



P.O. Box 654 ◦ Aptos, CA 95001 ◦ USA  
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# STEEL BEASTS

## Professional PE

### Version History

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## SB Pro PE 2.538

### Version History and Release Notes, updated

*Note: The purpose of this document is to inform about the content and changes of the new release version 2.538. It is about WHAT you get, but not HOW to get it. Details about license upgrading, software downloads, or installation will be made public as soon as reliable information is available.*

**Note:** This version **requires a new CodeMeter license** in order run. Owners of previous versions of Steel Beasts Pro PE need to upgrade their licenses through eSim Games' web shop; **at the time of this writing things aren't yet set up:** [www.eSimGames.com/purchase.htm](http://www.eSimGames.com/purchase.htm)

While it is possible to install this version without such a new license, you won't be able to actually run it even if your CodeMeter stick is properly plugged in. Adding a this license will not affect your ability to run previous versions of Steel Beasts Pro PE.

If you want to upgrade existing *secondary* licenses, please contact us by email *after* you upgraded your first license through the shop to handle the rest.

To install SB Pro PE 2.538, it is *recommended to uninstall* previous versions. Please use the *Add/Remove Programs* applet of the Windows System Configuration for this. Some beta testers experienced trouble with the "Uninstall" option in the Steel Beasts Pro PE program group.

Uninstalling previous versions of SB Pro PE will usually retain your personal settings, e.g. user name, screen resolution, and custom made or downloaded scenario and map files, also the content of your mod folder (but it never hurts to make a backup). Mods for previous versions may no longer work, so you may want to clean out the ..\mods folder and back up its content, then try them out one after the other.

Scenarios and terrain maps made with version 2.538 are not compatible with previous SB Pro versions (but of course you can always open older scenario and map files with this one).

A small minority of Windows Vista and Windows Seven users may find that they still need to install DirectX 9.0c, October 2006 version or later parallel to whatever DirectX version they have. If this is the case, be assured that it is a harmless procedure that can be done without causing problems elsewhere. We recommend in this case downloading the latest DirectX 9.0c version straight from [www.Microsoft.com](http://www.Microsoft.com)

## Changes since 2.483

### Feature Additions

- **Added many new buildings** - Apartment blocks, Industrial and Commerce buildings, middle-east rural style, and walls, fences, lamp posts
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## Professional PE

### Version History

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- **Added non-playable vehicles:**
    - ▣ CHALLENGER 2 with corresponding 120mm (rifled) ammunition
    - ▣ Civilian cars (Skoda Favorit, Volvo 245, VW Passat)
    - ▣ M1A2(SEP) ABRAMS
    - ▣ M60A3 (non-playable), with older 105mm munitions
    - ▣ T-55, with corresponding 100mm ammunition
    - ▣ T-62, with corresponding 115mm ammunition
    - ▣ T-72B, with new 125mm munitions including HE-frag
    - ▣ T-72M,
    - ▣ T-72M4-CZ
    - ▣ URAL 4320 function truck variants
      - URAL 4320 CARGO (replaces the old URAL)
      - URAL 4320 REPAIR
      - URAL 4320 FUEL
      - URAL 4320 TROOP TRANSPORT
    - ▣ WIESEL 1/TOW
  - **Added playable vehicles:**
    - Added the CENTAURO:
      - ▣ Added 3D interior view
      - ▣ Added Commander's position
      - ▣ Added gunner's position
      - ▣ Added Driver's position
      - ▣ Added TURMS fire control system prototype
    - Added the EAGLE IV and enabled it to have the LEMUR RWS as an option
      - ▣ Added Commander's position
      - ▣ Added gunner's position
      - ▣ Added Driver's position
    - Added the FOV90, a CV90/40 based artillery observer vehicle
      - ▣ Added Commander's position
      - ▣ Added gunner's position
        - Use the Lase button (Joystick button #2, Ctrl, right mouseclick) to use the laser range finder
        - Use the Space Bar to enter the range into the *Call for Fire* dialog box
        - The gunner cannot call for fire, only enter the range
        - The commander or squad leader (=dismounted FO) must perform the actual CFF
      - ▣ If dismounted, the FO doesn't have access to the coordinates lased by the vehicle, but has to use his own sight
      - ▣ Dismountable FO teams can open the troop hatches and operate NVGs
      - ▣ Added Driver's position
    - Added the M1 ABRAMS (105mm gun)
      - ▣ Added 3D interior view
      - ▣ Added Commander's position
      - ▣ Added gunner's position
      - ▣ Added Driver's position
    - Added the M113A1, M113A3, M113A3/FO (VIKING)
      - ▣ Added Commander's position
      - ▣ Added gunner's position
      - ▣ Added Driver's position
    - Added the MAN SX45 cargo truck (can have ammo, fuel, both, or none); enabled the LEMUR RWS
      - ▣ Added Commander/Gunner's position
      - ▣ Added Driver's position
    - Added PILAR(w) gunshot detection sensor 3D model to EAGLE IV
    - Added the PIRANHA IIIC with crew positions and troop leader; enabled the LEMUR RWS
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# STEEL BEASTS

