

Gary Grigsby's Eagle Day to Bombing of the Reich

Read me File – 16 September 2024

Version 1.06.83

Welcome.

Thank you for playing Gary Grigsby's Eagle Day to Bombing of the Reich™! We are always looking for ways to improve your gaming experience. For the latest information on the game, please go to the Matrix Games web site at www.matrixgames.com.

Below you will find the latest and greatest information on Gary Grigsby's Eagle Day to Bombing of the Reich™. Information in this document supersedes that in the official game manual.

Troubleshooting:

Ensure that your system meets the minimum system requirements. These are found in the game manual. Also, ensure that you have the latest video and sound drivers available for your system.

If you are still experiencing problems with the game, please use our Help Desk at www.matrixgames.com/helpdesk or post in the Gary Grigsby's Eagle Day to Bombing of the Reich™ Support Forum at www.matrixgames.com. Please provide as much detail on your issue and operating system as you can.

To obtain optimum game performance, close all other applications before beginning a game. **Also, to ensure data integrity you should always exit the game all the way to desktop before starting it again.**

IMPORTANT - Dual/Quad Global Core Performance Options:

We've found that a number of newer multi-core systems with multi-threaded graphics drivers can be particular about how they want Gary Grigsby's Eagle Day to Bombing of the Reich to work. There are a number of Options to address these issues. In our experience, they make it possible for every system to get the best performance out of Gary Grigsby's Eagle Day to Bombing of the Reich. They are defined below and we recommend that every player give them a try as they may improve performance on older systems as well. Please try every combination until you find what works best for you, as different system components have generated different responses. After starting a game open the Game Options (Ctrl-O), on the bottom of the screen are these additional options.

Global Performance Options

Screen - Changing these will require you to close and restart the game to take effect.

Set DirectDraw Software Emulation - toggles Microsoft Hardware Emulation on/off. Turning it off improves display speed, but may create graphic issues on some systems.

Use **Windowed Mode** - toggle to run in a Window or the Full screen (Windowed may be the only way to increase performance under Windows 10 and higher - you can also try without Windowed Mode and install a 3rd party full screen emulator like DXWnd to increase performance in full screen mode.)

Processor Affinity - Changes will take effect after the end of the current phase.

All Cores, Core 0, Core 1, etc. - If you have a dual/multi core, lets you choose which core to use. Running the Game on a single CPU can improve performance, especially with Intel processors. This will only list the first four CPUs if you have more than four.

Change Processor Affinity Mode - Choose which phases of the game to use a single CPU, you will need to choose a single core above for these options to work. If you are only having issues during one game phase, try restricting it to a single CPU during that phase, especially with AMD processors.

-Startup; Starts the game in single CPU mode. Switches to multi-CPU mode if available later.

-Turn Resolution; Switches to the single CPU during intercept phase/ turn resolution.

-Planning Phase; Uses the single CPU only while planning the bombing runs.

-New Game Initialization; Only uses the single CPU while creating a new game.

-Always; Uses the designated CPU to run the game during all phases.

-None; Turns off Processor Affinity settings.

Windows 10 performance note - As operating systems have evolved, many people have reported a significant drop in performance and some other DirectX related problems while playing Gary Grigsby's Eagle Day to Bombing of the Reich in full screen mode. To help address some of these issues, this update will automatically be installed in Windows 7 compatibility mode. To further increase performance, either play the game with the "windowed mode" option on, or to run in full screen, download and install a 3rd party full screen emulator like DXWnd.

DXWnd: After downloading and extracting DXWnd you must first remove any compatibility settings in the registry. To easily do this, run DXWnd in "expert mode" and "clear the compatibility flags" from the "Tools" menu. You must also make sure the game itself is **not** set to "Windowed mode" in the game options menu. For your convenience, the v1.06.83 patch includes a DXWnd configuration file in the EDBTR main folder named "EDBTR.dwx" which can be loaded from the DXWnd file->import command and should set everything you need to run the game through DXWnd (if you installed to a directory other than C:\Matrix Games\Gary Grigsby's Eagle Day to the Bombing of the Reich\btr.exe you will need to modify the path in DXWnd to find your btr.exe).

You only need to highlight the EDBTR icon in the DXWnd panel first, then start the game normally from the Matrix game shortcut. DXWnd can keep running in the background, allowing you to exit the game and restart it without having to re-run DXWnd. You can even set it to load automatically when you start up your computer.

Change History:

v1.06.83 – September 16, 2024

Note: version 1.06.83 will allow you to continue with any saved games you started with 1.06.66 or higher. It is recommended that you complete the reaction phase of your current game before loading it with 1.06.83. Note that changes to aircraft data will only take effect when starting a new scenario.

Changes & Fixes:

- “Battle of Britain” scoring:
The Air Superiority “to win before turn 40” for BoB40 is increased from 8 to 12.
The Victory totals for the BoB41 one month and full campaigns are increased to 18 and 22 respectively.
- Fixed a major bug in EDBTR and BoB where following bombers in a raid would split away from the lead group after bombing and head straight for the original form up airfield. Now raids and followers will traverse the entire flight path together.
- Fixed a bug where the Axis AI in BoB 1941 would launch a flight of Hurricanes as a fighter-bomber mission.
- Fixed some issues with the "toggle stragglers" and "toggle following" functions on the UI panel.
- Made a few more UI enhancements.
- Made some tweaks which may help solve the issues with the attacking AI taking an extended leave from it's offensive duties.
- Reduced the possibility of mandatory U-Boat Pen targeting from 75% chance to 67% chance.
- U-Boat factories can now be targeted regardless of Mandatory U-Boat Pen restrictions.
- Reset Allied Hawker Tempest to fighter role. This fix will only show up in new games.
- Typhoon groups may now switch between rockets or bombs. Rockets are more effective against AFV ground targets than bombs but not so much with other target types. This fix will only show up in new games.
- Fixed a data error where some of the Allied Italian (Balkan HQ) fighter escort groups entered with a bad aircraft type and were unusable. They now enter with P39's and upgrade normally.
- Fixed a legacy bug when human or AI sending multiple intruders for a night raid would

launch the entire group regardless of the number of planes assigned.

