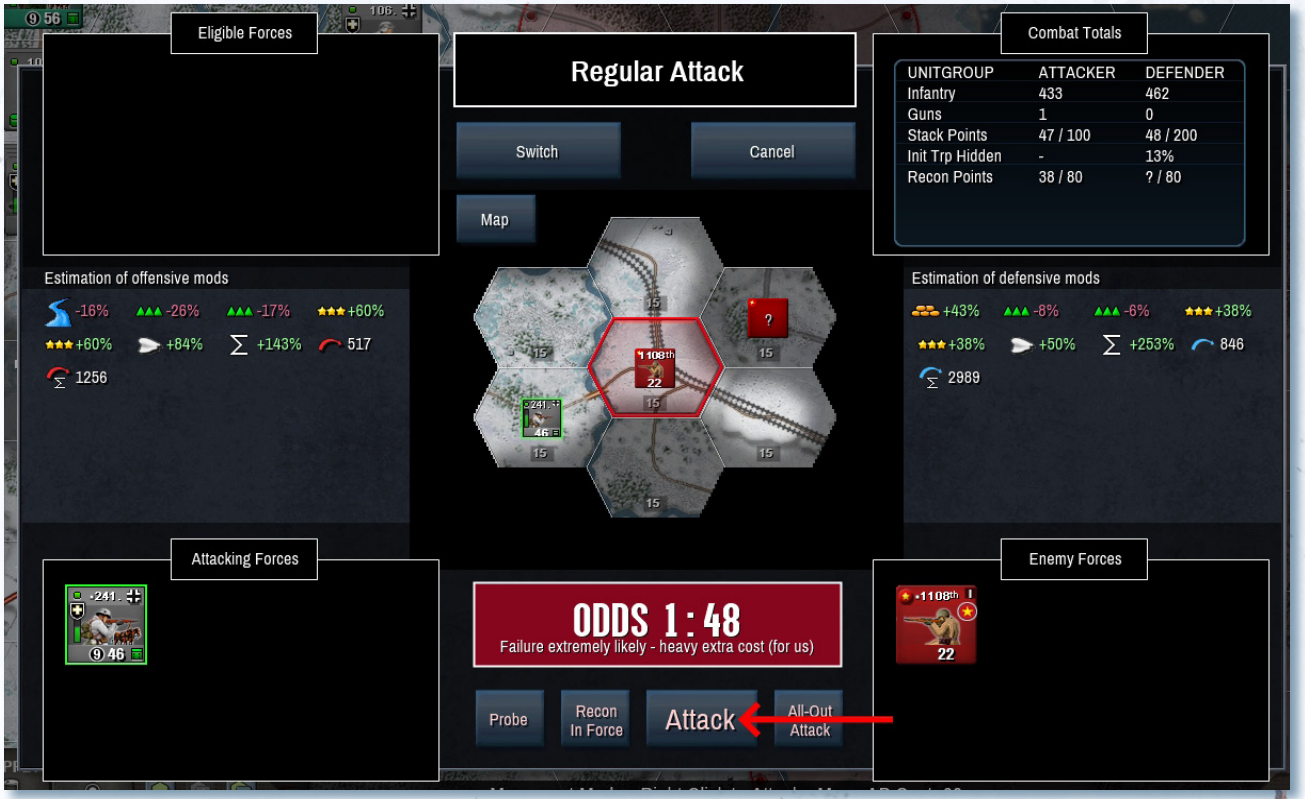




When in this "MOVE" order mode (hotkey M) the hexes your currently selected unit can move to will be highlighted. If you mouse over them, you'll see a movement arrow appearing. Right-click on the destination hex to move the unit. Left-click on any other unit to select that other unit instead.

Remember: When in "move mode": Left-click to select a unit, right-click on the target hex of the selected unit to move or attack with the selected unit.

Along with moving your units, it is also possible to attack enemy units.

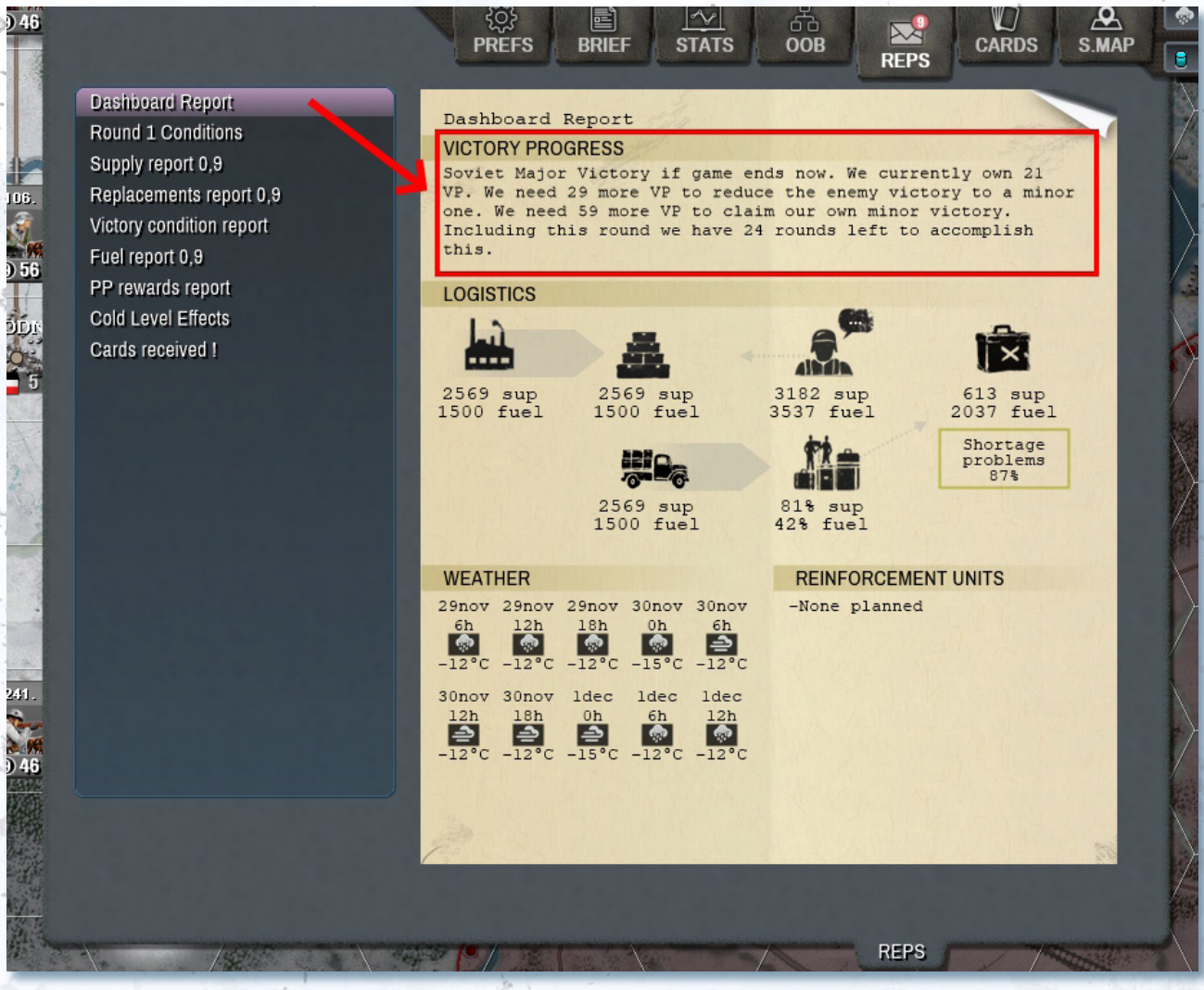




This is indicated with a red crosshair target (for artillery or ranged attack) or a red attack arrow (for regular attack) over the enemy unit. Just as if you were to move, you can right click on this enemy unit. This will not start the attack immediately but bring you to the attack setup popup.

In the attack setup popup, you'll get a preview of the odds. You can then either press the cancel button or one of the attack buttons. On the left side you see your troops, to the right side the enemy's troops. You can change participating units in the attack here. After clicking the attack button, the combat will be initiated and resolved.

When you have made all your moves and attacks, click the end turn button. Your opponent will then move. After your opponent has finished his/her move you'll enter your next turn.



Your turns will continue until you have played your last turn. Check the last turn of the scenario in the REPS tab, in the victory condition report. After the last turn finishes, the winner of the scenario will be determined, and your game will be considered finished.

2.1. THE GOAL OF THE GAME

How do you win? The goal in any scenario is straight forward: get a, scenario specific, certain number of Victory Points (VP) to win the game. There are several places where VP and current victory status will be shared with you in the game's interface, notably in the REPS Tab.

3. THE INTERFACE

This part of the manual will help you understand what you are seeing on the most important screens, windows and tabs in the game.

3.1 MAIN MENU SCREEN

Directly after the intro sequence, you'll see the main menu.



3.1.1 PBEM++

Will allow you to login and go to the PBEM++ screen.

3.1.2 LOAD SCENARIO

To get a game started you can immediately load a scenario (like "Aleksin" for example) by clicking on its button.

Note: you can mouse over the specific scenario buttons to get a preview of the map, size, and date. It's also possible to load any scenario by using the "Load scenario" button. Click here to load any scenario from any directory.

3.1.3 LOAD SAVED GAME

Click here to load a game in progress or a PBEM game sent to you by an opponent by good old-fashioned email.

3.1.4 IMPORT ZIP (FILE)

Scenario designers might distribute their work in the form of a .dczip file. This button allows you to unpack and install their contents in your game directory.

3.1.5 CREDITS

Take a look at the people who helped make this game what it is today.

3.1.6 SCENARIO BANK

A link to the VR Designs website which also contains a scenario bank. This should be a good place to upload any scenario design work you did and want to share with the community.

3.1.7 SOUND PREFS

A mini preferences window that just allows you to adjust the sound and music volume. For more preferences and options, you'll need to start an actual game and go to the PREFS tab in the map screen. This option is just here to help you reduce any frustrating too loud music, right now.

3.1.8 QUIT

Closes the game application and returns you to your desktop.`

3.1.9 SIMPLE EDITOR

The easiest editor. To use it you need to import trooptype-, model-and officer libraries as well as a map file. Help for scenario design and documentation explaining the editors is provided separately from the game manual. Please see the separate scenario design pdf or go to www.vrdesigns.net to find this documentation.

3.1.10 TROOPTYPE EDITOR

An intermediate editor that allows you to make trooptype libraries. Trooptypes are infantry squads or AFVs. Please see the separate scenario design pdf or go to www.vrdesigns.net to find this documentation.

3.1.11 HISTORICAL UNIT EDITOR

An intermediate editor that allows you to make model libraries. Historical Units are basically Table of Organization and Equipment (henceforth TOE) formats like ideal infantry divisions or tank battalions. Please see the separate scenario design pdf or go to www.vrdesigns.net to find this documentation.

3.1.12 OFFICER EDITOR

An intermediate editor that allows you to make officer libraries. Officers are the generals, like Guderian or Zhukov. Please see the separate scenario design pdf or go to www.vrdesigns.net to find this documentation.

3.1.13 MAP EDITOR

An intermediate editor that allows you to make your own maps. Also allows cutting bigger maps into smaller pieces. Please see the separate scenario design pdf or go to www.vrdesigns.net to find this documentation.

3.2 WHAT IS MY GAME VERSION?

To identify the game version you have installed, look in the bottom of the main menu. Noting the game version and scenario version is important when reporting any possible glitches or bugs to the developer on the forums.

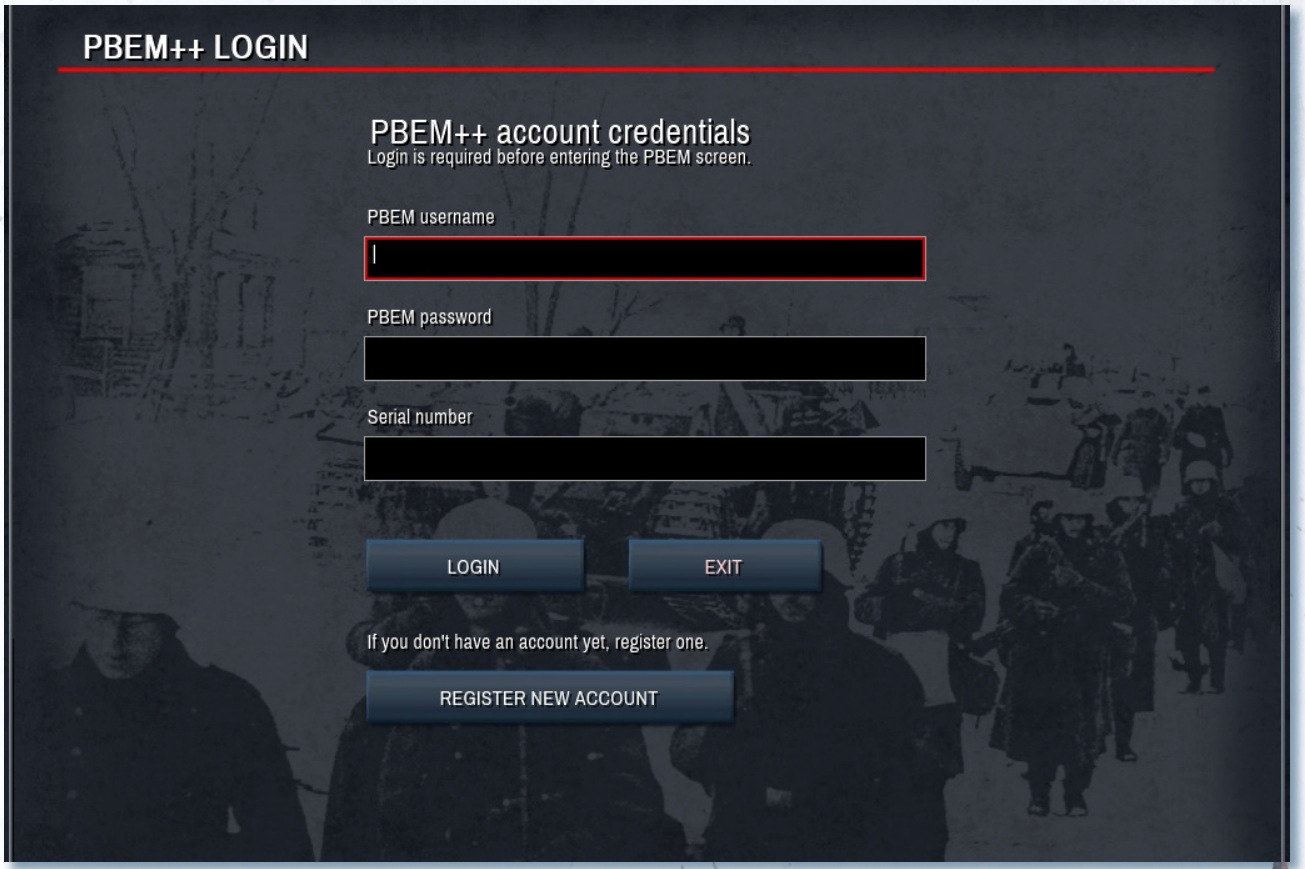
3.3 PBEM++

The game start main menu allows access to PBEM++. Before getting to the actual PBEM++ screen you will have to either login or register.

3.3.1 LOGIN

After pressing the PBEM++ button in the main startup menu you will be asked to login.

If you do not have a Matrix or Slitherine account yet, you can register one from inside the game using the "register" button.





3.3.2 PBEM++ SCREEN OVERVIEW

Once properly logged-in you will get to the actual PBEM++ screen.

Running games

Here you can see the currently active games you are participating in. If it's your turn to play you can press the "play turn" button to do so.

Finished games

These are old games that have been finished. You can still inspect the end state of the game by pressing "open final file".

When you download a finished game instance it is automatically decoupled from the PBEM++ server. Both players will be able to continue playing both sides if they desire so and the scenario supports it. This is mostly useful to get a peek at the adversary's final positions. Players will be reminded on start turn text screens that it is an old now decoupled PBEM++ game.

Open challenges

Here you can see if there are other players looking for an opponent. If you like to play someone you can use the "accept challenge" button. Upon doing so the other player will be notified he has an opponent and the game will formally start.

Your challenges

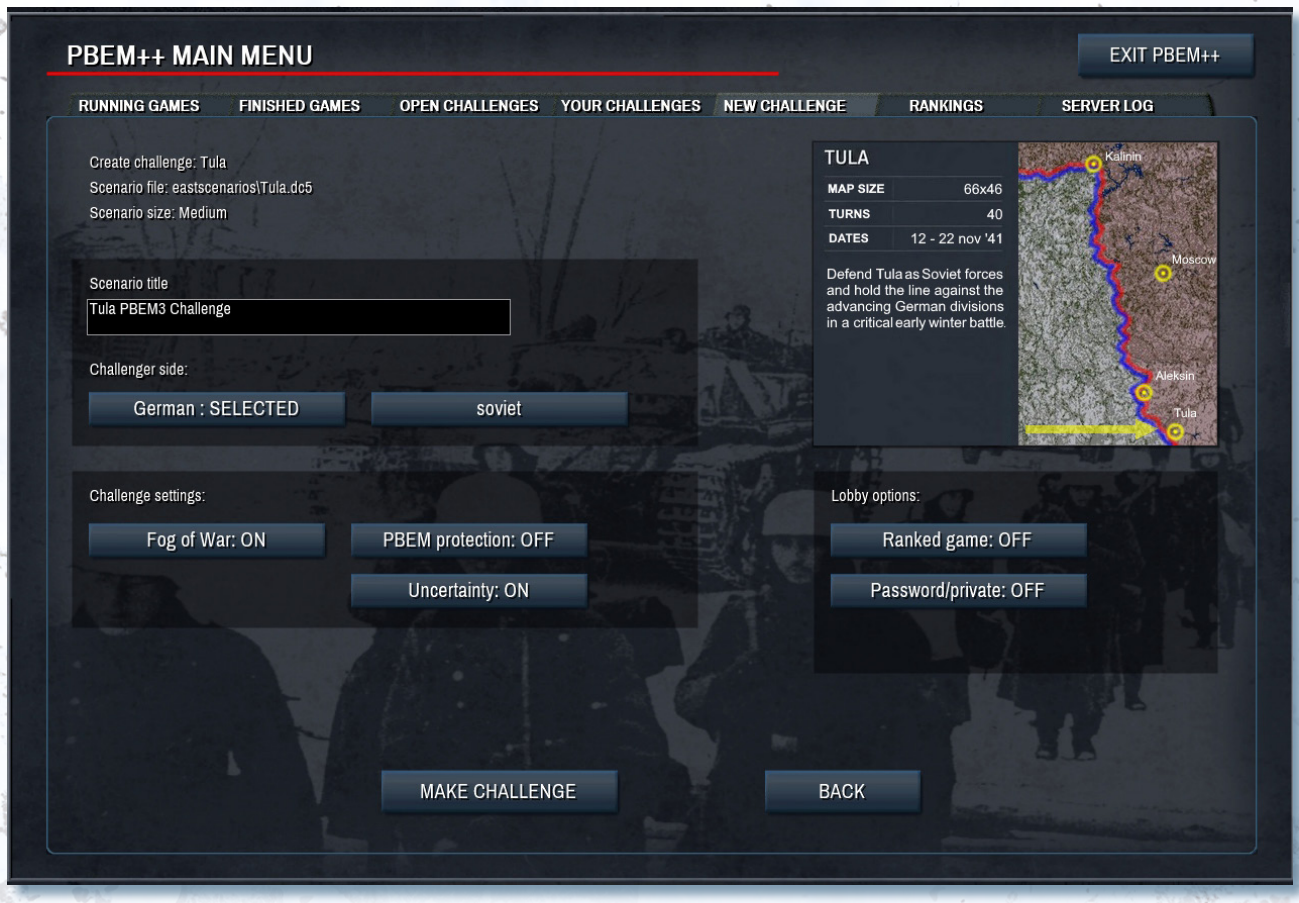
Here you can see the challenges you posted. If your challenge is still visible here it means no other player has accepted to play you yet. Once somebody accepts a challenge the game will be moved to the running games tab. (see above)

Note: while nobody has accepted yet you can use the "cancel challenge" button to remove it.

New challenge

If you want to create a new challenge this is where you go. It allows you to pick a scenario of choice. After doing so a second page will open, allowing you to configure your challenge. Once you have done so you can press the "make challenge" button to actually post it. It will then appear in the "your challenges" tab. (see above)

Most options here are already explained in the scenario setup section of this manual. But there are a few extra options here.



PBEM protection

Basic advice is to play without! If you do play with it, it gives extra PBEM protection, but it might be inconvenient, constraining and sometimes prone to giving false positives.

If PBEM protection is active:

- You cannot save during your turn and replaying a turn (or even playing on a different pc) will be reported as potential cheating.
- It will also make the players give and use extra passwords
- Does allow however taking a clone of the game out of the PBEM++ system to continue for example hotseat or through manual system. (through the in-game Prefs Tab)

Ranked game

If this is switched on you and your opponent's ELO ratings will be updated once the game is finished.

Password / private

If you enable this option you can enter a password. Only a player that knows this password will be able to accept your challenge. Good idea to use this if you want to play a specific friend and not just anybody.

Rankings

Shows the ELO ratings of all players that have one. You must have played at least 1 ranked game to appear in this listing.

Server Log

Shows an overview of all the communications the game is doing with the server. Could be useful to check in case of weird behaviour or bugs.

