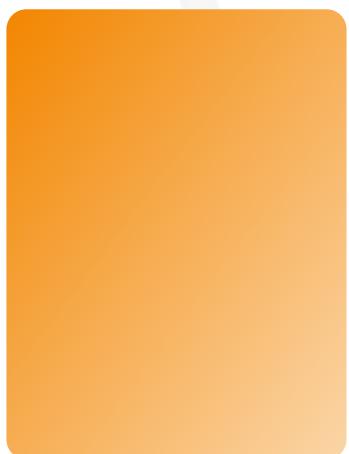


Release Notes



VBS4 24.1.1



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- support@bisimulations.com

Our website contains a range of media and handouts relating to Bohemia Interactive Simulations products:

- <http://www.bisimulations.com/>

The BISim Wiki is the primary resource on VBS4 scripting:

<https://sqf.bisimulations.com/display/SQF/VBS+Scripting+Reference>

PhysX

VBS4 uses the PhysX physics engine. For more information on PhysX visit the Nvidia site.

<https://gameworksdocs.nvidia.com/simulation.html>



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1. VBS4 Release Notes 24.1

Bohemia Interactive Simulations continues to actively develop VBS4 with customer-specific projects enhancing the baseline for all customers, plus internal initiatives to constantly improve and enhance the capabilities of VBS4, its components, and associated tools - all aimed at providing the ideal platform for your training needs.

Bohemia Interactive Simulations has released the following versions and updates for VBS4 24.1.

Version	Major Features
24.1.0	General release for all customers.
24.1.1	Patch release with issue fixes for specific customer issues.

VBS4 24.1.0 introduces the following new features:

- Significant AI changes that deliver a single enhanced and more capable AI system, using Control AI.

For more information, see [One AI \(on page 13\)](#).

- Additional miscellaneous AI improvements and enhancements.

For more information, see [AI Improvements \(on page 18\)](#).

- Bohemia Interactive Simulations introduces a new product licensing model for system integrators and simulation developers.

For more information, see [VBS Builder Edition \(on page 21\)](#).

- VBS Geo includes a new Building mode, to create buildings with custom footprints using a range of regional buildings.

For more information, see [Building Editor \(on page 22\)](#).

- ORBAT Editor UI enhancements and a new ORBAT Formations Editor.

For more information, see [ORBAT Editor UI Enhancements \(on page 23\)](#).

- Drone munitions.

For more information, see [Drone Munitions \(on page 24\)](#).

- First-Person View (FPV) Drones.

For more information, see [First-Person View \(FPV\) Drones \(on page 25\)](#).

- Knife attacks and gestures.

For more information, see [Knife Attacks and Gestures \(on page 26\)](#).

- Carrying of amputated limbs.

For more information, see [Retrieve and Carry Amputated Limbs \(on page 27\)](#).

- VBS4 Settings UI and functionality enhancements.

For more information, see [Enhanced VBS4 Settings \(on page 28\)](#).

This VBS4 release also includes:

- [VBS Geo Improvements 24.1 \(on page 29\)](#)
- [VBS World Server Improvements 24.1 \(on page 31\)](#)
- [New Content in VBS4 24.1 \(on page 34\)](#)
- [Geo Project Versioning \(on page 38\)](#)
- [Additional Enhancements \(on page 42\)](#)

VBS4 24.1 also resolves a number of issues. For more information, see:

- [Product Maintenance \(on page 50\)](#)

This release includes a number of [VBS4 Known Issues and Limitations \(on page 477\)](#).

1.1 One AI

VBS4 introduces significant AI changes and enhancements as part of the One AI initiative.

The One AI initiative replaces the VBS4 legacy Game AI with a single enhanced and more capable Control AI, which will continue to evolve in future releases of VBS4. The main change consists of the Control AI order / waypoint system, which replaces the Game AI one.

Also, the SQF commands and functions, previously compatible only with Game AI, such as waypoint commands, have been updated to work with Control AI.

For a full list of SQF commands and functions that now work with Control AI, see [Commands and Functions Compatible with Control AI](#)

(<https://sqf.bisimulations.com/display/SQF/Control+AI#ControlAI-CommandsandFunctionsCompatiblewithControlAI>).

For a full list of SQF commands and functions that temporarily do not work with Control AI, see [Commands and Functions Not Compatible with Control AI](#)

(<https://sqf.bisimulations.com/display/SQF/Control+AI#ControlAI-CommandsandFunctionsNotCompatiblewithControlAI>).

For specific differences between Game AI and Control AI behaviors, and / or other Control AI specific aspects, when using some of these SQF commands and functions, see [AI Parity](#) (<https://sqf.bisimulations.com/display/SQF/AI+Parity>).

For additional AI improvements other than One AI, see [AI Improvements \(on page 18\)](#).

Automatic Battlespace Conversion

When loading Battlespaces, VBS4 automatically converts any legacy Game AI waypoints to their closest equivalent Control AI waypoints. For more information, see Waypoints in the VBS Control AI Manual.

Confirm that the Battlespace still works as expected and save it to make the changes permanent.

If your Battlespace makes use of scripting for AI, check the commands used against the list of commands supported by Control AI (see [Commands and Functions Compatible with Control AI](#) (<https://sqf.bisimulations.com/display/SQF/Control+AI#ControlAI-CommandsandFunctionsCompatiblewithControlAI>) and [Commands and Functions Not Compatible with Control AI](#) (<https://sqf.bisimulations.com/display/SQF/Control+AI#ControlAI-CommandsandFunctionsNotCompatiblewithControlAI>)). In the event that you use scripting commands that are not supported by Control AI, verify the functionality of your Battlespace, and update the scripting as necessary.

The following legacy Game AI VBS4 features have been permanently removed from VBS4:

Artificial Intelligence Simulation Settings

The following Artificial Intelligence Simulation Settings (see the VBS4 Administrator Manual) were removed:

- AI Voices
- Auto Report
- BLUFOR Surrender
- INDEPENDENT Surrender
- Long Term Morale

- Morale Simulation
- OPFOR Surrender
- Strong Morale
- Super AI

These settings will be replaced by other features in future releases of VBS4.

Game AI Waypoints

All Game AI waypoints were removed, and replaced by Control AI ones - see Waypoints in the VBS Control AI Manual.

The following table specifies the Game AI waypoint and the matching Control AI Order replacement (see the respective Orders in the VBS Control AI Manual):

Game AI Waypoint	Replacement	Comment
Cycle	Create Cycle	See Waypoints in the VBS Control AI Manual.
Destroy	Pursue Order	Partial support, full support in future VBS4 releases.
Dismissed	None	Removed
Get In	Mount Order	
Get In Nearest	Mount Order	
Get Out	Dismount Order	
Guard	Defend Order	
Hold	Defend Order (Guard)	Partial support, full support in future VBS4 releases.
Join	Return to Formation Order	The Return to Formation Order Control AI waypoint is different from the Join Game AI waypoint, and may require additional Battlespace modifications, depending on the scenario needs.
Join and Lead	Return to Formation Order	The Return to Formation Order Control AI waypoint is different from the Join and Lead Game AI waypoint, and may require additional Battlespace modifications, depending on the scenario needs.
Land	Land Order	Partial support, full support in future VBS4 releases.
Load	Mount Order	Partial support, full support in future VBS4 releases.
Loiter	Loiter Order	Partial support, full support in future VBS4 releases.
Move	Advance Order Fly Order	

Game AI Waypoint	Replacement	Comment
Retreat	Advance Order	Partial support, full support in future VBS4 releases.
Scripted	None	Removed
Seek and Destroy	Pursue Order	
Sentry	Defend Order (Guard)	Partial support, full support in future VBS4 releases.
Support	Suppress Order	
Talk	None	Removed
Transport Unload	Dismount Order	Partial support, full support in future VBS4 releases.
Unload	Dismount Order	Partial support, full support in future VBS4 releases.

VBS4 Features

The following VBS4 features, previously compatible with Game AI, are either currently / temporarily disabled or partially supported for Control AI, and will either be re-enabled or equivalent functionality will be added in future versions of VBS4:

Feature	Description
Active Protection System (APS) Editor Object	Turret manipulation by a Control AI vehicle crew is unsupported on APS-enabled vehicles. For more information, see Active Protection System in the VBS4 Editor Manual.
AI Rules of Engagement Editor Object	The AI Rules of Engagement Editor Object Move Options only support the Full option for Control AI. Also, the Stance options are not supported for Control AI. For more information, see AI Rules of Engagement in the VBS4 Editor Manual.
Airstrike Editor Object	The Airstrike Editor Object is disabled for Control AI.
Bomb Detection Dog (MWD)	The Bomb Detection Dog / Military Working Dog (MWD) can only be controlled by players, but not Control AI. For more information, see Bomb Detection Dog (MWD) in the VBS4 Trainee Manual.
Camera Editor Object	It is not possible to record the Camera Editor Object waypoints path using the Record to Disk? option. For more information, see Camera Editor Object in the VBS4 Editor Manual.

Feature	Description
Close Air Support (CAS) Editor Object	Using helicopters for CAS may currently result in unexpected behavior of the aircraft, especially over uneven terrain. For more information, see Close Air Support in the VBS4 Editor Manual.
Command Menu	Not all the First / Third Person Command Menu options are supported for Control AI. For the currently available Command Menu options, see Commanding Subordinates in the VBS4 Trainee Manual.
Complex Animations Editor Object	The Complex Animations Editor Object is disabled for Control AI. Some animations may be achieved by using the Control AI - Activity Editor Object - see Defining Responsive Behavior in the VBS Control AI Manual, or by using custom behaviors - see Custom Behaviors in the VBS Control AI Manual.
Concussion Effects Editor Object	It is not possible to use the Concussion Effects Editor Object with waypoints. For more information, see Concussion Effects in the VBS4 Editor Manual.
Fast Rope	The Fast Rope Editor Object is disabled for Control AI. For more information, see Fast Rope in the VBS4 Editor Manual.
Fire Support	The entities providing fire support cannot follow the waypoints after the fire support is completed. For more information, Fire Support in the VBS4 Instructor Manual.
Flee Point Editor Object	The Flee Point Editor Object is disabled for Control AI. Instead, use the Control AI - Activity Editor Object - see Defining Responsive Behavior in the VBS Control AI Manual.
Formation Editor	The real-time (Preview / Execute mode) Formation Editor is currently disabled for Control AI. Use the ORBAT Formations Editor (see the VBS4 Editor Manual) in Prepare mode instead.
Game AI Waypoints	<p>Game AI waypoints currently with no Control AI equivalents:</p> <ul style="list-style-type: none"> • Repair • Taxi <p>Game AI waypoint settings currently not present in Control AI waypoints:</p> <ul style="list-style-type: none"> • Timeout <p>For more information, see Waypoints in the VBS Control AI Manual.</p>
LCAC	The LCAC Transport Hovercraft cannot be used by Control AI. For more information, see LCAC Transport Hovercraft in the VBS4 Trainee Manual.
MEDEVAC	Only possible with rotary-wing aircraft - see Request MEDEVAC / CASEVAC in the VBS4 Trainee Manual.
Mission Briefing	The Mission Briefing (see Mission Briefings in the VBS4 Editor Manual) does not display waypoints.
Observe Sector	Commanding units to observe a sector cannot be used with Control AI. For more information, see Suppress Area in the VBS4 Trainee Manual.

Feature	Description
Sandstorm Editor Object	It is not possible to use the Sandstorm Editor Object with waypoints. For more information, see Sandstorm in the VBS4 Editor Manual.
Skydiving	Control AI units cannot use parachutes. For more information, see Skydiving in the VBS4 Trainee Manual.
Surrender Editor Object	The Surrender Editor Object has some limitations for Control AI. For more information, see Surrender in the VBS4 Editor Manual.
Unit Psychological Settings	The following unit psychological settings (see Adding Units in the VBS4 Editor Manual) are unavailable to Control AI: <ul style="list-style-type: none">• Training• Navigation• Experience• Leadership• Fleeing Chance
Unit Swimming	Control AI units cannot swim. For more information, see Underwater Diving in the VBS4 Trainee Manual.
Weapon Simulation	The following weapon simulation is partially supported / unsupported for Control AI usage: <ul style="list-style-type: none">• AT Missiles (Guided) (partially supported)• SAM (Man-Portable) (unsupported)• SAM (Vehicle) (unsupported)• Air To Ground Systems (partially supported)• Laser Designator (Control AI units cannot engage laser-designated targets - see Laser Designator in the VBS4 Trainee Manual)

1.2 AI Improvements

Apart from the main AI changes for [One AI \(on page 13\)](#), the following AI improvements were introduced:

- [Aircraft Support \(below\)](#)
- [Land and Sea Forces Support \(on the next page\)](#)
- [Other AI Workflow and Functional Improvements \(on the next page\)](#)

1.2.1 Aircraft Support

Control AI now supports rotary-wing and fixed-wing aircraft.

Fixed-Wing and Rotary-Wing Orders

It is now possible to assign AI Order waypoints to fixed-wing and rotary-wing aircraft:

- Fly Order - The existing Fly Order was expanded to be used with rotary-wing and fixed-wing aircraft.
- Land Order - The new Land Order can be used with rotary-wing aircraft.
- Loiter Order - The new Loiter Order can be used with fixed-wing aircraft.
- Mount Order - The Mount Order can now be used with rotary-wing aircraft.
- Dismount Order - The Dismount Order can now be used with rotary-wing aircraft.

For more information, see the respective Orders in the VBS Control AI Manual.

Rotary-Wing UAVs

Control AI now supports rotary-wing UAVs. It is possible to give UAVs a Fly Order, which allows them to fly to a specific location, and hover above it.



For more information on usage and limitations, see Aircraft AI in the VBS Control AI Manual.

Also, new Actor Velocity Control AI visualizations were introduced for rotary-wing vehicles (currently, only UAVs). For more information, see Actor Velocity in the VBS Control AI Manual.

1.2.2 Land and Sea Forces Support

The following Orders, used by land and sea forces, have been enhanced.

- Advance Order - In addition to land vehicles, the Advance Order can now be used with watercraft.
- Pursue Order - An ability to assign targets to pursue.
- Mount Order - The Mount Order can now be used with watercraft. Also, it is now possible to assign vehicles for units to mount.
- Dismount Order - The Dismount Order can now be used with watercraft.
- Tactical Move Order - The new Tactical Move Order can be used with infantry groups to perform tactical move maneuvers by specifying a given stance, formation, and a maximum range to engage enemy forces at.

For more information, see the respective Orders in the VBS Control AI Manual.

1.2.3 Other AI Workflow and Functional Improvements

The following other AI workflow and functional improvements were introduced:

- Renamed the **Control AI - Waypoints** Editor Object to **(F3) Waypoints** in the Editor Objects List, allowing it to be quickly selected using the **(F3)** key.

For more information, see Using Editor Objects in the VBS4 Editor Manual.

- The **Control AI - Custom** Editor Object was incorporated into the **(F3) Waypoints** Editor Object.

For more information, see Custom Behaviors in the VBS Control AI Manual.

- All AI Orders now have the **Variable Name** setting, which allows using the Order waypoints in SQF scripts.

For more information, see (F3) Waypoints Editor Object in the VBS Control AI Manual.

- Control AI now supports interoperability, where groups and sub-groups can execute different behaviors in parallel.

For more information, see Interoperability Tutorial in the VBS Control AI Manual.

- Control AI can now be realistically affected by conditions of reduced visibility when engaging the enemy, and use optical imaging devices (such as for thermal imaging or night vision) for assistance in such conditions.

For more information on adding / modifying the unit equipment loadout, see Edit Equipment Loadout and Optical Imaging Devices in the VBS4 Editor Manual.

- The Command Menu, previously inapplicable to Control AI, was enabled for Control AI subordinates, to a limited extent.

For more information, see Commanding Subordinates in the VBS4 Trainee Manual.

- New SQF functions to create, modify, and assign Control AI waypoints.

 **WARNING**

These SQF functions and their parameters are experimental and subject to change in future releases of VBS4.

For more information, see Waypoint Functions and Parameters in the VBS Control AI Manual.

1.3 VBS Builder Edition

VBS Builder Edition is a full-featured simulation development platform that makes it easier for systems integrators and developers of complex simulation solutions to build and deploy their capabilities faster and at lower costs to serve the critical needs of their defense customers.

It is built around VBS to enable customers to create any imaginable scenario in customizable environments anywhere in the world. VBS Builder Edition enables developers to create distributed simulations quickly and supports developing any simulated system within a high-fidelity virtual world.

To get started, developers can subscribe to the VBS Builder Edition at a low cost per seat, install it on their computer, purchase a certified development laptop from Bohemia Interactive Simulations, and begin coding immediately.

Developers can collaborate by joining the [VBS Builder Forums](http://forums.bisimulations.com/) (<http://forums.bisimulations.com/>), or opt into our support subscription, getting access to Bohemia Interactive Simulations support staff to expedite deployment. They can also become Bohemia Interactive Simulations partners, take the lead on delivering VBS to their end users, and generate revenue for their enterprise.

A VBS Builder Edition seat license includes:

- VBS4 for development use only, including all components.
- VBS Simulation SDK
- VBS Developer Suite

For more information, see:

- VBS Components and Products in the Introduction to VBS4 Guide
- <https://bisimulations.com/products/vbs-builder-edition>

★ FEATURE NOTICE

To learn more about VBS Builder Edition features, support options, and partnership opportunities contact sales@bisimulations.com.



1.4 Building Editor

VBS Geo now includes a new tool to create and edit extruded buildings. This tool allows users to place building footprints that extrude to quickly generate free-form buildings. Extruded buildings have automatic visual templates based on the size and height, and also includes the ability to set their attributes.

The **Building Tools** can also modify procedural buildings generated from World Data, and some buildings placed in Insets.

The Building Editor features a simple user interface to place the building footprint, including right-angle snapping, select the building model, and then specify attributes such as the number of floors and the roof color.

VBS Geo includes a Building Library with a variety of different building types from around the world. Alternatively, use Automatic to select an appropriate building for the location of your Battlespace.

Buildings can further be customized by using Courtyards to create cut-out shapes in the building footprint.

For more information, see Placing and Editing Buildings in the VBS Geo Manual.

Image-1: View of San Francisco showing region appropriate buildings



1.5 ORBAT Editor UI Enhancements

The ORBAT Editor UI has been enhanced with the following:

- A right-hand side panel that allows for easier and faster ORBAT customization.
- Faster ORBAT placement from the Editor Objects List in the VBS Editor, using the **(F9)** key.
- A new ORBAT Formations Editor that allows you to interactively customize your formations in the 2D Map View.

Image-2: New ORBAT Editor UI

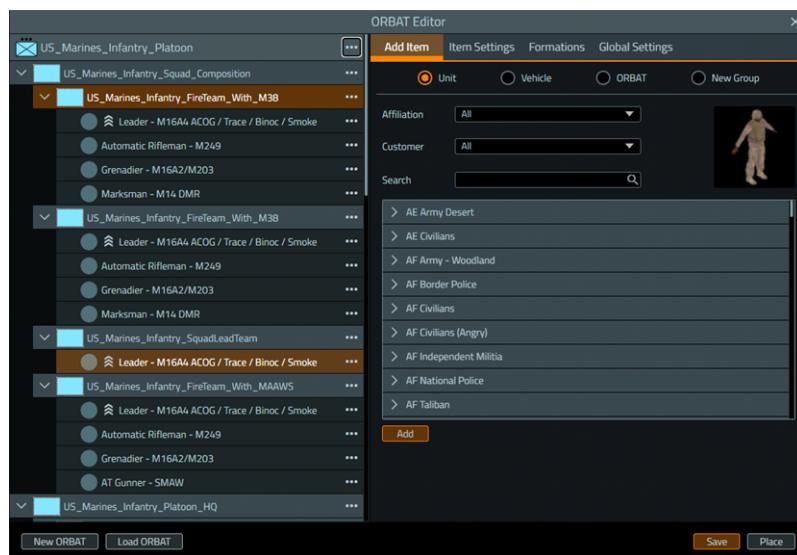
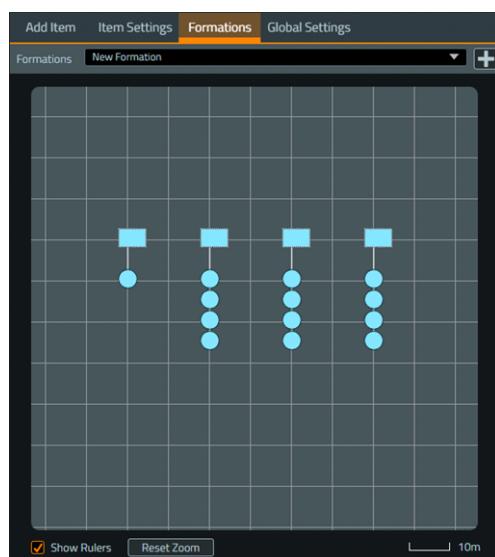


Image-3: New ORBAT Formations Editor



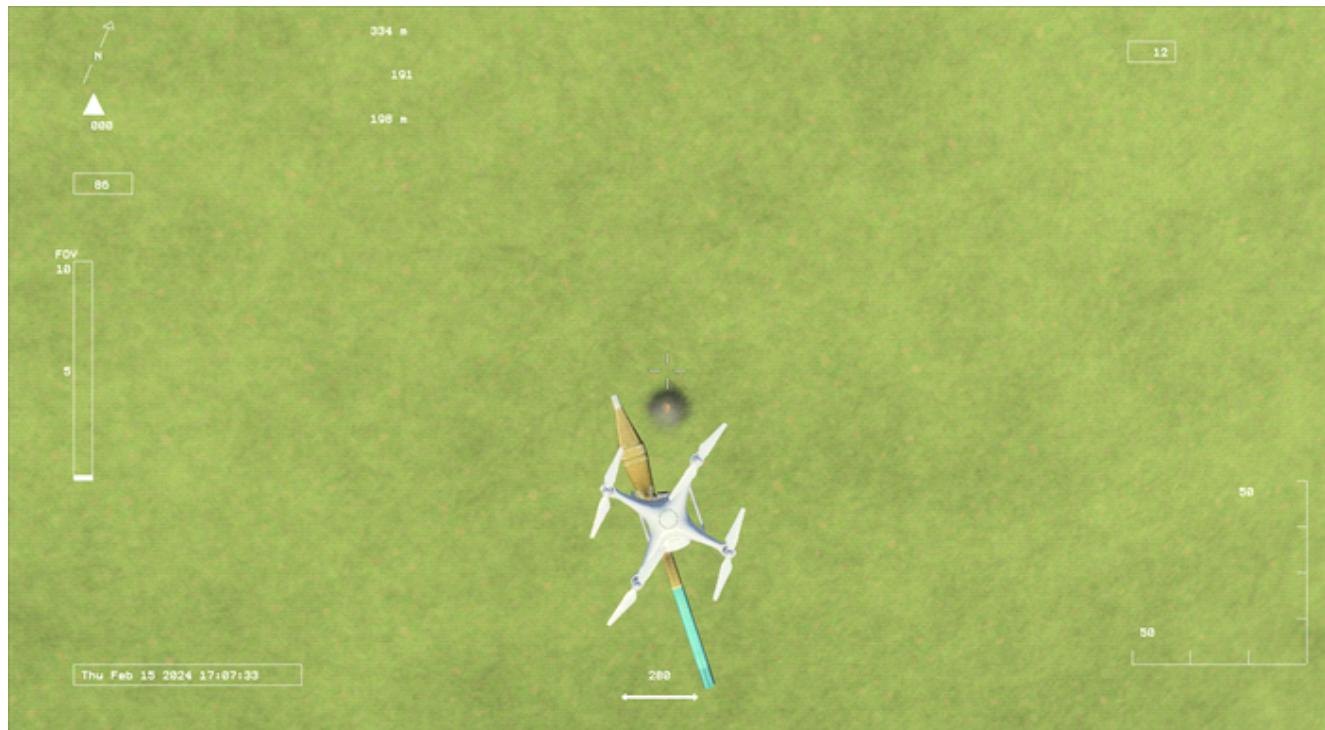
For more information, see the following topics in the VBS4 Editor Manual:

- ORBAT Editor
- ORBAT Formations Editor

1.6 Drone Munitions

VBS4 now enables you to attach munitions to UAVs (usually, quadcopter drones) using the **Improvised Drone Munitions** Editor Object. Once attached to a drone, munitions can be dropped on enemy targets or detonated on impact by flying a drone (with munitions attached) directly at a target.

