



SB Pro PE 2.6

Version History and Release Notes

Note: This version will not run without an existing license for Steel Beasts Pro PE 2.6

The installer will install a **completely new version** of Steel Beasts. Beta test experience revealed that it is recommendable to **clean out your mod folder** before attempting to install version 2.6. Also, previous versions of Steel Beasts Pro PE must be uninstalled.

Scenarios and maps made with this version 2.6 are **not compatible with previous Steel Beasts versions**. Of course you can still open old scenario files; they will be converted on the fly.

Steel Beasts now uses a **new installer**. This has one important consequence: The new installer no longer changes the Group Policies (access privileges) of the folder containing all the map data of SB Pro. Therefore, if you are not working from an Administrator account (which we do not recommend for general security considerations), you may need to change the security properties of C:\ProgramData\eSim Games\Steel Beasts\maps so that normal user accounts may have write access to it and its subdirectories. Otherwise you will receive an error message and the **access to the map editor will be denied**.

Windows 7 users have an alternative: Right-click the SBProPEcm.exe in the ..\Release folder of the Steel Beasts installation, open the Properties dialog box, and in the "Compatibility" tab select the option to "Run the program as Administrator".

User Interface Changes

You may now **save and load** the work results of the Planning Phase. These files have the *.PLN suffix.

Dismounted HMG squads may actually be equipped with a medium or light MG. You need to **first set their equipment before choosing the ammunition**. A similar change has been made to missile teams.

Infantry squads are no longer strongly tied to their transport vehicles. In the Mission Editor, right-click an IFV unit to "unload" the troops. You can then edit their equipment and load them back into the vehicle.

In the eye view, right-clicks no longer create waypoints. Instead, use the CTRL key and hold it until the color changes from yellow to red; move it over the desired location, then release CTRL. SHIFT will mark spots or reconnaissance targets in the same manner

Other Important Changes

While *some* T-80 models are equipped with a thermal imager, the T-80U is not. We have therefore decided, for the sake of simulation authenticity, to remove that capability from it. If your old scenarios depend on this fact, we suggest to substitute the T-80 with T-72M4s.

Known Issues

We fixed a very old bug which however was never reported until recently. This bug resulted in setting the **rifle ammunition** of infantry squads to **zero** if they were loaded in the mission editor in later versions, and if the scenarios were then saved, the ammo was gone. Now that this bug has been fixed this will no longer happen. Unfortunately this bug fix cannot repair the damage that has already been done by previous Steel Beasts versions. There is an automatic "repair" attempt by Steel Beasts; if it loads an old scenario it will check for infantry squads with zero rifle ammunition, and if it finds them, it will change that value to 210 rounds per squad member. Unfortunately, in those cases where it was intentional to deny a squad the rifle ammunition, this automatic fix will actually break stuff. We hope though that this is only a tiny minority of all scenario files that were ever created for Steel Beasts. Still, mission designers are advised to check their old scenario files and see if the ammunition for rifle squads needs to be amended; you may want to click on "Default A" or set other values at your discretion, then save the scenario – and eventually *update it in the Downloads area of SteelBeasts.com, please.*

User profiles created or changed with version 2.6 will **crash older** Steel Beasts Pro PE versions. You may either want to create a backup of your old PPF files or create new profiles (and be disciplined which to choose, when) – or there's no going back to previous versions with these user profiles.

New/Updated vehicles with crew positions

While no tutorials could be included for most of the new playable vehicles in this version, substantial effort went into [the Wiki articles at SteelBeasts.com](http://www.steelbeasts.com/sbwiki/index.php/Main_Page#Vehicle_information): http://www.steelbeasts.com/sbwiki/index.php/Main_Page#Vehicle_information

- **BRDM-2:**
 - ▣ Added gunner's position (F6). Move the sight with mouse or joystick even though they technically are operated by hand cranks. The left scale shows the superelevation of the 14.5mm KPVT MG, the right scale of the 7.62mm PKT coax MG
- **BTR-80:**
 - ▣ Added gunner's position (F6). Move the sight with mouse or joystick even though they technically are operated by hand cranks. The left scale shows the superelevation of the 14.5mm KPVT MG, the right scale of the 7.62mm PKT coax MG
- **CENTAURO:**
 - ▣ It is now possible to zoom in on the TC's Smoke Grenade Launcher's (SGL) panel
- **CENTAURO Startup Procedure**
 - ▣ Initial State Gunner
 - Everything should be switched off, the primary sight head mirror is locked, and the ballistic doors are closed. The "Alim Torre" button on the Loader's Control Panel (LCP) has been split up - the upper half is always lit up (since

- it is assumed that power is available). This should be the only lit up control
- Initial State Commander
 - Everything should be switched off. SGL safety is off. No lights should be lit up. You should be able to click any button and not get any reaction
 - Gnr - Click on the lower half of the "Alim Torre" button to enable power to all other systems. The lower half will light up, nothing else happens
 - TC - Once the turret has power, the red and green light on the SGL (to the right of the red safety) should light up, indicating that it has power. Flip down the safety, all lights on this panel should go on. The red light should go off
 - TC - Press and hold the "ACT SIST" button to enable power to all the turret's subsystems. The red light below the TIS repeater tube should light up confirming that it has power.
 - TC - Press the "ENC APG" button on the Periscope Control Panel (PCP) to power it up. The "GIRO" light on the PCP should start blinking and light up after a short while
 - TC or Gnr - Press and hold the "ACT HYDR" button on the Commander's Control Panel (CCP) to enable hydraulics. You should get audible feedback
 - TC - Press the "ARR. GI." button on the CCP to power up the gyros (for both TC and Gnr). Wait until this stops blinking.
 - TC - Press the "CONNEC ESTAB." button on the CCP to enable stabilization. You should get audible feedback
 - Gnr - Open the GPS doors by clicking the horizontally moving lever to the left of the Ballistics Computer Control Panel (BCP). The GPS (as opposed to the GAS) should show the sky
 - Gnr - Unlock the GPS head mirror by clicking the little up/down lever to the left of the BCP.
 - Gnr - Power up the BCP by pressing the "ENC APG" button. Note that this should only work after the head mirror has been unlocked. Giro starts blinking and should light up after a time (if the TC powered up the gyros). "Dist Comb" (Battle-sight) should light up
 - Gnr: Power up the laser by turning the laser key on the right of the BCP. The "Laser Enc" light should light up.
 - Gnr - Start cooling down the TIS by pressing the "REFRIG ENC APG" button. It should light up, and the "OPERAT" lamp should start blinking
 - TC and Gnr - (TC needs to have peri in "observation" - stabilized ('O') mode). TC presses "DERIVA" on the PCP, Gnr presses "DERIVA" on the BCP at the same time. Both should start blinking. In the GPS it should say "DER. REC" for both sights. After a while, the lights should stop blinking and the text should change to "DER. POS". In SP the AI should handle this just fine, regardless if you're TC or Gnr
 - TC - Press the "DERIVA" button on the PCP to cancel this mode.
 - Gnr - Wait until the TIS has cooled down, then press the "IR ENC APG" button to power up the TIS. The "IR OPERAT" light should light up, likewise the "CAMPO ANCHO" and "AUTO" light. Only now can the TIS be used!
 - TC - Power up the TIS repeater by pressing the "ENCENDIDO" button. A green light should confirm that it is powered up
 - CENTAURO Gunner's Position
 - Ballistic Computer's Control Panel
 - "ENC-APC" Powers the whole panel
 - "GIRO" activates gyro, should light up by itself after the TC powered up the systems and the Gnr powered up the BCP

- "DERI VA" Gyro alignment with TC peri gyro. Both crewmembers have to press this button simultaneously, only the TC can end it. If this is not done then GPS and peri will be misaligned by (up to) +/-8mil! This value is random and will be reapplied if the gyros are without power
- "DI ST COMB" battlesight. This is different (but fixed) for each ammo type. In the GPS this will be signified by a „C“
- "DI ST MAN" manual range entry. Press once to enter this mode, use the knob to the left to enter a distance (you can also use the mouse wheel while in the GPS), press the button once more to enter this value. Note that the „battlesight“ key actually cycles between Laser INPUT - BATTLESIGHT - MANUAL RANGE ENTRY - MANUAL RANGE CONFIRM so you do not have to switch into the interior sight to perform this operation. In the GPS an „M“ will show that manual distance mode is active, as long as the distance blinks you can change the value, once you confirm it it should go steady.
- "DI ST MI NI MA" minimum laser distance. Press button, it should start blinking and allow you to enter values. Press once more to confirm value, the light should go steady. The GPS should change to (blinking) LMN while range entry is active. If a lase is below this min range, the battlesight range will be entered. Press the button again (so that it is not lit up) to cancel this.
- "LASER ENC" just shows that laser has power and is undamaged
- "ALIM LASER" just turns on laser power. Will do nothing if the TC did not enable system power.
- "CAMPO ANCHO" wide TIS FOV. Note that in network sessions the TC cannot change this!
- "CAMPO ESTREC" narrow TIS FOV. Note that in network sessions the TC cannot change this!
- "REFRIG ENC APC" TIS cooler. Lights up while active
- "OPERAT" blinks while TIS cools down. No light if cooled down
- "IR ENC APC" TIS is powered up
- "IR OPERAT" TIS is working
- "NORMAL" White-Hot
- "INVERSO" Black Hot
- "ACT H IDR" hydraulics power. Can be enabled/di sabled by TC or Gnr
- "CONNEC ESTAB" stabilization is activated. Can be enabled/di sabled by TC or Gnr
- "REC DERI VAS" This will only work while the gun is in the loading position (press the "POSICION CARGA" button on the LCP). It will blink for a while and then light up.
- "AVERIA CALC" lights up red if the ballistic computer is damaged
- Gunner's Primary Sight
 - There are three lights on top of the GPS
 - Left Indicates that a round was loaded

- Middle multiple return indicator (lights up red after multiple returns - note that CENTAURO uses first return exclusively)
- Right indicates that LRF is powered and works
- Ammo Select Hotkey
The ammunition buttons control the ballistic computer's input. They will NOT control the loader's actions (he's controlled by the TC)! If no main gun round is loaded, the buttons will not light up (except for the MG). While a round is being loaded, the corresponding button will blink, then be lit up steadily. If, with a round loaded, another ammunition type is being clicked, this other ammunition is used by the ballistic computer! The new ammo type will be lit up, the actually loaded ammo will blink. Note that the LCP will ALWAYS show the actually loaded ammo only, lit up steadily.

