

Gary Grigsby's War in the East 1.08+ Changelog

1.11.02

New Features

1. Scenarios and games saved under this version will not load under older versions of the game. Starting with this version this will be true for every new patch, even if there will be no minor version change (in 1.11.02: "11" is minor version, "02" is revision).
2. Added new ground element type - Eng-Sapper Squad to represent non-combat engineers (sappers). Compared with Engineer Squad it has recon value 0 (vs 1), CV and replacement priority 2 (vs 3), support need 5 (vs 6), and engineer value 5 (vs 10).
3. Since Germany has no need to accumulate aircraft in the pool in order to build new air groups, they will be now allowed to refill their air groups more aggressively, just like Axis minors (10 instead of 50 aircraft in pool being the required minimum).
4. Soviet units will now require less support, just like they need less supplies (18 to 21, roughly 86% of Axis needs). Does not apply to aircraft support needs.
5. Air groups will have their own national morale level, based on regular national morale increased by 5. There will be also the following modifiers: +5 for German air groups before 1943, +5 for Finnish air groups, +10 for Soviet Guards air groups, x0.4 for Soviet air groups in 1941, x0.7 for Soviet air groups in 1942. This value can never be lower than 20, and higher than 99. Air group national morale will be seen next to air group morale on air group details screen.
 - a. Air group morale will now increase or decrease in similar way to unit morale, gradually slowing down when moving away from national morale level.
 - b. Morale and experience of newly built Soviet air groups will be equal to 75% of current Soviet air group national morale.
 - c. Morale increase for air groups sent to reserve will be equal to 50% of their morale distance towards national morale (rounding up).
 - d. Immediate morale increase for Soviet air groups becoming Guards will be equal to 5.
 - e. Air group experience will be negatively affected by replacements, as replacements' experience will be no longer affected by group experience, since it will be based purely on base air group national morale level.
6. Damaged factories will reduce their production proportionally with 100% production at 0% damage, and 0% production at 50%+ damage (with random rounding of fractional production), instead of having a random chance to produce all or nothing.
7. Damaged factories will expand with 100% chance at 0% damage, and 0% chance at 50%+ damage, instead of no expansion with 1%+ damage.
8. Increased AA effectiveness at night, reduced night bombing efficiency, and reduced day & night airfield bombing efficiency (except on German June 22nd, 1941 turn).
9. In land battles, in which the attacker lost, there will be no morale changes for either attacker or defender.
10. There will be a limit of two air recon missions per hex, and two air transport missions per hex (separate from bomb mission limits, and from each other).

11. Reworked "too many attackers" penalty. It will now penalize defenders that have less than 4000 men per adjacent hex occupied by enemy units, and it will penalize attackers that have more than 60000 men per hex from which they are attacking. This will not apply to partisan combat and artillery attacks. For hasty attacks the number of attacking men used in calculations will be halved.
12. Soviet units will not suffer extra losses due to damaged equipment being abandoned during failed attacks before September 1941.
13. Damaged elements will yield more disabled men while being sent to pool or discarded during the logistics phase, 50% for the Soviet (instead of 40%), and 40% for the Axis (instead of 30%).
14. To inflate losses in battle which were universally perceived as too low, men that went to the disabled pool during battle will be no longer shown as DAM, but will be included in the LOST value. DAM value will instead represent the number of men in damaged elements, multiplied by 50% (for the Soviet), and 40% (for the Axis). This represents the number of men that may be lost during the next logistics phase, when damaged elements will be sent to pool or discarded.
15. Merged units will be treated as if they were destroyed, so their empty shells will be eligible to start rebuilding (Axis), or to return as reinforcements in several turns (Soviet).
16. Merging units will no longer cost 1 AP.
17. It will be now possible to click unit name in the editor's Locations tab to navigate to that unit.
18. Adjusted support need (measured in 0.1 of support squads) for certain ground element types:
 - a. DD Tank from 11 to 10.
 - b. HT AT-Gun from 10 to 9.
 - c. HT CS-Howitzer from 11 to 9.
 - d. Heavy AT Gun from 10 to 15.
 - e. Heavy Flak from 18 to 20.
 - f. Heavy Tank from 10 to 12.
 - g. Hvy Assault Gun from 10 to 12.
 - h. Hvy Tank Destroyer from 10 to 12.
 - i. Light Armored Car from 9 to 8.
 - j. Medium SP Flak from 14 to 12.
 - k. Rocket from 18 to 10.
 - l. SP AT Gun from 12 to 14.
 - m. SP Flak from 14 to 12.
 - n. SP Inf-Gun from 10 to 14.
 - o. SP Rocket Launcher from 12 to 14.
 - p. Super Heavy Gun from 90 to 45.
 - q. Very Heavy Flak from 36 to 40.

19. Added new "group range" setting to air groups, which can be changed at any time. Group's aircraft range will be calculated as minimum of group range and actual aircraft range. Group range will be ignored for the purposes of combat performance, landing safety, calculating the number of aircraft sent for a mission, transfer range, and replacements availability. AI will not use this setting.
20. Disabled "both" night missions mode, it will be no longer possible to select that option.
21. Air groups may not fly or move during the turn, if they wish to change their night mission mode. After switching, they will be unable to fly or move for the remainder of the turn.
22. Added two new filters to Commander's Report Units and Air Groups tabs: experience under, and morale under.
23. There will be a tiny chance that partisan units will form from the people of fully garrisoned cities.
24. Consecutive land attacks at the same hex will cost +1 MP for each previous land attack executed in the same turn. This will not apply to the AI.

Bug fixes

1. Fixed a bug where it was impossible to clear leader promotion data in the editor. Enter year 1 and month 1 to clear selected promotion entry.
2. Fixed a bug where ground attack and strategic recon Soviet air groups had no default air group names assigned, so they were losing their designation during the logistics phase.
3. Fixed a bug where an airbase had to have at least 100% of fuel needs to be able to return reserve aircraft to active duty. This wasn't required for returning damaged aircraft to active duty.
4. Fixed a bug where Czech and Polish manpower production was using Axis Ally multipliers instead of German multipliers.
5. Fixed a bug where the logistics report contained wrong information about manpower produced and available, by not taking into account reductions of Czech and Polish production, that were applied at later stage.
6. Possibly fixed a bug where too many aircraft resulted in memory corruption and could lead to the game crashing (sometimes several turns later).
7. Fixed a bug in the "Better CV Math" mode, where the impact of leader skill rolls on per-slot CV was calculated incorrectly.
8. Fixed some typos related to aircraft, and shortened some overlapping texts. Altered some short forms to remove problems with translation.
9. Fixed a bug where air groups with id greater than 1500 would receive replacement aircraft at reduced rate.
10. Fixed a bug where artillery unit attacking from adjacent hex across a river could end up with negative MP.
11. Fixed bugs related to TOE renames or new TOEs, and AI build/disband limits. Affected TOEs: AA Brigade (support), Heavy AA Battalion, Light AA Regiment, Motorized Sapper Battalion (new), AA Brigade (combat), Garrison Brigade, and Howitzer Brigade.

Scenario & data changes

1. Improved historical accuracy of Soviet command structure (correct leaders, some new HQs, some relocations), especially in 1941-45 Campaign as well as in all smaller scenarios with the same start date.
2. Some adjustments to Luftwaffe command structure in various scenarios.
3. Added fortified zone & fort in the Rumanian port of Constanta where applicable.
4. Rebuilt Soviet rocket units in scenarios starting from 1942 onwards.
5. 1941-45 Campaign and related scenarios:
 - a. Added some Sapper Battalions to Soviet Corps HQs (incl. motorized battalions in Mechanized Corps).
 - b. Corrected the number of T-34 and KV-1 tanks in Soviet Tank Divisions.
 - c. Fixed size of some Soviet air groups (regiments to battalions).
 - d. Rebuilt all BM Howitzer Regiments to full strength and correct composition.
 - e. Moved some factories from Leningrad area to Kolpino, and from NE Leningrad to Leningrad.
6. 1942-45 Campaign, Winter 1942-43, Stalingrad to Berlin Campaign: Luftflotte 6 replaced by Luftwaffe Kdo Ost. Luftflotte 6 appears 5/43.
7. Reworked composition of Soviet AA units, and adjusted size of Axis & Soviet HQs.
8. Increased accuracy of rockets.

1.11.01

New Features

1. Isolated units will be allowed to build forts up to level 2, rather than 1.
2. Optimized check that prevents assigning units to HQs that are overloaded by 100% or more. It should now take less time to reassign units, either manually or automatically.
3. Reduced the cost of Soviet fort units, from 16 to 8 in June 1941, and from 8 to 4 between July and October 1941.
4. Increased the radius in which fort level 1 is allowed to be built - from 20 to 25 hexes from unfrozen, supplied enemy combat units.
5. Increased the radius in which fort level 2 is allowed to be built - from 3 to 4 hexes from unfrozen, supplied enemy combat units. Fort level 2 will be also allowed to be built in any town, as well as in heavy woods, rough, and mountain terrain. However, in mountain terrain fort level 2 will be the maximum level (as in swamp).
6. Minimum base rail supply modifier for both sides changed from 25% to 10% (before weather effect is applied).
7. Base Axis rail supply modifier will be decreased by 20 (instead of 10) before November 1941, and by 10 (instead of 0) before April 1942.
8. HQ build up base cost will be now equal to 1 AP per 5000 men (as before) plus 1 AP per 75 guns plus 1 AP per 50 AFVs, in order to better match supply needs of infantry vs artillery vs motorized units (artillery units need ammo, motorized units need fuel), and also increase the cost of this operation. For example when calculated alone the cost changes as follows: 41b Panzer Division from 4AP to 12AP, 41a Infantry Division from 4AP to 8AP, 43 Breakthrough Artillery Division from 3AP to 9AP.
9. It will be now impossible to disband Soviet army-level air HQs.
10. The game will now offer better hints when it's impossible to load a scenario, or a saved game, from an uninstalled expansion.
11. Ground elements shown in replacement tables displayed in the logistics phase log will be presented in the same order as elements on production screen.
12. Mortar, rocket and MG units will have the same movement sound as artillery, anti-tank and anti-air units.
13. Major improvement to German translation. Changed the way shortened names are translated. Instead of shortening first, and then translating word by word (which usually failed), the name will be first translated, and only then shortened. Added German short names, updated English short names. Unit names in general, as well as leader and HQ names in battle reports, various windows and other reports will be now properly translated.
14. It will be now impossible to perform HQ build up in frozen HQs.
15. Reduced German vehicle class ground element repair bonus from 10 to 5 in 1941-1944, and from 5 to 0 in 1945.
16. Slightly increased post combat losses, more for attackers/victors than for defenders/losers.
17. Adjusted fighting withdrawal combat event, so that artillery and support elements can suffer some losses, even when it happens. Adjusted counterattack combat event, so that artillery and support elements can suffer some losses, even when it doesn't happen.

18. Added new traction type - towed (existing types are: stationary, foot, horse, vehicle). Elements with this traction type always use fuel (like "vehicle" traction type), but require additional vehicles (one per element, except when static) to tow them (foot and horse elements require additional vehicles and use fuel only in motorized units). Changed default traction type for Medium Flak, Heavy Artillery, Heavy Flak, Heavy AT Gun, and Medium Flak/AT ground element types from horse to towed. Changed default traction type for Very Heavy Flak ground element type from horse to stationary.
19. Added the ability to define custom traction type for each ground element, instead of using default value based on ground element type.
20. On-map units with stationary elements (either in unit or in TOE) will be rendered immobile by having 0 MP and 0 SMP (like forts, partisan units and certain HQs). Support units with stationary elements will be prevented from being detached from cities, just like "Flakturm" and "Static LW Flak" units. All those units will be treated as static and fort units for the purpose of calculating vehicle need.
21. Added several new unit-related tests to scenario check tool.
22. Changed the availability of various ammo types (reduced HVAP availability for early war Axis and late war Soviets; increased HEAT availability for late war Soviets; increased AP and reduced HE availability for the Axis). HVAP ammo will be selectable on longer ranges, while HEAT ammo will be selectable on shorter ranges. This applies only if several types of ammo are available for given device.
23. Tactical Bomber aircraft type redesignated Dive Bomber (it was operating as such according to game mechanics). EW aircraft type changed to Ground Attack (mostly identical to Dive Bomber, but attacking like a slightly better version of Fighter Bomber when operating as bomber). Patrol aircraft type changed to Strategic Recon (identical to Recon). Float and Torpedo Bomber aircraft types hidden in the editor. Non-German air groups can switch between Recon and Strategic Recon types freely. All air groups can switch between Dive Bombers and Ground Attack types freely.
24. Added the ability to define percentage of production going to the East Front for individual German and Italian ground elements and aircraft.

Bug fixes

1. Fixed a bug where eligible support units attached to HQs were not assisting in fort construction.
2. Fixed a bug in Sudden Death victory conditions, that could incorrectly show Axis Major or Axis Minor victory instead of Soviet Decisive victory.
3. Fixed a bug where hexes around Lake Ladoga weren't detected as coastal zone hexes for the purposes of finding max fort level allowed in hex, while hexes not in any coastal zone (inland) were detected as coastal zone hexes, thus allowing fort level 2 everywhere on the map (except around Lake Ladoga), contradicting rules as designed.
4. Fixed memory leak in translation file loading code (courtesy of Pavel Zagzin).
5. Fixed a bug where certain texts were written into scenario check file without attempting translation.
6. Fixed a bug where battle statistics were not cleared for every new battle.
7. Fixed a bug where it was sometimes possible to perform HQ build up with merged units when it shouldn't be allowed (incorrect merge of "at start of turn" movement points - selecting lowest instead of highest value).

8. Fixed a bug where sorting of "Range to HQ" and "MP to HQ" columns in Commander's Report was broken.
9. Fixed a bug where stationary elements (of type Naval Gun, actually not used in the game) could require fodder for horses or vehicles and fuel.
10. Fixed a bug where units with 0 max MP could get 100 SMP when adjusted in the editor.
11. Fixed a bug where some support units attached to cities could be shown as being isolated when starting a new scenario, and checking them without first moving a single unit.
12. Fixed a bug where it was impossible to set surrender flag for Yugoslavia in the editor. Disabled the ability to set surrender flag for Germany and Soviet Union.
13. Fixed a bug where it was possible to attach support units to cities outside of active map area.
14. Fixed a bug where surrendered countries were not initialized properly on scenario start. The game now makes sure their air groups and units are deleted, their pools emptied and all non-generic factories removed. Yugoslavia, Bulgaria, and Finland are also set to neutral control.
15. Fixed a bug where the game was not aware of the need to build and not decompose new ground elements, if they were present only in TOEs, while units still used obsolete ground elements.
16. Fixed a bug where in supply status was cleared for support units attached to cities during certain part of the logistics phase, and they were unable to return extra trucks.
17. Fixed a bug where rail in Imatra (on Finnish-Soviet border) was changed to Axis rail on every scenario load, or new game start.
18. Fixed a bug where one Guards Rifle Division, one Rifle Division, and one Guards Rifle Brigade formed a Rifle Corps instead of a Guards Rifle Corps.
19. Fixed a bug where aircraft usage of soon withdrawing air groups was not included in aircraft usage totals, affecting upgrade/swap procedure.
20. Fixed a bug where reserve aircraft could be moved to the applicable production pool even from understrength air groups. A full strength air group will now be able to return only one reserve aircraft to the pool.
21. Fixed a bug where some air groups equipped with Fw 190F or Fw 190G could be forcibly converted to bomber-trained on new game start.
22. Fixed a bug where aircraft loadout adjustment could replace bombs on dive bombers with some LMGs in very rare circumstances.
23. Fixed a bug where there was no combat message reporting fighters downed by defensive fire from attacked bombers, as well as those reporting fighters downed in a dogfight.
24. Fixed a bug where air to air combat mode was based solely on mission of the attacked aircraft. Made sure fighters of all types, as well as agile (crew of 1, climb of at least 2000) recon, and tactical bomber aircraft (mostly based on light fighter airframes) are able to enter dogfight mode, instead of flying straight like heavy bombers.

Scenario & data changes

1. Road to Dnepropetrovsk: fixed names of construction units attached to Rumanian rail repair unit, so that it will get more MP per turn.
2. Road to Kiev: replaced FBD 5 with Rumanian rail repair unit.
3. All scenarios: number of support squads in Soviet HQs reduced to realistic levels.
4. Several campaigns: reduce Pioneer Squads in 1st Skijager Bde to 1.
5. Added disbands for 75th Mountain Construction Bn and 369th (Croat) Infantry Rgt (2/43).
6. Changed withdrawals to disbands for 85th Mountain Pioneer Bn and III/111th Mountain Howitzer Bn.
7. Soviet Guards units with a separate TOE will use a better MG from 1943 on.
8. General strengthening of Soviet Cavalry Corps.
9. Ensure the Soviet 76mm ZiS guns will get into service by mid 1942 in Guards units, and by the end of 1942 in all other units.
10. Fixed date bug with 1941 Sapper Squad.
11. All Nebelwerfer/Jagdpanzer units renamed to Werfer/Panzerjager.
12. Modified setup of LG2 air groups in 1941-45 Campaign, and some early 1941 scenarios.
13. Modified artillery set up in German Airlanding, Mountain, Jager, and Light Infantry Divisions.
14. Numerous small scenario fixes.
15. Standardized layout of scenario description files. Author credits added to base game scenarios.
16. Fixed control of hexes outside playable area in late war scenarios to better resemble actual frontlines and deny certain resources.
17. KV-1 M1940 (now with proper F-32 main gun) made producible until 9/41, replacing KV-1 M1941 in combat units.
18. All BAK Air Corps HQs will now disband.
19. Permanently frozen Hungarian infantry brigades/divisions will now retain smaller TOE compared to "released" combat divisions.
20. Fixed LT-38E production bug, resulting in 900 of these being built.
21. Soviet Tank Divisions rebuilt with historical equipment.
22. Removed scheduled Soviet Tank Brigades with the same numbers as existing Tank Divisions.
23. Stalingrad to Berlin: properly freezing Hungarian home defense units.
24. Adjusted Hungarian front and home defense units across multiple scenarios, ensuring home defense units will become reserve divisions, while front divisions will become infantry divisions.
25. Renaming five 100-series Hungarian divisions back to standard naming scheme.
26. Some duplicate Hungarian divisions renamed or removed, missing units added.

27. 1st Hungarian Cavalry Brigade will now disband in early 1942, and will be replaced by an Axis Elite 1st Cavalry Division which is frozen until May 1944.
28. German Fi 156 production cut in half (not a true recon aircraft).
29. Unused/improper Italian 20mm anti-tank gun replaced by 75mm mountain gun; adjusted Italian mountain division OBs to use it.
30. Added Italian 75/32 75mm field gun (available January 1943), modifying front infantry/celere divisions and light gun battalions to switch to this gun.
31. Added Italian 149/13 howitzer, delaying the 149/19 gun to 1943; adjusted Italian heavy howitzer battalions accordingly.
32. Operation Blue, Winter 42/43, and Stalingrad to Berlin: added Italian garrison forces to Balkan area.
33. Many changes to Italian units, their equipment and OBs, using a reduced OB for Balkan garrison forces and strengthened/better equipped OBs for front units.
34. Reduced range of German 105mm and 150mm howitzers. Introduced longer range versions, available from 1943. Wespe and Hummel SP artillery adjusted accordingly.
35. Reworked setup of Finnish coastal brigades. Some will be present on the map as permanently frozen units in Helsinki, Turku, Kotka, and Porvoo. Some will be no longer available.

1.11.00

New Features

1. It will be now impossible to build more than 600 Soviet air groups. This is necessary to prevent the game from crashing when reaching the limit of 32000 active aircraft.
2. Improved scenario check utility, it will now report on-map units with no delay and no location. Previously units had to be frozen in order to be reported.
3. Heavy Armored Cars will now have AP ammo as default ammo type.
4. Added three new ground element types: Heavy SP Artillery (same as SP Artillery), CS Armored Car (same as Heavy Armored Car, but with HE ammo as default ammo type), and Very Heavy Flak (same as Heavy Flak, but with doubled support need, swap blockade, and requiring high match).
5. Improved some parts of AI code, resulting in up to 78% processing time reduction.
6. It will be now impossible to assign units to HQs that are overloaded by 100% or more.
7. Mount modifiers (to accuracy and rate of fire) will now be added to selected weapon details in ground element compare window.
8. Improved battle report details, it will now show correct number of men in DESTROYED group (it should be equal to LOST men - sum of men actually killed and captured in combat), and DAMAGED group (it should be equal to DAM men - men actually disabled in combat). DISRUPTED group remains unchanged (total number of men in disrupted elements).
9. Scenario check utility will set units to their default motorized status. Trying to manually set unit motorized status in the editor will reset it to its default motorized status. "Mot." in unit name will now be recognized by the default motorized status routine and treated properly, just like "Motorized" was.
10. Air bases in 1941 will not work for the purposes of airhead supply, and will not remove air drop penalty.
11. Only German Luftwaffe and Soviet air bases will work for the purposes of airhead supply, and will remove air drop penalty.
12. It will be now impossible to detach Static LW Flak units from cities (like Flakturm units).
13. It will be now impossible to disband Flakturm and Static LW Flak units.
14. Air groups about to arrive to national reserve will not upgrade/swap aircraft (but they will still affect other groups by being included in surplus/lack calculations).
15. Included latest engine changes from newer games (improved performance, memory leaks removed).
16. Version number under which the game was started will be printed in the logistics phase log, next to version number under which the last logistics phase was ran. For older games there will be a single number printed, denoting similar kind of information.
17. Scenarios and games saved under this version will not load under older versions of the game.

Bug fixes

1. Fixed a bug where certain inactive units could be included in the UNITS column on production screen.
2. Fixed a bug where the game crashed during logistics phase when doing aircraft cleanup if aircraft data was corrupted. There will be a chance now to reclaim slots properly and continue such games. This will not help if the game crashes during air mission resolution.
3. Fixed a bug where motorized engineers (Motor-Engr Squad) were missing engineer bonuses, and were not blocked from initial pool building.
4. Fixed a bug where clicking on the name of certain game preferences ("Soviet Combat Bonus", "CV Mode"), rather than clicking on current value, resulted in advancing the selection by two choices instead of only one.

5. Fixed a bug where there was no message about AA units arriving as reinforcements, when those units appeared directly in cities.
6. Fixed a bug where upgrading to bigger TOE variant was not properly blocked for some older games, started before patch 1.08.05, resulting in units with no TOE.
7. Fixed a bug where detection level was not cleared for destroyed units, so they were visible on the next turn when rebuilding.
8. Fixed a bug where new partisan units could be formed from the remnants of other destroyed partisan units.
9. Fixed a bug where empty or depleted partisan units could be destroyed in the logistics phase when located next to enemy unit or when empty (sometimes immediately after creation).

Scenario & data changes

1. Thorough check/verification of ammunition usage for all elements. Some odd ammunition usage values corrected, grouping guns of similar caliber and barrel length for a more generic approach on ammo usage.
2. Cut down Sapper squads in Soviet 1941/42 units - they did not employ specialist/offensive Engineers similar to German Pioneer squads until late 1942/early 1943.
3. Review of Flak regiments.
4. All scenarios (where applicable):
 - a. HQ support level set to zero, formation role set to Security (only affects AI) for 101 to 103 RHG Command HQs.
 - b. Increased port in Ochakov (84,107) to 10, accounting for missing/impossible-to-add facilities in Nikolaev.
 - c. Soviet versions of M15 CGMC and M17 MGMC (both SP Flak) added to database, a factory added to Lend Lease Pacific (either M15 or later M17).
 - d. Addition of Berlin/Vienna Flaktowers (as normal AA units).
 - e. Addition of limited fighter air defense at frozen airfields near Berlin, Leipzig, and Prag, to offer some fighter protection (all withdraw at the end of 1944).
 - f. Addition of several low-experience static training divisions, representing training divisions, frozen with either disband or unlock late-war.
 - g. Review of vehicle factories:
 - i. Hungary: add 2x1 points to Budapest
 - ii. Italy: add 4 points to Turin
 - iii. Soviet Union: vehicle factories increased from 140 to 150, mainly by increasing Gorky to 2x30 and reducing/regrouping others.
5. 1941-45 Campaign and some 1941 scenarios:
 - a. Changed German 1st Cavalry Division to motorized with 50 MPs (was largely motorized, operated with motorized units)
 - b. Reactivated Soviet 27th Mech Corps, arrives with 104th, 105th Tank and 106th Motorized Infantry divisions near Voronezh on turn 4.
6. 1941-45 Campaign, Operation Barbarossa, Road to Dnepropetrovsk:
 - a. Added 1st Rum. Railroad Command - Romanian FBD-like repair unit with limited capabilities, disbands mid 9/41; 5x Rum. Rail construction units attached to it.
 - b. Delayed 7th Naval Infantry Brigade to mid 8/41, arrives near Sevastopol.
 - c. Delayed 8th Naval Infantry Brigade to mid 9/41, arrives near Novorossiysk.
 - d. Added 9th Naval Infantry Brigade, arrives in Kerch on turn 9.
7. Fixed incorrect setup of 203rd Panzer Regiment in 1942-45 Campaign, by placing it on map (E of 16th Army); added MPs and set to Reserve mode.
8. Three Soviet divisions in Operation Typhoon were starting on Axis-controlled hexes, changed them to Soviet control.

