BATTLEFIELD 4™
FALL UPDATE PATCH NOTES

UPDATE HIGHLIGHTS

The main focus for this update has been the finalization of the Community Map Project, resulting in the map "Operation Outbreak" which we built openly on the Community Test Environment.

This release also includes a pretty extensive vehicle balance pass, which prompted us to change the format of the patch notes list in order to explain our changes better – we hope you like this new and more detailed version!

OPERATION OUTBREAK – THE COMMUNITY MAP

The Community Map Project is unique in many ways. We've allowed insight into the process of making a Battlefield map from the prototype stage until the finished product shipping with the Fall Update!

Our initial goals for this map were to have an infantry focused, terrain based, medium sized map (like Zavod 311) featuring all out destruction but sporting no massive set-piece event, and it was to be a pleasant place to play for longer periods.

With this as a starting point, we asked the community through polls and our channels what direction we should take, and everything from the theme (Jungle won the first vote), the name (Operation Outbreak) and points of interest (Waterfall, Temple, among few) were picked by and influenced by the active community.

We are very happy with the outcome of this experiment, and the map really speaks for itself.

A big *Thank you* to everyone that took part in this project!

A top down view of the Harau Valley

Operation Outbreak supports the following game modes:

- Conquest Large/Small
- Rush
- Domination
- Obliteration
- Squad Obliteration
- Team Death Match x2
- Gun Master x2
- Squad Death Match x2
- Chainlink
- Capture The Flag

VEHICLE BALANCE PASS

In this release we have an extensive amount of improvements and changes to vehicles, vehicle related gadgets and infantry gameplay related to vehicles.

To understand what our rationale or intent was with these changes, let's start with a brief summary:

- Ground vehicles: Improve mobility and countermeasures to make vehicles more powerful overall
- Air vehicles: Add below radar support, improve counter measures and overhaul AA-missile balance for a more dynamic setup
- Vehicle weapons: Re-balance vehicle weapons to give a more meaningful spectrum of choices between competing options per vehicle. All weapons should have a good use case and niche now.
- Mobile Anti Air: Reduce effective range of MAA so it has to advance into the fray a bit more, while still maintaining its role as the counter to aircraft

To put the pretty massive change list in context, we decided to list everything grouped by category and with a clear *intent statement* at the top followed by the detailed changes list.

COMMON VEHICLE WEAPON CHANGES
Secondary Weapon: Active Radar
The new role of the Active Radar missile is long-range combat. It has worse tracking at low to medium range, and the lowest damage of all AA-missiles. With less available ammo shots have to be taken with more care.
These changes impact all vehicles with the weapon: Mobile Anti-Aircrafts & Stealth Jet:

- Physics: Impact impulse reduced to 1500

- Ammunition: Auto replenish increased to 30s from 25s
- Damage increased to 135 from 100
- Ray length increased to 650m from 500m
- Guidance delay set to 0.5s
- Guidance no longer tracks within 100m
- Turn rate reduced to 350 max
- Increased maximum velocity to 350m/s
- Enabled force spawn to camera for more accurate aiming
- Enabled locking empty vehicles
- Time to activate guiding system is now 0.5s
- Acceptance angle has been reduced to 1.8° from 2.0°

Secondary Weapon: Passive Radar

The role of the Passive Radar is now focused on being anti-jet. It will have good top speed and pre-firing. Pre-firing allows for setting up traps, but the hold-lock mechanic gives targets good chances of evading. Also prevents use of main cannon. These changes impact all vehicles with the weapon: Stealth Jets, Mobile Anti-Aircrafts, & Attack Boats.

- Physics: Impact impulse reduced to 2000
- Ammunition: Auto replenish decreased from 30s to 20s
- Damage increased to 195 across all vehicles
- Ray length increased to 650m from 500m
- Time to live reduced to 6s from 10s
- Turn rate reduced to 350 max
- Enabled pre-firing
- Increased acceleration to 75m/s²
- Unified lock time to 1.1s
- Unified acceptance angle to 5°
- Enabled force spawn to camera to increase aiming accuracy

Secondary Weapon: Heat seekers

Easy fire-and-forget style missile, for closer ranges than active radar with better damage and ammo availability. Medium damage. These changes impact all vehicles with the weapon: Stealth Jets, Attack Jets, Scout Helicopters, Attack Helicopters, and Mobile Anti-Aircrafts.

- Physics: Impact impulse reduced to 2000
- Ammunition: Auto replenish decreased to 20s from 30s
- Damage increased to 195 across all vehicles
- Ray length increased to 650m from 500m
- Time to live reduced to 7s from 10s

- Turn rate reduced to 250 max
- Increased acceleration to 50m/s²
- Increased maximum velocity to 250m/s
- Unified lock time to 1.3s
- Unified acceptance angle to 5°
- Unified guidance delay to 0.2s
- Enabled locking empty vehicles

Secondary Weapon: Laser Guided

Damage against laser designations has been corrected. Lock range has been increased, except for jets.

- Laser designated now no longer one-hits aircraft
- Laser designated now can properly track and hit fast moving ground targets
- Fixed issue where some laser designated missiles did not track properly at launch
- Lock range for designated missiles increased to 650m from 500m
- Reduced lock time to laser designations to 1.2s from 1.5s

Secondary Weapon: TOW missile

Damage against laser designations has been corrected, lock range has been increased.

- Laser designated now no longer one-hits aircraft
- Laser designated now can properly track and hit fast moving ground targets
- Lock range for designated missiles increased to 650m from 500m
- Reduced lock time to laser designations to 1.2s from 1.5s

Secondary Weapon: Zuni Rockets

Changed speed and acceleration to give them a more natural trajectory. This change applies to the Attack Boats, Mobile Anti-Aircrafts, and Infantry Fighting Vehicles. This does not affect the Attack Helicopter primary weapon.