The hotkey is active ONLY while the main gun is empty. If the TC is knocked out, this hotkey cycles between COAX, HEAT, SABOT and no-ammo. After making a selection and waiting for 3 seconds, the loader will load the selected ammunition (if any).
- CENTAURO Loader
 - Loader's Control Panel
 - "ALIM" always lit up, shows that turret has power
 - "TORRE" turret power enabled, subsystems may be powered up
 - "CALC" indicates error in ballistics computer if lit up
 - "CONF ROMP"
/CONF APFSDS
/CONF HEAT
/CONF HESH indicates actually loaded ammo
 - "POSICION CARGE" lit while in the loading position
 - Since we do not have sound samples for HESH and HEF, the loader will use the following strategy:
 - "HEAT Up!" if a DIFFERENT round than before was selected
 - "Up!" if a round of the SAME type is being reloaded
 - "Sabot Up!" Obviously, if sabot is being loaded.
- TC position
 - Commander's Control Panel
 - "ACT SIST" activates power to all subsystems except SGL. Needs the "ALIM TORRE" button to be pressed by the Gnr
 - "ACT H IDR." hydraulics power
 - "EXCL INCLIN" turn off cant compensation
 - "EXCL VENTO" turn off wind compensation
 - "CONNEC. ESTAB" activates stabilization. Needs hydraulics and ARR GI enabled.
 - "ARR. GI" powers up gyros
 - Ammo Select Hotkey
The ammunition buttons will ONLY light up in "Designate" mode (see below)! Clicking on them while the gun is not loaded will prompt the loading of the corresponding round. Double-clicking them while a round is loaded will prompt the gunner to swap out the rounds. In "Designate" mode, the currently loaded ammunition (if any) will light up the corresponding button). If the TC now clicks on any other button, the ballistics computer

will use the new ballistics, the selected ammo type will light up but the loaded ammo type will blink

- Note that the ammo select hotkey will only work in „Designate mode“ (see below).
- If the gun is loaded, it will toggle between MG and the current ammunition type. If the gun is empty, it works the same way as for the gunner.

▣ Peri Control Panel

- „ENC APG“ powers up peri
- „GI RO“ align peri and GPS gyros
- „GI RO ALIMEN“ lights up red in case of peri errors
- „RET ESTAD“ only active with 2.5x magnification, this displays range estimation stadia lines in the peri
- „10x/2.5x“ peri magnification
- „DI ST COM“ battlesight (see Gnr)
- „DI ST MAN“ manual range entry (see Gnr). Use the knob below it (or mousewheel) to change values. Note that TC cannot lose!
- „PRUEBA“ test button. Will just blink for a while, then light up.

▣ Smoke Grenade Launcher Panel

- You can turn the knob using the mousewheel. Red light indicates HE grenades, green light is for smoke. If the knob is in the 12 o'clock position you can fire the complete left/right side (without HE grenades) by pressing the „FUM IZQ“ and „FUM DER“ buttons. Otherwise turn the knob and use the „LANZA GRANADAS“ button.

▣ Peri

The peri has three operating modes...

- Slaved to gun indicated by „P“. This is the default mode if the palm switch is NOT pressed.
- Observation indicated by „O“. This mode is active if the palm switch is pressed.
- Designate (Gun slaved to peri) - this mode is entered if the „CENTAURO Designate“ hotkey was pressed. In this mode the TC overrides the gunner, can fire the gun, can enter distances. It is canceled if the TC pops out of the hatch, if the palm switch is let go, or if the peri is damaged or turned off. In the GPS this mode is indicated by a „D“.

▣ Sight view

There's just one light to indicate the peri's power status

• Big Red Button

- ▣ The behavior is the same for Cdr and Gnr; once the button is pressed ACT H IDR starts blinking and stabilization plus powered traverse is disabled. Firing is disabled, but you may reload.
Note that at this point ONLY the crewmember who pressed the button may release it (so Cdr cannot cancel emergency mode for Gnr)
- ▣ After the button was canceled, you have to reenable „ACT H IDR“ and „CONNECT ESTAB“

• Reload Strategy

- ▣ In the Spanish Version, the loader will NOT automatically reload the gun. Instead, he waits for the TC to identify and

designate a target, only then will a new round be loaded! Once the loader runs out of a specific ammo type, he *will not reload the next best ammo but wait*

- In other SB Pro versions, it is the same, except that the loader *will reload the next best ammo* if the preferred one is depleted.
- In SB Pro PE, upon entering the mission a round enters the tube and it gets reloaded as soon as a shot was fired
- Reload Hotkeys in the Pro Versions
 - TC: Press the ammo hotkey twice to start a reload or a swapping-out process while not in DESIGNATE mode. If in DESIGNATE mode, pressing an ammo hotkey once will just change the ballistic computer setting. Pressing it **twice** will initiate loading/swapping
 - Gnr: Pressing the ammo hotkey will just change the ballistic computer input
- New Hotkeys
 - Toggle Panel Power (TC and Gnr) – toggles PCP and GCP
 - Prueba (TC and Gnr)
 - Giro/Deriva (TC and Gnr)
 - Toggle TIS Refridge (Gnr)
 - Toggle TIS Power (Gnr)
 - Toggle MRS Mode (Gnr)
 - Turn Laser Key (Gnr)
 - Data Entry – will activate/confirm/deactivate laser minimum distance
 - GAS Reticle (TC) – will enable the peristadia lines
 - Battlesight (Spanish version only) – will toggle between battlesight and laser range source
 - Range Entry (Spanish version only) – activate/confirm/deactivate manual range entry
- CHALLENGER 2:
 - Added gunner's position (F6)
 - F1 = eye view (doesn't exist, so it goes to primary sight)
 - F2 = Primary sight; Num*/Joy#5 toggles TISH view
 - F3 = Auxiliary sight (with incorrect reticule)
 - F4 = unity sight (temporary)
 - ALT+F1 = monitor view of TISH
 - Added commander's position (F7)
 - F1 = eye view (Q/Z to move up and down)
 - F2 = monitor view of TISH
 - F3 = Commander's Periscope Sight (ARROW UP to override gunner, ARROW DOWN for independent CPS movement; while overriding the gunner, Num*/Joy#5 toggles TISH view)
 - Added driver's position (F9)
 - The commander's laser now comes from the peri, and the laser range is stored separately
 - There is now a blackout period when switching back and forth between daysight and thermal image
 - Tutorials will be made available in a future release*
- CV90/30-F1:
 - Added gunner's position (F6)
 - Added commander's position (F7)
 - Added driver's position (F9)
 - Added squad leader's position (F11)
 - Tutorials will be made available in a future release*
- CV90/35-DK:

- Added back the "S5" function for partial failure of the ballistic computer
- When Normal mode fails (triggered by WNA TEMP damage), show red light, drop gun, and disable gun steering
- The unity sight is now adjusted to match the ballistic super-elevation for 100m range
- Fixed a bug that would black out the daysight after a damage to the auxiliary sight
- Fixed a bug with the WNA TEMP damage and its connection to stabilization loss
- Fixed bug #1636; there was a mismatch of left, front, and right smoke volley and their corresponding buttons in the 3D control panel view and hotkeys
- Fixed a bug where the polarity of the thermal view couldn't be switched by the commander with a joystick button, once that it was set to white hot
- **LEMUR RWS:**
 - Aiming reticule now disappears for ranges > 2500m (if entered into the ballistic computer)
 - Made safety lines in sight darker
 - when using real control handles, mouse steering is disabled
 - Adjusted behavior of safety circuit and display for several vehicles
 - Now rounding range value in center of screen to nearest integer to be consistent with the other range display
 - Added back the "SB" menu in the setup screen for embedded training purposes
 - Fixed remaining issues with "open hatch" warning indicators
 - Fixed an issue with the monitors for vehicle and troop commander (PIRANHA-III)
 - Fixed a number of incorrect fire limitation values to prevent the RWS from shooting into the own vehicle at minimum depression
- **LEOPARD 1A5:**
 - Added the 3D interior view for gunner and commander
 - Ballistic Computer Control Panel knobs can now be operated with MouseWheel actions (use Shift+Mousewheel for bigger value change increments)