## Professional PE

### Version History

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- Added the LEMUR remote weapon station (RWS) as an option for
    - ◻ ASLAV-PC
    - ◻ BUSHMASTER
    - ◻ EAGLE IV
    - ◻ M113 G3
    - ◻ MAN SX45
    - ◻ PIRANHA IIIC
  - ◻ Access to the LEMUR control monitor is done through the *Primary Sight hotkey* (default is *F2*) from either the commander's or gunner's position, depending on the vehicle
  - ◻ Firing the smoke grenades is done by either *doubleclick* or *shift+click* on the smoke grenade selector knob. Click and drag the knob to select the discharger bank (left, right, or both)
  - ◻ On the real LEMUR, the Target Point reset function (SET TP) is done by pressing both buttons 1 and 2 at the same time on the control monitor while in SET TP mode. In SB, since it's impossible to click two buttons simultaneously, the target points are reset by either *doubleclick* or *shift+click* on button 1 on the control monitor
  - ◻ Added the 12.7mm x 99 M84 ammunition (multipurpose ball)
  - ◻ Added the 12.7mm x 99 M85 ammunition (armor piercing); ballistic properties are different, but the difference is rather subtle
  - ◻ All 12.7mm x 99 M85 rounds are now with tracer element
  - ◻ The size of the laser reticule will now (seamlessly) adjust to changes of the magnification of the current view
  - ◻ The COCK status light now only light up after a reloading procedure or when preparing the RWS to fire for the first time
  - ◻ The laser range finder accepts range returns down to 5m
  - ◻ *Add/reduce range* button will increment/decrement range continuously when the hot key is held down for more than .5 seconds
  - ◻ *SET LIMIT* procedure: When setting the limits, the arrows are now illuminated until *STORE* is pressed. When *RESET* is pressed, they no longer illuminate
  - ◻ The *RETURN* button will not function in manual range mode
  - ◻ With both triggers pressed simultaneously, it will fire in full automatic bursts (joystick/control handle only)
  - ◻ Reduced the blackout delay when toggling daysight/TIS
  - ◻ Thermal and daysight magnification affect each other
  - ◻ To exit the *WEAPON POS* menu press the *LOAD POS* again
  - ◻ Sight and gun now drop 2mil in elevation when palm switches are released
  - ◻ Changed the minimum for manual range input to 100m
  - ◻ Reloading for the Lemur can happen only when the gunner is above hatch.
  - ◻ Implemented specific damages
    - ◆ Main sight
    - ◆ thermal sight
    - ◆ Laser
    - ◆ ballistic computer
    - ◆ drift, along with the necessary correction procedure (press *GYRO OFFSET* and release the palm switches)
  - ◻ Adjusted the cal .50 reload rate to 100 rounds per 50 seconds; reload will only happen while the gunner is exposed (out of his hatch)
  - ◻ When changing ammunition, remaining ready ammunition gets transferred back to the stowed ammo pool
  - ◻ In the PIRANHA, adjusted the monitor positions so that troop leader and commander can see the sight replication better
  - ◻ Added a HE round with impact fuze for the 40mm AGL
  - ◻ Keep in mind that open hatches immediately block the trigger (PIRANHA, EAGLE, MAN SX)
  - ◻ Adjusted the fire limitation zone for the PIRANHA's left side
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**STEEL BEASTS**  
Professional PE