- Engine strength increased to 125m/s² from 50m/s²
- Max speed reduced to 200m/s from 300m/s

- Time to live reduced to 5s from 6s

Gunner Upgrade: Gunner Incendiary

Added blast damage to make it actually dangerous, improved velocity and increased range.

- Initial speed is increased to 40m/s from 15m/s
- Initial upward speed increased to 3m/s from 0m/s
- Blast damage increased to 60 from 0
- Blast radius reduced to 5m from 7m
- Reload time reduced to 5s from 10s
- Time to live increased to 3s from 0.5s

Passenger Weapons: Mini-guns

Boosted damage up close, but with reduced max range

- Boat mini-gun damage increased to 6-12 from 2-10 damage
- All mini-gun damage now drops faster - reduced to 200-300m from 250-500m

COUNTERMEASURE CHANGES

Countermeasure: IR Flares

Reduced reload to allow aircraft to get back into combat faster, pop more flares to increase duration of protection slightly. This was an issue for jets, as they popped flares only once and could be relocked almost right away previously.

- Reload time reduced to 15s from 20s

- Increased amount of flares that are fired to improve efficiency and increase protective duration
- Flares now work better against passive radar missiles
- Flares work a little better against heat seeker, stinger missiles and IGLA

Countermeasure: ECM Jammer

Reduced reload like on IR flares. Longer protection than flares, but also longer reload. The longer protection allows you to stay in combat for a bit while with flares you have to run away almost immediately. Can also be used to prevent lock-ons, as an option for very defensive players.

- Reload time reduced to 20s from 25s

Countermeasure: Fire extinguisher

Lowest reload of all countermeasures, as it does not prevent any incoming damage, it solely removes the effects of mobility hits.

- Reload time reduced to 8s from 25s

Countermeasure: Active Protection

Reduced both uptime and downtime. This means players will have to time usage better and it will no longer stop a complete strafe from an aircraft. Improved reliability when active.

- Reload time reduced to 22.5s from 35s
- Up time reduced to 2.5s from 5s
- Removed early shutdown mechanic. Previously, the protection would get cancelled earlier than the expected 5 seconds from specific weapons. This will no longer be the case and will continue for the full duration.
- The red lights will no longer appear while the Protection System is on cooldown.

Countermeasure: IR Smoke

Reload time changed to be in line with other countermeasure timings.

- Reload time reduced to 15s from 15.8s (HUD previously incorrectly stated 25s)

Countermeasure: Smoke screen

Reload time changed to be in line with other countermeasure timings.

- Reload time was changed to match intended reload of 12s
- Minimum damage angle radius has been increased by 1m

AIR VEHICLE CHANGES

General: Below Radar

Previously there was no reason to fly at low altitudes in air vs air combat, as flying low only prevented the player from aiming upwards. It was also extremely hard to avoid lock-ons from enemy aircraft, as they could chase you and physical cover barely helped against enemies above you.

Allowing to trade altitude for not being lockable solves this. Also creates a distinctive downside to passive radar: Your target going low will mean the missiles cannot track anymore!

- Below Radar has been enabled on all air vehicles – this means locks on your aircraft can not be completed when below a certain height!
- Below radar triggers below 25m for helicopters and below 50m for jets
- Affects all vehicle based AA missiles, but none of the infantry based ones – watch the ground for stinger wielding infantry!

General: Critical hits

Critical damage models have been changed for aircraft to make them less likely to crash from a critical hit. Critical hits are meant to impair mobility, not crash and kill players.

- Critical behavior tweaked to make an aircraft less likely to crash when critically damaged. Helicopters should spin less and jets should pitch less.

General: Helicopters

Improve AA missiles hit consistency across the board.

- AA Missiles now no longer fly through Transport or Scout helicopters

General: Jets

Re-inforce the rock-paper-scissor model by making jets more powerful against scout helicopter and less so against the both infantry fighting vehicles and the overall less powerful mobile anti air.

- Damage of jets against scout helicopters increased by 20%

- Damage reduced against IFV and MAA

Attack Jets Primary: 30MM GAU Cannon

- Enabled speed inheritance to improve crosshair accuracy
- Damage increased against scout helicopters

Attack Jets Secondary: Hydra Rockets

- Reticle updated
- Range reduced to 750m

Stealth jets: General

- Doubled the amount of AA missiles carried (Heat-seekers, Passive Radar, and Active Radars)
- Primary weapon damage increased against scout helicopters
- Deviation of jet 20mm and 25mm cannons reduced to 0.36° from 0.4°

Attack helicopters: General

- Removed speed inheritance from the co-pilot gunner seat
- Reduced range of rockets to 750m

Attack helicopters Primary: Smart rockets

- Ammunition: auto-replenish time reduced to 16s from 18s
- Removed dispersion fully
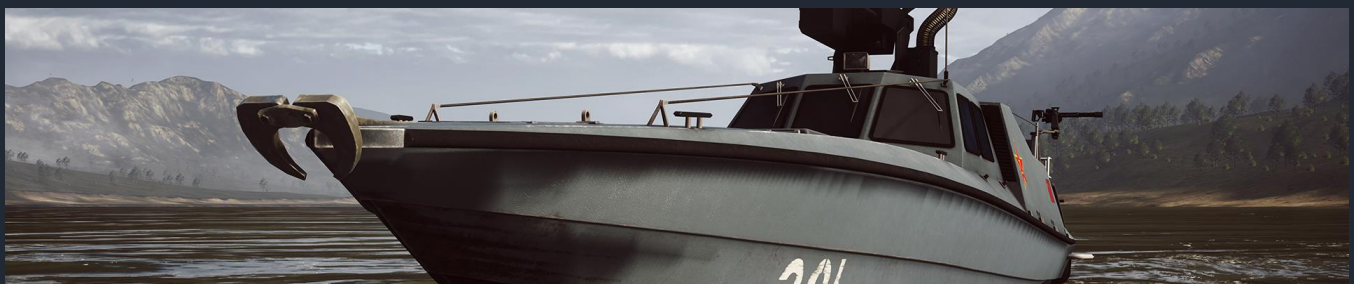
WATER VEHICLE CHANGES

General

All primary weapons are now more evenly balanced against each other. Boat mobility improved with

faster reverse, and angle damages is a bigger factor allowing for more skillful positioning.