Tutorials will be updated in a future release
- **LEOPARD 2A4:**
 - Added the 3D interior view for gunner and commander (this also fixes bug #810)
 - Implemented the button "Anzeigen" of the Commander's Display Unit (next to the KH mode manual range control knob)
 - Implemented the Emergency Off button for the commander
 - Implemented a new response function for the gunner's control handle/joystick/mouse input with a large deadzone and a high minimum traverse speed for powered traverse mode
 - The ballistic computer control panel was expanded in functionality
 - Ballistic Computer Control Panel knobs can now be operated with MouseWheel actions (use Shift+Mousewheel for bigger value change increments)

Tutorials will be updated in a future release
- **LEOPARD 2A5:**
 - The Commander's Display Unit is now enabled to show ballistic parameters (click button "Anzeige")

- Ballistic Computer Control Panel knobs can now be operated with MouseWheel actions (use Shift+Mousewheel for bigger value change increments)
- **M1A1 ABRAMS:**
 - Enabled 3D interior view for the M1A1 gunner's position
- **M2A2/M3A2:**
 - Enabled 3D interior for gunner's position, some buttons in TC position also function
 - Gunner must manually raise the TOW launcher now with SHIFT+Q and lower it with SHIFT+Z. If the launcher is not lowered when the vehicle moves, damage could result.
 - From gunner's position, ALT+F2 will take the view to the level bevel indicator which can be consulted on whether the vehicle is level or not (bevel bubbles will line up in center if so).
- **M901:**
 - Added gunner's position (F6)
 - Added commander's position (F7)
 - Added driver's position (F9)
- **NZLAV-25:**
 - Added gunner's position (F6)
 - Added commander's position (F7)
 - Added driver's position (F9)
- **PIZARRO IFV:**
 - Added new hotkeys
 - Turret emergency off/on
 - Weapon safety switches
 - "Rear Serv" and "Rear Norm"
 - Fixed the thermal imager always being switched on, even if the vehicle wasn't combat ready and the turret without power
- **RG31 COUGAR MRAP (with LEMUR option)**
 - Added a troop leader's position
 - Added MG to the cupola while no LEMUR is fitted
- **T-72M1:**
 - the 'ready light' is now dependant on valid coincidence
 - reworked the way the TCMG works (the user experience should be the same though), the TC should now be much more accurate
 - the gunner now stops scanning as long as the (human) TC mans the TCMG
 - fixed delta-d so that any superelevation computed by the ballistic computer (used to help the AI gunner) is not factored in when a human is gunning
 - fixed issue where the red laser marker in the sight disappeared
 - fixed issue where minimum lase distance (500m) was disabled
 - fixed issue where the human gunner could change the type of loaded round while loading was in progress, resulting in a wrong sight view he was unable to change
 - disabled simulation of overheating hydraulics while the AI is gunning
 - the TC can use the 'm' key to instruct the gunner to fire coax; in order to fire the coax himself (using the mechanical trigger) he has to use the 'manual fire' command (shift-space) while being in eye view (and inside the tank)

- fixed issue where the human TC did not say "fire" when pressing the fire key, he should now be able to do this in all view modes
 - if the human gunner tries to reload a gun with a depleted ammunition type, the loading process will be cancelled (the AI TC should never order this type of ammo)
 - Adjusted the elevation and gun depression limits to
 - min/max gun front: -6.1° / 16.47°
 - min/max gun rear: -4.3° / 16.13°
 - min gps elevation: -6.5°
 - Fixed bug #1792; there is no longer a range discrepancy in the T-72M1's digital (3D interior) and analog range display (primary sight)
 - Rotating switches are made less sensitive and they will no longer rotate the full 360° (this fixes bug #1793)
 - increased the vertical adjustment speed of the NSVT; this also fixes bug #1807
 - changed the way how joystick inputs are handled; this also fixes bug #1810
 - The IR night sight now uses black fogging for a more realistic scene impression, and a reduced range; render resolution is increased (but not the actual image resolution)
 - Inverted Delta-D switch settings
 - Laser ranges between 3000m and 4000m are now displayed in the sight, but not entered into the ballistic computer
 - Manual range entry now works with ALT+MOUSEWHEEL or SHIFT+ARROWUP and SHIFT+ARROWDN
 - The carousel magazine is now loaded in an interleaved manner (Sabot/He/Frag/Sabot/...) in order to minimize reload times
 - The coax can now be fired regardless of coincidence
 - Adjusted the unbuttoned driver's position
 - Adjusted the occasions when the turret brake sounds are being played
 - Some munitions resulted in overshooting in the T-72M1. This should no longer happen. This fixes bug #1818
 - The primary sight display now updates after the player returns to a primary sight after leaving it to the computer-controlled crew. This fixes bug #1825
 - After selecting a gate for laser echoes, the 3D interior view LED will now show a static "0000". This fixes bug #1830
- **TPz-1A6 and TPz-1A7 "FUCHS"**
 - when manning the MG, notice that for the +/-45° range gun handling is relatively easy; beyond that the commander's cupola must rotate, which is simulated with some lag and a lower speed. This is intentional behavior
- **WISENT ARV (with LEMUR option)**
 - Adjusted the driver's unbuttoned point of view

New vehicles (without crew positions), new units, new objects

- Added the CENTURION 5/2 MBT
- Added the M1064 mortar carrier (non-functional)
- Added the M109A3 self-propelled howitzer (non-functional with limited self-defense capability)
- Added the 2S1 self-propelled howitzer (non-functional with limited self-defense capability)
- Added ZSU-23/4 "SHILKA"
- Added 3D Characters (replaced sprite characters by 3D models)
 - Dismounted soldier view

- Added a walk sound
- Will now change to observer position, if player character is hit and incapacitated
- Is now set to a minimum observation height of 40cm to avoid ground clipping effects
- Added new bridge models; they will collapse if their load limit is exceeded, and can be destroyed by IEDs, or air strikes (wooden bridge may also get destroyed by large caliber HE rounds)
- Long bridges (more than four segments) may now arch across a gap

New key features

- Customizable **callsign** templates; create and export, or import templates for unit callsigns (new file type: *.cst); callsign templates can be assigned to selected units with the "apply if..." function (notice however that the first entry in the templates list will take precedence if there are overlaps. Overlaps will occur when the "apply if" for different templates cover the same ranges. The other option is to edit all the templates listed to cover only certain companies); this also fixes bugs #853, #1008, #1009
- Most heavy weapons (including **ATGM** and **F0 sights** and also light MGs) of dismounted infantry squads can now be **operated by the user**. Enter the team leader's position (F7), then F2 (F3, F4...) for eventual weapon sights
- Added a **SCENARIO DEBUGGER** showing the state of random variables, events, conditions, the current score and the current strength points in regions which are used in scoring conditions. This debugger will only be available while testing scenarios in the MISSION EDITOR; this also fixes bugs #881, #897, #994
- Enabled the **free-flight camera** view while testing a scenario from within the MISSION EDITOR
- **Visibility** can now be up to 18km. It is worth noting that optical (daysight) identification (the distance out to which computer-controlled crews will mark contacts on the map and react to them) can occur at all ranges. Only the visibility settings are the limiter. Thermal sights will see 3x as far as optical sights. However, identification in the thermal view is restricted at ~4.5km currently. So, although human players can see out to 12km or more in thermal sight, computer-controlled crews will not mark them on the map as they don't know what they are (just hot spots -- a human is required to read more into it and it encourages cross talk in multiplayer games).
- **Bridges** can now be prepared for demolition; use IEDs for that purpose. With the sole exception of the wooden bridge, it otherwise takes an air strike to destroy a bridge – artillery fire or direct fire with HE rounds will be a fruitless effort

Features changes

- Added a range limit slider for the LOS calculation
- In the map view, the tactical icon may now get updated after an ammunition change
- Attempted to reduce LOS tool calculation times by using a different method

- Joysticks may now control a soldier's eye view, or the view of an external observer of a dismounted squad
- Added 105mm M833 APFSDS
- Added some Instant Action scenarios
- Added armor files for all gun actors; this also fixes bug #1629; dismounted ATGM launchers will now be vulnerable to direct fire
- Added a dynamic adaptation of a joystick's default deadzone, depending on the signal resolution (e.g. 12 or 16 bit)
- Added a number of new munition types 122mm and 155mm for direct fire/self-defense of the 2S1 and M109 self-propelled armored howitzers
- Added or updated reticules for the following ATGM sights:
 - AT-3d Sagger
 - AT-4 Spigot
 - BILL (this also fixes bug #2044)
 - Milan (this partially fixes bug #2042)
 - TOW
- All building models now have *Mass* parameter set to help computer-controlled drivers avoid heavy collisions
- Set suspension quality of UGVs to maximum for better handling of bumpy terrain
- When in infantry first person view, the observation height can now be adjusted with the usual Q/Z hotkeys
- Improved the aim of the ARH TIGER's unguided rockets
- Increased ARH TIGER's ready ammo to 450 rounds
- Adjusted the MG3 sight to obstruct less of the target area
- Adjusted the transition between infantry first person view and HMG sight
- Adjusted the way how the collapse and burning of buildings and structures is being handled when interacting with large explosions
- Changed the L27 CHARM3 muzzle velocity to the upper margin of likely performance by 25m/s, and increased its terminal power
- Updated vehicle models of the BMP-1 and BMP-2
- Updated armor files for **all vehicles** to have a consistent treatment of non-penetrating HE belly hits (in preparation of a refined IED modeling)
- Updated all Gunnery Range scenarios
- Replaced 34 sounds of SB1 vintage
- Added about 102 new sounds and sound variations
- Reduced the size of several string buffers; for some reasons, their larger size caused stack overflows
- Until now there was a chance that, with "none" waypoint tactics selected, a unit might accidentally adopt the behavior of a different tactic, making their behavior somewhat unpredictable. This has been corrected. Units without a waypoint tactic will however still move to avoid incoming artillery fire, and orient towards spotted enemy
- Removed the amphibious capability from the PIRANHA IIIC
- Reduced max. engagement range for BMP-1's 73mm GROM gun (PG9)
- Corrected a LOS issue with an attached gun blocking the LOS (this was affecting especially the CV90/35-DK and its ability to detect some targets)
- The starting position when hopping into the gunner's place is now the 3D interior if no threat has been detected by the computer-controlled crew, and the primary sight if the computer-controlled crew is aware that a line of sight to an enemy has been established