1.10.01

New Features

1. It will be now impossible to build more than 600 Soviet air groups. This is necessary to prevent the game from crashing when reaching the limit of 32000 active aircraft.
2. Improved scenario check utility, it will now report on-map units with no delay and no location. Previously units had to be frozen in order to be reported.

Bug fixes

1. Fixed a bug where certain inactive units could be included in the UNITS column on production screen.
2. Fixed a bug where the game crashed during logistics phase when doing aircraft cleanup if aircraft data was corrupted. There will be a chance now to reclaim slots properly and continue such games. This will not help if the game crashes during air mission resolution.

1.10.00

New Features

1. Changed the way current turn losses are calculated and displayed. No longer they are reset after the first visit to the losses screen. Losses from Axis Logistics Phase, Axis Turn, Soviet Logistics Phase, and Soviet Turn are now recorded separately. It's possible to see them separately, or all together, by selecting appropriate option of the "CURRENT TURN FILTER", shown at the bottom-right of the losses screen. This information may not be accurate during the first two player turns for ongoing games.
2. Scenarios and games saved under this version will not load under older versions of the game.

1.09.02

New features

1. Changed the way current turn losses are calculated and displayed. No longer they are reset after the first visit to the losses screen. Current turn losses (for both players) are now automatically reset at the start of each logistics phase. However, previous values of current turn losses are recorded just before that reset, and are added to the current values in the appropriate column on the losses screen. This means that for every player current turn losses show losses incurred since the start of the enemy player's logistics phase. Unfortunately, due to data constraints current turn losses for individual ground elements and aircraft include only the losses since the start of last logistics phase. This information may not be accurate during the first two player turns for ongoing games.
2. Half of elements damaged during the current turn will no longer sometimes count as losses for the purposes of victory calculations, only permanent losses will count.
3. Reduced the chance of manpower factories being lost when a city suffered damage or (especially) was captured.
4. Occupied city manpower attrition will now happen only to German cities before 1/45, and Soviet cities (with the exception of cities considered to be part of Finland and Rumania) before 1/43.
5. Axis player will now get information about the total population that has migrated in their logistics phase log, just like the Soviet player. Also, both sides will now get information about the total population that is missing. This information may not be accurate for ongoing games.
6. Increased maximum shipping and amphibious capabilities of both sides by 50% to take into account increased unit load costs. The speed at which shipping and amphibious points are accumulated was not changed.
7. German aircraft production will be no longer reduced to 75% of ground production in 1945.
8. Reverted new feature #10 and #16 from 1.09.01, since they reduced bombing efficiency too much and altered inter-plane type balance.

Bug fixes

1. Fixed a bug where the number of damaged men was fluctuating up and down while combat was observed on higher message level setting. The game will no longer try to add an estimate of men that may become disabled once damaged elements will be lost or returned to the pool during next friendly logistics phase. Only really disabled men will now count as damaged.
2. Fixed a bug where only the last set of AA weapons fired was displayed in combat report, when multiple flights (batch of planes from a single air group) flew during a single air mission.
3. Fixed a bug where scroll button would not appear on offline combat report for city bombing missions. It should now appear more often, but there is no guarantee it will work every time.
4. Fixed a bug where hidden log was exported to the text file.
5. Fixed a bug where the percentage of supply on hand at the start of resupply was unnecessarily doubled.
6. Fixed a bug where HQ units (including air bases and rail repair units) were forcing partisans to relocate upon being unloaded.
7. Fixed a bug where isolated city manpower attrition might have been improperly calculated in case of multiple manpower factories in the same city, and also recorded as lost by a wrong player.
8. Fixed a bug where damaged (or captured) city manpower attrition might have been recorded as lost by a wrong player.

9. Fixed a bug where occupied city manpower attrition for Axis cities happened during Soviet logistics phase.
10. Fixed a bug where truck changes might not have been properly recorded for some withdrawing Soviet units (though they rarely withdraw, at least in campaigns).
11. Fixed a bug where entrained combat units that have retreated from battle were not detrained.
12. Fixed a bug where it was possible to move units stopped at sea to an adjacent land hex using normal movement, bypassing amphibious restrictions.
13. Fixed a bug where it was impossible to continue naval/amphibious movement of units stopped at sea.
14. Fixed a bug where it was possible to unload units at sea.
15. Fixed a bug where Soviet motorized divisions were not given new number upon being reformed as or upgraded to rifle divisions, if there already was another rifle division with the same number.
16. Fixed a bug where it was impossible to assign an existing support unit from higher HQ(s) using the "ASSIGN" function, if that support unit's TOE was not yet available.
17. Fixed a bug where depleted units were not automatically relocated (or destroyed if isolated) like routed units, and could be attacked, but didn't show up in battle report (resulting in battles with no one, if all of the defending units were depleted).

1.09.01

New Features

1. Optimized the speed of searching for common air army and army group/front HQs for the purposes of launching air missions.
2. Moved the "unit is reorganizing at x,y" message about understrength withdrawing units from "ARRIVED UNITS" to "UNIT WITHDRAWAL" section of the Logistics Phase Log.
3. Relocation of "Military District" and "Defense Zone" units is now allowed, even if frozen and/or in-supply.
4. Voluntary relocation of units that are within 5 MP to rail will no longer cause retreat attrition and/or the possibility to lose a leader.
5. Updated and shortened text describing leader command restrictions.
6. Increased garrison multiplier for security units from 2 to 2.2, so a single regiment would be enough to garrison a city hex (two - a light urban hex, and full division - a heavy urban hex), without the need to add extra units, and with some margin for losses. A 41 Security Division has 5967 men, which was usually a few percent short of the desired value (4000 for a city hex, 8000 for light urban hex, and 12000 for a heavy urban hex).
7. If there is damaged rail in a working port, and no enemy units are adjacent, the rail will be automatically repaired during the logistics phase.
8. Changed efficiency of ground element repair after movement:
 - a. reduced base efficiency from 25% to 15%,
 - b. reduced penalty from weather (from -30% to -25% for mud, from -20% to -15% for blizzard, and from -10% to -5% for snow),
 - c. reduced AFV class bonus from 10% to 0%,
 - d. changed 0...25% bonus from reliability to a -25...0% penalty from unreliability,
 - e. added 0...25% bonus from movement left percentage,
 - f. added -5% penalty from failed admin roll,
 - g. added 75% reduction of final efficiency for isolated units.
9. Ground element repair after movement will be less random, so that at most one element's repair result (in each slot) will be determined by a random roll.
10. There will be no "to hit" bonuses for dive bombing and fighter sweeps at night.
11. Increased accuracy of flak at night (from 10% to 25% of daily values), and reduced accuracy of bombing at night (from 33% to 25% of daily values).
12. Support units attached to HQs will gain protection from terrain and fortifications when bombed or defending in battle, like all other units.
13. HQs and support units attached to them will gain a bonus to protection from terrain and fortifications when bombed, to take into account that they are dispersed over a large area.
14. Level bombers will be eligible for being attacked by flak when bombing units, in the same way as tactical (dive) bombers, fighters, and fighter-bombers. However, they now get an extra bonus to evade all flak.
15. Increased bonus for tactical (dive) bombers to evade all flak.
16. Adjusted bombing effectiveness, to take the same set of parameters into account for different plane types.
17. Added new ground element type: "Motor-Engr Squad".

18. Made it easier to destroy, damage and/or disrupt elements that should be doing most of the fighting, by reducing their resistance against ground HE attacks (XM stands for eXperience Modifier, and is equal to element's experience-70; final value may never be less than 20, and higher than 100):
 - a. to $80 + XM\%$ of the original value for elements of type Rifle Squad, Cavalry Squad, SMG Squad, Ski Squad, Security Squad, Partisan Squad, and Naval Rifle Squad,
 - b. to $85 + XM\%$ of the original value for elements of type Infantry-AT, Machinegun, Motor-Inf Squad, Engineer Squad, Airborne Squad, and Air Landing Section,
 - c. to $90 + XM\%$ of the original value for elements of type Mech-Inf Squad, Airborne Engineer, Carrier-Inf Squad, and Motor-Engr Squad,
 - d. to $95 + XM\%$ of the original value for elements of type Mech-Engr Squad, Special Forces, and Marine Commando.
19. Adjusted "too many attackers" penalty formulas to be more consistent as fort level changes. This penalty will never be applied in battles against partisans, and during hasty attacks the number of attacking stack points will be halved. For the purposes of this penalty, tank and mechanized corps combat units will count as having a size of 9 (like a division), while other corps combat units will count as having a size of 27 (like three divisions).
20. Support units will no longer protect brigade-sized (and smaller) stacks of on-map units involved in combat (including reserve units) from having greater chance to rout or shatter in combat. However, support units themselves will never have greater chance to rout or shatter in combat (as if on-map units involved in combat were larger than a brigade).
21. The tooltip about interdiction attacks will display the number of MP lost (if greater than 0) by the targeted unit.
22. The "WANTED" column in the replacement phase report table will now display true need of units, before it was reduced by MP to rail penalty.
23. Improved TOE matching, so that duplicate elements have a chance to be merged, instead of being sent away.
24. Improved sending back matched elements, taking into account possible shortage of their type and/or group in the whole unit.
25. Improved requesting new elements, taking into account possible abundance of their type in the whole unit.
26. When merging units, morale will be weighted by number of men rather than TOE%.
27. Number of men lost in combat will no longer be calculated as number of men in destroyed elements, rather from the actual number of men killed and captured from destroyed elements (as shown on the losses screen in the "Recent Battle & Non-Combat Casualties" column). Number of men "damaged" in combat will no longer be calculated as half the number of men in damaged elements, but more accurately according to the percentage of men that become disabled when damaged elements are lost or returned to pool (so 30% for the Axis, and 40% for the Soviet), as well as the actual number of men from destroyed elements disabled immediately.
28. No Axis attack on June 22nd 1941 will turn into a scouting attack.
29. Reworked experience and morale changes for partisan units recruiting new squads or receiving supplies from air. As for other units, influx of new elements will result in experience reduction, not increase. However, successful resupply or adding a ground element will always result in small morale increase, up to NM.
30. Updated "CDL Tank" ground element type, to be like "Engineer Tank" type, rather than a weaker version of "Medium Tank".
31. Updated matching groups to better represent elements fulfilling the same role.

32. CV Mode will be now a game option, rather than a scenario parameter, so any of the six modes will be available for use in any scenario. "Alternate CV" means the value shown on counters will be a more accurate representation of the final CV in combat (it will show non-random, expected, value of randomly determined final CV, as usual without the impact of forts and terrain on the attacker's CV, when outside actual combat). CV Mode also allows to decide whether artillery and support elements should have a small impact on unit CV value, or not. The modes are:
 - a. Default: combat value of artillery elements is 0, combat value of support elements is 1, normal CV,
 - b. Better CV Math: combat value of artillery elements is 0, combat value of support elements is 1, alternate CV,
 - c. Art. 1, Sup. 0: combat value of artillery elements is 1, combat value of support elements is 0, normal CV,
 - d. Art. 1, Sup. 0, Better CV Math: combat value of artillery elements is 1, combat value of support elements is 0, alternate CV,
 - e. Art. 1, Sup. 1: combat value of artillery elements is 1, combat value of support elements is 1, normal CV,
 - f. Art. 1, Sup. 1, Better CV Math: combat value of artillery elements is 1, combat value of support elements is 1, alternate CV.
33. Partisan unit's morale will never drop below 20 as a result of being attacked by an Axis units.
34. Expected, instead of random, CV will be used when determining whether a hasty attack should turn into a scouting attack (just like for determining the need for air support during a battle).
35. Added manpower statistics for every active country on given side to logistics phase log. They show active manpower pool, transfer manpower pool, disabled manpower pool, actual number of men in units, number of men that should be in units according to their TOEs, and a difference between those two numbers. German totals include Hiwis. Those values are calculated at the end of the logistics phase, after replacements were dispatched.
36. Fort units will be treated as static units when calculating resource (supply, ammo, fuel, vehicles) needs.
37. It will be now possible to resupply support units to 200% of resource (supply, ammo, fuel) needs via air drops, if all units involved are above 100% of needs.
38. HQs will be resupplied via air drops just like other units, they will no longer accumulate supply and fuel dumps. HQ and attached support units will receive all resources directly.
39. Scrapped heavy tanks and heavy cavalry tanks will be no longer converted to vehicles. Scrapped light tanks, flame tanks, MSW tanks, engineer tanks, airborne tanks, and CDL tanks will be converted to vehicles.
40. Construction and fort units will be no longer eligible to get extra resources due to no movement in previous turn.
41. Increased German vehicle repair capability from 10k to 15k during mud turns after 1941.
42. Added the ability to navigate from unit to leader, and from leader to unit in the editor.
43. Added detailed information about frozen status to map mouse-over information, similar to the one presented for withdrawals and disbands. While in the editor, all three kinds of information will be always displayed, even if more than 30 turns remain until the event.
44. While in the editor, fog of war will be no longer applied to mouse-over information for units of the other side.
45. It will be now possible for reinforcing air groups to arrive at a predetermined air base unit, rather than to National Reserve. The specified air base must be present on the map, be of the same nationality as the group, and contain less than 9 air groups to be a valid target (at the moment of arrival). If those conditions will not be met, air group will arrive to National Reserve instead.

46. Added the ability to export some stats and data from the game to a csv file (tab separated). This function is accessible by clicking "Export" button, found in the lower right corner of Commander's Report in the Units tab. This function creates a file Stats(Turn nnn yyyy-mm-dd ss).csv in Dat\save directory with data based on current game state. The data consist of a header (scenario name, turn, date, active side), army strength (per country), losses (per side), manpower details, vehicle details, resource details, unit details, air group details, leader details, city details, ground element details, and aircraft details.
47. Units in reserve mode will have their construction points reduced to 25%, and will get no construction support from HQ. Applies only to human player.
48. Updated a lot of leader, aircraft, and ground element images.
49. Reduced base chance for fighting withdrawal from 50% to 10%, and for counterattack from 25% to 20%. This base chance is still affected by the difference between average experience of combatants, and requires defender's experience to be higher than attacker's experience.
50. Increased the number of disabled men killed each logistics phase on the Axis side from 0.05% to 0.25%. This means returns will be reduced from 0.95% to 0.75%. Soviet ratios remain at 0.5%.

Bug fixes

1. Fixed a bug where Slovakian air-only leaders were using Hungarian ranks.
2. Fixed a bug where support units were destroyed after combat in a situation where on-map combat units would just rout. They should now shatter as often as combat units in the same conditions.
3. Fixed a bug where incorrect number of elements and harsher formula was used when bombing support units (compared to formula for on-map units), resulting in excessive losses to these units. This mostly affected HQs and on-map rail repair units, as these two kinds of units usually have a lot of support units attached.
4. Fixed a bug where there was no combat message for elements disrupted by bombing in support units.
5. Fixed a bug where disrupting elements in on-map units did not increase the chance for successful interdiction of movement, whereas disrupting elements in support units attached to them did increase that chance.
6. Fixed a crash bug in AI routine used to assign parts of the frontline to specific army/front HQs.
7. Fixed a bug where it was impossible to change air doctrines in human vs AI games, with the exception of first turn.
8. Fixed a bug where partisan experience could get out of hand and reach 90, regardless of partisan unit morale, making partisan units extremely efficient in combat.
9. Fixed a bug where a newly formed Soviet Tank or Mechanized Corps could get the same number as an existing corps, if that corps was divided into brigades when the new corps was created.
10. Fixed a bug where different rounding was used to represent tons of resources needed and on hand for unit(s) listed in the manual air drop mission screen, when a unit was selected as compared to no selection state.
11. Fixed a bug where resource needs of attached support units were not included in parent unit's totals in the manual air drop mission screen, and in the tooltip shown for on-map units in air transport mode.
12. Fixed a bug in the editor where old leader wasn't properly unassigned from his old unit, when a new leader was selected to replace him.

13. Fixed a bug where certain permanent manpower losses were not recorded for the purposes of "loss by phase" statistics: men lost when making an airborne attack without supply and without unit to leave non-transportable elements in (unlikely), men lost when units surrender because of country capitulation, men lost when resolving damage to elements in partisan units, men lost when recovering disabled manpower. First two cases are now recorded as surrender losses, the rest as attrition losses.
14. Fixed a bug where air group internal mission types were not set correctly when switching between all fighter plane types, even more so when doing this manually.

Scenario changes

1. 1941-45 Campaign, 1942-45 Campaign, Case Blue - Phase I, Operation Blue, Stalingrad to Berlin Campaign, Winter 1942-43, Red Army Resurgent, Drama on the Danube: increased morale and experience of 1st Hungarian Armored Division to 50 (55 in Drama on the Danube).
2. 1943-45 Campaign: 1st Hungarian Armored Division unfreezes earlier in 9/44.
3. 1941-45 Campaign, 1942-45 Campaign, 1943-45 Campaign, Stalingrad to Berlin Campaign: rebuilt 2nd Hungarian Armored Division to new TOE (at 3%), with 55 morale and experience. Division arrival delayed to 10/43.
4. Stalingrad to Berlin Campaign, Winter 1942-43, Red Army Resurgent: changed Luftwaffe Kdo Don to Air HQ, and removed withdrawal (was created from I Fliegerkorps and renamed back in early 43).
5. Stalingrad to Berlin Campaign: disabled I Fliegerkorps (see above).
6. Operation Blue, Winter 1942-43: disabled 2nd Hungarian Armored Division (inactive as combat unit in this scenario's timeframe).
7. 1942-45 Campaign, Stalingrad to Berlin Campaign, Winter 1942-43: removed Axis Elite status from V Fin. Corps.
8. 1943-45 Campaign, Moscow 1941-42, Operation Typhoon: changed 1st SS Motorized Brigade from SS Elite to SS.
9. 1944-45 Campaign, Stalingrad to Berlin Campaign: changed Nederlands SS Motorized Brigade from SS Elite to SS.
10. Courland Pocket 44, Liberation of Leningrad 44, Retreat from Leningrad 44-45, Operation Bagration: changed III SS Panzer Corps from SS to SS Elite.
11. Operation Bagration: changed 78th Sturm Infantry Division from regular to Axis Elite.
12. Operation Konrad: changed 5th SS Panzer Division from SS to SS Elite.
13. Operation Sleigh Ride: changed 11th SS Panzergrenadier Division from SS Elite to SS.
14. 1942-45 Campaign: 702nd SP Infantry Gun Coy, 100th Flammpanzer Battalion, 101st Flammpanzer Battalion, and 1st Hungarian Motorized Brigade disband instead of withdrawing.
15. 1941-45 Campaign: added 1st Rum. Army led by Paraschiv, locked in Sibiu.
16. 1941-45 Campaign: replaced Toldi II with Toldi I in Hungarian Motorized/Cavalry Brigades.
17. 1941-45 Campaign, 1942-45 Campaign, 1943-45 Campaign: added some extra Toldi II and Turan I tanks to Hungarian pools.
18. 1941-45 Campaign: some changes to Soviet air units.
19. 1941-45 Campaign: reassigned many Rumanian combat and HQ units to different HQs.
20. Multiple changes to Hungarian air forces in various scenarios (mostly in 1941-45 Campaign).
21. Multiple changes to Rumanian artillery and MG support units in various scenarios (mostly in 1941-45 Campaign).
22. Rebuilt Rum. Air Command to standard TOE, and changed its leader to Jienescu, while Celareanu took command of Rum. Combat Air Command, in various scenarios.
23. All relevant scenarios: rebuilt 707th Static Division into a Security Division.
24. Solved issues with too numerous and too good Soviet SPAA vehicles.

25. 1942-45 Campaign, Operation Blue, Red Army Resurgent 42-43: fixed an issue with duplicate Soviet leader.

1.09.00

New Features

1. Scenarios and games saved under this version will not load under older versions of the game.

Bug fixes

1. Fixed a bug where it was possible to gain access to enemy units and alter some of their parameters.

1.08.09

New features

1. Disabled promotion to Guards status for Tank and Mechanized Corps divided into brigades, to prevent name loss and TOE issues upon merge.
2. Security units will be able to resupply to 100% and upgrade ground elements without penalties, while being more than 20 MP or 5 hexes away from their HQ, just like Fort units.
3. Airbases will not resupply through HQs, only individually, as if they were more than 20 MP or 5 hexes from their HQ (without penalties).
4. Introduced ground element type-based replacement priority. It is equal to element's CV, except that all elements useful in a fight and air support have a minimum value of 2 (mostly applies to artillery), while support and labor elements have a value of 1. In case of shortages, reduction is no longer proportional across the board, but based on priority, where elements with higher priority get access to more manpower and armaments.
5. Changed base reassignment cost multiplier for HQ units from 2 to 1.5 (25% reduction).
6. Updated national morale tables, see Appendix A.
7. German HQs named "Motorized Corps" will confer the same bonus to leader rolls as do HQs named "Panzer Corps", and will be treated as "armor HQs".
8. Added individual turn limits to armaments export from Germany to Axis Allies. The limits for 1941-1945 are as follows: Finland - 0.5k, 1k, 1k, 1k, 1k; Italy - 0.5k, 1k, 1k, 0k, 0k; Rumania - 1k, 2k, 3k, 3k, 3k; Hungary - 1k, 2k, 3k, 3k, 3k; Slovakia - 0.5k, 1k, 1k, 1k, 1k. There are separate from the threshold below which exports are possible, which remains unchanged. This limits maximum exports from Germany from 25k per turn to 9k per turn in 1943 (and just 3.5k in 1941). These limits will be affected by German and Axis Allies production percentages in smaller scenarios.
9. Added some new tests to scenario check tool, related to unit guards status.
10. Added new ground element type "Medium SP Flak", identical to "SP Flak", in order to allow differentiation between 20mm and 37mm SP Flak in TOEs.
11. Changed the limit of allowed air bombing missions (unit, city, airfield) from 3 of each kind per hex to 2 of any kind per hex.
12. Reworked Axis rail supply modifier. Base value is equal to logistics difficulty level (usually 100). It is reduced by 1 (0.5 after 3/42) for each hex east of $x=50$, except if y is less than 12. It is decreased by 10 before November 1941. It is increased by 10 in 1943, and by 20 in 1944 or later. Resulting value may not be lower than 25 nor higher than 100. Finally, blizzard effect is applied by multiplying that value by 0.9 (this is changed during First Winter to 0.5 in 1941, and 0.75 in 1942) if necessary. In return First Winter effect is no longer applied at an earlier stage of resupply. For Finnish units only the regular blizzard multiplier can affect base value.
13. Added Soviet rail supply modifier. Base value is equal to logistics difficulty level (usually 100). It is reduced by 0.5 for each hex west of $x=64$. It is increased by 5 in 1945. Resulting value may not be lower than 25 nor higher than 100. Finally, blizzard effect is applied by multiplying that value by 0.9 if necessary.
14. Reduced morale of newly built units and replacements from 80%-100% to 50%-75% of basic national morale.
15. Reduced maximum experience of newly built units and replacements from 100% to 75% in case of non-German elite units and German regular units, and from 100% to 50% in case of non-German regular units. Minimum experience remains unchanged.
16. Reduced base chance for counterattack to 25%, and for fighting withdrawal to 50% (both by 25%). Maximum chance capped at 95%.
17. Removed extra protection from German and Finnish AFVs in combat, it is no longer required with the introduction of combat events.
18. It will be now possible to disband air bases as long as the number of air bases is greater than number of army HQs+2 (+7 in case of Rumania). Panzer Groups do count as armies, but RHG Commands do not. German army air bases are exempt from this rule, and all may

be disbanded after 1942 (but none earlier).