Image-4: Phantom 4 drone dropping munitions



For more information, see Drone Munitions in the VBS4 Editor Manual and Drone Munitions Simulation in the VBS4 Trainee Manual.

1.7 First-Person View (FPV) Drones

VBS4 now includes a First-Person View (FPV) Drone. This type of drone offers a "bird's-eye view" of its surroundings, meaning that pilots using an FPV Drone see exactly what the drone sees, as opposed to the pilot on the ground perspective of traditional drones. In VBS4, FPV Drones are typically operated using a Microsoft Xbox controller, or similar.

Image-5: FPV Drone in VBS



For more information, see First-Person View (FPV) Drones in the VBS4 Editor Manual and First-Person View (FPV) Drones Simulation in the VBS4 Trainee Manual.

1.8 Knife Attacks and Gestures

VBS4 now has realistic knife handling and gestures to enable knife attack simulations. This functionality is useful, for example, when creating terrorist incident scenarios in urban environments.

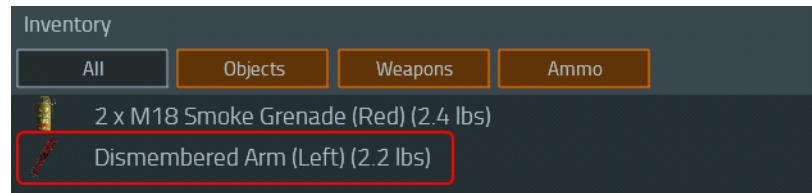


For more information, see Knife Attacks and Gestures in the VBS4 Trainee Manual.

1.9 Retrieve and Carry Amputated Limbs

Amputated limbs can now be retrieved and carried by units other than the injured unit and, for example, placed in vehicles. They are handled using the 3D World Actions / Equipment Inventory interface.

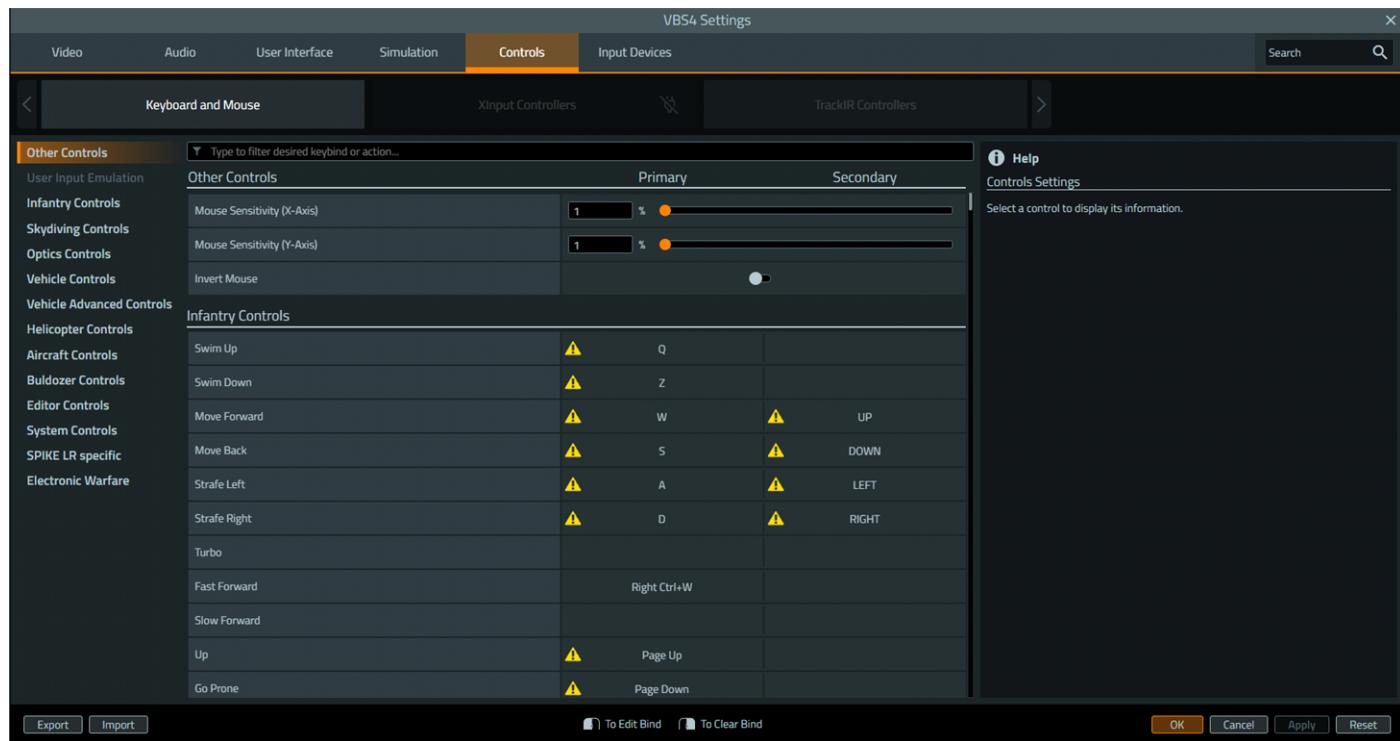
Image-6: Amputated limb in the Equipment Inventory



For more information, see Carry Amputated Limbs in the VBS4 Editor Manual.

1.10 Enhanced VBS4 Settings

The VBS4 Settings have been enhanced.



The enhancements include:

- New UI for the User Interface, Simulation, Controls, and Input Devices Settings.
- Controls Settings have sub-tabs for controller types: Keyboard and Mouse, XInput Controllers, TrackIR Controllers, DirectX Controllers (the sub-tab appears only when DirectX devices are connected to the VBS4 computer).
- Additional Input Devices Settings tab for generic / miscellaneous input-device options.
- VBS4 Settings import and export options.
- VBS4 Settings reset functionality for all Settings tabs.

For more information, see VBS4 Settings in the VBS4 Administrator Manual.

1.11 VBS Geo Improvements 24.1

VBS4 includes the following improvements to VBS Geo in this release:

- [General Improvements \(below\)](#)
- [Geo Project Version \(below\)](#)
- [Model Placement Improvements \(below\)](#)
- [Building Placement Improvements \(below\)](#)
- [Road Improvements \(on the next page\)](#)

1.11.1 General Improvements

- The **Library** and **Tool** dialogs (e.g., **Model Library** and **Model Tool Options**) have been reordered in the user interface so that the **Library** dialog is at the top.

1.11.2 Geo Project Version

- The Geo Project version used in VBS Geo 24.1 has changed to Geo Project version 1.4 to support expanded 128-bit object IDs. As a result, VBS Geo 24.1 projects are backwards incompatible with earlier versions of VBS Geo. For more information, see [Geo Project Versioning](#) in the VBS Geo Manual.

1.11.3 Model Placement Improvements

- Fifty-one new Linear Presets have been added to the **Linear Model Placement Library**. The majority of these new linears are new types of fences and walls.
- New search refinement operators have been added to VBS Geo to allow for specific searches of the **Model Library**.

1.11.4 Building Placement Improvements

- VBS Geo now includes a new tool to create and edit extruded buildings. This tool allows users to place building footprints that extrude to quickly generate free-form buildings. Extruded buildings have automatic visual templates based on the size and height, and also includes the ability to set their attributes. For more information, see [Building Editor \(on page 22\)](#) in the VBS Geo Manual.

1.11.5 Road Improvements

- The VBS Geo Road Editor now allows for roads to be converted from surface-bound roads into bridges and raised road decks. The roads can be converted into bridges and vice versa via the **Bridge** tool toggle button at the top of the **Road** mode interface for both **Road Place** and **Road Edit** tools. For more information, see Bridges in the VBS Geo Manual.
- The VBS Geo Road Editor Library now allows for the creation of custom road presets. These are user-created and share lists of attributes that define a road's visual and functional use. Custom road presets can be created from both new and existing roads. These presets can then be used to create new roads with the attributes used in the custom road preset. Additionally road attribution can be copied from one road (**Ctrl + C** or **Copy** in the context menu) and pasted onto another (**Ctrl + Shift + V** or **Paste Attributes** in the context menu).

1.12 VBS World Server Improvements 24.1

VBS World Server 24.1 contains the following improvements:

- [General \(below\)](#)
- [VBS World Server User Interface \(on the next page\)](#)
- [Terrain Conversion Tool \(on the next page\)](#)
- [Terrain Insets \(on the next page\)](#)
- [World Data \(on page 33\)](#)

1.12.1 General

- Cybersecurity improvements have been made, reducing vulnerabilities in VBS World Server.
- The GeoServer used by VBS World Server has been updated from version 2.13.2 to version 2.24.1.
- A Debug Mode has been added to VBS World Server for troubleshooting failed actions. For more information, see [Debug Mode in VBS World Server](#) in the [VBS World Server Manual](#).
- User-created insets can now be downloaded as a zip for use in other VBS World Server or VBS4 instances. For more information on downloading terrain insets, see [Data Management](#) in the [VBS World Server Manual](#). For more information on using the terrain insets with VBS World Server or VBS4, see [Using Downloaded VBS World Server Insets](#) in the [VBS World Server Manual](#).
- Improvements were made to the **Updater.exe** to more reliably install updates while VBS World Server is configured.
- Models now immediately stream following the conclusion of an import process.
- If an inset is created with the same name as an existing inset, the inset name will automatically increment (e.g., *Hohenfels_2*).
- Inset content data is now organized into subfolders as follows:
`<Installation>\Services\VBS4\myData\Blue\content\<insetname_content>`.
- A bug was fixed with `vws_stop.exe` that prevented a VBS World Server executable from stopping as expected.

1.12.2 VBS World Server User Interface

- The VBS World Server **Toolbar** now has a **Help** button that links to the VBS World Server User's Manual in the default web browser.
- The **Information Panel** now displays the VBS World Server build version installed on the server.
- The **Status Panel** now displays the remaining disk space for the drive on which VBS World Server is installed.
- The **Inset List Sorting** menu in the **Data Management** tab now has **Ascending** and **Descending** options for sorting.
- The **_VBS3hgt.tif** data layer now appears in the **Terrain Layers Panel**.
- The **Clear Caches** function now restores all services to their state before the cache clearing was initiated.
- A limit was added to the **Globe View** in the **Data Management** tab for zooming out on the globe.
- A bug was fixed that caused the browser version of the VWS Management page to become unresponsive after a period of inactivity.
- A bug was fixed that caused display issues with inset labels in the **Globe View** of the **Data Management** tab.
- Improvements were made to the information reported by the VWS management executables.

1.12.3 Terrain Conversion Tool

- The Terrain Conversion Tool now uses the correct server port numbers.
- Buildings generated by the Terrain Conversion Tool should now draw farther out in VBS runtimes.

1.12.4 Terrain Insets

- A new terrain inset, Beale Air Force Base, California, was added as a baseline terrain inset. This airfield inset contains high-resolution representations of airfield surfaces, markings, signage, lighting, and custom airfield structures, and contains a high-resolution surface mask and imagery. For more information, see Beale Air Force Base Inset in the VBS World Server Manual.

1.12.5 World Data

- The World Data now includes an optional global airfields package consisting of over 9,000 regional and international airfields scattered throughout the world. The airfields contain paved surfaces, accurate paint markings, realistic navigational light models, and updated heightmaps and surface masks for each inset. For more information, see Download VBS4 and World Airfields in the VBS4 Deployment Guide.

1.13 New Content in VBS4 24.1

VBS4 24.1 includes the following new content:

Name	Type / Category	Classname
T-72	Vehicle	bisim_dt_ru_army_uvz_t72_tan_x
T-72A	RU Army Tracked	bisim_dt_ru_army_uvz_t72_grn_x
T-72B	- Desert	bisim_dt_ru_army_uvz_t72a_tan_x
T-72B3	- Woodland	bisim_dt_ru_army_uvz_t72a_grn_x
T-72B3M 2016		bisim_dt_ru_army_uvz_t72b_tan_x
T-72B3M 2022		bisim_dt_ru_army_uvz_t72b_grn_x
T-72M		bisim_dt_ru_army_uvz_t72b3_tan_x bisim_dt_ru_army_uvz_t72b3_grn_x bisim_dt_ru_army_uvz_t72b3m2016_tan_x bisim_dt_ru_army_uvz_t72b3m2016_grn_x bisim_dt_ru_army_uvz_t72b3m2022_tan_x bisim_dt_ru_army_uvz_t72b3m2022_grn_x bisim_dt_ru_army_uvz_t72m_tan_x bisim_dt_ru_army_uvz_t72m_grn_x
Orlan-10 UAS	Vehicle Unmanned Vehicles	bisim_dt_ru_af_stc_orlan10_gry_x
Boxer - RWS GMG	Vehicle	bisim_dt_gb_army_boxer_apc_tan_l134a1_x
Boxer - RWS L2A1	GB Army Wheeled	bisim_dt_gb_army_boxer_apc_grn_l134a1_x
Boxer - RWS L7A2	- Desert	bisim_dt_gb_army_boxer_apc_tan_l134a1_javelin_x
	- Woodland	bisim_dt_gb_army_boxer_apc_grn_l134a1_javelin_x bisim_dt_gb_army_boxer_apc_tan_l2a1_x bisim_dt_gb_army_boxer_apc_grn_l2a1_x bisim_dt_gb_army_boxer_apc_tan_l2a1_javelin_x bisim_dt_gb_army_boxer_apc_grn_l2a1_javelin_x bisim_dt_gb_army_boxer_apc_tan_l7a2_x bisim_dt_gb_army_boxer_apc_grn_l7a2_x bisim_dt_gb_army_boxer_apc_tan_l7a2_javelin_x bisim_dt_gb_army_boxer_apc_grn_l7a2_javelin_x

Name	Type / Category	Classname
CH-53G	Vehicle	bisim_dt_de_army_sikorsky_ch53g_wdl_x
CH-53GA	DE Army Air	bisim_dt_de_army_sikorsky_ch53g_medic_wdl_x
CH-53GS		bisim_dt_de_army_sikorsky_ch53ga_wdl_x bisim_dt_de_army_sikorsky_ch53ga_medic_wdl_x bisim_dt_de_army_sikorsky_ch53gs_oli_x bisim_dt_de_army_sikorsky_ch53gs_medic_oli_x
H145M	Vehicle DE Army Air	bisim_dt_de_army_airbus_h145m_gry_x
H145 Civil	Vehicle Generic Civilian Air	bisim_dt_de_civ_airbus_h145_yel_x
Wiesel 1 A1 MK	Vehicle	bisim_dt_de_army_wiesel1a1_mk20_des_x
Wiesel 1 A1 TOW	DE Army Tracked - Desert - Winter - Woodland	bisim_dt_de_army_wiesel1a1_mk20_win_x bisim_dt_de_army_wiesel1a1_mk20_wdl_x bisim_dt_de_army_wiesel1a1_tow_des_x bisim_dt_de_army_wiesel1a1_tow_win_x bisim_dt_de_army_wiesel1a1_tow_wdl_x
Wiesel 2 AFF	Vehicle	bisim_dt_de_army_rme_wiesel2_ads_radar_des_x
Wiesel 2 Ozelot	DE Army Tracked - Desert - Winter - Woodland	bisim_dt_de_army_rme_wiesel2_ads_radar_win_x bisim_dt_de_army_rme_wiesel2_ads_radar_wdl_x bisim_dt_de_army_rme_wiesel2_ads_launcher_des_x bisim_dt_de_army_rme_wiesel2_ads_launcher_win_x bisim_dt_de_army_rme_wiesel2_ads_launcher_wdl_x
Gepard 1A2	Vehicle DE Army Tracked - Desert - Winter - Woodland	bisim_dt_de_army_kmw_gepard1a2_des_x bisim_dt_de_army_kmw_gepard1a2_win_x bisim_dt_de_army_kmw_gepard1a2_wdl_x
PzH2000	Vehicle DE Army Tracked - Desert - Winter - Woodland	bisim_dt_de_army_kmw_pzh2000_des_x bisim_dt_de_army_kmw_pzh2000_win_x bisim_dt_de_army_kmw_pzh2000_wdl_x

Name	Type / Category	Classname
Duro	Vehicle DE Army Wheeled - Desert - Winter - Woodland	bisim_dt_de_army_duro_yak6x6_des_x bisim_dt_de_army_duro_yak6x6_win_x bisim_dt_de_army_duro_yak6x6_wdl_x
Eagle IV	Vehicle	bisim_dt_de_army_mowag_eagle4_flw100_des_mg3_x
Eagle IV Medic	DE Army Wheeled - Desert - Winter - Woodland	bisim_dt_de_army_mowag_eagle4_flw100_win_mg3_x bisim_dt_de_army_mowag_eagle4_flw100_wdl_mg3_x bisim_dt_de_army_mowag_eagle4_medic_des_x bisim_dt_de_army_mowag_eagle4_medic_win_x bisim_dt_de_army_mowag_eagle4_medic_wdl_x
Mungo	Vehicle DE Army Wheeled - Desert - Winter - Woodland	bisim_dt_de_army_kmw_mungo_base_des_x bisim_dt_de_army_kmw_mungo_base_win_x bisim_dt_de_army_kmw_mungo_base_wdl_x
Fuchs TPz 1 A8A13 KAI	Vehicle	bisim_dt_de_army_rmmv_fuchs1a8a13_des_x
Fuchs TPz 1 A8A2 San	DE Army Wheeled	bisim_dt_de_army_rmmv_fuchs1a8a13_win_x
Fuchs TPz 1 A8A3	- Desert	bisim_dt_de_army_rmmv_fuchs1a8a13_wdl_x
Fuchs TPz 1 A8A3A1 - GMW	- Winter	bisim_dt_de_army_rmmv_fuchs1a8a2_medic_des_x
Fuchs TPz 1 A8A3A1 - M2	- Woodland	bisim_dt_de_army_rmmv_fuchs1a8a2_medic_win_x bisim_dt_de_army_rmmv_fuchs1a8a2_medic_wdl_x
Fuchs TPz 1 A8A6 PARA		bisim_dt_de_army_rmmv_fuchs1a8a3_des_x bisim_dt_de_army_rmmv_fuchs1a8a3_win_x bisim_dt_de_army_rmmv_fuchs1a8a3_wdl_x bisim_dt_de_army_rmmv_fuchs1a8a3a1_des_gmw_x bisim_dt_de_army_rmmv_fuchs1a8a3a1_win_gmw_x bisim_dt_de_army_rmmv_fuchs1a8a3a1_wdl_gmw_x bisim_dt_de_army_rmmv_fuchs1a8a3a1_des_m2_x bisim_dt_de_army_rmmv_fuchs1a8a3a1_win_m2_x bisim_dt_de_army_rmmv_fuchs1a8a3a1_wdl_m2_x bisim_dt_de_army_rmmv_fuchs1a8a6_des_x bisim_dt_de_army_rmmv_fuchs1a8a6_win_x bisim_dt_de_army_rmmv_fuchs1a8a6_wdl_x

Name	Type / Category	Classname
KTM 640 LS-E Military	Vehicle DE Army Wheeled - Desert - Winter - Woodland	bisim_dt_de_army_ktm_400lse_des_x bisim_dt_de_army_ktm_400lse_win_x bisim_dt_de_army_ktm_400lse_wdl_x
M113G A2 Fire Control	Vehicle	bisim_dt_de_army_bae_m113a2g_firecontrol_des_x
M113G A2 Mortar Carrier	DE Army Tracked - Desert - Winter - Woodland	bisim_dt_de_army_bae_m113a2g_firecontrol_win_x bisim_dt_de_army_bae_m113a2g_firecontrol_wdl_x bisim_dt_de_army_bae_m113a2g_mortar_des_x bisim_dt_de_army_bae_m113a2g_mortar_win_x bisim_dt_de_army_bae_m113a2g_mortar_wdl_x
120 Krh/40 Mortar	Vehicle DE Army Static - Desert - Woodland	bisim_dt_de_army_tampella_120krh_des_x bisim_dt_de_army_tampella_120krh_wdl_x
M548 Skorpion Mine Layer	Vehicle DE Army Tracked - Desert - Winter - Woodland	bisim_dt_de_army_bae_m548_skorpion_des_x bisim_dt_de_army_bae_m548_skorpion_win_x bisim_dt_de_army_bae_m548_skorpion_wdl_x

1.14 Geo Project Versioning

Updates to VBS4 include changes to the Geo Project format and how VBS4 handles the content.