- Changed the way how Host and Client synchronize. This should help to be more resilient towards CPU clock speed variations that will occur with multi-core processors
- The commanders of truck-like vehicles may now use binoculars, and call artillery from inside the cabin
- Updated ballistic parameters for
 - ▣ S-8KOM (unguided rockets, HIND) – velocity, performance
 - ▣ 35mm APDS (type, performance, maximum engagement range)
 - ▣ Other medium caliber projectiles (max. engagement range)
- Reduced attenuation over distance for SOUND_X_HESPLASH_SMALL
- Changed the way how house elevations over sloped terrain are set
- Shortened countdown to 1 second if there are no clients in network session
- *Kill-when-hit* now applies if there is a perforation, even if it's a small-caliber round
- Add the string "vehicle" to qualify the kills, losses and fratricides in the SB reports, since infantry are not counted in those summary stats
- Implemented a check for potential ID conflicts (if platoons on map are split, for example) when creating a unit
- We're now aggregating and disaggregating infantry icons, depending on the map zoom level
- Increased the walking speed on dismounted infantry
- Added the missing TIS textures for infantry
- Mech infantry may now start dismounted; the mission designer may right-click a transport vehicle and select "unload troops". Their equipment can then be customized (and the troops loaded back afterwards, if so desired)
By default, troops will be loaded in their vehicles per Steel Beasts traditions, but with the unload command the troops' equipment can be edited before loading them back into their vehicles
- Reduced the amount of ground clutter rendered around infantry in the prone position, if the player selects the infantry point of view
- Vehicles with more than one missile ready to fire, a launcher reload will be attempted if no enemy was sighted for 90 seconds
- Fixed a bug in network sessions where, on slow movement orders, the squads of IFVs controlled by the session host would disembark automatically and walk in front of their vehicle, but squads of IFVs owned by client computers would not
- Fixed a bug in network sessions where, on orders to accelerate from slow movement, the squads of IFVs controlled by the session host would mount automatically, but squads of IFVs owned by client computers would not
- Fixed problem with mounted troops having duplicate combatant IDs.
- Corrected some problems with TC HMG aiming
- Reduced network traffic by sending range entry network messages only when there is at least one human crew member in the vehicle. This could result in different human crew members seeing different range values when they first jump into a previously unoccupied vehicle, but will be resolved at the first range entry.
Solution: Use the laser, activate battlesight, or enter a new range manually. This is probably an acceptable trade-off for the benefit of a greatly reduced overall bandwidth usage, especially for internet connections
- Prevented DirectX from setting the floating point unit to single-precision mode. This may result in a frame rate reduction by up to 4% on computers with CPUs as the overall bottleneck but double precision is needed for accurate lat/long – UTM conversion

- Changed texture addressing for transparent objects rendered in SB to be wrapped instead of mirrored
- Reduced the speed of dismounted infantry, and changed to a jogging animation
- Disabled the rendering of the player character's body while in the prone position/in a gun sight view
- Heavy weapon teams will now pivot with their weapon
- Changed the animation for the gun man if the player enters the weapon sight
- Modified the dialog box for call sign templates so that at least the OK and CANCEL buttons will be visible even on monitors with the minimal screen resolution of 800x600.

Bug fixes without database entry

- Removed the ammo door sound for the Leopard 1A5DK and AS1
- Solved a conflict between deployment zones and the flag "deployable anywhere" for infantry bunkers and vehicle emplacements
- Fixed a crash bug that occurred when using the free-flight camera in both instructor host sessions and while testing a missions
- Fixed a bug so that divided platoons of the PC type can now be merged in any order
- Fixed a bug with text overflow in the ammunition selection dialog window
- Fixed two infantry related (ATGM teams and the *Suppress* command) network problems; before, only the soldiers on the Host machine would fire their weapons
- Fixed a bug where transport vehicles would wait with open doors indefinitely for their eliminated squads
- Fixed a bug where fast moving vehicles could drop from bridges
- Fixed a bug with externally mounted weapons (e.g. remote weapon stations) where the external view (and extra internal screens) would not show the same gun position as the gunners view, and gunner's scan movements would not translate to a movement of the RWS - only while firing the weapon
- Fixed a bug where, under certain circumstances, CV90/35s could have an excessive dismount strength of 18
- Fixed a bug which could result in an application crash when modifying the properties of certain vehicles
- Fixed a bug in the detection height of soldiers when sunk in
- Fixed a bug that prevented LOS map from being turned off in mission if it was left switched on in the Planning Phase
- Fixed a bug that allowed resupply to happen too quickly, especially when firing small caliber rounds
- Fixed a bug where "blind" units could see (and shoot)
- Fixed a bug with the categorization of civilian vehicles in the scoring formula and dialog boxes
- Fixed an error in the ammunition designation of the L23A1
- Fixed a bug which caused a "quantum entanglement" of Spawn conditions if a unit was split after the Spawn condition was set

Resolved Bugzilla entries

- Fixed bug #43; TAB and ARROW keys are now enabled for dialog boxes
- Fixed bug #47; with disabled main gun, the computer-controlled crew will no longer enter the loop of constantly announcing an engagement
- Fixed bug #57; the MARDER will now assume the correct turret position for as MILAN missile reload

- Fixed bug #61; some issues with the M113 peri view are solved, others are now tracked in entry #633
 - Fixed bug #64 by adding the option to change MG barrels
 - Fixed bug #66; flex mounted cal .50s are now less accurate
 - Fixed bug #103 by adding new bridge models
 - Fixed bug #106; the MARDER may now reload its smoke launchers
 - Fixed bug #168; section vehicles now properly react to conditions related to their unit identity if the platoon leader has been eliminated
 - Fixed bug #251; there should be no more gaps in the LEOPARD 2A5 turret roof surface while looking through the peri sight
 - Fixed bug #266; SB Pro seemed to be unresponsive if Client and Host did not quit a network session in a coordinated fashion
 - Fixed bug #268; invisible (artillery) objects can no longer be found in the planning phase
 - Resolved bug #272
 - Fixed bug #287; rock objects will now stop bullets
 - Fixed bug #347; the HIND's rotors are now properly centered
 - Fixed bug #414; cannon-fired large caliber smoke rounds will now obscure sight on a wider front
 - Partially fixed bug #426; added a proximity fuze mode to the 120mm M830A1 MPAT round; the computer-controlled M1 commander will now order the loader to set the proximity fuze when ordering for the 120mm M830A1 MPAT round against a helicopter target
 - Resolved bug #492
 - Fixed bug #499; added a printer selection dialog for the map print function
 - Fixed bug #529; closed a gap in the M1A1 roof model
 - Fixed bug #534; updated the M2 BRADLEY commander's hatch texture
 - Fixed bug #538; implemented manual lowering/raising of the M2/M3 BRADLEY's TOW launcher. Use the lower/raise launcher hotkeys (SHIFT+Q)/ (SHIFT+W). Take care to lower it before moving out or damage will occur. The behavior of computer-controlled crews remains unchanged. This also fixes bugs #272, and #907
 - Fixed bug #542
 - Fixed bug #544; reverse steering of the BMP is now wrong in the right way
 - Fixed bug #545; players can no longer cheat the time on target count with a "check fire" command (and then resuming the barrage)
 - Fixed bug #561; changed the location of the FIST-V muzzle flash
 - Fixed bug #567; landed helicopters can now be refueled and rearmed. This still requires human intervention, but at least it can be done
 - Fixed bug #580; added an air bubble to the gauge of the M2/M3 BRADLEY's 3D interior. This allows a human turret crew to estimate whether the cant angle of the current battle position would prevent a successful TOW missile engagement. The instruments shows three concentric circles:
 - ▣ black: vehicle (or rather, turret) is horizontal
 - ▣ blue: 5°
 - ▣ red: 10°
- Currently a missile can be launched if pitch is less than 15° and roll is less than 5°, so as a rule of thumb avoid positions where the bubble touches the blue or red circle.
- Resolved bug #597
 - Fixed bug #602; scatter mines and point obstacles will now be on the surface of bridges and no longer on the terrain underneath
 - Fixed bug #617; reduced the excessive spin of units that were hit in the side
 - Fixed bug #619; with both human gunner and commander in the M2/M3 BRADLEY, the gunner should now be able to change the ammunition selector in the central control panel; the commander may however not select the TOW since its control panel is out of reach
 - Fixed bug #645; computer-controlled crews will no longer attempt to load non-existent ammunition
 - Fixed bug #664; computer-controlled crews will now change ballistic shield doors in artillery barrages
 - Fixed bug #678; when splitting units, one 1/4 will no longer forget its route and stop
 - Fixed bug #684; a human commander of the M1 ABRAMS can now customize the battlesight ranges properly in network sessions (a human gunner would now utilize them)
 - Fixed bug #686; see entry for bug #1065