19. Soviet infantry repair modifier for 1941 was reduced, but all Soviet repair modifiers will be increasing slowly each year. German AFV repair modifier was slightly reduced, and all German repair modifiers will be reduced in 1945.
20. Percentage of German production going East changed from 85% to 75% for 1941, and from 50% to 65% for 1945.
21. Scrapping elements that require vehicles to produce or tanks with CV 9 will result in vehicle production, roughly equal to 75% of the number of scrapped elements.
22. Reduced protection of all elements when light post-combat losses are resolved (in case of fighting withdrawals and failed attacks without a counterattack), especially vehicles. Element's reliability will now play a role in this as well. Protection of all elements when very light post-combat losses are resolved (in case of victorious side in combat, be it attacker or defender) was kept at previous level.
23. Increased Soviet Union ability to repair vehicles in bad weather from 15k to 20k.
24. Replaced 5% chance for Snow in North Soviet Zone during May-19th June with Mud (so now there will be 55% chance for Mud, and 45% chance for Clear).
25. There will be no automatic Blizzard in December 1941 and January 1942 in Europe Zone.
26. Made ports and manpower harder to damage by bombing (less than oil and resource, but more than heavy industry, railyards, armaments, ground element and aircraft factories).
27. Made CAP missions against city bombing easier to execute, just like CAP missions against airfield bombing.
28. Combat events (counterattack, fighting withdrawal) will not happen if there is Mud, or if the largest (in number of men) defending unit is affected by First Winter. Weather is checked for the hex in which battle occurs (defender's hex).
29. Reduced effectiveness of night bombing by 50%.
30. Adjusted resolution of post-combat losses, enabling ready element loss with crew surrender, ready element damage, and damaged element loss with crew surrender for units with morale greater than 54. At the same time reduced chance for damaged element loss with crew disabled or returned to pool.
31. Added the ability to set air groups to operate during both day and night. This will allow to reduce micromanagement, and to retain flexibility of having some fighter cover active during enemy turn, regardless of conditions chosen by enemy player (who can switch his air groups between day and night missions at will), even without dedicated air groups set to night missions (which was difficult in case of Germans having low number of large air groups, and no night fighters during first half of the war). Bear in mind that intercepts at night are usually done by small number of aircraft, so they are not as effective as intercepts during the day, but this is offset by lack of enemy escorts at night.

Bug fixes

1. Fixed a bug where old supply sources were still used instead of new ones. Because of this some cities were incorrectly marked as not linked to supply grid, and were unable to participate in transportation of all types of resources.
2. Fixed a bug where Panzer Army was not treated as "armor HQ" for the purposes of automatic reassignment, while Panzer Group was.
3. Fixed alignment of text in scenario description, so that lines generated automatically start in the same column as lines from externally provided text.
4. Fixed a bug in the editor where "DOWN" button was not showing in some circumstances, preventing scrolling the list of units attached to a HQ.
5. Fixed a bug in counting percentage of guard units of the same type for rifle, cavalry, and mountain units other than divisions.
6. Fixed a bug that caused guard unit limit to be 1 point higher than desired.
7. Fixed a bug where rail modifier was calculated based on unit location, instead of railhead

location.

8. Fixed a bug in calculating average experience of each side in combat (for the purposes of combat events), where each unit had a weight of one instead of weight based on the number of elements in that unit.
9. Fixed a bug where FoWed unit on-counter CV was not refreshed fully after logistics phase, and the game used values from before logistics phase, which resulted in, for example, defensive CV not including the impact of forts built during that logistics phase.
10. Fixed a bug where incorrect amount (near zero) of ammunition and fuel was expended by planes performing a CAP mission.
11. Fixed a bug where factory evacuation wasn't working for cities other than ports, when enemy unit was adjacent, as well as some interface bugs related to this.
12. Fixed a bug where AI could evacuate factories in June 1941.
13. Fixed a bug where routing reserve units, units retreating to a hex in enemy ZOC, and units retreating across unfrozen rivers could benefit from fighting withdrawal losses reduction.
14. Possibly fixed a bug related to HQs relocating during the logistics phase due to invalid links between map hexes and units. All such relocations will be logged (not shown to players) to assist with proving the patch worked, or showing which routine is responsible for that unwanted behavior.

Scenario changes

1. Addition/dispersion of railyards in campaigns and larger scenarios:
 - a. 5 moved from Leningrad to Pavlovo, Kolpino, Pushkin, Novgorod, and Cherepovets.
 - b. 4 moved from Moscow to Wyazma (1), and Kursk (3).
 - c. 3 added to Bratislava, Warsaw, and Magnitogorsk.
 - d. 1 added to Lvov, Saransk, Arzamas, Kaunas, and Vilnius.
 - e. 1 moved from non-rail-connected Naberezhnye Chelny to Pskov.
2. All reinforcing Luftwaffe Field divisions (except 1st and 21st) rebuilt to 55 morale/experience (they lacked infantry training and performed badly in combat).
3. Added missing Luftwaffe special status to II and III Luftwaffe Field Corps, and removed Luftwaffe special status from Kerch Corps.
4. Added disbands to 18th Panzer Division (7/44, actually disbanded 9/43 to form 18th Artillery Division, which was in turn disbanded 7/44 to form Grossdeutschland Panzer Corps), 323rd Infantry Division, 377th Infantry Division, and most of Luftwaffe Field Divisions (between 3/43 and 8/44).
5. Added special TOE for 5th, 8th, and 28th Infantry Divisions, so that they will transform into Jager Divisions automatically (from 3/42). Thanks to this they will be no longer forced to withdraw (and corresponding Jager Divisions will not arrive as reinforcements).
6. Reassigned various units in multiple campaigns and larger scenarios, including hundreds of support units (mostly Flak and Nebelwerfer), notably in 1941-45 Campaign:
 - a. V and VI Corps to 9th Army.
 - b. XXIII Corps to Army Group North.
 - c. 16th Panzer Division to XIV Panzer Corps.
 - d. 16th Motorized Division to XXXXVIII Panzer Corps.
 - e. 25th Motorized Division to III Panzer Corps.
 - f. 900th Lehr Motorized Brigade to XXXXII Corps.
 - g. 8th SS Cavalry Brigade to 102nd RHG Command.
7. Renamed, rebuilt to correct TOE, altered equipment, corrected arrivals, added disbands (or withdrawals) to hundreds of support units (mostly Flak and Nebelwerfer).
8. Added tens of new support units (mostly Flak and Nebelwerfer).
9. Removed organic SP Flak from 3rd, 16th, 20th, and 29th Motorized Divisions (replaced by attached SP Flak Companies in the last three).
10. Reworked upgrade paths of Stug Battalions and Stug Brigades, so that twelve of them will end up as Sturmartillerie Brigades in 7/44.

11. Replaced 10th, 18th and 182nd Luftwaffe Flak Regiments in Stalingrad to Berlin scenario, as well as in some related scenarios, by individual Flak units.
12. Disabled 111th Lehr Stug Brigade (duplicate of Burg Stug Brigade), and HG Fallschirm Stug Brigade (part of 2nd HG Panzergrenadier Division).
13. 3rd and 4th Cavalry Brigades will arrive with just 1 Stug, to account for Stugs received from the now-disbanding 177th and 189th Stug Battalions.
14. Reorganized Rumanian units in 1941, according to more accurate data sources, notably:
 - a. Army Group Antonescu withdraws at the end of July 1941.
 - b. Two Cavalry Battalions renamed Guards and made Axis Elite.
 - c. Several AA Battalions added.
15. Reorganized Finnish air forces in 1941, according to more accurate data sources, notably:
 - a. Changed size of all groups to Air Battalions (max size 10).
 - b. Changed numbers of many types of aircraft available in active pool.
 - c. Changed types and number of aircraft assigned to some groups.
 - d. Removed withdrawal of 1/LeLv24.
 - e. 2/LeLv24 will return in 7/42.
16. Renamed HG Parachute Panzer Corps to HG Fallshrim Panzer Corps to better match names of other HG units.
17. Added extra construction units to FBD units in some scenarios, to increase their MP allowance (reduced due to low TOE%, and too little attached construction units). Those units were reassigned from other HQs.
18. Restored Soviets to 140 vehicle factories in late war campaigns.
19. Added factories for Soviet BM-... SP Rocket Launchers, since they changed their type from Rockets, and are no longer auto-produced.

1.08.08

New features

1. Removed the requirement for air groups to have flown 0% miles to participate in airfield bombing, unit bombing and city bombing missions. These missions will now be limited to 3 per hex, with the exception of airfield bombing missions during German June 22nd, 1941 turn. There is still a requirement of having flown 0% miles for air group transfer or move to National Reserve, for air group using non-transport aircraft to participate in a transport mission (as transports, not escorts), and for any air group to participate in a transport mission at night.
2. Made sure that when attaching support units using the "ASSIGN" function, units from immediate superior HQ are chosen before units from higher level HQ.
3. Reworked aircraft support need, so that fighter and transport types have higher support need (as it is now based on maximum of two values: max load and sortie ammo), but other types have lower support need, as multiplier used to calculate need was reduced from 10 to 4.
4. Updated weather tables, see Appendix A. The rule preventing more than one Snow in December will not apply to Europe weather zone. There will be no mud in July 1941.
5. Increased the impact of experience during combat, so that units with low experience may fire less.
6. Final odds will no longer affect losses in battle, or chance to rout.
7. Retreat losses will be affected by unit's vehicle shortage, rather than unit's support squad shortage. The number of support squads in units, and their ratio to other elements, is decided by the TOE and player has no way to affect this, whereas with vehicles there is some measure of control.
8. It will be now possible for the attacker to lose trucks during post-battle attrition, as well as for the defender to capture some equipment from the attacker.
9. Victorious side in battle will also suffer post-battle attrition, where some additional elements can be captured, damaged or destroyed, but it will be very light.
10. It will be now possible for the defender to make a counterattack (when battle was won) or a fighting withdrawal (when battle was lost). In order to execute these maneuvers, average experience of defending units must be higher than average experience of attacking units. The chance to execute a counterattack is then $50 + \text{defender's average experience} - \text{attacker's average experience}$, and the chance to execute a fighting withdrawal is $75 + \text{defender's average experience} - \text{attacker's average experience}$. If a counterattack is successful, it means attacking forces will suffer losses comparable to normal retreat losses (of course without the impact of rivers, retreating extra hexes, or retreating through ZOC). If a fighting withdrawal is successful, it means defending forces will suffer losses comparable to normal attacker losses (in case of a failed attack, without a counterattack).
11. Elements damaged in battle will be presented separately in battle reports instead of half of the number of damaged elements being added to the number of lost elements. The only exception is list of battles in Commander's Report, where the number of damaged elements will be added to the number of lost elements.
12. It will be now impossible to disband Army Group/Front HQs, non-Soviet Army HQs, and rail repair unit (FBD/NKPS). Only Soviet SAD and SAB air bases will be disbandable.
13. Minimum TOE% for HQ units (including air bases and rail repair units) is 50% instead of 20%.
14. Improved ground element conversion/upgrade/swap procedure to optimize huge armaments drain and general slowness of converting/upgrading/swapping obsolete elements to new elements that are built on-demand (especially those of class infantry and mechanized infantry), causing drop in army's overall strength. Previously, the procedure attempted to add missing elements as well (up to TOE requirements), which had to be built using armaments and paired with free manpower. This reduced the chance for that operation to happen in case of resource shortages. This was done to make "meaningful" conversions/upgrades/swaps, that wouldn't be reversed soon because of low element

count. However, it was not feasible to, for example, convert all rifle squads in German army in July 1943 this way.

The army should be already understrength at this point, and there would be not enough free manpower to refill all units to the maximum of their TOE requirements with rifle squads. Only those squads that are currently present in units should be converted, with minimum armaments and manpower expenditure. So the improved procedure does just that -if current element is out of production, it will only try to convert/upgrade/swap ready elements (with increased chance to happen, most in case of conversions, least in case of swaps).

15. Automated air group aircraft swaps will not switch Soviet transport and recon groups to U-2 variants.
16. Building of elements that are expected to be needed will be blocked when there will be more than 100 or more than four weeks worth of production in the active pool.
17. Improved German and Finnish repair of damaged elements in units by 5%.
18. It will be now possible to set air groups to "Only upgrade" aircraft change mode, where swaps will be disabled, but automatic upgrades will be allowed.

Bug fixes

1. Fixed a bug where German support units attached to HQs and sent into combat were suffering from 22 June 1941 Turn Surprise Rules, which negatively affected their experience.
2. Fixed a bug where it was possible to see morale and percent of miles flown for enemy air groups, provided the air base they were attached to had detection level 5 or better.
3. Fixed a bug where losses amongst damaged elements during retreat were not affected by final odds, as other losses were.
4. Fixed a bug where it was impossible for the defender to capture attacker's damaged elements.
5. Fixed a bug where an airbase must not have moved to be usable for purposes of airhead supply distribution. It should be usable even if moved, provided it stays in a hex that was under friendly control at start of turn (like for other kinds of airdrops).
6. Fixed a bug where 50% of cargo delivered to an airbase for purposes of airhead supply distribution was converted to fuel, even if units didn't want that much fuel, and thus it was not delivered (wasted).
7. Fixed a bug where withdrawing units that had to remain on map to receive replacements were always reattached to O.K.H. instead to their national HQ.
8. Fixed a bug where it was possible to attach Corps HQ units to RHG HQ unit.
9. Fixed some bugs related to U-2 aircraft in transport and recon variants (air group type matching, proper night fly selection).
10. Fixed a bug where too many (possibly all) support squads were converted to rifle squads under certain circumstances, like newly arrived shell units that have just received their first replacements. Limited support squad conversion to 10% of those ready.
11. Fixed a bug where all units were assumed to be on railhead, in refit mode and set to 100% TOE when calculating the number of elements that were expected to be needed. This resulted in too many armaments spent on elements that were later not used.
12. Fixed a bug where Axis rail modifier was affecting units twice when it comes to receiving replacements.

Scenario changes

1. Fixed permanently frozen Italian 8th Army units in 1941-45 Campaign (and variants).

1.08.07

New features

1. Altered change #25 from previous patch, so that in order to prevent cargo loss during regular air drops, the airbase must be located in a hex that was under friendly control at start of turn (any spent Movement Points are ignored, since they are expended not only by moving, but also by using air groups located in that base).
2. Altered change #35 from previous patch, so that stack points are used instead of number of men (with the exception that corps combat units below 20 000 men are treated as divisional sized units), and the formula affecting defender was changed to $\text{ROUNDDOWN}(\text{MAX}(1, \text{SQRT}(\text{MIN}(\text{fl}-1, \text{mena}/(3*\text{menb}))))$, 2) to kick in once the attacker will outnumber defender (in stack points) by 3:1, instead of 1:1.
3. Partially reverted change #41 from previous patch, so that units in city terrain may be again considered as being surrounded. City terrain will also no longer be considered dense terrain.
4. Reverted change #50 from previous patch, so that the number of firing elements will not be affected by dense terrain, only CV.
5. Altered change #83 from previous patch, and decreased Soviet penalty to repairs after movement to -10 (from -20 and -15).
6. Altered change #114 from previous patch, and reduced the chance to regain up to 10% of National Morale, restricting it to a flat 10% chance (disconnected from morale), and only for units that are within 10 MP of working rail net.
7. Made sure that the bonus for the AI to capture Brest Litovsk and Hanko in the early turns of 1941 scenarios is never applied to server games.

Bug fixes

1. Fixed a major bug where units above their national morale level had at least 10% chance (possibly more) to revert to their national morale each turn.
2. Fixed a bug where more than one roll was used to determine weather, resulting in a higher probability of dominant weather type occurring. Now precisely always one roll will be involved in determining weather, and there will be a 25% chance that another randomly determined value will be used when showing forecast.
3. Fixed a bug where it was impossible to send air groups to reserve from a sorted and/or filtered air group list in the Commander's Report window.
4. Fixed a bug where a unit could be destroyed twice in a single combat due to different reasons (lost of elements, surrendered), resulting in that unit being rebuilt twice, granting one free unit to its owner (if eligible for rebuilding).
5. Fixed a bug by partially reverting change #27 from previous patch, so that out of supply units, including units in airhead or beachhead supply will not rout, but be destroyed instead. The only difference is that units in airhead or beachhead supply will not be susceptible to be destroyed while retreating through hexes with enemy units adjacent.

1.08.06

Same as 1.08.07 except Bugfix 5

1.08.05

New features

1. Units with a withdrawal turn set can be now marked as disbanding instead of withdrawing using the editor and clicking on the "Withdrawal turn:" text. Such units return all their men and equipment to the pool before disappearing from the map, never become frozen for refit if under 75% TOE on the turn of disbandment, and are listed on the losses screen just like units disbanded manually.
2. Air groups with a withdrawal turn set can be now marked as disbanding instead of withdrawing using the editor and clicking on the "Withdraws:" text. Such air groups return all their aircraft to the pool before disappearing from the map.
3. The losses screen was adjusted, so that only really destroyed units are accounted in the right side statistics, and turn headers on the left show the number of destroyed units separately from the number of disbanded units.
4. Morale of non-HQ units and air groups will be now shown on the hex popup window (listed after the letter "M").
5. Added the ability to assign air groups using recon aircraft from National Reserve to German army air bases.
6. Added the ability to assign construction support units to rail repair units (FBD or NKPS).
7. Movement point allowance of rail repair units (FBD or NKPS) will now depend on their RRV (rail repair value) and TOE percentage. Base allowance will be equal to RRV+1 (with a maximum of 16), multiplied by 10%+TOE% (with a maximum of 100%). To maintain full repair speed it is necessary to keep the rail repair unit at over 90% TOE, and have enough construction units attached to get RRV 15.
8. Only fresh air groups will be able to participate in bombing airbases, with the exception of first German turn during June 1941.
9. Airbases in all scenarios were converted to use new air support squads. They work as regular support squads, but are smaller (only 10 men), and can't use HiWis. These squads will never replace regular support squads in other units. Previously, all air bases had 250 regular support squads in their TOE. After the update they consist of 220 air support squads and 30 regular support squads (AA weapons unchanged). German forward (army) air bases have their own TOE now, with just 130 air support squads, 20 regular support squads, no 88mm Flak and 4 each of the other AA weapons.
10. Added two more German army group redesignations (Army Group South Ukraine to Army Group South in 10/44 and Army Group North Ukraine to Army Group A in 10/44). Disabled the undocumented rule renaming Army Group B to Army Group South as soon as Rostov was Soviet controlled, since it was causing problems. Army Group B will be redesignated Army Group South in 4/43. Updated some AI rules that assigned armies to various army groups during the entire campaign, to take into account these changes.
11. For the purposes of leader rolls, Soviet cavalry units on or after 3/43 will be classified as motorized, together with armor, motorized, mechanized and SP gun units. This means they will fight better under leaders with high mech skill, rather than infantry skill, and is related to the introduction of 2/43 Cavalry Corps TOE, that is tank-heavy.
12. Improved the withdrawal screen in the editor, and renamed it to "Timetable". It is possible to see (and filter out) ground units and air groups, arrivals and withdrawals. Turn numbers and dates shown are now more accurate, and related to which side goes first. Air group names are clickable and lead to air group editor screen.
13. It will be now possible to set MAX TOE% to as low as 20% (previously 50%). For human players, rebuilt Soviet units will have their MAX TOE% set to 20%, while rebuilt German units to 50% and will be frozen for 3 turns instead of 6 turns. Other arriving units will not have their MAX TOE% automatically adjusted to 100%.
14. Adjusted rules calculating vehicle requirements and fuel use of non-motorized units, to keep roughly the same vehicle numbers, but increase fuel use (partially because fuel use was generally very low, partially just to get rid of the artificial "999%" fuel stocks percentage, which was caused by units requiring little to no fuel).

Such units will now assume some (20% for Axis, 10% for Soviet) of their support squads are motorized, requiring vehicles and using fuel while moving. At the same time the need for "supply column" vehicles (used to carry supplies, ammo and fuel stored in the unit), which didn't use fuel while the unit was moving (some fuel was spent during the logistics phase to resupply units, possibly representing the usage of those "supply column" vehicles), was reduced by this number. For a German 41a Infantry Division at 100% strength and 100% stocks, vehicle requirement changes from 244 to 246, fuel requirement from 1 to 6. For a German 41 Cavalry Division, vehicle requirement changes from 230 to 229, fuel requirement from 2 to 7, supply requirement from 297 to 288 (less fodder for horses, since 20% of support squads are now motorized). For a Soviet 41a Rifle Division vehicle requirement stays at 64, fuel requirement changes from 2 to 3. For a Soviet 41a Cavalry Division vehicle requirement changes from 80 to 79, fuel requirement from 26 to 28, supply requirement from 203 to 200.

15. In all games started under this patch (and newer), factories will no longer upgrade after element's or aircraft's factory upgrade's first date, but always after element's or aircraft's last date.
16. Disabled TOE upgrades for withdrawing units frozen on refit.
17. Morale game difficulty modifier will be no longer used to directly modify combat values. It was nearly impossible to use morale parameter to adjust game difficulty, since even a small adjustment resulted in huge changes in unit strength (5% morale change - 15-20% unit strength difference), which wasn't realized by many players until it was too late.
18. Added new victory condition called "Bitter End". It works in the same way as "Campaign", with one exception. No auto-victory conditions will apply, and the game will always last the full number of turns. Victory points will be counted as in a regular scenario.
19. Changed supply sources for both sides. Axis supply sources are now: 55,0 NW of Tampere, 59,0 N of Tampere, 1,42 NW of Rostock, 1,47 NW of Schwerin, 1,50 SW of Schwerin, 1,52 NW of Wittenberge, 1,56 W of Stendal, 1,57 NW of Magdeburg, 1,60 SW of Magdeburg, 1,64 W of Leipzig, 1,68 west of Chemnitz, 1,75 W of Pilsen, 1,77 SW of Pilsen, 1,82 NW of Linz, 1,87 W of Linz, and 1,95 W of Klagenfurt. Soviet Union keeps 182,43 Chelyabinsk, and 171,138 Baku. New Soviet supply sources are: 94,0 N of Petrozavodsk, 114,0 N of Konosha, 148,0 N of Syktyvkar, 183,14 Serov, 183,32 Sverdlovsk, 183,54 Magnitogorsk, and 183,75 S of Orsk. Those supply sources were added to increase the ability of both sides to fight closer to the map edge. Before this change it was too easy to capture just one or two cities at map's edge, and all enemy forces ended up without supply on the next turn, even though they still controlled a large part of territory along said edge and should be able to resupply.
20. Improved the way in which victory points are counted and victory point ratio is determined. No longer will a side get 1 victory point, where it should have none. Victory point ratio will be set to 999.9 if one side has 1 or more VP and the other side none. When both sides will have 0 VP the ratio will be set to 1.0.
21. Added several new and improved existing checks in the editor. It will be now possible to disable messages about TOE availability status. Unit and air group names will be checked for commas, which shouldn't be used as they break CSV import/export function. Unit guard status of Axis units will be checked. Support units and air groups arriving before their parent or having wrong parent will be reported. Overstacks and units with wrong corps/division/subunit information will be reported as well.
22. Reworked the way in which resources from off-map cities are moved to on-map cities. Instead of going to a single city with greatest need in given category (resources, oil, supplies, fuel), each resource will now have a chance to be sent to multiple cities, sorted by need (largest first), distance to national supply nexus (closest first), and population (largest first). In case all cities will be filled to the max, first city on the list for given category will get the rest. Added support for Finnish off-map cities and for moving resources to off-rail cities (previously only movement from those cities was allowed), including Finnish, Rumanian, Hungarian and Slovakian cities. National supply nexuses are: 1,59 Magdeburg (for Germany, also used for Italian off-map cities), 58,4 Tampere (for

Finland), 57,121 Bucharest (for Rumania), 26,96 Budapest (for Hungary), 18,90 Bratislava (for Slovakia), and 182,43 Chelyabinsk (for Soviet Union).