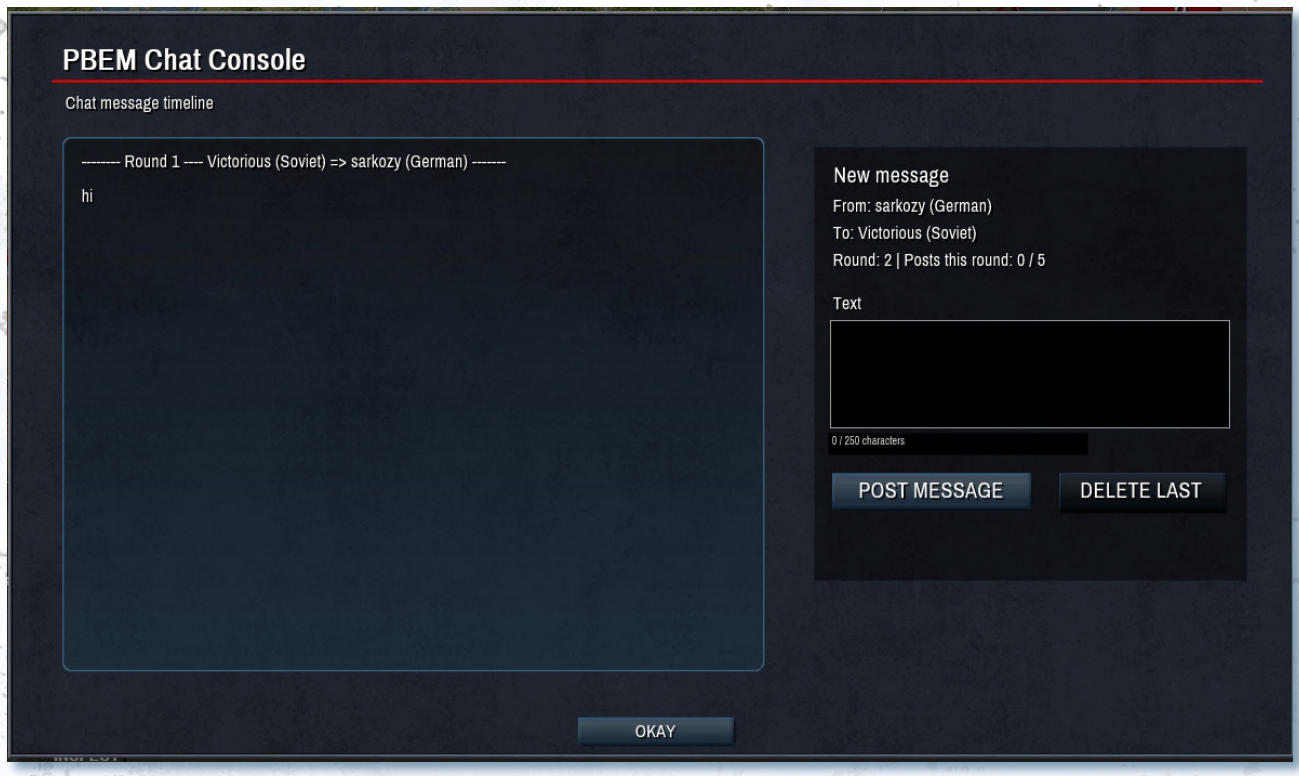
In case of the latter in the game's logs/ directory there is also the pbem3log.txt that keeps track of full logging.

3.3.3 PLAYING A PBEM++ GAME

Chat console

When you start your turn and end your turn the chat console will popup.

It will allow you to communicate with your opponent as the turns go by. It is very basic, but it allows you to read and write short messages to each other.



Disconnect PBEM++

If you want to continue playing the game differently (like old school PBEM or hotseat) you can disconnect the PBEM++ game. This will create a clone. This is only possible if you were playing with PBEM protection turned on.

The "Disc.PBEM++" button can be found in the prefs tab.

3.3.4 OVERVIEW OF MULTIPLAYER MODES

You can thus use PBEM++ that downloads and uploads games from the Slitherine servers. You can also play manual PBEM where you save the files yourself and actually email them to your opponent yourself.



MULTIPLAYER MODES	
Settings required	**Type of PBEM mode**
Launched through PBEM++ UI. with “PBEM Protection” turned off	PBEM++ normal
Launched through PBEM++ UI. with “PBEM Protection” turned on	PBEM++ with extra cheat protection and passwords
Launched through regular UI with 2 human players	Manual PBEM or hotseat, without passwords
Launched through regular UI with 2 human players and with “Passwords” enabled	Manual PBEM or hotseat, with passwords
Launched through regular UI with 2 human players and with “Passwords” and “PBEM protection” enabled	Manual PBEM or hotseat, with extra PBEM protection + passwords

3.4 SCENARIO SETUP SCREEN

After loading a scenario you will be presented with this screen. Here you can configure the scenario and start it by pressing the “start” button.

3.4.1 AI SETTINGS

Here you can configure your AI opponent. You can set the “difficulty” and the “speed”. Higher difficulties grant the AI more combat and mobility bonuses while the slower you set the speed for the AI the more time it will take to ponder its moves.

3.4.2 SETTINGS

Some general settings can be set here as well as some scenario specific settings (like weather).

Fog of War

Enable for a realistic experience. If disabled, it means you can see all enemy units, even without any line of sight. However when disabled the actual combat calculations still take place based on actual recon points. (So even though the players see everything, that does not mean your soldiers see everything.)



Passwords

Only enable this if you are playing against another human player and do not want your opponent to be able to log in to your turn.

PBEM protection

PBEM stands for play-by-email. Only enable this if you are playing against another human player. Having this option enabled means that the opponent will be notified if you reload the same game.

Hide AI moves

To have a slightly quicker turn time during AI turns, you can enable hiding the AI's moves.

Uncertainty

A great feature that adds more uncertainty and randomness to combat and unit quality.

3.4.3 OTHER

There are a few other items on this screen as well.

Opponents [see A. in screenshot above]

You can toggle each side either to human or AI. Make sure at least one human player is selected.

Scenario description [see B. in screenshot above]

You can read about scenario specific rules and variants in this text area.

> **Note:** the little headings above the text area are tabs you can click to show different pages of text.

Variants [see C. in screenshot above]

Some scenarios have variants that allow a specific side to get an advantage or a special weather mode.

3.5 GAME LOOP SCREEN

Once you have started a game you'll go to the "game loop" screen. You'll also be sent here after ending a turn.



Login / Start turn

If you are playing against the AI, click here to start a turn. If you are doing a PBEM game with passwords enabled, then the game will provide a login button and upon clicking it prompt you to give / enter your password. Make sure to remember the password you enter as there is no way to recover it if you lose it.

Save + quit

If you are playing a PBEM game this option will show up as well. Instead of logging in to your opponent's turn you'll save the game at this point and email the save file to your opponent.

Upload

If you are playing a PBEM++ game this option will be available to upload the turn to the server so your opponent can play their turn.

3.5.2 MESSAGES

After you have logged-in, the game loop screen will show you the most important messages for your current turn.

Just press any key to click through them.

3.6 MAP SCREEN

This is the most important screen in the game. You'll spend a lot of time here.

The key areas in the map screen are the following:

A. Screen selection tabs

Here you can switch between "map screen" and "history screen".

B. Drop down tabs

Here you access a number of drop-down tabs.
Here you can also click on the "end turn" button in the top-right of the screen.

C. Order mode tabs

Here you can change the order mode you are currently using. Here you can also get the minimap and unit stacks info enabled on the left-hand side of the screen.

D. Right-hand sidebars

Here you can change the information that is displayed on the right-hand side of the screen.

E. Bottom window

Here you can see the core statistics of the selected unit.

F. Hexes and counters

Here you see the actual map. Left click a unit or hex to select it and right click on the target hex to move the selected unit there.



3.6.2 DROP DOWN TABS

The following tabs are available here:

Prefs

This drop-down tab allows you to fine-tune a large number of display settings as well as the volume settings.

Brief

In this drop down tab you can re-read the scenario briefing.

Statistics

All kinds of statistics can be inspected in this drop-down tab.

Order of battle (OOB)

In this drop down tab you can inspect your whole order of battle in a collapsible hierarchical view.

Reports

In this drop down tab, you can inspect some detailed reports (and review those messages seen in the game loop screen again) on topics like victory conditions and replacement troop reports.

Cards

In this drop down tab, you inspect or play the action cards you have available.

Strategic map

This drop-down tab gives you an overview of important towns and the whole map.

3.6.3 ORDER MODE TABS

The following tabs are available here:

Shown / hidden

Clicking on this tab will either hide the bottom window (allowing more of the map to be seen) or show it again.

Stack & mini-map

Click this tab to either hide or show the unit stack and mini-map window to the left-hand side of the screen.

Move order mode

Click this tab to enter move order mode. When in move order mode, left-click a unit to select it, right-click on a hex in range to move there or to start combat. When mousing over a hex, the right-hand sidebar will show the movement cost for the selected unit to enter that hex.

Group move order mode

Same as move order except that all units in the hex will try to move simultaneously.

Supply mode

Click this tab to enter Supply Mode. This mode allows you to inspect your logistical network and switch between several different supply and traffic visualizations.

The following additional modes are available:

- **Delivered Supply/Fuel paths** show the routes along which Supply and Fuel Points were actually delivered to their target units during the logistics phase at the start of the turn.
- **Traffic before logistics** shows the Traffic Points present on roads immediately before the logistics phase at the start of the turn. This effectively shows the congestion remaining from the previous round.
- **Traffic after logistics** shows the Traffic Points present immediately after the logistics phase has been completed. This makes it easier to see how much road congestion was caused by supply and fuel deliveries.
- **Current traffic** shows the Traffic Points currently present on the road network, including traffic generated since the logistics phase.

Keep in mind that current Traffic Points will normally be halved before the next logistics phase, representing traffic congestion gradually dissipating over time.

In the regular supply-range view, Green indicates full delivery range, Yellow 75%, Blue 50%, Red 25%, while no colour means the hex is beyond the 1000 AP maximum logistical range.

Inspect mode

A mode that allows you to click on units and prevents you from inadvertently moving them. In inspect mode, nothing can happen by accident.

Small counter mode buttons

There are 3 small buttons right next to the inspect mode. They allow you to toggle between hiding units, nato-style counters and silhouette counters.

3.6.4 RIGHT-HAND SIDEBARS

The following tabs can show or hide information on the right-hand side of the screen. Click on the selected tab again to show nothing but the map on the right-hand side of the screen.

Hex

Click this tab to see details about the selected hex. Includes information on the landscape type, combat history and supply sources/dumps.

Unit

Click this tab to see details about the selected unit. Includes information on its carry and weight points, standing orders and replacement troops stats.

Officer

Click this tab to see details about the commander of the selected HQ (or the HQ of the selected unit). This tab also allows you to play officer cards.

3.6.5 BOTTOM WINDOW

The bottom window gives you the core statistics of the selected unit.

The key areas in this window are:

A. The unit counter

Here you can always see the big version of the unit counter for the selected units. Below it you can also view information on your current recon state for that unit.

B. Movement mode and movement type

Here you can see the icon of the movement type the unit will use. The background is either black for the unit being in combat movement mode or 0 white for the unit being in march movement mode. Click on it to toggle the movement mode.

C. Intercept fire mode

Here you can change the standing order for intercept fire.

Trigger happy



No matter the chance to hit the unit will open fire.

Regular



The unit will open fire if it has a reasonable chance (33% or more) to hit the enemy.

Conservative



The unit will only open fire if it has a good chance (66% or more) to hit the enemy.

Never



The unit will never open fire when the enemy is moving. This is a good mode if you do not want to reveal your presence or want to save ammunition.

D. Retreat mode

Here you can change the standing order for the retreat mode.

Fight to the last man



The unit will never try to retreat to preserve itself. It will only retreat if it panics.

Stubborn



The unit will only try to retreat after 75% of its troops have been chased off the battlefield or killed.

Regular

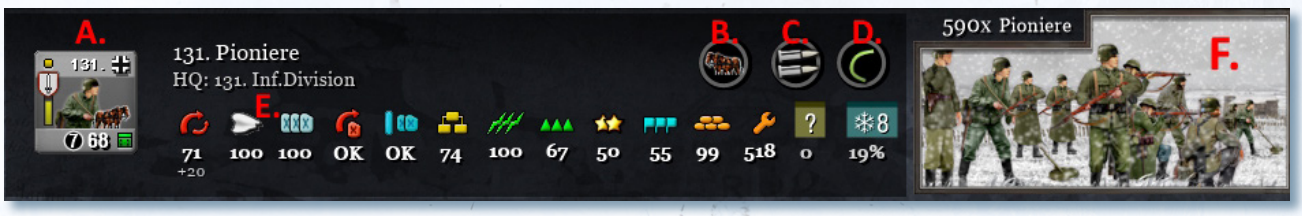


The unit will only try to retreat after 50% of its troops have been chased off the battlefield or killed.

Flexible



The unit will only try to retreat after 25% of its troops have been chased off the battlefield or killed.



E. Unit statistics

Here you can inspect the core statistics of the selected unit.

Action points



Action points (AP) are needed to move your units.

HQ power



HQ power % gives the unit a bonus during combat. HQ power is 100% if HQ is within 5 hexes of the unit, 75% if within 10 hexes, 50% if within 15 hexes, 25% if within 20 hexes and 0% if further away.

Supply consumption



Supply consumption % shows you if the unit has consumed its needed supply consumption. 100% means all is good. Below 100% indicates there is an immediate lack of supplies and this will cause severe combat penalties and loss of readiness.

Offensive modifier for low supplies



If enough supply and fuel stocks are present with the unit this will show "OK", meaning there will be no penalties in offensive combat. If supply and/or fuel is running low, a combat penalty % will be shown here.

Defensive modifier for low supplies



If enough supply and fuel stocks are present with the unit this will show "OK", meaning there will be no penalties in defensive combat. If supply and/or fuel is running low, a combat penalty % will be shown here.

Integrity



The integrity of the unit is the % of troops prescribed in its TOE (table of organization and equipment) still present. If it drops severely, the unit can break if panicking. (Battlegroups always break if panicking.) Mouse over it to see what % of losses the unit can take before it might break. If 'BG' is shown here that means the unit is a battlegroup/ kampfgruppe and thus has no integrity.

Vigor



The vigor of the unit determines the maximum readiness number for this unit. This maximum readiness is shown here. Mouse over it to see the raw vigor points.

Readiness



Readiness decreases with movement and combat. It is a major modifier in combat and also influences the number of action points available.

Experience



Experience is a big modifier in combat. Low experience values are expressed with bronze stars, medium values with silver stars and high values with gold stars.

Morale



Morale helps the unit to keep fighting while losses mount. Low morale will risk the unit panicking when suffering casualties.

Entrenchment



Entrenchment is a big modifier in defensive combat.

Engineer points



Engineer points can be used to blow up or repair bridges.

Uncertainty rules



When using the uncertainty rules this dice is shown. The number on the dice is our estimation of one (the loaded one) of the two dice the unit will throw when in combat. A "?" question mark means we have no clue yet. Mouse over the dice symbol to see detailed numbers on why we show a certain number.

Effective cold level and winter preparedness percentage



On the blue display block next to the snowflake icon the effective cold level this unit is confronted with is displayed. Underneath it the winter preparedness percentage is shown. Winter preparedness is a major modifier for transforming raw cold level into effective cold level.

F. Troops

Here you can see information on the troops that are in the unit. The people type (Wehrmacht, Luftwaffe, SS) and the troop type and quantity. To get more information you need to click on its illustration to open the troop type popup window.

G. Merged / split mode

Here you can switch between showing the troops in either merged or split mode. If there are more troop types than can be displayed in the bottom window some of them will be merged (for example 100 engineers and 100 volksgrenadiers would be shown as 200 infantry). If you are using split mode, there will never be any merging and instead scroll buttons will appear if necessary.

3.7 RIGHT-HAND HEX SIDEBAR

This window shows detailed info about the selected hex. The key areas in this window are:



3.7.1 A. THE CORE HEX INFO

Here you can see the picture and the name of the landscape type of the hex. Mouse over it for detailed info on the modifiers this landscape type gives. If any victory points are present on the hex, they are also displayed next to a flag icon.

3.7.2 B. ORDERS THAT TARGET THE SELECTED HEX

Here you can find orders to target this selected hex with a regular or a ranged attack. This is the way to do a blind attack or to do a ranged attack on a hex where you see no enemy troops.

Attack



This order will open the combat preparation popup window with the currently selected hex as the target for a land attack. Once in that popup window, you'll be able to select the units that will participate in the combat.

You can also use this order to launch a Blind Attack against a hex where no enemy unit is currently visible. A Blind Attack represents deliberately attacking a position where you suspect enemy troops are present despite insufficient reconnaissance to confirm them.

Unlike moving into an apparently empty hex with the Move Order, a Blind Attack cannot be ambushed. However, it costs an additional 25 AP compared to a regular move.

If no enemy troops are actually present in the target hex, the troops participating in the Blind Attack suffer -20% morale and -20% readiness. This represents the disruption and loss of confidence caused by carrying out an unnecessary attack based on incorrect intelligence. A Blind Attack will reveal any enemy units present in the target hex.

Ranged attack



This order will open the combat preparation popup window with the currently selected hex as the target for an artillery attack. Once in that popup window, you'll be able to select the units that will participate in the combat.

Keep in mind you can target any assumed enemy hex, even if you do not have enough recon on it to see any enemy units.

3.7.3 C. HEX STATS

Here you can inspect the most important statistics of the selected hex.

Recon

Shows you the effective recon points. Mouse over this stat to see more detailed info.

Hide

Shows the hide points provided by the landscape type of the hex. Effective recon needs to be at least 20 points to spot a unit with 0 hide points. However, if the hex the unit is in has a positive hide number, you'll need more effective recon points to spot the unit. For example, if hide points are 20, then you'll need 40 effective recon points to spot the unit.

Obstruct

Shows the percentage of recon points that will be lost on this hex when a line of sight (LOS) crosses this landscape type.

Height

Shows the height level of the hex. Remember that moving uphill is usually slower and fighting uphill is usually costly.

Best LOS

Shows the percentage of recon points that will be applied by the unit with the best line of sight on the hex.

ZoC penalty

Shows the extra action points (AP) you'll need to pay to move into this hex due to visible enemy ZOC. Mouse over this stat to see details on the origins of the penalty.

Note: ZOC from enemy units you cannot see is not shown here, as doing so could reveal hidden enemy positions.

Battle AP

Shows the extra action points (AP) you'll need to pay to attack this hex again. These penalties are caused by previous battles.

Previous attack stack

Shows the stack points from previous attacks on the hex. These will be added in the overstack calculations for any new attacks.

Previous artillery attack stack

Shows the artillery stack points from previous attacks on the hex. These will be added in the overstack calculations for any new artillery attacks.

Total stack

The current total stack points in the hex. Keep in mind that above 200 points the hex is considered overstacked, and the defenders will suffer penalties.

Gauge

Will be shown if rail is present in the hex. It will tell you if the rail is compatible with your trains and if not, how long gauge conversion will still take.

Snow

Will be shown if snow is present in the hex. It will tell you if "normal snow" rules are used or if "deep snow" rules are used.

Location

If a location, like a city, town or a fortification, is present it will be shown here.

3.7.4 D. HEX COMBAT HISTORY

Here you can see a quick log of ranged fire events from the previous turn. This can help you to determine where enemy artillery might be hiding. An explosion symbol is shown to indicate a hex that received fire and an artillery symbol is shown to indicate a hex where artillery fire originated.

Note: the latest entry has the icons highlighted in red. This is especially useful if your troops fall victim to intercept fire.

3.7.5 E. HEX SUPPLY ASSETS

If a hex contains either a supply source or a supply base, then in this section you'll be given detailed statistics about the remaining supply and fuel as well as statistics on what has already been sent out.

3.8 RIGHT-HAND UNIT SIDEBAR

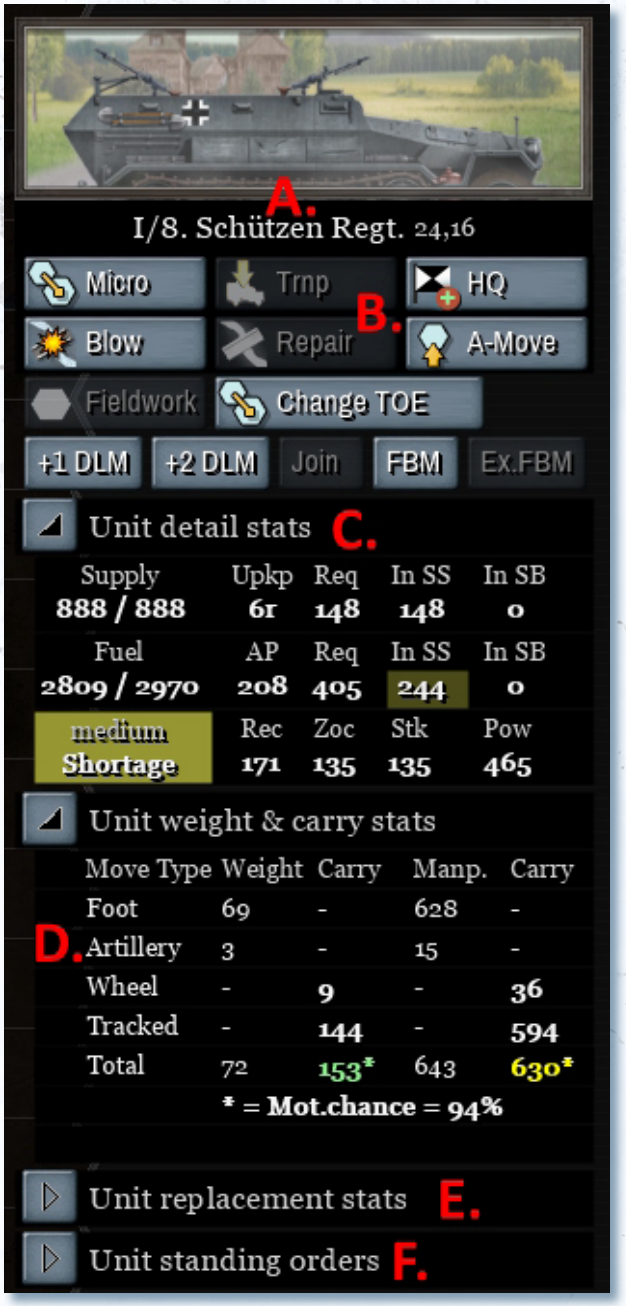
This window shows detailed info on the selected unit. The key areas in this window are:

3.8.1 A. THE CORE UNIT INFO

Here you can see a picture of the unit's movement type as well as its name.

