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STEEL BEASTS
Professional

PE 4.267 Release Notes

SB Pro PE 4.267 (Bundle Installer) Version History and Release Notes

This is a full installer for SB Pro PE. We recommend uninstalling prior versions of Steel Beasts Pro PE. Map Packages can remain untouched.

Installation instructions can be found from page 3 of this document.

We recommend reading this document with a dedicated PDF viewer capable of showing the embedded table of content.

Note: This *Steel Beasts* version requires an existing license for *SB Pro PE 4.1!*

This software is 64 bit only.

Licenses may be purchased from the eSim Games web store (for details, see below): https://www.esimgames.com/?page_id=3165

The **old Edge browser** will **fail** with license activations (not so the new Chromium-based one); it is **necessary** to use a different web browser when visiting the WebDepot to claim your license ticket.

This is a preliminary document to complement the version 4.2 User's Manual.

This document summarizes changes since version 4.167 (May 2020); **relevant changes since version 4.265 (June 2021) are highlighted like this.**

Previous Release Notes can be found on the eSim Games Downloads page: www.eSimGames.com/Downloads.htm



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Hardware recommendations

...are largely unchanged from version 4.0

SB Pro PE 4.2 requires a 64 bit Windows version, starting with Windows 7 or higher.

Downloading, unpacking the self-extracting archive and immediate installation requires up to approximately **38GByte harddisk space temporarily**. Of these, *Steel Beasts* will claim about **17 GByte free harddisk space permanently**; the rest may be freed up through deletion and/or copying the installation files to a USB stick. However, in order to edit maps, **100 GByte free disk space** will be required **per unpublished map** for the uncompressed map data, which will be largely freed up on publishing. Usually it is therefore better to work on only one map at a time, and to prefer Delta maps over Base map packages as they usually consume less disk space.

We recommend a 3.0GHz multi-core CPU (faster is better, and the latest generations are considerably faster than old CPUs of nominally the same clock speed), **8GByte RAM** (16...64 recommended for high resolution map conversions), **2GByte video RAM** (more is better; much more is much better), and generally a **DirectX 9.0c** graphics card supporting **Shader Model 3.0** (which includes pretty much everything that is currently commercially available).

Mouse, keyboard, and monitor are mandatory. A sound card and internet connection are strongly recommended. Joysticks and selected control handle replicas are supported.

DirectX 9.0c is included; it is however possible to download a separate installer: <https://www.microsoft.com/en-us/download/details.aspx?id=34429>

Anti-Virus software has in the past been a **source of trouble** for some. If an installation fails on the first try, the next step should be to disable the AV program during the installation. Note that some AV programs only pretend to shut down, but a service (or the executable itself) remains listed as active in the task or in the services list.



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Installation

For all customers with or without an already existing installation of SB Pro PE: Please run the Bundle Installer **4.267** (**SBProPEBundleInstaller_4267.exe**) after a prior uninstall.

For customers accustomed to Steel Beasts 4.0 (or older):

With version 4.2, eSim Games introduced a web installer that will download the necessary files as you install. There's also an option to keep downloaded installer files if you are on slow or metered connections. This web installer is generally easier, and you simply run the same installer in the future; it will then automatically check for the latest version.

(Only) for those who like to retain more control at the expense of convenience:

Since version 4.1 there are now **multiple installers**. We recommend applying the **Map Package Installer** first. The *Steel Beasts Pro PE* installer will recognize your prior choice for the map package folder's location.

1. Download **all** parts of the self-extracting archive installers into a common directory, e.g. C:\Temp or a "*Steel Beasts*" folder on your desktop – the **Maps Installer**, the **SB Map Transfer Tools**, and the **SB Pro PE 4.259 full installer**. The **Legacy Maps Installer** is only required under very specific circumstances (please visit the user forum at SteelBeasts.com) and can be installed at any later point if necessary.
2. Uninstall previous versions of *Steel Beasts*. Note that you can keep previously installed **Map packages!**
3. When done, run the **SBMapPackageInstaller.exe** program **first** to transfer the map data to your harddisk (unless you kept it from an earlier version; in that case skip this step). You are free to pick the target directory; the full installation may take **up to 14 GByte of disk space**, and future in-game downloads may further increase that demand for storage space in that specific location.

The Map Package Installer will store its location in the Windows registry, so subsequent installations of *Steel Beasts* will know where to find the map data automatically.

After the first installer program is finished, it's time to install *Steel Beasts Pro PE* itself. Start *SBProPE4_2...part1.exe* for the installation (this assumes that you uninstalled the previous version of *SB Pro PE* per step 2 above). Installing *Steel Beasts* will consume about **six GByte** harddisk space.

4. If you haven't purchased your license for **SB PE 4.1** already (**will work with version 4.2, too**), now would be the time to visit the eSim Games web shop, https://www.esimgames.com/?page_id=3165

(if you did, skip forward to point 6)

You have different options there, as summarized in this YouTube video:

<https://www.youtube.com/watch?v=HPi-MA94yFO>

5. Once that your purchase has been made, the eSim Games web shop will send you **two** emails — the order confirmation and a second one with the **license ticket** (a complicated URL leading to the WebDepot). Visit the link, and activate the ticket there to generate the license. **Do not to use the (old) "Edge" browser** (for this transaction).
6. Play
7. Optionally (but recommended), install the *Map Transfer Tools*
8. Even more optionally (and typically not necessary), download and install the *Steel Beasts Legacy Maps*
9. Play more

Steel Beasts uses an installer which can change the Windows Group Policies (access privileges) of the folder containing all the map data of *SB Pro*. If you do not want other users on your computer to use the Map Editor you may want to restrict access to that folder again. Note that the map data are now being installed from a separate installer, and that they can be stored in pretty much any local folder that you like.

This installer includes the CodeMeter runtime version 7.30.



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Time-limited licenses

eSim Games offers a software rental option. This option is primarily aimed at users who do not already own a CodeMeter USB stick. Time-limited licenses are issued for one, four, and twelve months respectively:

- Licenses are bound to the computer on which they are installed.
- They do not work with virtual machines (!)
- There is **no automatic renewal of licenses**; it is not a subscription fee that requires termination. Instead a warning will appear on program start if the license is about to expire (or if it already has expired).
- Licenses that have been purchased need not necessarily be activated immediately. You may buy five licenses but activate only one at a time if you wish. You probably should save the email with the ticket URL for future reference.

Online Support & Documentation

Experienced users of *Steel Beasts* Pro PE may already visit the official fan page www.SteelBeasts.com with regularity. If you are reading this, and haven't been there yet, we strongly recommend that you do so. Whether you like discussion boards or not, its integrated search function may yield valuable information.

An important part of the site, though less immediately visible, is the collective effort to maintain an online documentation, the *Steel Beasts* Wiki:

http://www.steelbeasts.com/sbwiki/index.php/Main_Page

Don't like to read?