23. Added two new ground element types: "HT Mortar" and "Medium Artillery". "HT MG/Mor" was changed to "HT MG". This is to allow the replacement procedures to differentiate between MG and Mortar halftrack (like the German 251/1 and 251/2), and between lighter and heavier guns in the middle group (like the Soviet 76mm and 152mm).
24. To improve replacement procedures, SP/HT artillery, anti-tank and anti-air were separated from towed artillery, anti-tank and anti-air ground element type families.
25. In order to be able to use an airbase for airhead supply, or to prevent cargo loss during regular air drops, the airbase must not have moved this turn.
26. After receiving air dropped cargo, target unit will have its movement points and strategic movement points reduced by 1/7 of default allowance (rounding up). This doesn't apply to units receiving airhead supply or isolated units.
27. Units in airhead (or beachhead) supply state will not be susceptible to surrender like isolated units, if they can retreat or rout somewhere.
28. Maximum size of German "Gruppe" and "Staffel" air groups, equipped with Fighters, Fighter-Bombers, Jet Fighters and Night Fighters, will increase in June 1944 from 40 to 68, and from 12 to 16, respectively. The same will happen for German "Gruppe" and "Staffel" air groups, equipped with Tactical Bombers, in July 1944. For the purposes of checking whether the group has enough aircraft to fly, maximum sizes above 40 will still be treated as 40.
29. Added the ability to define some combat or support OBs as multirole. This allows to convert units, using those OBs, between combat and support roles. This operation is allowed only once per turn, disabled for units performing a HQ Build Up, units attached to cities, or support units which changed their HQ this turn. Units involved may not be frozen, routed or loaded. To convert from a support unit to a combat unit, there must be free space in the hex in which the parent unit is located. To convert from a combat unit to a support unit, both units must be located in the same hex.
30. Units smaller than a division will be more likely to rout after lost battle in reserve role.
31. It will be now impossible to switch German air groups using Tactical Bombers to Fighter Bombers.
32. HQ build up will not be allowed when more than 20 hexes or 80 MP from railhead.
33. It will be now possible to reassign units that performed a HQ build up on previous turn. They will be blocked from taking part in another HQ build up as before.
34. It will be now possible to see the number of combat units, that will be included in a HQ build up, before executing it.
35. Reworked the fire penalty for large attacking forces, introduced in 1.04.28. It is no longer based on abstract stack points tied to unit's nominal size, but to the number of men in the attacking and defending forces. It is also applied evenly to all elements, instead of being partially random, and affecting elements firing at shorter ranges. When the ratio of attacking to defending men exceeds 3:1, the penalty will be applied. However, the ratio is affected by the strength of enemy fortifications and terrain. So it's possible to attack strong positions with more troops than enemy than in the open, and not suffer from the penalty. The actual formula is $\text{ROUNDDOWN}(\text{SQRT}(\text{MIN}(1, \text{mend} * (\text{fl} + 2) / \text{mena})), 2)$ where mend is the number of defending men, fl is fort level (including terrain bonus, equal to 1 in clear terrain with no fortifications), and mena is the number of attacking men. The resulting multiplier is never larger than 1, and is applied to the number of attacker's firing elements. On the other hand, when fort level will exceed 1 and the attackers will outnumber defenders, defending forces will be able to fire more times. The actual formula is $\text{ROUNDDOWN}(\text{MAX}(1, \text{SQRT}(\text{MIN}(\text{fl} - 1, \text{mena} / \text{menb}))), 2)$. The resulting multiplier is never less than 1, and is applied to the number of defender's firing elements. These two multipliers work together to represent a few things. First, the diminishing returns when using overwhelming forces to accomplish an objective that could be achieved by using much less forces. Second, the bloodier nature of combat in defensible terrain and/or

fortifications. Third, the higher effectiveness of smaller forces that are of better quality, which will be able to deal more damage when defending, and retain most (or all) of their strength when attacking. On the other hand (comparing to older rules) these multipliers will allow to attack with hordes of poor quality troops, and they will be able to deal some significant damage too, albeit suffering increased losses. Ammo restrictions apply as before, so elements won't be able to fire if they exhaust unit's ammo. However, usually only a fraction of elements gets to fire due to other multipliers that are applied, thus there are natural limits to how many elements will fire, even if the defender's multiplier will be large. In a sample battle where 109641 men attacked 22870 in clear terrain with level 5 fort, attacker's multiplier was 1.0 and defender's multiplier was 2.18. In another battle, where 52213 men attacked 8672 men in level 1.4 fort (level 1 and 40% of next level), attacker's multiplier was 0.85 and defender's multiplier was 1.18. So in the second battle the effectiveness of attacking elements was 85% and of defending elements 118%.

36. Reworked the way in which engineer value is calculated during battles, to reduce issues occurring because of integer math on small numbers. Infantry as well as flamethrower elements will also contribute to engineer value. Typical rifle squad is worth 1/10 of an engineer squad, but commando and flamethrower squads are as effective as engineers. Reduced the impact of fatigue and ammo shortages on engineer value. Made sure artillery chance to damage fortifications, based on ammo use, is calculated properly. Heavier artillery will have more chances to damage fortifications.
37. When either side will take hexes north of Finnish No Attack Line, rail will be captured with little damage (between 1% and 16%, with 25% chance for 1% damage).
38. It will be now possible for isolated units to attain airhead supply status, when enough supplies will be dropped to them, even without using standard airhead supply procedure via an air base.
39. CV of airhead supplied units or defending isolated units will not drop below 50% of original value due to resource shortages (was 33% and 25%).
40. In case of defending isolated or airhead supplied units, CV will drop only due to ammo shortages. Attacking isolated or airhead supplied units will still suffer from supply (non-motorized) or fuel (motorized) shortages.
41. Units in heavy urban, light urban and city terrain will be never considered surrounded.
42. Units in airhead supply will not suffer from double retreat attrition.
43. Elements of class "self-propelled artillery" will be included in "AFVs" total (instead of "Guns" total) on victory screen, battle losses screen, and in unit/formation totals. This means they will be now worth more victory points in scenarios. They will still fire and get the same level of protection as artillery in combat.
44. Changed color codes used to mark unit and air group entries on the list in the editor, so major errors in scenario data will be easier to spot, just by scrolling the list. Grey will be used for comments (entries with only a name specified, containing four stars ****) and properly disabled units (delay 250, no or valid parent). Black will be used for empty entries, missing all of: player, nationality, type, and name. Red will be used for partially empty entries, missing one or more, but not all of: player, nationality, type, and name. Orange will be used for entries with wrong delay (outside scenario bounds, and not 250) or invalid parent (exact details can be seen in scenario check report). Pink will be used for otherwise "grey" units to which special game rules apply, namely to German "Army Group B" unit or Soviet units that are or are attached to "1st Rum. Army", "4th Rum. Army" and "2nd Polish Army" (indirectly too). Green will be used for delayed units with correct arrival location, and (in case of support units) those units which do not arrive before their parent, as well as for delayed air groups that arrive to national reserve, or (in case of air groups with base unit set) those air groups which do not arrive before their parent and whose parent has correct arrival location. Magenta will be used for delayed entries, which do not fit into the "green" category. White will be used for not delayed units with correct location, as well as for not delayed air groups that are in national reserve, or (in case of air groups with base unit set) those air groups whose parent has correct location. Blue will be used for not delayed entries, which do not fit into the "white" category. To sum it up: black, white,

green, grey and pink entries are fine; orange, blue and magenta entries should be fixed; red entries should be cleared.

45. Added new function to the editor, called "CLEAN UP", which consists of four blocks. Each block can be activated separately. First block erases all "red" entries (see above) and sets all "orange", "magenta" and "blue" entries to delay 250, no withdrawal, and no parent. For some "magenta" entries (support units and air groups arriving before their "green" parent unit), the function will only adjust their delay to correct value, if by doing this they can become "green" too. Second block clears subunit and corps status from units that should not have that information. Third block resets unit motorized status, resupplying them to previous levels (supplies are capped at 200%, vehicles at 125%, for delayed units a minimum of 75% supplies and 50% vehicles will be granted). Fourth block erases duplicates by clearing disabled units and air groups that have the same name as other disabled (or not) units and air groups.
46. Added the ability to see and change parent unit of a German Division or Soviet Tank and Mechanized Corps directly in the editor, without using map build up function.
47. Added the ability to clear corps data in the editor (for Soviet rifle, cavalry, and mountain divisions and corps).
48. Reduce unit delays function in the editor now works also for air groups and properly handles withdrawals as well (disabling units that should have withdrawn after turn shift).
49. When a unit will be disbanded subordinate units will be reassigned to that unit's HHQ instead of national HQ.
50. In dense terrain infantry elements will have a chance to inflict more casualties, whereas AFVs, armored cars and self-propelled weapons will be less effective, in a similar way as their CV changes.
51. Reduced the impact of fort level on engineer value of assaulting units. Previously fort level 2 reduced engineer value by 50%, level 3 by 66%, level 4 by 75%, and level 5 by 80%. Now fort level 2 will reduce engineer value by 20%, level 3 will reduce it by 40%, level 4 by 60%, and level 5 still by 80%.
52. Units performing a HQ Build Up will not get reduction of failed leader roll penalty to movement points. Supply penalties applied to units performing a HQ Build Up will be proportional and 20% of the penalty will be rescinded only when doing a 100% build up (for example: a 75% multiplier becomes 83% multiplier when doing a 50% build up, previously it would be 88%).
53. Supply deliveries will be reduced above 20 MP from railhead (instead of 25).
54. The chance to upgrade/swap ground elements will be affected by range to rail (100% when 0 MP from railhead, 10% when 90 or more MP from railhead). For Axis units it will be also affected by Axis rail supply effect.
55. Added the ability to toggle unit Air HQ status in the editor (by clicking on the "non-Air HQ"/"Air HQ" text).
56. Support units attached to cities will be included in defensive battles for their hex, provided there are some on-map combat units there. Otherwise they will be simply overrun as before, without combat.
57. The cost to detach a support unit assigned to a city will be reduced with supplied, unfrozen enemy units nearby. Between 1 and 5 hexes the cost will be reduced to 1 AP. Between 6 and 10 hexes the cost will be reduced to 25% of the original value. Between 11 and 15 hexes the cost will be reduced to 50% of the original value. The cost will not be reduced for Axis units before August 1941.
58. Leaders will be allowed to take a command position two levels lower than their rank optimum suggests.
59. Decreased attractiveness of armored cars, SP weapons and SP artillery as preferred targets in combat, which was huge due to thin armour (changed reduction of multiplier from 33% to 90%).
60. Improved ammo type selection for anti-armor shots. Penetration reduction from range for

AP and HVAP ammo types will be applied at the selection stage, to increase the chance that HE shots will be used at longer ranges. In addition, unless being primary ammo type, AP ammo will not be selected for shots over 2000m, HEAT ammo for shots over 1500m and HVAP ammo for shots over 500m.

61. Fort unit cost increase will start over 75 fort units, not 50 as before. Hard limit of 150 remains unchanged.
62. Added the option to export an existing script from a scenario. Made the script replay function properly ignore off-map units and target hexes.
63. Element load cost divided by 5 (rounding up) will be taken into account when calculating unit load cost. Previously element load cost was not included in calculations.
64. Trucks in eligible units will suffer damage during First Winter. Trucks will become damaged with the same speed as elements in the unit.
65. Changed German national morale for 1943 from 65 to 67, for 1944 from 60 to 64, and for 1945 from 55 to 61. Changed Soviet national morale for April-September 1942 from 40 to 45, and for January-March 1944 from 60 to 55.
66. It will be now impossible to para drop or air transport a unit with support units attached.
67. Up to 2000 tons of extra resources and 500 tons of extra oil will be eligible for transport from captured Soviet cities to German (and Rumanian in case of oil) cities each turn.
68. Armaments export from Germany to Axis Allies will vary with year and will work differently than before. 5% of current German stockpile (but no more than 5k, affected by German and Axis Allies production percentages) will be eligible for export to each allied country that has not surrendered and is below its desired armaments level for that year. The levels for 1941-1945 are as follows: Finland - 5k, 2k, 2k, 2k, 2k; Italy - 2k, 5k, 5k, 0k, 0k; Rumania - 15k, 10k, 10k, 15k, 15k; Hungary - 5k, 5k, 10k, 15k, 15k; Slovakia - 1k, 1k, 1k, 1k, 1k. The amount of exported armaments will be adjusted so that the target pool will never exceed its desired level.
69. Withdrawing units will be automatically reduced to 85% MAX TOE if above that value upon reaching the point in time at which they are marked for withdrawal.
70. Withdrawing units will not upgrade or swap elements, unless they are below 85% TOE.
71. Withdrawing air groups will not upgrade or swap aircraft automatically (manual change is still allowed).
72. Units will immediately return unwanted elements in the last two slots (30-31) in order to make space for required elements, which is important for TOEs that use all (or nearly all) slots.
73. Duplicate element types (with lowest count) will be deemed unwanted in a unit, much like high match elements in wrong slot.
74. Base cost to enter enemy hexes for non-motorized (TOE type decides) combat units will be (120-morale)/20 instead of the usual (115-morale)/15.
75. There will be no longer a minimum of 5 MP assumed when calculating the number of trucks required to move supplies from railhead to units. Also, non-motorized (TOE type decides) combat units will treat all costs below 3 MP as 0 MP, with the exception of German units in 1941 (German army started the campaign with motorized supply columns in their divisions, but due to high losses and low production of trucks the level of motorization within the Wehrmacht quickly dropped).
76. Reworked vehicle repairs, so that 75% of vehicles are eligible for repairs each turn, but there is a maximum limit to the number of repaired vehicles. Maximum repair capacity of Germany and Soviet Union is 25k, and 2k for Axis allies. When the weather in Central Soviet Zone is mud or blizzard this capacity is reduced to 10k for Germany, 15k for Soviet Union, and 1k for Axis allies, with the exception of Finland.
77. Certain mid-to-late war German divisions may upgrade to bigger or smaller TOE variant. If, at the moment of upgrade, German manpower pool (including transfer pool) is below 100k or German armaments pool is below 50k, smaller variant will be chosen automatically. If manpower pool is above 200k and armaments pool is above 100k, bigger

variant will be chosen automatically. Between those values the variant will be determined randomly, with probability increasing together with the size of the pools. There are two variants of 44 Infantry Division, 45 Infantry Division, 44 Jager Division, 45 Jager Division, and 44 Mountain Division TOEs.

78. Axis ally units which are on the wrong side of the "no move" line (most likely due to retreat), will be now able to move (in any direction).
79. Flak units attached to cities will fire with the same effectiveness against all types of air missions instead of only against bomb city missions targeting their city.
80. Flak units attached to cities will fire with double effectiveness against air missions flying over their location.
81. Flak strength from non-AA ground element types armed with AA weapons will be reduced as if for non-AA weapons. Flak strength of such elements in combat will be reduced further. Only those elements that fire with full effectiveness will be shown on the AA weapons list in combat report window. Flak strength will be affected by altitude of targets in relation to weapon's ceiling. Reduced flak strength of units in combat.
82. Weather determination code was adjusted so that it would follow rules as written with 100% accuracy. Forecast of next turn's weather will be shown as well, but it will only have 75% chance to really happen. Because of forecast, weather information will now also be shown in Soviet logistics log.
83. Changed repair after movement bonus for infantry from 0 to -5, SP weapons from 10 to 20, armored cars from 5 to 15, SP artillery from 20 to 30, and AFVs from 0 to 10. Changed Soviet bonus for vehicle and gun categories to -20, and for infantry weapon and infantry categories to -15.
84. Synthetic fuel production efficiency reduced to 50%, while maintaining previous resource usage (500 resources give 250 fuel).
85. Fuel production efficiency reduced to 80%, while maintaining previous oil usage (300 oil give 240 fuel).
86. It will be now possible to damage ports in combat again.
87. Damage to factories in a city due to combat will be scaled by factory size, to reduce excessive damage to larger factories (5% damage for a size 20 factory was 20 times larger than 5% damage for a size 1 factory). For this purpose, port size will count double. Remainder from division will be rounded up or down randomly. However, sustained damage will never be less than 1.
88. Decreased the chance of armored targets being destroyed or damaged in combat, but increased the chance they might be disrupted.
89. Added the ability to see and edit the number of turns that a unit is frozen directly from the editor's "Units" tab. Improved the way in which MP and SMP are (re)set when changing this value.
90. ZG groups will not be able to switch between Night Fighters and Fighter-Bombers anymore.
91. Rewritten Soviet AI routines dealing with assigning air groups to air bases and building new air bases. Now it should be better at placing proper number and type of air groups in each air base, rotating exhausted air groups to national reserve, maintaining reserve, supplying partisans, using U-2 without affecting "regular" air force, and building new air bases.
92. OSNAZ air base will be treated as VVS air base when performing partisan supply drops.
93. German manpower multiplier for 1941 changed from 9 to 7, and for 1943 from 8 to 9.
94. Added "decomposition" process for certain infantry and mechanized infantry elements, which removes them from active pool (and refunds full build cost) in case they are no longer required in large numbers by units in the field. This is similar to scrapping, but may happen for "in production" elements as well, and represents redistribution of squad weapons from the "bundle" that a squad element really is for other uses. This should help to reduce the burden on armaments pool in case some new TOE dictates squad change that

cannot be represented by upgrade or conversion (most likely because old and new squads are not related to each other), and instead results in massive returns of one element to the pool, while building huge amount of some other element.

95. During June 22nd 1941 turn Soviet AA will fire with 25% efficiency.
96. Increased the speed of returns from transfer to active pool for ground elements from 25% to 75%, and for manpower from 25% to 90%.
97. Introduced new weather tables, separate for each weather zone. This allows random weather to follow similar pattern as non-random weather in all zones. The weather type specified for given month in non-random table always has 80% chance to happen when using random table, with 20% dedicated to other weather types. See Appendix A.
98. Replaced random number generator with a better one, that should produce uniformly distributed numbers with much greater accuracy, and made sure it is properly initialized when game is started. Courtesy of Pavel Zagzin.
99. Decreased the chance that men from a destroyed element will be disabled instead of killed from 40% to 20% (in earlier versions it was 10%). Increased the percentage of disabled men in damaged elements returning to pool from 30% to 40% for the Soviets.
100. Soviet infantry and mechanized infantry will be again requiring high match elements in or after 1944, instead of medium match elements.
101. Reduced core and Snow/March/April defender's bonuses from +3 to +2 for Reduced Blizzard rules, making them weaker when defending, but retaining attack strength.
102. Soviet Rifle Brigades (including Naval Rifle Brigades, but not Naval Infantry Brigades) will no longer have a minimum National Morale of 50.
103. The chance to rout and retreat losses will be now slightly affected by final combat odds divided by 5 (so between 1:4.99 and 4.99:1 there should be no change, but beyond those ratios losses may be larger and rout may happen more often, also for units with morale above 55).
104. Axis AI will not launch interdiction attacks from 5/43, Soviet AI before 11/41.
105. All nations will be able to use staging bases that belong to the same army-level air HQ, as bases of origin (including indirect attachment through intermediate HQs). In case both bases will have no such HQ, it will be enough to be part of the same army group/front HQ (such as VIII Fliegerkorps and Fliegerfuhrer Hungary belonging to Army Group North Ukraine in 1944-45 Campaign).
106. Automated escorts will not be limited to 120 aircraft per strike, they will always try to maintain required ratio to bombers/recons, as specified in air doctrine settings. AI will always want at least 100% of required escorts, more if it can expect larger enemy force.
107. Odds used to determine ground support need and reserve commitment will be based on expected CV, not random CV.
108. Reworked ground support need to be based on expected CV, and to be reduced symmetrically for both sides, as odds move away from 1:1, and the impact of airforce becomes irrelevant.
109. Increased the chance of tactical (dive) bombers to evade flak, in a similar way as for fighter-bombers doing a fighter sweep, though less so.
110. Renamed device types: "Flak" to "AA gun", and "AA weapon" to "AAMG". All AA weapons were properly reassigned between those two types. AAMG weapons will be less effective in generating flak strength, which was inflated by high rate of fire, and not compensated by low anti-air strength and/or accuracy when compared to AA guns.
111. Improved live air supply drop message. It will now show how many tons were dropped, how many actually delivered, and actual composition (how many tons of supply, ammo, fuel were delivered).
112. Soviet cavalry units will no longer get +5 to their national morale after March 1942.

- 113. Increased base chance of Finland, Rumania and Slovakia not surrendering from 20% to 30%, in order to allow the player to increase the chance to 90% (with two elite SS units in capital city), which is a maximum that is possible (and wasn't reachable with one stack space occupied by national High Command HQ unit).
- 114. Units below their National Morale, not routed, supplied, more than 9 hexes away from supplied enemy units, and not adjacent to an enemy hex will be eligible to regain 1-4 morale points per turn, even when having morale 50 or greater. Units below their National Morale, not routed and supplied will have the greater chance to regain up to 10% of their National Morale (not to exceed it) the lower their morale. The second rule will not apply to Axis units suffering from First Winter.
- 115. Limited partisan units' morale growth from successful attacks to 60.
- 116. Unit details window will now display National Morale level for given unit next to that unit's current morale.
- 117. Increased minimum chance of not surrendering (when AI controlled) from 70% to 80% for Finland, from 50% to 60% for Rumania, and from 30% to 60% for Slovakia.
- 118. Units will be eligible for morale drop due to too high morale when 20 points above National Morale, instead of 30. Units will be eligible for morale drop due to low supplies when above National Morale - 10, instead of 50.
- 119. Units recovering up to 10% of National Morale will be more likely to recover a number of points near the middle of the range of possible values.
- 120. Improved messages about forts in combat, to show changes in fractions and impact of artillery (if any). Since one point of Engineer Value reduces fort level by 2% it will be now shown doubled, to correspond with fort reduction. Bear in mind that if the final odds are between 1.00 and 1.49 (for the attacker), fort level is reduced again by 0.25 of Engineer Value (rounding down), and if the final odds are between 1.50 and 1.99 (for the attacker), fort level is reduced by one full level (1.00 or 100%) plus by 0.5 of Engineer Value (rounding down).

Bug fixes

- 1. Fixed a bug where a withdrawing unit could be stuck frozen on refit indefinitely, in case there were shortages of men or equipment, and the unit couldn't reach 75% TOE. Units will be always withdrawn after up to three turns of such refit. To compensate for this shorter period of refit, such units will be trying to refill up to 85% TOE instead of 80%. This gives them greater chance to reach the desired level of 75%, in case of shortages.
- 2. Fixed a bug where a static unit wasn't properly reactivated before withdrawing.
- 3. Fixed a bug where a withdrawing HQ was shown as a disbanded unit on the losses screen, as opposed to combat units, which simply disappeared.
- 4. Fixed a bug related to recent name switch between FBD 2 and FBD 3, and delayed arrival of FBD 5 in campaign scenarios, that caused problems for the AI. FBD 2 will now follow 9th Army (previously a task of FBD 3), FBD 3 - 2nd Panzer Group (previously a task of FBD 2), and FBD 1 - 17th Army (previously a task of FBD 5). FBD 1 was following 1st Panzer Group, but this resulted in not enough rail being repaired in the south, so it was better to switch it to 17th Army.
- 5. Fixed a bug where it was possible to use manual mode to launch air recon missions without recon air groups and air transport missions without bomber or transport air groups. In case only fighter air groups will be selected on the list for those two missions, the LAUNCH button will be disabled.
- 6. Fixed a bug where a Soviet unit wasn't properly destroyed when it tried to reorganize into a rifle division (or tank brigade) and failed.
- 7. Fixed a bug where it was impossible to bomb empty air bases.