- Fixed an exploit where a player could send groups on both a morning and afternoon raid less than 6 hours apart by modifying the raid launch times. Now the later raid will not launch until at least 6 hours after the earlier raid regardless.

v1.06.80 – December 27, 2023

Note: version 1.06.80 will allow you to continue with any saved games you started with 1.06.66 or higher. It is recommended that you complete the reaction phase of your current game before loading it with 1.06.80.

Changes & Fixes:

- “Battle of Britain” scoring:
For both 1940 and 1941 long campaigns, the axis player must now meet **or** exceed the “to win” victory levels shown as stated in the manual and as required in “Bombing the Reich.” This fixes a legacy bug where the BoB victory levels had to be exceeded to win the game (Mark Dolby). Also, the “to win” scores needed to win for these campaigns have effectively been increased by one. Also, the Air Superiority “to win” for BoB40 was hard-wired set to 13 and has been set back to 8 per the manual.
- Fixed a pbem issue where BoB40 long campaigns would immediately auto-end with an axis loss before the game started. Also fixed mislabeled sides when selecting a pbem handle (Arbogast1429).
- Added an alternate font type selection in the “Options” menu to be used in case of font troubles with the stock font.
- Fixed a bug where Bomber Command was unable to send Recon missions using auto-planning (Johntxic).
- Fixed a bug where when planning night raids you were unable to set the hour past 12.00am without returning to 18:00 (Johntxic). Note that night raids cannot be sent to launch later than 01:59.
- Raid start times now default to sunrise for day raids and sunset for night raids.
- Fixed a bug where recon and intruder aircraft would appear to be available for a 2nd raid immediately after assigning them to 1st raid.
- Fixed a legacy bug where if you sent recon/intruder missions out and then moved any of your groups or squadrons, your remaining available recon and intruder planes in that group would no longer be available, and they were resetting to maximum ready planes (davidjruss).
- The AI will no longer plan Recon missions to purposely fly after dark.
- Fixed a bug where “List Targets” menu would sometimes not allow target selection during raid planning (warshipbuilder).
- Added “Order of Battle” menu option while in “Auto-Plan Raid” menu.
- You can now select rail-flak to move from the map or from the list (Glenn Beasley).
- Fixed a bug where you could not select a Rail-flak unit from the map unless it was co-located with a map location.
- Defender player can now see daily production levels of AFV, ART, and AA guns when viewing a list of Armaments factories. Mousing over your armaments factories on the map will show which factories are producing these items. AFV and ART gets distributed

to ground units (depending on supply and disruption levels) and AA gets distributed to the pools for the various AA gun types.

- During raid planning, aircraft with navigation devices such as Y-Gerat, GEE and OBOE will have range circles generate from the form-up base when selecting a lead unit for a raid. This is intended to aid in selecting targets within range of these navigation devices.
- Intruders/Nightfighters with bombs will attempt to drop them on their targets. Any notable results will be somewhat rare. Note that in BTR, the only Nightfighter with bombs is the Allied P-61 “Black Widow”. Opportunity strafing of airfields and rail targets by day and night fighters has been reintroduced, although with more discretion and only by more experienced pilots.
- Added some UI color improvements to facilitate menu selection.
- Fixed a legacy bug where the game speed setting was interdependent on the scroll speed setting; i.e. the game clock would slow down when scroll speed setting was lowered. The only drawback now is that scroll speed will be max during the reaction phase unless the clock is stopped.
- Slowed down scroll speed by x2 to give a more noticeable range of settings.
- Axis aircraft displaced by Allied ground advances return in 15 days instead of 30, but lose all damaged aircraft.
- Added the original Talonsoft 12 O’clock High and Battle of Britain manuals that were included in the early Matrix patches.

v1.06.77 – September 24, 2023

Note: version 1.06.77 will allow you to continue with any saved games you started with 1.06.66 or higher. It is recommended that you complete the reaction phase of your current 1.06.66 game before loading it with 1.06.77.

Changes & Fixes:

- Updated the “Production System” document to correct the narrative on research.
- Aircraft being researched will now show % progress toward a breakthrough in the Weapons Database screen.
- Added correct aircraft graphics for Allied Re.2002 Ariete (thanks paulopanz!)
- Improved Allied AI in all theaters. Weather over the target will be less of a factor in determining a valid raid unless weather exceeds the max overcast setting for the HQ.
- Increased Allied night activity in the Med, and Allies can use oboe/gee from Italy (ranged from Foggia #9) beginning in May, 1944.
- Axis player now has the option to waive a sudden death victory and continue playing the campaign. Each time “sudden death” is checked (every 31 turns) the axis player will continue to get this option if they otherwise qualify.
- US bombers that are fitted with H2S navigation device lose their lower ball turret. Replacements do not begin with H2S anymore, they get auto-upgraded gradually each day after the device becomes available.
- Raid aircraft assignment UI: moved the selection tabs for low/high bomber escorts down to the lower screen for easier access.
- Fixed a bug that was impacting new pilot allocation to groups with a severe casualty history/honor roll.