- Fixed bug #720; while in the CV90/40 commander's vision block view (F4), joystick/control handle signals will now be accepted to steer the view
- Fixed bug #728; in the MAP EDITOR, with a line tool selected, right-clicks will now re-center the map view as they to while any other tool is being used
- Fixed bug #747; the hotkey (SHIFT+AMMO SELECT) should now work on all vehicles for all four ammunition slots (INS, DEL, HOME, and END)
- Fixed bug #754; computer-controlled units now have a detection and identification limit of 6km however
- Fixed bug #760; The BMP-1's fire with damaged primary sight is now very inaccurate
- Fixed bug #763; CV90s are now more resilient to 25mm APFSDS
- Fixed bug #772; the CH-146 GRIFFON helicopter is no longer nearly immune against air burst munitions
- Fixed bug #803; troops no longer drop from vehicles if those vehicles are hit
- Fixed bug #804; in network sessions, the user interface is no longer limited to the "Jump here" command when attempting to teleport to a unit owned by another player
- Fixed bug #811; there is now a 3D interior for the Leopard 1A5
- Fixed bug #812; there is now a 3D interior for the T-72M1
- Fixed bug #834; infantry can now mount essentially any vehicle with a transport capacity
- Fixed bug #837, the loading sound in the map view while following a T-xx tank
- Fixed bug #846; some vehicles seemingly suffered from bad boresighting
- Resolved bug #849
- Fixed bug #850; FASCAM obstacles now have adjustable time limits
- Fixed bug #853
- Re-introduced the feature to save work results of the PLANNING PHASE (PLN files); this also fixes bug #916
- Fixed bug #925; in network sessions, client-owned BIBER bridgelayers can now retrieve bridges after they have been laid
- Partially fixed bug #972; With rail bridges and powerline poles the basic requirements are fulfilled. Connecting powerlines and large pylons will follow later
- Fixed bug #984; LEOPARD AS1 can no longer miraculously grow a thermal imager by sustaining some damage
- Fixed bug #988; with both human gunner and commander in the M1 ABRAMS, the commander should now be able to enter the battlesight range into the fire control computer
- Fixed bug #994 (list random variables while/after testing a scenario); see the entry on the SCENARIO DEBUGGER
- Fixed bug #1008
- Fixed bug #1009
- Fixed bug #1016; a "lane" graphic is now shown once that a minefield breach is completed (that is, cleared by MICLIC or mine plow and marked by engineers – mine roller usage is not tracked), provided that "Map Updates" are enabled
- Fixed bug #1017; The TIGER helicopter now has weapons under the wing pylons
- Fixed bug #1025; the default angle for the attention cone of battle positions is now 36° for single vehicles, and 54° for formations. Maximum cone angle remains at 90°
- Fixed bug #1029; two-man scouts will now dismount as one team
- Fixed bug #1031 with finishing touches to the re-introduced feature to save PLN files; added a file selection dialog to save multiple PLN files (or to select one out of many to load); this also fixes bug #1703
- Will not fix bug #1033; thermal imagers, once damaged, cannot be repaired in the field
- Fixed bug #1034; "dead" vehicles can now be towed across bridges even if there is a significant height step from the surrounding terrain to the bridge entry point
- Fixed bug #1035; when landed, the TIGER's tail rotor is now fixed
- Fixed bug #1059; when clicking "Replay" after ending a scenario, the user will now be prompted to save the AAR
- Fixed bug #1061; dead helicopters will no longer spin on client computers after impacting the ground
- Fixed bug #1065 by adding events for *Bridge deployed* and *Bridge retrieved* actions, and also fixed the issue of vanishing/incorrect bridges in AARs. This also fixes bugs #686 and #1349.

Independent AVL B segments are now also supported:

- ▣ Mobile bridges may now be placed by the scenario designer, via the new "NEW MOBILE BRIDGE" sub-menu in the map screen pop-up

- In the map view, they are now represented by the "bridge" tactical icon. This icon is of fixed size and cannot be repositioned. The green bar of old is only shown in DEBUG builds
- The instructor host (or the user, if testing the scenario) is able to reposition them by dragging/rotating the map graphic.
- The map icon will be removed once the bridge is retrieved. It will be regenerated once the bridge is laid
- If, during the scenario, one side "steals" the bridge from the other side, the original's side icon will remain visible (so as to not give away the fact) but will from this point on be movable by the player
- Fixed bug #1067; added events for "MCLIC CHARGE BLOWN" and "MINEFIELD LANE MARKED" events. Note that the map graphic showing the cleared lane will **not** be recreated in the AAR
- Resolved bug #1072
- Fixed bug #1078 by changing the helicopter hover sound
- Fixed bug #1091; ammo changes in the call for fire dialog box no longer erase the target coordinates
- Fixed bug #1104; some Soviet APCs were not firing their smoke volleys according to the turret orientation
- Resolved bug #1105
- Resolved bug #1113
- Fixed bug #1127; the TERRAIN THEME EDITOR will now sort the terrain types in the same order as they are shown in the MAP EDITOR's palette
- **Autosave** - fixed bug #1128; it is now possible to automatically save a scenario or tile map in the MISSION and MAP EDITOR:
 - Save interval is 5/10/15 minutes, save interval is independent of manual save actions
 - Scenarios get saved into the 'autosave.sce' file, tilemaps into the 'autosave.ter' file.
- Fixed bug #1132; MGs (including coax MGs) will no longer fire single shots on *Suppress* orders (this also fixes bug #1156)
- Fixed bug #1138; added the AT-3 SAGGER ATGM for dismounted troops
- Fixed bug #1154; client users in network sessions can now also make their infantry squads pop smoke grenades
- Resolved bug #1156
- Fixed bug #1171; adjusted the cal .50 sight on the M113 AS4
- Fixed bug #1187; increased the speed with which computer-controlled vehicles can drive at night, depending on NVG equipment settings
- Fixed bug #1198; the M2/M3 BRADLEY's TOW crosshair is no longer aligned with the ballistic reticule and laser measurement circle, so all LRF actions while in the missile sight will yield uncontrollable results
- Fixed bug #1207; infantry weapon teams will no longer cause the error message *Error: Scenario has duplicate combatant IDs*
- Fixed bug #1234; vehicles can no longer suffer stabilization damage twice
- Fixed bug #1241; remote weapon stations now properly follow in the external view the gunner's movements
- Fixed bug #1243; 2S6 TUNGUSKA movement sounds have been adjusted
- Fixed bug #1250; added a switch to the *Options / Network* menu to disable the automatic screenshot of the *Assembly Area* at mission start
- Fixed bug #1252; the UAV's thermal camera can now toggle polarity
- Fixed bug #1272; or at least the divergence of cant angle between gunner's and commander's sight in the LEOPARD 2 can no longer be reproduced
- Fixed bug #1278; mechanized infantry will assume the fire control settings of their transport vehicle
- Fixed bug #1284; changed the M2/M3 BRADLEY's ballistic reticule from red to gold color
- Fixed bug #1286; computer-controlled vehicles will no longer stop maintaining formation if not on a route
- Fixed bug #1288 by giving infantry squad MGs a new sound
- Fixed bug #1300; RPGs that weapon teams cannot utilize anyway will no longer be rendered
- Fixed bug #1302; UGV settings are now retained if the units type is changed from one personnel carrier (or IFV) to another
- Fixed bug #1315; the AGM-114 HELLFIRE missile range is now 8km
- Fixed bug #1317; for rifle platoons, "Default B" ammunition selection now sets the RPG-7 as the standard anti tank weapon
- Fixed bug #1325 that would drown some vehicles on sudden, steep slopes even if no water was around