8. Fixed a bug where the Army Group B HQ was renamed too early to Army Group South, which in turn prevented Army Group South being split into army groups A and B. Added a workaround for games in progress that are affected by this bug, but it will work only for games that have not yet advanced past 3/43.
9. Fixed a bug where the AI could think that 16th Army is 6th Army, and 18th Army is 8th Army.
10. Fixed a bug with overlapping text in the editor when using German version of the game.
11. Fixed a bug where routed units remained frozen.
12. Fixed a bug in the morale recovery process where support units were not treated as units on refit. They will be treated as being on refit whenever assigned to a city, a HQ unit or a combat unit that is on refit itself.
13. Fixed a bug where the city selected to receive off-map resources was partially chosen based on greatest requirement, not greatest shortage, contrary to intentions.
14. Fixed a bug where inactive leaders assigned to active units were not shown on the leaders tab in Commander's Report. Such leaders usually were below the minimum rank allowed by the game that were actually appointed to lead given HQ. They operate normally, but once unassigned, they can't be assigned again, until they become available.
15. Fixed a bug in retreat procedure, which could result in wrong result reported for units taking part in combat if there were some other units in the hex that didn't take part in that combat.
16. Fixed a bug in supply consumption, where amount of supplies consumed was based on weekly need percentage on hand, rather than biweekly need.
17. Fixed a bug in vehicle requirement calculations for HQ units, which resulted in no vehicle usage increase or leaving supply and fuel dumps behind, when moving those units.
18. Fixed a bug where scenario/campaign AI mode was selected based on the number of turns in a given scenario (more than 50 turn long scenarios were considered to be "campaigns") in most cases. It will be now solely dependent on victory condition type used.
19. Fixed a bug where a Soviet HQ, built in a hex already containing another HQ, would be subordinated to that HQ for a turn, even if it was of the same or lower HQ level. All newly built Soviet on-map units will be assigned to STAVKA now.
20. Fixed a bug where support units attached to combat units taking part in battle from reserve, were not marked as reserves too.
21. Fixed a bug where Soviet Polish armies could be converted to Guards.
22. Fixed a bug where fuel drop penalty was not applied when air dropping generic supplies (without using strike list selection).
23. Fixed a bug where drop penalties were applied to airhead supply drops, which were in fact representing overland transport of supplies from source airbase to target unit.
24. Fixed a bug where moving an airbase reset its airhead supply tonnage. This was done to prevent airhead supply via moved airbases. Now a separate variable will be used to track this.
25. Fixed a bug where supply and fuel dumps were added to HQ units supplied via airhead supply. Instead, standard airhead supply delivery to HQ unit will be performed, as if to a combat unit.
26. Fixed a bug where air group miles flown variable was not cleared when loading a scenario, causing an instant reduction to parent airbase movement points when clicked. Some other status variables will also be correctly reset for units and air groups.
27. Fixed a bug where corps number for Soviet cavalry and mountain divisions was shown incorrectly if not specified (-1000 and -2000 instead of 0).
28. Fixed a bug where Axis armies changed their HHQs, for Axis human player vs Soviet AI, when there was no Axis player-turn on turn 1.
29. Fixed a bug where Army Detachment Kempf wasn't transformed to 8th Army when the Axis side was not AI-controlled.

30. Fixed a bug where supply and fuel dumps were not listed in the editor when picking ground elements for use in TOE. In addition, ground elements on this list will be now correctly filtered for both units and TOEs (only own or captured equipment will be shown, as well as supply/fuel dumps).
31. Fixed a bug where Soviet guards air bases lost their guards status in the next logistics phase (name remained, but the counter was no longer red).
32. Fixed a bug where lost Soviet Rifle Guards Divisions were rebuilt as regular Rifle Divisions, but retained their number which led to name conflicts. Those units will now keep their guards status and rifle corps affiliation.
33. Fixed a bug where unit current ground element instead of TOE proscribed ground element was used to check whether there is an acceptable match between them.
34. Fixed a bug where AI could fail to merge rifle brigades, but would still change one into a rifle division.
35. Fixed a bug where attached support units were not included in parent unit load cost.
36. Fixed a bug where supply and ammo was not affected by the percentage of successfully transported load cost (in which they are included).
37. Fixed a bug where elements and men could be lost completely and not accounted for (even as losses) during distribution of leftover elements from an air transported unit.
38. Fixed a bug where elements could be transformed into other elements or end up in units of different side and/or nationality during distribution of leftover elements from an air transported unit.
39. Fixed a bug where experience and fatigue of target elements was not affected by experience and fatigue of elements transferred during distribution of leftover elements from an air transported unit.
40. Fixed a bug where construction unit size was not correctly detected when selecting units for rail repair.
41. Fixed a bug where for hexes with rail damage between 2 and 19 the check to see whether they are next to repaired rail was not working.
42. Fixed a bug where plane damage could exceed 255 (and restart from 0), resulting in saving the plane from destruction.
43. Fixed a bug where some planes have not their flight number or status cleared properly after concluding air mission, resulting in damaged planes from that mission being eligible to be destroyed when another mission concluded.
44. Fixed a bug where the number of missing men was not counted for empty slots, which resulted in incorrect number of men assigned from the pool for the two refit phases. In some rare cases, where only some totally empty units were on refit, this resulted in no replacements at all for these units.
45. Fixed a bug where only the first 500 aircraft types were accounted for in various screens and game procedures instead of all 1024 possible types.
46. Fixed a bug where factory upgrade date was displayed incorrectly on various screens.
47. Fixed a bug where ground element and aircraft availability check was incorrectly looking at factory upgrade start date for newer games.
48. Fixed a bug where ground element and aircraft production span was calculated incorrectly in the editor.
49. Fixed a bug where support units destroyed with parent unit were not recorded on the list.
50. Fixed a bug where arriving units were unfrozen automatically, whereas it should be possible for the scenario designer to mark them as frozen on arrival.
51. Fixed a bug where build limits were applied to Soviet air base building, where resources should not be taken into consideration because of low build limit (1 per turn).
52. Fixed a bug where some newly created Soviet air groups had wrong mission set.
53. Fixed a bug where there was no morale increase for air groups sent to reserve using CR function.

54. Fixed a bug in the upgrade/swap procedure where it could take more men from the active pool than available when adding existing elements from the pool.
55. Fixed a bug where damaged (captured) supply/fuel dumps were not converted to ready dumps. This will be done during HQ resupply.
56. Fixed a bug where elements having no nationality were shown on German loss list.
57. Fixed a bug where initial build of elements was not using up vehicles when building mechanized infantry elements.
58. Fixed a bug where only half of 1024 possible aircraft models (those with id below 500) were moved from transfer to active pool each turn.
59. Fixed a bug where failed (instead of successful) leader roll protected from greater than 1 morale loss in lost combat.
60. Fixed a bug where offensive CV was not allowed to be greater than defensive CV when using "Better CV Math" mode, which is common in that mode and should be allowed.
61. Fixed a bug where an extra division of FoW-ed CV by 80 could make the AI think a Brigade unit is weak and should be disbanded. AI will now check actual CV of said unit.
62. Fixed a bug where the auto assign function showed a cost to transfer of no less than 999999 AP, if a High Command or Army Group/Front HQ unit was selected in given stack. Improved auto assign function to ignore such units (even if selected), and to select new HQ only from those units for which the transfer cost does not exceed the number of available AP.
63. Fixed a bug where looking whether an air base is under the same Front HQ as units in battle could not work correctly in all cases (for example where an air base was attached to a regular Army HQ instead of the expected Air Army/Command HQ, which happens in some scenarios). An air base not under Front HQ will be allowed to support units in battle that are not under Front HQ as well.
64. Fixed a bug where looking whether German air bases are attached to the same Luftflotte could not work correctly in all cases (for example where each base was attached to different corps-level HQ within the same Luftflotte).
65. Fixed a bug which caused no bombers or tactical bombers fly automated air missions, for nations other than Germany, because the code checking for nationality/front units in battle was also tested when outside of battle, and then none of those groups could fly. This bug was made active after applying bug fix 63, previously it was working (in most cases) due to unintended side effect.
66. Changed misleading description when entering Scroll Speed setting in Preferences.
67. Fixed a bug where a very slow operation of checking whether a supply path can be traced between a unit and possible new HQ exists was invoked before other faster checks, and unnecessarily slowed down unit reassignment.
68. Fixed some problems in sound configuration file.
69. Fixed a bug where aircraft were too good at hitting armored targets, with chance of 1% or better giving 100% accuracy.
70. Fixed a bug where aircraft could attack soft targets in on-map units, as if they were armored targets. AP attacks should be limited to elements belonging to SP Weapon, Armored Car, SP Artillery and AFV classes.
71. Fixed a bug where ammo type other than HE was shown as used to fire at soft targets, which in fact was an ammo type pre-selected in case of armored targets.
72. Fixed a bug where scouting attacks were showing pre-battle CV and odds as final, but effects were resolved using final odds that were not shown.
73. Fixed a bug where scouting attacks removed 1 fort level if they ended up with odds above 1.50 to 1 (for the attacker).

Scenario changes

1. Added new "1941-45 Campaign - Bitter End" scenario.
2. Added new "Operation Sleigh Ride" scenario, courtesy of Randy Seger.

3. Reorganization of Hungarian Air Force in all campaigns and certain scenarios.
4. Multiple land units had their withdrawal changed to disband if:
 - a. They were destroyed in battle, rebuilt and not used in East.
 - b. They were merged with/into other/larger units which are present in the east and are considered reforming in the East.
5. Multiple land units had their withdrawal removed if the only reason was to re-appear under a new name or with a non-standard reorganization.
6. Multiple land units have been disabled if they only appeared as a new incarnation of existing units which are considered to reform in the East.
7. Multiple air units had their withdrawal removed if the only reason was to re-appear under a new name.
8. Multiple air units have been disabled if they only appeared as new incarnation of an existing unit.
9. Some missing units have been added, some others were disabled or had a withdrawal/disband turn set close to their historical transfer to other fronts.
10. Duplicate land and air units (mostly among those delayed) were deleted.
11. Some army or corps HQs had their delay adjusted to a smaller value, in order to arrive with their first units and keep command structure.
12. Some support units had their delay adjusted, in order to arrive with their parent unit and keep command structure.
13. Deleted hundreds of disabled identical airbases present in some scenarios, created by some kind of data corruption. Air units assigned to them were also deleted or disabled.
14. Fixed hundreds of errors reported by scenario check tool, including (but not limited to): incorrect assignments (sometimes to units from other side), guards status mismatch, invalid names using forbidden characters, overstacks, units placed outside of playable map area, wrong motorized status, non-standard SS unit names (using name instead of number, required by special game rules), non-standard Soviet air force organization (aviation divisions being represented as air groups, not air bases), non-standard Soviet air unit names (using long English names instead of short Russian names, required by special game rules), non-standard split units (only German and Finnish division-sized units should be split, not smaller units, and they should follow common naming pattern), missing leaders, incorrect AI flags, incorrect production percentages, incorrect map boundaries, incorrect HQ types, supply dumps in construction units, incorrect pilot quality, missing nation command HQ, and elements of different nationality in units.
15. Added missing AI scripts for first turn of: "1942-45 Campaign", "1943-45 Campaign", "Decision in the Ukraine 43-44", "Operation Barbarossa", "Operation Blue", "Operation Konrad", "Operation Sturgeon Catch 1942", "Operation Typhoon", "Road to Dnepropetrovsk", "Road to Kiev", "Road To Leningrad", "Road to Minsk", "Road To Moscow", "Road To Smolensk", and "Velikie Luki '42 Tutorial".
16. Fixed "1941-45 Campaign--Sudden Death" scenario to enable its special victory conditions, as it was actually impossible to obtain a Sudden Death victory.
17. Converted Soviet IAK and BAK air commands to use smaller, corps-sized TOE, in order to work well with army-sized Air Commands and Air Armies.
18. Converted German army air bases to use smaller Forward Air Base TOE.
19. Adjusted stockpiles of supply, ammo and fuel in units, so that no unit has over 200% needs at scenario start (which happened because the rules for calculating needs changed in previous versions, but actual stockpiles were not updated).
20. Deleted 1st Tank Army HQ from "1942-45 Campaign" and "Operation Blue" scenarios, as it was created after scenario start from 38th Army commanded by K.Moskalenko, which is present at start of scenario and has no withdrawal date set.
21. Added 3 missing Soviet air armies to "1942-45 Campaign". They will arrive as reinforcements.

22. Changed production percentage for Germans and Soviets from 60% to 75% in the "Vistula to Berlin" scenario.
23. Adjusted the location of frozen Axis Ally top-level HQs in multiple scenarios, to allow proper protection from surrender, by having the ability to put at least two German units in the capital hex. This mostly affects Rumanians.
24. Added Rumanian fort unit in Constanta where applicable. Such a major port and naval base would never be left empty and unguarded.
25. Added missing Italian units in Yugoslavia in "1942-45 Campaign".

1.08.04

New features

1. Units with a withdrawal turn set can be now marked as disbanding instead of withdrawing using the editor and clicking on the "Withdrawal turn:" text. Such units return all their men and equipment to the pool before disappearing from the map, never become frozen for refit if under 75% TOE on the turn of disbandment, and are listed on the losses screen just like units disbanded manually.
2. Air groups with a withdrawal turn set can be now marked as disbanding instead of withdrawing using the editor and clicking on the "Withdraws:" text. Such air groups return all their aircraft to the pool before disappearing from the map.
3. The losses screen was adjusted, so that only really destroyed units are accounted in the right side statistics, and turn headers on the left show the number of destroyed units separately from the number of disbanded units.
4. Morale of non-HQ units and air groups will be now shown on the hex popup window (listed after the letter "M").
5. Added the ability to assign air groups using recon aircraft from National Reserve to German army airbases.
6. Added the ability to assign construction support units to rail repair units (FBD or NKPS).
7. Movement point allowance of rail repair units (FBD or NKPS) will now depend on their RRV (rail repair value) and TOE percentage. Base allowance will be equal to RRV+1 (with a maximum of 16), multiplied by 10%+TOE% (with a maximum of 100%). To maintain full repair speed it is necessary to keep the rail repair unit at over 90% TOE, and have enough construction units attached to get RRV 15.
8. Only fresh air groups will be able to participate in bombing airbases, with the exception of first German turn during June 1941.
9. Airbases in all scenarios were converted to use new air support squads. They work as regular support squads, but are smaller (only 10 men), and can't use HiWis. These squads will never replace regular support squads in other units. Previously, all air bases had 250 regular support squads in their TOE. After the update they consist of 220 air support squads and 30 regular support squads (AA weapons unchanged). German forward (army) airbases have their own TOE now, with just 130 air support squads, 20 regular support squads, no 88mm Flak and 4 each of the other AA weapons.
10. Added two more German army group redesignations (Army Group South Ukraine to Army Group South in 10/44 and Army Group North Ukraine to Army Group A in 10/44). Disabled the undocumented rule renaming Army Group B to Army Group South as soon as Rostov was Soviet controlled, since it was causing problems. Army Group B will be redesignated Army Group South in 4/43. Updated some AI rules that assigned armies to various army groups during the entire campaign, to take into account these changes.
11. For the purposes of leader rolls, Soviet cavalry units on or after 3/43 will be classified as motorized, together with armor, motorized, mechanized and SP gun units. This means they will fight better under leaders with high mech skill, rather than infantry skill, and is related to the introduction of 2/43 Cavalry Corps TOE, that is tank-heavy.
12. Improved the withdrawal screen in the editor, and renamed it to "Timetable". It is possible to see (and filter out) ground units and air groups, arrivals and withdrawals. Turn numbers and dates shown are now more accurate, and related to which side goes first. Air group names are clickable and lead to air group editor screen.
13. It will be now possible to set MAX TOE% to as low as 20% (previously 50%). For human players, rebuilt Soviet units will have their MAX TOE% set to 20%, while rebuilt German units to 50% and will be frozen for 3 turns instead of 6 turns. Other arriving units will not have their MAX TOE% automatically adjusted to 100%.

14. Adjusted rules calculating vehicle requirements and fuel use of non-motorized units, to keep roughly the same vehicle numbers, but increase fuel use (partially because fuel use was generally very low, partially just to get rid of the artificial "999%" fuel stocks percentage, which was caused by units requiring little to no fuel) . Such units will now assume some (20% for Axis, 10% for Soviet) of their support squads are motorized, requiring vehicles and using fuel while moving. At the same time the need for "supply column" vehicles (used to carry supplies, ammo and fuel stored in the unit), which didn't use fuel while the unit was moving (some fuel was spent during the logistics phase to resupply units, possibly representing the usage of those "supply column" vehicles), was reduced by this number. For a German 41a Infantry Division at 100% strength and 100% stocks, vehicle requirement changes from 244 to 246, fuel requirement from 1 to 6. For a German 41 Cavalry Division, vehicle requirement changes from 230 to 229, fuel requirement from 2 to 7, supply requirement from 297 to 288 (less fodder for horses, since 20% of support squads are now motorized). For a Soviet 41a Rifle Division vehicle requirement stays at 64, fuel requirement changes from 2 to 3. For a Soviet 41a Cavalry Division vehicle requirement changes from 80 to 79, fuel requirement from 26 to 28, supply requirement from 203 to 200.
15. In all games started under this patch (and newer), factories will no longer upgrade after element's or aircraft's factory upgrade's first date, but always after element's or aircraft's last date.
16. Disabled TOE upgrades for withdrawing units frozen on refit.
17. Morale game difficulty modifier will be no longer used to directly modify combat values. It was nearly impossible to use morale parameter to adjust game difficulty, since even a small adjustment resulted in huge changes in unit strength (5% morale change - 15-20% unit strength difference), which wasn't realized by many players until it was too late.
18. Added new victory condition called "Bitter End". It works in the same way as "Campaign", with one exception. No auto-victory conditions will apply, and the game will always last the full number of turns. Victory points will be counted as in a regular scenario.
19. Changed supply sources for both sides. Axis supply sources are now: 55,0 NW of Tampere, 59,0 N of Tampere, 1,42 NW of Rostock, 1,47 NW of Schwerin, 1,50 SW of Schwerin, 1,52 NW of Wittenberge, 1,56 W of Stendal, 1,57 NW of Magdeburg, 1,60 SW of Magdeburg, 1,64 W of Leipzig, 1,68 west of Chemnitz, 1,75 W of Pilsen, 1,77 SW of Pilsen, 1,82 NW of Linz, 1,87 W of Linz, and 1,95 W of Klagenfurt. Soviet Union keeps 182,43 Chelyabinsk, and 171,138 Baku. New Soviet supply sources are: 94,0 N of Petrozavodsk, 114,0 N of Konosha, 148,0 N of Syktyvkar, 183,14 Serov, 183,32 Sverdlovsk, 183,54 Magnitogorsk, and 183,75 S of Orsk. Those supply sources were added to increase the ability of both sides to fight closer to the map edge. Before this change it was too easy to capture just one or two cities at map's edge, and all enemy forces ended up without supply on the next turn, even though they still controlled a large part of territory along said edge and should be able to resupply.
20. Improved the way in which victory points are counted and victory point ratio is determined. No longer will a side get 1 victory point, where it should have none. Victory point ratio will be set to 999.9 if one side has 1 or more VP and the other side none. When both sides will have 0 VP the ratio will be set to 1.0.
21. Added three new air group checks to the Scenario Check Utility in the editor.
22. Reworked the way in which resources from off-map cities are moved to on-map cities. Instead of going to a single city with greatest need in given category (resources, oil, supplies, fuel), each resource will now have a chance to be sent to multiple cities, sorted by need (largest first), distance to national supply nexus (closest first), and population (largest first). In case all cities will be filled to the max, first city on the list for given category will get the rest. Added support for Finnish off-map cities and for moving resources to off-rail cities (previously only movement from those cities was allowed), including Finnish, Rumanian, Hungarian and Slovakian cities. National supply nexuses are: 1,59 Magdeburg (for Germany, also used for Italian off-map cities), 58,4 Tampere (for Finland), 57,121 Bucharest (for Rumania), 26,96 Budapest (for Hungary), 18,90 Bratislava

(for Slovakia), and 182,43 Chelyabinsk (for Soviet Union).

23. Added two new ground element types: "HT Mortar" and "Medium Artillery". "HT MG/Mor" was changed to "HT MG". This is to allow the replacement procedures to differentiate between MG and Mortar halftrack (like the German 251/1 and 251/2), and between lighter and heavier guns in the middle group (like the Soviet 76mm and 152mm).
24. To improve replacement procedures, SP/HT artillery, anti-tank and anti-air were separated from towed artillery, anti-tank and anti-air ground element type families.
25. In order to be able to use an airbase for airhead supply, or to prevent cargo loss during regular air drops, the airbase must not have moved this turn.
26. After receiving air dropped cargo, target unit will have its movement points set to 0. This doesn't apply to units receiving airhead supply.
27. Units in airhead (or beachhead) supply state will not be susceptible to surrender like isolated units, if they can retreat or rout somewhere.
28. Maximum size of German "Gruppe" and "Staffel" air groups, equipped with Fighters, Fighter-Bombers, Jet Fighters and Night Fighters, will increase in June 1944 from 40 to 68, and from 12 to 16, respectively. The same will happen for German "Gruppe" and "Staffel" air groups, equipped with Tactical Bombers, in July 1944.
29. Added the ability to define some combat or support OBs as multirole. This allows to convert units, using those OBs, between combat and support roles. This operation is allowed only once per turn, disabled for units performing a HQ Build Up, units attached to cities, or support units which changed their HQ this turn. Units involved may not be frozen, routed or loaded. To convert from a support unit to a combat unit, there must be free space in the hex in which the parent unit is located. To convert from a combat unit to a support unit, both units must be located in the same hex.
30. Units smaller than a division will be more likely to rout after lost battle in reserve role.
31. It will be now impossible to switch German air groups using Tactical Bombers to Fighter Bombers.

Bug fixes

1. Fixed a bug where a withdrawing unit could be stuck frozen on refit indefinitely, in case there were shortages of men or equipment, and the unit couldn't reach 75% TOE. Units will be always withdrawn after up to three turns of such refit. To compensate for this shorter period of refit, such units will be trying to refill up to 85% TOE instead of 80%. This gives them greater chance to reach the desired level of 75%, in case of shortages.
2. Fixed a bug where a static unit wasn't properly reactivated before withdrawing.
3. Fixed a bug where a withdrawing HQ was shown as a disbanded unit on the losses screen, as opposed to combat units, which simply disappeared.
4. Fixed a bug related to recent name switch between FBD 2 and FBD 3, and delayed arrival of FBD 5 in campaign scenarios, that caused problems for the AI. FBD 2 will now follow 9th Army (previously a task of FBD 3), FBD 3 - 2nd Panzer Group (previously a task of FBD 2), and FBD 1 - 17th Army (previously a task of FBD 5). FBD 1 was following 1st Panzer Group, but this resulted in not enough rail being repaired in the south, so it was better to switch it to 17th Army.
5. Fixed a bug where it was possible to use manual mode to launch air recon missions without recon air groups and air transport missions without bomber or transport air groups. In case only fighter air groups will be selected on the list for those two missions, the LAUNCH button will be disabled.
6. Fixed a bug where a Soviet unit wasn't properly destroyed when it tried to reorganize into a rifle division (or tank brigade) and failed.
7. Fixed a bug where it was impossible to bomb empty airbases.
8. Fixed a bug where the Army Group B HQ was renamed too early to Army Group South, which in turn prevented Army Group South being split into army groups A and B. Added a workaround for games in progress that are affected by this bug, but it will work only for games that have not yet advanced past 3/43.

9. Fixed a bug where the AI could think that 16th Army is 6th Army, and 18th Army is 8th Army.
10. Fixed a bug with overlapping text in the editor when using German version of the game.
11. Fixed a bug where the game could crash due to memory corruption when trying to launch automated supply drops for partisan units from non-VVS airbases, even when no air groups were eligible to participate.
12. Fixed a bug where routed units remained frozen.
13. Fixed a bug where the game could crash when loading certain saved games.
14. Fixed a bug in the morale recovery process where support units were not treated as units on refit. They will be treated as being on refit whenever assigned to a city, a HQ unit or a combat unit that is on refit itself.
15. Fixed a bug where the city selected to receive off-map resources was partially chosen based on greatest requirement, not greatest shortage, contrary to intentions.
16. Fixed a bug where inactive leaders assigned to active units were not shown on the leaders tab in Commander's Report. Such leaders usually were below the minimum rank allowed by the game that were actually appointed to lead given HQ. They operate normally, but once unassigned, they can't be assigned again, until they become available.
17. Fixed a bug in retreat procedure, which could result in wrong result reported for units taking part in combat if there were some other units in the hex that didn't take part in that combat.
18. Fixed a bug in supply consumption, where amount of supplies consumed was based on weekly need percentage on hand, rather than biweekly need.
19. Fixed a bug in vehicle requirement calculations for HQ units, which resulted in no vehicle usage increase or leaving supply and fuel dumps behind, when moving those units.
20. Fixed a bug where scenario/campaign AI mode was selected based on the number of turns in a given scenario (more than 50 turn long scenarios were considered to be "campaigns") in most cases. It will be now solely dependent on victory condition type used.