3.8.2 B. ORDERS FOR SELECTED UNIT

The order modes (move, group move, inspect) are the most used orders for your units. Here a number of more specialized orders are available.



Micro



This order will open a popup window that will allow you to micro-manage your units. Micromanagement operations include: transferring troops to other units in hex, creating Battlegroups, and scrapping equipment.

Transport



This order will open a popup window that will allow you to let truck units load or unload other units.

HQ



This order will open a popup window that will allow you to set a new HQ for the unit in question. Keep in mind that assigning too many units to a HQ might overburden it when there are not enough staff points available or the commander has limited capabilities in leading his staff.

Blow



This order will open a popup that will allow you to select the bridge to be blown up.

Note: the unit must have at least 50 AP to make an attempt.

Repair



This order will open a popup that will allow you to select a bridge that needs to be repaired. For this order to be available the unit will need to have adequate EP for bridging the river size and AP to move.

Auto-move



This order will open the auto-move popup window that will allow you to set a final destination for the unit (and optionally others under the same HQ). Auto-move will be executed as far as possible immediately and thereafter at the start of every turn.

Fieldwork



This order will allow an engineer unit (with engineering points (EP)) to contribute to constructing fieldworks.

Change TOE



This order will allow you to change the "table of organisation and equipment (TOE)" of the

unit. In the game this is used to either motorize or demotorize the unit.

+1 DLM

This order will put the Unit in "defensive line mode (DLM)" (if not already) and split off one (more) unit.

+2 DLM

This order will put the Unit in DLM mode and split off two units.

Join

This order is only available to units currently in DLM mode and will re-unite all split-off units into one single unit. DLM mode will end.

FBM

This order will put the Unit in "fire brigade mode (FBM)".

Ex.FBM

This order will exit the "fire brigade mode (FBM)" and make the unit behave normally again.

3.8.3 C. UNIT DETAIL STATS

On the first line the supply (think: ammo, food, spare parts) details are shown and on the second line the fuel details are shown.

The first line shows from left to right:

- **Supply:** the amount of supply points currently available / the ideal amount of supply points.
- **Upkeep:** if no fighting is done this amount of supply will keep the unit at peak readiness for X game rounds.
- **Req:** the amount of supply requested by the unit at the start of this turn.
- **In SS:** the amount of supply delivered at the start of the turn from supply source(s).
- **In SB:** the amount of supply delivered at the start of the turn from supply base(s).

The second line shows from left to right:

- **Fuel:** the amount of fuel points currently available / the ideal amount of fuel points.
- **AP:** how many action points could ideally be spent with the current fuel reserves.
- **Req:** the amount of fuel requested by the unit at the start of this turn.
- **In SS:** the amount of fuel delivered at the start of the turn from supply source(s).
- **In SB:** the amount of fuel delivered at the start of the turn from supply base(s).

3.8.4 D. UNIT WEIGHT AND CARRY STATS

The movement type of the unit is shown in the illustration (A), but if you want to know the nitty gritty of why this unit has this movement type, consult this table.

The weight points and carry points of all movement types present in the unit are displayed here.

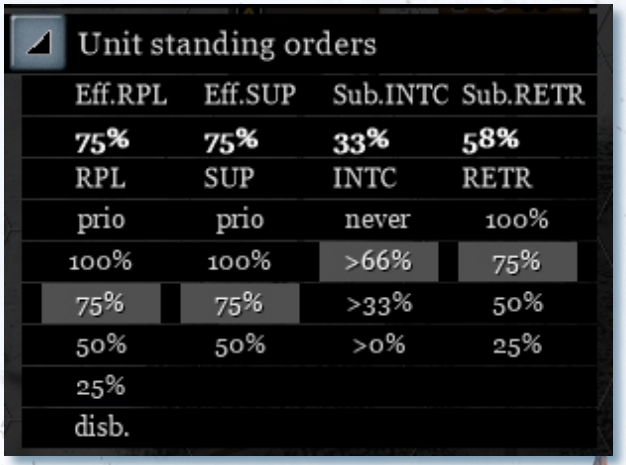
Note: a unit will assign carry points from faster movement types to the (perceived) slowest movement types. For example, a unit with infantry, halftracks and artillery will assign the halftracks first to the artillery since artillery has a slower movement type than infantry.

3.8.5 E. UNIT REPLACEMENT STATS

Replacement troops can arrive at high HQs by events and cards. From here they will be sent to subordinate units that are missing troops. In this table you can see if the unit you are currently inspecting is missing (Miss) troops from its TOE (table of organisation and equipment) and if any replacement troops have been requested by the unit (Req) and most importantly if anything has been received (In).

3.8.6 F. UNIT STANDING ORDERS

Here you can change all the different standing orders of the unit:



- RPL = Replacement percentage. Below which strength of ideal TOE does a unit request replacements?
- SUP = Supply request percentage. What % of supplies/fuel needed will we request?
- INTC = Intercept percentage. At what % chance to hit the enemy with ranged fire do we try to intercept fire?
- RETR = Retreat percentage. At what % of losses & individual retreats do we retreat?

Note: when an HQ is selected you can mass order changes to INTC and RETR standing orders.

Note: RPL and SUP are not the percentages actually used. Effective RPL and Effective SUP are used, both of these are based on the cumulative effect of all RPL and SUP settings of superior HQs.

3.9 RIGHT-HAND OFFICER SIDEBAR

This window shows detailed info on the officer of the HQ. If a normal unit is selected the officer of its HQ is displayed. The key areas in this window are:

3.9.1 A. THE CORE OFFICER INFO

Here you can see a portrait picture of the officer as well as his name. Click on the portrait to go to the officer popup window. Furthermore, 3 key statistics are displayed. Each one can be moused-over for further details. The combat bonus is the most important. It shows the actual bonus a unit will receive in combat if a unit is in 100% HQ power range. An officer: staff ratio below 1 means you have a problem: the officer is commanding more staff than he is capable of commanding. A staff:troops ratio below 1 means you have a problem: the HQ has more troops under command than it has staff points to lead them.

3.9.2 B. OFFICER STATS

Each officer has a number of stats:



Command points



Command points (CP) are needed to play officer cards.

Command score



The higher the command score the more new command points (CP) you'll get at the start of every turn. The number of extra command points received at each start of turn is [1 + command score].

Audacity



The higher it is the better the red officer cards will perform.

Determination



The higher it is the better the green officer cards will perform.

Charisma



The higher it is the better the blue officer cards will perform.

Intuition



The higher it is the better the brown officer cards will perform.

Organization



The higher it is the better the purple officer cards will perform.

3.9.3 C. BUTTONS

There are two buttons available here.

More info

When clicked an officer popup will open showing in even more detail information on the officer.

Officer pool

When clicked, an officer pool popup will open allowing you to switch the officer in command of the currently selected HQ unit.

3.9.4 D. OFFICER CARDS

Here you can find the officer cards this officer could play this turn (if enough CP is available). You can mouse over a card to get more info, and you can click it to consider playing it.

Note: an officer can only play one card per round after which all remaining cards will disappear until the start of the next round.

3.10 POPUP WINDOWS

There are various pop ups in the game. Some will speak for themselves. For some of the more complex ones, this manual will help you to understand them better.

3.10.1 COMBAT SETUP POPUP

When in move mode and you right-click on an enemy unit in range, it will not automatically start combat, but will first bring you to the combat setup popup. Here you can configure which units will join in the attack, how they will attack and what the probable impact of all the modifiers will be.

You can quickly leave this screen by pressing the ESC key or clicking the cancel button.

Note: pressing the SPACE key immediately launches a regular attack.

A. Eligible forces

Here you see all friendly units that could join the attack on the target hex (H). Click on a unit in this box to make it join the attack. Mouse over a unit to see its full name. Units that are already planned to join the attack will be in box E .

B. Estimation of offensive mods

Based on an internally previewed simulation it shows the attack point strength that will be brought upon the defenders based on your currently selected attacking forces. The icons before the second-to-last icon show the different modifiers and you can mouse over them to see more detail. The second-to-last icon shows the unmodified attack points per combat round. The last icon shows the attack points modified by all aforementioned modifiers.

Note: only the total attack points are previewed but that the modifiers for attack points and hit points are shown.

C. Estimation of defensive mods

Same as B but for the defenders of the hex.

Note: if your recon on the target hex is limited, the estimation might be far off the mark.

D. Enemy forces

Here you see all the enemy units that will defend the hex against your attack. Keep in mind that if your recon points on the hex are limited you might not necessarily see all units.



E. Attacking forces

Here you see all friendly units that will attack the target hex (H) once you press an attack button (J). Click on a unit in this box to make it join the attack. Mouse over a unit to see its full name. Units that can still be added to the attack will be in box A.

F. Attack type

The attack type is either regular attack or ranged attack. You can switch between them by pressing the switch button.

G. Map

Especially for ranged attacks it can be useful to go to a special attacker selection mode that allows you to see the whole map in order to select participants for the attack. Once in the map popup you can easily switch back to the current popup window.

H. Map

The target hex for the attackers will be in the center. Friendly units will either have a white, red or green rectangle around them. White means a unit can be selected to join the attack. Red means it cannot be selected (too far away, no AP). Green means it is already selected.

I. Odds

For regular combat the odds calculation has been completely redone (compared to DC: Ardennes Offensive).

It now shows the success to failure ratio to take the hex. So a ratio of 2:1 should on average result in 2 times successfully taking the hex and 1 time failing.

Note: a second line will give you a rough estimate which side will lose more troops in the battle.

For ranged/artillery combat the odds calculation is still based on the probable losses on both sides. As with this kind of combat there is no possibility of actually capturing the targeted hex.

J. Attack

When you're happy with your selection of attacking units, you can press one of the four attack buttons. These represent different levels of commitment to the attack, ranging from very cautious to very aggressive.

The more cautious attack modes greatly reduce offensive firepower but make the attacking troops considerably harder to hit and cause them to disengage earlier. The most aggressive mode does the opposite: it strongly increases offensive firepower but makes the

attackers much more vulnerable and willing to accept heavier losses.

ATTACK MODE EFFECTS			
Mode	**Attack score**	**Hit points**	**Retreat behaviour**
Most cautious	Only 33%	250%	Attempts to retreat when below 90% strength and will disengage after at most 2 combat rounds
Cautious	Only 50%	166%	Attempts to retreat when below 75% strength and will disengage after at most 4 combat rounds
Regular	100%	100%	Attempts to retreat when below 50% strength
Aggressive	166%	50%	Attempts to retreat when below 25% strength

These attack-mode retreat percentages replace the unit's normal retreat standing order for the duration of the attack.

Note: The exact names and symbols of these four modes are also shown when mousing over their respective attack buttons.

K. Combat totals

Shows the total troops of each unit group (infantry, tanks, etc..) involved. It also shows details on stack points and recon points. Lower recon points will mean more advantage for the defenders. Also keep a critical eye on the stack points. Normally, you'll want to avoid overstacked attacks as they'll make you suffer more casualties.

3.10.2 MICRO MANAGEMENT POPUP

In the unit sidebar you can access this collection of orders. Micro management includes transferring troops from one unit to another (in the same hex), transferring part of a unit to a newly formed battlegroup/kampfgruppe or scrapping equipment.



A. Source unit list

You see the same list of units under A as under B. It is just that the unit selected in the source unit list is going to lose the troops.

B. Target unit list

If a unit is selected in this list, the troops lost by the unit selected under A will be transferred to this selected unit.

However, you can also select "New KG/Team" in this target list. If you do so a new unit will be created in the same hex and that unit will receive the troops selected in the list boxes.

Furthermore you can also select "Scrap" in the target list. If you do so the troops you'll select with the sliders in D will be scrapped and (partially) returned as rear-area troops.

C. Unit stats

For both the source and the target unit, we are showing you the weight and carry points. This allows you to transfer troops in a way that makes sure a unit will stay mobile or mechanized. We are also showing power points here because units should always have 50 power points left.

D. List boxes

Here you can specify how many troops of each troop type of the source unit should be transferred or scrapped.

If a certain source unit troop types cannot be transferred because the troop type does not exist in the TOE of the target unit, they will be shown in red in the left list box with the remark "no target unit TOE match".

If the troop type exists in the TOE but the number of troops for the troop type exceeds the limit, it will be shown in red in the right list box. Any problems indicated in red will usually also be mentioned in F.

E. Pagination

If either the source or the target unit has very many different troop types you can use pagination to navigate through the troop type lists.

F. Transfer possible?

Either it shows in white "transfer possible" or in red and shows the issue as to why you cannot press the transfer button just below.

G. Buttons

After you have chosen the source and target unit and you have made your selection in the listbox of what is to be transferred, go ahead and press transfer.

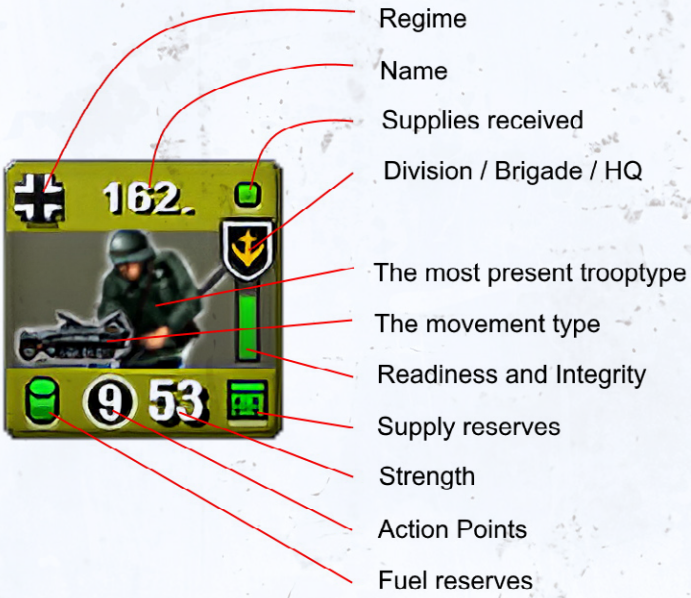
3.11 OTHER INTERFACE ELEMENTS

In this chapter we'll focus on a few non-window user interface elements.

3.11.1 UNIT COUNTERS

A counter is another word for the blocky unit graphics. Many types of information are displayed on each counter.

Regime



A symbol showing the regime (German/Soviet) controlling the unit.

Name

An abbreviation of the unit's name.

Supplies received

Is the unit still in your supply network?

- If a unit is out of supply (no supplies received) this block will be black.
- If a unit is receiving everything it requested this block will be green.
- Yellow, blue and red signify progressively decreasing access to supplies.

HQ

The shield or symbol of the HQ is displayed here.

The most present trooptype

If a unit has multiple troop types, the one that includes the most soldiers will be shown on top of the counter.

The movement type

If the movement type of the unit is different from the movement type of the most present trooptype, then a small picture of the actual movement type will be displayed.

Readiness and integrity

A full bar indicates full integrity, while a low bar indicates a unit with low integrity.

The color of the bar indicates the readiness score. Green means readiness is above 75 points, yellow means readiness is above 50 points, blue means readiness is above 25 and red means readiness is below 25.

Supply reserves

A green crate indicates that supplies are close to maximum. Yellow, blue and red indicate increasingly lower reserves.

Strength

An abstract measure of strength roughly equal to 1 tank or 10 soldiers per strength point.

Action points

Each point in the circle represents 10 AP. If the background of the circle is black it means the unit is in combat mode. If the circle is white, it means the unit is in march mode.

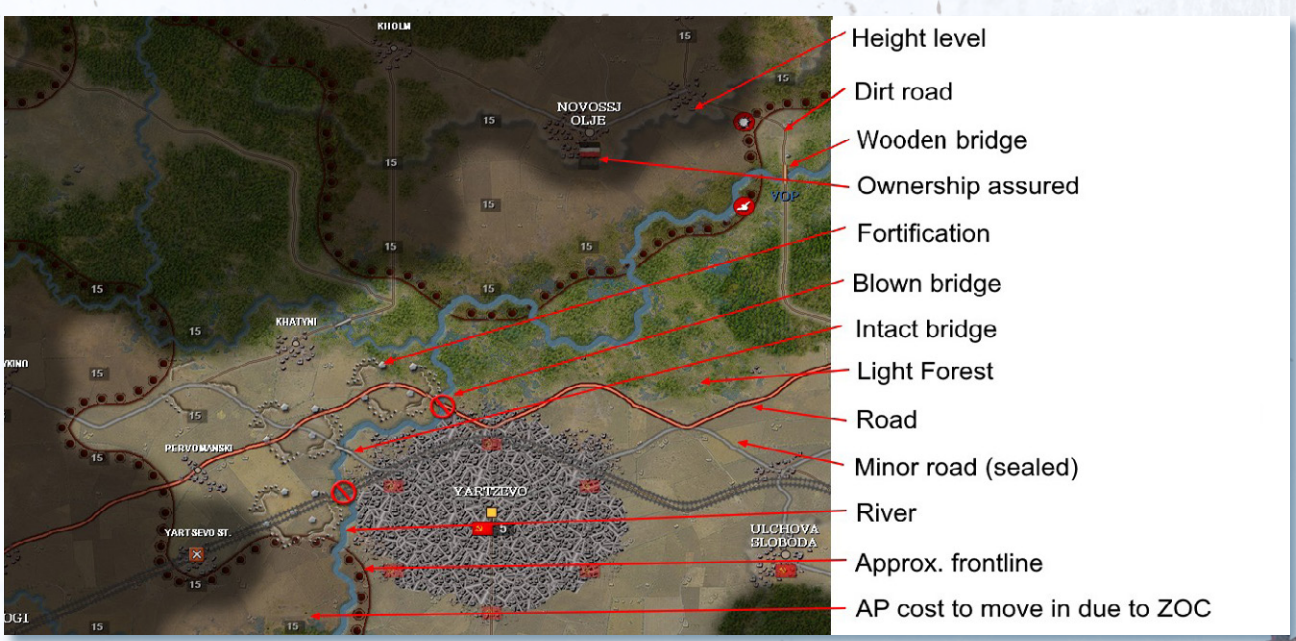
Fuel reserves

A green oil drum indicates that fuel reserves are close to maximum. Yellow, blue and red indicate increasingly lower reserves.

Note: Keep in mind that even if a unit has not received any supplies, it might still have (semi) full reserves to operate.

3.11.2 MAP LEGEND

The map contains a lot of information, and it's best viewed in maximum zoom mode.



Most symbols are straightforward. In case you are not sure what kind of river or road or town is in a hex, then mouse over the landscape type illustration in the hex side panel and it will show you the exact features (landscape type, rivers, roads, traffic points, etc...) present in the hex.

Here are some special symbols you can find on the map that need explanation:

LOS



If you switch LOS on in Prefs you'll see eye symbols on the hexes of the map. Green means at least one of your units has an excellent line of sight. Yellow, blue and red are increasingly less so. No eye symbol while in this mode means no LOS.

Hex combat history



The artillery symbol shows a source of fire while the explosion symbol shows a targeted hex. The most recent (intercept fire) will be shown highlighted in red symbols.

Supply base



The more crates the bigger the supply base.
It is shown with a truck if it is in build-up mode.
It is shown with a gray exclamation mark if in deplete mode. A yellow exclamation mark is shown if being evacuated and a red exclamation mark if it is being destroyed.

Supply source entry point



Shows where supply and fuel from an off-map supply source can enter the playable map.

Traffic congestion



There can be up to six of these little truck symbols inside one hex (one for each road direction) and they signify traffic points that have passed through the roads that have exceeded the road's capabilities.

Enemy presence marker



If your supply system is unable to get supplies or fuel to one of your units or supply bases, due to enemy units blocking the path, an enemy presence marker will be placed. It's bright orange if unverified and will change to transparent after you have checked it out by moving a unit close or on to it.

3.11.3 HOTKEYS

M	Move order mode
G	Group move order mode
S	Supply order mode
ESC	Exit popup/tab
	Exit history screen
	Go to inspect order mode
SPACE	In combat setup popup starts battle and closes results popup
1	Switch to troop silhouette counters
2	Switch to NATO counters
0	Hide/show counters
3	Small/big counters
4	Fog of war layer on/off
5	HQ power range layer on/off
6	Line of sight layer on/off
7	Hex grid layer on/off
+	Zoom in
-	Zoom out
H	Go to history screen
F1	Prefs tab
F2	Briefing tab
F3	Stats tab
F4	OOB tab
F5	Reps tab
F6	Cards tab
F7	Strategic map tab

4. THE RULES

This chapter discusses all the rules of the game. At the start of your round, your logistics system will try to get supplies and fuel from your supply sources to your units. After this, the unit will take their upkeep and recover or increase some of their statistics. The player will then be allowed to start their turn, and it will be up to you to move your units and give other orders.

4.1 DEFENSIVE LINE MODE (DLM)

You can split large units in 2 or maximum 3 DLM parts. These DLM need to remain in contact with each other and always need to be in a hex next to where another part of the DLM is.