Less information, but still some, can be found in the tutorials on <https://www.YouTube.com/c/eSimGamesDtI>

Even without access to the internet there is a **serious amount of documentation included with *Steel Beasts* itself**. This additional information can be found in a subdirectory of the *Steel Beasts* program group of the Windows Start Menu, incidentally named "Documents"; apparently it's still one of the best kept open secrets since about August 2000. It contains a PDF of the *User's Manual* and other ancillary information, e.g. the **NATO Stanag 2019 App. 6c** about tactical signs and military map symbology as used in *Steel Beasts*.



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A print-on-demand User's Manual is available from the eSim Games web shop, and is supplied as a PDF with the software installation.

News about *Steel Beasts* will usually be published first in the forum of the fan site, and also on eSim Games' homepage www.eSimGames.com which you may want to check out occasionally.

CodeMeter

- Updated the CodeMeter runtime software to **version 7.30** (which no longer supports **WINDOWS 7**)
- **SHADOWPC**: As this application creates a **virtual machine**, the CodeMeter runtime blocks access to time-based licenses. Permanent licenses on CodeMeter stick are not affected by this.
- **AVAST Anti-Virus** has repeatedly been reported to block CodeMeter runtime components. If you're using this product, please set the appropriate permission.

Documentation

- © 2021 by eSim Games. All Rights Reserved.
- Updated the User's Manual (English)

Maps

- Included new base map: Bergen-Soltau-Munster (*Thank you, Abraxas!*)

User Interface Changes

In the Main Menu, when holding the Shift, Ctrl or Alt key, the text of the Mission Editor will change to indicate the actions associated with those modifier keys (opening, merging, or testing a scenario, respectively).

The file browser widget now allows the user to hide all subdirectories and to search for scenario filenames

Generic message and 'editBox' windows may now be closed by hitting the ESC key.

Pressing ESC while the 'search' textbox (see above) in the file browser widget has focus will cause the browser to close itself (returning to the previous menu) if no search text was entered.



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Improved the application's startup logging in cases of early termination. Added more logging for cases where required filesystem paths could not be successfully looked up. And then added even more logging for good measure.

Added map symbols for

- wheeled mortar vehicle
- SAM vehicle

Planning Phase

Units may mount and dismount their troops in the **Planning Phase** if located inside of a **Deployment Zone**.

You may now change the text properties (size, color, style, ...) of all deployable items.

It's now possible to mount and dismount troops in the Planning Phase.

Reference panels may now be repositioned inside deployment zones.

Execution Phase

Preset Formation Groups have been replaced by a functionally similar but less cumbersome approach for **Task Forces**.

Whenever a vehicle equipped with mineplow lowers the plow (or a MICLIC rocket is being fired (Space Bar)), it is implied now that the presence of mines is suspected. Computer-controlled vehicles will take that factor into account and change their pathfinding accordingly. Also, only the player operating the mine-plow equipped vehicle will receive map graphics indicating the possible presence of mines in the vicinity of the breach lane that he's creating. It is his duty to consolidate the map graphics, and to send them as map updates to friendly players.

In the Call for Fire dialog, changed the Time on Target bits by adding a description (pointing out that this is mission time).

Tasks

Added a new entry to the retractable menu bar in the 3D view, Tasks. This allows you to activate options that are specific to the unit currently under your control, such as placing panels to mark locations on the ground. Engineer vehicles could be tasked to begin some earthworks construction, etc.

Speaking of

Panels

Note that dismounted engineer teams (also CO, XO, PLT leader, and PLT SGT units) have access to a wider variety of panels than other units. Also, you can't throw



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panels out of vehicles like lawn darts; dismounting is required. Panels owned by enemy parties will not be visible in the 3D view during the Planning Phase, except for a potential UAV path playback.

After Action Review

The construction state of wire obstacles over time is now better tracked and recreated during mission playback.

The successful breach of an obstacle creates now an AAR event.

Losses of personnel riding in a vehicle launching MICLIC, caused by said MICLIC, will now be logged in the AAR as 'self-inflicted crew loss'.

The AAR now replays the creation of the 'suspected minefield' graphic (created when creating a breach lane or employing MICLIC) as well as the dotted 'unproved breach lane' map graphic.

In the AAR, artillery units are now shown more nicely with animated parts.

Map Editor

We fixed a rather serious bug with, unfortunately, lasting repercussions: The **Map Editor's Undo** function no longer duplicates the whole road mesh (yay). Map designers are advised to check their 2020 creations for duplicated road networks (roads on top of other roads).

From now on, after flattening ground under objects or raising roads, no message box will require user confirmation by clicking OK.

Increased application crash resistance when saving maps after height operations in low disk space situations.

When smoothing roads, the maximum slope may now be set to up to 45°.

The option to show splined roads finally works as intended, is actually useful now.

Map Packages

If you are accustomed to SB Pro PE version 4.0 or older, please read the primer on Map Packages in the Version 4.167 Release Notes first.

The Map Package Transfer Manager

With version 42, it is now possible to upload maps (if you have the necessary login privileges), and the software can be localized. Please contact us if you want to help us create a language version other than the existing ones.

MapTransferMgr_V42_Setup.exe is part of the bundle installer, as a selectable option. Highly recommended, consumes very little disk space.



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Sound

- Improved several smallarms sounds and the M240 LMG sound
- Improved the precision artillery splash sounds (both near and far)
- Improved the M240 LMG and several small arms sounds, again
- BTR-80,82A: Adjusted the engine sounds to be more realistic

Localization

As a general reminder for all users with non-Latin alphabets: *Steel Beasts* uses **Windows-1252 character code sets**. This requires the enable option “**Language for Unicode-incompatible Programs**”; For this, open the **Windows Settings – Time and Region – Change Date/Number format**, then change to the “**Administration Tab**” and then click on the “**Change system locale**” (the second) button.

A number of previously hardcoded strings are now accessible for translation.

- Added new **English (US)** strings (related to MICLIC, bridgelayers, camera animation window, call for fire dialog, and a few others)
- Updated the **English (US)** User’s Manual
- Updated **Danish** strings
- Updated **Dutch** strings
- Updated **French** strings
- Updated **German** strings
- Updated the **German** Benutzerhandbuch
- Updated **Polish** strings (still requires **Windows-1250** code set, not -1252)
- Updated **Russian** strings
- Restored the **Russian** installer localization
- Updated **Spanish** strings
- Updated the text of some localized tutorials

Simulation Rules

Large craters and anti-tank ditches come with their own mobility properties rather than adopting the surrounding terrain’s. Computer-controlled units will attempt to bypass large craters (if cross-country pathfinding is enabled), and may not cross anti-tank ditches unless breached by bridgelayers. Future versions of *Steel Beasts* may bring breaching by earthmovers, but at this stage it is not implemented.

In fact, a bug that allowed just that has now been corrected.

Fine-tuned the traction of anti-tank ditches.

AFV and infantry smoke grenade particle effects are more realistic now.

AFV smoke screens are no longer work as a reliable wall of perfect concealment to sit behind and continue to engage from. More realistically, to be used covering your displacement/retreat to a new position.

- Smoke grenades now more realistically build up over 4–5 seconds rather than the InstaCloud™ effect.



