SB Pro PE 4.250 (Web Installer) Version History and Release Notes

This is a full installer for SB Pro PE which requires the uninstallation of prior versions; the 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 for easier navigation.

Note: This *Steel Beasts* version will not run without 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); we recommend using a different brows-er 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 all changes since version 4.167 (May 2020).

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 However, in order to edit maps, **100 GByte free disk space** will be required **per unpublished map** for the uncompressed map data, which will be largely freed up on publishing.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 web installer 4.250 (SBProPEBundleInstaller_4250.exe).

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 introduces 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 4.250 full installer. The Legacy Maps Installer is only required under

very specific circumstances (please visit the user forum at Steel-Beasts.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_1 …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, 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 7.20.**

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 fu-
ture 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 collec-
tive 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 documen-
tation 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 tac-
tical 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 7.20
- **ShadowPC**: As this application creates a **virtual machine**, the CodeMeter
  runtime blocks access to time-based licenses. Permanent licenses on Code-
  Meter stick are not affected by this. *Thanks, Jeff*.

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, such actions will leave well visible scrape marks behind. In network sessions, 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°.

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 *(at the time of this writing, 21 Jan 2021)* is part of the unified web 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**)
- Updated **Russian** strings
- Updated **Spanish** strings

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.

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.

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
  - o 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, rather than being based on optimistic extremes. This resulted in the following changes:

o	**AMX-13**	+1 sec	o **Sho't Kal**	+3 sec
o	**Challenger 2**	+0.667 sec	o **Centurion** Mk5	+3 sec
o	**Leopard 1** (all)	+1.5 sec	o **T-72** (all)	−1.0001 sec
o	**M1A0**	+1 sec	o **T-90S**	−3.5 sec
o	**M1(IP)**	+1 sec	o **TAM VC**	+1.5 sec
o	**M60A3**	+3 sec	o **Centauro**	+1.5 sec
o	**Merkava 2** (all)	+1.667 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
- **ATGM Teams:** Erratic behavior when viewed by owning client in network session
- Placing long range artillery units **outside of map boundaries by more than 4km** settings may result in ballistic anomalies including rounds never reaching their targets
- **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

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

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 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; see section "Resolved Bugzilla entries"

M113G3-TOW:

o   Fixed bug 8114; see section "Resolved Bugzilla entries"

M901

o   Fixed bug 9289; see section "Resolved Bugzilla entries"

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
o   Other units' AI gunners are less reluctant to engage it now, at times
o   Updated some model files
o   Can now be equipped with M151 Protector RWS
o   Improved rendering (lighting) quality in the squad position

Piranha III-FUS

- ○ **New System**
- ○ Optional Equipment: Arrows RWS

Piranha V

- ○ **New System**
- ○ Added crew positions CDR, DRV, GNR, TRP leader
- ○ Optional Equipment: Lemur RWS

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

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; see section "Resolved Bugzilla entries"

BRDM-2

- ○ Added muzzle flash in primary sight

Centauro

- ○ 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
- ○ Fixed bug xxxx; see section "Resolved Bugzilla entries"

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 and at shigher velocities over bumpy terrain
- ○ Fennek vehicles, if starting 'combat ready', will now have their hatches closed

SpPz Luchs A2

o Fixed bug 9068; see section "Resolved Bugzilla entries"

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

VAMTAC VERT

o **New System**

VEC

o Fixed bug 9004; see section "Resolved Bugzilla entries"

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

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; see section "Resolved Bugzilla entries"

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 chance 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; see section "Resolved Bugzilla entries"

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)

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

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; see section "Resolved Bugzilla entries"

ASCOD Ulan

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

CV90/35

  ○ Added an AU camo scheme as a stand-in for new LAND-400

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; see section "Resolved Bugzilla entries"

M2/M3A2 Bradley

  ○ Improved rendering (lighting) quality in the squad position

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

YAD-4442

  ○ Added troop frames to the troop transporter

Main Battle Tanks

Challenger 2

o Prettified Loader's MG

Leopard 2A4:

o Fixed bugs 2853, 3585, 8556; see section "Resolved Bugzilla entries

Leopard 2A5:

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

Leopard 2A6:

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

Leopardo 2E:

o Fixed bug 9005; see section "Resolved Bugzilla entries"

M1 Abrams

o Fixed bugs 3389, 9261, 9262, 9358; see section "Resolved Bugzilla entries"