Scenario changes

1. Added new "1941-45 Campaign - Bitter End" scenario.

1.08.03

Bug fixes

1. Fixed a bug where some of destroyed Soviet divisions (rifle, motorized and tank) were reorganized into new units (rifle divisions and tank brigades) twice.
2. Fixed a bug where Soviet divisions being part of corps combat units were getting the same number (usually 1st) upon promotion to Guards.
3. Fixed a bug where it was impossible to transfer goods (resources, supplies, oil, fuel) from cities that had minor shortages to cities that had huge shortages.
4. Fixed a bug where it was impossible to resupply units from cities that had shortages.

1.08.02

New features

1. Scenario description files in the German version will be loaded from files ending with ".ger.txt" instead of just ".txt", to reduce the number of file conflicts between the English and German versions of the game to zero.
2. Improved the way some elements and messages are displayed, and some functions work, that are related to item pools on the production screen in the editor. It will be now possible to set the pools of captured equipment for each country in the editor.
3. Axis leaders of the lowest rank (Generalmajor for Germany) will be automatically promoted to the next rank (Generalleutnant for Germany) on the date of their historical promotion (if provided in game data). Since the lowest rank is not the optimum rank to command an Axis Corps HQ, there was no way for these leaders to be appointed to command position without a risk of losing some skill points.
4. Units will now consume 50% of their weekly requirement (was 60%). Supply consumed by units during the logistics phase will reduce supply requirements by the same amount for the remainder of the turn, which will result in units being presented as having higher percentage of required supply stocks on hand (just like before 1.08.01). Logistics phase log will now contain information about the amount of supplies required by all units for consumption, amount of supplies converted to ammo and amount of ammo that was actually delivered to units (previously presented amount of ammo delivered to units was inaccurate). Unit supply details screen will now contain information about the percentage of desired supply consumed during the logistics phase in addition to the absolute value.
5. Soviet Heavy Industry multiplier changed to 85% of pre-1.08 values (was 75%). This means a multiplier of 110 in 1942 (was 100), 130 in 1943 (was 120), 145 in 1944 (was 130), and 155 in 1945 (was 135).
6. Units doing a HQ BuildUp will not be exempt from MP reduction due to failed leader rolls, although the penalty will be halved (the multiplier will be 0.9, instead of 0.8). HQ BuildUp bonus to maximum supply levels reduced from $25 + 0.75 * \text{buildUp score}$ to just buildUp score. Units will not return extra supplies for two turns after performing a HQ BuildUp, instead of just one turn. To participate in a HQ BuildUp, units and HQs must have at least 25% of their MP remaining.
7. Improved the way support units are displayed, by marking them with "*-", when they are blocked from being reassigned due to taking part in a HQ BuildUp.
8. When resupplying, HQ units (and other units resupplying like HQ units) will not be bound by global supply and fuel shortages, rather by local shortages in the city or town from which they draw their supplies. Global stock percentage will not be shown in unit supply details window, replaced by city stock percentage.
9. Elements added to empty slots will now have their starting experience equal to 90% of average unit experience. In case unit is empty and has no average experience, normal build experience will be used. Unit's morale will now have double weight when determining starting experience of replacement elements (morale below 20 will count as 20). Units marked as Guards (including "Guards" or "Gds" in unit name), Axis Elite, SS Elite or LW Elite will get replacement elements with starting experience increased by 25%. Build experience will be slightly higher due to rounding up instead of down.
10. Axis replacement needs will be reduced by Axis Rail Modifier, in addition to the regular distance to rail modifier.
11. Added the ability to influence the flow of supplies in the production system and to fort construction. It will be now possible to define production levels (25-100%) for aircraft, ground elements (produced in factories), armaments and vehicles as well as fort construction levels (0-100%, separately for units and cities) on the production screen. Changing production level by 1 uses 2 AP, changing construction level by 1 uses 1 AP. All those activities require supplies, which are also needed by units for consumption and conversion to ammo. In case of shortages it might be wise to tune down production levels so that units will not suffer grave shortages. Lend-Lease will not be affected, since it does not use supplies for production.

12. Information about supply and fuel requirements of units and available stocks (not reserved for production or population) was added to the logistics log. It will be now easier to track whether stocks are dwindling or expanding.
13. Tigers and King Tigers will be treated as high-match elements by the replacement system. Units having Tigers in their TOE will never use other Heavy Tanks (or worse) in their place, including captured tanks.
14. Tooltip for air bases will now show percentage of miles flown for each air group located in that air base.
15. Added the ability to turn off Lend-Lease in the editor with a scenario parameter. Factories "producing" Lend-Lease ground elements and aircraft will be erased at some point during Soviet logistics phase, so they do not have to be erased manually in the scenario.
16. For the purposes of sending elements back, MAX TOE setting lower than 80% will be treated as 80%. Since elements below 125% of MAX TOE are not send back immediately, this means units will not drop below 100% of TOE, just by sending back surplus elements immediately, while having MAX TOE set to a value lower than 80%.
17. Improved selection of national high commands, so it will work properly more often (especially in case of Rumania, Hungary and Slovakia). This function is used when detaching city flak and support units attached to units of different nationality.
18. Improved selection of commanding HQ in battle, by reducing the possibility of artillery units affecting the choice.
19. Combat units will not return extra (over support need) support squads, to eliminate negative impact on unit morale and experience due to constant squad rotation (removal and replacement), as well a number of other problems in the production and replacement procedures. Since support squads have a CV of 1, certain units will be a bit stronger now, at the cost of higher manpower consumption.
20. Updated and improved German translation.
21. Added the ability to select and build air bases and air groups of various types manually. AI will use the old automatic creation routines, but human players will now have more freedom at the price of having to spend more AP. It will be possible to build 1 air base and 8 air groups per turn (production percentage limit will be applied in smaller scenarios), starting from August 1941. Each will cost 1 AP. VVS air bases will be limited to 15 (production percentage limit will be applied in smaller scenarios). The new function is accessible by using the "Build new unit" function. Air bases are placed on the target hex, just like any other unit, while air groups will arrive to the National Reserve at the start of next turn. Plane type is automatically selected based on the highest amount of extra planes available (extra planes are those left from subtracting number of aircraft missing in air groups that use them from those available in the pool) and are valid for given air group type (with the exception that IAP regiments trained as bombers are choosing only from fighter-bombers).
22. Build morale will be randomly determined between 0.8 (rounding up) and 1.0 (inclusive) of current national morale. Previously it was in the range of 0.75 (rounding down) and 1.0 (exclusive).
23. Improved the way Rifle, Motorized and Tank Divisions are reformed in all aspects. The state of new formation will depend more on the current morale, experience and TOE percentage of the reformed unit (if it was disbanded after being routed, not destroyed), as well as on current national morale level for given formation type. Rifle and Motorized divisions will return as Rifle Divisions in 8+Random(8) turns, as opposed to 4+Random(23) turns. Tank Divisions will return as Tank Brigades in 6+Random(6) turns, as opposed to 11 turns (but they can't show up earlier than turn 12). Logistics phase log will now contain information about those reforming units, which were destroyed during the previous enemy turn.

24. It will now cost AP to put units in static mode. The cost to make a unit static will equal 2 AP for motorized units and 1 AP for the rest. Cost to reactivate will be the same. Vehicle pool must contain at least 5k vehicles in order to be able to reactivate static units (see bug #14). It will be impossible to make static or reactivate units in beachhead or airhead supply state.
25. Using the Reduced Blizzard Effect option will change Soviet Guards Year Modifier (see 9.2.2.2) by +2 in 1941, by +2 in 1942, and by +1 in 1943. Using the Soviet Combat Bonus set to NONE will change the Year Modifier by +1 in 1941 and by +1 in 1942. These modifiers apply only to games starting in 1941.
26. The number to convert Soviet Armies to Guards used in Condition One (see 9.2.2.2) changed from 75 to 50. The change was intended to go out with an earlier patch, but was not reported and not fully working.
27. Added two new special rules to Soviet restrictions for changing the aircraft in an air group (see 8.1.5). First: fighters, fighter bombers (if the group is trained as fighters) and jet fighters can switch to night fighters. Second: night fighters can switch to fighters, fighter bombers and jet fighters. This is partially a bug fix as well, because without these rules there was no way the new Pe-3bis night fighter (introduced with 1.08.00) could be used, unless assigned to an air group in the editor.
28. Added new function to the scenario editor check utility, that will point out units with delay (turn of arrival) not less than withdrawal (turn of departure), unless both are zero. Another check will look for incomplete leader promotion data.
29. Labor squads will be protected in combat just like support squads.
30. Added new ground element type 71 - "Air Support". It is similar to regular support squads in all aspects, however it can't be augmented by HQ support squads, may not utilize Hiwi manpower (in case of German units), may not be converted to infantry squads, and counts normally against unit TOE percentage.
31. It will be impossible to relocate frozen units, unless they are out of supply or in a beachhead/ airhead supply state.
32. It will be possible to adjust MAX TOE of frozen non-combat units.
33. German "/StG" air groups will be renamed to "/SG" in October 1943.
34. Partisan units will attack rail in hexes occupied by enemy units, though the chance will be smaller as the number of undepleted combat units in the target hex increases.
35. In order to decrease possible confusion the "ASSIGN / FORM" buttons were changed to "ASSIGN" only (related tooltips were adjusted accordingly) for combat units, cities and Axis HQs, as it is not possible to form new units in these cases, only assign existing units.
36. Reduced the limits to air group replacements. Previously only air groups below 50% of maximum number of aircraft were allowed to automatically get replacements, unless the number of aircraft available in the national pool was over 99 (otherwise there was a random chance to get some replacements, but the last 1-2 missing machines would never be replaced). The two numbers were changed to 75% (and it will be possible to replace all missing machines) and 49 (9 for Axis Allies, as rarely do they have large pools).
37. Aircraft performing recon missions will get a bonus to evade flak. Earlier there had been x10 bonus, but it was disabled at some point. Now there will be a x4 bonus to evade flak.
38. Reworked combat messages, so that less important ones were moved to lower priority and that all messages fit on screen. Damage and destruction can be observed on level 4, disruption on level 5, shot details and combat events other than firing on level 6, and firing on level 7.
39. Reduced the accuracy of "Mortar" devices.
40. German Army Group renames (and the arrival of Army Group B) will be shown in the logistics phase log.

Bug fixes

1. Fixed a bug where it was impossible to set air supply range for isolated air bases, because of conflict with the "set color" function.
2. Fixed a bug where aircraft lost when an airbase was displaced or destroyed (including surrender of a nation) were not recorded in any loss category. They will be included in "Lost On The Ground" category now, and for games already suffering from this problem the difference between "TOTAL LOSSES" and four loss categories will be added to "Lost On The Ground" category.
3. Fixed a bug where air groups assigned to an air base that was disbanded voluntarily were lost - neither moved to national reserve nor erased. They will be moved to national reserve now.
4. Fixed a bug in the editor where it was impossible to set supply requirements for delayed units.
5. Fixed a bug in the editor where German equipment was listed multiple times on the production screen when a country filter was selected. Now only the correct equipment will be shown for each country (though for Czech, Poland, Bulgaria and Yugoslavia German equipment will be shown, which is intended).
6. Fixed a bug in the editor where captured equipment was not shown on the production screen when a country filter was selected.
7. Fixed a bug where HQ BuildUp status wasn't cleared from some units, most notably from support units, blocking their further reassignment.
8. Fixed a bug where it was possible to reassign support units, that should have been blocked by HQ BuildUp, by using the "ASSIGN / FORM" and "[X]" buttons.
9. Fixed a bug where it was impossible to disband support units attached to Soviet "Defense Zone" or "Military District" HQ.
10. Fixed a bug where air group arrivals were shown one turn later than they would actually occur.
11. Fixed several bugs related to the creation of new units, involving naming, morale, experience and other parameters.
12. Fixed a bug where units that were being split could take slots occupied by units disabled in given scenario (having delay set to a value greater than 300 but lower than 1000), which in turn could result in support units assigned to those overridden units being shown as assigned to some of those newly created subunits.
13. Fixed a bug where some elements (including assigned soldiers) could be lost while merging units, when there was no free slots in the target unit.
14. Fixed a bug where stated reactivation cost for a static unit was different than the one actually paid. This required making the costs independent of the number of vehicles in the unit or unit's vehicle need or in the global vehicle pool (see new feature #24).
15. Fixed a bug where Soviet Polish or Czech units could be converted to Guards, losing their identity in the process.
16. Fixed a bug where ground elements of type "Assault Gun" in support units attached to cities were considered to be flak elements in map tooltips.
17. Fixed a bug where reactivated static units were reported as temporarily motorized, which wasn't true.
18. Fixed a bug where support units attached to combat units were not properly accounted for when their parent unit was put into static mode or reactivated.
19. Fixed a bug where AP (and HVAP) shots were fired only against frontal armor of target ground elements. Side shots will remain blocked for "AT-Rifle" and "s.PzB41" devices, in order to compensate for their overrated efficiency, because of not taking light and fast projectile shattering problems and low beyond-armour effect into account.
20. Fixed a bug where only Army HQs attached to Army Group South were reassigned to O.K.H., when the HQ was split into Army Group A and B HQs, instead of all units.

21. Fixed a bug where aircraft name was missing from combat messages related to airfield bombing.
22. Fixed a bug where aircraft doing bomber mission during airfield bombing were counted as having only one instance of each weapon (even if carrying multiples of). Escorts relegated to strafing mission during airfield bombing were not affected.

Scenario changes

1. Updated "Drama on the Danube 44-45" and "Vistula to Berlin 1945" scenarios with dozens of changes, making proper use of new ground element and aircraft types introduced in 1.08 and increased historical accuracy, courtesy of Randolph J. Seger.
2. Improved German Stuka/Schlacht air units in all campaigns, by checking whether valid aircraft types are used, removing duplicate units, and taking advantage of the new renaming function, to avoid unnecessary withdrawals and arrivals of essentially the same units.
3. Added some additional Italian aircraft factories to 41-43 campaigns.
4. Fixed duplicate Polizei SS Division in 43 Campaign.
5. Fixed duplicate Feldhernhalle Division in Stalingrad to Berlin.
6. Eliminated ghost withdrawals (disabled/inactive units having non-zero withdrawal turn number specified) in all campaigns and multiple scenarios.
7. Fixed some Rumanian airbases with vast amount of surplus support squads in certain scenarios.
8. FBD 5 delayed to mid-May 1942 in all 41 Campaigns, and FBD 2 switched name with FBD 3.

1.08.01

New features

1. Disabled the rule that blocked replacements for Soviet infantry units over 60% TOE and Axis infantry units after 1941 over 80% TOE when not on refit (which included units on refit adjacent to enemy units). This is to reduce micromanagement required for rotating the units, and is a better choice when compared with allowing refit on the front lines. Players who wish to keep their units under strength (to conserve manpower) are free to use the MAX TOE function.
2. Soviet infantry units and Axis infantry units after 1941 under the control of human player will be automatically set to 60% (Soviet) / 80% (Axis) MAX TOE upon scenario start, provided their current MAX TOE setting is higher. If their current TOE% is higher, then this value will be used instead. This is an extension of the function introduced in 1.08.00 that sets MAX TOE of all HQ units, airbases, and construction units to their current TOE%+1, and is intended to counter the effect of change #1 (see above) on resource pools, especially for the player going second, who is unable to alter MAX TOE settings of his units before the first logistics phase.
3. Added new restrictions to prevent the abuse of the HQ Buildup system: (1) overloaded HQs may not initiate HQBU, (2) HQs may not initiate HQBU on two consecutive turns, (3) units may not take part in HQBU on two consecutive turns, (4) HQs and units that took part in a HQBU during this or previous turn may not be reassigned to a new HQ.
4. Changed the effect of range to rail (in MP) to affect the number of requested replacements more decisively, to -1% for every MP away (but to no less than 1%, when 100+ MP away), rounding up. Previously the number was reduced only when over 20 MP (and to no less than 20%, when 101+ MP away), which resulted in units getting to 100% TOE with too much ease.
5. Reworked formulas that determine how many supplies and fuel are required by air groups stationed in air bases. Correct amount of extra supplies and fuel will now be requested by air groups using level bombers or transports, taking into account maximum effective cargo load instead of weekly consumption or sortie usage. Transports will be prepared for up to 8 sorties with each resource, whereas level bombers for up to 4 sorties with supplies. As a result, supply stocks in airbases with level bombers will increase many times over, while other stocks (and related truck usage) will decrease between 20% and 60%. This should allow level bomber groups to participate in air supply missions more often, including those flying automatically from certain Soviet air bases to supply partisan units, while at the same time free a lot of trucks for other uses.
6. Half of supplies intended for "horses" will be no longer reserved for and used during movement, instead all those supplies will be consumed during the logistics phase. Supply shortages will not affect non-motorized units movement points. Units will no longer consume either 50% or 75% (after failed Admin roll) of the supplies they nominally require, but always 60%.
7. Extra support squads won't be sent back when over support need, but still under TOE requirements and below 125% of support need. Bear in mind that, as before, new support squads won't be requested when over support need, even if under TOE requirements. This is to reduce the constant rotation of support squads between units and pool. Units taking losses during a turn usually ended up with more support squads than required and sent them back at the start of the replacement procedure. However, as they were granted new elements immediately after that, they ended up with support squad shortage. This change will also allow to see emergency conversion of support squads to rifle squads more often.
8. Increased repair bonus for support squads from 25 to 35 points.
9. Changed the limit of support units that can be attached to a fort unit from 1 to 3 (same as before 1.08.00).
10. Damaged elements will still require a normal amount of ammunition instead of no ammunition at all. This may come handy when they will be repaired or replaced, without creating ammo shortages. Obviously, this will increase the number of supply trucks required by units (though truck rotation will decrease).

11. Non-motorized elements with 0 fuel use (for example Cavalry Squads) will not require trucks when being part of motorized units, but supplies (as in non-motorized units).
12. Static units will not ask for trucks and will require half of the normal amount of fuel. Since they were never granted any trucks, this helps to bring their needs in sync with what they get or have. Fuel is required to move those units once reactivated (they get half of the regular amount of MP on the turn of reactivation), but as long as they are in static mode, none of it will be used.
13. Made sure Machine Guns won't be used in place of Infantry AT and/or Flamethrowers (and vice versa). The same applies to the following pairs: Motorcycle Squads/Bicycle Squads, and Flamethrower Squads/Engineer Squads.
14. Added new "Flamethrower Squad" ground element type, to differentiate between small elements of the "Infantry Weapon" class with 0 CV and big squad-like elements of the "Infantry" class with 3 CV and 12 support need.
15. Improved leader editor to automatically adjust ranks when changing leader nationality after ranks were specified. Added leader rank checking to scenario check utility.
16. Added new ground element and aircraft parameter, "Factory Start Limit" (displayed in parentheses next to regular Build Limit in the editor). This parameter is used when another ground element or aircraft factory upgrades to this new ground element or aircraft and if set to a value different than 0, ensures factory size will not exceed this value. Later the factory may grow to regular Build Limit, as before. This allows to reduce factories to desired size upon upgrade, while allowing to keep higher Build Limit.
17. Increased interface uniformity by making all the "Anti-Something" elements use lower case for the second word.

Bug fixes

1. Fixed a bug where one of the players in a server game was recognized as an AI-controlled player during scenario initialization, and because of that certain adjustments (like MAX TOE or Hanko adjustments) were not working as designed.
2. Fixed a bug where non-motorized units were asking for extra supplies and fuel that were not used, leaving those units with extra resources in comparison to motorized units. After this fix, an artificial increase of 25% in supply requirements reported by motorized units, introduced in 1.08.00 to match their supply levels with those of non-motorized units, was no longer required, and thus was removed.
3. Fixed a bug where Axis fort limit was calculated against Axis "Production available to East Front" percentage instead of the base "Production Usage", as was intended.
4. Fixed a bug that prevented attaching support units to fort units, that was first fixed in 1.07.15, but crept back with 1.08.00.
5. Fixed a bug where German units could select Finnish city as a supply source even if still separated from it by sea or Soviet territory. Now, it will be allowed only for those German units that are located north of the "Finnish No Attack Line" (a compromise between a fully accurate solution involving checking paths and the need for speed).
6. Fixed a bug where units in supply range of HQs that were on beachhead supply were themselves marked as being on beachhead supply, even if deep inland (and no supply was actually given to them).
7. Fixed a bug where it was impossible to detrain isolated units due to lack of strategic movement points. It will be now possible to unload them, though they will have zero movement points after that operation, and will have to wait until next turn to get some.
8. Fixed a bug where elements might be lost (without registering the fact in statistics) when merging units in case of reaching the limit of slots. Now ready elements will be sent back and only the damaged elements will be lost (though only 30% manpower will become disabled, the rest will return to the pool).
9. Fixed a bug where countries that have surrendered when playing game version 1.07 were repairing vehicles for the Axis side once the game was continued under 1.08.

10. Fixed a bug where no armaments were given for scrapping lend-lease elements from games started under game version 1.07. One armament point should be awarded for scrapping one such element.
11. Fixed a bug in the editor where it was impossible to enter names for new ground elements and aircraft by clicking on the "ID" text.
12. Fixed a bug where Soviet "Minors" (Polish, Rumanian, and Czech) units were losing their nationality marker ("Pol.", "Rum.", "Czech") and original unit number upon TOE upgrade.
13. Fixed a bug where soldiers using captured equipment were given more (Soviet) or less (Axis) food compared to their colleagues using national equipment.
14. Fixed a bug where HQ units didn't require any supply trucks to carry their own (local) supplies.
15. Fixed a bug where supply need (including truck need) were not recalculated immediately after a unit was put into static mode.
16. Fixed a bug where aircraft radius was incorrectly displayed in air group window (range was divided by 3 instead of 30).

Scenario changes

1. Updated "Vistula to Berlin 1945" scenario with hundreds of changes, making proper use of new ground element and aircraft types introduced in 1.08 and increased historical accuracy, courtesy of Randolph J. Seger.

1.08.00

New features

1. Reworked ground element upgrade, swap and replacement formulas (including training, sending back damaged or excess elements, converting support squads and adjusting morale and experience) from the ground up. It should result in better utilization of ground pools and choosing better models on upgrade or swap, prioritizing units in the rear over those on the front. Also, it should prevent units on the front from being starved of replacements, by reserving part of manpower, armaments and equipment pools for their use. Refit replacement segment was split into two parts, A and B. In part A only combat units on refit and support units attached to them get replacements. They have a chance to use more manpower, armaments and equipment than their numbers suggest. In part B the units that are considered to be always on refit (like HQs with support units attached to them, airbases and rail construction units) get replacements. This allows the player to better control the units that get replacements, where previously most of the available manpower was used on keeping the HQs up to strength, while combat units were sucked dry. The logistics phase log now gives a much better overview of replacements process.
2. When a new game is started, MAX TOE of human player's HQs, airbases and construction units is set to their current TOE percentage plus 1. Players are free to adjust the numbers as they see fit. This is to prevent sucking nearly all available manpower and armaments to understrength HQ units, as defined by the scenario designers, which is especially important for the player going second, who had no control over MAX TOEs before his first full logistics phase.
3. Unit slot matching to TOE slots was vastly improved, and is now able to cope with certain variants of historical unit composition that differ from TOE composition, without immediately sending unmatched elements back to the pool. Please note that in time the unit will slowly transform to match TOE, this is inevitable. The improvement is in the fact that units will be quicker to request newly introduced elements and will not send back unmatched elements if some other elements of the same type are understrength.
4. Changed what the Hiwi number means. It now represents the number of core elements using Hiwi manpower, instead of representing additional elements using Hiwi manpower. Surplus Hiwis will be returned to pool whenever detected, for example when loading saves started under older version of the game.
5. Reworked aircraft upgrade and swap procedure from the ground up. It should result in better utilization of air pools and choose better models on upgrade or swap, prioritizing groups in reserve or the rear over those on the front.
6. It is now possible to import ground elements and aircraft from the same country's pool (this is called a conversion). This is enabled for both sides, Axis and Soviet. It may be used to represent the process of upgrading older tanks with extra armor plates or new guns, or the process of adding (or even removing) a few weapons to rifle squads, without having to build them again from scratch and pay full cost. It is also possible to use this function to convert captured equipment to its native equivalent to better fit historical unit OBs, wherever such equivalents exist. Most of the Soviet anti-tank guns, common artillery, mortars and some tanks have their equivalent in each of the Axis countries' equipment databases. This feature helps to reduce huge armament pool drain at certain dates, which caused problems with reinforcing units. Convertible infantry squads can be upgraded "in place", that is immediately in the unit without sending old elements to the pool, and taking new elements from the pool or building them.
7. Added editable "import cost" attribute to ground elements and aircraft. It may be positive or negative and represents the cost (when positive) or returns (when negative) in armament points to import or convert one ground element or aircraft. Positive values may be used to simulate adding new weapons or upgrading structure of an existing item (like fitting a tank with armor plates). Negative values may be used to simulate removing some weapons of an existing item (like when reducing 12-man rifle squads to 10-man rifle squads).