## Version History

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- *SD Auto* can only be cancelled through the control handle/joystick; for activation, the corresponding control panel button must be used
  - **Night Vision Goggles**
    - In the unit context menu NVGs can now be selected as equipment (default is *On*)
    - Vehicle commanders are now equipped with night vision goggles
    - Vehicle drivers may access their image intensifiers only while buttoned; they will drive faster at night if equipped with NVGs
    - Adjusted resolution and field of view of image intensifiers to AN/PVS-7 standards
    - The signal to noise ratio of NVGs is now tied to the ambient light level
    - Troops and driver positions, while not using the binoculars, will also have NVGs
    - Enabled the use of NVGs while firing vehicle-mounted weapons
    - Enabled the use of NVGs while in the external observer position, if that unit is equipped with NVGs
    - Reduced the field of view and resolution of the external position's NVG to that of the crew commander so not to create an incentive to abandon the commander's position in favor of the external view
  - Added a function in the **TERRAIN THEME editor** to set a terrain type as "IS SNOW" (similar to the options "IS WADI" or "IS WATER").
    - "IS SNOW" will artificially extrude the terrain type while at the same time a depth of max. 1.5m to sink in units is defined; the actual height will be lower in transition zones to terrain that are not defined as "SNOW"
    - Radio buttons will set whether the snow covers all roads, only minor roads, or none
    - Neither vehicle emplacements nor water streams will be covered in snow; houses and trees will sink in
    - Line of Sight calculations are based on the snow surface, collisions for projectiles and missiles are not
    - Vehicles and troops will be slowed down proportionally to the snow depth; this is independent of the terrain drag value: It should not be modified for the snow, just the conditions of the ground below it
    - Troops won't sink into snow below shoulder height; vehicle drivers however may experience a blackout in deepest snow
  - Reduced the sink-in depth for terrain *Hardness* to .60m max (at 0%, 0m at 100% *Hardness*)
  - On slippery ground (low traction values in the terrain theme editor) vehicles may experience locking wheels while braking, and spinning wheels during acceleration phases
  - The **TERRAIN THEMES'** *Hardness* factor will now sink vehicles and troops up to 1m below the visible earth surface. At 50% the sinkage is .5m, at 100% it is zero. The hardness will not affect the traction or drag; they must be set independently. Intended use of this feature is to simulate the effect of mud, snow, but eventually also of tall and dense vegetation. Future versions of SB Pro may also use it as a modifier to the effective range of artillery fragments. Theme designers are advised to keep that in mind
  - Improved **user interface/automation routines of mechanized forces**
    - When hitting [E] for battle position, troops will no longer automatically dismount
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# STEEL BEASTS

## Professional PE

### Version History

- The *Shoot here/Suppress* command given to a PC or IFV will no longer make the troops dismount, and vehicles with commander-operated weapons (e.g. M113 with cal .50) will now also open fire
- Fixed a bug where MG fire was seemingly coming from the team that doesn't have the MG
- Vehicles will now automatically move towards the troops that they are loading (if beyond approximately 25 meters)
- Vehicles in emplacements will now remain stationary while loading troops; if you don't want the troops to cross open ground, the vehicles need to be moved to a new location first
- Added scenario files from the Design Contest #3
- Added CV90/35 tutorials
- Added a vehicle emplacement type for the PIRANHA
- Added new engine sounds for a number of wheeled vehicles

### Feature Changes

- Penetration performance interpolation of APFSDS rounds is now based on the *Lanz-Odermatt* model with material parameters for tungsten, steel, or uranium penetrator materials
- The default view for the gunner (when entering his position, or returning from the map view) is the primary sight now, and no longer the turret interior (if there is one)
- Added many new 105mm rounds, mostly of 1970s vintage
- Updated engine sounds for personnel carriers
- Updated terrain themes for four multiplayer scenarios
- Further tweaks to the obstacle avoidance routine
- Improved the rendering for ground clutter objects
- Improved some building-related rendering routines
- Improved the implementation of traction and drag in the terrain themes and their effects on mobility
- Improved the behavior of units in column formation approaching an assault bridge
- Updated tutorials "09 GUNNERY I" for LEOPARD 2A5 and LEOPARDO 2E which erroneously referred to the use of hand cranks
- Updated LOD1 models and fixed transparency issues with some textures
- Updated the armor files of
  - 2S6 TUNGUSKA
  - ASCOD PIZARRO
  - BMD-2
  - BMP-1
  - BMP-2
  - BRDM-2
  - BRDM-2 AT
  - BUSHMASTER
  - CENTAURO
  - CV90/35-DK
  - CV90/40-B
  - CV90/40-C
  - FIST-V
  - JAGUAR 1A3
  - LEOPARD AS1
  - LEOPARD 1A5
  - LEOPARD 2A4
  - LEOPARD 2A5
  - LEOPARDO 2E
  - M1A1(HA)
  - M113
  - M113A3
  - M113AS4
  - M113 MEDIC
  - M113 OPMV
  - M113 TOW
  - M2/M3A2 BRADLEY
  - M88A1
  - M901
  - MARDER 1A3
  - MTLB
  - MTLB-F0
  - STRV 122
  - T-72M1
  - T-80U
  - VEC
- In the *Map Editor*, roads are a separate object class now from other line objects. Line objects now include walls, hedges, and similar elements. These cannot be placed as polylines (like roads) but connect identical segments to long, straight line ob-