M60A3

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

T-14 Armata

o Improved the damage effects of rear turret stored ammo compartment, with new damage types

T-55

o Fixed bug 9304; see section "Resolved Bugzilla entries"

T-62

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 Fixed bugs 5936, 8521; see section "Resolved Bugzilla entries"

Remote Weapon Stations

Arrows

o **New System**
o Fits on Piranha III-C vehicles, Pandur

Bugfixes without Bugzilla entry

Only Version 4.2 changes in this section

- Changed the year in version strings and resources to 2021

- When saving a map package, a .(d)hnt file will no longer be generated if there are no high-res data changes

- Vehicles in deployment zones are now properly sunk into the ground, rather than after the start of the scenario

- Removed duplicate question mark when asking whether a selected file should be overwritten

- In network sessions, when dragging selected map objects (by holding down the left mouse button) beyond the map screen, the updated positions will now be sent to other participants

- The relief map in the mission editor's 'pick' mode is back again

- Made the **ASCOD Pizarro** crash less often

- Resized the **Map Package Browser** dialog UI, eliminating a seeming blank line at the end of the Map Package list (which could fool you to believe that there were no more packages)

- Drawing lines crashes Steel Beasts less often now

- Exiting the **Map Editor** might now crash Steel Beasts less often

- Made Steel Beasts no longer crash when selecting a folder containing an unsupported scenario as its first file for Offline play mode, acknowledging the error message, then going back to the main menu and clicking **Offline** again.

- **ERCWS-M** equipped vehicles will no longer render panels, switch boxes etc. beneath the vehicle.

- Mortar crews are less obsessed with last fire mission's target direction after completing it

- Prettied up the **Piranha IIIC DF30** TC's cupola view

- Deployable FASCAM target and priority target reference points will now retain their ownership information

- Tracer timings for some rounds are now calculated correctly

- When loading of the 3D world on slower systems, Steel Beasts now crashes less often

- In the **Piranha IIIC DF-30** the battlesight ranges are no longer always set to 'AP' for the left feed and 'HE' for the right feed

- Improved the **M60A3 CDR's** peri's cal .50 reticule

- The **Marder's** daysight now shows the vehicle roof

- A selected panel's rotation handle will now auto-resize to fit the current zoom level

- In network sessions, busy artillery units will no longer be shown as idle

- Mobile bridges no longer create a small depression in the terrain.

- Mobile bridge received a stern reminder to always show up, and never without texture after being placed in the **Mission Editor**

- Discovered and fixed an ancient bug where troops would only ever find minefields to their northeast

- Map graphic's text background colors will now be properly loaded more often

- In several ways reference point and panel text labels are now properly transmitted in network sessions.

- In the **Piranha IIIC DF90**, the computer-controlled CDR will now button up while loading the main gun, even if the gunner is human

- The text of a map graphic, after selection by right mouse button, will now be drawn with a proper gray background (indicating that the item was in fact selected)

- Vehicles wait until a bit later to turn when transitioning off of mobile bridges, which helps avoid hairy interactions with collision.

- Made AAR logging crash less often

- Made the Map Editor crash less often

- Made vehicles reloading crash Steel Beasts less often

- The **Give to** menus for units in the status bar will now also properly indicate the current owner by drawing it greyed-out

- Status-bar unit and combatant menus: Only vehicle-attached infantry formations owned by the local user will be fully functional; for others only the 'jump to', 'jump to owning vehicle' and 'give to' entries will be shown.

- The AAR HE event's **All**, < and > buttons are only enabled now if there's actually any sub events to cycle through

- In the **Piranha IIIC FUS** where the CDR's hatch will no longer open on entering the BMS panel's view mode

- Found a number of missing artillery munition types in the **Adjust Fire** window's status readout

- The **Adjust Fire** dialog now accommodates longer description strings

- ICM cargo rockets are no longer treated as HE projectiles

- The AAR will now log if a member of an infantry formation with an attached gun transfers the weapon on incapacitation.

- Destroyed mobile bridges no longer show up in the AAR as 'folded up'

- Found and returned the missing apostrophe in 'map not found' error message.

