SB Pro PE 4.259 (Bundle Installer)
Version History and Post-Fool's-Day-Release Notes

This is a full installer (and update installer) for SB Pro PE which requires the uninstallation of versions prior to 4.250; the Map Packages can remain untouched. If you have 4.250 installed, the bundle installer will suggest a simple upgrade installation.

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

We usually recommend reading this document with a dedicated PDF viewer capable of showing the embedded table of content for easier navigation, just not time.

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 4.250 (January 2021) are highlighted like this.

Previous Release Notes can be found on the eSim Games Downloads page:

www.eSimGames.com/Downloads.htm

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 However, in order to edit maps, **100 GByte free disk space** will be required **per unpublished map** for the uncompressed map data, which will be largely freed up on publishing.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.

Installation

For all customers with or without an already existing installation of SB Pro PE:

Please uninstall SB Pro PE and older versions of the Map Transfer Tools, then run the Bundle Installer 4.259 (**SBProPEBundleInstaller_4259.exe**) — unless you **know** that you have version 4.250 installed, in which case the Bundle Installer will suggest a simple update.

Also, we fixed a problem where the installer would incorrectly name the (optionally created) 'Quick Launch' icon.

As the SHA-1 hash algorithm is now officially deprecated, we're no longer using it. Users of Windows 7 that may still be out there will need a certain update to use SHA-256 instead if they want to verify our installers rather than trusting them blindly.

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

Since version 4.1 a number of things are now different from all previous versions of Steel Beasts Pro. 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. While they *could* be operated in any order, we still recommend applying the **Map Package Installer first.** Or, at least put some thought into the location of the map packages, which make up the bulk of the installation. You may freely determine the disk drive and installation folder for the map packages. This is particularly relevant for computers with a small SSD as the C: drive, and bigger conventional disk drives. 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,

a. **time-limited licenses** if you do not want to use a CodeMeter USB stick; these will expire after a while, depending on which option you purchase. The time counts from the moment of first use, not from the date of purchase, or the date of license activation (see next page for more details)

b. a **"classic" license** if you never owned a *Steel Beasts* software license with a CodeMeter stick before

c. **upgrade licenses** for CodeMeter stick owners, for one of three cases,

i. you own a *Steel Beasts* Pro PE license version 4.0 already

ii.   you own a *Steel Beasts* Pro PE license version 2.6, or 3.0

iii.   you own an SB Pro PE license version 2.5 and older, or without a version number in it

To find out which license you have, start the CodeMeter "WebAdmin" which will open a web browser tab, listing all the installed licenses on your CodeMeter USB stick

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 7.20a**.

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

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*.

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 7.20a
- **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).

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

Improved the application's startup logging in cases of early termination.

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 chance 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 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.

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**)
- 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.

![eSim Games]

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STEEL BEASTS
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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.
  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 salvoes 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.
- Added 30mm **APDS-T**, **PMC359CC APFSDS-T**
- Adjusted lethality of 35mm **NMxxx APFSDS-T** and **PMD049 APDS-T**
- Added 40mm **M433 HEDP** rifle grenade
- Adjusted 40mm **DM12 MZ/HEDP** round's terminal ballistic properties
- 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 81mm long mortar
- Added 120mm **3OF49** and **3OF51 HE** mortar rounds
- 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

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 land-scapes (where framerates are generally good). The trade-off is much better per-formance in dense vegetation scenes.

The Intel HD4000 and similarly constrained older and/or integrated graphics chip-sets 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 tex-tures. 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

o   Prettified textures

BTR-60, BTR-70:

o   Added muzzle flash in primary sight

BTR-80:

o   Gunner's sight will now use a copy of the BMP-2 CDR's sight; this fixed bug #6579
o   Added muzzle flash in primary sight

M113A2G

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

M113/FO:

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

M113G3:

o   Fixed bug 8710

M113G3-TOW:

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

M901

o   Fixed bug 9289

MTLB/Eng

o   May now be equipped with MICLIC trailer

Pandur

o   Corrected the smoke grenade count

Piranha III-C

o   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 bugs 8367, 9514, 9521, 9257; see section "Resolved Bugzilla entries"

Piranha V OPMV

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**

TPz Fuchs

- ○ Added a **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 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

o   Gave the exterior model a facelift

Fennek Recce

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

LMV

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

SpPz Luchs A2

o   Added a DE 1980 nationality texture
o   Fixed bug 9068

Piranha DF 30

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

Piranha DF 90

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

VAMTAC VERT

o   **New System**
o   Fixed bug 9490; see section "Resolved Bugzilla entries"

VEC

o   Fixed bug 9004

Armored Recovery Vehicles

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

Piranha V/Repair

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

Wisent ARV

o 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:

o <mark>Reduced the (estimated) smoke grenade launch distance to compensate for the new smoke grenade effect</mark>

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.