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# STEEL BEASTS

## Professional PE

### Version History

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jects. Depending on the model files wall segments may be tilted (to follow the curvature of the ground), skewed (to close gaps between segments that follow the ground curvature), or neither.

- Computer-controlled vehicles will no longer avoid the ground clutter elements that can't hurt them. They may slow down, though
  - Added back the option to define infantry bunkers as adjustable inside of deployment zones
  - Added back the auxiliary sight to the M2/M3 BRADLEY
  - The AAR now allows F1 and F5 hotkey presses to transition between 3D world and map view
  - Improved the contrast of the color box in the TERRAIN THEME EDITOR
  - Changed the "slow" speed setting to a universal low speed rather than a fraction of the individual vehicle's top speed
  - The *Controls* dialog box now also shows certain hotkeys that were hidden before
  - The LEMUR RWS is now playable on the BUSHMASTER truck as well
  - Fixed a problem with the checkboxes "Use these types" and "use these quantities" in the Ammunition... dialog box when vehicles with differently armed LEMUR RWS were used in the same mission. However, if a P/LAR(W) sound detector is mounted, this is now also being treated as a different RWS
  - Improved the damage results and visual effects for those cases where a vehicle would not lose its turret even if the ammunition on board conflagrated (alleviating the severity of bug #1428, but not solving it)
  - Arranged the tank range scenario selection menu in two columns
  - Vehicles that are subject to the "Remove after killed" option will now count in conditions referencing the number of destroyed vehicles
  - Reduced the off-road mobility of civilian cars
  - Increased the off-road mobility of Technicals
  - Added two more smoke salvos for the M2/M3 BRADLEY
  - Reduced the repair time for temporary stabilization loss (still requires to disable stabilized mode for the duration, but the vehicle may drive)
  - Adjusted sounds for wheeled vehicles
  - Adjusted engine start, loop, and stop sounds
  - Adjusted ballistic properties of the 40mm AGL munitions
  - Adjusted the number of smoke grenades and smoke volleys for the STRV 122; old scenarios must be manually adjusted however
  - Adjusted the rate of fire of the T-72 to 5.5 rounds per minute
  - Adjusted the rate of fire of the T-80 to 7 rounds per minute
  - Changed the behavior of M2A2 BRADLEY and ASLAV-25 to use by default the high rate of fire for the 25mm gun with bursts of two rounds each. A human player entering the gunner's place will therefore no longer have to toggle through the RoF settings to go from single round to high RoF, which seems to be the preferred setting
  - Changed the way how smoke grenades are being handled with the STRV 122 which makes it necessary to adjust all old scenarios containing STRV 122 units via the mission editor's AMMUNITION dialog box
  - Changed the T-72M1's default KE type ammo to 3BM-15
  - Changed the rendering code for low resolution electro-optical sensors
  - Changed "MICLIC", it now is an equipment option only on the M113ENG
  - Changed the 7.62mm MG ammunition of the M1A1 ABRAMS to 4,000 rounds ready and 8,000 stowed
  - The size of the BP symbol (the rectangle with one side missing) will no longer scale with the map magnification, except for magnifications
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## Professional PE

### Version History

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below 2x; the symbol will be either blue or red, depending on the side, instead of black. This is to avoid confusion with the emplacement and bunker symbols