VBS4	Geo Project	Compatibility
24.1.x	1.4	Backwards incompatible. <div style="border: 2px solid red; padding: 10px;">⚠ WARNING Battlespaces created in VBS4 24.1.x or later cannot be used in VBS4 23.2.x and earlier.</div>
23.2.x	1.3	Backwards incompatible. The Geo Project extension changes from <code>.gpkg</code> to <code>.geo</code> . <div style="border: 2px solid red; padding: 10px;">⚠ WARNING Battlespaces created in VBS4 23.2.x or later cannot be used in VBS4 23.1.x and earlier.</div>
23.1.x	1.2	Backwards incompatible. <div style="border: 2px solid green; padding: 10px;">✓ TIP VBS Geo projects created in VBS4 23.2.x can be made to work with VBS4 23.1.x by renaming the Geo Project extension from <code>.geo</code> to <code>.gpkg</code>. However, new functionality added in 23.2.x is not supported in 23.1.x.</div>
22.2.x	1.1	Backwards compatible with 22.1.x.

VBS4	Geo Project	Compatibility
22.1.x	1.1	<p>Backwards incompatible - work-around available. Geo Projects are compressed and uncompressed automatically.</p> <div style="border: 2px solid red; padding: 10px; margin-top: 10px;"> ⚠ WARNING Battlespaces created in VBS4 22.1.x or later cannot be used in VBS4 21.1.x and earlier. </div> <div style="border: 2px solid green; padding: 10px; margin-top: 10px;"> ✓ TIP Geo Projects can be manually uncompressed to allow them to work with VBS4 21.1.x. Any standard compression utility can be used to uncompress the Geo Projects data. For more information, see Geo Project Compression (below). </div>
21.1.x	1	<p>Backwards incompatible. Elevation and Surface edits must be reapplied to older Battlespaces. The Geo Project in older Battlespaces is automatically renamed to support workflow improvements.</p> <div style="border: 2px solid red; padding: 10px; margin-top: 10px;"> ⚠ WARNING Battlespaces created in VBS4 21.1.x or later cannot be used in VBS4 20.1.x </div>
20.1.x	0	

1.14.1 Geo Project Compression

As of VBS4 22.1, the Geo Project automatically compressed as it is uploaded to the VBS World Server. This improves performance and transfer times for uploading the Geo Project as well as sharing the Geo Project to other connected clients.

The only negative impact that this change has is that the Geo Project implemented in VBS4 22.1 is not backwards compatible with older versions. This can be worked around for VBS4 21.1.x by manually downloading the Geo Project from the VBS World Server, uncompressed it, and then manually placing the data in the Geo Project folder. For example:

```
C:\Users\user.name\Documents\VBS4\Battlespaces\Pittsburgh\Geo\
```

1.14.2 VBS Geo Project Updates in VBS4 23.2

As of VBS4 23.2, VBS Geo Projects have `.geo` extensions instead of `.gpkg`. This change is backwards incompatible.

Additional improvements have been made to support the road updates in 23.2.



TIP

VBS Geo Projects created in VBS4 23.2.x can be made to work with VBS4 23.1.x by renaming the Geo Project extension from `.geo` to `.gpkg`.

However, new functionality added in 23.2.x is not supported in 23.1.x.

1.14.3 VBS Geo Project Updates in VBS4 23.1

As of VBS4 23.1, VBS Geo projects have been updated to provide faster loading and saving. This also provides better handling and performance of significantly big Geo Projects. These changes are backwards incompatible.

- Raster data is now saved in separate files, within the Geo Project, to improve saving and loading speeds.
- Raster data now caches during runtime for better performance.
- Vector data is now optimized during load to avoid unnecessary rendering.
- Rasters data is now compressed during runtime to reduce the overall memory demands of VBS Geo while editing terrain.

1.14.4 VBS Geo Project Updates in VBS4 21.1

Added new vector layers to the Geo Project to support water editing and saving and loading the data.

Raster layer saving and loading has been redone and improved to fix various customer reports about increasing saving / loading times when making edits further away from each other or in extensive areas.

- This change is backwards incompatible.
- Users must redo both their elevation and surface edits due to a fundamental restructuring of the data and its loading in the Blue engine.
- Point and Line Placement data is retained and loaded.
- Road data is retained and loaded.

Geo Project is now always saved as `geoproject.gpkg`.

This change is done automatically on Battlespace load and does not require any user input.

For example, in 20.1.x:

`\Documents\VBS4\Battlespaces\Maidan Town, AFG\Geo\Maidan Town, AFG.gpkg`

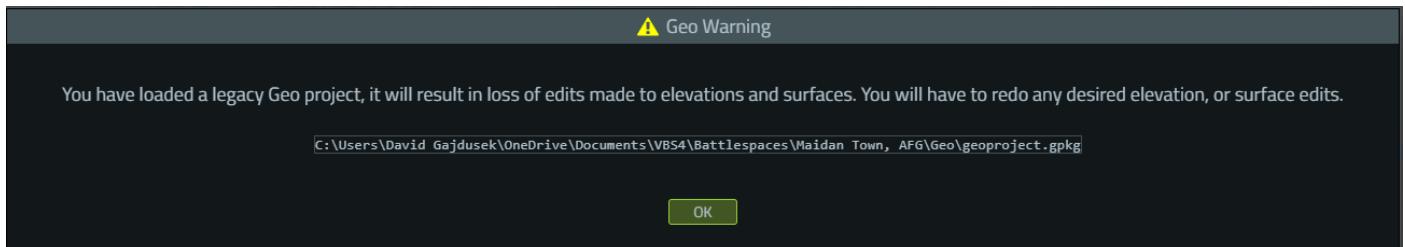
changes to, in 21.1.x:

`\Documents\VBS4\Battlespaces\Maidan Town, AFG\Geo\geoproject.gpkg`

Geo Project file name is no longer dependent on the mission name to simplify various workflow changes, language support and renaming procedures.

1.14.5 Updating VBS4 20.1.x Battlespaces to VBS4 21.1.x

When you load a Battlespace created in VBS4 20.1.x, a warning displays that some layers may not load correctly.



Surface and Elevation layers are not loaded, but Model and Road layers are retained with their original elevation.

To resolve the potential mismatch between Model and Road positioning and the Elevation:

1. **Optional:** Reapply the Elevation and Surface edits to match the Model and Road positioning.
2. Reselect the Models and Roads using their respective VBS Geo editing tools to snap them to the new elevation.

When you save the modified Battlespace, a backup copy of the original Battlespace is saved to:

`\Documents\VBS4\Geo\Backup\Battlespace_Name`

TIP

The backup `.gpkg` file can be used in TerraTools® to generate an inset with the original layers.

1.15 Additional Enhancements

VBS4 24.1 includes the following enhancements:

- [VBS4 24.1.1 Updates \(below\)](#)
- [VBS Map Updates \(below\)](#)
- [VBS Radio \(on the next page\)](#)
- [VBS4 Functionality \(on page 44\)](#)
- [VBS4 User Interface and Workflow \(on page 45\)](#)
- [VBS4 Controls \(on page 46\)](#)
- [VBS4 Settings \(on page 46\)](#)
- [Rendering and Performance Improvements \(on page 47\)](#)
- [VBS Scripting \(on page 49\)](#)

1.15.1 VBS4 24.1.1 Updates

- Restored the Camera Editor Object waypoints.

For more information, see Camera Editor Object in the VBS4 Editor Manual.

1.15.2 VBS Map Updates

- A new checkbox was added to the Map Configuration widget, allowing Administrators to show / hide Empty Vehicles on the map.

For more information, see Map Configuration Widget in the VBS Map Manual.

- Trainees are now able to configure their own map layers. Administrators can see the map layers that Trainees select, but cannot override them.

For more information, see Configure Map Layers in the VBS Map Manual.

1.15.3 VBS Radio

- The following options were added to VBS Radio UI:
 - **Default Preset** - Enables you to change the default radio channel to a different one.
 - **Default Power** - Enables you to have radio power on / off at mission start for any radio.
 - **Default Monitoring L (Left) / R (Right)** - Enables you to apply default monitoring to the left / right / both ears, which is present at mission start.
 - **Default Frequency** - For unlocked radios only. Enables you to set a default frequency for any unlocked radio, which is present at mission start.

For more information, see [Setting Up VBS Radio](#), [Create Radio Channels](#), [Create Radio Types](#) in the VBS4 Editor Manual.

1.15.4 VBS4 Functionality

- It is now possible to import GeoTIFF type map layers, providing that they are cloud optimized.
For more information, see Custom Map Layers and Map Layer Elements in the VBS4 Editor Manual.
- Map export functionality was expanded to enable the export of map images in PDF format.
For more information, see Export Map in the VBS4 Editor Manual.
- Range rings and specific main gun symbology can now be shown on the 2D Map for vehicles with gun turrets.
For more information, see Entity Information (EIS) in the VBS4 Editor Manual.
- Apply Settings Globally toggle added to the Entity Information (EIS) tab.
For more information, see Entity Information (EIS) in the VBS4 Editor Manual.
- Range visualization capability was extended to various additional VBS4 features.
For more information, see Active Protection System, Boomerang, Enabling CREW, Hazardous Area in the VBS4 Editor Manual, Configure Gateway Geofiltering in the VBS Gateway Manual, Population Editor Object in the VBS Control AI Manual, and Suppress Order in the VBS Control AI Manual.
- BONUS (Bofors Nutating Shell) 155 mm artillery cluster rounds are now available in VBS Call for Fire (Gunline Ammunition Loadout) and the Artillery Strike Object Properties.
For more information, see Gunline Management in the VBS4 Instructor Manual and Artillery Strike in the VBS4 Editor Manual.
- Some urban objects (such as concrete blocks, large bins, wall sections, and so on) can now be pushed by vehicles, which is useful when moving / dismantling barricades in a riot situation, for example. Objects with this functionality have the suffix **Pushable** under **(F8) Objects** in the Editor Objects List of the VBS Editor.
For more information, see Adding Objects in the VBS4 Editor Manual.
- Heavy objects, such as ammunition crates, can now be pushed as well as dragged.
For more information, see Drag and Push Objects in the VBS4 Trainee Manual.
- Exaggerated View Mode, previously available in VBS3, is now available in VBS4.
For more information, see Exaggerated View Mode in the VBS4 Editor Manual.
- Electronic Warfare was expanded to enable access of Radar over VBS Gateway.
For more information, see Radar Over Gateway in the VBS4 Editor Manual.

- The following weapons are now available in the **Gun Type** field of the Gunlines Details panel in VBS Call for Fire:
 - 120 Krh/40 Mortar
 - M113G A2 Mortar Carrier
 - PzH 2000 (Armored Howitzer 2000)

For more information, see Gunline Management in the VBS Call for Fire Manual.

- Minimum and maximum engagement range restrictions now apply to the Javelin, according to the selected attack mode.

For more information, see Javelin in the VBS4 Trainee Manual.

- Trainees can now make After Action Review (AAR) recordings and play them back, provided that they are using a host computer.

For more information, see Recording Scenarios for AAR in the VBS4 Instructor Manual and View AAR in the VBS4 AAR Manual.

- Added a unit **Weapon Inaccuracy** option to the Unit Editor Object Properties.

For more information, see Adding Units in the VBS4 Editor Manual.

1.15.5 VBS4 User Interface and Workflow

- The following improvements were made to the Battlespaces List:
 - Width of the Battlespaces List can be adjusted.
 - The Battlespaces List now has its own dedicated Search field.
 - Battlespaces can be "locked", making them read-only.
 - Category and Subcategory options are available when creating / editing Battlespaces.
 - Ability to show / hide Categories / Subcategories in the Battlespaces List.
 - Ability to expand / collapse the entire Battlespaces List.

For more information, see Battlespace Management in the Introduction to VBS4 Guide.

- VBS Plan now enables object modification by deleting control points. In addition, **LCtrl + Y / LCtrl + Z (Undo / Redo)** functionality was added, which enables the undo / redo of object modification actions.

For more information, see the applicable VBS Plan Object Tool topics in the VBS Plan Manual.

- French translations are updated in this release for the User Interface and Manuals.

To switch to French, see in the VBS4 Administrator Manual.

1.15.6 VBS4 Settings

- Global Display Information (GDI) was changed to Entity Information System (EIS), and now enables customization on an individual entity level.

For more information, see Entity Information (EIS) in the VBS4 Editor Manual, and Symbology Settings in the VBS4 Administrator Manual.

- The Range Visibility dialog was deprecated and the settings moved to the User Interface Settings.

For more information, see Range Visibility Settings in the VBS4 Administrator Manual.

- New Editor Camera Movement Speed setting added to the Input Devices tab in the VBS4 Settings, as an alternative to the current Spectator Camera speed controls.

For more information, see Input Devices Settings in the VBS4 Administrator Manual.

- Added the `-settingsImport` command-line option to override the VBS4 Settings (see the VBS4 Administrator Manual).

For more information, see Command Line and Launcher Options in the VBS4 Administrator Manual.

- Removed the following crater-limit parameters from `VBS4.xml`, as there are no longer any limits to the number of crates in the simulation: `maxPermanentCraters`, `maxPermanentCratersTTL`, `maxSmallCraters`, `maxSmallCratersTTL`.

For more information, see VBS4.xml Options in the VBS4 Administrator Manual.

- The `-allBoneLods` command-line option to improve ship-flooding simulation has been deprecated. This option is now enabled by default.

1.15.7 VBS4 Controls

- Removed the `-cfgControls` command-line option (replaced by `-settingsImport` - see [VBS4 Functionality \(on page 44\)](#)).

For more information, see Command Line and Launcher Options in the VBS4 Administrator Manual.

1.15.8 Rendering and Performance Improvements

- A Benchmark Tool to measure system performance is now available.
For more information, see Benchmark Tool in the VBS4 Administrator Manual.
- Added the image **Sharpening Strength** setting to the compositor post-processing effects.

Image-7: Top to bottom: Sharpening Strength 0 and 1



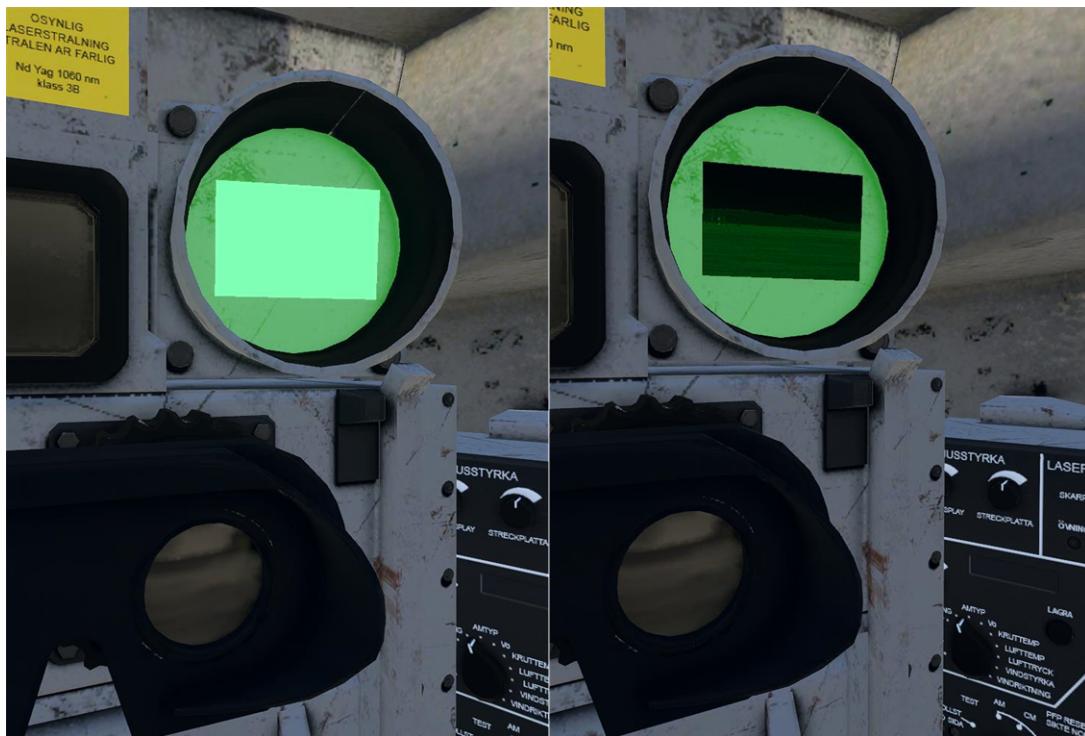
For more information, see Video Settings in the VBS4 Administrator Manual.

- Opening the VBS Editor (see Instructor Interface in the VBS4 Instructor Manual) or the C2 (see Command and Control (C2) Screen in the VBS4 Trainee Manual) in Execute mode is 2 - 4 times faster than before.
- Improved the damage simulation for vegetation, fences, and various other static objects.



- Enhanced Render To Texture (RTT) displays. Some RTT displays (such as vehicle displays), previously showing green-screen textures, have been improved to show actual visuals.

Image-8: Left to right: before and after RTT enhancement



- Soil textures have been improved.



1.15.9 VBS Scripting

- Deprecated SQF commands [setDifficulty](https://sqf.bisimulations.com/display/SQF/setDifficulty) (<https://sqf.bisimulations.com/display/SQF/setDifficulty>) and [difficultyEnabled](https://sqf.bisimulations.com/display/SQF/difficultyEnabled) (<https://sqf.bisimulations.com/display/SQF/difficultyEnabled>). Use SQF commands [setSetting](https://sqf.bisimulations.com/display/SQF/setSetting) (<https://sqf.bisimulations.com/display/SQF/setSetting>) and [getSetting](https://sqf.bisimulations.com/display/SQF/getSetting) (<https://sqf.bisimulations.com/display/SQF/getSetting>) instead, respectively.
- Added parameters `preStart` and `postStart` to allow executing custom SQF functions on VBS4 startup.

For more information, see Custom Functions in PBOs in the VBS4 Scripting Manual.

1.16 Product Maintenance

The following issues were resolved in VBS4 24.1.1:

Issue key	Summary	Netsuite Case
BRE-330	CodeMeter causing explorer to turn off	
CONTENT-8623	RME PUMA models - missing textures	
CONTENT-8718	Incorrect animation of unit equipped with knife jumping over the fence	
CORE-2047	New PFX for base-eject smoke grenades	
CORE-2256	Draw Primitives position stuttering issues	
CORE-2457	Follow-up: Throw is affecting weapon holding	
CORE-2678	Pitch - HMDOpticsOrientationControl Not working	91340
CORE-2706	Integration of HTTP NetworkStreamingPlugin - Notification	
CORE-2902	Follow-up Draw Invalid updates of Geo brush circle	
CORE-2919	Follow-up Flickering of the Geo Model's circles	
CORE-2927	PLAN Invisible elements of the Assault Order arrow	
CORE-2951	Assertion failed $i \geq 0 \ \&\& \ i < n$ floods (weapons)	
CORE-2964	CTD on DS when terminating Training Mission	
CORE-2965	Gateway - ground particles not present for EXT vehicle	
CORE-3002	Inkspots are flickering	
CORE-3011	Tow rope hook turns into giant infinity spike when attached	
CORE-3025	AAR CTD in ECS MarkForDeletion()	
CORE-3042	CTD on DS when the Improvised Drone Munition EO is changed during execution	
DEVT-1727	CPB: Case Invariant Class Parameter	
DEVT-1733	CPB - Forward Declarations at bottom of file	
FEP-2092	PLAN - Changing Coordinates cannot be confirmed by pressing Enter	
FEP-2093	PLAN - Grid Cell Column's naming being reset to default	
IGP-7632	VBS Blue IG and VBS4 experience massive FPS drops in VBSEN DebugUI Network Status	
IGP-7692	VBS Blue IG and VBS4 connection broken if reliable socket port is 0	

Issue key	Summary	Netsuite Case
SDKS-2929	WorldSurfaceDraw not displaying arrow in 2D map	76166
SDKS-4598	VideoStreaming > Changing Viewport Offset while streaming is applied twice and leads to tiling effect	
SDKS-4959	Enabling HMD causes drawn splines to not render	98421
T3S-3237	Badly aligned bridge in Chernarus	92208
T3S-3385	Surface Tool border disappears	95426
TD-866	Units dying from unconscious state are playing dying animation several times	
TD-867	Units with Advanced wounding Bleeding knife wound can die with head in terrain.	
TD-884	CTD when starting Sensor Streaming stream in editor	96269
TD-895	Measure Distance Tool chain cannot be created	
TD-897	CTD after shooting unit while two PCs are connected with gateway	
TD-903	PLAN remains Create in Main Menu even if the plan is present in Mission	
TD-906	CTD when ending a mission as SE RWS gunner with an External window opened	
TD-928	Administrator Tools doesn't work with normal .exe	
TM-444	River Class turrets and units get duplicated when Player enters them	
TM-467	Custom layers don't work on the external map	
TM-476	CTD when interacting with user with special characters in classroom widget	
TZ-4855	Ammo and fuel override menus are hidden behind the autopilot menu	
VB-10833	Altitude range condition in default removes vegetation around 0m altitude	
VB-10868	PerfBoard huge performance drops across many perftests between v49/55	
VB-10881	Live load does not work until 2nd layer is live loaded	
VB-10912	Deadlock while loading geopackage	
VB-10926	Terrain Deformation broken in 24.1	
VB-10978	Live Load + Stream models with textures, not working in VBS4 24.1	

Issue key	Summary	Netsuite Case
VB-10995	TerraTools 24.1 unable to export to VBS4 24.1	
VBS4-16503	CV9040 exclusive does not engage targets correctly [oneAI issue]	
VBS4-16658	PLAN - freezes when moving Line drawing in 3D when zoomed out	
VBS4-16987	Unmanned Vehicles - Update last two paragraphs of Adding Unmanned Vehicles topic	
VBSGEO-2112	VBSGEO Bug Surface Tool border disappears	95426
VBSGEO-2161	GEO Unwanted value transfer between models	
VBSGEO-2175	VBS Geo Bug UI Properties Window cut off	
VBSGEO-2177	EE Brush - Smooth Terrain is lowered instead	
VBSGEO-2178	Powerlines - Excessive Spacing Between Lines and Pylon Connection Points	
VBSGEO-2179	CTD when adjusting position of the Geo Line	
VBSGEO-2180	Building changes template after selected	
VBSGEO-2182	VBS Geo UI Library dialog appears on Geo loading for the first time	
VBSGEO-2183	VBS Geo UI Default template is not highlighted in the building library	
VBSGEO-2184	VBS Geo UI Icons in history are clipped	
VBSGEO-2194	[GEO] About 30s freezes when creating courtyard	
VBSGEO-2250	Plane freezing when flying over Airfield	97384
XR-376	OpenXR Runtime 1.1 Improvements	
YT-675	In-vehicle turn out seats create an extra model of player unit	
YT-706	Camera Editor Object with waypoints does not function in 24.1	98686

The following issues were resolved in VBS4 24.1.0:

Issue key	Summary	Netsuite Case
AT-3349	[VBSPitchRadio] AAR incompatibility + CTD in AAR stream	
AT-3289	MissionListener::OnMissionUnload not being called on OME -> Preview transition	
CONTENT-8585	Some bisim_vegetation models are missing preview picture/the picture is not correct	

Issue key	Summary	Netsuite Case
CONTENT-8584	Some bisim_bush models have colisions	
CONTENT-8583	Some bisim_grass models are not protected	
CONTENT-8575	S02 and S03 reports animations in default pose (DT content)	
CONTENT-8557	Units missing weapon attachments	
CONTENT-8546	Corrupted rvmat for Picea Rubens causing VBS4 crash	
CONTENT-8545	Certain trees are very easy to destroy	
CONTENT-8509	Bgbv 90 - Stuck after Quick Enter	
CONTENT-8446	IR chemlights are not glowing in NVG view - follow-up	
CONTENT-8440	Autotest RPT: Cannot open object (bisim_blue_aero_light_xxx)	
CONTENT-8438	Autotest RPT: Failed to load material	
CONTENT-8407	Trail Particle Atlas should have fully white RGB channels	
CONTENT-8395	File vbs2\vehicles\air\planes\douglas_dc3\data\sounds\dakota_env01.wss not in bank	
CONTENT-8393	CTD on placing RU army T-72	
CONTENT-8392	??? Action available in many vehicles	
CONTENT-8387	Set old T-72 models as compatibilities of new T-72 models	
CONTENT-8381	Missing strings 24.1 - Content - general task	
CONTENT-8358	Chiminea object is missing preview and display name in pre-release	
CONTENT-8325	Kord HMG of the T-72 have missaligned port in the muzzle brake	
CONTENT-8267	Pop up when spawning AE Border Control unit	
CONTENT-8263	Amputated body parts have wrong weight	
CONTENT-8252	Type 63 MLRS is causing a flood	
CONTENT-8250	Pop-up: Rail end end_rail_01 for attachment slot slot_rail_01 not found in shape	
CONTENT-8249	Pop up with OWT animals (cow, goat, sheep)	
CONTENT-8238	Pop-up mentioning vbs_tank_8_x after placing a Group (F2)	
CONTENT-8219	Bugs of chernarus log models	
CONTENT-8217	OWT Linear Presets Revisions - Senna Pallida	
CONTENT-8041	The 2A42 autocannon of the BTR-90 have a long stroke recoil animation	

Issue key	Summary	Netsuite Case
CONTENT-7957	Generic soldiers have washed out texture	
CONTENT-7955	Carmichael MFV partly transparent	
CONTENT-7945	Optical disruptor draw order incorrect	
CONTENT-7939	Pop-up when CZ T-72M4CZ is destroyed	
CONTENT-7934	GB Army MTP - NVG obscuring player view	
CONTENT-7890	String not translated STR_DN_LAND_bisim_blue_tower_radar_004	
CONTENT-7887	Pop-up error GB RAF Landrover Defender 90	
CONTENT-7880	Periscope view of the AU M1A1 AIM (gunner & commander) is broken	
CONTENT-7873	Cannot open object bisim_vegetation/bisim_tree\bisim_juniperus_virginiana	
CONTENT-7866	Pop-up No entry bin\config.cpp\. when IG weapon fires at something	
CONTENT-7863	Errors in TSS/TMT	
CONTENT-7862	Missing texture for river class ship ladder and net	
CONTENT-7861	Honington buildings missing textures	
CONTENT-7785	Cessna propeller is not visible	
CONTENT-7751	Toyotas spawn explosively	
CONTENT-7727	Inconstistency in naming of machinegunners (again)	
CONTENT-7724	Ural truck family have strange super shiny textures	
CONTENT-7716	Followup - Hardcoded strings in content	
CONTENT-7707	PlayAllAnimations autotest is failing (anim in default pose)	
CONTENT-7706	Followup: The belt/vest too big for the gb_soldier_virtus	
CONTENT-7700	levitating bushes	
CONTENT-7698	Some bisim_grass strings are not translated	
CONTENT-7607	vs-17/21 LOD issue	85096
CONTENT-7429	Unit is unable to get in Ka-50 - 2A42	
CONTENT-6969	OPFOR T-72s missing Smoke Generator option	
CONTENT-6958	CZ Army Dingo IWV has two get out options on each side	
CONTENT-6947	Volvo Container Lorry UK and other civ vehicles are using old destroyed particles	

Issue key	Summary	Netsuite Case
CONTENT-6926	Oostdorp buildings walkthrough walls and inaccessible stairs	
CONTENT-6110	Note: xxx is declared, but definition was not found. Creating empty class messages in RPT	
CONTENT-6105	Belgian soldiers have too red/bloody wounds on their feet/boots	
CONTENT-6077	Bgbv90 - beam at the rear door	
CONTENT-6074	MATT towing vehicle have no tire prints	
CONTENT-5991	You can go through Warminster fence	
CONTENT-5892	EntryPoints have blank action texts	
CONTENT-5819	Strange LODs for specific building	
CONTENT-5784	Pop up Unable to attach component vbs_hensoldt_fero_z24_4x_base to slot slot_scope. Incompatible slot interfaces.	
CONTENT-5764	Flares fired in the daylight look like nuke	
CONTENT-5735	Hardcoded Strings	
CONTENT-5731	9K34 Strela 3 is disguised as 9K32M Strela 2	
CONTENT-5717	Autotest RPT: More Make not available warnings in spawnAll RPT	
CONTENT-5120	Javelin can't be locked on a target over 2 000m	
CONTENT-4888	Autotest RPT: Material xxx is using unsupported pixel/vertex shader	
CONTENT-4881	Autotest RPT: Texture xxx could not be loaded	
CONTENT-4838	Autotest RPT: Incorrect number of parameters in sound entry	
CONTENT-4810	DbgView: Trying to modify add-only entry messages	
CONTENT-4782	Autotest RPT: Assertion failed '_airFriction <= 0' in s5 spawnAllMagazines	
CONTENT-4746	Autotest RPT: Invalid parent bone messages	
CONTENT-4714	The runway_papi lights do not have proper functionality	
CONTENT-4709	Autotest RPT: No geometry and visual shape for multiple models	
CONTENT-4705	Autotest RPT: No speaker given for XXX	
CONTENT-4683	SA-13 can elevate +180°	
CONTENT-4553	Weapon pods of the Kiowa are not visible in the 1st person view	
CONTENT-4508	Not possible to get in to the vehicle AMX-10RC	

Issue key	Summary	Netsuite Case
CONTENT-4169	Leopard 2 AEV Mineplow black texture	
CONTENT-3307	Horse got broken alpha sorting of tail	
CONTENT-3160	BTR-90 can decrease its autocannon way too much	
CONTENT-2145	Missing textures on leaf pile models	
CONTENT-1520	Incorrect procedural textures	
CORE-2865	Personal weapons are rendered behind hands/arms when turned out	
CORE-2862	US Army AT Gunner - M4a1 CCO / Javelin has tiny hands in first person view	
CORE-2825	Some weapons have muzzle flash when not firing	
CORE-2820	Benchmark - Script error at the end	
CORE-2815	Do not localize other string except the Blue loading strings	
CORE-2814	Benchmark The vehicle's path is misplaced in the second benchmark mission	
CORE-2812	Visible cargos weapons outside of vehicle on DS	
CORE-2806	Follow-up Draw Disappearing of Geo brush circle	
CORE-2797	Ambient life related CTD in ResetVegetationState when closing a mission	
CORE-2792	Gateway Choppy walk animation of external unit	
CORE-2783	allowMovementControlsInDialog does not work in camera view	
CORE-2752	Mixed Reality HUD leaks memory	
CORE-2749	Sunlight in VBS4 does not correlate with reality	90518
CORE-2745	Not all buildings destroyed when recording with SC1	
CORE-2743	No lights work in AAR	
CORE-2734	CTD on DS after closing with -enableLegacyAI	
CORE-2733	Random crash inside NetworkClient::FinishTeamSwitch	
CORE-2729	Hardcoded autotest loading simulation timeout in autotest framework	
CORE-2726	HX45M DSB - vehicles dampers not working	
CORE-2713	Gateway CTD while connected to VR Forces	
CORE-2707	Units are displaying wounds/amputations under their clothes	

Issue key	Summary	Netsuite Case
CORE-2703	One off CTD when placing a vehicle in MP	
CORE-2700	UCS mounted weapons on some vehicles are not initialized on DS	
CORE-2696	UCS missiles on planes launch in opposite direction	
CORE-2679	SPz Puma - no hit marker with APFSDS munition	94742
CORE-2678	Pitch - HMDOpticsOrientationControl Not working	91340
CORE-2667	FOLLOW-UP: Edit error: Warning Message: No such base entry found - Maglite_AnimMod and Knife_AnimMod - 24.1 fix	
CORE-2655	Warning Message: No entry 'bin\config.cpp\...\snowEffect'	
CORE-2644	CTD Soldier::KeyboardPilot	
CORE-2643	Deadlock in PhysX	
CORE-2638	Placing Micro Air Vehicle causes assert spam	
CORE-2610	Land mines are not exploding at all	
CORE-2607	Zombie process after closing the VBS4 client in Plan with Plan drawings	
CORE-2606	TrackIR is not working	
CORE-2595	Perfdrop in missions with many units/vehicles	
CORE-2590	Use alphaTracks parameter	
CORE-2568	CTD inside Particles::CreateWeaponCloudletSource	
CORE-2567	HMD (VR) Controllers are not connected (doesn't work) in VBS4	
CORE-2558	Motorbike - ground dust instead of snow particles	
CORE-2540	Follow-up Mineplows are flickering for the remote client	
CORE-2530	Gateway - Wheels doesn't have rotating animation	
CORE-2521	VBS becomes unresponsive when connecting to the DS	
CORE-2510	Enabling external skeleton control breaks weapon proxies	
CORE-2509	FileServer CTD on invalid path request	
CORE-2508	Weapon and body direction not networked properly	
CORE-2506	Missing optic on the rifle for the rejoining unit	
CORE-2480	Humongous peak in Draw when opening RTE	
CORE-2419	Follow-up TimeManager assertion failed flood	

Issue key	Summary	Netsuite Case
CORE-2384	Investigate performance drop in Heavy HIP (2000 Units) caused by Clean up and Refactor	
CORE-2383	perftests ran on DS are not printing any data to .csv files	
CORE-2363	DS CTD in PhysX after pressing End Battlespace	
CORE-2359	CTD parachutes	
CORE-2354	CTD during loadtest inside Entity::GetLogArmor()	
CORE-2351	Chaotic oldAI movement of boats	
CORE-2345	No collision with any buildings in VBS4	
CORE-2335	Tracks of a vehicle are deleted when the vehicle changes locality	
CORE-2332	Freeze when opening BS in Chernarus Inset	
CORE-2323	CTD in Physx snow modification	
CORE-2315	Unplayable stuttering, 10s+ peaks	
CORE-2311	Unit does not raise a weapon when LMB	
CORE-2310	CTD when opening VBS when editor.cfg does not exist	
CORE-2299	Object Editor does not remember the latest place of selection	
CORE-2285	Collision does not rotate along with the scaled model	
CORE-2268	Unable to kill the units	
CORE-2266	Aircrafts get destroyed by pulling up the landing gear	
CORE-2250	Assertion failed false - Cannot find the pool statistic for Blue Datajob thread	
CORE-2247	Remove typedefs for primitive types from engine	
CORE-2241	CTD on mission load when 47-foot Motor Lifeboat is present in the mission	
CORE-2228	Network scenario won't load if Simulation Client is connected + mem leak	
CORE-2214	CTD while in Context Menu	
CORE-2202	CTD when Clear button in OME is used	
CORE-2161	Shots cause unusually bad performance, potentially due to impacting terrain	
CORE-2159	Flood of vege geometry	

Issue key	Summary	Netsuite Case
CORE-2153	PhysX_64 HeightfieldModification Followup	
CORE-2141	CTD in VBS_Diag.exe while being in Preview	
CORE-2131	Models with static light cannot be deleted	
CORE-2107	Follow-up: Flames of Fire Object is missing in TI in the AAR	
CORE-2103	Artillery strike in snow does not do any damage	
CORE-2098	MICLIC detonates in the air when Simulation Client connected	
CORE-2097	Error message on the fuel tank destruction	
CORE-2056	Follow-up - Snapping the Geo/Plan drawings each frame creates double lines	
CORE-2053	Multiple VBS freezes when ASCOT begins transmitting (in RTE)	
CORE-2018	Tire tracks appear after an air lifted vehicle touches the ground	84555
CORE-1997	CTD while speeding up the time x16 in preview	
CORE-1942	Update of nonlocal object NOID flood when executing the mission with JTAC on DS	
CORE-1932	Hilux - mishmashed particles on the snowy beach	
CORE-1859	CTD after start of the mission in Preview	
CORE-1857	Custom vehicle is flying when being hits by rocks in VBS4	
CORE-1849	Gaps in snow	
CORE-1725	Autotest RPT: Unknown flag AlphaBlend	
CORE-1667	VWS / CoreService locks same feature multiple times on same PC	
CORE-1656	KC-130J Hercules plane catches fire when set to flying in RTE	
CORE-1649	ACATS ARH night vision doesn't work	
CORE-1498	Main gun smoke effects are cold in TI	
CORE-1276	POV - Towing bar disappears	
CORE-1165	IP address flood in DebugView	
CORE-1053	AI and Player units are very badly tracked via DS	
CORE-743	Autotest RPT: Object id Veh-xxx is not static	
CORE-27	Lack of switching between LODs feature (MinLOD)	

Issue key	Summary	Netsuite Case
FEP-2073	The user is not notified about disabled features in VBS4 24.1 - aka add What's New dialog	
FEP-2060	Search in the AAR list is not working	
FEP-2050	Briefing issues	
FEP-2043	Mission name is not visible in OME and Preview anymore	
FEP-2040	Watching AAR via View AAR is missing the name of that AAR on the main bar	
FEP-2039	Follow-up	
FEP-2035	POI - Read-only is not propagated	
FEP-2034	Create Battlespace dialog can get stuck on Loading name from geocoding service	
FEP-2030	DM - Forms regressions (A17)	
FEP-2006	CTD - CEFSimpleHandler::SetCursor	
FEP-2004	Single Left Mouse Click in EDITOR will result in Left Mouse Click followed by ENTER action if you did changes in GEO	
FEP-2003	Cannot exit VBS in Lobby	
FEP-2001	Download Battlespace to Execute - update	
FEP-1968	Road signs - Stickers have tiny width bar	
FEP-1966	MM - Latitude and Longitude	
FEP-1929	Stuck in Multiplayer Battlespaces window after hosting mission with AAR	
FEP-1922	MM - Filter is not closed when you click on Earth	
FEP-1915	Resolve styling issues	
FEP-1910	Failed assert in main menu	
FEP-1901	Bring back long forgotten progress bar in AAR	
FEP-1858	WebView cache files are mixed with other cache files	
FEP-1857	WebContentProvider range request support is wrong	
FEP-1854	Ranged requests not working properly	
FEP-1838	CTD after opening C2	
FEP-1836	New line for POI description does not work	

Issue key	Summary	Netsuite Case
FEP-1804	Control AI - switch Place Activity and Cancel buttons	
FEP-1803	DialogManager - WebView stays open and focused	
FEP-1773	New Briefing toolbar has the same color as the text field	
FEP-1764	Loading screen - pressing Esc will kick you into MM	
FEP-1763	Spam of main.js:1 Empty mission name in SERVER_STATUS_MP event data	
FEP-1759	Plan UI in Editor	
FEP-1751	Upload button for downloading	
FEP-1750	CWebView - Cursor over widget does not match CSS property	
FEP-1749	Gateway - Remote Mapping drop-down disabled styling	
FEP-1747	Settings - Audio cannot be searched	
FEP-1745	Radio - text doesn't fit into the radio box	
FEP-1729	Communication Panel - move Frequency column to the right	
FEP-1719	MM - details vs Details	
FEP-1707	UnitList - virtual scrolling is not working in some cases	
FEP-1691	No notification appears when BS deleted	
FEP-1684	Expand All / Collapse All in the Settings dialog	
FEP-1679	GW - Arrow can get out of the allowed range	
FEP-1658	MM - Multiplayer Battlespaces UI is broken with longer name	
FEP-1657	SAP - Battlespace name is not fully visible	
FEP-1655	External map - Layers cursor	
FEP-1651	ngl / Weather Panel - BalRowRangeSlider	
FEP-1650	Weather Panel - decimal places	
FEP-1603	SAP is not accesable by other admins in MM	
FEP-1575	[MM] New line for desc does not work	
FEP-1568	[MM] Position Server Admin Panel in Briefing correctly in different scales	
FEP-1536	Gateway - footer is not centered	
FEP-1526	Quick Menu - ToolTip is far from the source	

Issue key	Summary	Netsuite Case
FEP-1449	Settings violation log	
FEP-1437	Restrict Hamburger Menu actions	
FEP-1430	Hiding UI via i will hide only Toolbar	
FEP-1386	Change Battlespace does not work in Training Mission case	
FEP-1355	Gateway - wrong text on mapping delete	
FEP-1334	Gateway - Value step	
FEP-1231	Gateway - Reset Defaults	
RAB-1189	XBox analog triggers do not register analog input	
RAB-1183	Javelin Lock or Zoom does not function on XInput controller	
T3S-3356	NL MoD - unused MG3 gets hot while tank is moving	95476
T3S-3343	Symbol will change in multiplayer and AAR	94708
T3S-3338	DVS - Warrior models URN marking is backwards	
T3S-3336	DVS - Users are unable to save simulation whilst in progress	94541
T3S-3333	Feedback regarding help function	94408
T3S-3295	Co-Pilot standing in Chinook	94116
T3S-3243	M1078 LSAC cargo & troop carrier has the driver's side windshield missing	
T3S-3236	-allBoneLods with LLC crashes VBS4	
T3S-3223	SPz Puma - Over hatch crew in the back is standing to high	91858
T3S-3182	Wrong range values for weapon systems in FDC	90461
T3S-3168	CAS Module unreliable keyboard inputs	88379
T3S-3109	GEO categorization issues	88227
T3S-3080	GB Models have a bad LoD in close distances	86940
T3S-3079	HUD displays the total 40mm ammo types from inventory	86999
T3S-2973	URN is flipped on some vehicles	84553 93716
T3S-2970	Tire tracks appear after an air lifted vehicle touches the ground	84555
T3S-2966	GEO No 10 & 12 bridges vertical flip	84544

Issue key	Summary	Netsuite Case
T3S-2935	Spike that cannot be moved in 2man mode is stuck	83658
T3S-2602	RQ-11B has wrong Geometry	77912
T3S-2043	Incorrect trigger size on map when initially creating a trigger using script	65262
TD-842	Objects/Litters falling through geo terrain	87257
TD-841	Cannot fire with personal weapon from CV9040 Commander and Gunner seats when turned out	
TD-836	Firing handgun in AAR weirdly switches and fires main weapon	
TD-834	UAV Streaming doesn't work	
TD-824	Automatic Door Animations not working when entering vehicle	
TD-822	CTD after switching off one of the two simultaneously switched on VBS	
TD-818	Default window resolution is not calculated properly (4k monitor) + hardcoded values	
TD-813	UI is displayed for RTT Turret optics views	95215
TD-809	[CV9040] Advanced Vehicle Settings is inaccessible when vehicle is destroyed	
TD-808	Variations of 40mm grenades are mixed up together in the ammo counter	
TD-807	Failed to deserialize ObjectHandles	
TD-765	When turning globe using ASWD, while hovering above bookmarks, won't deselect the bookmark.	
TD-720	CTD with CallForFire in scenario	
TD-695	Deleting Editor Layer With Linked Artillery Strike Crashes VBS.	
TD-666	Stuck after closing Placing M9 tape or the Ballistics computer by ESC	
TD-647	[RWS] TI Brightness Level is badly configured	
TD-646	Implement Gain/Level Day adjustments on RWS	
TM-430	Entering cargo clones units	
TM-420	Player stuck after getting out of the Zodiac	96574
TM-418	Set Camera Position for Editor placed camera doesn't work	90168
TM-417	Exiting some vehicles from rear teleports the player to 0,0 coords when Realistic Vehicle Entry is disabled	95320

Issue key	Summary	Netsuite Case
TM-384	User external map empty	
TM-371	Created units are not on the ground, but appear in the air.	
TM-370	Save Simulation option present in RTE > Tools menu	
TM-369	Custom Map Layers - changes made disappear after entering preview without saving	
TM-368	Briefing does not show second time you run a Battle Space	94306
TM-361	Error: [Translation] String id STR_DEMO_MISSIONS messages after creation of Battlespace with non latin characters	
TM-358	VBS Plan - Undo/Redo network updates for Control Points	
TM-352	Javelin Detonates Prematurely	
TM-342	CAS placed helicopters do not animate	84549
TM-330	2522 - Date advances multiple days when transitioning past midnight on DS	
TM-322	Score board while respawning obstructs RTE	
TM-321	Placing editor objects further than ~1900m away from camera causes them to be placed at origin	
TM-307	CAS GetPropertyValueGeo returns invalid position when mission starts first time	
TM-300	Entry Points don't work for Cargo Turrets	
TM-299	[Unit symbol configuration] Selection changes as soon as waypoint is reached	
TM-295	SWE Archer is broken on many levels	
TM-279	Fennek panels nonresponsive/invisible after JIP	
TM-276	Editor - Delete Trigger Not Releasing Name in OME	
TM-251	Reserve IR sight in cv9040 shows day view	
TM-243	Users can delete respawn markers	
TM-217	Trigger visualisation on create while map open	
TN-2767	Commands cursorTarget and knowsAbout don't work for a vehicle gunner	
TN-2762	Some vehicles with crew lose URN marking in AAR	
TN-2758	CAI - missing letters in phrases	