- Players can now view the current size of the pilot pool for the nationality of the group pilots in the group display screen.
- 617 Squadron now carries the 12000 HC bomb as standard.
- Fixed a legacy bug that was causing launch issues whenever single groups were assigned to fly two raids in a single day. Also fixed a related issue where the 2nd raid would not list on the raid display or show force composition. Tip: time your second raid to launch at least 6 hours after the first raid to allow for maximum recovery/repair from the first raid. Note that recon, night-fighters, and the Allied heavy bomber groups in BTR cannot fly multiple raids in a single day.
- Play balance: In Avalanche and Overlord scenario scoring, troops are worth 1.25X more points to offset the increased loss of combat value while retreating introduced in version 1.06.47.
- Removed the screen messages related to detection of Axis night-fighters by the “Monica” device because they occurred too frequently and provide nominal benefit to the players. Monica’s still function in the game normally in all other respects.

v1.06.70 – May 20, 2023

Note: version 1.06.70 will allow you to continue with any saved games you started with 1.06.66. It is recommended that you complete the reaction phase of your current 1.06.66 game before loading it with 1.06.70.

Changes & Fixes:

- Fixed a bug that was triggering the bombing of the secondary target before leaving the primary target area.
- Fixed a bug where heavy balloon barrages (el. 8000’) were being treated as being at the same elevation as regular balloon barrages (el. 5000’). If both types are at the target, the most numerous type will be engaged if otherwise possible.
- Made a significant fix to the Allied AI for 8th Air Force target selection in 1943 and beyond, and Axis player should be hard-pressed now to get a sudden death victory.
- Made several minor enhancements to the UI including some menu glitch-fixing.
- Fixed the aircraft radar ranges for both in-game and e-warfare manual.

v1.06.66– February 9, 2023

Note: due to OOB changes and some data updates required for enhanced night-fighting features you will need to restart your games to experience these changes. Your previous saved games may still work (though without seeing the data updates) but it is now highly recommended that you start a new scenario or campaign after installing version 1.06.66.

Changes & Fixes:

- Reworked the detection and electronic countermeasure (ECM) features for night raids and interceptions. Several coding issues were fixed that otherwise voided out a fair amount of data content related to detection and ECM. The Axis player will now notice his abilities to effectively intercept Bomber Command night raids getting more difficult as time progresses. Data changes were made to get radio jamming to work

properly but otherwise only minor data changes were necessary to make the game work as intended. We included an “ELECTRONIC WARFARE GUIDE” in the manuals section to help players familiarize themselves with the various equipment and aspects of night fighting in WW2. Also, jammed radar devices on Axis aircraft will show red or yellow on the flight display, and the display will also show the %jammed for communications radio (if >0%).

- Improved weapons display of radar and jamming systems info.
- “Piperack” radar jamming now fitted into B17 and B24 RCM units at a historical rate instead of instantly when those groups appear. Allied ELINT activities can accelerate the introduction of piperack and other devices.
- Fixed a bug in BTR where the radio activity for England did not include air units based in Eastern France and Germany, greatly impacting Axis readiness times in the late game.
- Various minor UI improvements including display of navigational devices during Intruder lead flight selection, and moved the intruder “multiple planes” toggle onto the lower menu screen for easier access during mission planning.
- When selecting primary and secondary targets using “List Targets” during raid planning, selecting a target on the map will now cause the list below to center and highlight on the selected target for easy selection.
- During Replay, mouse-over will now display aircraft type and group instead of just the ambiguous “Raid #”.
- Adjusted Lancaster II climb and max ceiling and allowed auto-upgrade to HS2 nav radar. Other Allied BTR OOB changes as listed in the “Manuals” folder.
- Fixed other issues with aircraft data that were causing equipment display issues on some aircraft.
- Fixed some minor issues with the Allied AI selection of Pathfinder lead groups in BTR.
- Made some improvements to Allied AI in the BtR’s.
- Fixed a bug where the AI was not allocating close escorts to bombing raids, only high escorts.
- Made some improvements to Axis AI in the BoB’s
- There is now a chance that a Sweep on an un-reconned airbase will execute the attack on the base if the group leader passes an experience task check.
- Attacking AI may now combine recon flights with bomber flights to the same target during the same day.
- Removed Axis Nightfighter groups from scenarios where only Allied day bombing occurs. Does not impact AS calculation.
- Fixed a bug from an earlier version that impacted the ability for some night bombers to navigate to the target properly, which was causing reduced accuracy.
- Adjusted play balance in some Nachtjagd scenarios.

v1.06.57– July 15, 2022

Changes & Fixes:

- Fixed a few more situations where shuttle missions were still not working as intended. Escorts will now follow shuttle bombers if they have enough fuel, otherwise