They are useful to man a large frontage while in defense. Usually, a battalion can be split into 3 parts, smaller units than battalion size should still be able to split into 2 parts.

When a unit goes into DLM mode it will henceforth consist of several DLM parts.

4.1.1 LIMITATIONS

Really small units cannot use DLM. Smaller units can only split into 2 DLM parts. You can split units as long as the split component unit remains above two times the battlegroup minimum. Thus the component minimum limit is equivalent to about 100 soldiers. HQ units can never be split with DLM mode.

4.1.2 ENTER DLM MODE

To break a unit into multiple pieces each to be formed "DLM part" must conform to the minimum battlegroup power size.

4.1.3 JOIN DLM PARTS

For this all DLM parts need to be able to move into the hex of the most centrally positioned DLM part.

4.1.4 MOVEMENT RULES

While in DLM mode you can move only 1 hex. It is meant to be used on the defensive to form a long frontline, for mobility you should switch out of DLM mode.

You can only move a DLM part to a hex where all DLM parts stay in contact with all other DLM parts.

4.1.5 COMBAT RULES

DLM units can only retreat to a hex where all DLM parts stay in contact with all other DLM parts. If this is not possible the retreating DLM part and other (or all) parts will be joined together. Rejoining of parts can also happen upon a DLM part being completely destroyed.

DLM parts suffer -15% in attack (but not in defense) and do not receive any multi-unit bonuses. Being spread out has its disadvantages.

4.1.6 CHANGE HQ

All DLM parts must have the same HQ.

4.1.7 AUTO REPLACEMENT TROOPS

They'll only be requested and returned by the "core" part of the DLM. However the "core part" also manages redistribution with the others parts.

4.1.8 ENGINEER POINTS

These cannot be amassed while in DLM.

4.1.9 MICRO TRANSFER TROOPS

They'll only be able to be received by the "core" part of the DLM. However, the "core part" also manages redistribution with the other parts.

4.1.10 WHAT'S THE DIFFERENCE WITH BATTLEGROUPS?

DLM is the way to go when you are on the defensive:

- DLM mode makes it easy to split and does not require PP to do
- DLM parts are easy to join again
- DLM mode units spread their individual troops around between them every start of turn keeping all parts at equal strength

- However, DLM parts can move only one Hex and are thus more relevant for Infantry or units on foot than Mechanized formations

4.2 FIRE BRIGADE MODE (FBM)

This mode allows some of your units to react to and move during the enemy's turn. This is to bolster your other units that are defending against regular enemy attack.

4.2.1 ENTERING AND EXITING FBM

You can set a Unit to FBM, which costs 33 AP. Getting out of FBM is free of AP cost.

Other requirements for going into FBM mode:

- Not being in DLM mode
- Not being in March mode

If an FBM unit participates in regular or ranged combat it always loses FBM mode and will stay in the hex where it fought.

4.2.2 FBM ACTION POINT REDUCTION

At start of turn FBM units will lose 33% of their action points as a trade off for having been ready to bolster the line during the enemies' turn.

4.2.3 FBM BOLSTER MOVE

A unit that is in FBM will be able to move during the enemies turn to bolster a friendly force that is under regular attack.

Note: this allows a new way to set sneaky ambushes or counter-attacks to overwhelm relatively weak attacking forces that fought while picking an easy target. This also increases your front's overall strength over multiple hexes if facing a not-that-strong enemy that cannot attack throughout the whole frontline.

An FBM can only bolster units that are under the same HQ as the FBM Unit's HQ.

Note: this gives some incentive to keep some Units under corps instead of divisional control.

Note however that this "bolster move" is never assured and the danger of intercept fire on the trajectory could prevent the FBM move. The clever reader will realize that using FBM out in the open is thus harder than using FBM in a more defensible landscape like forests. Any possible intercept fire on a FBM Unit planning its "bolster move" is never actually executed, it just lowers the chance of the "bolster move" taking place.

The FBM unit will arrive in a combat round equal to AP cost to move to the battle hex, divided by 15 (and rounded up). It will quit fire brigade mode upon arriving in the battle hex.

Note: due to the ZOC cost already (15AP) we'll see FBM units enter combat around combat round 2-3 at best and 4-5 at worst. Placing an FBM unit too far from the frontline will make it unlikely that it arrives in time to bolster during combat.

4.2.4 FBM PRIORITY

Only one FBM unit can "bolster move" into a specific defensive combat Hex. The one chosen will probably be the one that has to expend the least amount of AP to arrive, but this is somewhat randomized.

4.3 UNIT UPKEEP AND RECOVERY

At the start of every turn, after receiving supplies and fuel from your logistical network, your units will consume upkeep. They may also recover readiness and morale as well as increase their engineer points and entrenchment.

4.3.1 SUPPLY CONSUMPTION AND READINESS DETERMINATION

If troops can consume supplies their readiness will recover. This represents the consumption of rations, medical supplies, non-combat related losses, batteries, spare parts and ammunition for minor fire fights.

Every troop type has a basic supply usage. The unit's ideal supply consumption usage will be the sum of that of all its troops.

If the supply points for this supply consumption are present, the supply consumption stat will increase up to 20 points and readiness also increases by up to 20 points.

If the supply points for this supply consumption are not present, the supply consumption stat will decrease by 10 points and readiness decreases by 20 points but will never go below 10 points.

If the supply points for this supply consumption are partially present, the negative effects will be reduced, and readiness might still go up a little bit.

4.3.2 MAXIMUM READINESS DETERMINED BY VIGOR

Maximum readiness = SQR(Vigor)*10

Maximum readiness is determined by vigor. Vigor itself can go down at start of turn when a unit moved or attacked the previous turn (-5) or by suffering combat casualties (half the percentage of KIA percentage applied as vigor loss).

It can go up by not having moved or offensively attacked/bombarded/ fired for a full turn (+15 vigor). There is also a +50% bonus to the increase if there is no enemy ZOC on the hex. A further +50% bonus is applied to the previous subtotal if the previous turn was a night turn.

The vigor increase can be reduced if the unit was attacked during the enemy's turn. A reduction between 50% and 100% depending on readiness will be applied, the lower the readiness the logarithmically the bigger the reduction.

Recovery of vigor is modified for inverse current vigor to simulate the effect of it being more difficult to recover from over-exhaustion. Strong advice: rest your units before their vigor drops below 50 points.

4.3.3 ACTION POINTS DETERMINATION

Readiness determines action points. After readiness has been updated, the action points for this unit will be set to 50 + readiness / 2. These action points are then modified with the supply consumption stat if it is below 100. It is therefore possible to end up with a unit that has 0 AP, though this will only happen many rounds after a unit has been cut off from receiving supplies.

4.3.4 RESERVE ACTION POINTS

Units that did not move can gain reserve action points. If a unit did not move in the previous turn, it will get reserve action points awarded. These are separately tracked from normal action points, and they can only be used for the first move to a neighboring hex. In normal conditions 20 reserve action points can be gained per round, and you can keep gaining them until 100 reserve action points have been reached.

The purpose of these points is to allow a unit to do an especially difficult move like crossing a river without a bridge or mounting a very steep forested hill.

Reserve APs are immediately lost if a move is made or a retreat to another hex is made during combat. Partial loss occurs when readiness is lost in combat and 50% readiness loss corresponds with full loss of reserve AP, 10% readiness loss corresponds with 20% loss of reserve AP.

If the regular AP has been determined to be lower than 50, for example due to lack of supply consumption, then the reserve AP total will (newly added and already existing) suffer a penalty. This will occur rarely but helps enforce that a unit will become almost completely immobile at some point after running out of supplies.

4.3.5 SUPPLY DEFENSIVE AND OFFENSIVE PENALTIES

Low supply or fuel stocks means rationing and thus combat penalties. Offensive operations require more stocks than defensive operations. If too few supplies and fuel are in stock with the unit, its defensive and/or offensive performance might be reduced. This happens when there is not enough stock to allow full usage of the unit's weapons for all the projected combat rounds. Supply and fuel consumption for defensive combat is usually 3 times lower than for offensive combat. Inspect the troops type details if in doubt.

To determine the defensive penalty, we calculate the number of defensive combat rounds the unit has stocks for. If this is lower than 20 combat rounds, rationing will take place and a defensive penalty will be incurred.

To determine the offensive penalty, we calculate the number of offensive combat rounds the unit has stocks for. If this is lower than 12.5 combat rounds rationing will take place and an offensive penalty will be incurred.

Note: these penalties can be deceiving in the case of a shortage of fuel stocks. In actual combat the penalty for low fuel stocks is only applied to the troop types that use fuel. For example, a motorized infantry formation (with trucks) will fight just as well with missing fuel stocks as with full fuel stocks. This is because the trucks do not participate much in the fight and it's the foot soldiers who'll be doing the fighting.

4.3.6 MORALE RECOVERY

Morale of well stocked units will always slowly increase back towards base morale.

Morale of badly stocked units will go down.

If the unit is suffering a defensive penalty due to lack of adequate supply/fuel stocks it has a chance to get morale reductions instead of morale increases. At 100% defensive penalty this will always be a decrease, at -50% defensive penalty there is a 50% chance it will be a decrease instead and at -10% defensive penalty there is just a 10% chance it will be a decrease. If no decrease is suffered, then this means morale will increase.

If morale is to be increased, it will slowly recover up to the base morale of the troop type in question. 5% of the base morale will be added to the morale score. This can be further boosted if the unit is in HQ power range of a HQ with adequate staff percentages. The commander of the HQ with adequate staff percentages can further help increase morale.

If morale is to be decreased, it will be reduced by up to 10 points if the unit's experience is at 0. It will go down 7 points if the experience is at 30. It will go down 5 points if the experience is at 50. Only 1 point will be removed if the experience is 90.

4.3.7 ENGINEER POINTS INCREASE

Your engineers will get new EP start of every turn. Note however if a unit moves it loses all its EP.

Engineer points (EP) go up every turn based on the amount of AP available. So if 50 AP is available the EP will go up with 50% of the EP gain statistic of its troop types. At 100 AP full EP growth will be awarded.

4.3.8 ENTRENCHMENT INCREASE

Your entrenchment will automatically go up the start of every turn.

Note: if a unit moves it loses its entrenchment.

The entrenchment will go up with the entrenchment capability of the troop type and up to the landscape type's maximum entrenchment value. The troops will always reach the minimum entrenchment of the landscape type of the hex they are in.

TROOP TYPE ENTRENCHMENT CAPABILITY	
Troop type	**Entrenchment capability**
Engineers	60
Infantry	40
Artillery / guns / flak	40
Tanks / afv / trucks	20

Snow hexes will halve entrenchment speed. This represents the difficulties of digging fox holes and trenches in snow covered and partially frozen ground. Units cannot gain or retain entrenchment while on a frozen lake hex.

LANDSCAPE TYPES MINIMUM AND MAXIMUM ENTRENCHMENT VALUES		
Landscape type **	**Infantry minimum entrenchment ***	**Infantry maximum entrenchment ***
Marsh	20	100
Plains	40	150
Fields	50	180
Light Forest	60	200
Forested swamp	60	200
Heavy Forest	70	225
Rural Village	50	200
Light Urban	75	225
Heavy Urban	100	300
Mud	No modifier	No modifier
Snow	+20	No modifier

* = Artillery/guns and flak have half these values. Tanks/afv and trucks have a quarter of these values.

Fieldworks, fortifications and heavy industry can further increase minimum and maximum entrenchment. See the locations section for their exact values.

4.4 NEW WINTER RULES & NEW WEATHER RULES

4.4.1 DEEP SNOW

After snow piles up to 400mm or more movement becomes very difficult for everybody (except ski movement type). For both sides, Soviet tracked vehicles however have less problems with the deep snow than the German ones.
Auto-entrenchment in deep snow is also higher.

Artillery is less efficient as well as the blast gets partially absorbed by the snow.

Attack modifiers are more negative for all in deep snow as the advantage now is with the side that doesn't have to move cumbersomely. Soviet wide tracked vehicles are less impacted here too.

Exact rules summed up:

- Extra movement costs in off-road deep snow hexes (less so for wide tracks)
- Auto entrench +33% compared to normal snow
- 50% attack reduction on the offensive (wide tracks only get -25% attack reduction, ski get no attack reduction)
- Artillery also gets 50% attack reduction when it concerns defensive fire (supporting the defenders)

4.4.2 FROZEN RIVERS AND LAKES

Rivers and lakes can freeze when sufficiently cold weather persists. Freezing is tracked using cumulative freeze points.

An average temperature of -7.5°C for one day (4 rounds) results in 30 cumulative freeze points.

Freeze Points are lost three times faster than they are gained. For example, one day (4 rounds) at +5°C results in the loss of 60 cumulative freeze points.
Frozen rivers no longer cause the normal river AP movement penalties or river combat penalties.
Frozen lakes can be moved across, but units cannot entrench on them.

Be very careful when using frozen lakes. If a lake hex unfreezes while a unit is on it, that unit disappears as if drowned or completely dispersed.

4.4.3 WINTER-PREPAREDNESS PERCENTAGE

Every unit can have winter stock points. To be optimally prepared for winter conditions and winter fighting every manpower point requires one winter stock point, which would result in 100% winter-preparedness.

A player can have cards available to distribute more winter clothing, but often the winter-preparedness is set at scenario start.

A lack of winter-preparedness can result in taking freezing/frostbite casualties, readiness and AP loss. Lack of winter-preparedness will also hamper snow camouflage employment and can give extra resulting combat penalties in snowy hexes.

The winter-preparedness % is the key value you should observe during winter. Low values here will expose the unit to frostbite and will limit its winter-camo capabilities. High values (ideally 100%) here will mean the unit can function very much as it would during summer.

4.4.4 SNOW CAMO RULES

First, it is important to realize it takes time to get winter/camo clothing distributed or to repaint a tank. Once weather changes to the right conditions when snow starts falling, it takes infantry 4 turns (1 day) to get their snow camo on, it takes vehicles 8 turns (2 days) to get their paint job done.

Absence of winter camo during snow fighting will give modest combat penalties.

In order to avoid "no snow camo penalty" your troops need to have their snow camo on (or paint job done) and have adequate winter-preparedness. Under 100% winter-preparedness there is a chance "no snow camo penalty" is applied for infantry, under 50% there is a chance it is applied to vehicles.

RIVER AND LAKE FREEZING		
River/Lake	**Freezes at**	**Unfreezes at**
Minor Riv	200 cumulative freeze points	100 cumulative freeze points
Med Riv	300 cumulative freeze points	150 cumulative freeze points
Major Riv	400 cumulative freeze points	200 cumulative freeze points
XL Riv	500 cumulative freeze points	250 cumulative freeze points
Lake	600 cumulative freeze points	300 cumulative freeze points

The "no snow camo penalty" for infantry is -30% on hit points in the offensive and -10% on the defensive. For vehicles it is -20% on the offensive and -10% on the defensive.

4.4.5 CERTAINTY WEATHER PREDICTIONS

Now 5% percent uncertainty per round when predicting into the future instead of the 10% we had in DC:AO.

4.4.6 WINTER CLOTHING

It also takes 4 turns of cold level 1+ to get winter clothing (not to be confused with snow camo) distributed to the frontline, you cannot have snow camo while winter clothing has not yet been distributed. Winter clothing is thus an extra delay for applying winter camo, but that should be rare. Its effect is thus mostly visual only as the % of troops shown with winter clothing will correspond with the winter-preparedness percentage. This is fully automatically handled by the game.

4.4.7 FROSTBITE & EQUIPMENT FREEZE RULES

Once it gets really cold the absence of winter preparedness % in combination with cold level will result in penalties and casualties (frostbite/broken equipment).

> **Note:** winter-preparedness is only applied if winter clothing has been distributed (can take 4 turns after cold level reaches 1+).

Cold level is the base cold level + 1 extra level per 2 height levels.

Effective cold level = cold level - max(city level, fortification/fieldworks structural points/500) - (winter-preparedness%/10)

EFFECTIVE COLD LEVEL EFFECTS ON INFANTRY/GUNS

Effective cold level	Frostbite casualties	Readiness mod after calculations	AP mod after calculations
4	-	-	-
5	0.1%	-	-
6	0.2%	-5%	-
7	0.4%	-10%	-10%
8	0.7%	-15%	-20%
9	1.1%	-20%	-30%
10	1.6%	-25%	-40%
11	2.2%	-30%	-50%
12	2.9%	-35%	-60%
13	3.7%	-40%	-70%
14	4.5%	-45%	-70%
15	5.4%	-50%	-70%
16	6.4%	-55%	-70%

EFFECTIVE COLD LEVEL EFFECTS ON VEHICLES

Effective cold level	Equipment break down / frostbite	Readiness mod after calculations	AP mod after calculations
4		-	-
5	-	-	-
6	-	-	-
7	0.1%	-	-
8	0.2%	-5%	-
9	0.4%	-10%	-10%
10	0.7%	-15%	-20%
11	1.1%	-20%	-30%
12	1.6%	-25%	-40%
13	2.2%	-30%	-50%
14	2.9%	-35%	-60%
15	3.7%	-40%	-70%
16	4.5%	-45%	-70%

The average effective cold level (whole map taken into account) is the supply freeze level.

Which is applied to logistics / supply, including replacement troops.

SUPPLY FREEZE LEVEL	EXTRA AP ALREADY SPENT ON SOURCE HEX
4	-
5	+30AP
6	+60AP
7	+90 AP
8	+120AP
9	+150AP
10	+180AP
11	+210AP
12	+240AP
13	+270AP
14	+300AP
15	+330AP
16	+360AP

4.5 UNIT MOVEMENT

Moving troops into a neighboring hex costs action points (AP). The cost is determined by a number of factors. Each landscape type has an AP cost for each movement type. This AP cost might be replaced by the AP cost of a movement type for a road connecting the source and the target hex.

Then there might be additional costs in the form of AP cost for height levels, crossing rivers without bridge, ZOC (zone of control) penalties and/or previous battle AP.

It is important to be fully aware that almost all units are composed of different troop types. Troop types that might have different movement types. Especially on roads, the wheel and tracked movement types are much faster than the foot or artillery movement type. It is possible for faster troops to carry slower troops, as well.

4.5.1 LANDSCAPE TYPES

Basically villages, urban areas, plains and fields allow for good speed for motorized and mechanized troop types, but forests and marshes are hard to traverse for vehicles, but less so for infantry.

Note: The scale used (1km hexes) in the game presumes some tracks and particularly logging roads to be present in almost all hexes. Their existence is modeled in the landscape type AP costs and is not modeled visually on every hex graphic. This note also explains why, for example, heavy tanks can drive through heavy forest hexes, albeit at a hefty AP cost.

ACTION POINT COSTS TO MOVE IN TO LANDSCAPE TYPES, PER MOVEMENT TYPE						
Landscape type	**Artillery**	**Foot**	**Horse**	**Wheel**	**Tracked**	**Logistics**
Marsh	100	30	65	75	60	58
Marsh snow	75	25	45	42	29	41
Plains	60	20	40	32	24	32
Plains mud	70	25	40	42	24	41
Plains snow	75	25	45	42	29	41
Fields	60	20	40	32	24	32
Fields mud	70	25	40	42	24	41
Fields snow	75	25	45	42	29	41
Light forest	70	25	45	42	32	41
Light forest mud	80	30	45	52	32	46
Light forest snow	85	30	50	52	37	46
Forested swamp	100	30	65	75	60	58
Forested swamp snow	75	25	45	42	29	41
Heavy forest	80	35	55	55	40	48
Heavy forest mud	90	40	55	65	40	58
Heavy forest snow	95	45	60	65	45	58
Rural village	60	20	40	32	24	32
Rural village mud	70	25	40	42	24	41
Rural village snow	75	25	45	42	29	41
Light urban	60	20	40	24	18	24
Light urban mud	70	25	40	24	18	24
Light urban snow	75	25	45	34	23	24
Heavy urban	60	20	40	24	18	24
Heavy urban mud	60	20	40	24	18	24
Heavy urban snow	60	20	40	24	18	24

Note: There are some troop types with 4x4 wheel movement type. This movement type acts exactly the same as the tracked movement type. The AP cost for horse movement type might seem high, but keep in mind that it concerns horses that will be pulling equipment like artillery guns.

4.5.2 ROAD TYPES

Roads are crucial for logistics and fast vehicle movement. Roads have lower movement costs and, if present, will be used instead of the higher movement cost of a landscape type. In general roads perform miracles for the mobility of motorized and mechanized troops. If when moving a unit, the AP of the road type is lower than that of the landscape type, then the road type AP cost is used.

ACTION POINT COSTS TO MOVE OVER ROAD TYPES, PER MOVEMENT TYPE						
Road type	**Artillery**	**Foot**	**Horse**	**Wheel**	**Tracked**	**Logistics**
Dirt road	60	20	30	12	12	6
Dirt road mud	100	25	35	24	16	10
Minor road	60	20	20	10	10	3
Major road	60	20	20	10	10	2
Railroad	60	20	35	24	24	1
Double railroad	60	20	35	24	24	0

Roads only provide their full bonus as long as usage of the road in question stays within its traffic points. For more information about traffic points, see the section on logistics.

TRAFFIC POINTS PROVIDED BY ROAD TYPE	
Road type	**Traffic points**
Dirt road	1500
Dirt road mud	1000
Minor road	8000
Major road	35000
Railroad	1000
Double railroad	2000

The moment traffic points are exceeded by the combination of your logistical activities and unit movements any reduction in movement AP cost (compared to the plain landscape type AP cost) will be reduced, eventually to 0.