- In the **Map Package Download** dialog the download progress bar will now reference the correct package more often

- Adjusted the computed likelihood of an HE explosion killing infantry (or not)

Resolved Bugzilla entries

Only Version 4.2 changes in this section

- Fixed bug 360; added a text color selection for Reference point labels

- Fixed bug 1190; vehicles exceeding their specified maximum speed may henceforth suffer suspension damage (e.g., when racing downhill)

- Fixed bug #2853; **Leopard 2A4** Unity Sight has no longer a blue/purple coloring around its edges

- Fixed bug #3006; on-map Artillery is now generating a red artillery box in the AAR, too

- Partially fixed bug 3008; **RPG** gunners are now more trigger happy

- Fixed bug #3172; AARs now show the 'packed state' of attached guns

- Welded shut the #3389 gap in roof model of all **M1** series of tanks

- Fixed bug #3492; shadows no longer warp with changes of the camera position

- Fixed bug #3585; added back a missing a DRV's hatch frame for the **Leopard 2A4** model; you may now unbutton from the driver's position again

- Fixed bugs 4198, 8901; added a muzzle flash in the primary sight of KPVT equipped vehicles **BTR-60, -70, -80,** and **BRDM-2**

- Fixed bug 4385; mounted guns will now swivel only half of their previous amount before their cupola starts moving

- Fixed bug #4848 by adding a desert texture to the **Strv 122** turret roof

- Fixed bug #4979; Added a **MICLIC** entry to the (recently added) **Tasks menu**, allowing the user to launch and explode MICLIC using the menu system. Also allowed the vehicle owner to operate the MICLIC from the observer's view

- Fixed bug 5182; mine-clearing units (such as **Wisent AEV**) on *Breach* route will now lower their plows irrespective of actual mines being present, leaving visible scrape marks

- Fixed bug 5284; improved **herringbone** vehicle placement for better traffic flow on the road through the middle of the formation

- Fixed bug 5299; **Wisent AEV** flag styles are now consistent in network sessions

- Fixed bug 5444; improved firing solutions with big elevation differences

- Fixed bug 5471; reenabled chained *Jump to end if* routes in the **Mission Editor**

- Fixed bugs 5533, 8722; **ATGM** and **Mortar teams** will no longer seek cover in nearby forest patches, regardless of their ammo situation

- Fixed bug 5681; when creating line and region objects, the text field (label) gets automatically selected for convenience

- Fixed bug 5701; **Spike-SR** and **RB57 Storm** no longer behave like unguided rockets

- Fixed bug 5890; infantry will now use a different animation when moving through any wire obstacle

- Fixed bug #5936; on the **T-72**, the DRV may no longer see through the turret into the interior while unbuttoned

- 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
  In addition, the Pizarro F.1 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 (it seems the reticle was never updated to the actually used ammunition types).

- Fixed bug #6002; parts of the **T-14** may no longer seen through when viewed from the rear

- Fixed bug 6048; **infantry** will now enter **buildings** depending on mission designer's **tactical default** settings. User settings will apply only to waypoints created by the user

- Fixed bug #6085; reattached some protecting bars hanging loose on the **ASLAV-25**

- Fixed bug #6149; **Earthworks**: When a vehicle emplacement is built, the brown/dirt texture will now fade in over the time of the digging progress

- Fixed bug #6206; Obstacles, emplacements and priority artillery and FASCAM **reference points** are now saved correctly in AAR files
- Fixed bug 6579; the **BTR-80** Gunner's sight will now use a copy of the BMP-2 CDR's sight
- Fixed bug 6765/#6277; adjusted rotation handles for **bunkers** and other objects, at any zoom level
- Fixed bug 6952; **Bill** and **TOW-2B** ATGMs no longer have special killing abilities if deliberately aimed low
- Fixed bug 7025; **Mission Editor** loading times could be substantially improved, particularly with large maps
- Fixed bug 7034; computer-controlled AFVs no longer waste ammunition on targets behind terrain cover
- Fixed bug 7143
- Fixed bug 7160; in the **Planning Phase**, it's now possible to mount or **dismount troops**
- Fixed bug 7245; reference panels are now deployable
- Fixed bug 7275; **IED craters** are now more reliably created, especially if multiple IEDs are detonated simultaneously.
- Fixed bug 7341; **DF30**: If the reticule color is set to red in the day **Cam Setup**, it no longer carries over to the thermal sight
- Fixed bug 7410; remote weapon stations now become inoperative if damage is sustained from overpressure
- Fixed bug 7484/#7622; for the **DF30** it is now possible to adjust reticule color on the **Tank Range**. Also, while in the CDR's position you may now control the reticule color
  The 'reticule brightness' functionality now also works for the 'B' reticule color selection, where it will simply interpolate between 'black' and 'white' colors.
- Fixed bug 7541; engineer infantry will now abort their breach activity if picked up by a vehicle
- Fixed bug 7550; rockets now accelerate with grace from multiple **rocket artillery** launchers
- Fixed bug #7571; closed a visible gap under the **Strv 122's** Peri head
- Fixed bug 7610; **TOS-1** aims carefully now
- Fixed bug 7649; the **Map View** no longer gets damaged from HE overpressure
- Fixed bug #7652; units on arrival in **emplacements** will no longer drive back and forth in an infinite loop
- Fixed bug #7761; for the **M2A2** and **M3A2**, the noise and some particles in the thermal view underwent reeducation that it's better to be red than dead, err, green
- Fixed bug 7787; **Map Editor**: 3D reload now also works if you just added a new road object
- Fixed bug 7833; HE no longer kills tanks when it shouldn't
- Fixed bug #7878; added a missing texture to the **Leo 2A5-DE** and **2A6-DE** smoke grenade launcher panel ("Fire")