- they go back to home base. Stragglers will return to home base or the shuttle base, whichever is closer. Detached groups will not receive new pilots or planes, and their parent groups will only receive replacement planes and pilots very slowly.
- Fixed an issue where the ability for a night raid to stay on course was not considering experience and fatigue, which was causing more night raids to “plow up the fields” instead of hitting their targets.
 - Softened that infernal “click” sound when selecting radio buttons.
 - Aircraft will now always attempt to climb above balloons to minimize accidental strikes against balloon cables.
 - More fixes to “Auto Plan Raids” functionality. There is a method to the madness of setting up autoraid; in general, any fighters you order to sweep will not be available for escort duty so try planning your bombing raids first because the AI only attempts to build balanced bombing raids that can be effectively escorted.
 - More minor tweaks to Attacker AI in BoB and BtR.
 - Fixed a bug where the AI was selecting non-existent targets for a secondary target.
 - Defender groups now display “time to ready” when selected at airbase.
 - While setting escort join location by the map, “delay” time is now displayed dynamically at the escort selection screen. This helps to give the player an idea of what to set the delay time at the top of the screen for additional escort groups.
 - Reconfigured some unnecessary routines to speed up play a little.
 - Defender units Group Display now shows takeoff delay for group.
 - Weapons Display will show more information about nightfighter radar and jamming systems.
 - Nightfighters won’t lose their systems upgrades when swapping cannons. And replacement aircraft enter the game with current technology.
 - Fixed a bug where the ‘Time over Target’ on Planning Menu was different from the Raid Display menu.
 - Clicking a Radar Site during the Planning Phase now displays the range ring.
 - Finally, fixed display bugs for Roundels. Roundel graphics will now update on the screen as new flights enter or leave the map during the action phase, and Axis roundels won’t disappear when “stragglers” toggle is clicked.

v1.06.52– December 18, 2021

Changes & Fixes:

- Shuttle missions work much better than before. Added some UI info to show home bases for detachments. detachments will disband if they run out of planes or they end a subsequent turn back at their home base. You can move detached groups back to their original attached HQ bases but there is a delay now with moving groups depending on how far they move. For example, moving a detachment from Africa back to England will delay planes and pilots for about 10 days. If a detachment flies a mission and returns within 200 miles of their home base, they will automatically return to their home base and recombine. Detachments will not get new planes and pilots until they recombine.
- Did an extensive sweep of the code and fixed several more variable-type classes that were still causing minor issues with some routines, and several other minor bugs that

were causing issues with the correct allocation of damage, fatigue, experience, hits, etc. to pilots and planes.

- Added "add bomber" and "add escort" menu shortcuts to the raid menus to reduce mouse clicking and movement.
- Damaged straggler bomber groups will separate to single planes on the return trip when the sun starts to go down.
- "List Targets" menu will automatically highlight map target types. Added UI shortcut to return to the main target types list.
- Reworked fighter attack/fighter bomber aircraft allocation. Ensured dual-role fighters can perform both FB and escort missions. Ensured AI proper use of FB's and fighters carrying bombs and/or drop tanks.
- Added weather forecasting to non-campaign scenarios.
- More tweaks to help Allied AI form effective raids.
- Adjusted play balance for Big Week scenario.

v1.06.47a– July 1, 2021

Changes & Fixes:

- Fixed Scoring bugs for intro and short campaigns and some other scenarios.
- Added "BigDuke66"'s BoB map graphic fix and several fixes to BoB location errors. fixed KG 40 HQ assignment.
- The Halifax V and Lancaster II are now available for BTR. Both aircraft reside within 6 Group. (Requires scenario restart).
- German Gruppe now contain 40 aircraft max.
- Added ability to select location and airbase info on the map during the reaction phase.
- Sunrise and sunset now track much more realistically to the seasons (based on Paris latitude). This means the attacker really has to pay attention to the time of year and plan his day and night raid launch times accordingly.
- Added sunrise-sunset info to main display and planning display.
- Added menu toggle button to stop re-centering of map during reaction phase(!) You can pan but you can't zoom with this feature on.
- More fixes to speed up play and stop "turnback to target" events.
- Made some tweaks to Allied BTR AI.

- Updated promotion feature and fixed a few bugs. Most promotions in the game were just pilots replacing a fallen or wounded leader. Now you will see a message to that effect - either assuming command or an actual rank promotion. Promotions don't have much effect in the game - yet.
- fixed several variable-type classes that were causing issues with range calculation routines.
- Removed ability for axis human player to add AA factors to troops. Allowing this was causing several issues with the land combat routines. AI will still replace destroyed troop AA up to pre-set limits. AA factors now contributes to overall troop strength.
- Game now shows Axis player when new and in-transit rail-flak arrives at destination.
- Fixed a database error where several Wilde Sau nightfighter groups entering in the 1943 scenarios did not have their FuG 217's equipped. Current games will automatically upgrade these groups to be equipped. Scenarios starting in 1944 were OK.
- Made some more tweaks to ground combat resolution. Axis troop supply now shows impact of oil shortage. Oil shortage greatly reduces the ability of ground troops to resupply.
- "Rail use" is now tracked by the AI through rail centers and ports and can impact movement and supply of ground troops. Strafing rail centers can reduce the capacity of rail use where it had no impact in the game before. Axis player can monitor rail use by clicking on rail centers.
- Added ability to review weapons database from the aircraft list screen.
- Fixed a bug causing game to crash when wind was from SW and clouds graphics were on.
- Added additional morale recovery penalty for groups if ready A/C drops below 33% of full group establishment.
- Increased restriction on groups flying with low morale.
- Fixed a bug where radars in Brittany (BTR) and Cornwall (BOB) were not detecting raids.
- Additional tweaks to Allied AI raid planning.