EFFECTS OF EXCEEDING THE TRAFFIC POINTS OF A ROAD TYPE	
Traffic point usage	**Effect**
Lower than 100%	Full road effect
Between 100% and 200%	0-33% less road effect
200%	33% less road effect
Between 200% and 300%	33-66% less road effect
300%	66% less road effect
Between 300% and 400%	66-100% less road effect
400% or more	No road effect at all

Note: For calculating the traffic point usage when moving units, the traffic points that will be caused by the unit that is moving are added into the calculations before movement occurs.

Note: When moving units over roads each weight point counts as one traffic point. During the logistics phase each supply point counts as 0.2 traffic points and each fuel point as 0.3 traffic points.

Multi-round effect of Traffic Points

Traffic congestion can persist for more than one round. At the start of a new round, existing used traffic points are halved. After this halving, any road connection with fewer than 200 used traffic points remaining has them removed completely.

Traffic points are also removed if the road connection is in perceived or actual enemy territory.

These rules represent the fact that major traffic jams take time to dissolve. They also ensure that unit movements during turn X can still affect the logistical network during turn X+1. The minimum threshold of 200 traffic points prevents insignificant remnants of old congestion from remaining on the map for many rounds and unnecessarily obscuring the traffic display.

Traffic Points only apply to roads

Traffic Points are only generated on roads.

Neither logistical movement nor normal unit movement generates traffic points while moving off-road. Logistics can still travel off-road, but doing so normally costs considerably more AP.

Because the traffic views in the supply tab show road congestion rather than the actual movement of supply and fuel, these views can sometimes appear to contain disconnected sections.

If this is confusing, switch to the start turn logistics view. This shows the actual routes taken by supply and fuel, including off-road movement.

Special rail rules

Railroads are an exception to the normal traffic point rules.

During the logistics phase, logistical movement over railroads ignores traffic congestion. Supply and fuel logistics moving by rail do not generate traffic points.

Traffic generated by ordinary units also does not increase the logistical AP cost of using a railroad. As any traffic congestion on the rail hex will be assumed to be on the regular roads in that hex, not the rail.

Units using rail movement ignore traffic point rules altogether.

Rail gauge

Railroads can only be used as railroads if they have the correct rail gauge for your side.

Converting a rail hex from German to Soviet gauge, or from Soviet to German gauge, takes 20 turns.

Gauge conversion is gradual. If you recapture a rail hex after only 2 turns of enemy occupation, for example, you can still use it normally because too little conversion work has yet been completed.

Heavy urban presumes good roads

Movement between 2 neighbouring hexes, both being heavy urban always counts as a major road connection. This is because there are many good, paved roads within all major cities.

Traffic congestion from structural damage

Artillery attacks, direct fire and regular combat can cause structural damage in the target hex. Structural damage can in turn cause traffic congestion on roads in that hex. These extra traffic points remain relevant during the current turn and the next enemy turn.

This means that artillery and other combat can be used to interdict enemy road networks. In theory, sufficiently heavy fire on important supply roads can severely hamper or even cut off supplies to enemy troops.

Not every structural damage point becomes a congestion point. The chance depends on how congested the affected road already is:

STRUCTURAL DAMAGE CAUSING CONGESTION	
Traffic points already	**Chance for structural point to become congestion point**
< Road traffic points*	100%
< [2 * Road traffic points]*	75%
< [3 * Road traffic points]*	50%
< [4 * Road traffic points]*	25%
Higher	0%

* A random road in the hex is taken into account.

On roads with a higher traffic point capacity, a single Structural Damage Point can cause several traffic points. This makes larger roads more vulnerable on a traffic point-by-traffic point basis and means that interdicting a high-capacity road is not proportionally more difficult than interdicting a smaller road.

4.5.3 HEIGHT LEVELS

A difference in height level, especially off-road, can cause great delays. If you move a unit from one hex to a target hex and that target hex has a different height value there will be some extra AP cost to move there. Especially if it concerns off-road movement as it is significantly more difficult to climb or descend.

EXTRA AP COST DUE TO HEIGHT LEVEL DIFFERENCE				
Height difference	**Foot off-road**	**Tracked off-road**	**Wheel off-road**	**Road**
Target 3 level lower	+25 AP	+50 AP	+100 AP	+25 AP
Target 2 level lower	+10 AP	+20 AP	+40 AP	+10 AP
Target 1 level lower	+5 AP	+10 AP	+20 AP	+5 AP
Target 1 level higher	+10 AP	+20 AP	+40 AP	+5 AP
Target 2 level higher	+20 AP	+40 AP	+80 AP	+10 AP
Target 3 level higher	+50 AP	+100 AP	+200 AP	+25 AP

Note: a snow hex increases the extra AP cost by +50%. This is done to simulate the effect of slippery surfaces, lack of surface visibility and wind driven snow piles. The supply system does not suffer any penalties from height levels. That each troop type has a height cost modifier. For infantry this is 100%. For tracked 200% and for wheeled 400%. You'll see these values correspond with the costs in the table above. We are mentioning this because these values are moddable.

4.5.4 RIVER TYPES

Rivers without bridges are formidable obstacles to vehicles and guns. If your troops have to cross rivers to get to the target hex this can cause extra action point (AP) cost. This is only the case if no bridge is present.

EXTRA AP COST FOR CROSSING RIVER TYPE PER MOVEMENT TYPE						
River type	**Artillery**	**Foot**	**Horse**	**Wheel**	**Tracked**	**Logistics**
Minor river	+60	+20	+20	+60	+60	+60
Medium river	+100	+40	+40	+100	+100	+100
Major river	+140	+60	+60	+140	+140	+140
XL river	blocked	+80	+80	blocked	blocked	+180

Note: In some cases a river can be crossed by preparing for several turns and building up AP reserve points in order to have the necessary AP to cross.

Improvised river crossings

Equipment with a weight of 1 can be ferried across an unbridged river using manpower from the same unit. Each piece of such equipment requires 20 manpower to organize the crossing. The manpower that is inherently part of the equipment itself does not count toward this requirement.

If enough manpower is available, the equipment crosses using the Foot movement type river-crossing AP cost instead of its normal movement type cost.

This allows predominantly infantry formations carrying a limited amount of lighter equipment, such as anti-tank guns, to cross rivers much more like infantry-only formations.

4.5.5 ZONE OF CONTROL (ZOC)

Units can slow down enemy units moving near them. All units exercise ZOC points in the directly adjacent hexes.

If the hex you want to move into has sufficient enemy ZOC points, you will have to pay an additional 15 AP. This increased ZOC penalty helps represent the difficulty of bypassing sizable enemy formations, especially in the relatively road-starved terrain of Russia.

The ZOC movement penalty is only applied if your friendly ZOC points on the target hex are less than 25% of the enemy ZOC points there. Sufficiently strong forces can therefore largely ignore the ZOC of much weaker enemy formations.

If a river crossing is involved, the ZOC points are doubled for the non-moving side.

Enemy ZOC points are only taken into account, and shown to you, if you can actually see an enemy unit on or adjacent to the hex in question. Hidden enemy units therefore do not reveal their presence simply by displaying a ZOC penalty. This prevents the ZOC system from giving away ambushes or covert enemy movements.

ZOC simulates a combination of the fuzziness of the hex, enemy patrols, fields of fire, mines and the general difficulty of moving freely close to significant enemy forces.

4.5.6 COMBAT AND MARCH MOVEMENT MODES

Use march movement mode if units have a long march ahead to the frontlines. You can select the movement mode of a unit by choosing between march mode and combat mode. March movement mode is the fastest but makes the unit vulnerable in combat. Combat movement mode is slower but avoids taking excessive damage due to unforeseen combat or intercept fire. To switch from combat movement mode to march movement mode costs 25 action points and 25% loss of readiness. The reverse change is free of cost. This simulates the cost of organizing a proper march column. In combat movement mode all the regular rules apply.

But in march movement mode there are the following changes:

- Movement action point cost is halved, but only on roads.
- Readiness cost for movement is doubled.
- Traffic footprint of movement is doubled.
- If a unit finds itself under fire it suffers serious penalties. See the combat section.
- If a unit finds itself under fire it will switch to combat move mode automatically.

4.5.7 REDEPLOYERS

Some troops, notably heavier artillery, will be redeployers. This means they need time to set up before they can start firing effectively.

If a redeployer moves during a turn it cannot fire anymore that turn and will have its remaining AP set to 0 upon end turn, so that it cannot do any intercept fire either.

If a redeployer does an attack it will always lose all AP so it cannot move again that round. As it would take time to pack up and move. This, however, is not the case for Intercept Fire or return fire, which is taking place before your turn starts.

The effect of these rules is that you can move your artillery in place on turn X and can then start firing on turn X+1, you can then not move further, but you can move again on turn X+2 and fire again from that new position on turn X+3.

4.5.8 PREVIOUS BATTLE AP

Combat can slow down an advance. If the hex your troops are moving into was taken this turn by battle it might have previous battle AP on it. These points act as extra cost to move into the hex. If a previous battle has taken more AP than it would have cost to move into the hex without battle, the difference is put on the hex as previous battle AP.

Previous battle AP simulates the delaying effect of protracted combat.

4.5.9 CARRYING TROOPS

Foot soldiers and artillery can be carried by vehicles or horses. A unit moves as a whole, but it can be made up of different troops with different movement types. If inside a unit, no troops that can carry others are present, it will move with the AP cost of the slowest movement type. However, troops with carry points can carry other troops. For example, trucks can carry infantry. If everybody cannot be carried, the slowest troops will be carried first. For example, a unit with infantry, artillery and just a few trucks, might get its artillery motorized but not its infantry. For one individual to carry another, the carrying individual needs to have higher carry points than the carried individual has weight points.

Furthermore, to be fully carried the carried individual's manpower points need to be carried as well. You can inspect each troop type to see its weight/carry and manpower/carry statistics. Manpower can be spread out over multiple carrying individuals, the weight cannot. For example heavy artillery (weight 3) cannot be carried by regular trucks (carries max 2 weight), even if there are multiple available. But the manpower of a heavy artillery (manpower 10) can be carried by 2 jeeps (each carries max 5 manpower).

Linear motorization rule

In previous Decisive Campaigns games, the loss of a single truck could mean the difference between a foot unit and a motorized unit. This is no longer the case. Now a linear approach is used to determine the probability that a unit is motorized. A unit can still be motorized, for example, even though it is missing up to 33% of the vehicles needed. When a unit is missing 16.5% of its vehicles there is a 50% chance it will still be motorized. When missing 8.25% there is a 75% chance it will still be motorized.

Note: Weight and manpower also play a role in improvised river crossings. Weight=1 equipment can sometimes be ferried across rivers using additional manpower from the unit. See the River Types section.

4.5.10 FUEL COST

If you move units with vehicles they consume their fuel stocks. Some troop types like vehicles consume fuel for every AP they move. If a unit does not have enough fuel in stock to pay the cost for the AP in question, the movement will be blocked.

Note: If your unit is out of fuel and is without hope of resupply, it might be better to scrap your vehicles and return mobility to remaining infantry.

4.5.11 READINESS COST

If you move units they lose readiness, especially non-motorized troops. Moving costs readiness. In the case of infantry this is because marching is quite exhausting; in the case of vehicles, it is because usage always creates some breakdowns that need repairs.

Moving foot movement type troops their full 100 AP movement means they'll lose 30 readiness points. Moving vehicles their full 100 AP means they'll lose 10 readiness points.

Note: Marching an infantry unit turn after turn will consume more readiness than it will recover. 30 readiness can be expended by just moving, but only 20 readiness can be recovered at the start of the next turn.

Note: If foot movement troops are carried by vehicles, they'll suffer the same and much lower readiness loss as their vehicles do (10 points). This is the real long-term advantage of motorized and mechanized infantry.

4.6 RECON AND LINE OF SIGHT

Now in this department, the recon department, *Twilight in the East* sees a lot of new rules. Notably, the recon point system has been made logarithmic instead of linear, line of sight has been added and rules to more permanently mark units as spotted or identified have been implemented.

4.6.1 RECON

You need recon points on hexes to see the enemy. Troops spread out their recon points to neighboring hexes up to 10 hexes away.

In the game interface and the rules, you'll see recon values mentioned on hexes. These actually concern effective recon points. These are a logarithmic derivative of raw recon points. The amount of raw recon points a unit has depends on the troops inside it. Larger units have more points. It's a linear matter.

The total raw recon points of a unit are then modified for its experience points (XP). If a unit has more than 30 experience points it receives a positive modifier, which at 55 XP is +100% and at 80 XP reaches the maximum modifier of +200%. If a unit has 0 XP it receives a -66% negative modifier, at 15 XP it is -33%.

These raw recon points are then spread out over the lines of sight (LOS) of the unit. The raw recon points are only fully applied if the LOS is 100%, if the LOS is less, then only that percentage of the raw recon points is applied. More about that in the next section. Put basically, hills and forests break line of sight.

The resulting raw recon points of a unit on the hexes around it are then modified for distance, weather type and time of day. Also see the next section. Basically, the further away and the worse the visibility, the less raw recon points remain.

The remaining raw recon points are then put through a log10 function and multiplied by 30. What? Yes, well... that is the formula and it is difficult to explain. The table below might help you more.

FORMULA RESULTS FOR TRANSFORMING RAW RECON POINTS INTO EFFECTIVE RECON POINTS

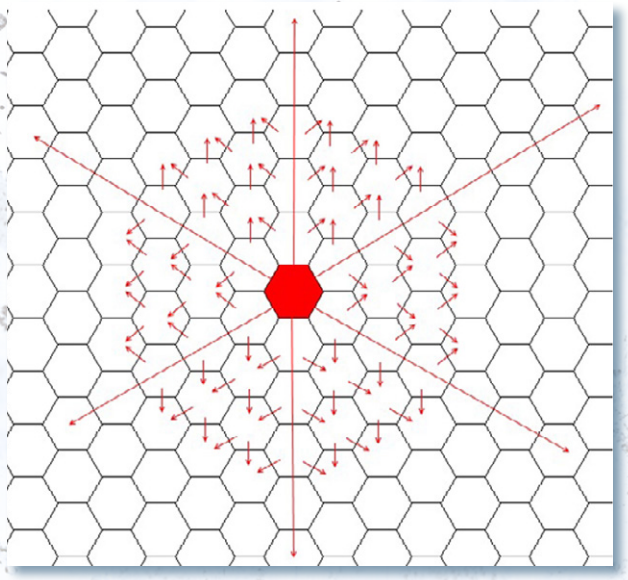
Raw recon points	Effective recon points	Info level on unit with 10 hide points
2000	100	Full
1000	90	Full
500	81	Partial (much more correct estimation)
250	72	Partial (more correct estimation)
125	63	Partial (less correct estimation)
62	54	Partial (much less correct estimation)
31	45	Minimal
15	36	Minimal
7	21	Minimal
3	15	Minimal

The use of the logarithmic scale means that it actually pays off to use small scouting forces. As you can see in the table above a force 10 times the size (and raw recon points) of a smaller force will not even have 2 times the number of effective recon points. This simulates the fact that it does not make much difference if you have 1 guy with binoculars on a hilltop or 10 guys with binoculars on that same hilltop.

Note: Actually, engaging in multi-round combat can provide you with a lot of extra recon on a hex, as can air recon cards.

4.6.2 LINE OF SIGHT AND OBSTRUCTION MODIFIERS

Hills, towns, and forests will partially or fully block your line of sight. The line of sight (LOS) system is not a strict LOS like we know from more tactical games. The LOS system used in this game has the ability to slightly bend around obstacles. This simulates that at the scale used, recon is gathered as well by small groups of reconnaissance troops moving slightly outside of the hex of the unit, as well as enemy troops maybe not always sticking to their exact hex. Also, other ways of gathering information might give some boost as well. Obstructions and shadows can obstruct LOS. The Hex next to the observer can always be seen, however, as it cannot be obstructed or hidden in a shadow. If a hex has the same height level (and only if the same level)

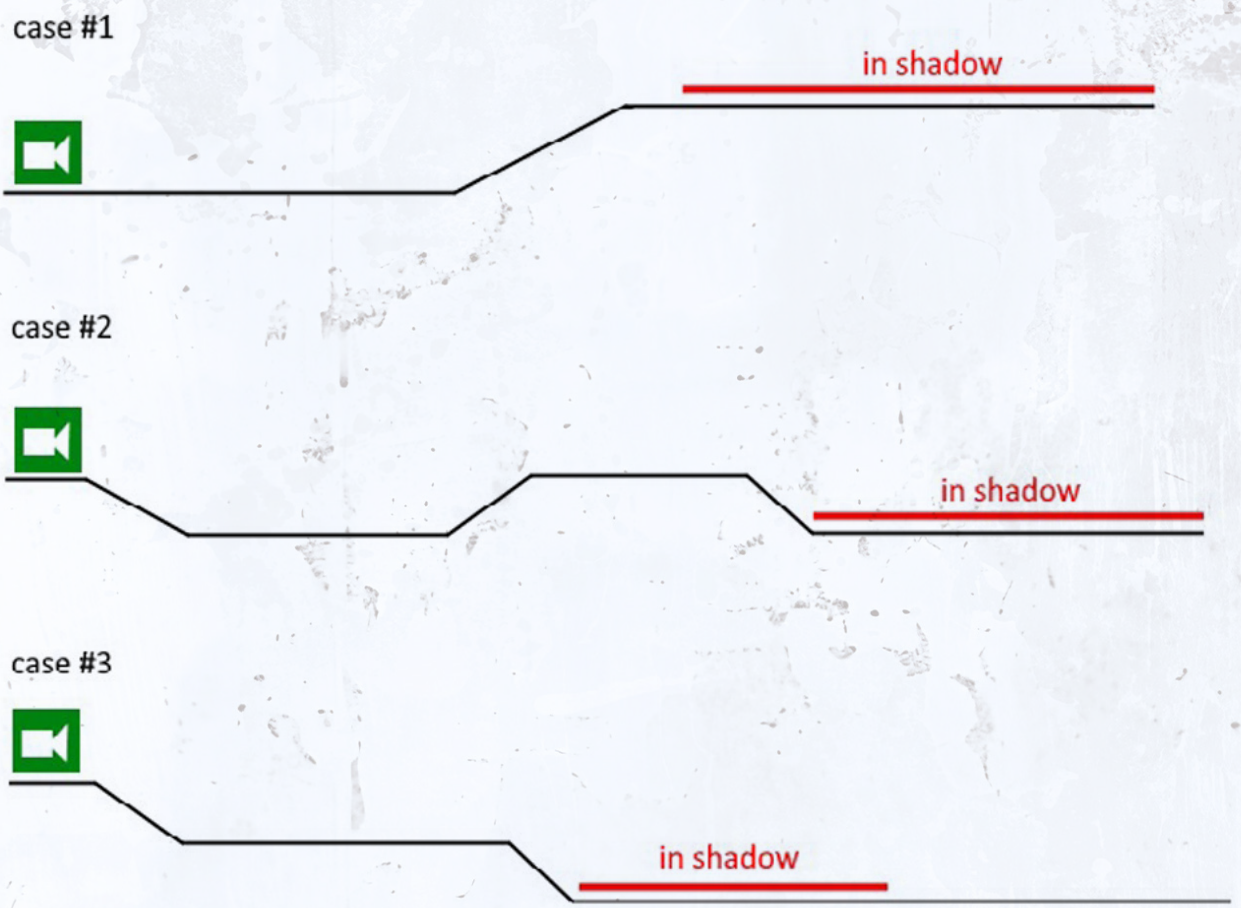


as the observing unit, the obstruction percentage of the landscape type is taken into account. Obstruction decreases your recon on the hex and hexes behind it. For the hex in question, it has a limited effect.

OBSTRUCTION PERCENTAGES OF LANDSCAPE TYPES		
Landscape type	**First hex**	**Hexes behind first hex**
Light forest	40%	80%
Forested swamp	40%	80%
Heavy forest	50%	100%
Rural village	30%	60%
Light urban	30%	60%
Heavy urban	50%	100%

A unit thus has a LOS percentage on the hexes around it. 100% is perfect LOS and less is imperfect LOS. A unit will only get partial recon points with an imperfect LOS and cannot have recon points at all on a hex it doesn't have a LOS on.

Note: For example, if we are calculating the recon points of a unit on two hexes directly north of it that are both lightly forested. This unit will then have -40% recon on the first hex and -88% recon the second hex.



Height level differences can cause so-called shadows to be dropped which can obscure the LOS of a unit.

If the hex in question is higher than the observer unit (case #1) then it will cast a permanent shadow for its height level and all height levels below it.

If the hex in question is the same height as the observer (case #2) then it will cast a permanent shadow on all Height Levels below it.

If the hex in question is lower than the observer (case #3) then it will cast a limited shadow on all height levels below it, but modified for distance. This rule does not apply for immediate neighbor hexes of the observer unit. The further away from the observer the height level drop occurs the longer the shadows will be.

4.6.3 DISTANCE, WEATHER AND DAY TIME MODIFIERS

You have optimal recon with clear weather during daytime. Even if there are no shadows and no obstructions, your recon points will degrade due to distance. Your units have better recon on a hex at distance 1 than a hex at distance 2, for example. The strength of the degradation of your recon points is dependent on the weather and day type.

4.6.4 HIDE POINTS

Having recon points on a hex does not ensure you'll spot enemy units in that hex. The question of whether you can see an enemy unit depends on two things: first your recon points on a hex and second the enemy units hide points.

Most importantly a unit can get automatic hide points from its hex's landscape type.

HIDE POINTS OF LANDSCAPE TYPES	
Landscape type	**Hide points**
Light forest	34
Forested swamp	24
Heavy forest	44
Rural village	34
Light urban	34
Heavy urban	44
Marsh	14
All other landscapes	4

These hide points (if any) will then get up to a +40% bonus if the unit has more experience (XP) than 30 points. It will get up to a -40% penalty on its hide points if the unit's XP is lower than 30.