- Fixed bug #7990; **Pizarro F.1**, added a DRV's instrument panel
- Fixed bug 8003; the **DF30** turret no longer spins on losing target track while ATT is active
- Fixed bug 8032; **amphibious vehicles** will no longer drive into rivers and lakes (and get stuck there) when seeking to improve their battle position
- Fixed bug 8079; **FASCAM** artillery may produce more than one obstacle again if multiple TRPs and missions are set by the mission designer
- Fixed bug 8114; in the **M113G3-DK TOW**, the gunner may no longer guide missiles while buttoned up
- Fixed bug 8117; the **Mission Editor** option **Remove Killed** now has settings to configure the timer (45/60')
- Fixed bug 8144; SB Pro no longer seizes up during network sessions if someone deployed a deployable vehicle emplacement during the Planning Phase
- Fixed bug #8227; PC platoons may now **dismount their troops anytime**, even while under fire
- Fixed bug 8257; bunker placement will now ignore terrain 'bumps'
- Fixed bug 8272; in the **Map Editor**, undoing a move of an object will now also update in 3D
- Fixed bug 8274; inflated the diameter of the circular perimeter for infantry arriving at a waypoint with no tactics
- Fixed bug 8408; **Retreat** (reverse speed) routes no longer make vehicles crawling backwards, if they can go faster
- Fixed bug 8418; fresh craters no longer have grass infestations; clean dirt everywhere!
- Fixed bug 8435; computer-controlled GNRs will now apply drift compensation for **40mm AGL**
- Fixed bug 8449; eliminated needless position swaps when transitioning to and from Staggered Column
- Fixed bug 8521; prevented cases of **Leopard 2**, **T-72**, and possibly other vehicles to fire their main gun while out of coincidence
- Fixed bug 8549; when building ramps, the **Raise Selected Road** command will no longer reverse end and start points if road was previously splined. That probably drove you map builders nuts. Sorry.
- Fixed bug 8552; the **Pizarro F.1** CDR's thermal image (while seen from the eye view), is no longer torn and distorted
- Fixed bug #8555; welded shut some **CV90/40** gaps and cracks in the interior model
- Fixed bug #8556; welded shut a crack in the turret side wall of the **Leopard 2A4**, **2A5-DK** and **Leo 2A5A1-DK**
- Fixed bug 8560; eliminated erroneous contour line data along the left and bottom side of certain maps
- Fixed bug 8566; the **Flatten Under Selected Object(s)** command now also works with Asphalt, Gravel, Concrete areas