- Fixed an exploit where the defender player could bring future plane types into their replacement pool through the OOB screen.
- Reduced chance of opportunity target during cloudy weather.
- Stopped updating of recon data if photo unsuccessful.
- Ensured incremental climb-out from takeoff.
- Nightfighters will start readying after sunset instead of 18:00 to account for new sunset times.
- Luftwaffe interceptors more likely to engage returning enemy flights in the Med all the way to Sicily.
- **Auto-aircraft upgrade is now removed for both sides**, except Allied conversion of fighter groups to fighterbomber groups and vice-versa.
- Tempest type changed to Fighter-Bomber (requires scenario restart).
- Fixed a data error where some of the '44 Campaign locations and factories had the same delay as the '43 Campaign. This meant that several locations, Rail-Flak, and factories were delayed an additional 3 months later than they should have been. (Requires restart of '44 Campaign).
- Leaders returning from the hospital now get their old commands back if they outrank the current leader.
- Added more jet types for early arrival in Jet-age scenario.
- Ensured raiding groups follow waypoints inbound and outbound.
- Randomized attacking aircraft pool to better balance commitment of group pilots.
- Increased likelihood of nightfighter engagement with higher moonlight values.
- Fixed a long time bug in the combat code where the defender pilots were temporarily copying the attacking pilots experience and fatigue and also gaining the attacker experience and fatigue. Attackers were not effected.
- Changed the air combat engagement code so that aircraft now compare maximum speed instead of current speed to determine ability to engage the enemy.

- Removed UFAC from mandatory targeting per the manual. This was causing conflicts with UPEN targeting.
- Altitude performance modifiers now impact ability to engage in attacks.
- Climb rate now impacts ability of lower attacker to engage higher defender.
- Low pilot morale (<30) now easier to increase when rallied.
- 1943 German groups enter with slightly higher morale and experience
- Returning level bomber groups will now shed slower, straggler aircraft, and Interceptors now more likely to pick off returning stragglers.
- Reduced repair rate of damaged aircraft on over stacked airfield.
- Made it even harder to inflict bomb damage on uboat pens and large targets.
- Randomized flak attacks on enemy flights to even out likelihood of group commander being singled out.
- Added more flight info to pilot list screen, including minutes to takeoff for defender groups assigned to intercept or patrol.
- Single fighter-bomber and recon groups can launch day raids before sunrise but never before 6AM.
- Defender flights will now drop altitude on return to base for improved friendly fire recognition.
- Stirling I now has options to swap out frag cluster bombs for general purpose bombs.
- Mossie intruders will now spread out into single a/c flights during night raids.
- Italian units now surrender 4 days after the invasion of Italy, not the day of.
- Group display now shows current installed navigation and radar device types instead of default.
- Fueling aircraft are now more vulnerable to attack by air.

- Flights will climb out at 50% rate if not all aircraft are in the air yet.
- Navigation devices Oboe (range=350) and Gee (range=300) only function within these ranges from the coast of England. These devices will not function in Italy. The ranges improve slightly the higher the aircraft is. The ability to navigate with these devices is easier, but now impacted by experience and fatigue of the flight.
- Fixed a bug that made several German radar sites immune to jamming.
- Ensured maneuver and speed penalties were applied to rocket-equipped aircraft during dogfights.
- Relocated the "Done (esc)" button in raid planning and intercept menus to lower panel UI for ease of selection. Also, "Add bombers" or "Add escorts" buttons will now appear in the "Select Lead Aircraft" menus for ease of selection, eliminating an extra mouse-click.
- Remove "Load Game" button from main in-game menus to eliminate memory and graphic glitch issues. You now can load games only from initial screen, but you should still exit all the way to desktop first.
- Fixed a bug to stop AI from upgrading plane types for groups that were relocating or had surrendered (non-Italian axis minors only).
- Fixed the BoB pbem campaign bug.
- Edited the "Eagle Day to Bombing the Reich Production System" Manual to correct and clarify some concepts of aircraft replacement production.
- Added feature for replacements:

In the unit list screen you see the number produced (meaning delivered if defender or received if attacker) by a/c type. The "replacement" screen is no longer redundant, it now shows the net number allocated for each a/c type. A negative number means your pool has dropped below the total #repl at start and produced (i.e. you are burning through this a/c type). A positive number means your pool has increased above the total #repl at start and produced, also caused by upgrading to a better plane type which puts those old planes back in the pool.

v1.06.04– July 18, 2020

Changes & Fixes:

- Strat map now shows weather by zone during planning phase.

- Changed cloud movement direction to randomly move from NW to SW direction each turn. Added forecasting of next turns weather in Campaign Summary.
- Defender start now sees cloud pattern for the upcoming turn.
- Allies must now have AS of 4 or greater to win BTR campaigns.
- Made tweaks to Eagle Day Attacker AI to increase effectiveness.
- Human player no longer gets automatic upgrades, allowing player to upgrade or change most plane types manually.
- Reinforcement arrival now displays, and centers on entry airfield and gives information about aircraft type.
- Leader promotion messages now show inspiration and leadership values.
- Auto plan raid range button increment increased to reduce multiple clicking.
- Max ranges reduced for AI raids in keeping with available escort ranges. Added some tweaks to increase BTR Attacking AI aggressiveness.
- Me110 night-fighters will auto upgrade to be fitted with upward firing cannon.
- Minor modifications to Jet-Age scenario to accelerate the development of more types of German jets.
- To decrease the over-effectiveness of attacking landing planes, added flak attack on enemy planes attacking landing aircraft, and increased likelihood of attacker calling off the attack if failed morale check.
- Fixed some altitude loss and gain anomalies caused by inconsistent variable types.
- Fixed incremental elevation gain during climb out from takeoff for intercepting fighters.
- Reworked e-warfare device upgrades and implementation, fixed data errors causing ELINT to be broken in 1944 campaigns and axis aircraft radar unused in 43 and 44. Aircraft in 1944 scenarios now benefit from previous 5 months of e-warfare technology upgrades.
- New Pathfinder group pilots start with higher experience.
- Area targets that do not produce terror points shown in blue circles, all others shown with black circles to differentiate from jammed radar sites.
- Pilot roster now shows which pilots occupy a ready aircraft and highlights the leader. Added color highlights to Top and Honor Roll Pilot views.
- When selecting a lead and following groups for a raid, only functional Nav devices

will be indicated on the list (i.e. if range is too far for oboe, etc.)