8. Added editable "minimum imports" attribute to ground elements and aircraft. It may be used to force the import of at least the specified number of elements or aircraft, provided they exist in the source pool, overriding import percentage (for example 5% from 10 is 0, but with minimum imports set to 1, one element or aircraft would be imported anyway).
9. Added editable "import percentage" attribute to ground elements and aircraft. It may be used to override default values of 5% for imports and 10% for conversions by any value in range from 1% to 100%. Import percentage determines how many % of the source pool are imported or converted each turn.
10. Added editable "build flags" attribute to ground elements and aircraft. It may be used to specify elements as "no auto-build" (when set to 1) or "lend-lease" (when set to 2). "No auto-build" is designed to replace using build cost of 9999 to disable building of auto-produced equipment. "Lend-lease" is designed to replace using build cost of 0 to prevent paying for production of lend-lease equipment. Both of these values allow specifying proper build cost for those elements and getting proper gains from scrapping. Lend-lease aircraft also have slightly better dynamic reliability.
11. Added editable "scrap type" attribute to ground elements and aircraft. It may be used to change the default scrap policy of scrapping ground elements 1 year after their end date, and no scrapping at all for aircraft. Scrap type 255 means no scrapping at all. Scrap type 254 means instant scrapping, immediately after end date. Scrap type in range from 1 to 253 means scrapping that many years after end date. This value allows specifying proper end dates for older equipment, which in turn affects upgrade and swapping procedures, as the routines are able to determine that given equipment should not be used.
12. Added editable "factory upgrade" attribute to ground elements and aircraft. It may be used to specify different upgrade path for factories that produce given equipment, from equipment "field" upgrades, which are now reserved for telling the upgrade and swap procedures what successor given equipment should have. If not specified (like in case of games started under older versions of the game), the default value of factory upgrade is its normal upgrade for vehicles and aircraft and no upgrade for auto-produced elements.
13. Added editable "TOE update" attribute to ground elements. If set to "yes", each occurrence of given element in TOEs will be replaced by its upgrade element after this element's end date and the upgrade element's start date. It may be used to help with upgrading certain elements that change their type or class.
14. Added editable "initial build" attribute to ground elements. It may be used to force the game to build a number of auto-produced elements, even if there is no demand yet. This helps to kick start upgrades.
15. Added editable "turn build limit" and "turn build percentage" attributes to ground elements. They may be used to put a hard and a soft cap on the number of elements built to replace missing elements in units. It's safer to use "percentage" rather than "limit", because it adjusts to greater need. Some elements like artillery or cavalry squads by default have some percentage set, lower than 100% that depends on their build cost. Build limits cause slower replacement rate for certain elements, even if there is enough manpower and armaments in the pool, to represent limited training capacity or limited resources (like horses) for auto-build elements without actual amount of production per turn defined.
16. Added editable "change from modifier" and "change to modifier" attributes to aircraft. They may be used to affect chances to upgrade or swap given aircraft to another model. "From" is used when given aircraft is current air group's model. "To" is used when given aircraft is considered to become new air group's model.
17. Whenever ground element weapons are listed (except in the editor), modified rate of fire and accuracy is now shown instead of element modifiers to rate of fire and accuracy, which more useful information to the player.
18. More information about ground elements and aircraft is now visible on certain screens, including start and end dates, factory upgrade, type and some other parameters.

19. Germany will now export 1% of its armament pool, but no more than 4000 points, to every allied country that has less than a certain amount of armament points (20000 for Rumania and Hungary, 15000 for Finland and Italy, 5000 for Slovakia). In addition, information about armament exports is now visible in the Event Log. Previously it was always 1000 points and only when Germany had over 100000 armament points.
20. Added "Super Heavy Gun" ground element type, to be used for guns with a caliber of 210mm and above. In games started under previous version, "Heavy Artillery" elements were not swappable. In games started under this version, "Super Heavy Gun" elements will have that restriction instead. "Super Heavy Guns" require trucks to move, have a supply requirement of 90 (vs 30 of "Heavy Artillery") and have double the effect on fort destruction compared with "Heavy Artillery".
21. Added the ability to set custom Command Points (CP) limit for HQ TOEs and individual units in the editor. The limit remains constant and does not change with time, as do the hardcoded CP limits. This feature is intended to be used in smaller scenarios, where some elite armies (especially Soviet) were double the size of normal armies allowed by the game, without incurring leader skill roll penalties on them (which actually prevented them from functioning as elite formations).
22. Added the ability to set default motorization for TOEs in the editor. This allows to force the game to consider some units as motorized (or non-motorized) independently of the hardcoded rules that use TOE's type, suffix and unit's name to determine motorization. Non-motorized support units attached to motorized combat units will still be forcibly motorized.
23. Added the ability to set custom colors for any ground unit. This can be done by opening unit detail's window and clicking "SET COLOR". Color has to be specified as a combination of red, green and blue values, each of them in range from 0 to 255. Specifying a color of (0,0,0) returns to default (hardcoded) paint scheme. All units without a custom color specified, inherit the custom color of the first unit in their attachment chain that has such color specified.
24. Made leaders more visible across the interface. Leader name and his average skill will be visible in the unit info box below the counter image. Leader rank, full name, his average skill and victory:defeat ratio will be visible in hex tooltip. Average skill is equal to the average of morale, admin, initiative, mech and infantry skills for land leaders, and to the average of morale, admin, initiative and air skills for air leaders. Also, leader rank will be visible in HQ unit detail screen. And finally, the names of leaders commanding in land battles (leaders assigned to the commanding HQs, one for each side) will now be visible in battle reports.
25. Hiwis return via transfer pool instead of immediately going to the active pool. This can be seen in the production window. There are now also pools for disabled and captured Hiwis (invisible, but included in total losses). Disabled Hiwis return to the active pool at a rate of 0.5% per turn, with another 0.5% being permanently lost.
26. Improved tracking of vehicle movement between pool and units. Additional vehicle information is now visible in the losses window: "Vehicles Spent On Production" (2 for every mechanized infantry element built), "Vehicles Withdrawn With Units", "Vehicles Arrived With Units", "Vehicles Captured From Enemy" and "Vehicles Damaged To All Causes". Information about vehicles in the logistics phase log was also expanded to contain information about repairs per country and vehicles lost/damaged due to unit movement.
27. Scenarios and games saved under this version will not load under older versions of the game.
28. Unit load costs will no longer be reduced by half when rail difficulty modifier is above 109, and by another half when it is above 119.
29. Changed experience formula for new ground elements. It is tied to national morale and higher for the Germans than for the other countries.

30. Added safety checks to make sure city, light urban and heavy urban terrain is always considered dense and gives a reduced (by 1) defensive CV bonus, even when there is not enough population. Population value does not change during the game (only the manpower "factories" are reduced during population evacuation), so this should be an issue only in case of bad scenario data.
31. Towns with a population of at least 3 in clear terrain will now give a defensive CV bonus, like the light woods (+1).
32. Reworked strength of anti-air fire formula. Morale and ammo level of the unit, experience and fatigue of the ground element slots, as well as accuracy, range of fire and blast of the weapon are now included in it, rather than only the anti-air strength of the weapon. This change will result in significantly lower Axis aircraft losses and higher Soviet aircraft losses. The procedure selecting which units on the aircraft path to target get to fire and the modifier to their strength of anti-air fire was also improved, as was the code that lists the number and type of firing ground elements.
33. Slightly adjusted aircraft reliability formula, especially for lend-lease aircraft (aircraft reliability is not constant; it fluctuates over time, being decreased for fresh models and older models).
34. Reworked leader death, dismissal, promotion and skill increase messages to follow a common pattern, with full rank and command name (where possible) listed.
35. Aircraft factories in Polish and Czech territory will now also send 25% of their production "to the other front" (lost), as do the factories in Germany and Italy.
36. Reworked unit engineer strength formula (used to destroy forts), to take morale, experience and ammo level into account. Previously only fatigue counted.
37. Reworked unit construction strength formula (used to build forts), to take morale and experience into account. Previously only fatigue counted (and morale for elements other than engineers). However, Soviet units will have an additional bonus to construction strength, as they were renowned for their etrenchment speed.
38. Reworked how HQs and their support units assist in construction of forts. Only engineer and construction support units will be now allowed to help.
39. Changed fort construction rules. Fort level 5 can be built only in cities with large port containing a fort unit. Fort level 4 can be built only in big cities (city, light urban or heavy urban terrain) or towns with port containing a fort unit. Fort level 3 can be built only in big cities, towns with port, in hexes with a fort unit or adjacent to an enemy. Fort level 2 can be built only next to a fort unit, in coastal zones or up to 3 hexes from a supplied enemy unit. Fort level 1 can be built only up to 20 hexes from a supplied enemy unit. In swamp terrain the fort cannot be larger than 2.
40. Forts level 3 and above will count as dense terrain.
41. Improved the way units and population build forts. They can now build a part of the fort if not enough supplies are available, with proper costs being incurred when fort size changes during build. City population will build forts more often now, the biggest change being unlocking fort building by cities with population smaller than 6.
42. Newly created night-fighter groups will be automatically set to night missions.
43. Adjusted fort defensive CV bonus formula, so that partially built forts will increase defensive CV proportionally to their size. For example a fort with level 1 and 50% completion towards next level will give 1.5 the bonus of a level 1 fort. Other effects of forts are still tied to finished fort level.
44. Changed how the fort difficulty modifier works. Values above 100 speed up fort building as before, but values under 100 (down to 1) reduce fort defensive CV bonus, instead of slowing down fort building. Those who want to play a more dynamic game, where prepared positions are less powerful, can now do so. Other effects of forts are not affected by this modifier.

45. Added the ability to adjust national morale for each country (Germany, Finland, Italy, Rumania, Hungary, Slovakia, and Soviet Union) in the editor. A bonus (or malus) to morale can be specified separately for each year.
46. Added the ability to alter "Soviet Combat Odds" special rule (see 15.8) in the game options screen. Besides remaining as is, it can be now reversed to give defensive odds shift or turned off completely.
47. Added the ability to change how the CV is calculated and what base CV values are used in the editor. Under "Alternate Values A" CV of artillery elements is 1 (up from 0), and CV of "Labor" and "Support" elements is 0 (down from 1). Under "Alternate Values B" CV of artillery elements is 1 (up from 0). "Improved Calculation" means using proper math for determining the impact of morale and experience as well as leader skills to get a better approximation of unit CV in combat. Expect to see higher CV on the counters, especially the offensive CV. On the other hand the CV in combat will no longer go up as much as before, so make sure you have clear superiority when attacking. Alternate base values allow to better see the growth of intrinsic artillery and the higher proportion of fighting elements vs the logistical tail in Soviet units. The idea behind this rule is to close the gap between displayed CV and actual combat performance. Under default rules, late war Soviet units are usually perfectly safe attacking at 1:1 ratio, whereas Axis units must use 2:1 to achieve the same rate of success. The parameter (called "CV Mode") can be set to any of the 6 combinations of default or alternate values and default or improved calculations. There is a variant of 1941 Campaign scenario with "Improved Calculation" turned on, called "1941-45 Campaign - Alt CV". Unfortunately, "Improved Calculation" requires more computing power, and thus may slow down the game, especially when played against the AI. The suggestion is to use this scenario only for multiplayer games.
48. National morale and "CV Mode" are listed at the end of logistics phase log, to make sure players know under which rules they play.
49. Adjusted morale difficulty CV modifier, so it is affected only once (for example at morale difficulty 50 final CV will be half of the original value, instead of quarter). This allows scaling the difficulty linearly.
50. Adjusted AI build limits for on-map units (static limit) and support units (dynamic limit, connected to the number of armies present and following historical pattern with monthly changes).
51. Added the ability to Soviet AI to disband unwanted units and to build needed units (all support and some rare on-map units as well).
52. Added or enhanced logging of imports, conversions, scrapping, upgrades, swaps and armaments export.
53. Added the ability to repair damaged ground elements immediately after moving (at start of enemy's logistics phase, just like building forts). Repair rate depends on country, weather, experience, fatigue, element class, type and reliability.
54. Changed the formula that determines how many damaged elements are lost during replacements, slightly increasing the ratio of lost elements and allowing all types of elements to be lost that way, instead of only vehicles.
55. Improved the code that detects and fixes broken unit assignments, which often happened for the AI.
56. Added code to disband AA units from one side being present in cities owned by the other side (scenario data error).
57. Reduced leader death rate to 5% (15% during land battle) of previous rate from air attacks, to 80% (20% before their end date) of previous rate from regular attrition, and to 5% (10% when not in supply) of previous rate from HQ displacement. No more than one leader may be lost to attrition per turn and Army Group/Front/Axis Army leaders have smaller chance to die this way (High Command leaders were already protected).
58. Increased chances to capture equipment.

59. Removed hardcoded modifiers for flamethrowers (non-HEAT penetration reduction) and German 88mm AA guns (AP ammo).
60. Medium and heavy AA guns with penetration/HVAP values higher than anti-armor/HEAT values will be considered to have AP ammo on hand (like the German 88mm AA gun was).
61. Slightly reworked the list of support units built with new Soviet armies.
62. Added a hard limit of 150 fort units, with an increasing cost in AP after 50 fort units (+1 for each unit over 50), for human players. These fort limits are modified by German/Soviet production usage percentages.
63. Self-propelled artillery is no longer included in AFV numbers. Before 1.07.12 assault guns and tank destroyers were SPA, so that made sense. Since that version SPA is reserved for only a handful of tracked artillery vehicles like Wespe, which have more in common with towed artillery than fighting vehicles.
64. Self-propelled artillery, self-propelled weapons and armored cars now have their own loss totals in the loss window. In battle reports and strength reports self-propelled artillery is included in artillery numbers, while self-propelled weapons and armored cars are included in AFV numbers.
65. Changed on-map unit reassignment costs. For combat units, the cost is based on the number of men in the unit (1 AP per 10 000 men). For land HQ units, the cost is based on double their command points limit. For air HQ units, the cost is based on command points limit of a land HQ of similar size (corps, army). For airbases and rail repair units it is equal to 1. For any reassignment a "root HQ" is determined, which is the first HQ unit that both the reassigned unit and its new HQ have in common. If the current HQ of the reassigned unit is the "root HQ", then the cost will be always 0, with the exception of nationality mismatch penalty. Otherwise the cost will be equal to the base cost plus any penalties that apply. If the nationality of the reassigned unit and its new HQ is different, this results in a penalty equal to the base cost. If the leader of the "root HQ" has lower political rating than the leader of the current HQ, this results in a penalty equal to the difference between their political ratings times 0.1 of the base cost. For each intermediate HQ between the current HQ and "root HQ" there is another penalty equal to 0.5 of the base cost. The total cost (base cost plus penalties) cannot be greater than 3 times the base cost. This cost can be no longer reduced by 50% because of an admin roll. Instead of always reassigning units to High Command and then somewhere else for free, players are encouraged to reassign units within the same armies, army groups or fronts, which should be cheaper now. Units can also be kept assigned to armies or army groups, not only to High Command, because all reassignments to subordinate HQs will be for free.
66. Ground elements of "mechanized infantry" class will now cost 2 vehicles to produce. Those vehicles will be never returned to the vehicle pool. Previously, every time a mechanized infantry element was added from pool to unit it costed 2 vehicles. They were supposed to be returned to the vehicle pool when the element was returning from unit to pool, but that was not always the case.
67. Soviet Rumanian units will use Rumanian national morale (usually 45) instead of Soviet national morale (usually 60 at this stage of the war).
68. Units will no longer unload automatically when changing game mode from rail transport to normal movement using the toolbar button.
69. Non-elite SS units will give an additional +1 bonus to the surrender threshold when stationed in Axis Ally's capital. Elite SS units still give +2.
70. Regiments from a split German division no longer give bonus to the surrender threshold. Full divisions must be stationed in Axis Ally's capital to get the bonus.
71. Hungarian surrender will be tested before Rumanian surrender, so when Arad will not be garrisoned, the player will not lose Hungary on the same turn as Rumania.
72. Soviet Rumanian units will be reassigned to Soviet Rumanian Army HQs upon Rumanian surrender, instead of going directly to STAVKA. Each HQ will get a similar number of combat units and support units assigned.
73. All fortifications will be deleted upon conversion of hexes during nation's surrender. They

are assumed to be facing wrong direction.

74. Upon Finnish surrender only the hexes in Finland will be converted to neutral, the rest will be left as is (possibly changing to Soviet control as they will be unconnected to an Axis supply source). Please note that a minor issue remains, where a few hexes in Finland, directly on the border, will convert Soviet control.
75. Units lost when resolving stack conflicts upon Rumanian surrender and surrendering Axis Minor's units will be completely wiped out from the game including attached support units and air groups assigned to air bases.
76. Element list on the production screen with "Show Types" enabled is ordered in a better way.
77. Improved disband and destruction function concerning unit's elements.
78. Unit strength comparison to TOE strength now takes split units and MAX TOE setting into account.
79. Improved fogged CV calculations.
80. Newly built Soviet Army HQ units will not be populated with support units for human player.
81. Made sure AA at night will be weaker. It has 10% of the original power.
82. Made HEAT ammo less reliable. Previously the penetration strength was randomly determined in 50%-100% range, now it's 25%-100%.
83. Reduced losses of damaged vehicles (ground elements of class AFV, SPA, AC and SPW) by 50% and of labor squads by 100% for an attacker that fails to win a battle.
84. Added code to switch Rumanian TOEs and ground elements to Soviet nationality (including moving Rumanian ground pools to Soviet pools) upon new game start, to allow using generic data while properly handling cases when Rumania is marked as having surrendered (like in the Operation Konrad scenario).
85. Fighter-bomber load impact on airbase support need reduced to 50% of previous value.
86. Aircraft support need reduced to 75% of previous value.
87. Each airbase will try to keep at least 500 tons of fuel, 100 tons of ammo and 50 tons of supplies (reduced proportionally by MAX TOE setting) to limit the movement of supplies back and forth (which increased vehicle usage and vehicle damage) when aircraft are moved in or out the airbase. For level bombers and transport aircraft this will be not enough, so players are advise to move them slowly, rather than en masse.
88. Added ability to proportionally reduce the amount of supply or fuel taken from a city to resupply units, in case the city didn't get all required supplies or fuel. This should prevent starving some units in case of shortages.
89. Shock and Guards armies will have 21 CP, in the period when regular armies have 18 CP. Guards Tank Armies will have 16 CP.
90. Movement reductions from failed leader rolls will be no longer affected by morale settings above 110 and 120.
91. Certain Rumanian elements (captured Soviet or imported/licensed German) will be no longer produced or imported/converted upon Rumanian surrender, and some will try to upgrade to their Soviet equivalent.

92. HQ build up was changed to become part of the normal supply system, instead of being a separate entity. It caused many problems in the past (like units on build up losing morale due to being counted as unsupplied or missing supply details) and was quite overpowered in that the supplies were drawn from any owned city that had them, even if it was 1000 miles away from the unit or in that only the HQ had to be stationary, while the units did not (which led to some gamey tactics of changing HQ attachment for build up). The new build up rules work in the following way: any normal HQ (not air HQ, airbase or construction unit) is able to initiate build up, if it has some movement points left and is within 25 hexes from the rail grid. The cost to be paid in AP depends on the number of men in units doing build up and distance to railhead. There is no immediate cost to be paid in damaged vehicles. If the cost is paid, the HQ (with all support units attached to that HQ) and all non-static combat units (with all support units attached to them) attached directly to that HQ, in range of 5 hexes, and having some movement points left, start building up. The percentage of movement left is recorded as their build up bonus, and then their movement points are reduced to 0. Support units inherit the build up bonus of their parent unit. During supply phase those units are eligible to replenish their stocks over the usual 100% by 25% plus the amount of their build up bonus multiplied by 0.75 (rounding up). The supply procedure remains the same as for all other units and is subject to the same costs, restrictions and penalties with the exception that costs in vehicles and fuel are doubled and the penalties (range to rail, MP to rail, Axis rail modifier, global vehicle shortage and unit vehicle shortage) are halved. It's important to remember that the HQ must be in range to the rail grid (at most 25 hexes and 100 MP away), otherwise the resupply process will fail. For example: when one unit had 20 MP left (out of 50) and the other had 50 MP left (out of 50) at the moment of initiating the build up procedure, the first one will try to restock to 155% of normal levels, while the other to 200%. Current and previous build up bonuses are visible in the supply details window.
93. To help Axis AI, Soviet garrison in Hanko will be severely weakened by reducing it's fort level when starting a new '41 game and by performing badly in combat during June and July 1941 (just like the garrison of Brest Litovsk performs badly on June 22nd turn).
94. Improved country selection and production percentage information on production screen. Yugoslavia is now visible for Axis player and "All Areas" is now visible for Soviet player (includes Soviet Union and captured areas). Air production percentage going to the East is now visible for Germany (this includes production in Czech and Polish cities). It's equal to 75% of the standard value, thus it will be 64% in 1941, 60% in 1942, 53% in 1943, 45% in 1944 and 38% in 1945. "All Areas" will now include captured factories as well. Added information about total fuel required by cities.
95. Added the ability to check using the "Scenario Check Utility" in the editor whether there exist air bases that contain supply and/or fuel dumps and whether there exist nationality conflicts in aircraft, ground elements, TOEs, units and air groups. Another function checks for conflicts between unit HQ type and TOE type, as well as between TOE class and TOE type. Yet another new function checks for air groups without type or with country/player mismatch.
96. Partisan units won't get support squad help from the HQ.
97. Axis countries will now lose 0.05% of disabled men each turn, 0.95% will return to the active manpower pool (Soviet side remains unchanged at 0.50%/0.50%).
98. Soviet national morale changed to the following: January 1941 to June 1941 - 40, July 1941 to March 1942 - 45, April 1942 to September 1942 - 40, October 1942 to December 1942 - 45, January 1943 to June 1943 - 50, July 1943 to December 1943 - 55, January 1944 to December 1945 - 60.
99. Axis Allies morale increased by 5 points (except Finland). Rumanian and Hungarian will be increased by 5 points after 1942 (to 45 and 50, respectively).
100. German manpower production multiplier was changed from 7 to 6 for 1944 and from 6 to 7 for 1945. Axis Ally manpower production multiplier was separated from German multiplier and set to 9 between 1941 and 1943, and to 10 between 1944 and 1945.