- Renamed a vehicle emplacement to the more universal "CV90"
- Reduced the off-road speed of Technical trucks by 25%
- Removed the sniper function from infantry squads, and reduced the general range of small arms fire to 600m
- Removed the amphibious capability for the M113G3
- Infantry will now fire RPGs (or even ATGMs) at bunkers that are known to be occupied even if there is no direct line of sight to the enemy troops; small arms will not be fired unless there is a direct line of sight to the bunker's occupants
- If a player in the vehicle's position presses W or X to move out while troops are mounting to that vehicle, then the mounting will be cancelled as well. This will happen only when a player is manually driving the vehicle, so giving the vehicle a new route won't stop the mounting of troops
- Changed the default values for embedded height maps in scenario files
- Increased the reaction time of computer-controlled units to evade ICM bomblet attacks by 3 seconds
- Changed the positioning of the eye view in the M113 A0 to match the previous ocular viewing direction
- Limited the traveling speed of crew served weapons teams to be no less than 75% of normal infantry squads
- SB Pro can now link to old .RAW files without the need to rename the suffix to .HGT
- Changed the dialog boxes for password and triggers so that pressing return after entering the text equals clicking the OK button
- Modified the LOD3 files of PIRANHA III C and EAGLE IV and their corresponding armor files; gunners can now be hit while reloading the remote weapon station, and punctured tires can no longer immobilize these vehicles
- Reduced the fragmentation cone angle of the cal .50 M/84 round

#### Bug Fixes

- Fixed a bug with the T-80U's LOD3 model which caused a vulnerability against small arms fire
  - Fixed a bug so that the reload sound will now end with the end of the reload procedure
  - Fixed a bug that would prevent laser echos from LEMUR bodies
  - Fixed a bug that caused the text about the type of emplacement to be suppressed in the mission editor when activated by click
  - Fixed a bug that created mineroilers on helicopters in the mission editor's 3D preview
  - Fixed a bug that made the rotors of helicopters disappear in the external view above a flight height of 7040ft.
  - Fixed a bug that prevented computer-controlled IFVs to proceed on a route with *Engage*, *slow* movement orders
  - Fixed a missing pixel in the M1's thermal sight reticule
  - Fixed a bug with the CV90/35 where the mounted squad leader could not press the VIS button on the MFD
  - Fixed a bug that in rare cases caused a crash when previewing the 3D terrain in the planning phase
  - Fixed a bug where troops disappeared if the "S" command was given from the troops' observer's position while the mount command was given before
  - Fixed a bug where an IED, during a network session's execution phase, would only be moved on the Instructor Host's computer
  - Fixed a bug where SB Pro would crash if a reload command was given for the CV90/35
  - Fixed a bug with the FOV90 where in network sessions neither the vehicle commander nor the FO team leader could access the gunner's laser range
  - Fixed a bug with manual range entry for the LEMUR RWS for ranges under 460m
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## Professional PE