- Fixed bug 8568; the chance of suspension damage happening is now framerate-independent
- Fixed bug 8571; the **Level Selected Roads** (Shift+F) command levels roads now some more
- Fixed bug 8572; the **Level Roads** and Objects dialog now retains previous settings (during the session)
- Fixed bug 8578; In the **Height Operations** dialog, there is now a **Smooth** brush available
- Fixed bug 8581; the cal .50 sight of mounted guns will now default to the battlesight reticule
- Fixed bug 8584; the **Height Tools** dialog now includes a "Restore" button (to revert to original height data in a defined area)
- Fixed bug 8587; made the Map Editor's **Level roads** command more robust, will no longer destroy the entire road network
- Fixed bug 8588; **merging roads** no longer connects nodes from opposite ends at times
- Fixed bug 8589; after leveling terrain, affected objects will automatically adjust with the ground
- Fixed bug 8590; Steel Beasts no longer occasionally closes down when working on roads in the Map Editor
- Fixed bug 8595; chain link **fence** and security fence may now get damaged according to object script settings.
  Infantry may now also breach these obstacles.
- Fixed bug 8600; in the Mission Editor, non-splined roads no longer get highlighted when picking a map
- Fixed bug 8606; in network sessions infantry will no longer stare north if their bunker was moved by other session participant during the Planning Phase
- Fixed bug 8610; in the Map Editor, selected buildings will no longer turn invisible after returning from the 3D preview
- Fixed bug 8631; had the mysterious and hydraulic pipe between turret drive and parking brake removed by software grease monkeys. Trucks may now be safely parked on slopes.
- Fixed bug 8655; when raising selected roads, the resulting embankments are now of appropriate length
- Fixed bug 8657; **AEVs** constructing an **emplacement** will no longer remain associated with the site on destruction, so a different AEV can take over. However, this will only be done automatically if the construction site is not blocked by a combatant (most likely the destroyed AEV). You may however force an AEV to continue by using the 'attach' property menu item, and then selecting the abandoned site. Removal of damaged AEVs by recovery vehicle is still recommended.
- Fixed bug 8659; **Map Transfer Manager** will now adapt if the session host changes scenarios in the assembly area (if the host had the map for first scenario, but not the second)
- Fixed bug #8669; SHA-1 hashes are no longer used for binary signing

- Fixed bug 8672; new personnel management directive: Lemmings shall no longer be hired as drivers. Following a route even if the bridge ahead was blown up is now a discouraged practice.
- Fixed bugs 8674, 8997; **Mine detection**: With this change
  - vehicles will detect mines in front of them out to a (baseline) distance of 70m
    - for engineers, that distance is multiplied by 1.5
    - when on scout routes, that distance multiplied by 1.5 (possibly in addition to the above)
    - the distance decreases with increasing speed (max penalty is 80%)
    - starting with heavy precipitation the distance will be reduced by up to 50% (for 'extreme' precipitation levels)
    - the distance is scaled with the overall light level
    - snow deeper than 5cm will hide mines
  - vehicles will detect mines around them out to a max range of 50m (simulating the rest of the crew scanning for mines)
    - this distance is likewise scaled with speed, precipitation, engineer/scout properties and overall light level (factors as above).
  - infantry will
    - not spot mines while riding inside an IFV
    - not spot mines while being located in buildings
    - use the same factors as vehicles, but
    - base distance is 35m
    - when crawling, reduce the distance by 66%
    - when sprinting, reduce the distance by 66%

  Minefields marked with a fence will be spotted out to 500m (vehicles) or 250m (infantry), modified by light level and precipitation (but not speed or posture). The distance will not be allowed to get below 10m.
- Fixed bug 8675; MLRS in process of rearmament will no longer react to incoming fire missions
- Fixed bug 8677; 81mm **mortar team** now uses the medium mortar map symbol
- Fixed bug 8678; in the status bar, selected mortar teams will now have the type of mortar displayed like other weapon teams
- Fixed bug 8679; artillery vehicles starting without ammo may now execute fire missions after reloading
- Fixed bug 8680; scripted ICM rocket calls no longer produce HE barrages
- Fixed bug 8682; when calling a fire mission, **mortar teams** will now continue to look in the main direction of their fire mission, but the mortar gunner will reorient to execute the fire mission.
- Fixed bug 8688; the artillery FDC component will now consider the ready status of a **mortar team** before

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assigning fire missions to it.
Excluded are, team inside a building or a transport vehicle, or the mortar not being set up. The **Support** menu will remain grayed out you only have mortar teams at your disposal, which aren't ready yet

- Fixed bug 8690; improved network coordination between **DF90** CDR and GNR while in SSTAB mode

- Fixed bug 8692; recalibrated deterministic **IEDs** to destroy one bridge span rather than collapsing the entire bridge

- Fixed bug 8701; bridgelayers no longer stop following breach routes after deploying their bridge

- Fixed bug 8706; AAR recording is now done in a separate thread, hopefully eliminating recurring small stutters that occurred at regular intervals.