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NOTE: In real life GALIX grenades do burst in the air for an instant screen, but the majority of the grenades in Steel Beasts are the traditional kind, so it makes more sense to make them all behave in the traditional way, rather than making them all behave like GALIX grenades (until a new effect can be added for it).

- More random velocity of cloud expansion for taller, more varied (and less perfect) smoke screens, rather than the 100% reliable "smoke wall". In real life smoke screens are not perfect. This may also serve as an incentive to fire both smoke grenade salvos together, for a thicker smoke screen, rather than exploiting one salvo and to coolly fire another only as the previous effect dissipates.
- Smoke grenades now burst higher and descend as the screen develops.
- Infantry smoke grenades now build up slower over time, too.

AI Behavior / Pathfinding

Generally, please note that there is a **framerate dependency for all pathfinding**. Pathfinding will eventually stop working if the framerate dips under 10 fps.

Changes to minefield clearing were made with implications for pathfinding. Please check out the "Engineers" section further below.

Some minor tweaks were made to defuse potentially confusing behavior of units in the vicinity of minefields and breach routes.

Infantry no longer jumps off bridges even if unsuitable formations orders are given

Fixed AI/pathfinding relevant bugs 9407, 9458, 9498, 9511, 9516, 9517, 9519, 9540, 9541, 9543, 9564, 9571, 9625, see section "Resolved Bugzilla entries"

Ballistics

No fundamental changes were made, except for the introduction of sensor-fuzed artillery munitions.

New/Updated Munitions

- Added the following sensor-fuzed Munitions: **155mm SMArt**, **155mm BONUS**, **155mm SADARM**. In the Call for Fire dialog, refer to them as "Precision Munitions" even though, ballistically, they aren't more precise than other rounds. All three of these rounds will be released high above the ground and search a circular area during their descent, firing an explosively formed penetrator when detecting a valid target. Note that **SADARM** was never fielded in significant numbers.
- Adjusted terminal ballistic effect for 14.5mm **MDZ HEI** and **MDZ-M HEI**



- Added 30mm APDS-T, PMC359CC APFSDS-T
- Adjusted lethality of 35mm NMxxx APFSDS-T and PMD049 APDS-T
- 40mm OG-7 HE-frag for RPG-7 now enabled for anti-personnel use
- Added 40mm M433 HEDP rifle grenade
- Adjusted 40mm DM12 MZ/HEDP round's terminal ballistic properties
- 70mm FFAR Hydra M247 (Cobra, Apache Gunship) now enabled for anti-personnel use
- 70mm FFAR Hydra APKWS (Cobra, Apache Gunship) now enabled for anti-personnel use
- Added 75mm DZGI-40 HE-frag for RPG-7 launchers
- 80mm S-8 KOM HEAT (HIND-E, Mi-8 Gunship) now enabled for anti-personnel use
- 80mm S-8BM KOM HE-frag (HIND-E, Mi-8 Gunship) now enabled for anti-personnel use
- 80mm S-8D FAE (HIND-E, Mi-8 Gunship) now enabled for anti-personnel use
- Added 81mm M-51 ROMP, M-59 FUM, M-AE-84 ROMP mortar bombs
- Added M-51 ROMP, M-59 FUM, M830 ROMP, M831 FUM, M-AE-84 ROMP for 81 mm long mortar
- 84mm HEDP 502 for Carl Gustaf RPG now enabled for anti-personnel use
- 84mm LHLGrPatr 74 for Carl Gustaf RPG now enabled for anti-personnel use
- 84mm M136 AT4 HEDP 502 for Carl Gustaf RPG now enabled for anti-personnel use
- 84mm SprGrPatr 74 for Carl Gustaf RPG now enabled for anti-personnel use
- Added 85mm NR-4 HE-frag for RPG-7 launchers
- Added 100mm 3D3 WP SD for T-55A and T-55AM
- 105mm TBG-7 FAE for RPG-7 now enabled for anti-personnel use
- 105mm PG-7LT HEAT for RPG-7 now enabled for anti-personnel use
- 105mm RMG for RPG-27 now enabled for anti-personnel use
- 105mm RShG FAE for RPG-27 now enabled for anti-personnel use
- Added 110mm 'PzF-3IT* DM72A1' RPG (featuring a tandem warhead)
 - changed the name of PzF-3 to PzF-3 DM12
 - changed the name of PzF-3T to PzF-3T* DM33
- Added 120mm DM73 APFSDS to MBTs with L55 gun, implicitly assuming that their breeches and barrels have been updated for higher chamber pressures
- Added 120mm 3OF49 and 3OF51 HE mortar rounds
- 130mm Metis-M FAE for AT-13 Saxhorn-2 now enabled for anti-personnel use
- 130mm Metis-M1 FAE for AT-13 Saxhorn-2 now enabled for anti-personnel use
- 152mm Kornet-E FAE for AT-14 Spriggan now enabled for anti-personnel use
- Added 155mm ER02A1 HE/HEBB artillery shell

Other adjustments

- IFV CV90/35
 - changed the round standard deviation for a number of 35mm rounds that are used in the CV90/35, to better model the difference between open/closed bolt firing modes

MBT main gun reload times

- Researched and reevaluated all tank maingun reload times based on various sources, including TRADOC TRISA WEG.
Based on average rate of fire, the reload rates have been changed to more plausible values.

◦ AMX-13	+1 sec	◦ M60A3	+3 sec
◦ Centauro	+1.5 sec	◦ Merkava 2 (all)	+1.667 sec
◦ Centurion Mk5	+3 sec	◦ Sho't Kal	+3 sec
◦ Challenger 2	+0.667 sec	◦ T-72 (all)	-1.0001 sec
◦ Leopard 1 (all)	+1.5 sec	◦ T-90S	-3.5 sec
◦ M1A0	+1 sec	◦ TAM VC	+1.5 sec
◦ M1(IP)	+1 sec		

Mission Editor

General

When testing a scenario, you may now select and repair destroyed units.

When testing a scenario, you may now change AI-created fire missions.

The Mission Debugger can now set the value of random variables at the start of the Planning Phase.

When selecting a map, the button Select largest possible area will now pick the largest possible area, and not the largest possible quadratic area.

Camera Animation Editor

Added an option to the camera animation editor to keep the tether combatant's pitch and roll from moving the camera. The camera animation dialog now allows to adjust the time between keyframes.

Formation (and callsign) Templates

Added/Updated templates

- Corrected a duplicate unit ID issue on the Africa MRC BTR 1980-2000s unit template.

Map Editor

Land Object Lines

Added Land Object Lines (LOL) as configurable objects. You may compose the LOLs from available elements of the land object palette (trees, boulders, bushes, ...) and configure the density of the LOL, then save it as a template, and create these objects in your maps. Is is a very convenient way to line country roads with tree lines, field with hedgerows etc.

Note that LOLs can be configured so dense that they will be considered impassable for vehicles. However, on generation there will always be gaps in these rows through which passage is possible.