You now take less damage with good angles towards your opponent, but more damage with a bad angle.

Tank shells are now less likely to inflict critical hits due to the new angle multipliers.
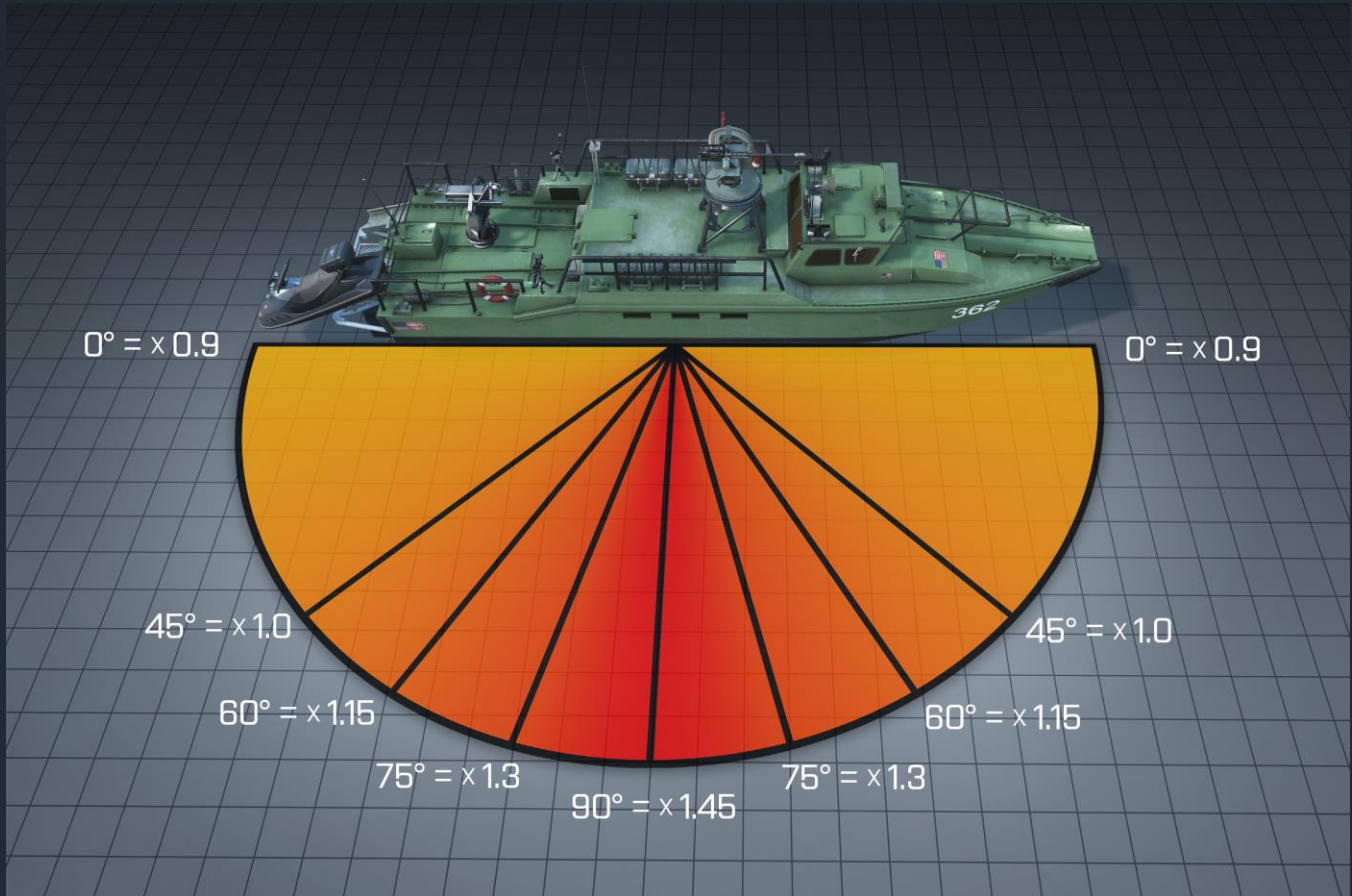
The new angle damage multipliers shown across the side of an attack boat

Primary weapon: 25MM cannon

Highest damage per magazine. Good against infantry.

- Blast damage increased to 22 from 20
- Initial speed increased to 300m/s from 200m/s
- Gravity increased to -6m/s² from -3m/s²
- Damage reduced to 13.5 from 15
- Physics: Blast impulse reduced to 500 from 750
- Ammunition: Auto replenish delay reduced to 12.0s from 20.0s
- Max angle reduced to 0.2° from 1.0°
- Inner blast radius increased to 2m from 1m
- Blast radius increased to 5m from 3m

- Damage reduced against tanks

Primary weapon: 30MM cannon
Highest damage output over time against ground vehicles, delivers damage very quickly. Low range.