- Fixed bug 8710; the damage model of the M113G3-DK includes a GNR only if equipped with an RWS

- Fixed bug 8722; mortar teams will now refuse to go into cover as long as they have ammunition.

- Fixed bug 8724; resized 60mm and 81mm mortar smoke effects

- Fixed bug 8725; told truck crews to stop blinking around in the AAR, and to use Twitter and tattoo parlors instead like other attention seekers

- Fixed bug 8726; **Pizarro F.1**, in 'Realism' levels other than high the status bar text will now inform the user about the currently active burst length (if cycled via the 'cycle burst' hotkey - which by default is mapped to **ALT+PgDn**)

- Fixed bug 8733; mortar teams will now recover their stamina at a normal rate

- Fixed bug 8741; the **106mm M40 RCL** GNR will no longer scan the environment while the transport vehicle is on the move, LOS to a target or not.

- Fixed bug 8744; adjusted backblast size of M40 RCL

- Fixed bug 8769; computer-controlled regained their wits CDRs when confronted with multiple targets positioned in emplacements

- Fixed bug 8771; theme files of published maps may now be inspected in the Theme Editor

- Fixed bug 8775; improved readability of some greyed-out items

- Fixed bug 8806; removed **M113A2G** vehicle options that weren't there in the first place

- Fixed bug 8810; TOW-2B missiles impacting with some object (rather than overflying an armored target) will now trigger a generic explosion

- Fixed bug 8811; in network sessions, players occupying vehicles with **radio damage** will now longer get to see updated enemy contact information, and neither will they see any battle position lines of formations other than their own

- Fixed bug 8813; Bill missiles directly impacting their target will retain the original warhead vector

- Fixed bug 8823; Steel Beasts will no longer crash if a 'jump to the end' route teleports a unit in to a building

- Fixed bug 8828; all MICLIC trailers' suspensions are now initialized before mission start

- Fixed bug 8836; small caliber rounds are no longer rendered in the Execution Phase while their tracer is not ignited

- Fixed bug 8861; 'Turret drive' damage in the **Leopard 2A5**(+) tanks will now still allow powered movement of the turret (via the gunner's emergency joystick, at greatly reduced speeds). Note that the fire control system must be set to 'BEOBACHTEN' or 'TURM AUS' modes.

- Fixed bug 8865; overriding the GNR is now less inconsistent for the unbuttoned **DF90** CDR

- Fixed bug 8868; when ordering a mounted RWS's GNR to suppress, the cupola will no longer turn around 180 degrees with gun 90 degrees over side, away from the suppress area (which it apparently used to after a short while)

- Fixed bug 8871; unified sights for mounted M2HB

- Fixed bug 8875; it is now impossible in Split/Merge scenarios to create duplicate unit ID by changing the type of unit, when the option is set to prevent the addition of units

- Fixed bug 8876; in the **Piranha III FUS**, enabling thermal mode in the GNR's primary sight no longer renders the interior of CDR's station in thermal view

- Fixed bug 8885; enabled the **lase to set waypoint** and **Command** menu for the **M113** and **Pandur** CDR's position

- Fixed bug 8898; splitting and **merging a scenario** no longer causes the scenario to **end immediately** when started in the Execution Phase; legacy scenarios that still show this behavior may be fixed by checking the **End mission, if** condition (make sure that random addition/subtraction times are 0)

- Fixed bug #8899; **AEVs with dozer blades** may now breach **steel beams** type obstacles
The Wisent AEV, Dachs AEV, Kodiak AEV (if not equipped with mine plows) and the Piranha V Engineer vehicles will now be able to remove 'Steel Beams' type obstacles with their dozer shield deployed. This happens either automatically on breach routes or by hitting the **Space bar** while in control of the vehicle's driving functionality.
Note that 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).