Known Issues

...here are the main issues that we know about, no need to report them again:

- **Local time zone** settings may be off for legacy scenarios
- **40mm DM12 MZ/HEDP** for **Mk 19 AGL** is currently underperforming against armored targets (Bug 8607)
- Legacy scenarios involving the generic **cal .50 Remote Weapon Station** will have it replaced by the **M151 Protector** on most vehicles. However, on all **MAN KAT** series trucks the GNR's position will no longer be available (Bug 8920).
On the **Pandur**, it can be manually replaced by the **Arrows RWS** (new).

Artwork/Render Engine

Assigned 3D RPG (in flight) model to

- PzF-3s
- M136-HEDP
- RPG-18
- NR-4
- DZGI-40

Improved the **Dragon** ATGM booster particle effect

Vehicle dust trails now fade more gradually with increasing ground water saturation

Added mist trails as the ground saturation rises

Added a new particle effect for the tank's main gun WP rounds.

Added a missing winter TIS texture for a leafless tree.

Concertina wire in thermals no longer has that black outline.

Improved the AU Triple Trunk and AU Burnt Triple Trunk trees, resulting in better looks, better framerates.



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Improved the Acacia tree bark and leaf textures to help them better blend in with the environment. Then removed the impossible clashing colors of branches and the new bark.

After consulting an expert caterpillar on shrinkage reversal (*reductio alicii*) we offered some of the African hut LOD3s a stew of *Entoloma saundersii*, *Melanoleuca cognata*, *Russula nauseosa*, *Entoloma clypeatum*, and *Stropharia aeruginosa*. Fortunately, at least one of them seems to have provided the desired effect as Mr. Carroll's textbook provided no clear guidance.

Moved on to treat Desert plant 1 and Desert plant 2 the same way.

Better explosions, yay!

Adjusted the hue of two autumn tree leaves to provide more colorful variation to the landscape (yellow and red, rather than just all orange).

Adjusted the brightness and contrast of the nettles and grass2 (what we use for wheat in Autumn themes) so that they blend in better with the environment .

Changed the concertina wire texture to DXT3 to get rid of the very noticeable black outline in thermal view.

Some performance optimization may cost very little performance in empty landscapes (where framerates are generally good). The trade-off is much better performance in dense vegetation scenes.

The Intel HD4000 and similarly constrained older and/or integrated graphics chipsets may no longer fail to load scenarios due to unsupported texture formats. But of course no miraculous performance is to be expected in any case.

Improved the generic cable TIS texture, and the Utility Pole model and its texture.

At night, the interior lighting for a large number of vehicles could be improved, probably obviating a number of night-related vehicle interior texture mods.

Improved a number of particle effects, mostly autocannon muzzlebrake and smoke exhausts, also minerollers and plows.

Added several US 2010 vehicle desert camo textures for proxy vehicles.

Gave a number of wheeled vehicles a facelift, and 3D tracks to three CV90s.

A fair number of decals for a fair number of vehicles received artist attention, and fixed a file name error for the M1A1 AU.

The exceedingly rare bush/tree burning effect due to a WP strike is now disabled.

A number of trees received shader updates, some also brightness-adjusted textures. A last minute change of lighting code had to be retracted as it resulted in

glow-in-the-dark trees. A new attempt shall be made at a later point, possibly with a patch.

Weapon-system specific changes

Armored Personnel Carriers

GTK Boxer

- Prettified textures

BRDM-2

- Added 14.5mm MDZ and MDZ-M ammo option
- Improved RU 3-tone camo

BRDM-2/AT

- Fixed bugs 9732, 9757, 9762, 9763

SA-9

- Fixed bugs 9762, 9763

BTR-60, 70

- Added 14.5mm MDZ and MDZ-M ammo option
- Improved RU 3-tone camo
- Added muzzle flash in primary sight

BTR-80

- Added an RU 2020 texture
- Added 14.5mm MDZ and MDZ-M ammo option
- Improved RU 3-tone camo
- Gunner's sight will now use a copy of the BMP-2 CDR's sight; this fixed bug #6579
- Added muzzle flash in primary sight

BTR-82A

- Added an RU 2020 texture
- Added gun stabilization
- Switched default KE round to 3UBR8 APDS
- Created/added a new 30mm 3D shell ejection effect
- Corrected a component above the gun on the armor model
- Improved RU 3-tone camo
- Fixed bug 9758

M113 Family

- Adjusted the maximum turn rate to more realistic levels, based on a number of highly sophisticated scientific experiments

M113A2G

- Added a German and West German texture (mainly for use with the M113A2 ATGM vehicle)
- Corrected a problem with a shadow that might occasionally appear on the front right hull (of the ATGM variant)
- Added optional weapon: M240
- Added UK texture as a stand-in for FV432

M113A3, /Eng

- Corrected the range of movement of the rear hatch to prevent clipping into the side hull

M113/FO

- Corrected the rotation limit on the commander's opened hatch.

M113G3

- Fixed bug 8710

M113G3-TOW

- Increased number of stored missiles from 6 to 9
- Fixed bug 8114

M113G4

- CDRs will now rotate with the cupola while seen from the [F8] view
- Added a CIV (Government) texture set

M577

- Fixed bug 9766

M901

- Improved AI relevant armor values
- Corrected the open time on the rear door
- Fixed bugs 9289, 9710, 9732

MTLB/Eng

- May now be equipped with MICLIC trailer

Pandur

- Corrected the smoke grenade count

Piranha III-C

- New formula! Now spiked with free-range concertina wire
- Other units' AI gunners are less reluctant to engage it now, at times
- Updated some model files
- Can now be equipped with **M151 Protector RWS**
- Improved rendering (lighting) quality in the squad position

Piranha III-FUS

- **New System**
- Optional Equipment: Arrows RWS
- Fixed bug 9628; see section "Resolved Bugzilla entries"

Piranha V

- **New System**
- Added crew positions CDR, DRV, GNR, TRP leader
- Optional Equipment: Lemur RWS
- Fixed a bug with the CDR's map display in 3D interior view
- Fixed bugs 8367, 9514, 9521, 9528, 9257, 9755

Piranha V CMD

Command Post vehicle, may optionally start with camo net applied

- **New System**
- Added crew positions CDR, DRV, GNR, COY/BN leader
- Optional Equipment: Lemur RWS
- Fixed a bug with the CDR's map display in 3D interior view
- Fixed bugs 9766, 9767, 9789

RG-31 Nyala MRAP

- Improved interior view texture

TPz Fuchs

- Added a DE 1980 nationality texture
- **Corrected the shade of green of the DE 1980 nationality texture**

Armored Reconnaissance Vehicles

ASLAV-25

- Corrected the HE grenade data so that it doesn't conflict with the smoke grenade ammo counts
- Increased the troop capacity to 3, to allow for optional carrying of additional troops, based on the mission requirements (less gear, more scouts). Vehicle still defaults to 0 troops, but capacity is available.
- Fixed bug 6085

BRDM-2

- Added an RU 2020 texture
- Added muzzle flash in primary sight

Centauro

- Improved the UN texture to help with mip mapping issue of the white lines on the tires
- Enabled Brightness, Contrast, and Focus control knobs of the Gunner's thermal camera
- Enabled automatic Brightness and Contrast adjustment for the TIS
- Gave the exterior model a facelift