- Blast damage reduced to 22 from 25
- Damage reduced to 24 from 30
- Ammunition: Auto replenish delay reduced to 12s from 16s
- Dispersion: Min angle reduced to 0.2° from 0.5°
- Dispersion: Max angle reduced to 0.2° from 1.5°
- Gravity reduced to -6m/s² from -9.81m/s²
- Inner blast radius increased to 2m from 1m
- Blast radius increased to 5m from 3m
- Number of magazines decreased to 3 from 4
- Damage reduced against tanks

Primary weapon: Burst cannon
Very high damage output against aircraft. Good at range.

- Damage reduced to 8 from 10
- Physics: Blast impulse reduced to 500 from 750
- Ammunition: Auto replenish delay reduced to 12s from 20s

Primary weapon: Passive Radar Missile

- Passive Radars are now properly firing Passive Radars, instead of Heat-seekers which were used previously

Primary weapon: Laser guided
Corrected inconsistency with magazine counts and auto-replenish differing across factions.

- Magazine count normalized at 2 on all boats
- Ammunition: auto-replenish is now 15s on all boats

Transports: RHIB
Improved survivability of the RHIB.

- Health increased to 750 from 500
- Rear bonus damage removed

LAND VEHICLE CHANGES

General

Improved velocity and handling and tweaked all weapons to make them viable options

- Increased the size of the Active Protection shield. Now works better when moving
- Corrected reticles for tanks, IFVs and MAAs

Main Battle Tanks

Improved survivability in vertical environments, bad/back angles now cause more damage. Increased speed and acceleration, normalized the faction differences somewhat

- Angle multipliers
    - Top: Reduced multipliers for angles better than 45° to improve tank survivability in environments with high verticality.
    - Front: Increased multipliers for angles better than 45° a smidge so they make a bigger difference
- Handling: M1 Abrams
    - Improved acceleration
    - Increased maintained top speed to 61 km/h from 53 km/h
- Handling: T-90 A
    - Increased maintained top speed to 57 km/h from 54 km/h
- Handling: TYPE 99
    - Increased maintained top speed to 60 km/h from 54 km/h

Main Battle Tanks Primary: AP Shell

The default shell. Good at killing infantry and vehicles. Reduced impulse to give helicopters a better chance of recovering after a hit.

- Physics: Impact impulse reduced to 2500 from 5000
- Physics: Blast impulse reduced to 1500 from 5000

Main Battle Tanks Primary: Sabot Shell

Excels at taking out armor due to high velocity, making it very hard to dodge and better against aircraft

- Physics: Impact impulse reduced to 2500 from 5000
- Physics: Blast impulse reduced to 1500 from 5000

Main Battle Tanks Primary: HE Shell

With Sabot shells covering the anti-armor role, HE has been turned into HE-DP (high explosive, dual purpose), offering better damage against infantry. Great against destructible cover.

- Blast damage increased to 120 from 50
- Inner blast radius reduced to 1.3m from 1.5m
- Blast radius increased to 5.5m from 4m
- Reload time reduced to 3s from 4s
- Damage reduced to 200 from 280
- Velocity increased to 200 from 150
- Renamed to HE-DP
- Physics: Impact impulse reduced to 1500 from 5000
- Physics: Blast impulse reduced to 1500 from 5000

Main Battle Tanks Secondary: Guided shell

Turned it into a valid long range option, comparable to Laser Guided missiles. Damage no longer relies on what angle you hit your target but is consistent.

- Ammunition: Auto replenish delay reduced to 15s from 30s
- Reload time reduced to 4s from 5s
- Undesignated hits
    - Ray length increased to 550m from 300m
    - Inner blast radius reduced to 2.99 from 4.49
    - Blast damage increased to 150 from 100
    - Damage is now 450
    - Blast radius reduced to 3.0m from 4.5m
    - Physics: Impact impulse is now 2500
    - Physics: Blast impulse is now 1500
    - Max turn angle is now 720°
    - Gravity increased to –20m/s² from -7.2m/s²
- Designated hits
    - Inner blast radius reduced to 2.99m from 4.49m
    - Blast damage reduced to 225 from 250
    - Damage is now 450

- Blast radius reduced to 3.0m from 4.5m
- Physics: Impact impulse is now 2000
- Physics: Blast impulse is now 1000
- Max turn angle is now 720°

Main Battle Tanks Secondary: Staff shell

Now a close-medium range option to land critical hits on enemy vehicles. Low ammo count. Tracking similar to MBT-LAW.

- Ray length increased to 150m from 15m
- Acceptance angle decreased to 1.8° from 20.0°
- Check visibility length increased to 150m from 15m
- Velocity decreased to 150m/s from 180m/s
- Number of magazines reduced to 2 from 5
- Ammunition: Auto replenish delay increased to 20s from 10s
- Damage reduced to 0 from 37.5
- Inner blast radius reduced to 2.99m from 4.49m
- Blast damage increased to 150 from 100, material changed
- Blast radius reduced to 3m from 4.50m
- Reload time increased to 4s from 3s
- Lock on visible targets only is now enabled from being disabled
- Physics: Blast impulse reduced to 1500 from 5000

Main Battle Tanks Secondary: Coaxial LMG

Reduced overheat to allow for more generous use in sticky situations. LMG is intended as an easy and reliable anti infantry option.

- Heat per bullet reduced to 0.0635 from 0.07
- Suppression Max multiplier increased to 9 from 8
- Suppression Min multiplier reduced to 9 from 12

Main Battle Tanks Secondary: Coaxial HMG

Faster overheat, but better velocity to signify its intended use as a long range alternative to LMG. Damage and suppression reduced. Unlike the LMG, the HMG can hurt unarmored vehicles.