2S35 Koalitsiya-SV SPAH

o Increased gun recoil distance

BM-21

o Corrected the EL and AZ speed of the launcher

M270 MLRS

o Fixed bugs 8675, 9335

Piranha V Advanced Automated Mortar System

o **New System**
o Added crew positions: CDR, DRV, GNR (if equipped with **Lemur RWS**)

TAM VCA

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

Engineers

o AEVs with **mineplows** can**not** 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.

o Owner players of bridgelayer vehicles may now use the (recently added) **Tasks** menu to lay or retrieve assault bridges

- o 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.
- o Fixed bug 7541

Biber

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

GTK Boxer/Eng-NL

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

Dachs AEV

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

TPz Fuchs 1A6/Eng

- o Optional Equipment: MICLIC

Kodiak AEV

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

MT-55

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

MT-LB/Eng

- o Optional Equipment: MICLIC

Piranha V/Eng

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

Wisent AEV

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

Fun Trucks and Contraptions

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

Civilian Vehicles

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

MB GD240

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

Technical trucks

o Better-looking wheels
o Adjusted suspension of all Technicals
o 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

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

VAMTAC vehicle family

o **New Systems**
  ▪ **Light Truck**
  ▪ **ATG Missile Carrier**
  ▪ **Command Post vehicle**
  ▪ **Ambulance**

VW Amarok

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

Infantry

o 'Medic' type soldiers will now carry backpacks

MG teams:

o **NSVT HMG**: Enhanced the gun actor by promoting the "high" model to LOD1

Missile teams:

o Added an EFP effect to the **TOW-2B**
o Graced the **MILAN** with the newer missile tube
o Doubled the 'nudge distance' of **TOW** and **Sagger** launchers
o Fixed bug 9516; see section "Resolved Bugzilla entries"

Infantry Fighting Vehicles

ASCOD Pizarro F.1

o 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
o Added a BMS screen to the CDR's position as an optional equipment item
o Enabled Brightness, Contrast, and Focus adjustments for the vehicle's thermal imaging system
o 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
o Fixed bugs 7990, 8552, 8726

ASCOD Ulan

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

BMP-1:

o Added decals for USSR nationality (removed the CZ roundel)

CV90/30-FI:

o 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
o Fixed missing AK47 rifle texture in the interior

CV90/35

o Added an AU camo scheme as a stand-in for new **LAND-400**
o Fixed bugs 5795, 9538, 9539; see section "Resolved Bugzilla entries"

CV90/35-DK:

o   Updated names of a few tutorials

CV90/35-NL:

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

CV90/40:

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

M2/M3A2 Bradley

o   Added MERDC camo for US 1980 nationality, stand-in for cold war scenarios
o   Improved rendering (lighting) quality in the squad position

Marder 1A3

o   Added a DE 1980 nationality texture

T-15 Armata:

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

Logistics

o   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

o   Better wheels

MAN 10t GL 8x8

o   Better wheels

Piranha V/Ambulance

o   **New System**

Unimog

o   Better wheels

YAD-4442

o   Added troop frames to the troop transporter

Main Battle Tanks

Challenger 2

o Improved front hull settings to increase chances for AI units to fire RPGs at it (this may also reduce cases where the AI refuses to fire RPG)
o Prettified Loader's MG

Leopard 2A4:

o Added a DE 1980 nationality texture
o Fixed bugs 2853, 3585, 8556

Leopard 2A5:

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

Leopard 2A6:

o Fixed bugs 7878, 9108, 9426, 9650; see section "Resolved Bugzilla entries"

Leopardo 2E:

o Fixed bug 9005

M1 Abrams

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

M60A3

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

T-14 Armata

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

T-55

o Adjusted stabilization quality to be consistent (and greatly improved to better match reality)
o Fixed bugs 9304, 9394; see section "Resolved Bugzilla entries"

T-62

o Adjusted stabilization quality to be consistent (and greatly improved to better match reality)

- o The search light and its arm are now animated
- o 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

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

Remote Weapon Stations

Arrows

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

Protector

- o Fixed bugs 9526 (*possibly*), 9529; see section "Resolved Bugzilla entries"