Fennek Recce

- Added crew positions, CDR, GNR, DRV
- Enabled BAA, and control station hand-over
- BAA may be partially extended at slow speeds, but will break if fully extended at higher velocities over bumpy terrain
- Fennek vehicles, if starting 'combat ready', will now have their hatches closed

LMV

- Fixed bug 9244; see section "Resolved Bugzilla entries"

SpPz Luchs A2

- Added some missing 20mm ammo types and corrected the default ammo types
- Added a DE 1980 nationality texture
- Fixed bug 9068

Piranha DF 30

- The cool-down status of independent thermal viewers will now be tracked independently

Piranha DF 90

- The cool-down status of independent thermal viewers will now be tracked independently
- Corrected the texture assigned to the antennas
- Fixed bugs 9504, 9572; see section “Resolved Bugzilla entries”

VAMTAC VERT

- **New System**
- Fixed bug 9490; see section “Resolved Bugzilla entries”

VEC

- Fixed bug 9004

Armored Recovery Vehicles

Where equipped with dozer shields, ARVs may also breach steel beam and concertina wire obstacles

Piranha V/Repair

- **New System**
- Optional Equipment: Lemur RWS

Wisent ARV

- If equipped with **Lemur RWS**, the CDR’s screen will have a backlit button in the top right corner to toggle between RWS sight replication and map screen

T-16 Armata

- Reduced the (estimated) smoke grenade launch distance to compensate for the new smoke grenade effect

Artillery Systems

Added new map icons for SP Mortars, and improved the SB Artillery map icons.

Added map icons for mortar teams (light, medium, heavy) depending on choice of equipment.

2S1 Gvozdika

- **Adjusted default ammo count for each ammo type to be more realistic**



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2S3 Akatsiya

- Adjusted default ammo count for each ammo type to be more realistic

2S35 Koalitsiya–SV SPAH

- Adjusted default ammo count for each ammo type to be more realistic
- Increased gun recoil distance

ACRV/MT–LBu

- Improved RU 3–tone camo

BM–21 Grad

- Improved RU 3–tone camo
- Corrected the EL and AZ speed of the launcher

M109A3

- Adjusted default ammo count for each ammo type to be more realistic

M270 MLRS

- Fixed bugs 8675, 9335

M1064 Mortar Carrier

- Added more cal .50 rounds for HMG
- Adjusted default ammo count for HE and Smoke types to realistic values

Piranha V AAMS

- **New System**
- Added crew positions: CDR, DRV, GNR (if equipped with Lemur RWS)
- Fixed a bug with the CDR's map display in 3D interior view

TAM VCA

- Adjusted the default ammo level to be more consistent with other SPGs

Engineers

- AEVs with mineplows **cannot** create vehicle emplacements. They may still clear obstacles of the concertina wire, or steel beams type, however. **Most vehicles with dozer shields can do so, too** (specifically, Wisent AEV, Dachs AEV, Kodiak AEV, and Piranha V Eng). This happens either automatically on Breach routes or by hitting the Space Bar while you drive the vehicle's manually. Unsurprisingly, with the plow deployed the vehicle's speed will be quite restricted. Tasking the vehicle with an earthworks construction will cause the plow to be raised (until construction is in progress).
Further refinement of the concept is to be expected.

- Owner players of bridgelayer vehicles may now use the (recently added) Tasks menu to lay or retrieve assault bridges
- Whenever a vehicle equipped with mineplow lowers the plow (or a MICLIC is being fired), **it is implied now that the presence of mines is suspected** (if not already confirmed). Computer-controlled vehicles will take that factor into account and change their pathfinding accordingly. Also, such actions will leave well visible scrape marks behind.
In network sessions, only the player operating the mine-removal equipped vehicle will receive map graphics indicating the possible presence of mines in the vicinity of the breach lane that he's creating. **It is his duty to consolidate the map graphics, and to send them as map updates to friendly players.**
- Fixed bug 7541

Biber

- Remove components that wouldn't be there in the first place
- Laid bridge is now destructible by artillery

GTK Boxer/Eng-NL

- **New System**
- Added crew positions: CDR, DRV, GNR, TRP Leader
- Optional Equipment: M151 Protector (same but different as in Kodiak AEV)
- Fixed bugs 9157, 9560; see section "Resolved Bugzilla entries"

Dachs AEV

- Can create clear wire and steel beams obstacles now (with dozer shield)

TPz Fuchs 1A6/Eng

- Optional Equipment: MICLIC

Kodiak AEV

- Can create clear wire and steel beams obstacles now (with dozer shield)

MT-55

- Remove components that wouldn't be there in the first place
- Laid bridge is now destructible by artillery

MT-LB/Eng

- Optional Equipment: MICLIC

Piranha V/Eng

- **New System**
- Optional Equipment: Lemur RWS, dozer shield

Wisent AEV

- Can create clear wire and steel beams obstacles now (with dozer shield)

Fun Trucks and Contraptions

- Adjusted suspension of most civilian trucks
- Will now belly-scrape bumpy terrain, with the associated speed penalties. Slow off-road driving is strongly recommended.

Civilian Vehicles

- Will now belly-scrape bumpy terrain, with the associated speed penalties. Slow off-road driving is strongly recommended.

Eagle IV

- Improved consistency with the offroad mobility

LMV

- Added an **RU 2020** texture
- Improved RU 3-tone camo

M1025 HMMWV

- Corrected the swivel limit for the mounted weapon

MB GD240

- Will now belly-scrape very bumpy terrain, if driven too fast, with the associated speed penalty (and who knows what else might break).

MB G300 CDI

- Adjusted cupola traverse speed to more realistic, slower values

Pinzgauer

- Reduced *unreasonably excessive* troop damage on the rear; they are still highly vulnerable, obviously

Technical trucks

- Better-looking wheels
- Adjusted suspension of all Technicals
- Updated the vulnerability with the new approach for non-armored vehicles (vitals must be hit with KE to disable the vehicle).

Technical, 106mm M40 RCL

- Added ranging gun ammunition to **106mm M40 Recoilless Rifle**, with associated target marker effects (flash, smoke)
- Better wheels, ammo boxes
- Adjusted max ammo count to 15, 2 rounds ready (artwork is wrong)

VAMTAC vehicle family

- **New Systems**
 - **Light Truck**
 - **ATG Missile Carrier**
 - **Command Post vehicle**
 - **Ambulance**
- Adjusted cupola traverse speed to more realistic, slower values
- Fixed bug 9766

Vector ATTV

- Improved positioning of GNR's position eye view
- Improved cross-country mobility
- Adjusted cupola traverse speed to more realistic, slower values

VW Amarok

- Updated the vulnerability with the new approach for non-armored vehicles (vitals must be hit with KE to disable the vehicle).