- Velocity increased to 670m/s from 500m/s
- Heat per bullet increased to 0.145 from 0.1
- Heat drop per second increased to 0.5 from 0.34
- Suppression Max multiplier reduced to 20 from 25
- Suppression Min multiplier reduced to 20 from 34

- Start damage reduced to 45 from 50
- End damage reduced to 30 from 38

Infantry Fighting Vehicles: General

Cannons can shoot up higher to deal with verticality. Acceleration on steep slopes improved.

- Increased turret upwards angle constraints from 15° to 25°
- Enabled top hitbox for hits to the flat top, not only the turret
- Increased top speed slightly
- Improved acceleration on steep slopes

Infantry Fighting Vehicles: 25MM HE Shell

Slightly improved damage against vehicles, greatly improved damage against infantry. HE shell should be seen as the all-round option

- Inner blast radius reduced to 2.0m from 2.5m
- Blast damage increased to 35 from 20
- Damage increased to 24 from 20
- Velocity increased to 225m/s from 200m/s
- Dispersion Min angle reduced to 0° from 0.5°
- Physics: Impact impulse reduced to 500 from 1500
- Reduced damage against tanks

Infantry Fighting Vehicles: APFSDS Shell

Improved damage against vehicles compared to the two other options

- Damage increased to 32 from 24
- Physics: Impact impulse reduced to 500 from 1500
- Reduced damage against tanks

Infantry Fighting Vehicles: Canister Shell

Anti infantry option compared to the other two shells

- Damage model: Changed material
- Damage multiplier against helicopters increased to 0.6 from 0.6

Infantry Fighting Vehicles: Coaxial LMG
Similar changes as to tank LMG, but damage has also been increased to make it more competitive with TOW missiles and Zuni rockets.

- Heat per bullet reduced to 0.0635 from 0.07
- Suppression Max multiplier increased to 9 from 8
- Suppression Min multiplier reduced to 9 from 12
- Start damage increased to 27 from 22
- End damage increased to 18 from 15.6

Mobile Anti Aircraft: General

- LAV-AD can climb mountains as well as its MAA siblings now
- Damage of MAA cannons has been decreased against jets and tanks

Mobile Anti Aircraft: 20MM Cannon
The better choice against fast moving targets (jets) and easier to use than its 30mm counterpart.

- Drop off moved to 600-1000m
- Maximum damage reduced to 12.6 from 15
- Minimum damage reduced to 4.2 from 12.6
- Reduced damage against infantry in general

Mobile Anti Aircraft: 30MM Cannon
Better at closer ranges (within 800m) than its 20mm counterpart. Perfect for going closer to the frontlines and negating airspace.

- Drop off moved to 700-1000m
- Maximum damage reduced to 49 from 50
- Minimum damage reduced to 20 from 42
- Reduced damage against infantry in general

Transports: AAV-7A1 AMTRAC
Improved survivability of the AMTRAC

- Health increased to 1250 from 1000
- Gunner turret restraints are set to match the angle indicator of the HUD

Transports: LYT2021, VDV Buggy, M1161 ITV
Improved survivability of the unarmored jeeps

- Front damage bonus removed

INFANTRY BALANCE CHANGES

The majority of the changes for infantry sits in direct relation balance wise to the vehicle changes, sprinkled with some general improvements and balance changes for shotguns and the Mare's leg.

GENERAL CHANGES

Battle pickup HVM-II

HVM-II is now turned into a High Velocity Missile. Powerful, but no longer kills any aircraft in one hit. Previously, the HVM was the best AA missile in the game, as its awkward velocity lets it bypass countermeasures easily. Highest damage.

- Damage reduced to 52 from 100
- Initial speed increased to 20m/s from 1m/s
- Acceleration increased to 75m/s² from 20m/s²
- Maximum speed increased to 350m/s from 200m/s
- Time to live reduced to 6s, when lased: 10s
- Turn rate reduced to 350 max

Battle pickup M136 CS (AKA AT4)

Set to constant velocity, increased blast radius to improve performance against infantry.

- Initial speed increased to 70m/s from 40m/s
- Engine strength decreased to 0m/s² from 10m/s²
- Max speed reduced to 70m/s from 100m/s
- Inner blast radius increased to 1.5m from 0.35m
- Blast radius increased to 5m from 4m

Shotguns

Reduced efficiency of buckshot and flechette at medium range and balanced shotguns better against each other.

- Reduced damage of Buckshot and flechette ammo to lower performance at range
- Reduced number of pellets on the UTS 15, Saiga 12k, DAO-12, DBV-12, & M1014 to improve balance
- Damage drop-off reduced to 24-32m from 25-50m

Mare's Leg

Improved damage at medium range to give it an advantage over the .44 Magnum

- Damage drop-off increased to 60m from 45m

C4

Damage reduced. With its throw distance and the absence of reactive armor blocking damage, it was too easy to destroy vehicles with. Increased time to resupply as well.

- Blast damage reduced to 400 from 500
- Inner blast radius reduced to 1m from 2m
- Blast radius reduced to 4m from 5m
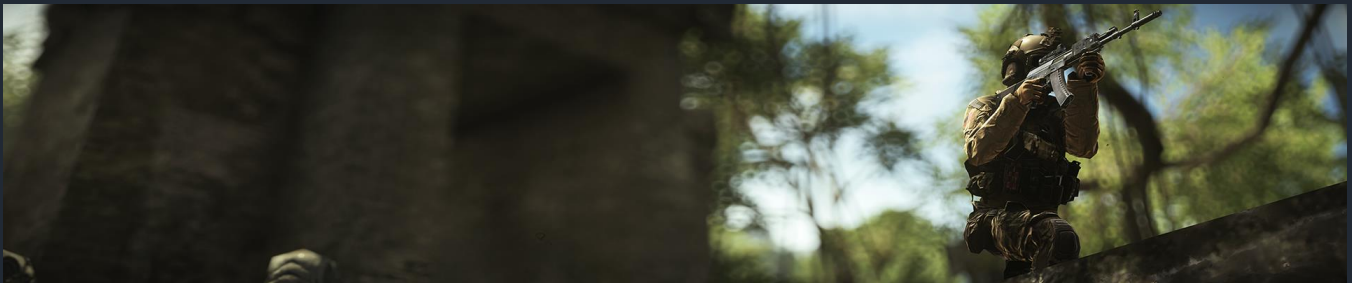
ASSAULT CHANGES

Assault gadget: M320 GL

Improved velocity and blast damage. Added one magazine. M320 3GL is now able to land significant blast damage with all three shots combined.