Bugfixes without Bugzilla entry

Only Version 4.250---4.259 changes in this section

- Applied some coolant to the inner parts of the medium pine hedge which was bright hot in thermal view
- **Remove when killed** option will now leave fewer (if any) attached components in the scene. Revive would not revive some attached components.
- Corrected performance regression of renderer, whatever that's supposed to mean
- The **Views** menu no longer lists sights of currently disassembled guns
- Fixed a bug in the speed control of the **Protector** and **FN Arrows** RWSs when doing automated movements (for example when TRP scanning or moving to loading positions)
- Fixed an issue in the **Kodiak AEV**, if equipped with the **Protector RWS**, where the GNR, when clicking on the RWS control panel, would not be moved into the gun's sight view
- Improved the readability of the **CV90/35's** VCS menus
- Fixed a bug in the **CV90/35's** VCS menus where a yellow line would sometimes be drawn alongside its leftmost edge
- Generally tightened bolts of the camera in 'fixed' views (where no user camera control is possible) to better handle vehicle movement in rough terrain
- Fix for failure to launch a scenario when used with an older or integrated GPU (e.g. **Intel HD4000**) due to using unsupported texture format
- Made scenario loading fail less often
- Fixed line of sight and collision issues with land objects
- Some of the lights in the Leopard 2A5DK-A2 interior (gunner's control panel and loader's control panel) will no longer sear your eyes at night

Resolved Bugzilla entries

Only Version 4.250---4.259 changes in this section

- Fixed bug #2052; painted over the **Wisent ARV** roadwheels with sand tan paint in Desert themes
- Fixed bug #5795; in the **CV90/35** the GNR's VIS will now rotate with the turret
- Fixed bug #7207; reprimanded all ground clutter for *cultural appropriation* because popping and wriggling in tentacular Hentai fashion
- Fixed bug #8040; the **eye view's stabilization** (or lack thereof) is no longer dependent on the **direction of travel** (East-West vs West-East)
- Fixed bug #8367; the **Piranha V's interior view** still drops in frame rate, but less massively so
- Fixed bug #8778; vehicles now drive more orderly on **Biber assault bridge** segments
- Fixed bug #9244; when equipped with ERCWS RWS, when you go to gunner position (F6) and then to RWS panel (F2), the **LMV's** interior model is no longer rendered twice
- Fixed bug #9157; removed some odd line near the right edge of the **Boxer** CDR's thermal imager's field of view
- Fixed bug #9394; adjusted the **T55** driver's camera position so that you may no longer see so easily through the turret
- Fixed bug #9395; updated the **Leopard 2A5** DK, DK-A1 and DK-A2 interiors for less reddish vision blocks
- Fixed bug #9396; adjusted illumination of an external ammo box on **M1 family** tanks that showed up with interior combat light
- Fixed bug #9407; infantry will now move through a vehicle- or infantry (engineer)-made breach lane
- Fixed bug #9457; scrape marks (by mine plows) are no longer created on paved roads
- Fixed bug #9458; AI crews of IFVs are no longer unduly stunned by the majestic presence of enemy helicopters
- Fixed bug #9487; it is no longer possible to **breach anti-tank ditches** by constructing a vehicle emplacement over the ditch. Also increased the minimum distance to other terrain features for emplacements
- Fixed bug #9490; in the **Controls** menu, added list entries for **VERT** crew stations
- Fixed bug #9495, see #9553
- Fixed bug #9498; vehicles with mineplows embarking on a breach route will now check if the route aligned with already placed assault bridge segments, and if so, not deploy their plows
- Fixed bug #9504; in the **DF90**, while on the move the GNR's control panel no longer rotates w/ vehicle roll angle while the player's view remains stable
- Fixed bug #9509; when duplicating a minefield, the copy now also adopts the "marked" settings