Helicopters

- Fixed bug 9582

CH-47 Chinook

- **Infantry disembarks faster now**

Mi-8 Gunship

- Improved GNR AI to engage faster with guided missiles and unguided rockets
- Fixed bugs 9740, 9741

Mi-8T, TB

- Reduced *unreasonably excessive* troop damage in the troop compartment; they are still vulnerable, obviously

Mi-24 Gunship

- May now engage targets out to the full range of their AT-9 missiles
- Fixed bug 9740

Infantry

- Smoke grenades produce longer lasting, thicker smoke that drifts more with the wind
- Smoke grenades now produce slightly less longer lasting smoke
- 'Medic' type soldiers will now carry backpacks
- Fixed bugs 9574, 9678, 9742

Egr teams

- Fixed bug 9722

MG teams

- M2HB: Prettified the gun barrel
- NSVT HMG: Enhanced the gun actor by promoting the "high" model to LOD1
- Fixed bug 9619

Missile teams

- Adjusted some ill-described issue with TOW related ammo selection dialog (so it probably belongs here, but I don't really have a clue. Please help me, I am held captive in a North Korean changelog factory)
- Added an EFP effect to the TOW-2B
- Graced the MILAN with the newer missile tube
- Doubled the 'nudge distance' of TOW and Sagger launchers
- Fixed bug 9516; see section "Resolved Bugzilla entries"

Infantry Fighting Vehicles

ASCOD Pizarro F.1

- Added option to mount AVePS, with 3D model of the launcher
- The CDR's daysight reticule has been adjusted for a more faithful recreation, which, it has to be noted, is *inaccurate* as far as the used ammunition is concerned
- Added a BMS screen to the CDR's position as an optional equipment item
- Enabled Brightness, Contrast, and Focus adjustments for the vehicle's thermal imaging system
- Fixed bug 5976; adjusted **ASCOD Pizarro**: In legacy scenarios they will be equipped with the added 30mm **MPLD-T** ammunition. In new scenarios, these vehicles will default to **PMC359CC APFSDS-T** and the **MPLD-T**
- Fixed bugs 7990, 8552, 8726

ASCOD Ulan

- Enabled Brightness, Contrast, and Focus adjustments for the vehicle's thermal imaging system

BMP-1

- Improved RU 3-tone camo
- Added decals for USSR nationality (removed the CZ roundel)

BMP-2

- Added an RU 2020 texture
- Improved RU 3-tone camo

Bumerang IFV

- Updated the mass and power to weight of the vehicle

CV90/30-FI

- Corrected an error that caused the gunner to be oriented 90 degrees to the side and also an issue that caused the commander to not be present when buttoned
- Fixed missing AK47 rifle texture in the interior

CV90/35

- Added an AU camo scheme as a stand-in for new LAND-400
- Fixed bugs 5795, 9538, 9539, 9691

CV90/35-DK

- Updated names of a few tutorials

CV90/35-NL

- The cool-down status of independent thermal viewers will now be tracked independently

CV90/40

- Improved rendering (lighting) quality in the squad position
- Added an alternate thermal texture, as a stand-in for a "generic advanced IFV"
- Fixed bug 8555

M2/M3A2 Bradley

- Removed spall liner from roof area, as this was something that part of the M2A3/M3A3 upgrade
- Added MERDC camo for US 1980 nationality for stand-in for cold war scenarios
- Improved rendering (lighting) quality in the squad position
- Fixed bug 9732

Marder 1A3

- Added a DE 1980 nationality texture

T-15 Armata

- Reduced the (estimated) smoke grenade launch distance to compensate for the new smoke grenade effect

Logistics

- Pretty much all wheeled non-AFV vehicles may now belly-scrape very bumpy terrain if driven at too high velocities, with the associated speed penalties (other stuff such as suspension might break too). *Slow Doon!*

MAN KAT-1 4x4

- Better wheels

MAN 10t GL 8x8

- Better wheels

Piranha V/Ambulance

- **New System**

Unimog

- Better wheels

Ural trucks

- Improved RU 3-tone camo

YAD-4442

- Added troop frames to the troop transporter

Main Battle Tanks

Challenger 2

- Adjusted its perception to AI controlled units; they might now be less reluctant to engage it in some cases
- Greatly improved the add-on armor representation. Now the front is treated as ERA (although it will not get removed with impact because of the age of the artwork; tandem warheads will bypass)
- While at it, a few other minor general improvements to the armor model, updating it to current development standards
- Improved front hull settings (again!?) to increase chances for AI units to fire RPGs at it (this may also reduce cases where the AI refuses to fire RPG)
- Prettified Loader's MG

Leopard 2

- Fixed bugs 9676, 9806

Leopard 2A4

- Adjusted an unreasonably weak spot in the armor protection model (inner front hull)
- Added a DE 1980 nationality texture
- Fixed bugs 2853, 3585, 8556

Leopard 2A5

- Fixed bugs 7878, 8556, 8861, 9108, 9395, 9426; see section "Resolved Bugzilla entries"

Leopard 2A6

- Added the option for **DM73 APFSDS**, announced to be introduced in 2022
- Fixed bugs 7878, 9108, 9426, 9650

Leopardo 2E

- Added the option for **DM73 APFSDS**, speculatively to be introduced in or after 2022
- Fixed bugs 9005, 9650

M1 Abrams

- Fixed bugs 3389, 9261, 9262, 9358, 9396, 9533, 9534; see section "Resolved Bugzilla entries"



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M1A0 Abrams

- Added MERDC camo texture for US 1980 nationality
- Fixed bug 9533

M1(IP) Abrams

- Added NATO 3-color camo for US 1990 nationality
- Fixed bug 9533

M1A1 Abrams

- Added MERDC camo texture for US 1980 nationality
- Removed MERDC camo texture for US 1980 nationality as this was a mistake – M1A1s came from the factory painted in NATO 3-color camo

M60A3

- Improved CDR's cal .50 reticule
- Fixed bugs 9100, 9573; see section "Resolved Bugzilla entries"

T-14 Armata

- Reduced the (estimated) smoke grenade launch distance to compensate for the new smoke grenade effect
- Improved the damage effects of rear turret stored ammo compartment, with new damage types

T-55

- Added 3UD3 WP smoke round
- Adjusted stabilization quality to be consistent (and greatly improved to better match reality)
- Fixed bugs 9304, 9394, 9791, 9792, 9793

T-62

- Adjusted stabilization quality to be consistent (and greatly improved to better match reality)
- The search light and its arm are now animated
- Corrected an issue that could have caused other computer-controlled units to miss the T-62 more often than would be natural

T-72 MBTs

- Adjusted stabilization quality to be consistent
- Fixed bugs 5936, 8521

T-72A, B, M1

- Improved RU 3-tone camo

T-72B, M, M1

- Removed a gap in the turret ring area

T-72B, B1, B1V, TOS-1A

- Added an RU 2020 texture

T-90A

- Improved RU 3-tone camo

Remote Weapon Stations

Arrows

- **New System**
- Fits on Piranha III-C vehicles, Pandur
- Fixed bugs 9564, 9629, and *potentially* bug 9529 too; see section “Resolved Bugzilla entries”