- Initial speed increased to 32m/s from 25m/s
- Number of magazines increased to 3 from 2
- Blast damage increased to 45 from 35

Assault gadget: M320 DART

Applied changes similar to normal shotguns: More pellets, less damage, tighter cone. Performance should be more consistent.

- Number of bullets per shell increased to 24 from 12
- Pellet cone reduced to 2.0° from 2.5°
- Start damage reduced to 11.2 from 25
- End damage reduced to 5.6 from 8.4
- Damage fall-off start distance increased to 24m from 12m
- Damage fall-off end distance increased to 32m from 30m

Assault gadget: M26
Increased accuracy when moving and aiming to be in line with other shotguns.

- Min angle reduced to 0.4° from 1.2°

ENGINEER CHANGES
General

- Removed the ability to use lock-on launchers in vehicles (dumb-fire launchers is still allowed). Vehicles are supposed to be able to get away from infantry, this was made nigh impossible when engineers could use lock-on launches from vehicles.

Engineer gadget: FGM-172 SRAW
The SRAW is now less extreme and more attractive to use. It has less damage, but better velocity at close range and the ability to dumb-fire. It also has more agile tracking for small corrections.

- Damage reduced to 188 from 215
- Initial speed increased to 30m/s from 15 m/s
- Engine strength increased to 30m/s² from 25m/s²
- Tracking range increased to 500m from 450m
- Changed the physics property from Missile to Tank Shell (this increases damage against IFV, MAA, FAC...)
- Min turn angle increased to 2° from 0°

- Turn angle multiplier increased to 3 from 2
- Max turn angle reduced to 30° from 35°

Engineer gadget: FIM-92 STINGER

A dangerous point defense option. With drastically reduced acceleration and increased lock time, targets gets a much better warning period than previously. High damage.

- Acceleration reduced to 50m/s² from 100m/s²
- Lock time increased to 1.3s from 1.0s
- Ray length increased to 400m from 350m
- Damage increased to 270 from 175
- Time to live reduced to 7s from 10s
- Matched static position with IGLA
- Physics: Impact impulse reduced to 2000 from 2500
- Acceptance angle reduced to 5° from 7°
- Turn rate reduced to 250 max from 360 max

Engineer gadget: SA-18 IGLA

Similar to Stinger, but more focused against jets with better velocity and hold-lock mechanic. High damage.

- Acceleration reduced to 75m/s² from 125m/s²
- Maximum speed reduced to 350m/s from 500m/s
- Lock time increased to 1.1s from 1.0s
- Damage increased to 270 from 175
- Time to live increased to 6s from 10s
- Physics: Impact impulse reduced to 2000 from 2500
- Acceptance angle reduced to 5° from 8.5°
- Turn rate reduced to 350 max from 360 max

Engineer gadget: MBT LAW (AKA NLAW)
Matched trajectory with the crosshairs.

- Initial position_y to -0.05m from 0m
- Initial speed_y to 0.5m/s from 0m/s
- Force spawn to camera disabled

Engineer gadget: AA Mine
Changed behavior to work more like a mine with instant lock-on and reduced range, allowed use with engineer launchers, this gadget is only supportive, like AT mines.

- Set lock-on to instant
- Ray length reduced to 75m from 200m
- Max count reduced to 1 from 2
- Increased damage to 210 from 150
- Can now be equipped together with engineer launchers

SUPPORT CHANGES

Support gadget: UCAV
UCAV has been made weaker against vehicles, especially aircraft. Direct impact is against vehicles, airburst is against infantry. You now get a fresh UCAV every 40 seconds.

- Ammunition: Auto replenish delay to 40s from 60s
- Direct attack:
    - Blast damage to 200 from 400
    - Physics: Blast impulse to 1500 from 15000
    - Physics: Shockwave impulse to 500 from 5000
- Airburst:
    - Blast damage to 125 from 200
   - Inner blast radius to 2.5m from 2m

Support gadget: Mortar
Mortar delays have been toned down

- Reduced time before you can use it to 15s from 30s
- You will automatically get a new mortar every 60 seconds

Support gadget: Ammo Box & Ammo Pack
Most gadget resupply times have been tweaked to be more consistent and better balanced