Issue key	Summary	Netsuite Case
TN-2752	DPICM artillery strike has considerable delay when calling old fn_vbs_artilleryStrike	
TN-2751	LOCSTAT - script errors	
TN-2750	Admin tools - missing localization	
TN-2743	Snow layer not saved when using save as	
TN-2709	Preview (RTE) resets weather settings while using -profiles	95234
TN-2707	Advanced wounding - self-treatment is not working	
TN-2693	ElectronicWarfare GMTI is not working	
TN-2688	Unit symbols are inaccurate	84351
TN-2687	CTD when renaming battlespace to duplicate name, as not downloaded VWS BS	
TN-2684	Independent symbology visualization according to correct affiliation settings	
TN-2672	OPV River Class - Anchor sometimes make ship move when created	
TN-2662	Non-admin trainee is unable to take objects from vehicle inventory	
TN-2661	Action menu is confused with Quick menu while dragging the IED	
TN-2658	Grey rectangles covering the Unit's symbology on map in the Formation Editor	
TN-2656	Script error when deleting Puma with GameAI crew	
TN-2626	Making subordinate group smaller settings does not have any effect	
TN-2588	Objects are missing symbology	
TN-2573	Fix memory leaks caused by CommandLineToArgvW	
TN-2571	Resized CBRN Area (Point Source) in RTE goes back to its former size OR there's a script error	
TN-2556	Script error when attaching IED to a unit in RTE	
TN-2539	EditorTools PresetLoader is throwing errors on mission load	
TN-2530	Unable to open Unit Symbol Configuration for units in Context menu	
TP-649	CTD when copy pasting orbat in plan with suppress	
TP-633	Players start out turned out in vehicles	
TP-615	Shift-click to group does not work when holding shift	

Issue key	Summary	Netsuite Case
TP-612	Control AI Civilian Activity - editing creates an area	
TP-608	Some CAS dialogs are not visible after switch to CAS tab with a selected shape.	
TP-606	Script Error - Animal Herd behaviour	
TP-583	Script error after Build Mission for Plan units	
TP-578	Waypoint Rotation Bugs And Rotation Command Parity	
TP-574	Individual - Fire At WP multiple script errors	
TP-572	CTD VBS4 crashes in Chalkboard when the External Map is opened	
TP-521	Parachutes do not work for players with -oneAi	
TP-493	Link to Object duplicated in Control AI waypoints	84542
TP-489	Waypoint links unresponsive after returning from Preview	
TP-429	Symbols of groups are randomly changing to a different sides	
TP-290	Plan - Orders dialog is empty when shape is selected for the first time	
TP-284	Script error in fn_linkupdatelines.sqf after closing mission	
TS-2306	Flood in standard_behaviors/Team_FastMove	
TS-2290	AI Helicopters don't shoot	
TS-2289	Flood and freeze related to cover search	
TS-2286	CAI WP Mount is not working for Static vehicles	
TS-2285	CTD inside AISubgroup::ReorderUnitsLocal when running LoadTest	
TS-2274	Flood in LibAI weapons.lua - WeaponMaxRange	
TS-2273	CTD when leader in vehicle adds WP to their infantry CAI group	
TS-1801	Control AI incorrectly handles PhysX objects (no covers, ignored by pathplanning)	
TZ-4799	AAR streaming has terrible delay	
TZ-4793	Followup: Missing non-content strings in 24.1	
TZ-4742	Slingload - some helicopters are instantly destroyed	
TZ-4741	You can place Mortar underwater and fire from it	
TZ-4703	No PLACE BODY INTO CARGO SEAT option in action menu	
TZ-4668	Error in expression <foreach (on start-up)	

Issue key	Summary	Netsuite Case
TZ-4657	Player can't move after controlling the UAV	
TZ-4638	Replace Disable setFlashBang With White Screen	
TZ-4608	Script error (privateAll) on VBS start-up	
VB-10884	Geo Bridge disappear sooner than road when zooming out	
VB-10875	Global airfield streaming problems	
VB-10840	Roads Bug Road loses elevation changes after changing to EE	
VB-10837	Incorrect sea level	
VB-10818	Airfields have sunken light models when streaming over network	
VB-10803	Airfields Broken in Blue Trunk 190531 and later	
VB-10776	Model geometry is not lining up with the blue orthophoto feeds	
VB-10773	Water and Road Vector Exports Result in Hanging Binarizations	
VB-10764	CTD in albedo plugin	
VB-10746	OWS plugin can use incorrect WIBU feature	
VB-10744	Coasts on map lose detail on certain zoom levels	
VB-10737	Global Roads have an issue with flattening over Blend Mask	
VB-10736	http 502 error flood in VBS4Server logs	
VB-10721	Freeze in PluginManager during smoketest shutdown	
VB-10720	PCM client config deadlock	
VB-10716	CTD in blue raycast called by AI	
VB-10712	Hardcoded new error string when connection to VWS is not possible	
VB-10707	DataSampler breaks building editor	
VB-10705	CTD when placing Queen Elisabeth/OPV River class	
VB-10644	BiomeConfigs fail when placed in a dir with space in the name	
VB-10643	CTD in UE autotest after RAB-1190 merge	
VB-10618	NL MoD - Pixelated ground and roads when using long range IR	90495
VB-10606	CTD VBSBlue.dll!Base::HasBinaryMove<Buffer::SectionInfo>::MoveData	
VB-10572	CTD on incorrect transformation of streamed objects	
VB-10569	CTD inside BlackSharkEngine during Loadtest	

Issue key	Summary	Netsuite Case
VB-10546	ATF30-2L crane arm disappears in certain angles	
VB-10521	Elevated roads after VB-10448 Road Vector Curve Handling	
VB-10516	DEM Blend Source Binarization is Broken	
VB-10514	Runway lights are the wrong color on Yakushima	
VB-10507	Multi Provider for GSHP Crashing on Binarize with Airfields	
VB-10499	PCM Crash in objects preview	
VB-10484	Different than default render resolution is broken	
VB-10479	Grass with referential albedo is too bright in final render	
VB-10472	Blue IG startup deadlock	
VB-10466	Eye adaptation problems during sunset after VB-10449	
VB-10452	UE Autotest CTD	
VB-10449	Eye never gets adapted in autotest9	
VB-10436	Point cloud is broken	
VB-10417	Precalculate water waves	
VB-10414	AddonPacker CTD on binarization of any P3D	
VB-10410	v141 static libs are no longer built	
VB-10397	Blue is crashing on startup	
VB-10358	Forward+ version of NVG is considerably slower than Color vision	
VB-10348	Simplify gshp binarization attribute causes visual side effects	
VB-10295	Unstable framerate in HMD	
VB-10256	Scaled objects are being culled incorrectly	
VB-10202	Elliptical Lights in P3D Light System Can't be Overridden	
VB-10050	Clouds ending in perfect line	
VB-10029	Extrusion difference distr. vs custom build	
VB-10014	Propeller of the UAV Predator looks strange while in different optic mode	
VB-9972	Bad bush model quality	
VB-9840	Sharp last lod of certain grass model	

Issue key	Summary	Netsuite Case
VB-9821	Floating point traps during refinement / startup	
VB-9652	Exporting Albedo to VBS4 Master produces black edge	
VB-9568	Live buildings disappear at some angles	
VB-9380	Holes in ground in Poland near river	
VB-9278	Missing buildings along global data tile boundaries	
VBS4-8779	Script error message appears when performing Tactical Peek	
VBS4-11483	Radio types custom freq. range uses only integers	
VBS4-11579	[Controller] Same key bind for Car Forward and Car Aim up in default keybindings	
VBS4-11954	Different style of message about not being able to deploy DROPS trailer	
VBS4-12580	VBSPitchRadio: Default radio range value is over the limit and blocking save	
VBS4-12769	setMissileLockTarget sqf position locking broken	
VBS4-13040	Gateway adapter RPR2 and VBSPitchRadio are not compatible	
VBS4-13094	AAR - upload of AAR to WS creates .zip (visible in UI - cannot be interacted with)	
VBS4-13752	Script error on VBS start-up	
VBS4-14097	CTD in ~BlueDataManagerComponent	
VBS4-14190	CTD after closing admin in windowmode=2	
VBS4-14295	Wrong altitude of GW Geo Filters	
VBS4-14380	Opening RTE too soon after mission start breaks some import scripts	
VBS4-14440	CTD - CxxThrowException() / Radio	
VBS4-14896	Endless massive VBSPitchRadio flood after switching to unit created in RTE	
VBS4-15186	Pop-up and all entities are deleted if mission is restarted without saving	
VBS4-15697	CTD in ModelPlacementTool during smoketest shutdown	
VBS4-15703	Editor Settings can't be opened	
VBS4-16053	Geo - FPS drop when using Model Line tool	
VBS4-16097	Laser guided missiles are not able to lock on a laser mark	

Issue key	Summary	Netsuite Case
VBS4-16258	Automated tests are unable to change the set visual profile	
VBS4-16335	VBS Builder watermark occludes UI	
VBS4-16562	Customer mission - CTD in converted mission	
VBS4-16635	CTD inside VBSPitchRadio when starting a specific stresstest mission with configured radio	
VBS4-16648	CTD in InGameUI::SimulateHUD	
VBSGEO-2149	GEO CTD Crash after opening BS with road/bridge edits	
VBSGEO-2111	CTD Deadlock in GeoCore.dll leads to infinite freeze in VBS4	
VBSGEO-2015	Custom preset CTD for non-ASCII battlespaces	
VBSGEO-1996	CTD - doing GEO edits (elevation tool)	
VBSGEO-1993	VBS Geo Elevated roads after Road Vector Curve Handling - Tracking VB-10521	
VBSGEO-1967	Import BUG Import GEO project is not working	
VBSGEO-1951	BlueIG freeze in Blue at shutdown	
VBSGEO-1942	GEO - Flattening mountain area using Elevation Area tool creates bumpiness [Part 2]	
VBSGEO-1915	Freeze after undo of placed Model with Flattened Terrain option turned on	
WW-973	Fix BlueVideoSettings importing/exporting whole Settings root	
WW-851	Script error when interacting with pickable objects	
WW-791	PerfBoard Follow-up WW-783 Perf drop in various missions between 37/47 builds	
WW-783	PerfBoard 6-78% perf drop in most of missions between 37/47 builds	
YT-667	Autotest RPT: Cannot open object (vbs_plugins)	
YT-666	PerfBoard Infinite freeze in Lua garbage collector in certain perftests	

The following Config Patch Builder issues were resolved in VBS4 24.1.0:

Issue key	Summary
DEVT-1676	CPB: Browsing History After Class Deletion
DEVT-1675	CPB: Nested Inheritance Producing Errors
DEVT-1671	CPB: Empty Array Entry

Issue key	Summary
DEVT-1666	Update CPB pipeline build logic
DEVT-1654	Config Patch Builder Remove Paywall for premium features
DEVT-1605	CPB: Minimize window
DEVT-1604	CPB: Expand allowed base class structure
DEVT-1603	CPB: Adding Class does not update Config Tree View
DEVT-1601	CPB: Drag-Window areas too limited
DEVT-1593	CPB: Destination of Add Entry (class option)
DEVT-1592	CPB: Importing csv With Edited Value
DEVT-1546	CPB: Allow Message Boxes to be Closed by Enter
DEVT-1534	CPB: Investigating New Crashes
DEVT-1522	CPB: Crash when navigating to CfgWeapons
DEVT-1521	CPB: Changed Value not exporting (inheritance?)
DEVT-1436	CPB: Delete button for Pending Changes
DEVT-1435	CPB: Saving settings on load and change
DEVT-1434	CPB: Selecting item when none can be found crashes CPB

2. VBS4 Release Notes 23.2

Bohemia Interactive Simulations continues to actively develop VBS4 with customer-specific projects enhancing the baseline for all customers, plus internal initiatives to constantly improve and enhance the capabilities of VBS4, its components, and associated tools - all aimed at providing the ideal platform for your training needs.

Bohemia Interactive Simulations has released the following versions and updates for VBS4 23.2.

Version	Major Features
23.2.0	General release for all customers.
23.2.1	Patch release with issue fixes for specific customer issues.
23.2.2	Patch release with issue fixes for specific customer issues.
23.2.3	Patch release with additional enhancements and issue fixes for specific customer issues.

VBS4 23.2.0 introduces the following new features:

- VBS Map, which works alongside VBS and displays a real-time map of the scene in the current scenario.

For more information, see [VBS Map \(on page 74\)](#).

- ORBAT Editor that allows users to modify existing ORBATS and create new custom ones.

For more information, see [ORBAT Editor \(on page 75\)](#).

- Config Patch Builder, which enables users to generate `.pbo` patch files that contain parameter and value changes for assets in VBS.

For more information, see [Config Patch Builder \(on page 76\)](#).

- The old Control AI Order behaviors for infantry have been replaced by more advanced general-purpose military AI ones. Also, riot behavior was added to civilian AI.

For more information, see [Military and Civilian AI Behaviors \(on page 78\)](#).

- VBS Geo includes a major update to the road tools enabling greater road customization with distinct surface textures, lane markings, and colors to better align road appearance based on regional differences, and to support multi-lane roads.

For more information, see [New Roads in VBS Geo 23.2 \(on page 86\)](#).

- User actions have been improved to introduce 3D World Actions, instead of the old Action Menu.

For more information, see [User Actions Improvements \(on page 80\)](#).

- Introduced range visibility settings for Electronic Warfare and VBS Radio.
For more information, see [Range Visibility Settings \(on page 81\)](#).
- The VBS Plan UI was enhanced with several improvements.
For more information, see [Plan UI Improvements \(on page 82\)](#).

This VBS4 release also includes:

- [VBS Geo Improvements 23.2 \(on page 83\)](#)
- [VBS World Server Improvements 23.2 \(on page 92\)](#)
- [New Content in VBS4 23.2 \(on page 95\)](#)
- [Additional Enhancements \(on page 97\)](#)
- [Geo Project Versioning \(on page 38\)](#)

VBS4 23.2 also resolves a number of issues. For more information, see:

- [Product Maintenance \(on page 103\)](#)

This release includes a number of [VBS4 Known Issues and Limitations \(on page 477\)](#).

2.1 VBS Map

VBS4 introduces VBS Map, used alongside VBS to display a real-time map of the current scenario.

VBS Map is designed for Trainees to use alongside VBS, with web browser typically running vbs Map on a second screen. VBS Map also enables Administrators / Instructors to set up specific user clients, and observe / evaluate all Trainees from a web browser on one administrator station.

For Administrators / Instructors, VBS Map provides:

- Full battlefield overview of all units and groups present in the scenario.
- Observe the map for each individual Trainee, and their actions in Prepare and Execute modes.
- Map and display configuration with real-time updates from the Admin / Instructor console:
 - Configure Trainee maps to simulate specific scenario conditions, and real-life GPS functions.
 - Create map presets with stored configurations, which determine map behavior, that can be applied to individual user clients on the network.

For Trainees, VBS Map provides:

- A map window in a web browser on a separate screen, which mimics the functionality of real GPS devices used on the battlefield.
- Map coordinates and map tools.
- Battle plans created using VBS Plan.

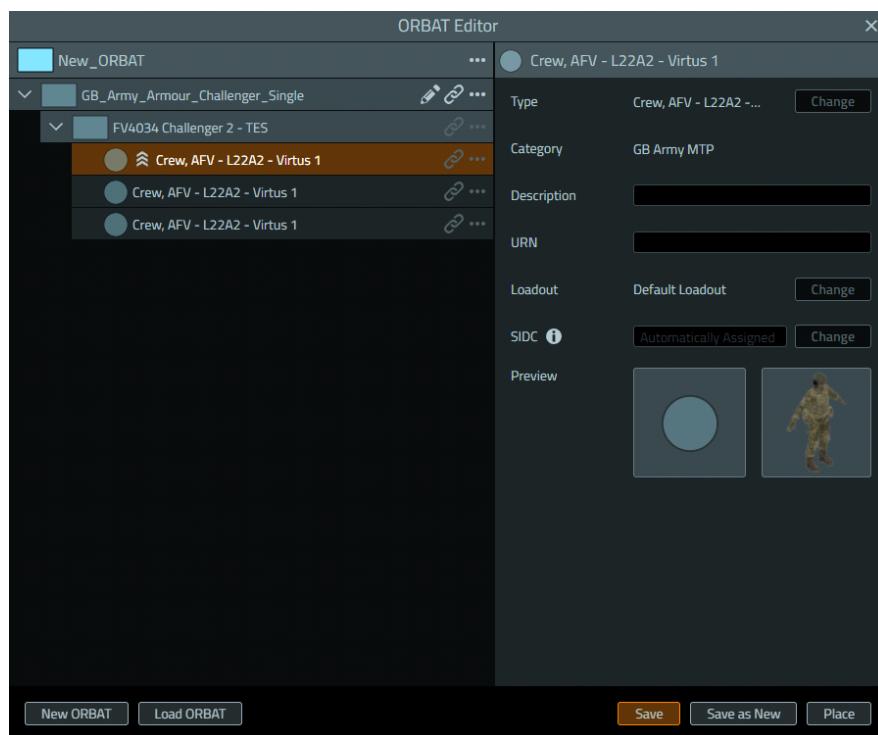
VBS Map provides support for VBS4, including VBS Plan. It can run on the same computer, but is usually displayed on a separate monitor (or on a separate computer). For more information, see Welcome to VBS Map in the VBS Map Manual.

A startup option in VBS Launcher: **-disableVBSMap**, is available to disable VBS Map. For more information, see Advanced - Configuration in the VBS4 Administrator Manual.



2.2 ORBAT Editor

The ORBAT Editor is a tool that can be used from both VBS Editor and VBS Plan, allowing users to significantly simplify and expedite the modification of existing ORBATS and the creation of custom new ones. In previous versions of VBS4, this was only possible using JSONNC files that had to be created manually.



For more information, see:

- [ORBAT Editor in the VBS4 Editor Manual](#)
Describes the ORBAT Editor UI and its workflows.
- [Create Custom ORBATS in the VBS Plan Manual](#)
Describes how to create an example custom ORBAT, using the ORBAT Editor.

2.3 Config Patch Builder

VBS4 introduces the Config Patch Builder (CPB), which is a tool that helps you to make quick configuration changes, and automatically applies them to VBS4, all without you needing in-depth technical knowledge of configuration files and their usage.

The CPB is located in: `\VBS4_Installation\optional\configpatchbuilder\`

★ FEATURE NOTICE

The following features of the CPB are premium, and are licensed:

- **Batch Import** - Used to ingest `.csv` files and update `config.cache` values.
- **Filtering** - Used to select the filter criteria of exportable values, either as a configuration patch or a `.csv` file.
- **Full Cache** - Used to process the entirety of the `config.cache` as a source.
- **Export to CSV** - Used to export all or filtered values as a `.csv` file.

For more information, contact sales@bisimulations.com.

The regular patch editing and `.pbo` building features are free.

The CPB shall become a part of every VBS4 installation. Currently, it is in VBS4 23.2 and shall be in the installers going forward, together with a shortcut for your desktop.

The main use-case is to launch the CPB, feed it a `config.cache` file (`\VBS4_Installation\cache\config.cache`), change the values and classes that you want to edit, and export them as a `.pbo` for VBS.

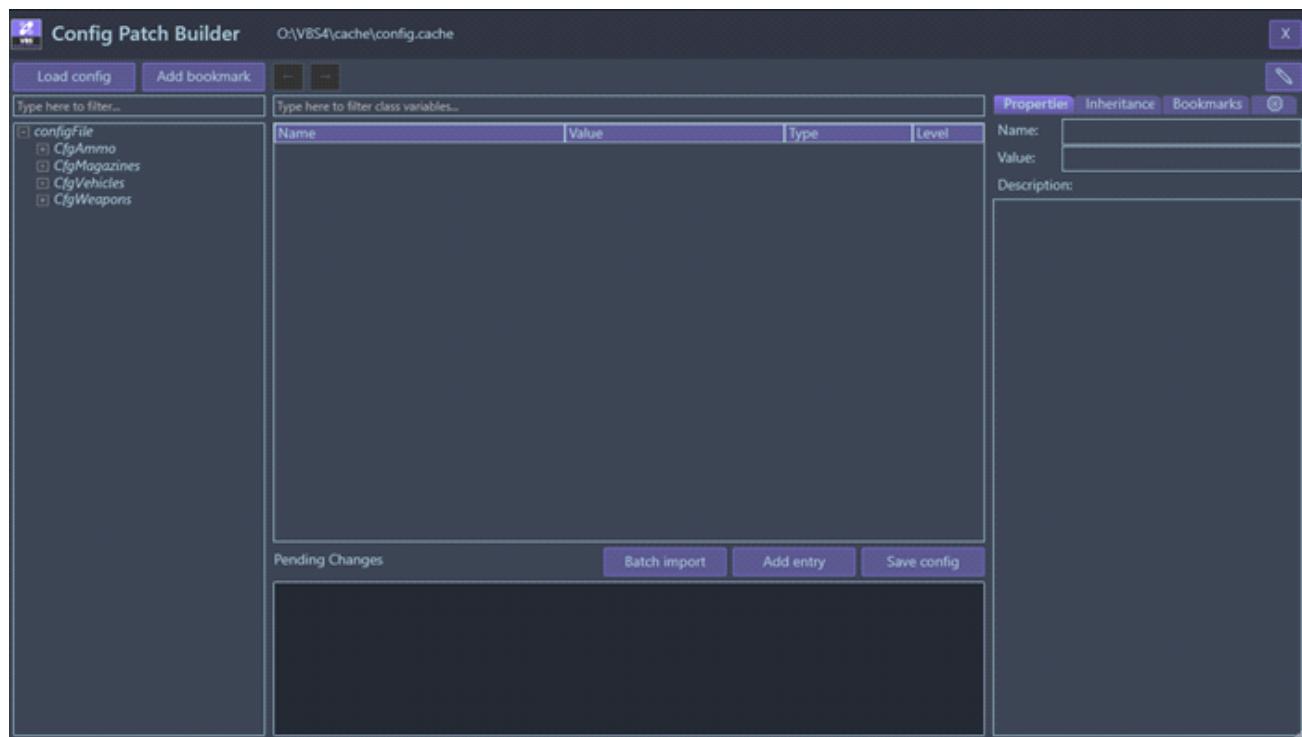
Updates to existing configurations could include, for example:

- Changing the maximum speed of a vehicle.
- Changing the engine power of a vehicle.
- Increasing the damage and velocity of specific ammunition.
- Changing the default weapons of a tank.

Besides the main use-case, the CPB can also filter and export configuration information from the entire `config.cache` file using an advanced filter combination to `.csv`, where you can edit values in bulk. When edited, the `.csv` spreadsheet file can be imported again into the CPB and converted to `.pbo` format.

Alternatively, you can use filtering to find specific details about Bohemia Interactive Simulations assets, such as (for example), how many four-wheeled vehicles there are, or how many magazines with a 30 round capacity exist.

Image-9: Config Patch Builder UI



Detailed information about the CPB is available in the VBS4 Manuals (not the VBS4 Developer Suite Reference), see Config Patch Builder in the VBS4 Administrator Manual.