- Fixed bug #1331; grenade launcher teams will no longer fire short on *Shoot here...* / *Suppress* command
- Fixed bug #1341 ...again; infantry squads no longer lose their RPG if the current RPG gunner is down (this also fixes #2078)
- Fixed bug #1347; for JAVELIN, RB57 STORM, MILAN 2T, and AT-13 missile teams a thermal view is now available
- Resolved bug #1349
- Fixed bug #1351; if "soft immobilization" occurs (no fuel, driver injured, suspension damage etc.) the vehicle will be split from the rest of the platoon but its status will NOT be set to 'immobilized'. The damage to the suspension will usually result in top speed reduction, depending on the *Terrain Theme*
- Fixed bug #1355; M113A3/TOW and M966 (HMMWV with TOW) now also have a thermal sight available
- Fixed bug #1358; ASLAV-25 units will no longer shoot short
- Fixed bug #1374; added a PP61 AM gun sight to enable a gunner's position for BTR-80 and BRDM-2
- Resolved bug #1387
- Fixed bug #1400; this could result in numerous copies of the same HTML report (with conflicting content) being created after a network session
- Fixed bug #1403; all dismounts are now slowed down by water, or snow (including forward observers)
- Fixed bug #1406; this should eliminate discrepancies between client and host machine HTML reports
- Fixed bug #1411; fixed the tabular formatting of HTML reports for events like *Hit by artillery*, *Hit by HE*, *Hit by RPG*, *Hit by ATGM*. Also changed all HTML exports to have a proper header, fixed some incorrect escape sequences, changed all tags to lowercase and added an *SB Pro PE* HTML META tag
- Fixed bug #1427; FASCAM obstacles can now be breached by client machines in network sessions
- Fixed bug #1432; the grenade launchers of the M1A1 roof model will now show the correct textures
- Fixed bug #1434; for HMMWV and BUSHMASTER truck drivers the camera view will now shake more while driving across terrain with a high *Bumpiness* value
- Fixed bug #1443; troops will dismount from disabled personnel carriers in close proximity
- Partially fixed bug #1453; at least the M2/M3 BRADLEY now makes use of the end of belt signal
- Fixed bug #1458 – twice; the hydraulic engage/disengage sound will no longer be played in a continuous loop when overriding the PIZARRO gunner
- Created a workaround for bug #1459; when running down a tree, it will now always be replaced with the rather large bush #2 (instead of a random bush which often are too small), except for scenarios with a *Desert* terrain theme
- Fixed bug #1473; when using copy and paste with routes, the flight height information is now being preserved
- Partially fixed bug #1475; added a desert texture for the M1 roof
- Fixed bug #1488; the WIESEL's TOW launcher is now restricted to an arc of +/-45° azimuthally
- Fixed bug #1495; the "orientation lines" of buildings in the Map Editor will now scale with the size of the building so that it is no longer necessary to change the zoom level to adjust their orientation
- Fixed bug #1498; helicopters may now carry (and deploy) troops. As a caveat, troops may disembark and re-embark at any flight level (!)
- Fixed bug #1499; with new artwork, certain artifacts in the M2/M3 BRADLEY vision block view are now gone
- Fixed bug #1503 by correcting the MT-LB sprocket wheel animation
- Fixed bug #1512; the KONGSBERG PROTECTOR RWS will no longer fire rounds from the RWS base, if mounted on a PIRANHA-IIIC
- Fixed bug #1525; ammo counter in Lemur screen now shows user input before Enter is pressed
- Fixed bug #1534 which listed the LRF twice if damaged
- Fixed bug #1535; dismounted FO teams in buildings can now use the laser range finder properly
- Resolved bug #1537
- Fixed bug #1542; for the M2/M3 BRADLEY, the TOW will abort as soon as the launcher is being lowered, or if the launcher is damaged, or if the vehicle moves (which will damage the launcher).
Note that the (human) TC can also explicitly abort the TOW
For the M966 and M113/TOW, the TOW will abort as soon as the vehicle speed exceeds 3km/h
- Fixed bug #1547; M966's TOW launcher now points into the direction of attack
- Fixed bug #1548; HIND will now use the gun more often, especially for targets that are at an angle to the flight path
- Resolved bug #1549

- Fixed bug #1552; 40mm HE grenades should now burst on impact
- Fixed bug #1554; 30mm MP-T rounds (e.g. IFV PIZARRO) will now detonate when impacting the ground
- Fixed bug #1556; the EAGLE IV will now have two dismounts
- Fixed bug #1566; loaded bridges on BIBER or MT-55 can no longer get entangled with each other
- Fixed bug #1571; GRIFFON and CHINOOK door gunners will no longer shoot short
- Fixed bug #1575; MICLIC trailers will now sink into the ground corresponding to the TERRAIN THEME'S *Hardness* value
- Resolved bug #1576
- Resolved bug #1581
- Fixed bug #1582; client machine AARs will now also contain the "Hit by IED" event
- Fixed bug #1584; The CENTAURO commander's MG will now be stowed after an engagement
- Fixed bug #1587; ASCOD PIZARRO: The spent brass bag will no longer be automatically emptied if a human player is in one of the turret crew positions
- Partially fixed bug #1691; helicopters must not hover more than 6ft above ground to load troops
- Fixed bug #1593; troops will now keep at least two RPGs in reserve against armored vehicles but may still fire RPGs against other troops
- Fixed bug #1610; vehicle emplacement now available for the M60
- Fixed bug #1611; the M113A3's cal .50 is now pointing towards the target during engagements
- Fixed bug #1612 by improving off-road mobility of the HMMWV
- Fixed bug #1613; updated the M1's gun tube winter texture
- Fixed bug #1614 by removing the UGV option from the EAGLE IV
- Fixed bug #1615; the T-72B and T-72M commanders' HMGs will now point in the firing direction
- Fixed bug #1616; computer-controlled units will now fight to the last bullet
- Resolved bug #1617
- Fixed bug #1624; reduced the amount of ammunition for HMG teams
- Fixed bug #1625; in the MISSION EDITOR "Dynamic Lead" can now be set as a damage for the CENTAURO. For human gunners, if "Dynamic Lead" damage is set, the GPS range display will never stop blinking (to indicate that the average turret yaw over the last x seconds was used to calculate lead), they'll have to reset it (press middle mouse button again) and use manual lead. Indication that dynamic lead is damaged: Display never stops blinking, and the ballistic computer warning lights on the ballistic control panel and loader's control panel will light up red (they'll also do this on general ballistic computer errors).
- Fixed bug #1626; "dead" or immobilized engineer vehicles can no longer continue to mark lanes if pushed by some other vehicle through the breach lane
- Fixed bug #1633; infantry on scout or engage tactics now react faster to incoming fire
- Fixed bug #1637; with the option "No Map Updates" selected for a scenario, the icons for dismounting infantry squads will now appear next to the location of the transport vehicle, no matter whether the vehicle position is correct on the map
- Fixed bug #1641 for the MISSION EDITOR:
 - The floating camera position is now positioned at the LOS slider height when switching from the map view to the 3D preview
 - The 3D preview will now display the height above ground
 - After changing the viewing height, going back to the map view will adjust the LOS slider position correspondingly
- Fixed bug #1643; in reverse playback, the camera view of a UAV route will no longer continue on an extrapolated path
- Created a workaround for bug #1646 to tone down the symptoms; while a vehicle is hitched, it will not suffer collision damage by land objects or by its towing vehicle. The towing vehicle will not suffer collision damage caused by its towed vehicle. However, both may still be damaged by missiles and mines etc. This also fixes bug #1105
- Fixed bug #1657
- Fixed bug #1662; LEOPARD 2 commanders may now pan the vision blocks while the Peri is still in *ZÜ mode*
- Fixed bug #1663; the mounted MG3 on the CENTAURO will no longer fire with a 45° offset
- Fixed bug #1664; fire commands given from the PIZARRO commander's day sight will now work properly
- Fixed bug #1669 by disabling the *OK* and *Default* buttons of the DETAILS SETTINGS dialog box for network clients

- Fixed bug #1670, so that if a button is pressed in the 3D interior for which only a joystick button is defined as a hotkey, and if no joystick is connected, the result is no longer funky
- Fixed bug #1681; externally mounted guns will no longer be rendered after an internal explosion detached turret from hull
- Fixed bug #1683; the BMD-2 no longer has mine plow, or roller
- Fixed bug #1685; the T-72M1 has his NSVT 12.7mm HMG back
- Fixed bug #1686; AAR files saved after a TANK RANGE run would not show the right target vehicles when loaded and replayed later
- Fixed bug #1687 by adding thermal textures for all infantry
- Fixed bug #1692; when going back to the map screen from the 3D view during the PLANNING PHASE or in the MISSION EDITOR, the movement route view filter will no longer be reset to "All"
- The windows for conditions, scores, support, open/save dialog, theme selection, printer options, mission start time, and password dialog box now appear at the (mouse) cursor position to minimize mouse travel especially for users with large screen resolutions (this also fixes bug #1693). Other windows, dialog, or alert boxes will remain centered
- Fixed bug #1698; if equipped with a remote weapon station, the map screen status bar will say so if a unit is being selected
- Fixed bug #1704; collision detection now works properly with dismounted infantry; it would mess up all laser range returns after lasing any dismounted soldier or the vicinity of it, or after projectile collisions and near misses
- Resolved bug #1706
- Resolved bug #1707
- Fixed bug #1708; assault bridge segments will now be loaded with the proper orientation if they were placed in the mission editor without being deployed by a vehicle before
- Fixed bug #1710; after lasing a spot on the ground from the UAV camera view, the grid coordinate will no longer flash in irregular intervals
- Fixed bug #1712; added entries for dismounted troops in the POSITION and VIEW menus of the F1 view menu bar at the screen top
- Fixed bug #1714; for all infantry-launched ATGMs (except "JAVELIN") the missile will no longer overswing into the ground after launch
- Fixed bug #1715; thermal sight view will now be blocked when GPS doors are closed
- Fixed bug #1716; the MISSION EDITOR will no longer crash after moving certain units and then saving the scenario file
- Fixed bug #1722; no longer green faces for soldiers in desert themed maps
- Fixed bug #1723; added artwork for the 84mm "CARL GUSTAV" recoilless rifle
- Fixed bug #1725; in the COUGAR MRAP the mounted soldiers' feet will no longer stick out
- Fixed bug #1726. Enabled the full context menu for single-team squads (e.g. the entry "Jump to mounting vehicle"; however, this entry will only be displayed if there's actually a mounting vehicle (this check was missing in the original code)
- Fixed bug #1727; mounted troops in the CV90/35 are now facing the correct way
- Fixed bug #1730; only certain remote weapon stations are now allowed for selected vehicles
- Resolved bug #1734
- Resolved bug #1735
- Resolved bug #1738
- Fixed bug #1739; there no longer are infantry glowing green in darkness
- Fixed bug #1741 by making the MG3 sight less obstructive
- Fixed a firing animation for the CARL GUSTAV recoilless rifle (bug #1743)
- Fixed bug #1744; The RPG-7 warhead is now shown while the RPG gunner aims with the launcher
- Fixed bug #1736, a layout problem with the CONTROLS dialog box
- Fixed bug #1752; added Canadian uniforms with M16 and M72 LAW
- Resolved bug #1753
- Fixed bug #1754; if the user is killed while in the eye view of a dismounted squad, he will now be transferred to the external observer position
- Fixed bug #1755; Australian infantry is now visibly armed
- Fixed bug #1756; Chinese soldiers will now carry AK-47