### Version History

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- Fixed a bug that made the LEMUR RWS temporarily disappear visually on some occasions
  - Fixed a bug with the recognition of water obstacles
  - Fixed a bug with assault bridges where they might float in the air and lead to vehicles attempting to cross them being stuck
  - Fixed a bug that occasionally caused vehicles passing through a breach lane to veer left (and consequently get destroyed by a surrounding mine)
  - Fixed a bug that would crash SB Pro if more than about 100 entities were created through a DIS gateway
  - Fixed a bug that would crash SB Pro if a DIS gateway required more unit IDs than were assignable
  - Partially fixed a bug that prevented laser returns from silhouetted infantry; still requires first echo to be selected though
  - Fixed a bug that allowed automatic lead for the RWS LEMUR while the ballistic computer was damaged
  - Fixed a bug that prevented the mounting of a squad that bailed due to the personnel carrier being immobilized if the vehicle underwent repairs in the meantime
  - Fixed a bug with the collision avoidance routine
  - Fixed a bug that rendered ISO containers invisible (they were still shown on the map)
  - Fixed a bug that crashed SB Pro if loading a mission with a LEMUR-equipped unit
  - Fixed a bug that allowed clients to move computer-owned units in the planning phase, even in the absence of a deployment zone
  - Fixed another bug related to changes in the terrain database file structures which resulted in occasional crashes
  - Fixed a bug with smoke grenade reloading on the LEMUR RWS
  - Fixed a bug that prevented the WIESEL 1/TOW from firing the missile
  - Fixed a bug that had the PILAR(W) sensor float above the BUSHMASTER and ASLAV-PC vehicles
  - Fixed a bug with some ATGM vehicles that would no longer fire their missiles (BRDM-2/AT, M113A3/TOW, M998 HMMWV/TOW)
  - Fixed a bug with the WIESEL 1/TOW so that it will now fire the MG as well
  - Fixed a bug that caused a unit icon to jump between the nominal and real position after adjustment of the firing position
  - Fixed a problem of the ASLAV-PC that caused an obstruction of the LEMUR control screen in the gunner's place
  - Fixed a bug that prevented the inclusion of non-building objects in collision detections
  - Changed a routine for text drawing that caused anomalies in rare cases
  - Removed a functionless menu entry from the Planning Phase screen
  - Fixed a bug that made some damages be listed twice
  - Fixed a problem where positions at the very edge of deployment zones were not properly updated in the planning phase of network sessions, especially not on the session host computer
  - Fixed a problem with the rotation of the ballistic shield doors for the BRADLEYS' primary sights
  - Fixed a bug where destroyed wall segments would still cause a laser echo
  - Fixed a bug that caused temporary stabilization loss too often
  - Fixed a mixup between 105mm DM23 and 120mm DM23
  - Fixed a bug that resulted in troops disembarking a killed PC when they shouldn't
  - Fixed a bug to add (smoke) grenades to the EAGLE IV
  - Fixed a bug with the mission editor's "Local Time" dropdown menu
  - Fixed a bug that prevented the reloading of LEMUR RWSs on vehicles with gunner positions that cannot unbutton in SB
  - Fixed a bug that prevented a part of the CV90/35's squad to remount the vehicle
  - Fixed a bug that displayed "DS SetPan failed" error message when firing WP smoke rounds from a main gun
  - Fixed a bug that would not properly list the number of gun tubes in the Support dialog box for numbers above nine tubes
  - Fixed a bug where the "Exit" button would start a tank range scenario and not exit the menu
  - Fixed a bug that rendered vehicles invisible beyond a certain distance in the MISSION EDITOR's 3D preview
  - Fixed a bug with the collision avoidance of computer-controlled units that prevented them from passing under powerlines
  - Fixed a bug that occasionally left a vertical gap with assault
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## Professional PE