- “Find Air Units” tab is added to the reaction phase to allow easy lookup and location, showing fatigue, morale, fuel, damage, and current mission of individual pilots/planes within the selected air group during the action.
- Enabled dynamic selection of friendly aircraft during reaction phase.
- Defending player less likely to strike balloon cables, Attacker gains some experience if he kills a balloon.
- Fixed bugs where experience was accumulating improperly or not at all.
- Fixed exploit that allowed Axis player to change weapon loadouts in flight.
- Fixed bug where game was not properly recognizing fighter to fighter-bomber conversion capability.
- Fixed bug where Defender Doctrine was resetting to default each turn.
- Fixed bugs where Fighter-bomber groups with swapped-out bombs could not be grouped together in a bomb raid. Added “b” designation on group lists to differentiate which groups have bombs and which have drop tanks.
- Groups equipped with Navigation (in range of target), Elint, or Radar equipped show “n” “e” or “r” respectively on group lists.
- Improved ability to select objects on map when zoomed out.
- Added altitude performance bands to weapons database display.
- Fixed inadvertent AI moving of RAF 100 Group planes.
- Fixed flight altitude changing to default 20K instead of mission altitude
- “Raid detected” message moved to level 3
- Pilots are now vulnerable to minor, in-flight wounds which can impact performance as they try to return to base. More likely to happen in non-level bomber types and aircraft with low durability rating.
- Several tweaks to ground campaign making combat occurrences more likely, making the breaking of frontlines more sensitive to the level of effort made by allied ground-attack campaign.
- Fixed bug causing targets to highlight blue after closing Order of Battle screen.

Changes & Fixes:

- Fixed the dreaded turnback bug.
- Fixed “failure to launch” bug, which also allows mouse-over information to appear on units from later flights like night bombing, intruders, and night fighters where it did not display before.
- Fixed garbled fatigue display for Axis interceptors in flight.
- Raid path lines are now color coded. Blue=night mission, white=day bombing, yellow=recon, green=sweeps. Red is always return leg regardless.
- Fixed turns since last mission to show correctly for assign lead group.
- Fixed attacker’s view of target damage levels changing after loading saved game.
- Added OVC and moonrise display to raid planning screen.
- Added random altitude loss for damaged bomber stragglers.
- Added minor moral check penalties for not resting between missions. Rally (regaining of morale) dependent more on leader inspiration value.
- Fixed supply bug where troops were tracing supply using non-existent locations.
- Fixed bug where some groups without replacement aircraft remained leaderless after leader returned to group.
- 1945 AI will convert older me109’s to TA 152’s if available.
- CLARIFICATION: Before Wilde Sau tactics change, single engine nightfighters can change to 2-engine types, but not vice versa.
- Gave Recon pilots more opportunity to gain experience
- Added more availability dates to unit display.
- Cleaned up allied action log display columns. Re-added asterisk symbol for NAV-equipped bomber groups in unit display (not sure why this was taken away in the first place.)
- Several unused locations no longer get loaded into game data. This fixes targeting and hidden flak-trap bugs as well as odd troop supply route choices.
- Mistaken targeting slightly reduced if long range, but slightly increased if weather is bad.
- Overall Flak effect slightly reduced.
- Fixed odd supply line trace from German units in south France.

- Air Unit display now shows attached HQ properly.
- Strafing fighters will only target airfields with recon-confirmed enemy planes, otherwise they will simply patrol over the target airfield until bingo fuel. This eliminates suicide airfield attacks on empty airfields on the return leg.
- Allies must now have AS of 3 or greater to win BTR campaigns, otherwise best they can achieve is a draw.
- Allied Sudden Death minimum score threshold now shows in red beneath score total in BTR campaigns.
- Greatly improved shuttle functionality.
- Fixed some map graphic anachronisms.
- Added Allied-Italian roundel (was German cross).

More OOB changes, See separate listing.

v1.04– March 5, 2019

Changes & Fixes:

- Variable moonlight now corresponds to actual phases of the moon relative to sunrise/sunset.
- Fixed a bug in BoB 40 & 41 campaign where moon rise and set hours went past 24:00 clock during mid-late game.
- Added several tweaks and smarts to make the German AI day and night bomber offensive in BoB more potent.
- BoB: Kg 40 and Kgr 126 units in Brest were maritime patrol and minelaying units. They have been reduced in size from Gruppe to Schwarm (assuming some were used for bombing England) and the balance of He 111's returned to the replacement pool.
- Fixed ops points in BoB and non-campaign BTR scenarios to match rulebook.
- BoB '40 sudden death clarification: as an addendum to what is stated in the rulebook, at the end of the second 31 day period (turn 62), the German player must have a combined victory total of 10 or more or the game ends immediately (this has been in effect since the initial 2009 release.)
- Modified default max ranges for German HQ in BoB to keep early-game AI bombing missions within fighter escort range.