- Fixed bug 8909; when creating a **road ramp** in the **Map Editor**, the low end no longer gets depressed below ground level

- Fixed bug 8910; in the **Map Editor**, it's now possible to **swap start and end point** of a selected road

segment. That way it's no longer necessary to reset the ramp values if you are creating multiple similar ramps

- Fixed bug 8924; for mech infantry, the **Suppress** command no longer makes the platoon leader team advance with one of the squads

- Fixed bug 8933; infantry teams will mount a vehicle more reliably when leaving bunkers in close proximity of trees

- Fixed bug 8936; improved the brightness settings of the **Centauro's** TIS

- Fixed bug 8952; removed the confirmation prompt for the **Spline all Roads** command in the **Map Editor**

- Fixed bug 8954; disabling the **Afganit APS** for a unit is now properly saved in the **Mission Editor**

- Fixed bug 8976; HE rounds from **impotent** units no longer inflict damage

- Fixed bug 8978; disabled the (non-functional) shot detection screen in the **Piranha III FUS**

- Fixed bug 8985; When the **Kodiak AEV** is not equipped with a mineplow, it may still activate the lane marking system

- Fixed bug 9004; in the **VEC**, the scout leader may now use the rear vision blocks

- Fixed bug #9005; the **Leopardo 2E** DRV´s periscopes appeared too big

- Fixed bug 9007; when importing mission text, the **Mission Editor** will no longer stop importing with the first < character but proceed until <#.

- Fixed bug 9019; removed a number of potential damages from vehicle classes that wouldn't have the components in the first place

- Fixed bug 9063; on the **MB 300 CDi-NL**, the GNR/CDR no longer buttons up when using the mounted gun

- Fixed bug 9064; for conditions, the maximum time for **Before checking, wait** and **After true, delay by** have been extended to 60 min

- Fixed bug 9068; when towing the **SpPz Luchs**, the vehicle will now hitch more reliably

- Fixed bug 9075; unbroke the Vee formation for 3- and 5-vehicle platoons

- Fixed bug 9084; **artillery** fire missions are now registered as complete if the firing unit runs out of ammo (even if the requested number of rounds could not be fired)

- Fixed bug #9100; **M60A3s** will no longer fail engaging moving targets

- Fixed bug 9101; **DF90s** will now load the main gun even if the owning player dares to stay in F8 view

- Fixed bug 9102; **DF90** crews no longer fire the main gun while it's still elevated in the loading position

- Fixed bug 9106; eliminated the overpressure gap between 155mm on- and off-map arty

- Fixed bug 9108; **Leopard 2A5** and **2A6**: "Beleuchtung FJA" (MRS illumination) switch is no longer ON by default

- Fixed bug 9118; **DF90** crews no longer fail to eject empty cases before capture basket overflow. The AI CDR will now prioritize emptying the spent brass over loading the gun

- Fixed bug 9127; in the **DF90**, turret crew views will now see a proper completion of spent shell ejections

- Fixed bug 9130; the **Mission Editor** will no longer crash when attempting to assign **AVePS** to both vehicles and selected infantry

- Fixed bug 9136; with Split/Merge scenarios, sometimes one of the parties would not be named in the file dialog.

- Fixed bug #9140; computer-controlled units will no longer shoot active necromancers (medics reviving casualties)

- Fixed bug 9142; it's now possible for aerial units to collide with **Smoke stacks**.

- Fixed bug #9143; added proper tactical icon for **mortar vehicles** (they no longer have artillery vehicle icons)

- Fixed bug #9161; units such as UAVs with a "NO-TARGET" tag in the object script no longer attract undue attention; they will still be detected (this is important for conditional logic and scoring purposes, so this is kept) but no longer treated as the most dangerous target

- Fixed bug #9187; in the **M113A2 ATGM**, the DRV's position is now rendered

- Fixed bug #9190; **M2 Bradley/Eng** equipped with **MICLIC** will no longer kill their carried troops on MICLIC detonation, if hatches are closed

- Fixed bug #9192; when using **Set look of infantry**, grenade launchers are no longer removed from their rifles

- Fixed bug #9207; reference points, panels and 'pure' text labels now need to be (left-click) selected before a second right-click brings up their 'text' property

- Fixed bug #9237; in the AAR, if **Exclude out of view events** was selected and a unit is destroyed by a shooter outside of focus area, the event will now be shown

- Fixed bug #9248; burning grass huts collapse much faster now

- Fixed bug #9261; for the **M1, M1IP, M1A1, M1A1(HA)**, with coax selected the ballistic computer now only range input from 25 to 2000m. For ranges beyond the display will blink.