- Fixed bug #9510 by making Gold (and a few other) **party colors** less similar to the owned unit color
- Fixed bug #9511; players controlling a **weapons team positioned in a building** can no longer fire through all the walls.
  Instead, you are now limited to the frontal hemisphere when looking around while inside buildings, and may swivel MGs/ATGMs only within a 90° (+-45°) arc
- Fixed bug #9514; **Piranha V** interiors, if the vehicle is equipped with an RWS, will no longer turn black & white if the RWS operator screen is switched to thermal mode
- Fixed bug #9516; ATGM teams equipped with suitable missiles are no longer barred from entering buildings
- Fixed bug #9517; units will now follow curved mineplow breach lanes better. Nevertheless, breach lanes are best created short, and straight.
- Fixed bug #9518 by reducing excesses in depth of **emplacements** and height of parapets
- Fixed bug #9519; it is no longer possible to **breach anti-tank ditches** by simply plowing them over
- Fixed bug #9520; bridge layers will now adopt new textures when selecting a different nation
- Fixed bug #9521; repaired NVGs of **Piranha V** by enabling them in the first place, and then downgrading their quality. Maybe because we're petty and spiteful, who knows
- Fixed bug #9523; we no longer generate plow dirt particles if breaching vehicle gets killed and removed
- *Possibly* fixed bug #9526; where clicking the **Protector RWS** operator station would not transport you to F2 view
- Fixed bug #9527; when in the **Piranha V**'s CDR view, left clicking on the battlefield management system screen will now take you to F5 view
- Fixed bug #9529; the **Protector RWS** will no longer twitch and move uncontrolled if user switches from F1 view to F2
  This might also have been an issue on the **FN Arrows** gun.
- Fixed bug #9532; **anti-tank ditches** may now be moved between **deployment zones** (like all other objects) during the Planning Phase
- Fixed bug #9534; on **M1 family** tanks, CDR may override with P key while in Emergency Mode
- Fixed bug #9537 where **ATGMs** disappeared in flight or otherwise behaved erratically at times after the missile leader had been killed some time before the engagement
- Fixed bug #9538, see #9539
- Fixed bug #9539; for the **CV90/35**, refined the E-stop button behavior and main gun elevation over the rear deck

- Fixed bug #9540; units use **underpasses** again
- Fixed bug #9541; infantry dismounting on **bridges** no longer plunge into the abyss
- Fixed bug #9543; before you could tow burning wrecks but probably shouldn't; minor smoldering is fine, though
- Fixed bug #9553; in **network sessions** some tanks such as T-72 no longer fail to load their main gun on client-owned vehicles occupied by human users. Consequently they will now fire again.
- Fixed bug #9559; **Spike** missile launchers mounted on vehicles will now cut the guidance cable when reloading
- Fixed bug #9560; the **Boxer** CDR's thermal sight now remains fixed to the hull, because it is
- Fixed bug #9564; AI GNRs of the **Arrows RWS** will now hit their targets, not all shots impacting short
- Fixed bug #9571; resuming a route by pressing C after you split off a vehicle or infantry unit by giving manual driving commands no longer freezes the unit in place
- Fixed bug #9572; the **DF90** thermal imager is no longer stuck in cooldown mode during network sessions
- Fixed bug #9573; injured GNRs of the **M60A3** no longer block that crew position
- Fixed bug #9581; made a certain Bridgelayer & Mineplow scenario less buggy, somehow
- Fixed bug #9590; the **Protector RWS** view is now displayed on **Piranha V** Leonardo WPN page
- Fixed bug #9592; certain meshes of some 3D models will no longer be rendered inside out
- Fixed bug #9597; with the **JIM-LR**, grass no longer irritates the autofocus in thermal view
- Fixed bug #9625; repaired **snap to road** route plotting when **bridges** are involved

- Fixed bug #9628; on the **Piranha-III FUS** the *'Fire!'* and *'Fire and adjust!'* commands are now enabled for human CDRs.
  This change also add joystick support for slewing the TC and GNR's view even though the two have nothing to do with each other.
- Fixed bug #9629; the **Arrows M2 RWS** will no longer abruptly slow down during AI GNR engagements on moving targets
- Fixed bug #9642; fixed line of sight and collision issues with trees in close proximity to roads and water bodies
- Fixed bug #9643; unwarped parts of the **Leo 2A4** hull texture
- Fixed bug #9650; with the **Leopardo 2E**, saving certain legacy scenarios to version 4.2 format no longer resets KE ammo load to 0
  Fixed a latent bug in the **Leo 2A6-GE** as well
- Fixed bug #9657; weapon teams will no longer attempt to reload their weapons after death
- Fixed bug #9665; it's no longer possible walk or run around with **JIM-LR** view enabled.
  The device will only be turned off however if the user is actually occupying the F7 position, not when observing him from F8.
- Fixed bug #9669; contour line spacing now conforms to the scenario settings again
- Fixed bug #9677; fixed even more line of sight and collision issues with trees in close proximity to roads and water bodies

A tribute to the beta testers, without whom we wouldn't have found the following three 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 bug 9500, 9530, 9604

4.167 (official release – May 20, 2020)