Protector

- Fixed bugs 9526 (*possibly*), 9529

Bugfixes without Bugzilla entry

Only Version 4.259---4.267 changes in this section

- Fixed missing shadows that occurred on some objects, such as tank tracks, huts and power line pylons.
- Fixed various bugs in the **Ulan**
 - fixed a rendering artifact on the central computer control panel rendering it illegible when viewed from the GNR's position
 - fixed an issue where STAB could be enabled even if the servos (RSA) was not previously active (the turret would not move but various readouts would be wrong)
 - fixed an issue where the fire control system (FLA) would show a range of 9995m if no laser echo was received (when it should show '...')
- Steel Beasts will no longer create binary files in the program's working directory (located in a folder for which an ordinary user account does not have write permissions) if the 'Map Package Transfer Service' is not installed.
- Display the UTM grid correctly if the SW corner in the **Mission Editor** is different from the simulated UTM zone for legacy scenario compatibility reasons.
- Fixed log message that might crash when converting a legacy map to current format.
- Fixed a message dialog that might crash when testing a scenario with too many spawned units.
- Fixed an issue where a mobile bridge's position would not be correctly be recreated in the **AAR**
- Fixed a slight animation issue on the **M901** where the launcher appeared to 'bump' around when in its stored position.
- Fixed an issue in the **Mission Editor** where for HE and Smoke type artillery fields the 'Impotent' property would not be shown.
- Fixed use-after-free error in the scenario-unload code
- Fixed a bug when importing map annotations using shape files
- Fixed a potential crash bug when entering the execution phase of saved-in-progress scenarios.
- Improved the rendering of the map display in the **M577** and **Piranha V/Cmd**.
- Fixed a bug that turned all displays black inside of the **Piranha V** (other than the 'command' variant)
- Splitting **infantry CO/XO** formations will no longer double the number of available unmanned vehicles
- Made sure that **unmanned vehicles** are being delivered on time to attached infantry upon mission start
- Removed the glue from the **hover cam** that kept it at ground level when supposedly elevation-adjusted by mouse wheel
- **Targets, once detected by infantry, will no longer be ignored so quickly in some situations**

- Reduced network bandwidth consumption by AI adjustments of **thermal imager focus**
- Eliminated a potential crash bug
- Shrank the **dandelions** default size by 50%
- **Sabot petals** now leave gun barrels flush with the bore
- Improved the random color palette for **ISO containers**
- Improved the security fence appearance in thermal view
- Improved the brightness/heat signature of various earth and stone walls, the HESCO barrier, and the guard rail
- Improved the **spacing with tactical unit icons** on map screen
- Shrank the **SMARt ballute's** size by 50%

Resolved Bugzilla entries

Only Version 4.259---4.267 changes in this section

- Fixed bug #5973; in **AARs** following a **network session** there could be a runaway **Play** button in **Event** mode while still connected to the host
- Fixed bug #7059; reduced the number of cases where **HE events** cause double entries in the **AAR**
- Fixed bug #7125; when **Looking for Sessions...**, the dialog now reveals the host's ports to connect to
- Fixed bug #8770; **autocannon HEI quantum fragments** can no longer kill **MBTs** by tunneling through their armor by floating point rounding error
- Fixed bug #9438; improved handling of maps with overlapping **UTM grid zones**, such as zone 33
- Fixed bug #9442; in some situations an undo command after working on roads in the **Map Editor** would crash Steel Beasts. This should no longer happen
- Fixed bug #9498; on **breach routes** vehicles with dozer blades will now check for **bridges** ahead (again)
- Fixed bug #9528; possibly textured vision blocks of the **Piranha V** **DRV's** position that might have been untextured
- Fixed bug #9533; **M1** and **M1IP** will now turn the turret to the 11 o'clock position with 8 rounds remaining in the hull storage (all other **M1s** will do this with 6 rounds remaining).
- Fixed bug #9574; when spawning **UAV** or **UGV** equipped infantry during a mission, their gadgets will now be kept in their pockets
- Unbugged a bridgelayer & mineplow scenario (#9581)
- Fixed bug #9582; **helicopter** wingmen will now follow their leader again
- Fixed bug #9601; **Sho't Kal** user drivers may no longer control turret and gun by tapping arrow keys
- Fixed bug #9606; dead units now stop **reloading**
- Fixed bug #9612; when plotting a **Group Route** for an **Infantry Taskforce**, the default speed is now based on the route's chosen tactic
- Fixed bug #9619; reduced the vehicle fixation of **LMG teams**, so they no longer refuse to enter buildings
- Fixed bug #9645; for the first time in Steel Beasts history, **blind units** will restock their ready ammo
- Fixed bug #9650; with the **Leopardo 2E**, saving a scenario will no longer reset the **KE** ammo to zero. This may also have fixed the **Leopard 2A6-GE**
- Fixed bug #9652; **infantry** will now prefer filling up all troop positions in a **building** before going prone on the lawn
- Fixed bug #9676; the **Leopard 2** loader's vision block is no longer clickable from the **CDR's** unbuttoned view
- Fixed bugs #9678, 9722; **engineer** and **scout infantry** will now visibly carry their **RPGs** (if any)
- Fixed bug #9679; **T-55A** and **BMP-2** commanders may now really override their human gunners during **network sessions**
- Fixed bug #9685; the **SmartCam** view has been disabled for Network Sessions
- Fixed bug #9687; adjusted the **New Map Folder** selection dialog to confuse you less
- Fixed bugs #9688, 9702; the combat value of tanks will be calculated again when determining which party is **owner** of a contested **region**. Medics on the other hand are out now. Somehow this got messed up in a previous code edit
- Fixed bug #9689; the **DRV's** unbuttoned view is now fixed to the hull again
- Fixed bug #9691; selecting the **CV90/35** coax if loaded with **M61 AP** no longer causes a crash
- Fixed bug #9698; injured **DRVs** no longer prevent ammo transfer
- Fixed bug #9702; see bug #9688
- Fixed bug #9703; in network sessions hull orientation now synchronized in case of mobility damages
- Fixed bug #9704; the **SmartCam** view has now also been disabled in single player mode if the highest re-