- Ensured detached groups combine with parent when sharing the same base.
- Overcast display simplified to show OVC (overcast) base and height elevation.
- 'Top pilots' and 'Honor Roll' views now show days until return to service for WIA veterans.
- Luftwaffe units in Balkans "Sud Ost" groups now go on alert normally when Allied raids form up in Italy.
- Fixed duplicate German infantry division showing up on French coast in 1944.
- Ensured ground war events are triggered the same dates in both 1943 and 1944 campaigns. D-Day happens June 6, 1944 (note that the date for D-Day, Avalanche, and East Front collapse cannot be influenced by bombing troops.)
- 88mm FlaK 41 now distributed by AI from AA pools to home defense in BTR. Similar fixes to some RAF AA guns in BoB.
- Map now re-centers only when an event falls outside of the current view. The frenetic screen jumping is greatly reduced, especially noticeable for BoB and the smaller scenarios.
- 'Intercept', 'Set Patrol', and 'Set Doctrine' displays now show Nightfighter Groups in blue for easy reference. 'Set Doctrine' display now lists only aircraft currently in use by that Command, with ability to quick reference aircraft database for selected aircraft type.
- Fixed a bug where the random number generator was always producing the same sequence of numbers at start and not re-seeding. This impacts anything that is randomly set at the start of the scenario, and possibly some other effects.
- Fixed a bug where "lowest ready" aircraft was showing incorrectly.
- Clarified "autoplan missions" button and renamed "set bomber targets" to "autoplan missions". Added hotkey text to menu buttons.
- Verified that changing clock speed from anything but 1 impacts the combat results (as previously suspected). Fixing this bug was very complex so for now clock speed hardwired to 1 and menu button removed. You can still adjust the clock/timer settings under 'Options'.
- Fixed a major bug/exploit where the cloud cover in BoB games would reset to the north edge of the map whenever the map was zoomed out.

- Reworked the Fuel-Oil economy routines and greatly reduced the amount of oil and avgas produced by industry. Added a penalty/benefit to ground troop supply depending on shortage status. Shortages are now much more likely to occur with a dedicated fuel/oil campaign. Both players will be notified when the shortage is in effect, but only the defender will see just how severe it is. Besides needing avgas to fly airplanes, shortages impact the delivery of replacements to ground units in BTR leading to greater ability to break the defensive lines.

Note that Oil refineries do not produce avgas in BTR, avgas comes from synthetic fuel refineries only. Oil in BTR is used only by the home economy and for supplying the ground troops and the excess is stored.

In BoB, avgas comes from weekly port deliveries and oil refineries. Oil that is not converted to fuel in refineries is used by the home economy and the excess is stored. When the demands of the home economy in both games can no longer be met, a shortage occurs.

- Fixed several cases where aircraft were not converting to elint or other types.
- BTR: Fixed several German fighter default doctrines. Also, as the war progresses, Luftwaffe AI doctrine may tend to ignore escorts and become more aggressive toward bomber formations.
- BTR: "Wilde Sau" nightfighters Bf 109G-6/U4N and Fw 190A-5/U2 cease production and convert into day fighters sometime before the end of March 1944. Bf 109G-6/U4N upgrades to Bf 109G-14 in July 1944 and Fw 190A-5/U2 upgrades to Fw 190A-8 in March 1944. Nightfighters cannot change to Wilde Sau types.
- Added moral loss for delayed or scrubbed Allied missions.
- Reduced accuracy for high altitude raids >25000' more or less
- Increase risk of mechanical or crew damage at high altitude (icing).

Scenario rebalancing:

- Overlord scenarios: Axis receive points for serviceable aircraft west of x=540 instead of x=500 (this also matches the western limits of "terror bombing" targets.
- Avalanche scenario: Allies receive 75 points per airfield captured in Italy instead of 100. Axis receive points for serviceable aircraft south of y=875 instead of y=950.
- Both 1943 and 1944 campaigns are 65 turns shorter, ending in April 1945, corresponding to the historical date that major offensive air operations ended and giving the Luftwaffe a better chance to win before the entire economy is overrun. Allies must achieve 90 VP instead of 85. Added some more historical at-start damage to German cities. Set baseline terror and industry points the same for 43

and 44 scenarios, and sudden death calculation assumes 44 scenario is already 6 months along (so Allies will already need a minimum score of 14 at the March 1944 checkpoint...)

- Fixed the 1944 Jet Age scenario. Me 262's now come on with a vengeance at start, with the AI doing a good job of integration into the Luftwaffe. 1944 Jet campaign length and VP unchanged but sudden death calculation applies as with 1944 campaign.
- Fixed bugs where German targets and bases in Crete and Balkans would remain until the end of the war. Fixed Rimini airfield behind enemy lines.
- Axis player can now select ground troops during movement phase and see the supply value and path without it flickering by too fast to read. Replay messages can also be read now without flickering by regardless of scroll speed.

Many more OOB changes, See separate listing.

- Most Allied reinforcements have increased delays.
- In the 44 campaign, all 2ndTAF Typhoons are now rocket equipped.
- The LSNF now has its historical OOB.
- Wherever possible, all units now have their historical leaders.
- Fixed a few data errors introduced in the last patch, mainly dealing with replacements.

v1.03– Nov. 26, 2017

- **Changes**
 - Overhauled Production System User Interface. Added priority buttons and filters for aircraft type. Added "Weapon Database" menu bar to Production screen. Also changed how research works (See production system write-up in the "Manuals" folder.)
 - Added "highlight airfields with units" button to Defender's reaction phase side menu.
 - Reduced priority of multi-engine aircraft production.
 - Changed the unit upgrade message to show the old AC type as well.
 - Added minimum CH chances for increased damage CH and one-shot-kill CH.
 - Added code to limit units to one strafe attack per mission.
 - Added missions, sorties, fatigue and "days since last mission" columns to

squadron information screens.