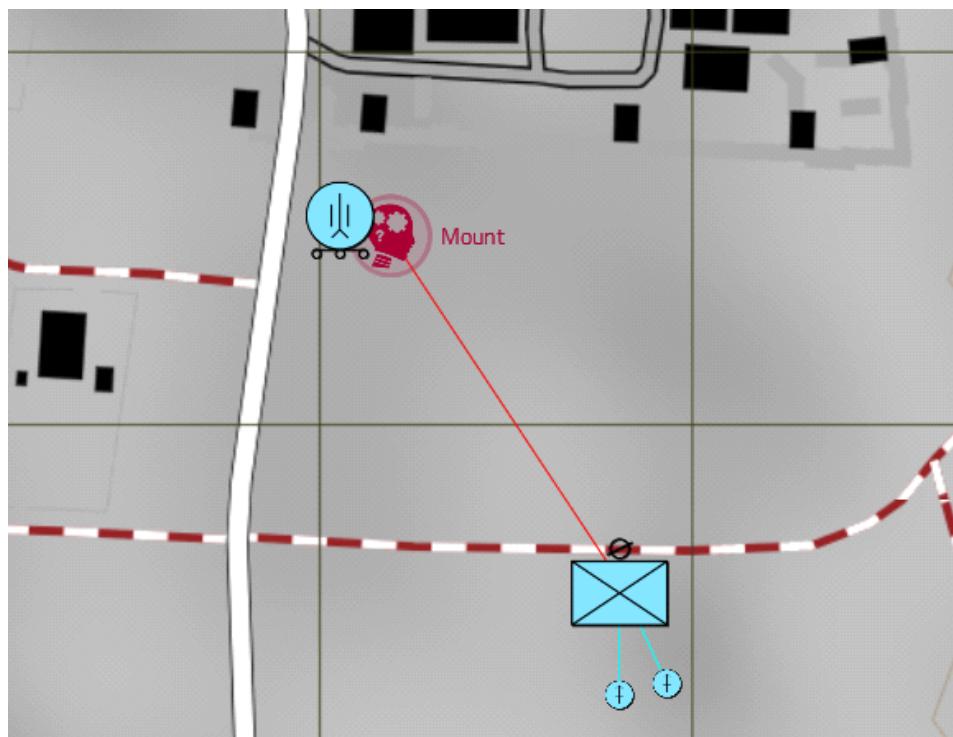
2.4 Military and Civilian AI Behaviors

Infantry AI, which consisted of group infantry Control AI Order behaviors, was replaced by a more advanced general-purpose military (infantry and vehicle) set of Control AI Order behaviors:

- Assault
- Advance
- Pursue
- Suppress
- Defend
- Mount
- Dismount
- Return to Formation

These Control AI Order behaviors replace the following old group infantry Control AI Order behaviors:

- Move
- Move In Column
- Secure
- Halt



For more information, see Military AI in the VBS Control AI Manual.

It is now possible to synchronize military Control AI waypoints / Order behaviors. For more information, see Waypoint Synchronization in the VBS Control AI Manual.

Also, riot behavior was added to civilian AI.



For more information, see Civilian AI and Define Civilian Riot in the VBS Control AI Manual.

In addition, military convoys, UGVs, and civilian vehicle traffic can now use multi-lane roads. For more information, see the following topics:

- Fully Autonomous Convoy in the VBS Control AI Manual
- Convoy Order in the VBS Control AI Manual
- Traffic Debug Visualization in the VBS Control AI Manual
- AV Assign Waypoints in the VBS4 Trainee Manual

2.5 User Actions Improvements

User actions have been improved to make interaction with world objects more realistic. The old Action Menu was replaced by 3D World Actions, which show directly on objects, depending on proximity and orientation.

Image-10: 3D World Actions list



User actions now consist of 3D World Actions and Quick Menu Actions. For general information, see User Actions in the VBS4 Trainee Manual.

Additional improvements were introduced:

- The Countermeasures and Lane Marking functionality was moved from the Systems Menu to the Quick Menu.

For more information, see Countermeasures - Smoke and Trojan Mine Plough (Lane Marking) in the VBS4 Trainee Manual.

- A **VEHICLE** category was added to the Quick Menu to group vehicle-specific functions.

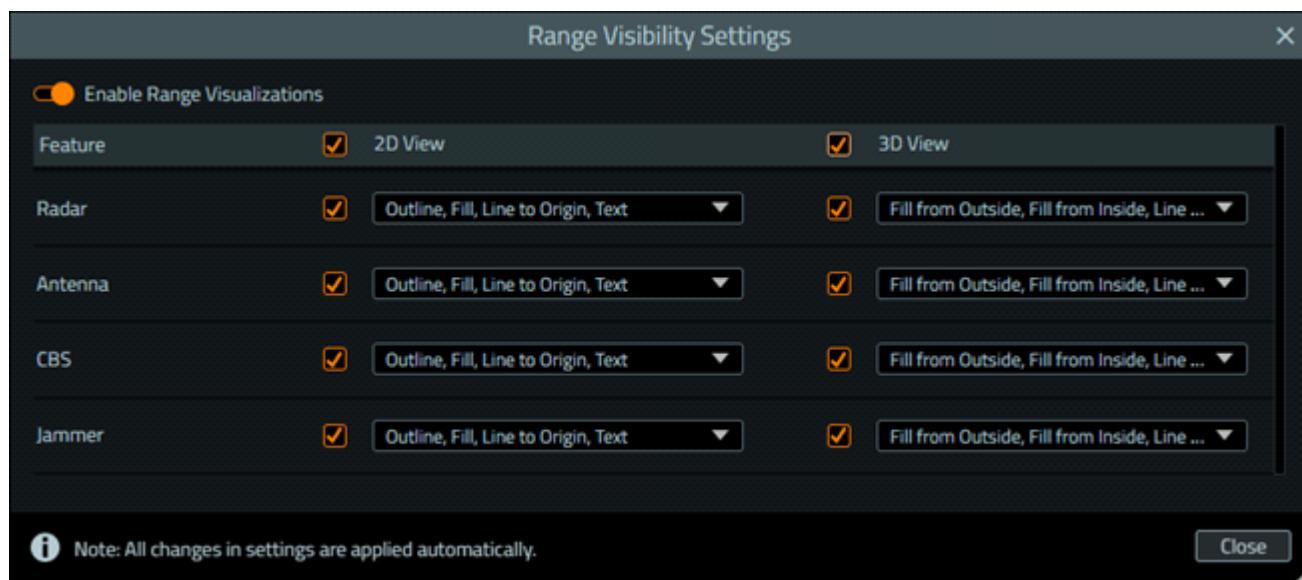
2.6 Range Visibility Settings

VBS4 introduces the Range Visibility Settings dialog. This dialog allows you to configure which elements of range visualizations are visible to Administrators / Instructors on the 2D Map / in 3D Camera View.

Currently, the dialog allows range visualization configuration for the following features:

- **Electronic Warfare**
 - Radar
 - Counter-Battery Sensor
- **VBS Radio**
 - Radio Jamming Device
 - Retractable Radio Mast

Image-11: Range Visibility Settings dialog



For more information, see Range Visibility Settings in the VBS4 Editor Manual.

2.7 Plan UI Improvements

The VBS Plan UI has been improved with the following features:

- Unification of the Tool and Object Properties into Specific Properties (there are now Global and Specific Properties).
- Enhanced UI flexibility, where individual panels can be hidden / shown.
- Access points for the [ORBAT Editor \(on page 75\)](#) from the Tactical and CAS Unit Tools.
- Renaming of the Move Order Tool to the Advance Order Tool, and of the Support by Fire Order Tool to the Suppress Order Tool, due to the new Control AI Order behaviors (see [Military and Civilian AI Behaviors \(on page 78\)](#)).
- You can now place Symbol Library objects by dragging them onto the map, instead of using the Place Symbol icon first (the Place Symbol icon and control were removed).

For more information, see VBS Plan UI Overview in the VBS Plan Manual.

Image-12: New Specific Properties panel

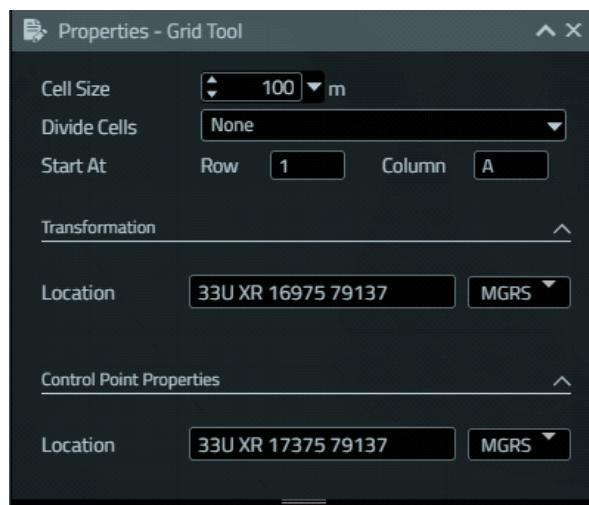
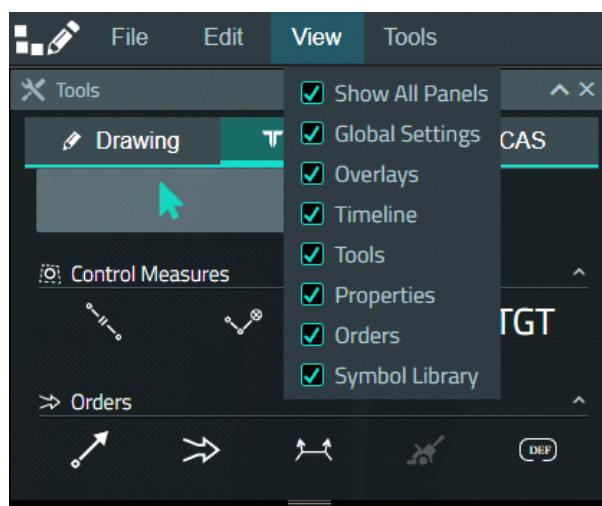


Image-13: UI panels that can be hidden / shown.



2.8 VBS Geo Improvements 23.2

VBS4 includes the following improvements to VBS Geo in this release:

- [General Improvements \(below\)](#)
- [Elevation Editing Improvements \(on the next page\)](#)
- [Model Placement Improvements \(on page 85\)](#)
- [Road Improvements \(on page 85\)](#)
- [Surface Improvements \(on page 91\)](#)

2.8.1 General Improvements

This section details the improvements to the general functionality in VBS Geo, including:

- [Vector Improvements \(below\)](#)
- [Geo Project Version \(on the next page\)](#)

2.8.1.1 Vector Improvements

Vector lines have been updated to provide improved interaction and editing.

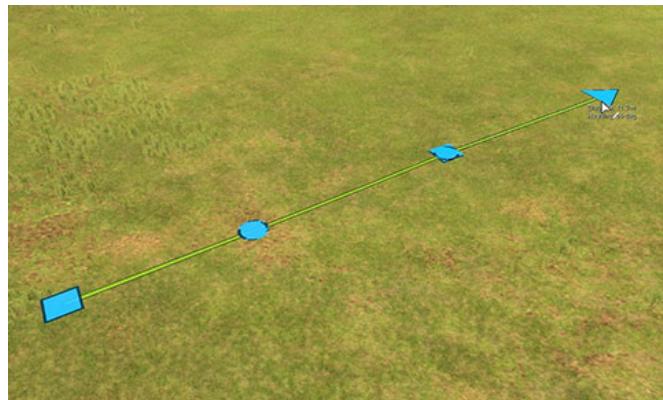
- [Vector Indicators \(below\)](#)
- [Vector Rotation \(on the next page\)](#)

For more information about these changes, see a vector tool topic, such as Placing and Editing Roads in the VBS Geo Manual.

2.8.1.1.1 Vector Indicators

Vector lines display start and end points that also indicate a direction.

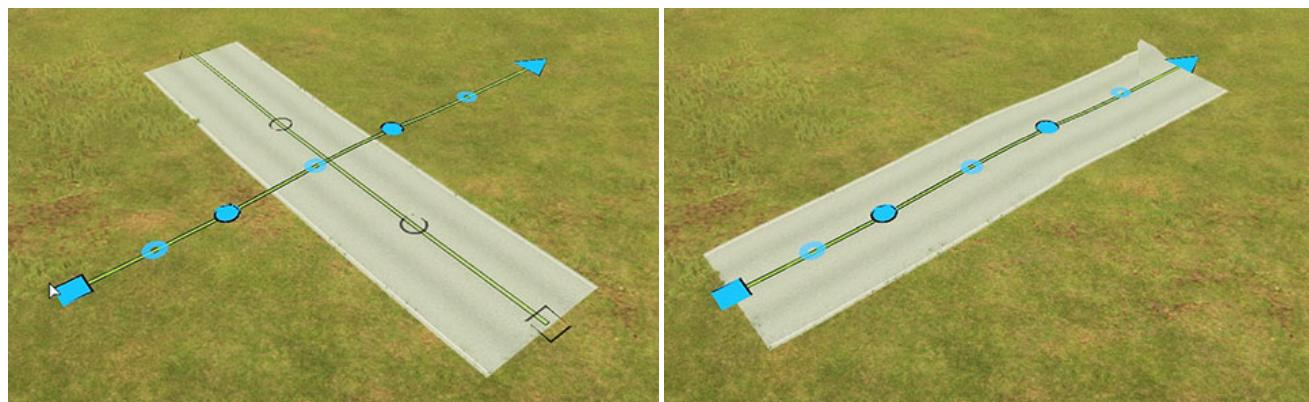
When a line vector-based tool is in use, such as a road, click in the terrain to place a square indicator at the start point, with a triangle indicator at the end point that tracks the mouse cursor.



2.8.1.1.2 Vector Rotation

Vectors can now be rotated regardless of lines or areas.

Hover over the selected vector, hold **Shift** and the right mouse button, and then move the mouse right or left to rotate the vector. Release the **Shift** key and right mouse button to set the vector in place.



2.8.1.2 Geo Project Version

The Geo Project Version used in VBS4 23.2 has changed to Geo Project version 1.3, to support a change to the Geo Project extension and for new roads in VBS Geo 23.2. As a result, VBS4 23.2 projects are backwards incompatible with earlier versions of VBS4.

For more information, see [Geo Project Versioning \(on page 38\)](#).

2.8.2 Elevation Editing Improvements

Elevation editing and its interaction with Roads and Water have been refined and improved.

Both road and water editing feature improved handling of existing elevation edits. They also respond better to new elevation changes placed on them. For example, roads with flatten enabled should no longer become bumpy when placed over flattened terrain.

For more information, see [Editing Terrain Elevation in the VBS Geo Manual](#).

2.8.3 Model Placement Improvements

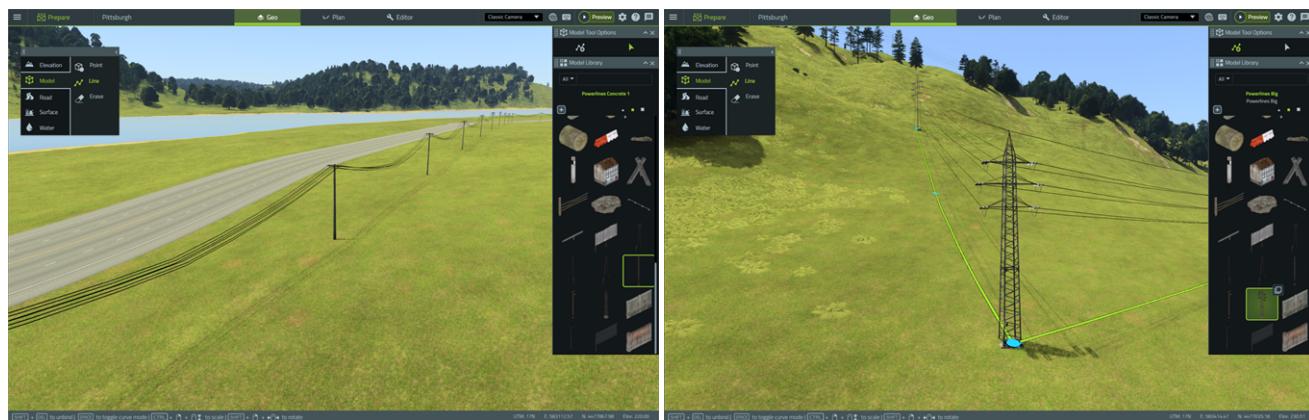
This section details the improvements to the Model Placement functionality in VBS Geo, including:

- [Powerlines \(below\)](#)

2.8.3.1 Powerlines

This release adds several power lines to VBS4. Add power lines in the same way as other linear models with the exception that they are not customizable.

For more information, see [Model Line Placement](#) in the VBS Geo Manual.



2.8.4 Road Improvements

VBS Geo includes significant improvements to road placement and editing, including:

- [New Roads in VBS Geo 23.2 \(on the next page\)](#)
- [Road Presets \(on page 87\)](#)
- [Road Customization \(on page 88\)](#)
- [Road Behavior \(on page 89\)](#)
- [3D Road Elevation Editing \(on page 90\)](#)
- [AI Debug \(on page 91\)](#)

For more information about using these changes, see [Placing and Editing Roads in the VBS Geo Manual](#).

2.8.4.1 New Roads in VBS Geo 23.2

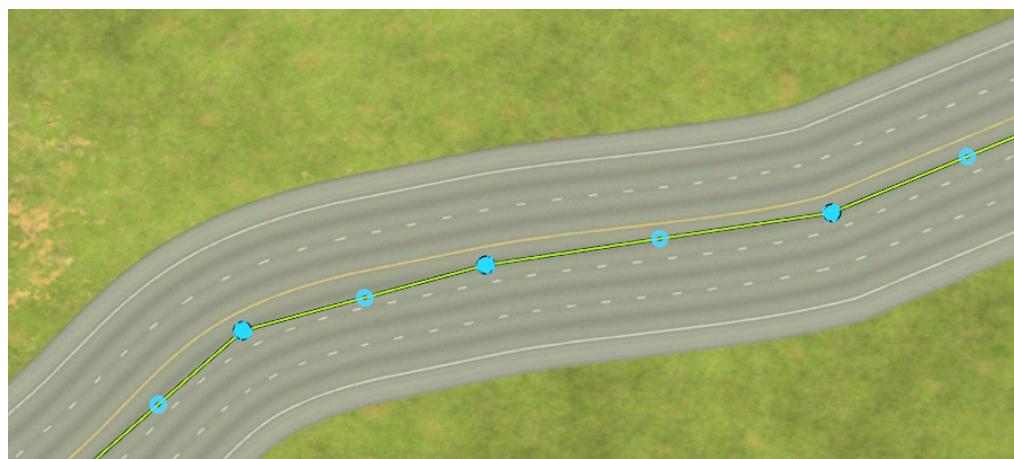
VBS Geo includes a major update to the road tools that allow you to create and edit the new road system introduced in VBS4 23.2. The improvements in this release allow for greater road customization with distinct surface textures, lane markings, and colors to better align road appearance based on regional differences.

The old road types from previous versions of VBS4 are now marked as **Legacy** roads. To upgrade a **Legacy** road to the new road system introduced in VBS4 23.2, select the road in the **Road Edit** tool and change the road texture to a new one. Once the road texture has been updated, the other road customization settings are available to edit.

VBS Geo 23.2 also includes options to specify multiple lanes in either direction.

- Select the number of lanes for each road direction and the lane width.

AI-controlled vehicles created with the Civilian AI, respect vehicle lanes, and change lanes automatically based on traffic conditions and path planning.



2.8.4.2 Road Presets

VBS Geo 23.2 includes a new set of presets to support roads with multiple lanes, organized by type, with filter and search options:

Paved

- Urban Street
- Urban Street, Heavy Wear
- Urban Street, Sidewalks
- Urban Street, Sidewalks, Heavy Wear
- Rural Road Rural Road, Heavy Wear
- Concrete Road
- Paneled Concrete Road

Unpaved

- Field Road
- Field Road, Tracks
- Sand Road
- Gravel Road
- Dirt Path
- Rock Path
- Sand Path

Highway

- Divided Highway
- Divided Highway, Light Wear
- Divided Highway, Heavy Wear
- Divided Highway, Shouldered
- Divided Highway, Shouldered, Light Wear
- Divided Highway, Shouldered, Heavy Wear
- Undivided Highway
- Undivided Highway, Light Wear
- Undivided Highway, Heavy Wear
- Undivided Highway, Shouldered
- Undivided Highway, Shouldered, Light Wear
- Undivided Highway, Shouldered, Heavy Wear

Other

- Railway
- Runway

NOTE

These replace the previous presets which are no longer available for selection.

For more information, see Road Presets in the VBS Geo Manual.

2.8.4.3 Road Customization

VBS Geo includes various options to customize the appearance of roads:

- Select the primary surface texture of the road.
- Select the road surface color and brightness.
- Select the width and texture of road edges.

i NOTE

Textures on existing roads that do not support roads with multiple lanes are shown as Legacy. All other road properties are disabled until the texture is changed.

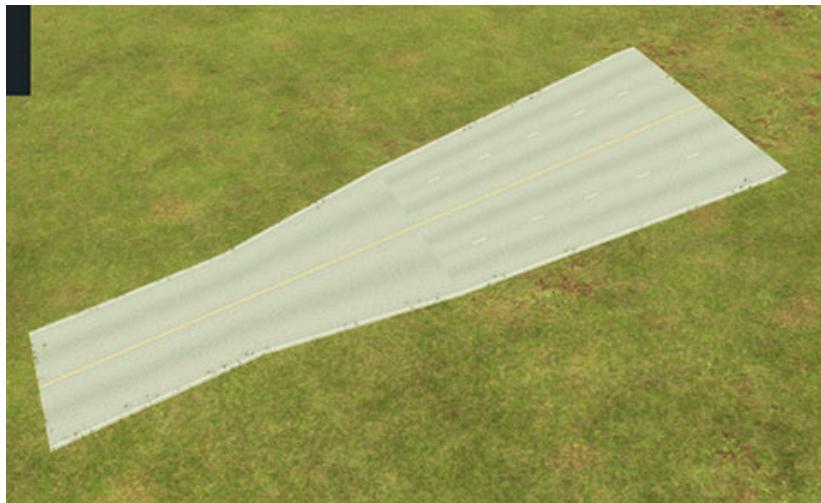
- Select road markings, including individual selection of markings such as centerlines and dividers.
- Select specific markings for road intersections and stop markings.