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- alism settings were chosen.
While testing a scenario you may still use it
- Fixed bug #9709; the Random Offset value of **Land Object Lines** now allow values greater than 1000
 - Fixed bug #9710; **M901 ITV**: The hammerhead launcher never raises in the **AAR**
 - Fixed bug #9712; the dead no longer refuse to die: **Zombie apocalypse** averted by the narrowest of margins
 - Fixed bug #9715; gun actors that may not be fired from inside a building may now still be fired if mounted on a vehicle if the hatches are closed, something that got their gunners killed before
 - Fixed bug #9720; some petty-minded beta testers demanded that a **Save as** dialog should also have a field to enter a new file name. What a silly idea! Well, fine.
 - Fixed bug #9721; reduced the illegibility factor for **map UID** strings when querying Map Servers
 - Fixed bug #9722; see bug #9678
 - Fixed bug #9723; vehicle **emplacements** may now still be rotated while their orientation node is on or near a road
 - Fixed bug #9724; deployable **emplacements** now remain deployable after entering 3D view and then returning to the map screen
 - Fixed bug #9725; **anti-tank ditches** no longer become unresponsive in the Planning Phase of network sessions if multiple users select them simultaneously for position adjustment
 - Fixed bug #9727; **custom road textures** of map packages are now actually being used
 - Fixed bug #9732; **M901 ITV**: Computer-controlled vehicles with elevatable components – missile launchers or sensor masts - will now wait a short while after their vehicle has come to a stop before raising the launcher/mast.
Note that (AI) vehicles in battle positions and vehicles which can fire on the move are exempt from that restriction. This also applies when raising the launcher to initiate a reload operation!
 - Fixed bug #9733; **Towing** vehicles through the **Tasks** drop-down menu will now work reliably
 - Fixed bug #9734; after resuming a route [C], double-tapping the hotkey [Z] to make infantry **Go down** now makes them actually change posture as intended, rather than changing their speed
 - Fixed bug #9736; **ambulances** can no longer be abused as combat assets by running over troops
 - Fixed bug #9737; in the **Mission Editor** it is no longer possible to select not yet implemented mission types for scripted artillery
 - Fixed bug #9740; **Mi-24** and **Mi-8TB** gunship helicopters now visualize the partial depletion of unguided missiles in their rocket pods
 - Fixed bug #9741; **Mi-8TB**: The #3 and #4 ATGMs now spawn in front of their parent missile launchers
 - Fixed bug #9742; **infantry** will now throw just one **smoke** grenade per [TAB] command, rather than all of them at first use
 - Fixed bug #9747; in the **AAR**, the position of deployable **anti-tank ditches** shall henceforth be properly synchronized across clients and host
 - Fixed bug #9750; **JIM-LR**, and **NVG** may now be unselected from the list of **Personal Optronics**
 - Fixed bug #9755; **Piranha V**: With the M2HB option enabled computer-controlled CDRs will no longer occasionally fire the weapon when they shouldn't
 - Fixed bug #9756; implemented a PE specific fix for the handling of legacy scenarios with maps across multiple overlapping **UTM grid zones**
 - Fixed bug #9757; **BRDM-2/ATs** may now move with their missile launcher deployed at slow speed
 - Fixed bug #9758; **BTR-82A** under computer control shall now aim more reliably
 - Fixed bug #9761; eliminated some **SmartCam** jitter after exiting a scenario test in the **Mission Editor**
 - Fixed bug #9762; **BRDM-2/AT** and **SA-9** may now raise their launchers while on moving at slow speed
 - Fixed bug #9763; **BRDM-2/AT** and **SA-9** will now both execute more expeditious retrograde advances (enhanced Sir Robin bravery)
 - Fixed bug #9766; all command vehicles shall turn off their engines while having deployed their tents. This applies to the **Piranha V CMD**, **M577** and **VAMTAC-CMD** (all if deployed).
 - Fixed bug #9767; in the **Piranha V CMD** the tent roof is now rendered if observed from F11 position
 - Fixed bug #9768; 14.5mm MDZ and MDZ-M no longer act like tiny KE rounds, but rather act like the tiny HE rounds that they are
 - Fixed bug #9770; vehicles with **MICLIC** trailer shall no longer reverse on **Retreat** routes
 - Fixed bug #9775; the dead no longer refuse to stop resupplying. Another zombie outbreak averted!

- Fixed bug #9777; the LOS thickness multiplier for near-90° angles of impact is now capped at reasonably large rather than insanely large values
 - Fixed bug #9784; ICM barrages will no longer make smoke flicker
 - Fixed bug #9789; issued a gag order to AI controlled HQ staffers going "Brrrrrrm, vroom, vrooom" like total derps when their vehicles had the engine turned off (see bug 9766)
 - Fixed bug #9791; T-55As and -AMs may now select and fire smoke rounds (if so equipped) with the usual commands
 - Fixed bug #9792/#9793; T-55A's issues with main gun elevation and azimuth during the reload cycle
 - Fixed bug #9796; made collisions with the oiltank40m (0x52) much more amenable by removing invisible corners
 - Fixed bug #9797; SA-9 Gaskin: Soft stowage of missile launcher, without (seemingly) restoring spent missiles
 - Fixed bug #9799;
See them tumbling down
Pledging their love to the ground
Lonely but free, I'll be found
Drifting along with the tumblin' sabot petals
 - Fixed bug #9804; fortified an error message that you're unlikely to ever read by adding the eSim Games Sales email address
 - Fixed bug #9805; exhausted infantry no longer has the stamina to generate the "jogging" sound while walking
 - Fixed bug #9806; sold them lazy Leopard loaders off to a freak show to present their sawed-off torsos to a more appreciating crowd
 - Fixed bug #9813; M1A2 and T-72 family MBTs now allow the vehicle commanders even less to fire their HMGs while buttoned
 - Fixed bug #9829; reworked some coordinate discrepancies in the Fennek BAA in UTM zone borderlands such as the Niinsalo (Finland) map
 - Fixed bug #9835; KE impact events shall no longer produce double entries in the AAR
 - Fixed bug #9838; for low visibility ranges (< 3,000m), reduced scene flicker in vision blocks
 - Fixed bug #9940; unarmed civilian units are now blind by default
 - Fixed bug #9845; the AI commanders of the M113 AS4 no longer use superglue when closing ballistic protection on primary sight under artillery fire. Human gunners may open the ballistic shield doors again
 - Fixed bug #9952; no Combat Goldwings! Motorcycle on retreat routes no longer reverse
 - Fixed bug #9958; FASCAM (and priority artillery) reference points may no longer be moved during the Execution Phase
 - Fixed bug #9960; in network sessions, Warrior and Scimitar vehicles with both turret positions manned will now properly synchronize turret AZ and gun EL rates
 - Fixed bug #9869; in the Pizarro F1 and CV90/30-F1 the mouse cursor will now shape shift in F4 view at squad leader's position (F11)
 - Fixed bug #9931; we no longer show Looking for sessions on port 24002400
 - Fixed bug #9970; silenced the obnoxious "3X.wav" (and other internal) sounds while in the M60's F8 view
 - Fixed bug #10017; the zoom levels for aggregation and disaggregation of Taskforce and combined unit icons have been adjusted
 - Fixed bug #10018; when using the Group by callsign option, infantry units are now being aggregated at the platoon level, not company
 - Fixed bug #10025; removed the non-functional entry for Precision Artillery in scenarios that have only off-map fire support
 - Fixed bug #10027; vehicle shall no longer get stuck while reversing in the attempt to avoid incoming fire
 - Fixed bug #10066; selected HE/frag and FAE missile warheads will now be fired on infantry targets (see section "Ballistics")
 - Fixed bug #10073; enchanted forests no more!
In some situations forests were shown on the map, but not in 3D view
- A tribute to the beta testers, without whom we wouldn't have found the following bugs. Bugs that you never got to see and wouldn't even know that we fixed them.
- Guys, we owe you more than we will ever know. Thank you all for your silent service.
- Fixed bugs 9175, 9227, 9481, 9731, 9788, 9865, 9913, 9942, 9948, 10076

4.167 (official release – May 20, 2020)