- Added a sort button for the units to sort by unit ID.
- Added ability to bring up "Unit Detail" screen by clicking squadron info button twice in "List Air Unit" and "Order of Battle" screens.
- Added filters for displaying unique aircraft types (fighter, fighter bomber, jets, etc.) on several info screens.
- Added historical pilots and leader names to RCAF and other units. Modified the P-61 endurance and allowed rockets to some Typhoon standard load outs (see details in "November 2017 OOB changes" document.)
- Modified aircraft graphics to be more proportionally realistic during Action Phase.
- Added roundels for RCAF, RAAF, and RNZAF aircraft.
- Modified over 70 map locations to more geographically accurate locations (i.e Bitburg, Munster, Rostock, etc.)
- New Map Graphics courtesy of George Ross' awesome visibility mod.
- Added Production and PBEM instructional PDF's

- **Fixes**
- Fixed replay crash and wrong aircraft graphic bug.
- Fixed wrong anthem playing for victorious nationality.
- Found a bug in the AI prod routine that may have caused too many new AC to be built when the old type was needed.
- Fixed a minor error in the loading of buttons.
- The "toggle on/off following units" button in Action Phase reversed to now read correctly.
- Fixed a few other minor issues that may have caused CTD's in the past.

v1.02 – Dec. 9, 2009

- **Performance Fix**

- Created new drawing method for target and aircraft highlights, now a bazillion times faster.

- **Changes**

- Stopped Random Seed from being the same every time the game is executed
- Added tag to prevent at-start pilots from being overwritten if they are killed with no kills to their name
- Set raids hidden by Jammers to random estimated altitude, rather than 0
- Reworked the Critical Hit system to lower the CH chance and damage for smaller caliber weapons, but increase damage for larger caliber weapons.
- Lowered the chance of mis-claims in the raid report
- Changed production needs display to count only sites with less than 50% damage, and estimated output for those with some damage
- Lowered crash chance for damaged level bombers
- Added morale and Fatigue checks to AI interceptions. Units with low readiness, low morale or high fatigue may refuse to fly.
- Increased maintenance times based on time in air.

- **Fixes**

- Factories on delay now do not produce
- Fixed Campaign Summary, Weapons Database and Continuous Play (AI v AI games only buttons being difficult to click
- Fixed Time over Target display not updating correctly.
- Fixed issue with Ta152c and Fw190A8 factory upgrades being free in some situations
- Lowered "Extra Recon" message to level 3
- Fixed issue that stopped some interceptors from climbing, causing mass casualties at night
- Fixed issue where some following flights did not register passing a waypoint, causing turnbacks

v1.01 – Oct. 19, 2009

- **Code fixes**

- Waiting Cursor in new games fixed.
- Added a set mouse-cursor function after editing game comments. This should correct the issue of losing the cursor when hitting enter.
- Fixed an issue that prevented some ground forces from being created.
- Fixed the non-responsive buttons in playback.
- Fixed Raids hanging in late game.
- Added production stockpile to the "Production Requirements" screen.
- Added code to top the "review mission" scrollbar in react phase, or focus on mission if one is selected.
- Stopped not-yet-in-production airframes from affecting the requirements. This only applies to post-dated factories, not to production lines changing over.
- Increased research requirements - now operates on a scale from 100 per month if the Aircraft is close to production up to over 800 for very late models in the early game. Basically, the reward for effort is greater the closer you are to production.
- Stopped the "top Pilots" list from being insanely large - limited to 500.

- **AI Changes**

- Stopped AI from upgrading FACs on human control.
- Changed the way the AI finds new Aircraft to upgrade to - it now does NOT skip a generation if there are sufficient Aircraft, it does skip a generation if the first order upgrade is either used once that turn, or has insufficient aircraft. It then tries all Aircraft in the upgrade path, not just the first and second order upgrades. This is to stop the AI from stockpiling late Aircraft while some units were still flying at-start Aircraft.
- Completely rebuilt AI production system. The AI is now more attentive to what's in use, what's in stock and what's in deficit. The AI will now ensure that production in old types continues till there's enough spares to support the existing units, though it does convert a limited number of Facs to get the critical mass. It also makes smart decisions on Parts and Engines, to ensure that there are stocks, and appropriate amounts being built. It will take production away from anything with a huge pool to something that is lacking. It is no longer constrained by brand (not that it really ever was). Finally, it will convert excess production in type to

research, AND will convert unneeded production (Like Macchi FACS not in use after the Italian Surrender) to other more needed types.

- **Graphics**

- Reversed the font load order to ensure the default font was the "normal" weight. You'd see the light font after an alt-tab redraw.
- Fixed a bug preventing flight/intercept lines from showing up.
- Fixed the tops and roundels when swapping between BOB and BTR.
- Fixed a hanging scrollbar in reaction phase - review raids.
- Added buttons to choose your scroll speed .
- Added buttons to choose your max game time per RL second. This is the MAX, not a constant speed setting.
- Added code to re-draw after alt-tab.
- Fixed sorting top pilots by mission.
- Fixed side images of RAF Aircraft.

- **Known Issue**

- During Reaction Phase there can be flickering of the screen, much like a strobe effect.

v1.00 – Sept. 23, 2009

- **Initial Release**

Known Issues

- Using Alt + Tab causes a graphics error in the game. The game takes a while to restore the screen to normal after returning to the game. Moving the mouse, or changing screens, in game, may quicken recovery.

-It is best, when starting a new scenario, after leaving an old one, to fully exit the program and restart the game, to clear the game memory. Otherwise, graphics errors can occur.