101. Added individual pools of disabled men for each country, from which men return directly to those countries. Men from the global Axis disabled pool will return according to the old rules, but will be affected by Axis Allies production usage percentage. Number of men returned to duty (total for all countries) will be presented on the losses screen.
102. There is now a minimum Surrender Threshold value for Hungary (10), Finland (7) and Rumania (5), when the AI plays the Axis.
103. German armaments production multiplier changed from 220 to 210 in 1943, from 380 to 360 in 1944, and from 280 to 265 in 1945. Soviet supply production multiplier changed from 130 to 100 in 1942, from 155 to 120 in 1943, from 170 to 130 in 1944, and from 180 to 135 in 1945.
104. The base cost to dismiss leaders is now based on double the square root of HQ command points limit (0 for High Command). For air HQ units, the cost is equal to the cost for a land HQ of similar size (corps, army). This cost is doubled for Axis Allies during the entire war, and increased by 50% for Soviet Union corps and army leaders in 1941. Political rating of the dismissed leader will be added to this value, and political rating of his superior leader (High Command has no superior leader) will be subtracted from this value. The final cost cannot be less than 1.
105. Evacuation of Soviet factories may only start in July 1941, that is one turn later than before.
106. Soviet support units of brigade size will now cost 3 AP to form. Soviet support units of regiment size will now cost 2 AP to form.
107. There was a random 10% chance for combat casualties to become disabled rather than killed. This chance is now 40%.
108. Changed the percentage of disabled men in damaged elements during the logistics phase resolution and when disbanding units from 40% to 30% (rest of the men are considered unharmed and return to the manpower pool).
109. Forts may be built by units in newly captured territory, albeit at 25% speed and with full penalty from spent movement points (normally only up to half of construction points are lost when the unit has spent all of its movement allowance).
110. Increased the limit of fort points built per hex, unit or population group from 50 to 55 points per turn (so the forts may be built with a proper buffer of 10%).
111. Updated elements recon values (Mech-Engr Squad from 4 to 2, Special Forces from 0 to 4, Marine Commando from 0 to 4, Airborne Engineer from 0 to 1, DD Tank from 0 to 1, Airborne Squad from 0 to 2, Carrier-Inf Squad from 0 to 4, Air Landing Section from 0 to 2, Airborne Tank from 0 to 1, Recon Jeep from 0 to 1, Naval Rifle Squad from 0 to 1, CS Cavalry Tank from 0 to 1, Light Armored Car from 0 to 2, Recon Halftrack from 0 to 2). Support units will be now included in the calculation of on-map unit recon value. Recon value will be now affected by element's experience, fatigue and unit's morale. Recon value is used to determine detection level of enemy units during logistics phase (automated recon).
112. Axis vehicle repair rate changed from 10% to 15%.
113. Added "Bicycle Squad" ground element type. It's similar to "Rifle Squad", but has a recon value of 2 (instead of 1) and belongs to the recon elements family (instead of line infantry), which affects what elements it can replace in unit OB.
114. The game will now display the sum of Combat Values of the attacker and defender as a level 2 combat message (press "2" to see them), each time a new such value is determined during battle.
115. Improved the way odds are displayed. For example, instead of showing "0.6 : 1" the odds will be shown as "1: 1.67". In some cases the odds were wrong, so this is also a bug fix. Final CV value will be displayed with greater precision (one decimal digit).

116. Removed odds restriction on reserve commitment, for both the attacker (over 4:1) and defender (outside 1:10 and 10:1). The odds were based on randomly determined CV, thus not very representative of the actual combat. This may also mitigate the problems with attacking strong positions being impossible due to low stack limit - just provide the reserves in the rear. In a way this may also help the return of the soaking attacks tactics, since it will be easier to exhaust defender's reserves. In a way this allows for a more mobile warfare (easier breakthrough) and bloodier combat (more units engaged).
117. CR will display total kills for air groups, instead of air kills only. The sum of all ground kills will be visible at the bottom of the CR screen.
118. All sound files were transcoded using a much more compatible version and settings of the WAV codec, so that the game will not crash on certain Windows setups. The only downside is that files got bigger, by up to 3 times.
119. Ground elements of "infantry" or "mechanized infantry" class will have their CV affected by the number of men in the squad (where 10 is the norm).
120. Greatly improved layout of the Logistics Phase Log by separating various events and placing them under distinct headers. Log area on screen was expanded by moving the scrollbar to the right, so that longer lines of text will fit without problems.
121. Added popups with information about leader skill decrease when promoted during owner's turn. Added information about leader changes (and units destroyed and rebuilding under different name) during enemy turn to the logistics phase log. Leaders killed "in an air attack", "in battle" or "during retreat" are those killed during enemy turn. Leaders killed "in an accident" are those killed during your logistics phase.
122. Changed date format in various places from month/day/year to year-month-day.
123. Improved tooltips for frozen units, especially HQs - the displayed text is now identical to the one displayed for unfrozen units, with the exception that turns of freeze are displayed instead of MP.
124. According to the rulebook all elements inside Soviet infantry units (and Axis infantry units after 1941) shouldn't be able to take replacements above 60% TOE (80% in case of Axis) when not on refit. Previously only elements of type "Rifle Squad" were so affected, and only in Soviet units with "Rifle" in name (and in Axis units with "Infantry" in name). Now all units with TOE(OB) of type Infantry will be affected (and all element slots in those units). AI will not be subject to this limitation.
125. Added information about men killed, captured and disabled to the "Recent" and "Current Turn" columns in the loss screen. The information is no longer calculated from the numbers of destroyed and damaged elements and their crew size (which was only an approximation), but are based on the same values that are shown in the "Total" column value.
126. Added separate rank names for each nationality, for both the ground and air forces (and in case of Germany, the SS). The ranks of some leaders may still be incorrect, because air ranks are used for air only leaders, SS ranks are used for SS only leaders, and in other cases ground ranks are used.
127. When selecting a new HQ for a unit, all HQs in it's current HQ chain (except the first) will be presented first on the list of available HQs. This will allow to move units to O.K.H. or STAVKA without the need to micromanage by moving those HQs using rail and guessing at which range to the target they will show up on the list.
128. Upon city capture, between 50% and 100% of current stocks (resource, oil, fuel, supply) in that city will be lost. Ports will be damaged to 100%.
129. For production purposes cities in Karelia will be treated as Finnish, and cities in Bessarabia and North Bukovina will be treated as Rumanian. There will be no garrison requirements in these cities (and thus no partisan generation), and no population evacuation upon capture by Axis forces.

130. Added information about the number of squads airdropped to partisan units, partisan units supplied from VVS and non-VVS airbases, and detailed information about partisan unit creation and merges to the logistics phase log. Each displacement of a partisan unit will be recorded as a loss for that unit.
131. The penalty for units smaller than divisions when entering pending friendly hexes will be reduced from +2 to +1, starting from July 1941. Hostile hex entry cost reduction for Soviet units during First Winter will be smaller, by using rounding up when dividing the cost by two.
132. Units isolated or in beach/air supply at start of turn will have their strategic movement points set to 0.
133. Reworked the rules for Interception Air Doctrine. Previously it was impossible to scramble more than 50-70 fighters, whether there were 100, or 200, or 300 incoming aircraft, regardless of doctrine settings. Sometimes higher doctrine setting could result in worse CAP than lower value. Under new rules, the game will try to scramble as much as 50% of the number of incoming aircraft when set to 100, 100% when set to 200, etc. However it will be getting progressively harder to scramble more than 25%, 50% and 75% of the desired number of aircraft, with each step requiring to pass one leader air skill test.
134. Requirements for Soviet airbases getting Guards status reduced by half (200 in 1941, 300 in 1942, and 600 in 1943+). PVO, SAD and VVS airbases may not become Guards.
135. Changed mild winter base defender bonus from +4 to +3, and snow/march/april defender bonus from +5 to +3.
136. Soviet Military District, Front, Air Command and Air Army renames will be shown in logistics phase log.
137. It will be now impossible to recombine division or corps from units assigned to different HQs. Thanks to this, Axis players won't be forced to pay AP cost for a full division when reassigning a single regiment, and Soviet players won't be forced to reattach all corps divisions together.
138. Reduced chances to disband NKVD Border Regiments to 25%, and only if they are below 50% TOE. They still don't get replacements, so this will eventually happen. They can also be disbanded when routed with 20% chance. This was made to allow limited use for these units in some scenarios, like "Moscow 41-42", in which their contribution may be important during the first two turns. Actually, some of these units fought until 1945.
139. It is now possible to assign cavalry units of any size and independent units of brigade size or smaller to German RHG Command HQs.
140. The same AP cost rules will be applied to support units, when they are reassigned, as to on-map units. This means movement down the chain of command will be free, including moving through the "ASSIGN/FORM" function (of course one must still pay to form completely new units). On the other hand moving up the chain will usually cost 1 AP, including moving back to HQ from divided Soviet Rifle/Mountain/Cavalry corps.
141. Added the ability to specify leaders as "SS and Ground" and "Ground and SS". Both restrictions allow leaders to command regular and SS land HQs. First restriction makes the leader use SS rank names, while second restriction makes the leader use regular rank names.
142. After a leader is appointed to lead an unit manually, a turn must pass before he can be replaced.
143. Reduced the chances for leader skill decrease when forcibly promoted. No more than 2 skills can be reduced at one time, and the first tested for reduction will be political skill.
144. Updated German translation.

Bug fixes

1. Fixed a bug with German morale being stuck at 70 from 1942 until the end of the war. It will properly decrease now to 55 in 1945, as described in the manual.
2. Fixed a bug where too large supply or fuel requests from units resulted in reporting no needs at all, which resulted in shortages for all units drawing supplies from the same city. This mostly happened for empty airbases that received a lot of bomber or transport aircraft during previous turn.
3. Fixed a bug where the AI built over a thousand of Sapper Regiments.
4. Fixed a bug where it was possible to form a Soviet rifle corps from one rifle division and two rifle brigades.
5. Fixed a bug with supply of mountain units in mountain terrain. Please note that the displayed MP to rail value will still be wrong, but supply will work properly during the logistics phase.
6. Fixed a bug where inserting or deleting ground elements in the editor was breaking import id, photo id and symbol id, by not updating them to new values, after the elements were shifted up or down the list.
7. Fixed a bug where it was possible to use level bombers to drop fuel in some not so rare circumstances.
8. Fixed a bug where level bombers and transport aircraft with load less than 2000 were used for unit transport missions.
9. Fixed a bug where fighters were not able to escort recon aircraft.
10. Fixed a bug where escorts (of any type) for recon aircraft were not marked as performing escort mission.
11. Fixed a bug with wrong number of damaged and reserve planes lost, when an airbase was displaced.
12. Fixed a bug where ice level in retreat a minor river target hex across was compared with an invalid value.
13. Fixed a bug where certain hexes were not recognized as being behind "Finnish No Attack Line" (notably 83,14).
14. Fixed a bug in anti-air fire formula, when instead of support unit's anti-air strength the anti-air strength of the unit receiving support was used again.
15. Fixed a bug where countries that have surrendered would still have a chance to capture ground elements.
16. Fixed a bug where it was possible to build fort units from countries that have surrendered.
17. Fixed a bug where Soviet Rumanian corps HQs were forcibly disbanded.
18. Fixed a bug where stack conflicts in hexes containing 2 or more Rumanian units were improperly resolved, when one unit was converted to Soviet nationality, but the rest weren't yet.
19. Fixed a bug where support units attached to HQs lost when resolving stack conflicts upon Rumanian surrender were not lost, but reassigned to another HQ.
20. Fixed a bug where all Soviet AA units attached to cities were reassigned to STAVKA upon Rumanian surrender.
21. Fixed a bug where rail was automatically repaired upon conversion of hexes during nation's surrender.
22. Fixed a bug where Rumanian pools were improperly added to Soviet pool upon Rumanian surrender. Captured equipment, armaments, manpower, vehicles in repair and transfer pools will now be properly transferred.
23. Fixed a bug with split unit withdrawals, where second and third sub-unit wasn't properly marked for withdrawal.
24. Fixed a bug where a factory with damage over 1 would be immediately reduced to 1 damage upon upgrade.

25. Fixed a bug where automatic expansion of a 0-size factory to 1-size factory for 0-expansion rate aircraft was checking an undetermined value instead of that aircraft's expansion rate.
26. Fixed a number of bugs in vehicle management routines that may have resulted in vehicles going missing or receiving free vehicles in some rare circumstances. Please note that it is still possible to get extra vehicles, whenever vehicles are to be taken from the vehicle pool, but there are not enough of them.
27. Fixed a bug where support units attached to a combat units would be detached before a failed split. Now those units will be detached only when the split will actually happen.
28. Fixed a cosmetic bug in initial CVs calculations for hasty attacks, where individual unit's CV didn't add up to the total initial CV.
29. Fixed a cosmetic bug, where fogged CVs were not updated correctly after each logistics phase. For example, when the weather will change to mud, offensive CVs will go down on every visible unit counter.
30. Fixed a cosmetic bug where captured equipment lost in combat was not visible in loss window and not included in loss totals in that window. Because of lack of nationality information, such captured equipment lost by any Axis country (including all Rumanian equipment lost before their surrender) will be listed as German.
31. Fixed a cosmetic bug where Commander's Report counted only the last slot using given ground element instead of all slots in a given unit, when using ground element filter.
32. Fixed a cosmetic bug where production screen counted slots using given ground element, instead of actual units in the UNITS column.
33. Fixed a cosmetic bug where Lost Battles expansion's scenarios were not marked as such in the new multiplayer game scenario selection screen.
34. Fixed a bug with all destroyed and withdrawn German Infantry Divisions being converted to Volksgrenadier Divisions. Now only destroyed divisions will convert, with a 20% chance to do so.
35. Fixed a bug where Czech and Polish manpower was reduced to 8% after applying "other fronts" reduction. It will be now reduced to 10% before applying "other fronts" reduction.
36. Fixed a bug where it was possible for surrendered countries to transfer items from their pool to German pool.
37. Fixed a bug where Italian production percentage going to the East in 1943 was 20 instead of 30 as documented.
38. Fixed a bug where some captured factories (oil, resources and ports) were included in other areas on production screen.
39. Fixed a bug where industry in occupied Yugoslavia and friendly Bulgaria was not working for the Axis. They will now work, using Axis Allies production modifiers, with the exception that manpower won't be produced. Items that gather in national pool will be transferred to German pool.
40. Fixed a bug where German synthetic oil production was not reduced to 25% in 1945.
41. Fixed a bug with fragments of tooltips left on the screen in the CR editor functions by disabling them (engine limitation).
42. Fixed a bug where slightly different than specified in the manual percentage of disabled men returned to Axis Allies in case some countries surrendered.
43. Fixed a bug where 0.5% of Soviet disabled men disappeared each turn, without logging them as permanent casualties.
44. Fixed a bug where lost Hiwis were not included in the totals on the Victory Screen and in VP calculations.
45. Fixed a bug where units with "Fort" in name would be recognized as forts in some circumstances. Now forts are mostly recognized by TOE type and sometimes by "Fortified" in name.

46. Fixed "SET ALL CITY SUPPLY REQUIREMENTS" function in the editor, to take into account all special rules and production multipliers for various resources.
47. Fixed bugs and significantly improved Soviet air unit renaming procedures. Units in or moving to national reserve will now also be eligible for renames and resizes. Air battalions will no longer require "/" in their name to be able to upgrade to air regiments. SAP regiments will be correctly renamed after 1943-03-01 rather than before that date, and with 80% chance instead of 30% chance. Added reversed renames for all the obligatory renames to ShAP, LBAP, NBAP and LTAP (when aircraft is no longer of the required type). Night-fighter regiments will be properly set to night fly by the AI.
48. Fixed a bug where leader hidden win/loss count (used for promotions) was not properly reset during automated promotion.
49. Fixed some minor bugs in the function calculating AP penalty for too low rank on appointment.
50. Fixed a bug where support units of Brigade size were reported twice in the logistics phase log on arrival.
51. Fixed bugs with sorting saved games and scenarios by name and by date. By default, scenarios will be sorted by name, while saved games by date.
52. Fixed a bug with "Non-Random Weather" and "Reduced Blizzard" game option headers having no effect when clicked on, unlike the other game option headers.
53. Fixed a bug where one or more elements were added for free (including manpower) to newly formed fort units, Soviet on-map units or airdropped to partisan units. The game will now attempt to take an existing element from active or transfer pool (or build it paying the armaments cost) first, before adding it for free. Manpower will be also taken from active or transfer pool first, before recruiting it for free. Newly built elements or recruited manpower will be properly recorded in "Built" stats (even if for free). The only exception to this rule are partisan squads recruited from cities or the countryside, which are always added for free (but now they will be recorded in "Built" stats).
54. Fixed a bug where daily Interception Air Doctrine setting of 0 would prevent nightly interception, even with nightly Interception Air Doctrine setting greater than 0.
55. Fixed bugs related to some units and leaders getting credits/blame more than once from winning/losing a single land combat or air mission (or not getting credits/blame at all).
56. Fixed a bug where the chance for Axis leaders to count a loss for dismissal purposes was 99% during First Winter instead of the intended 20%.
57. Fixed bugs related to incorrect AI front HQ unit selection for Finnish and Soviet HQs.
58. Fixed bugs related to Soviet air HQ assignment, where some fronts ended up with many air HQs, and some with none.
59. Fixed a bug where the area in which NKVD units were protected from being disbanded (near Finland) was incorrectly specified.
60. Fixed a bug where NKVD units didn't get +5 bonus to morale.
61. Fixed a bug where it was possible to reassign support units detached from cities (or from divided Soviet Rifle/Mountain/Cavalry corps) once more in the same turn.
62. Fixed a bug with three leader attributes missing from csv export/import: photo, hidden victory counter, and hidden loss counter.
63. Fixed a bug with delayed units being shown as present on the city screen.

Scenario changes

1. Factory setup changed to match new generic data, in campaigns factories moved to historic locations whenever possible.
2. Multiple units had some ground elements changed from far outdated or future versions to elements matching scenario date. This is usually limited to certain squad types but also wrong date version of 251/1 and 251/2 halftrack.
3. Schlesien/Jutborg Panzer divisions have been disabled - existed for about one month, then merged into other Panzer divisions.
4. All air units have been reloaded to use standard aircraft equipment, ensures any change to aircraft data arrives in units.
5. In all campaigns and relevant scenarios the SET 7K factory in Bucharest and the IAR 39 factory in Brasov have been removed. SET 7K was not in production and IAR 39 were only produced by SET in Bucharest, IAR was focussing on production of SM.79 and IAR 80/81.
6. The 43 campaign, Operation Typhoon and Moscow 41-42 had multiple airbases with misplaced supply and fuel dumps instead of AAA.
7. In certain scenarios Luftwaffenkommando Ost HQ renamed to Luftflotte 6, change to Luftwaffe unit and disable the later arriving Luftflotte 6 unit (LwKdo Ost was renamed to Luftflotte 6 in 1943).
8. In certain scenarios Luftflotte 2 and II. Fliegerkorps withdraw in 12/41 and/or Luftflotte 6 arrival moved forward by one year to 4/42.
9. In certain scenarios Expeditionary Ital. Corps will not withdraw and XXXV Ital. Corps will not arrive (was renamed in 42).
10. In certain scenarios 14/36 motorized division changed to new OB to ensure historic demotorization. Remove withdrawal date, disable reborn infantry division variants, transfer an existing withdrawal date from infantry division variant to parent unit.
11. Renamed locations (typically only in larger scenarios/campaigns): 0286 Kottbus to Cottbus, 0354 Olmutz to Olmuetz, 0359 Frankfurt an der Oder to Frankfurt/Oder, 0368 Elberswalde to Eberswalde, 0372 Lubben to Luebben, 0454 Cologne to Koeln, 0457 Frankfurt to Frankfurt/Main, 1125 Avgustov to Augustow, 1126 Grajevo - Grajewo, 1127 Kolmo to Kolno, 1128 Lomzha to Lomza, 1134 Osoverts to Osowiec, 1155 Zaremby to Zambrow, 1191 Wlodawa to Wlodawa, 1858 Koeniggratz to Koniggraetz, 1870 Dieblin to Deblin, 1871 Zelenchow to Zelechow, 1876 Kamienna Skarzsko to Skarzysko Kamienna, 1895 Lowiecz to Lowicz, 1920 Dzialozyce to Dzialoszyce, 1925 Novy Targ to Nowy Targ, 1931 Unlejew to Uniejow, 1932 Kosolerzyna to Koscierzyna.
12. 1941 campaigns/scenarios: 100/101 Flammpanzer Battalions withdrawal set to last turn of December (to ensure new OB with reduced equipment comes into effect, units were disbanded or reformed into Panzer Battalions in reality).
13. 1941 campaigns/scenarios: 102nd Flammpanzer Btl withdraws on first turn of August 41, changed to new OB with French tanks (matches historical setup).
14. 1941 campaigns/scenarios: The Romanian 2nd Security division has been disabled, the 2nd Fortress infantry Brigade will now be reformed into the 2nd Security Division.
15. 1941 campaigns/scenarios: Armored cars in 7/20 Panzer divisions changed to Panhard 178, add 100 more to pool (only in 1941 campaigns).
16. 1941 campaigns/scenarios: 1st Fortress Rum. Infantry Brigade changed to other OB to reform it into a division in 1942.
17. 1942 campaigns/scenarios: Disable land unit 1241, duplicate of unit 172.
18. 1942 campaigns/scenarios: Fortress Rum. Security division reformed into a full infantry division.
19. Smolensk 1941, Road to Minsk, Road to Moscow, Road to Smolensk, Road to Leningrad, Road to Kiev, Road to Dnepopetrovsk, Operation Barbarossa: had 3 Soviet air units without player and/or nationality.
20. Drama on the Danube, 1942 campaign, 1943 campaign: had Rumanian MG in 1 Hungarian unit.

21. Stalingrad to Berlin, Winter 42-43: had Rumanian MG in 2 Hungarian units and 1 Rumanian air unit with German aircraft.
22. Decision in the Ukraine: had 1 German air unit with Italian aircraft.
23. Operation Uranus: had 1 Rumanian air unit with German aircraft.
24. Battle for Kharkov: had 1 Rumanian air unit with Finnish aircraft.
25. 1943 campaign: had Pe-2 in recon air units.
26. Updated city requirements in all scenarios.
27. Operation Konrad: Resolve OB type mismatch 6th Army and Flieger Fuhrer Hungary. 3x Flieger Division Air HQ changed to new OB 0708.
28. Smolensk 1941: HQ type fixed in 3x SAD airbases.
29. Red Army Resurgent: German aircraft in Romanian air unit. CSIR Ital. Air Bde set to proper Corps OB, reduce support to 500.
30. Decision in the Ukraine: HQ type fixed in Army Group Antonescu.
31. Road to Kiev: Carpathian Army Group set to proper Army OB, reduce support to 500, adjust available supply/fuel/vehicles. CSIR Ital. Air Bde set to proper Corps OB, reduce support to 500.
32. Road to Dnepropetrovsk: Carpathian Army Group set to proper Army OB, reduce support to 500, adjust available supply/fuel/vehicles. CSIR Ital. Air Bde set to proper Corps OB, reduce support to 500.
33. Winter 42/43: Romanian Air Command set to proper OB, reduce support to reasonable level, adjust available supply/fuel/vehicles. CSIR Ital. Air Bde set to proper Corps OB, reduce support to reasonable level, adjust available supply/fuel/vehicles. 4x Soviet Air Command HQs set to new Corps HQ version of their OB, reduce support and available supply/fuel/vehicles.
34. Stalingrad to Berlin: Romanian Air Command set to proper OB, reduce support to reasonable level, adjust available supply/fuel/vehicles. CSIR Ital. Air Bde set to proper Corps OB, reduce support to reasonable level, adjust available supply/fuel/vehicles. 4x Soviet Air Command HQs set to new Corps HQ version of their OB, reduce support and available supply/fuel/vehicles.
35. Operation Uranus: CSIR Ital. Air Bde set to proper Corps OB, reduce support to reasonable level, adjust available supply/fuel/vehicles.
36. Operation Kutuzov-Rumyantsev: 7x Soviet Air Command HQs set to new Corps HQ version of their OB, reduce support and available supply/fuel/vehicles.
37. Operation Blue: CSIR Ital. Air Bde set to proper Corps OB, reduce support to reasonable level, adjust available supply/fuel/vehicles. Romanian Air Command set to proper OB, reduce support to reasonable level, adjust available supply/fuel/vehicles. 8 IAK PVO Air Command set to proper OB, reduce support to reasonable level, adjust available supply/fuel/vehicles.
38. Operation Barbarossa: Carpathian Army Group set to proper Army OB, reduce support to 500, adjust available supply/fuel/vehicles. Rum. Combat Air Command changed from Army to Corps HQ type.
39. Operation Bagration: 2x soviet HQ set to new Corps HQ (modeled as Army HQ, may need CP restrictions).
40. 1944 campaign: 2x soviet HQ set to new Corps HQ (modeled as Army HQ, may need CP restrictions).
41. 1943 campaign: Rum. Combat Air Command changed from Army to Corps HQ type. 7x soviet Air HQ set to new Corps HQ OB.
42. 1942 campaign: Romanian Air Command set to proper OB, reduce support to reasonable level, adjust available supply/fuel/vehicles. 5x soviet Air HQ set to new Corps HQ OB.
43. 1941 campaigns: Rum. Combat Air Command changed from Army to Corps HQ type. Carpathian Army Group set to proper Army OB, reduce support to 500, adjust available supply/fuel/vehicles.

44. A bug introduced long ago caused 5 Soviet Military Districts to be already renamed and upgraded to Fronts in all scenarios starting in 1941. Those units are again Military Districts during German June 22nd turn.
45. Several scenarios had three Soviet air groups specified without proper type set. This caused a crash during Soviet logistics phase.