### Version History

- bridges that following vehicles couldn't cross.
- Fixed a bug that denied the Pizarro's external observer position to pop smoke
  - Fixed a bug that hid 105mm smoke rounds to the M60's ammo loadout
  - Fixed a bug to bring back the cal .50 sight to the M113
  - Fixed a bug that resulted in stabilized HMGs on T-72M, T-72B
  - Fixed a bug that made the microphone array float above the SX45
  - Fixed a bug that prevented random damages that were set in the MISSION EDITOR to occur. Now blind/impotent/return-fire-only vehicles can also coexist in heterogeneous platoons
  - Fixed a bug that created the error message "DS SetPan failed" when a Lemur 40mm RWS was readied for action
  - Fixed a bug with backwards rotating M113/Fo tracks
  - Fixed a bug that gave the M1A2SEP extra MG ammo
  - Fixed a bug that rendered simultaneously the main rotors for landed and flying helicopters
  - Fixed the number of main gun rounds for T-62 and M1A2(SEP)
- Fixed bug #39 partially by centering the mouse whenever the user activates mouse view, no matter where the mouse may be
  - Fixed bug #137; vehicles should now stay on bridges more reliably
  - Fixed bug #147; no longer relevant
  - Fixed bug #171 by increasing the speed with which troops are dismounting personnel carriers
  - Fixed bug #437 so that vehicles, starting as mission with only a partial ammo loadout, will now reload to their full capacity
  - Fixed bug #516 so that the internal cal .50 sound for the M113AS4 no longer is being substituted by 25mm gun fire
  - Fixed bug #535 where the roadwheel texture of the M2/M3 BRADLEY wasn't properly centered with the rotation axis
  - Fixed bug #565; invalid
  - Fixed bug #582; changes to maps using the default theme will now properly be saved to disk
  - Fixed bug #594; 105mm smoke grenades now have an appropriate HE strength
  - Fixed bug #802 where the cadence of a number of T-xx tanks was too high
  - Fixed a bug that prevented editing walls in the two highest magnification setting of the MAP EDITOR
  - Fixed a bug that caused the MAP EDITOR and all scenarios involving the *Terrastan* map to crash SB to desktop
  - Fixed a bug with the FOV90's track animation
  - Fixed a bug that failed to disable troops despite MISSION EDITOR settings
  - Fixed a bug that rendered a PILLAR(W) microphone array visible even if the unit was not yet spawned
  - Fixed a bug with the T-72B HMG's ammo count
  - Fixed a bug with the T-72M1 HMG's ammo count
  - Fixed a bug that prevented the UAV to keep the sight locked on a target
  - Fixed a bug that prevented the EAGLE IV from firing fragmentation grenades in close defense
  - Fixed a bugfix which had eliminated temporary stabilization loss due to insignificant impacts - but had introduced permanent stabilization damage instead
  - Fixed bug #805; the M1's GPS shield doors now close correctly
  - Fixed bug #908; invalid
  - Fixed bug #936 where the wrong firing rate was displayed after returning to the M2/M3A2 ODS BRADLEY gunner's place
  - Fixed bug #976; in Network Sessions, the "Ground cover" slider is now also set by the host machine
  - Fixed bug #1037 by introducing a Repair variant of the URAL truck
  - Fixed bug #1070 by implementing a new ricochet effect which uses a method of spawning a ricochet particle on impact instead of tracking the trajectory of the original projectile; ricochets will occur for impact angles between 3.5° (at 100% hardness for the terrain) and 1° (for 0 hardness)
  - Fixed bug #1075; invalid
  - Fixed bug #1080 where on return to the gunner's place in 25mm Bushmaster gun equipped vehicles the rate of fire toggle switch and display were off by one position
  - Fixed bug #1126; the M2/M3A2 ODS BRADLEY coax ammunition loadout is 800 ready rounds
  - Fixed bug #1153; invalid
  - Fixed bug #1279 where unbuttoned troops in the CV90/40 would appear
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- as if they were floating behind the vehicle from the commander's view
- Fixed bug #1281; mounted infantry tasked to suppress a certain point with small-arms fire will no longer kill the turret crew
  - Fixed bug #1350; CV90/40 will now switch to "moving target" mode automatically if the gunner uses the laser range finder on a moving target
  - Fixed bug #1361 by reducing the unrealistically high off-road speed of the CENTAURO
  - Fixed bug #1366 so that helicopter engine sounds are no longer being played after it crashed
  - Fixed bug #1402 (dismounted F0 team could fire 7.62mm MGs in first person shooter style)
  - Fixed bug #1418 where the use of the dismounted F0 team's laser range finder would result in SB Pro crashing
  - Fixed bug #1421, so every unit in the Assembly Hall (including non-playable vehicles) now has a "Commander" position (even if that is the external view), and "Observer" is listed below the rest of the crew (if there are crew positions)
  - Fixed bug #1426; "Troops" damage, when set in the MISSION EDITOR, should now reliably disable the organic infantry element of a personnel carrier
  - Fixed the "super supply truck" bug #1428
  - Fixed bug #1439 where units wouldn't depart from a *Defend* position on an unconditioned route despite sustaining losses
  - Fixed bug #1449 where pre-set damages would not apply in the execution phase
  - Fixed bug #1454 where there was a discrepancy in sound volume for an ASLAV-25 while idling or driving
  - Fixed bug #1465 that made the machine gun of an eliminated squad float 10m above ground in the AAR.
  - Fixed bug #1468 where units could be moved by clients both during the planning phase and in network sessions without deployment zones
  - Fixed bug #1489; line objects like walls, fences are now shown in the MAP EDITOR with their actual width. They can now be placed like roads, where a right-click ends the addition of new vertices; every line between vertices is however still a separate object
  - Fixed bug #1496; changed the classification of the URAL 4320 troop transporter from "Personnel Carrier" to "Truck"
  - Fixed bug #1511 that rendered stationary and moving helicopter rotors at the same time
  - Fixed bug #1513 by removing the RWS option from the ASLAV AMBULANCE
  - Fixed bug #1515 by reducing the maximum engagement range of the BMP-1's PG9 grenades to 750m
  - Fixed bug #1519 so that the battle-sight command and hotkey in the STRV122 should now work as intended
  - Fixed bug #1521; damage types "Random light" and "Random heavy" will work again as intended
  - Fixed bug #1526 so that the gun tube no longer determines the diameter of a detached turret's bounding box to block nearby vehicular movement

## 2.483 (release)

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