After this up to a +40% bonus to the hide points can be added if total stack points in the Hex are lower than one third (33%) of the maximum stack in the hex. This simulates the troops being harder to spot due to the low quantity of them being present.

Up to a -100% penalty on hide points can be added if the total stack points in the hex are higher than the maximum stack points. At three times the maximum hex stack points being present, the hide points are completely reduced to zero. At two times the maximum hex stack points being present, the hide point receives a -50% penalty.

If a unit is spotted, the hide points of the unit will be halved and if the observer has at least 1 effective recon point on the hex it will always, at minimum, see the unit as a counter with a "?".

A unit that is also identified will have its hide points halved again. So, a unit that is spotted + identified loses three quarters of its hide points.

DEGRADATION OF RECON POINTS DUE TO DISTANCE, PER WEATHER TYPE / DAY TYPE										
Type	**Dist 1**	**Dist 2**	**Dist 3**	**Dist 4**	**Dist 5**	**Dist 6**	**Dist 7**	**Dist 8**	**Dist 9**	**Dist 10**
Clear	full	/2	/4	/8	/16	/32	/64	/128	/256	/512
Hazy	full	/2	/4	/8	/16	/32	/64	/128	none	none
Overcast	full	/2	/4	/8	/16	/32	/64	none	none	none
Lt.precipitation	/3	/9	/27	/81	/243	none	none	none	none	none
Hv.precipitation	/4	/16	/64	/256	none	none	none	none	none	none
Dark night *	/20	none	none	none	none	none	none	none	none	none
Hazy night	/4	/20	/100	none	none	none	none	none	none	none
Starry night	/3	/12	/48	/184	none	none	none	none	none	none

* = this includes nights that are overcast or have precipitation

4.6.5 SPOTTED AND IDENTIFIED UNITS

Once a unit is spotted or identified and it does not move, it will stay spotted or identified.

Once you have gotten at least minimal info on an enemy unit it will be considered spotted at the end of your turn.

This means its hide points will be divided by two henceforth.

A unit will also become spotted if you run into an ambush or directly see at least one of its individuals during any combat.

Once you have gotten partial info on an enemy unit it will be considered identified at the end of your turn.

Identified means its hide points will be divided by four. (instead of divided by 2 as with spotted)

If you have at least 1 effective recon point on a hex with a spotted or an identified unit it will always be shown to you.

A unit that is spotted but not identified and that, without the spotted state, would not show in partial info mode will stay in minimal info mode. This is important, otherwise the reduced Hide for being spotted will often automatically translate into Identified. With this rule you need to obtain enough recon points against unmodified Hide to get partial info in order to get identified on the unit.

A unit will lose its identified and/or spotted status by moving out of its hex during its turn. The status of spotted and identified is updated at the start and end of your turn

4.6.6 UNIT DETAIL LEVEL

The more recon points you have on an enemy unit the more you will know about it. The effective recon points you have on a hex minus the hide points of the unit that is being observed determines the unit's detail level. If the effective recon points minus the hide points is zero or lower you will not be aware that the unit is present in the hex.

If the effective recon points minus the hide points is higher than zero but lower than 20 you will have minimal information on the unit. Basically, you'll just know there is a unit but have no clue about its name or composition.

If the effective recon points minus the hide points is 20 or higher, but lower than 80, you will have partial information on the unit. This means you'll know the name and have a good guess on the troops and the statistics it has. The higher the score the more precise your guess will be.

If the effective recon points minus the hide points is 80 points or higher, you'll have perfect information on the unit.

If you have at least partial information on an enemy unit you will know if it is in DLM mode, but you will not know if it is in FBM. This is because DLM mode units have a much different and much more recognizably defensive posture on the frontline than non-DLM units.

4.6.7 BLIND ATTACKS AND RECONNAISSANCE

Reconnaissance represents more than simply what the player can see on the map. It includes scouting patrols, observation, radio reports and other local intelligence gathering, but these methods can still fail to detect an enemy unit.

If you nevertheless believe that an unseen enemy occupies a hex, you can order a Blind Attack through the Hex > Attack order. See the Right-hand Hex Sidebar section for the interface and penalties involved.

4.7 LOGISTICAL NETWORK

For units to be supplied you need a friendly logistical path between the unit, and an entry point connected to an off-map supply source.

Your units and supply bases make requests that can be lower than the amount of supply and fuel they are missing. This can be caused by their supply standing orders or by limitations on how quickly individual troop types can replenish their stocks. The supply source then tries to fulfill as many of these requests as possible.

The logistical AP cost between an entry point hex and the requesting unit or supply base is determined by distance, the road network, traffic congestion and other movement rules affecting the logistics movement type.

In *Twilight in the East*, full delivery is possible up to 400 logistical AP from the Supply source. Partial delivery remains possible all the way out to 1000 AP.

Supply bases can still extend logistical range or distribute local stocks, but the much greater basic range of the DC5 supply system means they are generally not required simply to maintain a functioning supply network across a large map.

4.7.1 ENTRY POINTS

Supply sources themselves are now truly off-map. What you see on the map are their entry points.

Each entry point can have a scenario-specific number of logistical AP already spent before the supply route enters the map. This allows even relatively small scenarios to represent a supply network that is already stretched before reaching the playable area.

Multiple entry points can connect to the same off-map supply source and therefore share the same supply and fuel stockpile.

If an entry point hex is captured, the off-map supply source itself is not lost. Supply simply cannot enter the map through that entry point while the hex is unavailable. If the entry point is recaptured, supply can once again enter through it.

It is technically possible for a scenario to use multiple separate off-map supply sources. However, this is not currently supported through the simple editor, as most situations requiring isolated local supply—such as fortresses, pockets or Stalingrad-like situations—can instead be represented using supply bases and, where appropriate, air-supply cards.

4.7.2 UNIT REQUESTS

Units request supplies and fuel from supply sources. Troop types have a maximum storage amount for supply and fuel. If their current stocks at start of turn are lower than the maximum storage amount, the unit will at most request the difference and it will be limited to their maximum replenish rate.

Note: In practice it is only artillery that has a serious difference between the supplies (ammo) it will spend in offensive usage and its maximum replenish rate. This is done to simulate that you cannot give maximum impact artillery barrages every round.

Units can also have their supply request percentage standing order changed. You can choose between 100%, 75% and 50%. This percentage is applied to the final supply and fuel requests of a unit.

The supply request percentage standing order can be set for each HQ. If you set a higher HQ to, for example, 50% it will mean all units below that HQ will only request 50% as well. If you for example set your Corps HQ to 50% and a subordinate division HQ also to 50% that will mean that division will effectively only request 25%.

4.7.3 SUPPLY BASES AND REQUESTS

Supply bases can request supply and fuel as well, when in build-up mode. Supply bases come in several sizes. The bigger the size the more logistical free action points they can provide and the more supply and fuel they'll have stocked for optional consumption by units.

SUPPLY BASES STATISTICS				
	Minor	**Medium**	**Major**	**Strategic**
Logistical free AP	40	80	120	160
Supply stock	1000	4000	15000	50000
Fuel stock	1000	4000	15000	50000
Max evacuation per round	50%	25%	15%	10%
Max destroy per round	100%	50%	30%	20%
Deplete logistical range	40 AP	80 AP	120 AP	160 AP
Minimum city needed	Minor City II	Minor City III	Major City I	Major City III

The structural point percentage of a supply base is the percentage of the stocks needed by the supply base. If it is below 100% it will reduce the logistical free AP the supply base gives. The percentage used is the average of the percentages for fuel and supply.

A supply base can be set to five different modes.

- The first mode is "regular" mode. In this mode the supply base will focus on providing free logistical AP to supply source logistics and extending their range. In this mode any shortages of stocks will not be replenished and stay at their current levels.
- The second mode is "build-up" mode. This mode is the same as regular mode with the exception that any missing supply or fuel stocks will be requested from supply source(s).
- The third mode is "deplete" mode. In this mode the supply base will provide zero free logistical AP to supply source logistics but will itself act as a mini supply source distributing its stocks to nearby units. This is done before supply sources distribute supplies and fuel. The range is limited, but adequate for units that are close by.
- The fourth mode is "evacuate" mode. In this mode the supply base will try to send its stocks back to the supply source(s). It is relatively slow to completely evacuate a big supply base.

- The fifth mode is "destroy" mode. In this mode the supply base will destroy its stocks. For big supply bases this takes time, but it's twice as fast as evacuating. It might be a crucial mode for a retreating player to avoid fuel falling into the enemy's hands.

When a supply base is captured 100% of the fuel is captured, but only 25% of the supplies because the Soviets and Germans are using mostly non-compatible ammunition and spare parts.

It is possible that a supply base at scenario start is in fixed mode. Fixed regular, fixed deplete, etc... When in fixed mode it means the player cannot change the mode of the supply base. The fixed mode is removed upon capture of the supply base.

Also be aware that supply bases with no (or extremely low) stocks will be removed from the map.

4.7.4 SUPPLY SOURCES FULFILLING REQUESTS

The more costly in AP the logistics path between supply source and unit, the less it will receive. The supply source tries to service all requests (units and supply bases) within the range of its entry points/hexes. If there are not enough stocks at the supply source to serve everybody, then everybody will receive a bit less than requested.

The supply source tries to service all requests from units and supply bases within range. If the supply source does not have enough stocks to fulfill all requests, everybody will receive somewhat less than requested.

Distance is also important. The percentage of a supply or fuel request that can be delivered depends on the logistical AP distance from the supply source:

DISTANCE REDUCING SUPPLY/FUEL DELIVERIES		
AP Distance from supply source	**% Supply/fuel delivery**	**Color on map with supply layer on**
0-400	100%	GREEN
400-600	75%	YELLOW
600-800	50%	BLUE
800-1000	25%	RED
>1000	0%	NONE

The greatly increased range compared to the previous Ardennes Offensive game allows even very large maps to use a functional logistical network without requiring chains of supply bases.

4.7.5 SUPPLY BASES AND LOGISTICS

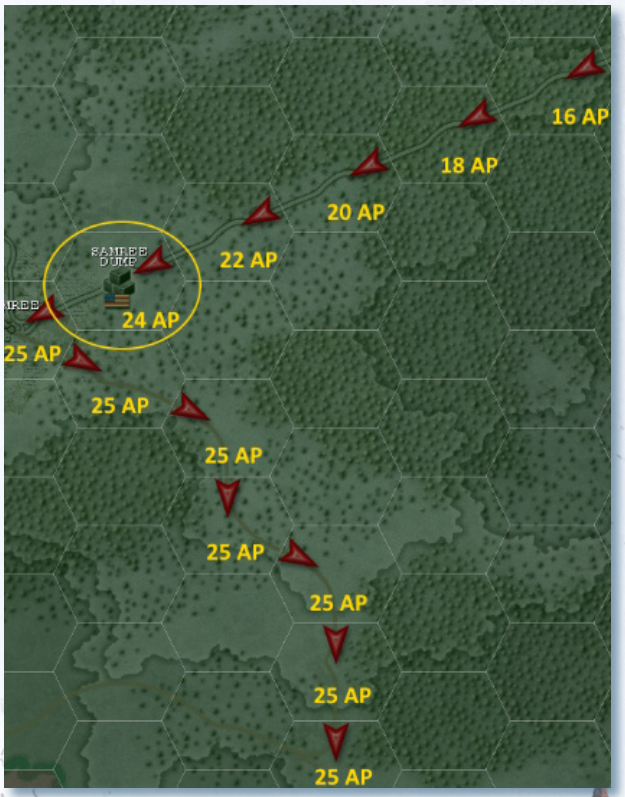
Supply bases remain fully functional in *Twilight in the East*, but most scenarios use them sparingly. The greatly increased basic range of supply sources means supply bases are no longer normally required simply to extend supply across a large scenario map.

They are most useful for modelling special logistical situations such as isolated pockets, local stockpiles, fortresses or supplies delivered by air.

Supply bases do however still exist and can give free AP to the logistics path originating from supply sources. This can extend their range significantly. The supply source will try to find a path that optimizes the use of supply bases (without traversing ridiculous routes).

A supply route originating from a supply source passing through a hex with supply base, there the AP cost will not increase in the following hexes until the free AP given by the supply base is depleted. As shown in the image above.

In the case where the route passes multiple supply bases the free AP is not added up. Instead, the maximum of the new supply bonus AP and current free AP before entering the supply base's hex is taken. So, for example, if the route goes first through a major supply base (gives 120 free AP) and then 10 AP later it goes through a medium supply base (gives 80 free AP) the effect is nil since there are still 110 free APs left. However, if later on with only 30 free AP left it goes



through another medium supply base the free AP will be increased to 80.

Keep in mind that supply and fuel deliveries from the supply source put traffic points on the trajectories used for delivery. Yes this means your logistics can actually clog roads and prevent units from using them at optimal speed.

The binary fuel delivery rule from Ardennes Offensive has been retired in *Twilight in the East*. Fuel and supply logistics function exactly the same now.

Note: All the movement rules from the earlier chapter apply to the supply source logistics movement type. This notably includes possible road congestion.

Note: A unit might receive supply over several different trajectories. This happens when after part of the requested supply and fuel has been delivered, a road has gotten so much congestion that another road becomes the faster route.

4.7.6 ENEMY PRESENCE MARKERS

Since you are not sure of the ownership of most hexes it is possible that you might think a certain road is in friendly hands, when it is actually in enemy hands. In assumed ownership view mode, you'll never know for certain, but in the logistics phase your logistics can.



If a supply source chooses a route for delivery that it thought was in friendly hands, but is actually blocked by an enemy unit, an enemy presence marker will be placed and a different route chosen, if possible. You can see these markers during your turn to see where your logistics ran into unexpected enemy ownership. It means an enemy unit is closer to the hex in question than a friendly unit. It could be on top of the enemy unit's hex or it could be a number of hexes away from it.

Note: Once you move over a colored enemy presence marker it will turn to gray to indicate that no enemy unit was (or is anymore) present on that hex. Colored and gray presence markers also have a different effect on presumed hex ownership calculations.

4.7.7 OTHER LOGISTICAL OPERATIONS

Apart from the supply sources sending supply and fuel to units and supply bases there are a few other logistical operations that can take place. Supplies and fuel from supply bases (evacuate mode) can be sent back to supply sources. This works the same as supply/fuel delivery and the range from supply source to supply base can reduce the quantities being sent back. This also uses free AP from supply bases on a route and generates traffic points.

Replacement troops can be sent from higher HQs to any subordinate unit/HQ. This works almost the same as supply/fuel delivery, except here the hex of the higher HQ is used to calculate the range to the unit requesting the replacement troops. Maximum AP cost for delivering replacement troops is 800AP. This also uses free AP from supply bases on a route and generates traffic points.

Note: excess troops (compared to the TOE of a unit) can also be sent back to a higher HQ. But that should happen only very rarely in this game. You are not allowed, due to the scale of this game, to change the OOB of units and thus make a unit oversized.

4.8 TROOPS MICRO MANAGEMENT

There are three things you can do concerning micromanagement. You can transfer troops from one unit to another, you can form kampfgruppen / battlegroups, and you can scrap equipment.

4.8.1 TRANSFERRING TROOPS

If units are in the same hex, you can transfer troops from one unit to another. However, the TOE of the target unit must be respected, and you cannot exceed it, nor can you force, for example fallschirmjaeger, into an SS unit.

You cannot reduce the source unit below 50 power points of troops (equivalent to 10 tanks or 100 men). The exception is if you transfer everything out of the source unit.

If you transfer everything out of a unit, it will disappear from the map. The unit receiving the troops will be reduced to 0 action points and will not be able to move on that turn.

Note: A kampfgruppe or battlegroup has no TOE and there are thus less restrictions on what you can transfer to it.

4.8.2 CREATING A KAMPFGRUPPE / BATTLEGROUP

If you do not want to be bothered with TOE limitations you can create a kampfgruppe or a battlegroup (for the Soviets) to transfer troops to. The newly formed kampfgruppe will have 0 AP.

To form a kampfgruppe it must receive at least 50 power points of troops (equivalent to 10 tanks or 100 men).

It costs political points (PP) to create a kampfgruppe.

4.8.3 SCRAPPING TROOPS

In some cases, you will want to scrap (or scuttle if you like) equipment like guns and tanks. For example: when you are out of fuel and you want the infantry to still be able to move. Or another example, if you have to get a unit through dense forest or over a river to escape destruction.

Upon doing this action the equipment will be removed from play, but the manpower, like tank or gun crews, will be returned as low-grade infantry. Scrapping can thus change the move type of a unit from artillery/wheeled/tracked to infantry. Doing any scrapping reduces the unit's AP by 25 points.

4.9 TRANSPORTING UNITS

Units that have at least 80% of their troop types consisting of troop types that can transport (motorized/mechanized and with carry points) are considered a transporter unit.

A transporter unit can select other units to be transported. One transporter unit can transport one or more transportable units. For movement calculations, the transporter unit and the transported units all act as if all their troops were in one single unit.

There are no combat penalties for transported units (unless, of course, they are using march movement mode). That said, units might be unloaded from transporter units if there is a lack of transports after battle.

4.10 HQS AND OFFICERS

Every HQ will have staff members and a commanding officer. Together they provide a bonus, especially to combat, but also to morale recovery. On top of that, officers will have officer cards available to grant an extra bonus to units at crucial moments.

The design idea is the officer commands the staff, and the staff commands the frontline troops.

Each officer has a number of staff points he can command. Some officers can command more staff than others. If the officer has more staff than he can optimally handle, his bonus to the staff for combat and morale will drop.

Staff can command a certain number of power points (frontline troops) and, if too few staff are available, the combat and morale bonus will drop.

4.10.1 CHANGING OFFICERS

Officers can be reassigned through the officer pool, which can be accessed from the officer tab in the right-hand sidebar. Replacing the officer commanding an HQ costs political points (PP).

4.10.2 COMBAT BONUS

If the staff to troops ratio is above 1 the staff will provide a base 25% combat bonus to the troops. However, the experience points of the staff will be added on top of that. If the commanding officer has an officer to staff ratio that is above 1, the percentage for the experience points of the staff will be increased with the officer's bonus.

For example: divisional HQ has good ratios with regular staff. The commanding officer has a 20% combat bonus, and the staff have 40 experience points. That will mean the combat bonus for the frontline troops will be 25% + (40% + 8%) = 73%. That 8% is 20% of 40 from the commanding officer's additional bonus.

The combat bonus for the frontline units will be reduced if their HQ power is lower than 100%. At 0% there will be no bonus. If the staff to troops ratio is below 1 or the officer to staff ratio is below 1, their respective effects will be linearly decreased. There is no further advantage to having a ratio above 1.

Note: Political staff give only half the combat bonus.

4.10.3 MORALE BONUS

If morale is to be increased, it will slowly recover up to the base morale of the troop type in question. It will go up by 5% of the troop's base morale. This can be further boosted if the unit is in HQ power range of a HQ with adequate staff percentages. The commander of the HQ with adequate staff percentages can further help increase morale.

It follows the same calculations as for the combat bonus. If the staff to troops ratio is above 1 the staff will provide a base 25% morale bonus to the troops. Additionally, the experience points of the staff will be added on top of that. If the commanding officer has an officer to staff ratio that is above 1, then that percentage of the experience points of the staff will be increased by the officer's bonus.

Note: Political staff give double the morale bonus.

4.10.4 HQ POWER PERCENTAGE

Each HQ has a certain range in which it can optimally command its subordinate units. After this range is exceeded the HQ power on its units will drop. This will cause a reduction in the combat and morale bonus given. Also, it will reduce the effect of officer cards that might be played.

4.10.5 OFFICER STATS AND CARD PLAYING

The key officer statistic for card usage is command score. The higher the command score of the officer the more command points the officer will gain each turn. Command points gained each turn is [1 + command score] points. Maximum command points stored is 12 + [12 * command score].

In order to play a card an officer must have enough command points to pay the command points cost of his card.

Cards come in five colours. Each one has an effect based on a different officer statistic.

- **Red cards** will give better effects with high audacity. Usually related to offensive action.
- **Green cards** will give better effects with high determination. Usually related to defensive action.
- **Blue cards** will give better effects with high charisma. Usually related to morale.
- **Brown cards** will give better effects with high intuition. Usually related to recon.
- **Purple cards** will give better effects with high organization. Usually related to higher level HQ commanders cards.

In *Twilight in the East* the effect of the cards is a bit bigger and fuzzier than before. The respective vital officer stat of an officer card stays the key modifier of the result but is now augmented with a +1d50 roll.

4.11 COMBAT

As veterans of the Decisive Campaigns series know, combat calculations are especially complicated. So, we'll start this section with the different modes of combat and most important modifiers before going into the details of actual combat resolution.

4.11.1 REGULAR ATTACKS

A regular attack is an attack where your units push into the target hex with the aim to remove the defending units and take the hex.

After successful completion of a regular attack, any attacking units that didn't retreat by the time of victory, will be allowed to move into the conquered hex at the cost of zero action points.

Sometimes it is not possible for the whole of a unit to join in a regular attack. For example, because some of its troops do not have the action points to move into difficult terrain.

Defensive intercept fire

Defending units outside the attacked hex might give defensive intercept fire to support the defenders of the Hex under attack.

Fire brigade (mode) units

Furthermore, during a regular attack, an enemy unit in Fire Brigade Mode (FBM) may attempt to move directly into the target hex and reinforce the defenders while the battle is already in progress.

Partial attacks

The game allows partial attacks. The troops that can join the attack will and the others will either wait it out in their hex of origin or provide ranged fire to support the attack. An example of this is a motorized unit spotting some enemy stragglers on a forested hill

next to the road and sending the infantry in to attack, while the trucks wait on the road.