- Grenades
    - M67: 8 seconds
    - RGO: 7 seconds
    - V40: 7 seconds
    - Incendiary: 7 seconds
    - Flashbang 7 seconds
    - Hand Flare: 7 seconds
- Gadgets
    - XM-25 Airburst/Smoke: 7 seconds
    - XM-25/M320 Dart: 2.5 seconds
    - M320 HE/LVG/3GL/Flash: 7 seconds
    - C4: 8 seconds
    - Engineer launchers: 8 seconds
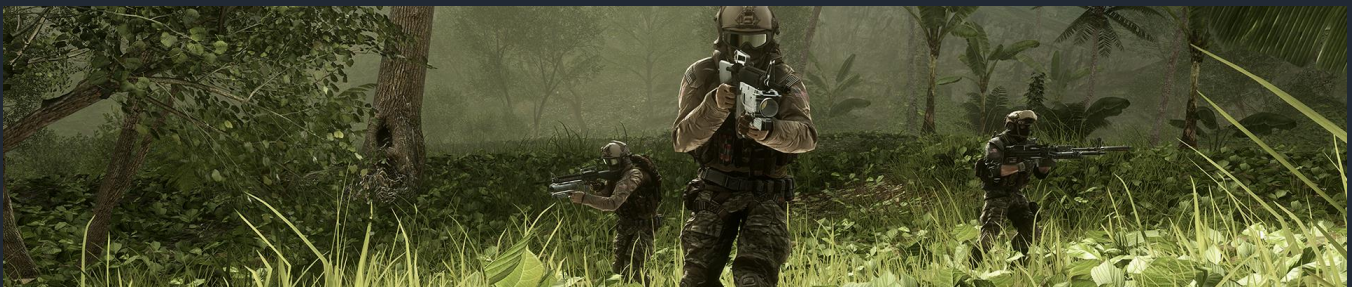
RECON CHANGES
Weapon: CS5

- Zeroing corrected

TEAMPLAY & OBJECTIVE PLAY UPDATES

With this release we've pinpointed some specific changes to help improve objective based and squad team play.

Marksman bonus removed
Marksman distance based points bonus removed as its existence promotes a less objective play style

- Marksman bonus now gives a flat score of 25, shows distance within parenthesis

Objective score re-balance
When looking at stats like score per minute per game mode from launch we identified some modes in need of a scoring boost

- Conquest
    - Flag capture score increased to 400 from 150
    - Conquest Win ribbon score increased to 3000 from 1500
- Obliteration
    - Bomb pickup score increased to 150 from 100
    - Bomb possession score increased to 25 per tick from 10 per tick
    - Obliteration Win ribbon score increased to 2000 from 1500
- Rush
    - M-COM disarm score increased to 500 from 400
    - M-COM destroy score (team wide) increased to 500 from 400
    - Rush Win ribbon score increased to 3000 from 1500

Objective Squad: Squad leader replacement
Targeting inactive squad leaders, we integrated the Hardline solution with some tweaks to the setup to promote active squad leaders

- Squad member requesting an order triggers a cooldown of 30s which if left unanswered swaps the squad leader role to the requesting member
- Attack orders now no longer automatically convert to defend orders on objectives after capture

NETCODE IMPROVEMENTS

With this release we are continuing our quest for the best "netcode" in a multiplayer game.

Included this time are fixes for a majority of the high tick rate known issues that were present in the Summer Patch, and some pretty great general optimizations as well!

If you play on PC, you might have found some high tick rate servers and played at 60hz or more already, and with this release we significantly improve on the experience.

High tick rate specific changes

With this release we addressed several of the known issues from the Beta which only surface when running servers at tick rates higher than 30hz, as well as optimizing and tuning existing features

- Enabled high tick rate servers. Previously released post summer patch, enabling Rental Server Providers to rent servers running higher tick rates than 30hz
- Battlelog: Added high tick rate server browser indicators and filters
- Fixed an issue where jet's pitch up gets cancelled almost instantly when using the mouse on high tick rate servers
- Fixed an issue in which wings on any aircraft behaved inconsistently at higher rates (this also applied when having low framerate)
- Soldier Movement: Implemented sprint acceleration modifiers for high tick rates the same way we did the walk modifiers some time ago
- Weapons: Fixed an issue where burst fire, recoil, spread and gun sway was not applied in a consistent manner
- Fixed some issues related to general movement & vaulting
- Added stronger rubber-banding prevention for high tick rate
- Fixed an issue related to pickup entities fixes (battle pickups etc.)
- Improved server/client synchronization for character input when running at low fps
- Significantly reduced bandwidth usage at higher tick rates

Dual Frame History Time support

With dual Frame History Time we can minimize both dusting and the worst of the high ping issues!

- Infantry & everything not considered a vehicle use FHT 0.125 value. This means that with a ping >250ms you will have to lead your shots to compensate
- Vehicles use FHT 1.0 value. This allows for a majority of projectiles to hit even at higher speeds or pings when in a vehicle
- Bump max allowed latency to 1s as frame history time protects impact on other players now

Visualization & Tools

In this release we've made some pretty extensive improvements and additions to our networking graph

- Performance overlay: General
  - Shows a longer time period in its window, making it easier to follow what is happening
  - Added orange and red colors (warning, severe) to indicate problems. These values are also synced with the HUD icons for corresponding problems (latency, server performance etc.)
  - Changing the latency variation calculation for the warning icons
  - PC: Added RCON command to return the server tick time (request by the RSPs)

- Performance overlay: Updated tracking properties
  - **Tickrate(hz)**
    Shows the current active tick rate used by the server
  - **Latency(ms)**
    Shows the latency of the client (like ping, but within the game), lower is better
  - **LatVrtn(ms)**
    Shows the current latency variation, lower is better
  - **PktLoss(%)**
    Shows the current packet loss, lower is better
  - **CliFired(num)**
    Shows the current number of bullets fired on the client
  - **CliHit(num)**
    Shows the current number of bullets hit on the client, should match CliFired normally
  - **SrvDmgBnd(num)**
    Shows the current number of damage bundles sent by the server. Can't be used to compare the CliHit value
  - **SrvTick(ms)**
    Shows how long it takes for the server to process a "tick" (an update), lower is better, should stay consistent over time
  - **SrvOffset(ms)**
    Shows how far behind or ahead of the server the player is, a value between 0 and 50 is

good. Below zero means the server is having a hard time keeping up, higher than 50 means client bandwidth have a hard time catching up