- Fixed bug #9262; for the **M1, M1IP, M1A1, M1A1(HA)**, pressing "RANGE" on the ballistic computer the gun sight's range display no longer has a white background

- Fixed bug #9289; the **M901 ITV's** missile launcher no longer moves to -35° elevation after reload. Instead, it will now return to 0 azimuth and 0 pitch after reloading before control is handed back to the gunner.
- Fixed bug #9304; after the turret was popped off, the **T-55A m.1974's** LRF box is no longer rendered above the gun
- Fixed bug #9335; fixed the **MLRS** rocket launch sequence
- Fixed bug #9345; artillery vehicles will no longer start loading ammunition even before the fire mission type was evaluated
- Fixed bug #9358; welded shut a gap under **M1**-series MBT CDR's vision blocks
- Fixed bug #9370; adjusted GAS reticules for **M1**-series MBTs
- Fixed bug #9426; in the tutorial scenario **Leopard 2A5 Gunnery D**, one target was moved to a location where it was visible again.
  A few more tutorials displaying this same issue were also corrected.
- Fixed bug #9442; the **Map Editor's Undo** function no longer duplicates the whole road mesh. Also fixed an issue where "Bridge selected roads" did not bridge selected roads if multiple roads were selected. Map designers are advised to check their 2020 creations for duplicated road networks (roads on top of other roads)
- Fixed a minor artwork bug #9462; in the **Leopard 2A5-DE** and **2A6-DE**, the smoke grenade launcher panel had inconsistent flip switch settings, depending on your crew position
- Fixed bug #9475; in the **Strv 122** when the smoke grenade launcher is fired, the control panel's power switch is no longer set to **Från** (off)

A tribute to the beta testers, without whom we wouldn't have found the following 287 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 7961,7967, 8161, 8165, 8243, 8332, 8336, 8338, 8367, 8368, 8371, 8383, 8385, 8391, 8393, 8398, 8450, 8512, 8582, 8585, 8586, 8596, 8599, 8604, 8605, 8613, 8614, 8619, 8621, 8622, 8623, 8624, 8625, 8629, 8635, 8642, 8644, 8649, 8651, 8652, 8653, 8658, 8660, 8843, 8668, 8845, 8846, 8852, 8853, 8854, 8558, 8564, 8570, 8579, 8670, 8676, 8695, 8707, 8711, 8713, 8719, 8720, 8732, 8740, 8745, 8746, 8748, 8752, 8753, 8754, 8765, 8774, 8777, 8779, 8782, 8783, 8785, 8787, 8796, 8797, 8802, 8808, 8812, 8817, 8832, 8839, 8842, 8844, 8864, 8870, 8873, 8874, 8880, 8881, 8883, 8888, 8889, 8890, 8891, 8892, 8895, 8896, 8902, 8903, 8919, 8927, 8928, 8930, 8932, 8934, 8940, 8941, 8943, 8944, 8945, 8946, 8950, 8965, 8966, 8969, 8970, 8977, 8979, 8980, 8981, 8983, 8984, 8987, 8988, 8989, 8990, 8993, 8995, 8998, 8999, 9002, 9012, 9013, 9014, 9017, 9021, 9023, 9026, 9027, 9030, 9039, 9041, 9042, 9043, 9044, 9046, 9047, 9048, 9051, 9052, 9053, 9055, 9056, 9057, 9059, 9060, 9061, 9066, 9067, 9071, 9076, 9077, 9078, 9080, 9082, 9087, 9091, 9092, 9095, 9096, 9110, 9116, 9122, 9123, 9124, 9125, 9126, 9132, 9133, 9146, 9150, 9152, 9156, 9160, 9162, 9163, 9164, 9165, 9166, 9168, 9171, 9172, 9173, 9176, 9180, 9181, 9182, 9185, 9186, 9194, 9201, 9202, 9203, 9204, 9206, 9209, 9210, 9211, 9217, 9219, 9220, 9221, 9222, 9223, 9225, 9226, 9228, 9229, 9232, 9233, 9240, 9242, 9243, 9245, 9246, 9250, 9251, 9252, 9255, 9256, 9257, 9260, 9268, 9269, 9270, 9272, 9284, 9293, 9294, 9295, 9298, 9303, 9333, 9342, 9343, 9346, 9351, 9353, 9356, 9358, 9359, 9360, 9361, 9367, 9368, 9386, 9388, 9391, 9398, 9400, 9401, 9407, 9408, 9409, 9420, 9421, 9429, 9430, 9432, 9444, 9449, 9452, 9453, 9454, 9455, 9459, 9464, 9465, 9470, 9478, 9479, 9481

4.167 (official release – May 20, 2020)