- Fixed bug #1757; increase the minimum view height for infantry
- Fixed bug #1758; The Javelin will no longer look like the TOW. It still won't look like a Javelin for now, but at least less cumbersome than the big one
- Fixed bug #1759; see "Dismounted soldier view" entry.
- Fixed bug #1761; Norwegian soldiers no longer look like US troops
- Fixed bug #1764; after copying a map graphic to the other side, the flag to indicate a changed scenario will now be set
- Fixed bug #1766; dismounting infantry will now appear one after another on all the different PCs' ramp doors
- Resolved bug #1767
- Fixed bug #1768; after the player's using of the laser range finder, computer-controlled crews would no longer open fire with the TOW missile
- Fixed bug #1769 by adding a very-high detail model of the TOW launcher
- Fixed bug #1770, a sight obscuration of the CHALLENGER 2's peri
- Fixed bug #1774 with the SCENARIO DEBUGGER; removed an offset of 1 in the display of the random variables X1...X63
- Fixed bug #1775; there was a weird camera transition in some 3D interiors
- Fixed bug #1776; helicopters will now retain their engine sound while flying and not just during a hover
- Fixed bug #1780 by removing a superfluous animation loop for infantry firing some of the RPGs
- Fixed bug #1781; adjusted the artwork for some RPGs
- Fixed bug #1782; the "big collision" sound is no longer played when flattening small obstacles like traffic signs
- Fixed bug #1785; CHALLENGER 2 engine sounds should now play correctly at all times
- Fixed bug #1778; adjusted the trimvane angle for the following amphibious vehicles:
 - ▣ ASLAV-25
 - ▣ ASLAV-PC
 - ▣ BMD-2
 - ▣ BRDM-2
 - ▣ BRDM-2/AT
 - ▣ BTR-80
 - ▣ M113A1
 - ▣ M901
 - ▣ MT-LB
- Fixed bug #1786 with the new BMP-1 model's ammo count
- Fixed bug #1788 so that the new BMP-2 model won't pop its turret
- Fixed bug #1789; ATGM launchers will no longer disappear after firing the missile
- Fixed bug #1790; similar to #1768, but without prior use of the laser range finder, under some circumstances computer-controlled crews would not open fire with the TOW missile
- Fixed bug #1791 by changing the packing order of multi-part crew served infantry weapons;
- Fixed bug #1792; see entry for T-72M1
- Fixed bug #1793; see entry for T-72M1
- Fixed bug #1794 by giving the vehicle emplacements more consistent designations
- Fixed bug #1795; infantry walk sound playback is now limited to the player in control of the corresponding infantry team
- Fixed bug #1797; added a missile frame tag to the script options
- Fixed bug #1799 by changing the aggregation and disaggregation of infantry icons to map zoom level 6x
- Fixed bug #1802; added the Ghost rider no longer pilots the motorcycle
- Fixed bug #1804; motorcycles will now disappear completely if hit by suitably powerful HE round
- Fixed bug #1805; the Leopard 1A5 commander can now order the gunner to change the fire control mode
- Fixed bug #1806; the hotkey ALT+F3 will now enable the gun sight of the roof-mounted MGs on both the NZLAV and ASLAV-25. An artwork update for the MG sights is still needed
- Fixed bug #1808; the T-72 engine smoke exhaust was relocated
- Fixed bug #1809; some vehicles will now send out range information less often to reduce the network traffic load

- Fixed bug #1811; target reference points can now be moved during the planning phase only by the highest ranking player of a side – this however will be properly communicated to the other team members
- Fixed bug #1812; IEDs can now be moved (and their EXPLODE, IF... conditions be changed) during the planning phase only by the highest ranking player of a side – this however will be properly communicated to the other team members
- Fixed bug #1813; when redeploying an IED in a network session planning phase, the session host is now properly notified (and by extension the other players too)
- Fixed bug #1814; adjusted the *mass property* for HMMWVs and wooden fences to make M113s less vulnerable in fence collisions
- Resolved bug #1815
- Fixed bug #1816; the new 1st person (and weapon) view for IMG teams is now available in Network Sessions
- Fixed bug #1819; deployable objects (e.g. emplacements and bunkers) can now be moved by any team member during the planning phase – and this will be properly communicated to the other team members; normal reference points may now also be created and adjusted by network clients (before, only the highest ranking player could move them; this is still the case with artillery TRPs)
- Fixed bug #1820; unassigned assault bridge segments may now be moved within a deployment zone, but only by the highest ranking player (team leader) of a side
- Resolved bug #1821
- Resolved bug #1823
- Fixed bug #1824; when selecting the (dismounted troops') TOW launcher sight, the view will now properly move to the ocular
- Fixed bug #1828; added a tag to the script files to set the transport capacity for vehicles
- Fixed bug #1829; lateral movement of the T-72M1's primary sight during a reload phase on a sloped ground should no longer occur
- Fixed bug #1830; see entry for T-72M1
- Fixed bug #1831; in the Assembly Area (and other menus) the text boxes will now scale better with larger screen resolutions to accommodate the potentially longer unit callsigns
- Fixed bug #1832
- Fixed bug #1835; there were some odd camera positions and their transitions with HMG teams
- Fixed bug #1836; after customizing a hotkey, the CONTROLS dialog box will no longer jump back to the first entry
- Fixed bug #1844; for the T-72, with engine off, hydraulics (powered traverse and stabilization) are disabled now. The autoloader is also disabled. A human gunner may bring the gun into loading position using the hand cranks and then activate the loader by pressing the reload hotkey (the TC having to turn the carousel and to crank the round up manually is not simulated)
- Fixed bug #1846; adjusted the primary sight artwork of the T-72M1
- Fixed bug #1847; with coax selected from the commander's position, the player can now fire the main gun again when jumping into the gunner's place. This also fixed bug #1865
- Fixed bug #1849; synchronized the T-72's gun barrel elevation with the primary sight's analog range dial
- Fixed bug #1852; if the status of an infantry-transporting unit is changed (None/Blind/Impotent/Return fire only), this will also be applied to all mounted infantry units. Unloaded troops that were edited separately will retain their status when loaded afterwards
- Fixed bug #1853; The T-72 commander's battlesight order will no longer directly change the range value in the ballistic computer
- Fixed bug #1857; Esc keys of Norwegian Sidewinder keyboards are now kept warm and cozy
- Fixed bug #1860; If a human T-72M1 gunner now activates "HAND" mode on the loader's control panel, the gun will move into 'liquid lock' which I interpret as being frozen in the loading elevation, facing forward. If this switch is thrown while the gun is facing elsewhere, it will automatically move to the front using the max stabilized speed; Note that the gunner may not fire in this mode, only the TC may fire the 12.7mm HMG or coaxial PKT.
- Fixed bug #1862; when "Range" is pressed on the M1 interior's Computer Control Panel, the current range will now be displayed
- Fixed bug #1872; The T-72M1's 12.7mm HMG can only be reloaded if the player is NOT looking through its sight