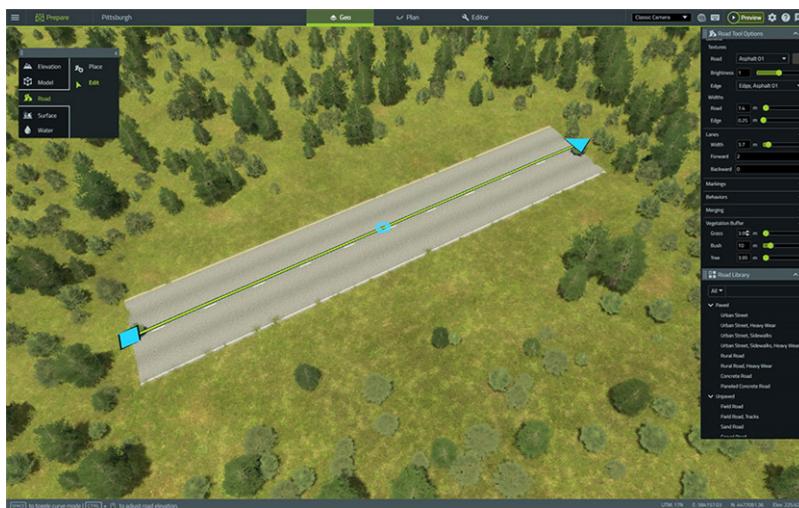
2.8.4.4 Road Behavior

VBS Geo includes new road behaviors to control its appearance and interaction with terrain.

- Select road behaviors, such as terrain leveling and rounded corners.
- Select merge options to widen or narrow a road where it meets another road of the same type with a different width.



- Select Vegetation Buffers to remove grass, bushes, and trees from the edges of roads.



2.8.4.5 3D Road Elevation Editing

VBS Geo enables rapid elevation changes to roads or specific nodes on a road linear. Hover over a road or a road node, hold **Ctrl**, and then use the mouse wheel.

For more information, see Road Elevation in the VBS Geo Manual.

Image-14: Positive and Negative Elevation Changes for a Road Node

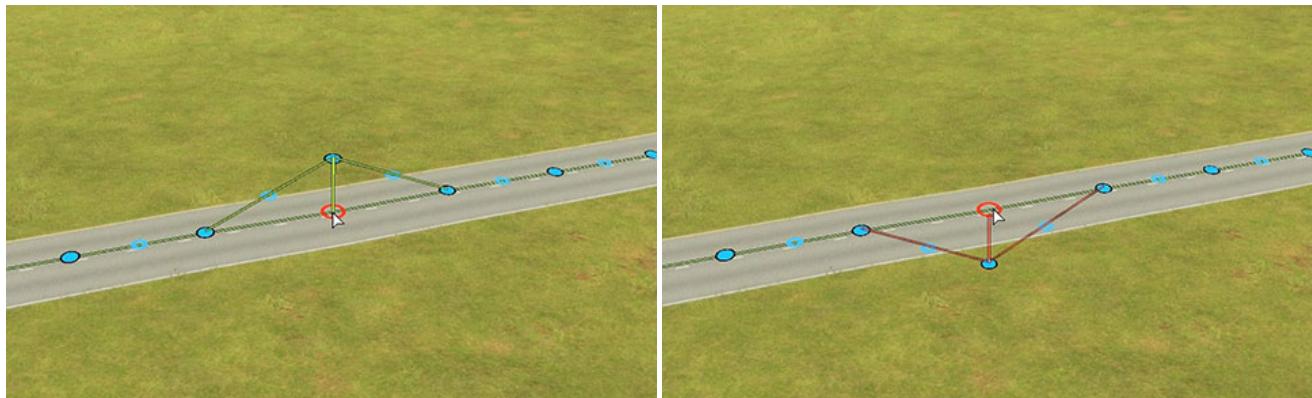
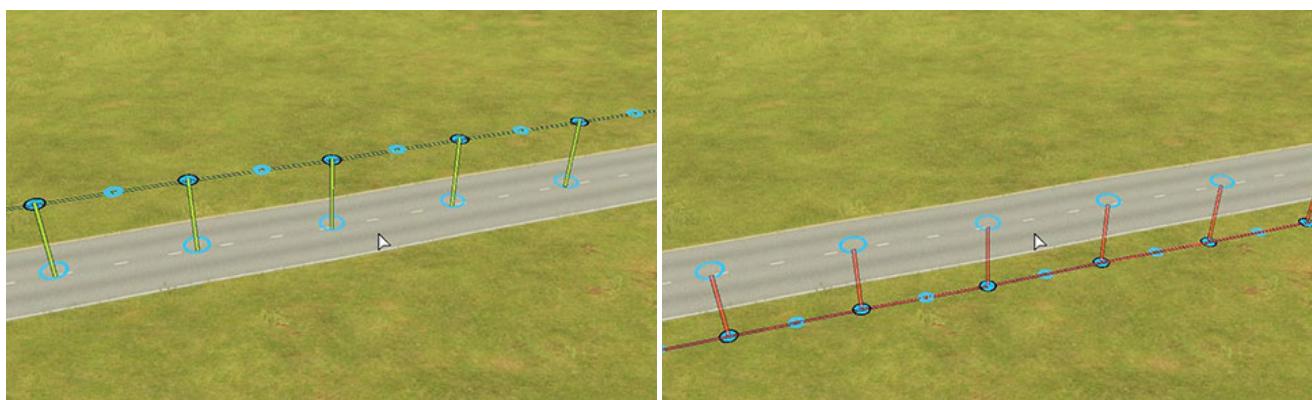
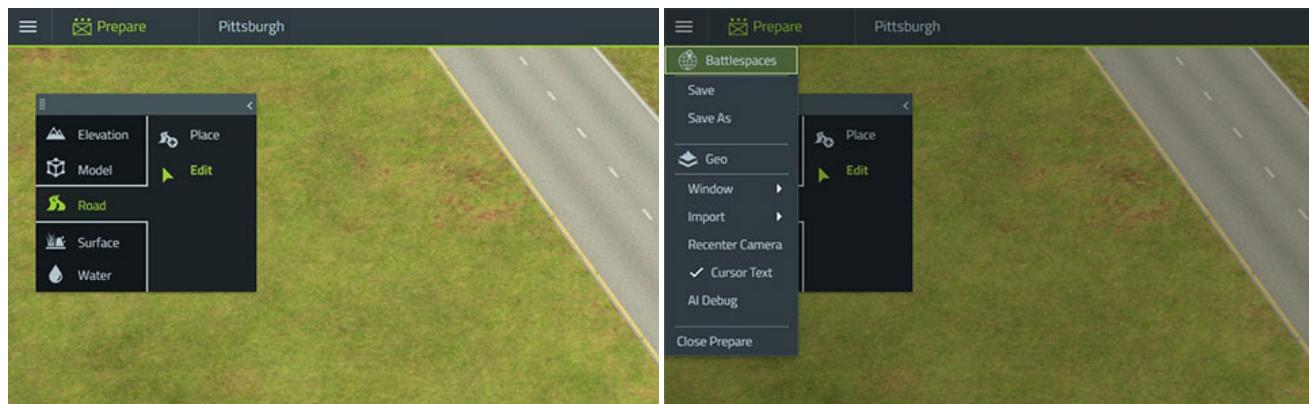


Image-15: Positive and Negative Elevation Changes for a Road



2.8.4.6 AI Debug

The path that the AI-driven entities take on roads can now be displayed with the new **AI Debug** option in the **Main Menu**.



All roads display a faint green and yellow outline and arrows that indicate the boundaries and direction that any AI entities follow.



For more information, see VBS4 Main Menu for VBS Geo in the VBS Geo Manual.

2.8.5 Surface Improvements

Three new surfaces have been added under a new **Other** category in the **Surface** selection menu. These classes are specifically for terrain insets, like Hohenfels, that use a soil and image blending technique. Most VBS Geo surface edits should continue to use the surfaces available under the **Natural** and **Urban** categories.

For more information, see Editing Terrain Surfaces in the VBS Geo Manual.

2.9 VBS World Server Improvements 23.2

This section discusses the improvements included in all major and minor versions of VBS World Server 23.2.

- [VBS World Server Improvements 23.2 \(above\)](#)

2.9.1 VBS World Server Improvements 23.2.0

VBS World Server 23.2.0 contains the following improvements:

- [General Improvements \(below\)](#)
- [VBS World Server User Interface \(below\)](#)
- [Terrain Conversion Tool \(on page 94\)](#)

2.9.1.1 General Improvements

- French localization support has been added.
- The VBS World Server **Server Management Dashboard** now launches in the same language as the VBS4 localization. (Only English or French are currently supported.)
- VBS4 Clients now include a status check of the VBS World Server WPS Server service to confirm that the connected VBS World Server is online.
- VBS Geo's **Data Import** functionality has been updated to use the new road textures introduced in VBS4 23.2.
- A bug was fixed that prevented VBS Geo-added water from being exported.
- A bug was fixed that caused VBS World Server insets to not be generated if non-SQLite files were present in the inset folder.
- A bug was fixed that caused the VBS Geo Data Import process to freeze.
- Improvements were made to the inset deletion processes.

2.9.1.2 VBS World Server User Interface

- The VBS World Server **Server Management** tab now displays the VBS4 version number and the full file path to the VBS World Server installation.
- The **Clear Caches** button has been added to the **Server Management** tab's **Services Panel**.
- The VBS World Server **Server Management** tab's **Services Panel** now consistently sorts entries in a case insensitive manner regardless if they are sorted by first or last.
- The VBS World Server **Globe View** in the **Data Management** tab contains new backdrop map feeds: VBS Albedo and VBS Shaded Relief.

- A new **Map Extent** option has been added to the **Inset List Filter**. This option filters the inset list based on the extent of the map visible in the **Globe View**.
- The **Map Settings Menu** can now control map display preferences in the **Globe View**. This menu includes options for clustering inset labels, toggling political boundaries and place names, and enabling the display of Latitude / Longitude gridlines.
- The **Preset Inset Configuration** option on the **Data Management** tab has been renamed to **Preset**.
- The **Data Management** tab's **Insets Management** panel's sorting and filtering system now saves into the **Preset** configuration when using the **Commit Configuration** button.
- The **Data Management** tab's **Insets Management** panel now displays a **(Filtered)** label next to the number of insets to easily show if the results are being filtered.
- Saved **Presets** can now be updated with inset configuration changes using the **Update Preset** button.
- The **Generate New Insets** and **Resync Insets** buttons have been added to the **Inset List Options**.
- The **Insets** panel now saves the scroll position after a page refresh.
- The **Insets** and **Layers** panels now ensure that a row stays in view when it is expanded or set to **Edit** mode.
- The bounds input in the **New Process** panel has been restyled.
- The **Terrain Layers Panel** now fully recognizes and supports the **mapVec** layer and displays the correct data type.
- Improvements were made to inset bounding box rendering and appearance in the **Data Management** tab.
- Improvements were made to the **Data Management** tab display when the window is resized.
- A bug was fixed that prevented the default appearance features for mapping surface features for OpenFlight (FLT) and MetaFlight (MFT) exports from loading properly.
- A bug was fixed that caused rendering issues when switching between the **Imagery** and **3D Tiles** view in the **Globe View** panel.
- A bug was fixed that caused VBS World Server **Terrain Layers** to have their names hidden if they contained a plus sign ("+").
- A bug was fixed that caused rendering issues when zooming in on the terrain in the **Globe View** panel.
- A bug was fixed with specifying negative values in the **Load Priority** field.

- A bug was fixed that caused holes to appear in terrain insets created by the **Import Generic Data** process whenever the provided bounds file exceeded the extent of the imported elevation data.

2.9.1.3 Terrain Conversion Tool

- The Terrain Conversion Tool now produces road data using the new road textures added in VBS4 23.2.

2.10 New Content in VBS4 23.2

VBS4 23.2 includes the following new content:

Name	Type / Category	Classname
Belgian Army Soldier	Unit BE Army - Woodland	bisim_be_army_AT_ammo_wdl_m_medium_atlas_none_scarl_helmet bisim_be_army_AT_wdl_m_medium_atlas_spike_scarl_helmet bisim_be_army_grenadier_wdl_m_medium_atlas_none_scarlgl_helmet bisim_be_army_leader_wdl_m_medium_atlas_none_scarl_helmet bisim_be_army_machinegunner_wdl_m_medium_atlas_none_mag_helmet bisim_be_army_machinegunner_wdl_m_medium_atlas_none_minimi_helmet bisim_be_army_medic_wdl_m_medium_atlas_none_scarl_helmet bisim_be_army_rifleman_wdl_m_medium_atlas_none_scarl_helmet bisim_be_army_sniper_wdl_m_medium_atlas_none_m107_helmet
Oman Army Soldier	Unit IG - Generic BLUFOR Army - Desert	bisim_ig_om_army_soldier_des_m bisim_ig_om_army_soldier_des_turban_m
Spike LR	Vehicle BE Army Static - Woodland Objects BE Army Static - Woodland	bisim_be_army_spike_tripod_wdl bisim_be_army_spike_tripod_prone_wdl bisim_componentHolder_rafael_spike_backpack_clu_placeable bisim_componentHolder_rafael_spike_backpack_tube_placeable

For more information about specific new content, see the following:

- [New Personnel \(on the next page\)](#)
- [New Equipment \(on the next page\)](#)

2.10.1 New Personnel

The following new units are available in this release:

Belgian Army Soldier

Provided as an operator for the Spike missile, UCS-compatible Belgian Army units have been added to VBS.

Provided in basic VBS configurations of Soldier, Grenadier, Leader, Machine Gunners, Medic, and Sniper, variants equipped both as a Gunner and Ammo Bearer for the Spike system are included too.

The unit wears the standard Belgian jigsaw camo pattern and is fully UCS-compliant. In support of Spike, the appropriate units are equipped with the Spike backpack and tube carrier.

Oman Army Soldier

A typical soldier of the Royal Army of Oman, built to IG specifications.

Provided in basic VBS Soldier configuration, the unit wears the standard Omani Disruptive Pattern Material camo pattern, and is equipped with either a combat helmet, or turban.

2.10.2 New Equipment

The following new equipment is available in this release:

Spike

Spike is a fire-and-forget anti-tank guided missile family with a tandem-charge HEAT warhead, currently in its fourth generation, developed by Rafael Advanced Defense Systems.

Produced for VBS is the Spike-LR variant, featuring a maximum range of 4,000m.

The system comprises a reusable Command and Launch Unit (CLU), battery, tripod and thermal sight, and the disposable missile canister. The reusable components of the system are carried in a large backpack, and missile canisters on a "tube carrier", carried by the operator - the Belgian Army Soldier.

2.11 Additional Enhancements

VBS4 23.2 includes the following enhancements:

- [VBS4 User Interface and Workflow \(below\)](#)
- [VBS4 Functionality \(on the next page\)](#)
- [Weather Updates \(on page 99\)](#)
- [VBS Radio \(on page 100\)](#)
- [VBS4 Controls \(on page 100\)](#)
- [VBS4 Settings \(on page 101\)](#)
- [Rendering and Performance Improvements \(on page 102\)](#)

2.11.1 VBS4 User Interface and Workflow

- The Electronic Warfare Settings dialog for Radar was updated to enable the addition of a sweep to the Radar HUD.

For more information, see Radar in the VBS4 Editor Manual.

- The VBS Editor context menu was enhanced with a new organization of options to facilitate their usage.

For more information, see **Context Menu** in Interacting with Editor Objects in the VBS4 Editor Manual.

- The Server Admin Panel was enhanced to include settings for VBS Radio.

For more information, see Server Management in the VBS4 Instructor Manual.

- Added SQF-based Administrator Tools for the VBS Editor UI.

For more information, see Administrator Tools in the VBS4 Scripting Manual.

2.11.2 VBS4 Functionality

- A new Body Mass Index (BMI) system has been introduced for GB Virtus unit models. New models will support the new BMI system in future releases of VBS4.

For more information, see Adding Units in the VBS4 Editor Manual.

- The JIM Compact multi-functional long-range binocular system has been ported to VBS4.

For more information, see JIM Compact in the VBS4 Trainee Manual.

- Self-assembly Military Road Signs, used for convoy scenarios and route marking, have been ported to VBS4.

For more information, see Military Road Signs Overview.

- The Long-Range Spike missile system has been ported to VBS4.

For more information, see Spike LR in the VBS4 Editor Manual and Spike LR Simulation in the VBS4 Trainee Manual.

- Added the [setLogLevel](https://sqf.bisimulations.com/display/SQF/setLogLevel) (<https://sqf.bisimulations.com/display/SQF/setLogLevel>) SQF command to control the level at which VBS4 log messages are recorded.

- Range visualization was improved for the following Electronic Warfare equipment:

- Radar
- Counter-Battery Sensor (CBS)

For more information, see Radar and CBS (Counter-Battery Sensor) in the VBS4 Editor Manual.

- Lasers now support having several rays per one beam. The rays are in a conical shape and support being shot at different angles.

Laser Range finders can provide multiple returns on appropriately configured equipment and vehicles. For more information, see Advanced LRF in the VBS4 Trainee Manual.

- Certain Post-Processing Effects (PPEs) have been re-enabled in VBS4.

For more information, see Post-Processing Effects in the VBS4 Scripting Manual.

- The ability of Instructors to turn aircraft Marker Lights On / Off and switch between Daylight / Night Vision using the context menu in the Scenario Objects Panel was added.

For more information, see Vehicle Management Actions in the VBS4 Instructor Manual.

- Two new options were added to the **Display** drop-downs in the Global Display Information (GDI) tab: **Description** (which displays information available when you hover your cursor over a unit, vehicle, or group in the VBS Editor in Prepare, Execution, or Assess modes) and **Vehicle Status** (which displays damage information, such as: Firepower Kill, Mobility Kill, Catastrophic Kill).

For more information, see Entity Information (EIS) in the VBS4 Editor Manual.

- Symbology icons / markers now have enhanced behavior and appearance adjustment possibilities.

For more information, see Symbology Settings in the VBS4 Administrator Manual.

2.11.3 Weather Updates

- New presets were added.
 - Surface preset: **Snow (Vegetation and Buildings)**.
 - Sea State preset: **Frozen Water**.
- New settings were added.
 - **Freeze Water** - Enables the freezing / unfreezing of all water in a scenario.
 - **Snow Compactness** - Enables the compactness (density) of snow to be adjusted.
 - **Water Temperature** - Enables the water temperature to be set.
 - **Ice Plowing** - Enables you to set snow coverage after plowing on frozen surfaces (such as frozen lakes).
- Some existing settings were changed.
 - Snow - **Snow Coverage** was changed to **Snow Depth**, in meters.
 - Fog - **Decay** was changed to **Altitude Scale**, in meters.
 - Sea States - This category was changed to **Water**.

For more information, see Weather Settings in the VBS4 Editor Manual.

- The Air Temperature setting was moved from the Atmospheric Parameters dialog to the Weather Settings dialog.

For more information, see Atmosphere in the VBS4 Editor Manual.

- The option to include weather data in the Mission Briefing was added.

For more information, see Add Weather Data in the VBS4 Editor Manual.

- Added SQF commands [setWaterTemperature](https://sqf.bisimulations.com/display/SQF/setWaterTemperature) (<https://sqf.bisimulations.com/display/SQF/setWaterTemperature>) and [getWaterTemperature](https://sqf.bisimulations.com/display/SQF/getWaterTemperature) (<https://sqf.bisimulations.com/display/SQF/getWaterTemperature>) to control the temperature (in degrees Celsius) of any water surface in the simulation scene.

2.11.4 VBS Radio

- VBS Radio is enabled by default when VBS4 starts.

The `-vbsradio` startup option is removed from VBS Launcher, and replaced with a `-disableVBSRadio` startup option to disable VBS Radio.

- A new `-VBSRadioDebug` startup option enables VBS4 to provide additional information to the VBS Radio log file.

For more information, see Starting VBS Radio in the VBS Radio Manual.

- Range visualization was improved for the following VBS Radio equipment:

- Radio Jamming Device
- Retractable Radio Mast

For more information, see Radio Jamming Device and Retractable Radio Mast in the VBS Radio Manual.

2.11.5 VBS4 Controls

- The ability to use combinations of key bindings for gamepad controllers (such as the Microsoft Xbox) is now supported. For example, you can bind the **Xbox A** and **Xbox B** buttons to a single action so that the action is performed by pressing both keys simultaneously.

This functionality is already supported for keyboards, but was extended to gamepad controllers.

For more information, see Controls Settings in the VBS4 Administrator Manual and Microsoft Xbox Controls in the VBS4 Trainee Manual.

- Extended the existing User-Interface (UI) support for gamepad controllers, and added a new **User Input Emulation** category to the Controls Settings, containing new gamepad controls.

For more information, see Controls Settings in the VBS4 Administrator Manual and User Interface Controls in the VBS4 Trainee Manual.

2.11.6 VBS4 Settings

- Added the `FileTransferPort` parameter to `VBS4.xml` for TCP file transfers between the VBS4 Dedicated Server and VBS4 Clients.

For more information, see VBS4.xml Options in the VBS4 Administrator Manual.

- Renamed the `3rdPersonView` option value to `ThirdPersonView` in the `setDifficulty` (<https://sqf.bisimulations.com/display/SQF/setDifficulty>) SQF command. Also, renamed the `3rdPersonView` corresponding Simulation Profile option to `ThirdPersonView` in `VBS4.USER.xml`.

For more information, see VBS4 Profile Options in the VBS4 Administrator Manual.

NOTE

The old `3rdPersonView` option remains in `VBS4.USER.xml`. To maintain the existing Profile options in that XML file, edit it and set `ThirdPersonView` to the value of `3rdPersonView`, and then delete `3rdPersonView`. Alternatively, if you do not wish to keep any custom Profile options you set directly in the XML file, or by using the Simulation Settings and / or Controls Settings (see the VBS4 Administrator Manual), delete `VBS4.USER.xml` and run VBS4 again to regenerate the file with default values.

WARNING

Only delete `VBS4.USER.xml` if you did not change any of the default Simulation Settings and / or Controls Settings. Deleting the XML file causes any custom modifications of these settings to be lost.

- Renamed the `networkBandwidth` and `networkBandwidthFor` options to `internalNetworkBandwidth` and `internalNetworkBandwidthFor` in `VBS4.xml`.

For more information, see VBS4.xml Options in the VBS4 Administrator Manual.

- Added User Interface setting **UI Scale**, and counterpart VBS4 Profile option `UiScale`.

For more information, see User Interface Settings and VBS4 Profile Options in the VBS4 Administrator Manual.

- Added the **Wheel Snow Compression** and **Lifeform Snow Compression** Simulation Settings, and the corresponding `WheelSnowCompression` and `LifeformSnowCompression` Profile options.

For more information, see Simulation Settings in the VBS4 Administrator Manual.

- Added the `-LogLevel` command-line option to control the level at which VBS4 log messages are recorded.