4.11.2 RANGED ATTACKS

It is also possible to attack a hex from a distance without actually moving your troops into it. This can be done by troop types that have either direct fire capability or indirect fire capability. The difference between the two is that troop types with direct fire capability will need line of sight (LOS) on the target hex. Units capable of indirect fire do not need this but do benefit a lot from having recon on the target hex, either from their own LOS or from recon done by other units and communicated to them via radio.

Ranged combat results and limited enemy information

Ranged combat can produce deliberately uncertain combat results when you have little information on the target.

You might know, or strongly suspect, that an enemy unit is present in a hex without actually being able to see it. If you order an artillery barrage against such a hex, enemy individuals that remain hidden will not be shown during the combat resolution. You will therefore not necessarily know whether they were hit, pinned, forced to retreat or killed.

This is related to Cover Points. At the start of combat every individual receives Cover Points based in part on its Hide Points. If the enemy individual has more Cover Points than your effective Recon Points, it can remain hidden from you during ranged combat.

If you only have minimal information on an enemy unit, its individuals might likewise remain invisible during the combat resolution.

If you have partial information on an enemy unit, the combat display will show the presumed enemy individuals. Since this information is only an estimate, the individuals shown might not exactly correspond with the enemy troops actually present.

In all of these cases an enemy individual can be hit or killed without you being informed of the result.

Twilight in the East deliberately treats reconnaissance information seriously. One consequence is that ranged combat results can remain unclear when your reconnaissance on the target is poor.

Regular combat is different. Troops will identify enemy individuals they engage with direct fire. However, some troops participating in a regular attack, such as mortars, may still use indirect fire. For those ranged attacks the limited-information rules described above still apply.

4.11.3 INTERCEPT FIRE

When your units move, the enemy might engage them with intercept fire. Likewise, when the enemy moves, your units might engage them with intercept fire. Intercept fire helps smooth over the design artifacts of a IGO-UGO turn system and it also provides excitement, helps the defensive side to get more historical results, and gives plenty of tactical opportunities. A chance for intercept fire occurs every time a unit moves from one hex to another (or when a unit executes a regular attack; in which case its defensive support will intercept fire).

Note: During the war in the east many attacks were thwarted by quick and accurate artillery fire on the attacker's assembly areas and lines of advance. This is simulated in the game by defensive support intercept fire.

Note: there is an exception: units moving into a hex for 0 action point cost (due to prior regular combat) will not be targetable by intercept fire.

In order to be eligible to conduct intercept fire a unit must have at least 40 action points left. Furthermore, it must have a line-of-sight percentage above 10% on the target hex (for direct ranged fire) and the unit's regime must have at least 26 recon points on the target hex (for direct and indirect ranged fire).

Intercept fire is never a sure thing. It requires quick reactions and communication. There is a difficulty factor in properly spotting the enemy moving as well as a human factor concerning being ready to fire when it is actually needed. The chance that a unit is actually eligible for intercept fire on a specific enemy move is equal to intercept combat modifier the unit has on Hex * (experience/30) * (readiness/100).

The above-mentioned intercept combat modifier is either the LOS% or if lower (recon points-20)/0.6.

The Soviets and to a lesser degree the Germans often lacked sufficient radio equipment and had to use runners and landlines to communicate. Hence there is an added difficulty for both.

For indirect fire (artillery) the Soviets have a generic -50% chance to conduct intercept fire and a further -15% per hex the artillery unit is away from its target. The Germans have a generic -40% chance and a further -10% per hex.

A compounded calculation is used here so there is still a chance at, for example, 10 hex distance. Be aware that if the artillery unit has a direct line of sight (LOS) these communication penalties do not apply!

The number of the participating eligible units that actually do intercept fire depends on the number of eligible units that can do intercept fire. Each unit gets assigned a score. This score is action points * intercept fire chance / 100. The highest scoring units will be selected first. Units with a good fire chance and lots of action points will thus have tendency to fire first.

At least one unit will be selected for intercept fire, and units will be added until the intercept stack score exceeds the (total score of all eligible units / (6-(average AP/20))). So, for example, when 3 intercept fire eligible units (each 80AP+) all have the ability to conduct intercept fire they will fire in the following order: All 3 units during the first enemy move, then only 2 units during the second enemy move and during the third enemy move the last remaining unit with 40+ AP left will fire.

Note: The fact that not all units do intercept fire en-masse makes it impossible to use gamey tactics where you sacrifice one unit to deplete the intercept fire opportunities of the enemy.

When intercept fire combat starts the targeted unit will not benefit from entrenchment points as it is on the move. Furthermore, the targeted unit will lose action points if it loses readiness during this combat.

Note: intercept fire lasts for only 2 combat rounds. Short and surprising. The targeted unit has no chance to fire back due to the disruptive effect.

Note: Units with ranged capable troop types that have mixed ranges will have reduced chances to intercept fire when it excludes a firing resolution for part of its troops.

Note: It can happen that you come under intercept fire by a unit on a hex you have no (or not enough) recon on. You should still get an indication of the kind of the shelling… like heavy artillery or mortar fire in this case.

4.11.4 BATTLE RESOLUTION

The moment battle commences; all troops are split up into individuals (10 man squads or single tanks). These individuals then battle it out for several combat rounds, each combat round costing 10 action points (AP). The moment an attacking unit is out of AP, it ceases its combat participation.

When combat starts the combat loop starts. The combat loop basically plays combat rounds until either the attacker has run out of action points, has retreated, has been wiped out or is victorious.

The following things happen in the following order in each combat round:

Set cover points

When combat starts, each individual is given a random number of cover points. This number is 20 + 1d30 + hide points (landscape type, experience, spotted, identified rules like discussed in the recon section are calculated). Cover Points above 65 are divided by 1.5. Cover points after this above 75 are divided by 2. Cover points above 85 are divided by 2.5. Cover points cannot be higher than 90.

Initiative determination

In the first round only. Every individual gets a random initiative between 0 and its initiative score. The individual with the highest initiative will attack first during the combat steps loop.

Check capitulation

Only defenders have a chance to capitulate. And only if they are retreating or have retreated. If an individual's morale is lower than 33 and readiness is lower than 50 then there is a chance it capitulates.

Set concentric attack bonus

Every round this is calculated anew because units might have retreated in the first combat rounds and that might severely reduce the remaining bonus given by an initial concentric attack. The concentric bonus will be halved if units from different HQs are involved.

Combat round steps loop

This loop concerns the brunt of the calculations and executes the actual attacks for each individual involved in combat for this combat round. All individuals attack each other. See the section further down for a detailed breakdown of the combat round steps loop.

Check out of action points

If an attacking unit does not have enough action points (AP) left to pay for the next combat round (10 AP) it retreats.

Check breakthrough

If an individual is not hit for 2 consecutive combat rounds and has made at least one successful attack so far (any type of hit) then it will break through. Also, if the individual attacker has not even been targeted (let alone hit) in the last 2 combat rounds - it will break through. There is a chance the breakthrough fails if the attack is overstacked. If the defender has only "backbench" individuals left, the breakthrough always succeeds.

Check safe retreat

If an individual started retreating in combat round X it will have safely retreated in combat round X+2. In effect, suffering 2 combat rounds of possible enemy fire without being able to return fire.

Check panic retreat

If the percentage of the individuals remaining in combat drops below the [100 - morale] of a unit then there is a chance its remaining individuals will panic, and the unit will start a panic retreat. Units that panic and that have no avenue of retreat have their morale doubled for this calculation. If the unit does a panic retreat but there is no avenue for retreating the unit, all individuals in the unit will capitulate.

If no panic roll is made, because the percentage of lost individuals is lower than base morale, we also will make a reduced chance check panic retreat roll. This roll will occur more often but has less chance to succeed than the regular check panic retreat roll.

No panic retreats are possible if under strictly ranged attack or intercept fire.

Note: This reduced chance panic roll has been added to the rules to make both 'base morale' and 'morale' a factor in the panic testing. 'Base morale' represents the mental and ideological constitution, where 'morale' represents the current state of mind. It is possible, for example, a Volkssturm unit which goes up to 100 morale will defend longer without panicking, but just having 100 morale will not make it a fanatical SS unit that defends a position to the last man.

Check orderly retreat

If the percentage of killed + retreated individuals suffered by a unit triggers the retreat standing order percentage of a unit, then it will start with a so-called orderly retreat. Units that have no avenue of retreat will not be able to obey their standing order and will probably eventually suffer a panic retreat resulting in capitulation.

Check unit breaking

A defending unit that starts retreating can, in severe circumstances, completely break.

Normally this is primarily a danger during a panic retreat. The chance depends on how far the unit has fallen below its normal break point compared to its original strength. The further below its break point, the greater the chance of breaking. A panic retreat doubles this chance.

Extremely small units can also risk breaking when starting any kind of retreat.

If a unit breaks, the remaining troops are considered dispersed, captured or otherwise lost and the unit ceases to function as an organized formation.

Battlegroups and Kampfgruppen are especially vulnerable to breaking because they do not have the organizational resilience of a normal formation.

Check end of the battle

Here it is checked if the battle has ended. First the number of individuals still in combat are counted on both sides.

If no defending individuals are left and there are still attackers left and it is a ranged attack the attack continues until the attackers run out of action points or maximum combat rounds (intercept fire).

If no attacking individuals are left and still defending individuals are left the defender will have held their hex.

If no defending individuals are left and still attacking individuals are left the attacker will have succeeded in capturing the hex.

If no individuals are left on either side it will be considered a standoff, where the attacker did not succeed in capturing the hex, but the defender will have retreated.

Battle result morale effects

At the end of the battle, for each unit, a check is made for the individuals it lost versus the enemies it killed. This ratio is weighted for power points, and each ratio corresponds with a number of six-sided dice that will determine the unit morale change.

LOSS RATIO TO MORALE DICE CONVERSION	
Ratio losses : kills	**Morale dice**
0.25 or lower	+ 4d6
0.25-0.33	+ 3d6
0.33-0.5	+ 2d6
0.5-0.66	+ 1d6
1.5-2	- 1d6
2-3	- 2d6
3-4	- 3d6
4 or higher	- 4d6

The morale dice are rolled, and their value will be the percentage change to the morale of the unit.

However, this change cannot be more negative than the actual percentage of troops the unit lost.

High morale can protect units from morale loss. If a 1d100 roll is below current morale, then the morale change is halved. Furthermore, if it concerns ranged attack or intercept fire the effect is halved.

Depletion of fuel and ammo stocks

For every combat round an individual makes, and for any attacks on other individuals, the fuel and ammo stocks of its unit will get depleted, and the offensive and defensive supply modifiers will be updated.

Individuals doing intercept fire only consume a quarter of the ammo they would have done in a regular offensive attack, making their consumption rate comparable to defensive combat when under regular attack.

The high consumption rate for attacks is only used for the minimal AP to attack into the hex (but the minimum is 25 AP). The remaining AP spent in battle is charged randomly between defensive and offensive fuel consumption cost.

Note: No fuel is consumed if it concerns a ranged attack or intercept fire.

Note: Regular tank attacks that take many combat rounds will lead to high fuel expenditure. This simulates the fact that many tactical manoeuvres, within the hex, were made, such as temporary retreats, flanking attempts, counterattacks, etc.

Structural point damage

When the end of the battle is reached, structural damage can be caused in the target hex. Structural damage can damage fortifications, fieldworks, airfields, supply bases and can also generate traffic points on roads in the hex, causing traffic congestion. See the road types section for the detailed congestion rules.

Suppression effect

During ranged fire and intercept fire the defending side will lose 10 AP per 5 readiness points lost. You can thus use ranged fire to deplete the action points (AP) of the defender and take away his chance to intercept fire later. Regular combat costs 10 AP per combat round, for the defender also. A defending unit that is forced to retreat in regular combat loses all AP.

Actual retreats

At this point a unit that has been retreating for 2 combat rounds will actually leave the battlefield. Attackers go back to where they came from. Only defending units that were stationed in the lost hex will retreat to a different hex. The hex they will choose to retreat to will be the one in the most opposite direction of the angle of attack, that is also reachable for them with 100 AP. So, if a unit is attacked from the north, it will usually retreat to the south. If a unit has no avenues of retreat at 100AP or less, it will check if it can find such an avenue if it scraps vehicles and/or guns and if so, will do so in order to make the retreat possible.

A defending unit cannot retreat into a hex where enemy ZOC points are more than four times the friendly ZOC points. When making this comparison, the friendly ZOC contributed by the forces currently being attacked is excluded. An exception is made for an assured ownership hex that is already owned by the defender.

4.11.5 COMBAT ROUND STEPS (LOOP)

In the combat round steps loop we cycle through all individuals (highest initiative roll first) and then test for each one if it can attack. An individual can attack

if it has made less attacks this combat round than its statistics allow. Furthermore, the individual must not be in the process of retreating, nor already have retreated. Individuals with multiple attacks per combat round can be called multiple times during this loop. Every step in this loop is the test and execution of an attack for a different individual. In each step the following will happen:

Find a target

Semi-randomly, an opponent from the enemy side is chosen. It is semi-random because the randomness depends on the number of tries the individual statistics allow. If it has only 1 try in finding its favourite target it is purely random. But if it has more tries it will pick the target it favors. An individual can always attack an enemy "backbench" individual if the attacking individual has either accomplished a breakthrough or if it has ranged attack capacity. Furthermore, indirect ranged attack capacity individuals cannot fire on enemy individuals that have broken through.

Indirect (artillery) fire can always hit "backbench" individuals, but direct fire is different.

Direct fire is less likely to have the chance these "backbench" individuals will present themselves as a target if they could avoid it. With direct ranged fire, the selection of "backbench" target candidates is allowed for an individual if it rolls a 1d100 above (LOS% * (100 - ((landscape hide + 10) * (3-attacker height level data))).

In regular combat it needs to roll a 1d100 above (100 - ((landscape hide + 10) * (3-attacker height level delta)). These formulas simulate that cover helps protect "backbench" troop types, but that from a higher vantage point the effect of the cover in the hex becomes less important.

During intercept fire combat the target is on the move and "backbench" individuals are fully targetable.

Normally an individual will randomly consider 3 adversaries and pick the one that is most favourable to attack. Any hidden targets (cover points > current recon) will be three times less likely to be chosen. This is for regular attack mode. If it concerns ranged fire a lucky hit roll needs to be made in order for the hidden target to have any chance to be chosen. The lucky hit roll succeeds if 1d200 is less than the current enemy stack points in hex.

Note: normally the defender initially has an advantage as it has initially better recon on the hex the battle occurs in than the attacker.

Find preventer

It is possible the target individual is of a type that another individual from that same side wants to defend. This may lead to the "preventer" being attacked instead of the original target. Halftracks are usually "preventers".

Individual attack

The actual attack is executed. See the section below for the complex details of resolving an individual attack.

Individual counterattack

The attacked individual will now counterattack its attacker. If the attacked individual is already attacked more often than its "maximum attacked" score, then counterattack is not possible. A counterattack is the same as an individual attack except that it is weaker and incurs negative modifiers. See the next section for details.

If the attacked individual is in the process of retreating, counterattack is not possible.

Note: regularly retreating individuals have some positive modifiers to increase their survival chance.

No counterattack is possible if the attacked individual cannot see its attacker. No counterattack is possible if the attacker is out of range for the weapons of the individual or if it concerns intercept fire combat.

4.11.6 INDIVIDUAL ATTACK

An actual attack from one individual to another takes place either as a regular attack or as a counterattack. Counterattacks are lighter in effect.

Determine if hit scored

The attack points for the attacker are calculated as are the hit points for the defender.

The attack score is based on either the soft attack or the soft defence statistic of the attacker's troop type.

The hit points score is based on the hit points of the defending troop type (it can change depending on if the attacker is an infantry type or not).

A plethora of modifiers are then applied on both scores. See the next section for all the modifiers that can be applied.

The attack score and the hitpoint score are finally both randomized and will both result in a value between 0 and their calculated value. If the attack score is higher, a hit is scored. Otherwise it is a miss against the troops themselves.

A miss can still reduce the target's entrenchment. The amount of entrenchment lost depends on how close the attack score came to overcoming the defender's hitpoint score. This represents fire that fails to hit the troops but still damages trenches, firing positions and other defensive works.

Hit scored

If a hit is scored based on the statistics of the attacking troop type it is determined if it is a retreat hit, kill hit or pinned hit.

Experience gain

Experience can be gained if a hit is scored. This is true for the individual in question, but also for the staff in their HQ (far away) commanding it. The greener the troops the more chance they'll gain experience.
Learning is a law of diminishing returns...

Kill hit

The targeted individual is destroyed. A kill hit gives the individual scoring it 25 experience. The target is killed and considered KIA / MIA.

Retreat hit

A Retreat Hit gives the individual scoring it 10 experience. The target that is hit goes into immediate retreat and loses 50% readiness and 10% of its morale. Normally it also loses -100 entrench points, but if it concerns ranged fire, the original pre-combat entrenchment can only be destroyed by 2/3s.

Pinned hit

A pinned hit gives the individual scoring it 5 experience. The target that is hit loses 50% readiness, 50% of its entrenchment and 5% of its morale. Normally also -50 entrench points, but if it concerns ranged fire, original pre-combat entrenchment can only be destroyed by 1/3.

Extra morale loss due to low ammo

If an individual receives any kind of hit and is low on supply (not fuel) then its morale is reduced. This effect is more severe if it affects troops that are sent into offensive action without adequate ammo.

EFFECTS OF LOW SUPPLY ON MORALE DURING BATTLE		
Ammo (supply) allotted during the battle	**Extra morale loss when hit while defending hex**	**Extra morale loss when hit while attacking hex**
100%	none	none
75%	-5%	-10%
50%	-10%	-20%
25%	-15%	-30%
0%	-20%	-40%

Note: Whenever there is a reference made to ammo it actually concerns supply points, but this is done to clarify that supplies are used as ammo. In other cases, supplies might be used for replacement parts and food as they are a generic concept leaning heavily to modeling ammo, but not exclusively so.

Losing cover points

If an individual is hit in a regular attack or with ranged direct fire, its cover points will drop to 0.
If an individual is hit in a ranged attack / intercept fire with indirect fire and has 1d80 < current effective recon on hex, then cover points will drop to 0.
If an individual is fired upon but not actually hit during regular combat, it loses 25% of its current Cover Points. This represents the target exposing its position or being forced to move while under fire.
The individual that is firing will also expose itself and lose some cover points.

4.11.7 MODIFIERS APPLIED DURING INDIVIDUAL ATTACK

The following modifiers can apply to the attacking individual's attack score and/or the defending individual's hitpoint score.

Ammunition and fuel modifier [attack score]

The individual can get penalties if its unit is low on ammo or fuel. If a unit is low on supply and/or ammo it will start rationing stock. This reduces combat effectiveness.

Note: ranged fire (ranged attack or intercept fire) does not consume fuel and thus no negative fuel modifier can be suffered in these attack modes.

EFFECTS OF LOW AMMO OR FUEL ON ATTACK SCORE		
Ammo or fuel allotted during the battle	**Attack score modifier for the side attacking the hex**	**Attack score modifier for the side defending the hex**
100%	none	none
75%	-25%	-16%
50%	-50%	-33%
25%	-75%	-50%
0%	-100%	-66%

Attack startup modifier [attack score]

Most infantry have limited effectiveness in the first two combat rounds when they are the initiators of the attack. For round one it is a -50% modifier on attack score and for round two a -25% modifier. For tanks and armored cars this is only half what it is for infantry, so tanks take -25% on combat round one and -12.5% on combat round two. This models the need for the attacker to close the distance with the enemy and "cross no-man's land" and while doing this be subject to enemy fire. Tanks are better at quickly closing the distance…

Note: ranged fire and intercept fire do not require closing the distance with the enemy and thus no attack startup modifiers are applied with these attack modes.

Direct fire line of sight modifier [attack score]

The attack score is modified by the LOS% the unit has on the target hex. So, if LOS is 50% then the attack score will be halved.

Direct fire weapon range modifier [attack score]

Most direct weapons have reduced efficacy when firing from further away. Attack scores will be reduced accordingly to the range modifier table of the troop type that is firing.

Indirect fire line of sight modifier [attack score]

Attack score is increased with the LOS% the unit has on the target hex. If the target is one height level lower, a 50% bonus is given. Two height levels lower, a 100% bonus is given and three height levels lower a 150% bonus is given.

Note: Nothing makes artillery fire so deadly as the gun crews having a direct line of sight on their targets. However, keep in mind that if your gun crews see the enemy, the enemy probably sees them as well…

Night turn penalty [attack score]

Attack score is modified downwards based on the experience points of the individual in question. More experienced units are better at night fighting.

Note: this penalty only applies to ambush / regular combat and not to ranged or intercept fire combat.

Note: Night turns see huge recon point reductions compared to day turns. This in itself makes night combat sometimes ineffective (due to both sides not spotting each other), sometimes bloody (because one side has good recon and the other has not).

NIGHT FIGHTING PENALTY	
Experience points	**Penalty**
0	-80%
15	-70%
30	-60%
45	-50%
60	-40%
75	-33%
90	-33%

March mode [attack score + hit points]

If the unit entered combat in march mode it will suffer the following modifiers in the first four combat rounds:

MARCH MODE COMBAT MODIFIERS		
Combat Round	**Attack score**	**hit points**
Combat round 1	-90%	-95%
Combat round 2	-70%	-85%
Combat round 3	-50%	-70%
Combat round 4	-30%	-50%
Combat round 5	-10%	-25%

Note: this only happens if the march mode unit is attacked during the enemy's turn or blunders into opportunity fire or an ambush.

Note: A unit in march mode should be pictured as a unit in a long column, with soldiers neatly marching in formation, rifle over the soldier. Tanks with their hatches open and guns towed behind trucks. No-one is ready for combat in march mode.