- Fixed bug #1874; suspension damage no longer immobilizes tracked vehicles
- Fixed bug #1875 where in network sessions light MGs were rendered twice on client machines' troops
- Fixed bug #1878; As long as the player is looking through the T-72M1's 12.7mm HMG sights (and for a small grace period after that) the computer-controlled gunner will not slew the turret
- Fixed bug #1887; added a *Delete* button to the OFFLINE SESSION and AAR menus
- Fixed bug #1888; set the default value for *maximum scaled score* in the Score dialog box to 100
- Fixed bug #1889; added an AAR Event for the destruction of bridge segments; there is no indication why the segment may have collapsed (but the 3D world view should reveal that)
- Fixed bug #1890; computer-controlled T-72 gunners will now enable "liquid lock" while driving through a forest
- Fixed bug #1894; all ammo in self-propelled howitzers is now ready to be fired
- Fixed bug #1898; M966 (TOW HMMWV) can now raise or lower position for the missile gunner
- Fixed bug #1903; removed the (HOME) hotkey assignment from the autoloader on/off toggle. Players will have to click the corresponding button in the 3D interior
- Fixed bug #1904; some user interface inconsistencies with the CHALLENGER 2's thermal imaging system
- Fixed bug #1908; the T-72M1's ammo selection knob is now set correctly when a human jumps into the gunner's position
- Resolved bug #1909
- Fixed bug #1910; relocated a dialog box prompting for a scenario password that was partially off-screen (related to bug #1693 in version 2.601)
- Fixed bug #1916; disabled keyboard input for zoom and LOS height slider in the map editor
- Fixed bug #1924; the hotkey Num+ will no longer black out the sight if a missile has no thermal imager
- Fixed bug #1925; supply trucks now also deliver to ATGM teams
- Resolved bug #1927
- Fixed bug #1931; added minimum light levels 1%, 2%, 3% (default), 4% in the MISSION EDITOR
- Resolved bug #1934
- Fixed bug #1935 by adjusting the reticule color of the T-72M1 commander's 12.7mm HMG sight
- Fixed bug #1936; superelevation changes will now be applied faster to the T-72M1's gun barrel (and gunner's sight)
- Fixed bug #1937; while the gun is still empty at mission start, the T-72M1 will no longer show an "unknown" round loaded
- Fixed bug #1938; dismounted FOs now have their binoculars back, and may call for fire
- Fixed bug #1939; vehicles with large windows should now always render mounted troops
- Fixed bug #1940; smoke will now be generated from the CHALLENGER 2's hull rear, not just one side of it
- Fixed bug #1944 (updated the Credits text)
- Fixed bug #1945; 3D characters are now properly rendered in the 3D preview of the MISSION EDITOR
- Fixed bug #1946; UGVs can now be enabled (or disabled) through the vehicle unit's properties
- Resolved bug #1947
- Fixed bug #1948; when saving a plan, the file name will default to the scenario name for which the plan was made
- Will not fix bug #1950; teams of crew served heavy infantry weapons will not also lug around RPGs
- Fixed bug #1951; the M2/M3 BRADLEY's TOW launcher will now only be damaged if it is more than 75% raised and the vehicle speed exceeds 5km/h (this makes it a bit more forgiving if the player is late with the retraction of the launcher box)
- Fixed bug #1952; the M2/M3 BRADLEY's sound of raising or lowering the TOW launcher will now only be played when it should
- Resolved bug #1953
- Fixed bug #1954; no ghost steps will be heard any longer after the last dismount has been killed while running
- Will not fix bug #1956 because of bug fix for #1946 (see above)
- Fixed bug #1959; changed the view position for players commanding troops if they are mounted in CV90/40 vehicles
- Resolved bug #1963
- Will not fix bug #1964; embedding or linking to height maps cannot be decided automatically and will require a user decision

- Partially fixed bug #1965; adjusted the superelevation marks for the T-72's HE reticule with fixed values for the range bracket 4600...5000m
- Fixed bug #1967; mounted troops will now spawn together with their transport vehicles
- Fixed bug #1972 by adjusting the T-72M1's LRF circle position
- Fixed bug #1973 and added contemporary US uniforms
- Fixed bug #1974; improved the sights for the 40mm AGL
- Resolved bug #1977
- Fixed bug #1979; operators of crew served weapons will no longer also wield their personal assault rifle
- Fixed bug #1980; the computer should no longer irate users in a missile sight by nonchalantly firing the missile at an inopportune moment on some other target
- Fixed bug #1981; gunners of crew served weapons will no longer sink into the ground with the rest of the squad
- Resolved bug #1982
- Fixed bug #1983; corrected the roof hatch of all TPz Fuchs models
- Resolved bug #1984
- Fixed bug #1986; Infantry in buildings will now use their small arms
- Resolved bug #1987
- Fixed bug #1988; there will be no camera position adjustment when the user fires a missile from some missile launchers
- Resolved bug #1992
- Resolved bug #1995
- Resolved bug #1998
- Fixed bug #2000; PIRANHA-IIIC with PROTECTOR Remote Weapon Station will now engage targets
- Fixed bug #2001; HMG teams will default to the CAL .50, dismounted teams B to the 7.62mm MG3
- Fixed bug #2003; squads returning into their original IFVs will replenish their ammo stocks
- Fixed bug #2004; forward observer units are now armed with assault rifles only
- Fixed bug #2006; TOW missiles no longer mysteriously disappear
- Fixed bug #2007; adjusted the point of view for the BILL missile launcher's sight
- Fixed bug #2008; NZLAVs will now hit troops properly while positioned on a slope
- Fixed bug #2009; reduced the excessive spin of immobilized units that were hit in the side
- Resolved bug #2010
- Fixed bug #2014; BTR-80 and MT-LB will now close their hatches while swimming
- Fixed bug #2016; MILAN missiles now disappear after firing
- Fixed bug #2017; the Tiger should no longer overshoot targets with its unguided rockets
- Fixed bug #2018; no more overlapping text in the SCENARIO DEBUGGER
- Fixed bug #2019; fixed the assembly and disassembly sequence of BILL missile launcher modules
- Fixed bug #2020; no 3D character will block the view on the LEMUR gunner's screen
- Resolved bug #2021
- Resolved bug #2022
- Fixed bug #2025 by adding some Canadian camouflage
- Fixed bug #2026; grenade launcher teams will now fire their 40mm weapon if given the *Suppress...* command
- Fixed bug #2029 before it was even reported; adjusted the placement of infantry icons in scenarios with disabled automatic map updates
- Fixed bug #2035; issued winter camo suits to dismounts
- Fixed bug #2038; for old scenario files that were not modified by newer Steel Beasts versions in the meantime, dismounted squads will now retain their ammunition when loaded in the latest Steel Beasts version. However, there is no way how to automatically fix those scenarios that were modified with this (old) bug still in place. **Mission designers are advised to check their old scenario files** and see if the ammunition for rifle squads has disappeared
- Resolved bug #2042
- Resolved bug #2044
- Fixed bug #2050; the CV90/30-FI will now traverse the turret to the proper reload position if the human player leaves the gunner's place
- Fixed bug #2057; increased the turning speed of infantry by 250%

- Resolved bug #2058
- Fixed bug #2062; the BILL missile now reaches its full range
- Fixed bug #2068; ATGM, HMG and AGL gun sights move now more smoothly
- Fixed bug #2069 by reducing the volume of a gyro sound prior to TOW launch from the M966 HMMWV
- Fixed bug #2070; the M2/M3A2 BRADLEY commander can no longer override the gunner while a TOW missile is in flight. He may still launch a TOW missile while overriding the gunner. However, with human crews, if control is handed back to the gunner and the gunner at this time does not have palm switches pressed, or is in low magnification, the missile will immediately abort
- Fixed bug #2071; M901 ITV launcher will now automatically rotate 180° when raising
- Fixed bug #2072; in the M901 ITV gunner's position the vision block view now only allows view towards the launcher's facing
- Fixed bug #2073; Launcher damage will now prevent computer-controlled M901s to stow their hammer-head launcher assemblies
- Fixed bug #2076; in the gunner's position of the M1A1 ABRAMS, a leading zero will no longer be shown while entering a manual range into the computer control panel
- Fixed bug #2077; changing the callsign of a personnel carrier will now also change the designation of a loaded squad
- Fixed bug #2078; see entry for #1341
- Fixed a rather subtle bug #2085 in the *GetMaxAmmoRange* function
- Fixed bug #2084; in the MISSION EDITOR, the night vision equipment settings for PCs and IFVs now also applied to mounted troops
- Fixed bug #2086; the CENTURION has now a centralized smoke exhaust
- Fixed bug #2087 by fixing bug #2088; in network sessions infantry weapon teams can no longer fire their MGs on the move
- Fixed bug #2088; infantry weapon teams can no longer pack up or deploy their weapons with zero time delay in network sessions
- Fixed bug #2090; ownership of infantry weapon teams should now be more consistent in network sessions if two players in the assembly hall take position with squads of the same platoon
- Fixed bug #2093; FIST-Vs now dismount FO teams, not rifle troops
- Resolved bug #2094 as invalid
- Fixed bug #2100; UGV settings for team A are now consistent with the carrying PC vehicles' settings
- Fixed bug #2101; re-sorted the bridges in the MAP EDITOR
- Fixed bug #2102 by implementing a different method for helicopters to sense their height above ground
- Fixed bug #2103; the T-72 commander now must be down in the turret and the coax must not have been fired for six seconds in order to successfully reload the PKT
- Fixed bug #2107; even waypoints with assigned tactics will now disappear (be shown in Yellow for the mission designer and Instructor Host) if they have been marked "invisible"
- Fixed bug #2108; helicopters will now sense their flight height correctly also on high resolution elevation maps
- Fixed bug #2109; adjusted the depth limit to which infantry can sink into the ground to accommodate the size differences between the old sprite soldiers and the new 3D characters
- Fixed bug #2116; split PC platoons will now merge correctly, even with troops loaded
- Fixed bug #2117; loading a PLN file will no longer mess up Jump route conditions
- Fixed bug #2118; if bunkers are re-oriented during the planning phase (while in a deployment zone), occupying infantry will now also adjust their facing when taking position
- Fixed bug #2121; there's no longer a magical sound transmission from the transport vehicle to its dismounts
- Fixed bug #2122; despite turret drive damage, the T-72 TC's cupola will no longer slow down in its rotation speed

2. 552 (official patch release)