- o **DownStr(kbit)**

  Shows how much bandwidth (in kbit) that is used by the game coming from server to client

- CONSOLE: Revised the ping bar segments in the server browser & rental server UI to properly represent expected values:

o **Five bars**	**Great connection**	**(0ms-50ms)**
o **Four bars**	**Good connection**	**(50ms-100ms)**
o **Three bars**	**OK connection**	**(100ms-170ms)**
o **Two bars**	**Almost bearable connection**	**(170ms-220ms)**
o **One Bar**	**Bad connection**	**(220ms-300ms)**

Optimizations & Improvements

With this release we have several optimizations on both server and client side, low level and

- Increased the vehicle High Frequency bubble size (utilized for both 30hz and higher)
- Several low level optimizations related to bandwidth and ordering
- Use 3d distances instead of 2D for better ghost (networked items) utilization

GENERAL FIXES

Last, but not least - the list of the changes in this release that didn't fit into featured section or was a straight up bug fix. All changes apply to all platforms unless explicitly stated otherwise.

- Pillbox bunker featured in Zavod 311, Operation Hammerhead and others
  - Bipods can now be deployed on the window sills
  - Fixed an issue where players would get stuck in the ceiling when attempting to vault through the windows
- Fixed an issue with the team balancer that forced players to constantly attack or defend in Rush. Balancer will now cycle between two different tie breaking behaviors every time that teams are rebuilt for a new round
- Fixed an issue with the team balancer were it was enabled by default in Defuse. This is now set to OFF by default.
- Fix from Hardline. Invincible soldier bug caused by its collision turned off on the local client. Also called the "bullet soaker bug"
- Single Player: Fixed an issue on the third mission of the campaign, the South China Sea mission that was blocking player progress
- Squad Obliteration changes
  - Increased the size of Home Team restricted areas to prevent bomb holding exploit.
  - Players should have the bomb reset out of their hands
- Fixed Bug for no ladder movement sounds for 3P soldiers
- PC: Fixed stability issue involving RSP Servers
- PC: Potential fix for the "French jump glitch" where players can jump while prone
- PC: Fixed several crashes seen on the Community Map on the Test Environment
- PC: Fixed an issue related to Origin and the BF4 client version
- PC: Fixed a common crash in live environment (3rd most common)
- Xbox One: Fixed an issue where the Kinect Leaning Enabled option does not function in active gameplay

UI

- Added the Hardline capture area visuals on the mini map, added support for square, shape and circle

- Added the Hardline mini map mechanic that shows player icon relative elevation
  - Above player icons: Scales up slightly with added transparency.
  - Below player icons: Scales down slightly with added transparency.
  - Both states start scaling at 3.5m distance below or above respectively, reaching final size at 7m+
- Corrected HUD string when active protection is active
- Countermeasure HUD fixed. HUD should reset correctly again, even if you use countermeasures right as they reload
- Added a fix for the static "Killed In Action" message that appears when joining as commander from a regular soldier while in-game.
- Consoles: Changing sorting for elements in the quick match menu (newest on top).

WEAPONS & GADGETS
- Smoke grenades now block FLIR/IRNV
- M18 and 40mm smoke grenades now un-spot players inside of them when they explode. This behavior is also consistent with the XM25's smoke grenade
- Added the M-60 ULT battle pickup (for Operation Outbreak)
- Motion Sensor text update: the string now correctly say 14 seconds, instead of 24 seconds on longevity
- Laser designators lock on time reduced to 1.5s from 2.0s
- PLD lock range increased to 500m from 350m
- Extended PLD glow distance to match locking distance
- Fixed an issue where PLD/Lock-on missiles would not prioritize occupied vehicles.
- Fixed inconsistencies with incendiary FX:
  - Split effect so both grenades could have their own effect
  - Slightly reduced radius and duration of handheld effect to match damage over time values
  - Increased radius and duration of tank effect to match Damage over Time values
  - Made both effects slightly better at blocking night scopes
- Fixed an issue where flares left craters on terrain
- Fixed an issue where M240B have magnifier + FLIR/IRNV and all medium range scopes. Magnifier can no longer be equipped with FLIR/IRNV or medium range scopes

- Fixed a bug where grenades would bounce back towards the player if the grenade was thrown on an ammo box or med pack. Now the grenade passes through the box, breaking it and the grenade lands where the player expects it to.

VEHICLES
- Fixed an issue where Attack helicopter hydra/smart rockets did no damage to the environment
- Fixed an issue where the enter button prompt on the jet vehicles were located in the left wing tip instead of the middle
- Thermal camo upgrade reduces visibility of the vehicle through thermal scopes
- Increased the draw distance of Tunguska to match other tanks
- Increased visibility of stealth jet tracers
- Fixed an issue where passive radar missiles spin around the targeted vehicle if the target is lost or the weapon is changed
- Transport helicopter: Fixed an issue with side mini-guns to prevent them from turning too quickly.
- Attack boats. Fix to the side mini-guns to prevent them from turning too quickly.

BATTLELOG
- Added support for high tick rate server filters and server browser lists

MAPS
ZAVOD 311
- Fixed an issue where US soldiers could spawn out of out of bounds at (CQS) Objective A upon redeploy.

LANCANG DAM
- Fixed an issue on in Rush where the user was able to deploy under the map at the second attacker base

PEARL MARKET
- PC: Fixed a specific crash issue on Pearl Market with Users running a NVIDIA GeForce GTX 770 with a Driver version 353.30

ROGUE TRANSMISSION
- Fixed an issue where players could spawn-camp enemy transport helicopters on conquest large.

SIEGE OF SHANGHAI
- Fixed an issue where the player was is able to get underneath the map near objective A