Counterattack modifier [attack score]

If this attack is a counterattack, then a -50% penalty is applied on the attack score.

Individuals that make an unusually large number of counterattacks during the same combat round suffer further diminishing returns. Once the number of counterattacks becomes very high compared to the troop type's normal number of attacks, each additional counterattack becomes progressively weaker.

Max attacked modifier [attack score]

The attack score gets modified if its target individual has already been attacked more than the maximum number of times it can effectively be attacked during this combat round. Most troop types have a "maximum attacked" value of 3. Attacking it with double the amount of its max attacked stat results in the attack score being divided by 2, triple the amount divides it by 3, and so on.

Normally this divider is limited to a maximum of 5. However, this limit is reduced if the target is in poor condition. A target with morale below 30 and/or readiness below 40 can therefore become increasingly vulnerable to very large numbers of attacks.

This makes weakened troops more susceptible to human-wave or overkill tactics, while fresh troops still benefit from the normal diminishing returns when many attackers concentrate on the same individual.

The max attacked modifier is not applied for indirect ranged fire or indirect intercept fire.

Landscape modifier [attack score]

The landscape of a hex can modify the attack score. Keep in mind that the defenders of the hex get different modifiers than the offensive side.

LANDSCAPE MODIFIERS ON		
Landscape type	**Attack score modifier for the side attacking the hex**	**Attack score modifier for the side defending the hex**
Marsh	Tank -50%	Tank -50%
Marsh snow	Tank -25%	Tank -25%
Plains	-	-
Fields	-	-
Light Forest	Guns -40%, tank -30%	Guns -20%, tank -20%
Heavy Forest	Gun -60%, tank -50%	Guns -40%, tank -32%
Rural Village	Guns -40%, tank -20%	Guns -20%, tank -12%
Light Urban	Guns -60%, tank -60%	Guns -30%, tank -40%
Heavy Urban	Guns -80%, tank -70%	Guns -40%, tank -46%

Also be aware that in regular combat both sides use landscape of the hex being attacked, but in ranged combat or intercept fire each side uses the landscape of the hex they are present in.

Readiness modifier [attack score + hit points]

The effect of the readiness modifier on the attack score of the offensive side is enormous, and the readiness percentage is used as a full modifier. Readiness of 25 means a penalty of -75%, readiness of 50 means a penalty of -50%. For the defending side only 2/3 of its attack score is modified by readiness. For a readiness score of 25 this means a penalty of -50% for defenders. For both sides the hit points score is for 50% modified for readiness. So, with a readiness of 75 that means a modifier of -12.5% on hit points for the attacker and 2/3s of that for the defender.

Special rule if under artillery fire

If an individual is targeted by artillery, the hit points score counts only for 16% of the readiness score. So, with readiness 75 that means a modifier of -4% on hit points.

Supply consumption modifier [attack score + hit points]

The attack score and the hit points are modified by 75% for the supply consumption percentage. This models the fact that units that have no or little supply stocks left, after multiple rounds of supply problems, become very easy to destroy as they'll have no ammunition left and will have developed morale issues as well.

Note: It might seem that the supply consumption modifier is a doubling of the ammunition modifier and that is in many ways the case. This rule emphasizes that combat effectiveness stops dropping linearly and takes a nosedive when rationing is no longer an option and the last bullets have been fired. Also, the supply consumption score of a unit takes time to recover (up to a full day in the worst case) and the supply consumption modifier ensures you will allow the unit to recover before committing it to combat again.

Experience modifier [attack score + hit points]

The attack score and hit points are modified for experience. Each experience point is a 1% positive modifier.

Concentric modifier [attack score]

The more sides you attack from, the more positive the modifier the offensive side will get on its attack score. The modifier varies from +10% for attacking from 2 neighbouring hex sides, to +200% to attacking from all six hex sides.

Multi-Unit (regiment) modifier [attack score + hit points]

Units can receive a Multi-Unit bonus when fighting together with other battalions from the same regiment. The exact bonus depends on the units involved and is shown in the combat preview and combat details.
The Multi-Unit bonus increases both attack score and hit points.

The bonus does not apply during ranged attacks, intercept fire or defensive support intercept fire. Units operating in Defensive Line Mode (DLM) also do not receive the Multi-Unit bonus.

Surprise combat / ambush modifier [attack score]

If the offensive side walks into an ambush, the attack score of the defensive side is doubled. This is something you can expect to see happening often if you're advancing into enemy terrain during night turns. Blundering into an ambush during darkness might very well be a very bloody affair.

A blind attack cannot result in an ambush. Ambushes occur when troops unexpectedly encounter an unseen enemy while moving into a hex. By ordering a blind attack, the attacker is already proceeding on the assumption that enemy troops will be present.

Orderly retreating target modifier [attack score]

If the target individual is part of the offensive side and is in an orderly retreat, the attack score will be divided by 4. If the target is part of the defensive side and is in an orderly retreat, the attack score will only be divided by 2.

Panicking target modifier [attack score]

If the target individual is from the defensive side and it is retreating in panic, the attack score will be doubled. If the target is from the offensive side there will be no modifier, but it will be missing its divide-by-4 modifier for an orderly retreat. Panicking units and their retreating individuals will thus be subject to 2 turns of continuous enemy fire, without entrenchment protection.

Entrenchment modifier [hit points]

The target gets a 1%-point bonus on its hit points for each effective entrenchment point. Only the side defending the hex receives this modifier.

In regular combat the effect of entrenchment is reduced by concentric attacks. Attacking from multiple directions makes fixed defenses work less effective because of enfilade fire and attacks from several angles. Effective entrenchment is calculated as:

2 × Entrenchment / (1 + Concentric Bonus)

The effect of entrenchment also decreases as a regular battle continues, and the attackers close with the defensive position. In combat round 1 the full entrenchment effect applies, in combat round 2 - 90% applies, in combat round 3 - 80%, and so on. The entrenchment effect will never fall below 30% from this rule. This reduction does not apply to ranged fire, artillery fire or backbench individuals.

This represents attacking troops progressively getting close enough to use grenades, explosives and other assault techniques against trenches and defensive works.

If it concerns intercept fire combat, the unit that got intercepted does not benefit from any entrenchment, even if defending.

Summing it up:

- In regular combat the attacker has no entrenchment.
- With intercept fire the defender has no entrenchment.
- With ranged fire both sides have entrenchment/

Engineer attacks against entrenchment (sapper attacks)

Engineers can use their accumulated Engineer Points (EP) during regular land combat to directly reduce enemy entrenchment.

This can happen on the engineer's first attack in a combat round. The higher the engineer unit's accumulated EP compared to its maximum EP capacity, the more enemy entrenchment can be removed.

If the engineer actually scores a hit, the entrenchment reduction is doubled. The maximum reduction from one such sapper action is 100 entrenchment points, and it can of course never reduce entrenchment below zero.

Engineer Points are consumed by this action.

This makes rested engineers with accumulated EP especially useful when assaulting strongly entrenched positions.

River modifier (hit points)

Attacks across rivers decrease the attacker's hit points.

RIVER MODIFIERS ON ATTACKING SIDE'S INDIVIDUAL'S HIT POINTS		
River type	**Tanks / motorized**	**Infantry / guns**
Minor river	-50%	-30%
Medium river	-60%	-45%
Major river	-70%	-60%
XL river	-80%	-75%

The river modifier is no longer applied once an individual has achieved a "breakthrough" state.

Overstacking modifier (hit points)

Overstacking happens when one of the two sides has more stack points in battle than the maximum stack points. If you overstack then your troops will be more vulnerable (due to being too close to each other) and thus will fight less well. You can overstack in defence as well as in offence. Overstacking makes attack and defence stronger when considering the totals, but at the individual level hit points will be lower.

MAXIMUM STACK POINTS FOR THE ATTACKER	
Attacking from how many hex sides	**Stack points**
1 hex side	100
2 hex sides	200
3 hex sides	300
4 hex sides	400
5 hex sides	500
6 hex sides	600

The maximum stack points for the defender are always 200.

Note: any battle stack caused from previous attacks on the hex will be added to the stack points of the attacker.

High ground (hit points)

Your troops have an advantage if they are looking down on the enemy and if they can fire downhill.

HIT POINTS MODIFIER FOR HEIGHT DIFFERENCE	
Height difference	**HP modifier for defending units**
Target 3 level lower	-75%
Target 2 level lower	-50%
Target 1 level lower	-25%
Target 1 level higher	+25%
Target 2 level higher	+100%
Target 3 level higher	+150%

This hitpoint modifier only applies in Ranged Direct Fire and Non-Ranged Fire. It does not affect Indirect Fire.

Hidden defender modifier (hit points)

If you have low recon on the hex you are attacking, the hit points of some of the individuals defending the hex can be increased by up to 200%. This hidden-defender hitpoint bonus does not apply against artillery fire. Keep in mind that during the battle you'll quickly gain more recon points and this hitpoint modifier might evaporate quickly. The combination of good entrenchment and low recon points for the attacker can really help the defender.

Close combat modifier (hit points)

The hit points score of an indirect ranged fire troop type (like artillery) will be modified with -66% if it is attacked by an individual that has broken through the

lines. If the attack takes place without the attacking individual having the "broken through" state, the modifier on the hit points score is only -33%. This rule emphasizes that some troop types are really not meant for close combat.

Battlegroup / kampfgruppen modifier

If a battlegroup or kampfgruppe unit has less than 50 power points left in it, it will suffer a penalty on its hit points. When down to 25 power points this penalty will be -50%. When down to 12 power points this penalty will be -75%.

Also, battlegroup individuals' attack scores will suffer a -15% penalty, to reflect their lower level of organization (and higher level of improvisation, which is cool, but not necessarily more effective than careful planning). Battlegroups that panic during retreat will always break.

Staff modifier[attack score]

The combat modifier of the HQ of the unit will be applied.

Note: this modifier will be reduced if HQ power of the unit is lower than 100%. Also HQ units themselves will never benefit from the staff modifier.

4.12 BRIDGES

Bridges are crucial as they allow normal road movement costs over rivers. If a bridge is destroyed, the river crossing cost will be applied and these extra AP costs can be enormous, especially for guns and vehicles. Big and XL rivers are the best lines of defense and your best bet to stop an offensive in its tracks.

4.12.1 REGULAR BRIDGES

Regular bridges are relatively strong bridges that can support all troop types. They function as bridges did in previous Decisive Campaigns games: units using them can cross the river without paying the normal unbridged river-crossing AP cost.

4.12.2 WEAK BRIDGES

Weak bridges are usually wooden bridges. They can only support troop types with a maximum Weight of 1.

For practical purposes this means that tanks, vehicles and heavier guns cannot cross a river using a weak bridge.

Weak bridges are shown in brown on the map.

Engineers can upgrade a Weak Bridge to a Regular Bridge. Repair/New Bridge cards can also perform this upgrade.

Weak bridges and the supply system

Weak bridges are poorly suited to the predominantly truck-based logistical system.

When logistics crosses a Weak Bridge, the normal river-crossing penalty is only halved rather than completely removed as it would be by a Regular Bridge.

This represents supplies being moved across the crossing through slower and more improvised means.

4.12.3 BLOWING BRIDGES

Any unit can attempt to blow up a bridge in its hex. However, engineers are especially good at it (3x better than regular troops). Attempting to blow up a bridge costs 50 action points. The chance for success depends on the size of the river (and thus the bridge).

STRUCTURAL POINTS OF BRIDGES	
River type	**Bridge structural points**
Minor river	1000
Medium river	2000
Major river	3000
XL river	4000

These "blow" points are about 3 points per soldier or about 10 points per engineer. In the case of engineers, the blow points are positively modified with saved up engineer points (EP).

When a "blow" attempt is made a random number between 0 and the blow points of the unit is picked. Also, a random number between 0 and the bridge structural points is picked. If the blow roll is higher than the bridge structural point roll the "blow" attempt is successful.

Note: When conducting retrograde operations a bridge might give you a headache. Do you blow the bridge up early leaving some of your units on the wrong side of the river… without supply or a way to get heavy equipment over the river… or do you blow it up late? Risking a failed roll and allowing the enemy the chance to capture the bridge intact…

4.12.4 REPAIRING BRIDGES

To repair a bridge the unit needs to have enough engineer points (EP). A repaired bridge always becomes a normal bridge, not a weak bridge.

RIVER TYPE IMPACT BRIDGE REPAIR COST	
River type	**EP required to repair**
Minor river	100
Medium river	200
Large river	300
XL river	400

Engineer units gain 0.5 engineer point (EP) per turn per engineer, but they lose their EP when they move.

Note: Some scenarios also have cards available to repair bridges. These cards model not the combat engineers (present in units on map) but the more mundane rear-area construction crews.

4.13 LOCATIONS

4.13.1 FIELDWORKS

Units that do not move or attack generate Fieldwork Points at the start of the following turn. If enough Fieldwork Points accumulate on a hex, a Fieldworks location will be created or upgraded.

FIELDWORK CONSTRUCTION		
Fieldwork result	**Fieldwork points required**	**Pre-required location on hex**
Light fieldworks	2500	None
Medium fieldworks	3500	Light Fieldworks
Heavy fieldworks	5000	Medium Fieldworks
Light fortifications	7000	Heavy Fieldworks

Fieldworks can coexist with Supply Bases, Supply Entry Points, cities and airfields.

They cannot coexist with fortifications or Heavy Industry, as these locations occupy the same functional category. Heavy Industry itself acts much like a fortification.

Fieldworks function as defensive works and increase both the minimum and maximum entrenchment of units in the hex.

Units automatically generate Fieldwork Points at a rate equal to 20% of their Entrenchment Power. Infantry, for example, will generate 8 Fieldwork Points per 10-man squad.

After 500 Fieldwork Points have been added to a hex, additional Fieldwork Point generation is progressively reduced.

Fieldwork Points are first used to repair existing Fieldworks or Fortifications at a cost of 5 Fieldwork Points per point of structural damage.

Marsh and Forested Swamp hexes do not allow Fieldwork Point generation.

Engineers do not automatically generate Fieldwork Points. They must be explicitly ordered to do so. Any accumulated Engineer Points provide a large bonus, and Engineers are not subject to the normal maximization rule.

4.13.2 HEAVY INDUSTRY

Heavy Industry can coexist with Supply Bases, Dumps, cities and airfields.

It cannot coexist with Fieldworks or Fortifications, as these locations occupy the same functional category.

Heavy Industry acts much like a fortification, except that it is effectively indestructible. The industrial structures themselves may be ruined, but those ruins continue to provide the same defensive cover.

4.13.3 AIRFIELDS

Airfields improve the effect of Air Supply cards.

FIELDWORK AND FORTIFICATION STATISTICS					
Location	**Extra Entrench**	**Extra Max Entrench**	**Structural Points**	**Conquest by ZOC possible**	**Assures ownership**
Light Fieldworks	10	30	500	Yes	No
Medium Fieldworks	20	60	1000	Yes	No
Heavy Fieldworks	30	90	1500	Yes	No
Light Fortifications	40	120	2000	Yes	No
Fortifications	60	150	3000	No	No
Fortress	80	210	5000	No	No

AIRFIELD TYPE EFFECTS ON AIR SUPPLY CARDS	
Airfield	**Ratio**
None	1
Minor Airfield	2
Major Airfield	3

This ratio is reduced if the Airfield is damaged.

Airfields also improve air drop and airlift cards. If the airfield in the target hex is usable, the transported troops are unloaded directly into the target hex rather than being dispersed over a wider area. Damage can cause the airfield to be unusable for this purpose.

4.14 REPLACEMENT TROOPS

It is possible for replacement troops to arrive from off-map. Either by events or by cards played by you. When this happens the replacement troops will be added to the troops of your highest HQ(s).

Then the next turn during the logistics calculations they'll be sent to units requesting replacement troops.

Using the replacements standing order, you can give priority to a unit to receive its replacements requests above all others.

A maximum of 20% of the troops required by a unit can be delivered through the automatic reinforcement system each round, provided the required replacements are available.

Automatic reinforcement operates up to 800 logistical AP from the source HQ.

The same system is also used for Model Changing. In *Twilight in the East* this is primarily used for motorizing or demotorizing formations. For example, motorizing a unit requires the necessary trucks to be available at the highest HQ. With sufficient replacements available, a major change of this kind can therefore be completed in a little over one day.

4.15 HEX OWNERSHIP AND FUZZINESS

It is important to understand there is a difference between assumed hex ownership and real hex ownership. The only hexes you can be 100% sure of are assured ownership hexes.

Assured hex ownership is only possible for hexes that have either:

- Victory points (VP) on them
- Friendly units on them
- Minor city at level II or higher

For the other non-assured hexes, you will presume who owns them based on the recon you have on enemy units.

This assumed ownership can be different from real ownership. This can lead to nasty surprises during movement, retreats and supply logistics.

During a unit's retreat, it will seek a retreat hex that is unoccupied by enemy units. A retreat is not possible into a hex where enemy ZOC points are more than four times the friendly ZOC points, excluding the friendly ZOC contributed by the forces currently being attacked. This restriction does not apply if the retreat hex is an assured ownership hex already owned by the defender.

During logistics the real ownership of a hex is determined from expanding the maximum distance from the assured ownership hexes first over road hexes and after that over non-road hexes. It is this supply logistics calculation result, but done for assumed ownership, that is shown as the regime coloring layer on the map during your turn.

Note: In order to assure you supply deliveries arrive, make sure to keep units on your roads and especially on your crossroads.

4.16 UNCERTAINTY RULES

The game ships with uncertainty rules that are fully optional.

There has always been a luck factor in Decisive Campaigns, but it has always been applied at the individual (10 soldiers, 1 tank, 1 gun in Ardennes Offensive) level during combat. Considering there are many individuals in a typical combat, its random effect was trivial due to the rolls evening out given the quantity of individuals involved.

Hence, uncertainty rules have been added to provide a random effect on a unit-wide basis. It simulates the fact that some units are better run than others, some have excellent cadres, others have pencil-pushers. Some might have excellent cadres but be under a dark spell, or the inverse.

The point is that should be meaningful random factors that you cannot predict. That is what the

uncertainty rules bring. Every time you launch a game each unit will have a different uncertainty d6 (six-sided dice) allocated to it. At game start it will be shown as "?" question mark. You'll discover its real value only after using a unit multiple times. This is due to a nifty system that simulates loaded dice. Some units will have more heavily loaded dice than others, some will be loaded to give high rolls, some will be loaded to give low rolls.

But do not despair… in combat the uncertainty rules make every unit roll two six-sided dice (only once at start of combat and valid for the duration of the combat.) One die is a normal die (1d6) and the other die is the earlier discussed loaded die (1d6).

If an individual fights against another individual the difference of their unit's dice rolls will give either the defender a positive hitpoint modifier or the attacker a positive attack value modifier. The difference between the attackers 2d6 roll and the defenders 2d6 roll gives a 10% positive modifier for each point of difference. The minimum roll being 2 and the maximum roll being 12; thus, this can cause a maximum modifier of +100%.

But because it's taken into account for hit points as well as attack points the effective impact can in the most extreme case quadruple the performance of a troop. While rare, it is possible for remarkable feats or catastrophes to occur, and this is why playing with uncertainty rules makes it much more difficult to predict battle outcomes.

4.17 AI ADVANTAGES

This chapter has become a bit of a standard addition to VR Designs' manuals. As always, I prefer to openly disclose any advantages the AI gets.

The initial idea was that at "normal difficulty" setting the AI would have no advantages. However in the end I was forced to give a few advantages to make sure the AI would not collapse due to long term planning mistakes.

The AI has the following standard advantages:

- The AI has more fuel arriving at its supply sources than human players. This avoids the AI completely screwing up and grinding itself to a standstill and becoming a sitting duck at the same time. It has proven too hard to properly code the dilemma between moving to a better position versus conserving fuel. This is an obvious design compromise.
- The AI traffic points are wiped at start of turn instead of divided by two. This makes it a bit easier for the AI to receive supplies over a bad and overused road connection. This is just a little helper to offset the AI's tendency to treat all the different road types more or less similarly.
- The AI units' vigor points, if they get recovered, recover at double the speed of human players. This still requires the AI to stop and rest its units now and then; it will just be done faster than for a human player. This offsets the AI tendency to over-move its units.
- The AI does not pay the Action Point or Readiness cost for changing movement mode.
- The AI receives a small advantage on rolls to blow bridges. This helps compensate for the complex interaction of bridge demolition, timing and movement decisions.
- Traffic Congestion rules slightly more lenient for AI. Only about two thirds of the effect a human suffers.
- The AI counts only half the scenario-specific initial AP cost already spent by Supply Source Entry Points. This gives it somewhat more margin in managing its supply situation.

The AI has the following extra advantages in most scenarios (but they can be disabled in the editor):

- The AI has only half the readiness loss a human suffers when moving a unit.
- The AI gets the full concentric bonus even if attacking with units from mixed HQs.
- During its own turns, the AI receives an additional attack bonus of +10% (or in rare cases +20%), depending on the scenario setting. This bonus applies at all difficulty levels, although scenario designers can change or disable it in the simple editor.

If you want the AI to have more advantages, to add more challenge to your game, you'll have to increase the "normal difficulty" in the scenario setup window to something higher.

It is also to be noted that AI Speed "fast" is noticeably less clever than AI speed "normal". Whereas the AI speed "slow" adds some, but only relatively minor improvements per extra "time unit" spent pondering the moves.

5. CREDITS

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Due to the time differential between manual production and game release not all the testers are included in the in-game credits. None-the-less our gratitude to them is great. Without testers I could not make my games. My gratitude is enormous.

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5.3 EXTERNAL CREATIVE AGENCY

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Ademir Leal