For more information, see Command Line and Launcher Options in the VBS4 Administrator Manual.

- Added the `minCursorTargetCheckDistance` option for the `VBS4.xml` file.

For more information, see [VBS4.xml Options](#) in the VBS4 Administrator Manual.

2.11.7 Rendering and Performance Improvements

- Removed the `-dx9` and `-DX9MaxVRAM` command-line options. Microsoft DirectX 9 is no longer supported in VBS4.
- Introduced faster transition between the various stages of scenario execution (see [Scenario Execution](#) in the [Introduction to VBS4 Guide](#)) and reduced the scenario startup time.
- Enhanced ambient-occlusion support, which now uses Screen Space Ambient Occlusion (SSAO) and Horizon Based Ambient Occlusion (HBAO).

For more information, see **Ambient Occlusion** in [Video Settings](#) in the VBS4 Administrator Manual.

- Damage charring effects now support Thermal Imaging (TI) cooling.
- Support of polygonal lights was added for some helicopter models.

NOTE

Polygonal light sources do not emit any actual light, but are only visible on the model itself.



2.12 Product Maintenance

The following issues were resolved in VBS4 23.2.3:

Issue Key	Summary	NetSuite Case
FEP-1967	WebView system ready timeout is sometimes not enough	
TD-744	setTiMode and camSetTiMode have no effect	88325
TN-2503	CTD during mission initialization	
T3S-2132	User would like to be able to delete a point from a line in VBS Plan	67322
VBS4-14192	Flickering when returning to Lobby on mission end with large flood	

The following issues were resolved in VBS4 23.2.2:

Issue Key	Summary	NetSuite Case
CONTENT-6851	Missing reticle in vehicles and static weapons	93561
T3S-3274		
CORE-2427	CTD when closing VBS from FDC	
CORE-2357	VBS4 Crashes after closing exercises as CV9040 Gunner	93198
CORE-2312	CV9040 Snow issues - dead crew, roof flip, and more	
CT-6912	Flood of asserts in WorldAdaptors.cpp - VBS part	
CT-6893	CTD in UsesAmmo (const MuzzleType &) after BS start with CAI units	
IGP-7262	Video Streaming no longer functions on start-up	
IGP-7172	Unhandled exception if VBS4 Host network port is in use	
T3S-3018	Estimate G-Generic Civilian\Fireman man to use the CBRN equipment with functionality from the US USMC Woodland\CBRN Unit – Type 2	85248
VB-10447	Live Content CTD	
VB-10341	Live loading leaves behind sqllite in LiveContent folder when multiple sqllites are pasted	
XR-293	Fix AAR Streaming	
XR-287	Troubleshoot STANAG 4609 issues in VideoStreaming component	

The following issues were resolved in VBS4 23.2.1:

Issue Key	Summary	NetSuite Case
CORE-2130	CTD after closing VBS4 from 3D RTE during the mission.	
CORE-2168	Silent CTD on VBS close.	
CORE-2186	Destroyed vehicles local to the server are blinking in TI.	
CORE-2261	Optimization Memory Tick.	
CORE-2262	Destroyed vehicles sometimes not cut out of navmesh.	
T3S-3087	AAR keeps last state of buildings.	86949
T3S-3111	Flickering terrain and textures using UAV camera.	88225
T3S-3124	Geometry issue with Gleno bridge.	88473
T3S-3256	GB Warrior sights not functioning.	92516
T3S-3264	Jackal sights not working correctly.	92852
TD-682	AAR Streaming does not work.	
TM-287	CAS flightpaths visible to users.	
TM-296	Cannot get in HMMWV when 3 units are inside.	
TM-308	Script Error SetSnowHeight when executing mission with snow created through Save from RTE/AAR.	
TN-2559	Saving mission with snow from OME after preview creates huge SNOWDEFORM file in mission folder.	
TN-2561	CTD on Trainee JIP when higher echelon is in scenario.	
TP-259	Improve handling of dead / deleted groups for Sync waypoints.	
TP-278	Create chain lookup for CAI waypoints.	
TP-279	First waypoint becomes unlinked when connected to trigger.	
TP-281	Waypoint (WP) syncing feature prevents WP chain merging.	
TP-282	Waypoints sometimes become unlinked when using syncs.	
TZ-4637	SPIKE - Digital zoom is disabled upon switching from Seeker to CLU.	
VB-10233	DX11 CTD - VBSBlue.dll!DX11::RawSurfaceDX11::Initialize (OceanModel::UpdateTextures error).	
VBSGEO-1694	Surface transition is tiled.	
VBSGEO-1850	Switching to GEO view disables AI debug.	
VBSGEO-1889	Geopackage gets locked.	
VBSGEO-1897	Unable to edit connected road in GEO.	

Issue Key	Summary	NetSuite Case
VBSGEO-1910	CTD Water Edit water flatten eye dropper tool.	
VBSGEO-1911	Water Bug Custom Flatten Eye Dropper tool is not functional.	
VBSGEO-1914	Geo/Vector editor Original road duplicates edited one.	

The following issues were resolved in VBS4 23.2.0:

Issue key	Summary	Netsuite Case
CONTENT-7671	Pop-up for KR T-80 and CTD when it's destroyed	
CONTENT-7641	LPO-50 popup when flames hit any vehicle	
CONTENT-7605	Pop-up Make not available (requested by dz\plants2_dz\tree\data\t_picea2s_5_non.tga)	
CONTENT-7602	Pop-up Cannot open object bisim_blue\bisim_blue_artificial\bisim_blue_building\bisim_blue_bunker\bisim_blue_raf_blast_shelter_open.p3d.	
CONTENT-7600	Pop-up Cannot load material file vbs2\people\gb\gb_soldier_virtus\data\components\helmet.rvmat	
CONTENT-7582	Flood of Unexpected type used for encoding of ObjectId.	
CONTENT-6113	Player is getting stuck forever while getting into the Aircraft refueller single truck	
CONTENT-6112	Spike - Remove LRTV HHO model merged into LOD 1 of Spike model	
CONTENT-6106	Windows of the Toyota Space Cruiser are blue in some LODs	
CONTENT-6097	Broken mirrors on the 15T GB Truck	
CONTENT-6093	Geo model - Imber Church without borders	
CONTENT-6076	Fuel Bowser and Aircraft Refueller Single are both available in the build	
CONTENT-6056	Some strings for new content are not translated	
CONTENT-6046	Broken plant model on Rahmadi	
CONTENT-6045	Popup while placing two vegetation models	
CONTENT-6044	E3-A Sentry disappears in distance	
CONTENT-6035	Falling through the deck on Type 45 - model change	
CONTENT-6000	Warning message: Cannot open object locator_center.p3d	
CONTENT-5992	Icon for RPG-18 (missile) is the same as icon for RPG-18 Launcher.	

Issue key	Summary	Netsuite Case
CONTENT-5990	Main gun of the AMX-13 is not effective against any vehicle	
CONTENT-5989	Invalid fire collision model	
CONTENT-5988	Missing muzzle flash Marder 1A5	
CONTENT-5985	Barn, Metal Ruins - flickering floor	
CONTENT-5896	Nil values found for LPO-50 in RPT	
CONTENT-5891	Pop up Cannot load material file bisim_ig\bisim_ig_core\data\bisim_ig_glass_generic_sea.rvmat.	
CONTENT-5888	Warning Messages on start up (of VBS)	
CONTENT-5854	Wrecks of SE tracked vehicles have texture issues	
CONTENT-5838	Typo in trunk/bisim_core/bisim_core_vegetation/data/ico/	
CONTENT-5830	M777 Towing Is Slow	
CONTENT-5805	Korean K2 Black Panther graphic glitches (Flickering texture)	
CONTENT-5776	Flashlight attachment too reflective	
CONTENT-5772	Pop up after spawning GB Riverclass (Make not available)	
CONTENT-5738	Flood of DestructWreck type	
CONTENT-5715	B-52 engines become hollow at lower LODs	
CONTENT-5701	CV9040 rendering - rear goes black when zoom out	
CONTENT-5700	Geo placed Large craters flip 90° when ridden over	
CONTENT-5694	AH-1Z - gunner not visible in 3rd person view	
CONTENT-5692	AI disappears after getting in a full Fennek vehicle	
CONTENT-5686	Hawk T.2 cockpit issues	
CONTENT-5678	ORC follow-up	
CONTENT-5624	Some OPFOR vehicles have no variable zoom - T-72B and T-72BM	
CONTENT-5623	Switched color for CBRN markers	
CONTENT-5622	M7A3 with FS3 has continuous zoom instead of discrete zoom	
CONTENT-5004	Autotest RPT: Warning Message: Cannot load material file xxx (vegetation)	
CONTENT-4890	Autotest RPT: Failed to convert procedural xxx texture name	
CONTENT-4864	VW Golf All colors missing windows	

Issue key	Summary	Netsuite Case
CONTENT-4863	103mm Milan 3 rocket is compatible with Carl Gustaf 84mm launcher	
CONTENT-4825	Autotest RPT: c:\builds\nexus\engine\lib\object.cpp(11811) : Assertion failed 'GWorld->GetMode() == GModeNetware'	
CONTENT-4759	Mushrooms are in category Vegetation - Plants	
CONTENT-4757	Autotest RPT: Wrong vertex mapping for person collision geometry messages	
CONTENT-4749	Pandur II leaves thin tracks	
CONTENT-4712	Autotest RPT: In vehicle: xxx missing driver/cargo/gunner get in direction point	
CONTENT-4707	Autotest RPT: No get in driver point"" message for some vehicles	
CONTENT-4706	Autotest RPT: Array mat in bin\config.cpp/CfgVehicles/vbs_xx_civ_redCrescentAidWorker_red_m_medium_none_none_helmet/Wounds/ not multiply of 3	
CONTENT-4689	Static Vehicle SPIKE LR do not have preview image VBS4	
CONTENT-4649	Ejected empty casing issues	
CONTENT-4635	Nona-SVK have shiny half transparent wreck texture (lower LOD only)	
CONTENT-4630	First burst of the GAU-8 Avenger always leads to 1-2 second simulation jam	
CONTENT-4591	Chernarus - windows are not rendered properly	
CONTENT-4579	DR 031/032 - USMC Mortar Ammo Bearer units doesn't have ammo for 60mm and 81mm Mortars in their inventory	
CONTENT-4564	Rotor blades in Ka-50, Ka-52 and Mi-24 have faulty alphas	
CONTENT-4560	AGS grenade launchers miss the impact explosion sound when hit the ground	
CONTENT-4549	OG-15V (HE-Frag) ammo of the 2A28 cannon lacks any sound of impact	
CONTENT-4545	AV Support Vehicles drift sideways	
CONTENT-4538	Doors of the JCB opens to the inside	
CONTENT-4438	Track of the T-15 Armata does not react to the terrain	
CONTENT-4433	Inconsistency in naming for vehicles	
CONTENT-4364	Autotest: Warning Message: Cannot load material file vbs2\plants\grasses\data*	

Issue key	Summary	Netsuite Case
CONTENT-4362	popup: Warning Message: Make not available (requested by vbs2\vehicles\air\helicopters\aeryon_skyranger\data*)	
CONTENT-4187	Ural 4320 - Ammo truck is getting destroyed by only 2 shots of assault rifle	
CONTENT-4022	Wreck of the Ka-52 have some shiny texture issues	
CONTENT-4021	Gear of the Ka-52 does not pull up properly	
CONTENT-4015	Missiles of the BM-21 Grad are guided but they should not be	
CONTENT-4014	NZ Army Desert soldier have woodland helmets - follow-up	
CONTENT-3504	SPG-9 with OG-9V is missing any detonation sound	
CONTENT-3470	Turret of the Nona SVK does not work	
CONTENT-3468	Landing gear of the Mi-171 have broken animation	
CONTENT-3352	OPFOR vehicles under BLUFOR filter/category	
CONTENT-3351	BTR60-PB has incorrect physx geometry	
CONTENT-3286	Visual issues of Queen Elizabeth miniguns	
CONTENT-3273	"String not translated str_generic_squad_description"""	
CONTENT-3259	Some objects textures not lining up on certain structures	
CONTENT-3115	Incorrect proxy prison_shadow_interior.p3d and render flags	
CONTENT-3020	M1117 ASV have broken wreck texture of the turret	
CONTENT-2995	ANZAC ship is not visible from pilot 1st person view	
CONTENT-2982	M141 BDM Launcher is always in armed position	
CONTENT-2962	SM-90 AA missile launcher got wrong position of its rocket	
CONTENT-2870	Wildcat AH-1 wreck has no collisions	
CONTENT-2150	Chernarus texture issues	
CORE-2084	gyroStabilized parameter doesn't work reliably	88518
CORE-2081	CTD when ending a mission with an RTT which had PP effects and its camera was destroyed	
CORE-2078	One timer CTD while running on stairs	
CORE-2075	CTD in ~IControl() when ending a mission with an opened dialog	
CORE-2043	CTD in ShapeBank::OnUnusedLODShape	
CORE-2033	CTD on Simulation Client 1 during the stresstest	

Issue key	Summary	Netsuite Case
CORE-2019	Indestructible Bushes	85201
CORE-2010	HIP CTD of Admin client in Shape::CreateSubskeletonHierarchy	
CORE-2007	VBS4.RPT and VBS4_Diag.RPT are missing header/info about the build	
CORE-2003	Models are not properly initialized in OME/RTE	
CORE-2000	[Stresstest] json files are no longer labeled by the name of the played scenario	
CORE-1998	obj Models Object Hierarchy does not show up properly	
CORE-1971	Preplaced vehicles start bouncing after a certain period of time during the simulation	88573
CORE-1961	CTD when deleting laser target designator marker in RTE	
CORE-1938	Tracked vehicles have stuck muzzle flash in the dark environment	
CORE-1936	Exiting AAR with snow leads to snow present on the globe	
CORE-1935	CTD after .ogv video is played during the execution	
CORE-1926	Significant drops in multiple missions (15 - 40 %)	
CORE-1877	AAR Player Camera broken for handheld Laser Designators	
CORE-1858	Ink-spots visualisation circles are flickering	
CORE-1856	Number of Players in a server displays as one less than the number of clients connected	
CORE-1855	CTD when respawned	
CORE-1848	Flood when using the M1A1 AIM(D) gunner's optics in TI mode	
CORE-1832	CTD of several users connected / VBSBlue.dll!ObjectSpatialComponent	
CORE-1824	Dialogs overlapping Lobby after End Battlespace	
CORE-1820	IsNormalized assertion failed messages when creating a crater	
CORE-1816	Cycling first and third person view while having a Javelin equipped crashes VBS4	
CORE-1794	Cannot walk on Oil tanker board	
CORE-1790	CTD TessellateTriangle	
CORE-1780	Multiplication of player assigns in Lobby	
CORE-1769	The Server Admin Panel shows the server as a __SERVER__	
CORE-1764	VBS Loading time is missing in RPT for DS and SC	

Issue key	Summary	Netsuite Case
CORE-1762	MissionListener - OnMissionUnload is never called	
CORE-1745	CTD while uploading scenario on DS	
CORE-1702	EPNF causing performance drain	
CORE-1700	The Export Map is no longer available in Preview	
CORE-1699	Some M16A4 has fingers obstructing the view when zoomed	
CORE-1689	CTD PurecallCallback	
CORE-1688	CTD on one client and several BOTs	
CORE-1686	Client .csv bandwidths are no longer collected	
CORE-1685	Engineer tapes aren't visible from 1st Person View (1st person vs. 3rd person view mismatch)	
CORE-1683	AAR - Unit flying in the air when switching vehicles	
CORE-1678	The snowing effect is distorted	
CORE-1672	Autotest mission will not return from preview back to OME but into the main menu screen instead	
CORE-1658	CTD of user client in VBS4_Diag.exe!TLinkBidir<0>::Delete() when Admin End Battlespace	
CORE-1655	setObjectTexture() to use different input folder for textures	
CORE-1654	Flashing smoke and water particles in AAR	
CORE-1651	NVG/TI modes remain active in the battlespace menu	
CORE-1540	NV Goggles - changing brightness doesn't work	
CORE-1530	Sliders in Object Properties window for units in editor are offset	
CORE-1513	CTD inside VBSBlue ObjectHierarchyComponent	
CORE-1406	DS skips missions and autotests specified by -config startup param when no client is connected to DS	
CORE-1402	Mission file transfer fails for Users	
CORE-1401	OPV River Class - Anchor gets stuck when executed on DS	
CORE-1396	Terrain tiles on the top edge of PSO scope FOV are not rendered	
CORE-1392	Assertion failed !_missionStarted	
CORE-1388	Intelligence reports causing CTD	
CORE-1386	Briefing is not skipped on DS via description.ext	

Issue key	Summary	Netsuite Case
CORE-1384	Input causing large perf hit	
CORE-1383	Blue returns RoadPoints at -100000 altitude (VWS, San Francisco, Yakushima, ...)	
CORE-1372	Game master cannot start mission when any player stay unassigned in Lobby (Briefing is not skipped)	
CORE-1371	Mission is not downloaded from DS to Admin after End Battlespace and AAR is not saved anywhere when mission is present on DS only	
CORE-1369	Simulation not pausing when using ESC	
CORE-1368	Suspiciously high number of VehicleDamaged messages	
CORE-1366	Assertion failed listFull->Release()>0	
CORE-1358	Cannot assign player to playable slot while on DS	
CORE-1356	Menu of Husky AI vehicle stays on and causes script error	
CORE-1354	Dropped UCS bags disappearing on DS	
CORE-1348	VBS Crash Reporter fail while using splitrpt and profiles	
CORE-1334	Lifeform objects creation is reported before mission load	
CORE-1333	refactor of mission start-up broke AAR radio UI	
CORE-1324	CTD in spawnall (s01) in PhysX	
CORE-1316	DS has negative value of FPS after mission start (Diag.exe only)	
CORE-1314	CTD while flying with the helicopter and using VBS4_Diag.exe	
CORE-1313	CTD in spawnall s01 - papercar	
CORE-1307	Nemo - network issues (rotation of the propellers is not transferred, particles)	
CORE-1304	Stresstest - SC1 freeze during the mission	
CORE-1287	Hovercraft does not consume fuel	
CORE-1240	Followup - VBS4 Loadtest - CTD on DS in NetworkClient::GetObject	
CORE-1227	Assertion failed 'GWorld->GetMode() == GModeNetware'	
CORE-1222	Peaks related to AskForApplyDoDamage Message	
CORE-1210	Rubber banding mitigation is triggered unnecessarily for external entities in Gateway	
CORE-1208	Rubber banding mitigation of rotation is ugly	

Issue key	Summary	Netsuite Case
CORE-1200	Placing units or vehicles does not populate ORBAT, animal symbology and flood.	
CORE-1186	GWorld is null in Component_OnStop	
CORE-1139	Not aligned sights when aiming with weapon from hatch	
CORE-1132	Rain causes internal view distance value to change	
CORE-1128	Wheels collide with ropes	
CORE-1078	Flood of Assertion failed _isRecording when open AAR (engdd11.cpp)	
CORE-1048	Daytime switches to midnight time and back to daytime randomly in AAR	
CORE-980	DebugView flood: Shape (xyz) has no geometry for PhysX simulation	
CORE-634	CTD when mass deleting in RTE	
CORE-436	The simulator shall provide the users with the ability to perform the TIM Processing Mode / VIM Filter function	
CORE-353	Assertion failed changed	
CT-6699	New 2D Map - invalid projections JSON causes crash	
FEP-1746	Script error - in C2 when switching between menus	
FEP-1723	Globe become inactive and without BSs icons after leaving the lobby of mission	
FEP-1721	DialogManager on DS requests instance of WebView	
FEP-1709	Wrong radio admin header dimensions	
FEP-1698	Close does not close anymore	
FEP-1697	Config browser hidden under the ESC layer	
FEP-1689	Spectator Camera is not forced in front of ESC menu	
FEP-1674	Switching from Simulation tab back to it breaks unit state	
FEP-1661	Opening Multiplayer Battlespaces with Debug dialog open breaks the Hamburger menu	
FEP-1660	Electronic Warfare radar cannot be closed via new quick menu	
FEP-1638	MM - Refresh got stuck	
FEP-1631	Default radio channel text doesn't fit into the radio box	
FEP-1602	GW UI - Mappings tab doesn't have arrows for sort filters	

Issue key	Summary	Netsuite Case
FEP-1577	VBS GW UI - Double clicking on elements after Angular 13 update	
FEP-1571	[MM] Ending BS and exiting VBS doesn't work as it should	
FEP-1569	AAR - Empty Plan	
FEP-1556	QM - nothing can be selected	
FEP-1529	Plan - Border Color alignment	
FEP-1527	Quick Menu - unable to load QM	
FEP-1517	Gateway - after importing mappings 2 windows remain opened	
FEP-1486	Translation is not falling back to EN (with new settings)	
FEP-1485	Settings - Updating Settings UI is stuck	
FEP-1467	Filter - ability to select same filter multiple times	
FEP-1450	Gateway - Remote mappings dropdowns show incorrect options	
FEP-1357	Plan - wrong ToolTip	
FEP-1354	Gateway - Long strings causes UI text to overflow confirm dialog window	
FEP-1279	Gateway - UI has windows arrows in Gateway	
FEP-1252	Plan - CAS Event List has 2 scroll bars	
FEP-1239	Value is changed to 0 when + or - is pressed	
FEP-1236	Scenario Objects - Roll up arrow	
FEP-1175	VBS width can cause issues with BS detail side panel	
FEP-1158	The UI for selecting custom unit symbol is confusing	
FEP-1144	Long text BS is not shown in VBS - (Introduce limit to BS name)	
FEP-1102	Gateway - light color buttons are not so great on white background	
FEP-999	Unable to refresh BS when connected to DS	
RAB-1118	Gateway - Sliding DIS vehicles	
RAB-1105	2D map layers are not visible if Battlespace was opened in Geo first	
RAB-1102	Hidden Groups visible in Briefing	
RAB-1097	Undo CTD	
RAB-1093	CTD when moving hitched trailer in OME	

Issue key	Summary	Netsuite Case
RAB-1092	Helicopter cold when spawned as flying	
RAB-1082	CTD when exiting VBS4 with 2 clients on same PC	
RAB-1073	XInput - Analog camera movement in simulation is too sensitive	
RAB-1046	VR Personal equipment is not visible when in player's hands	
RAB-1034	Controller Bindings Not Working in VBS4 22.2	
RAB-954	xInput Deadzone - Resetting the Controls without gamepad connected changes it to 0	
RAB-946	Unhandled exception popup when VBS4 loses connection to HLA federation	
RAB-920	VBS4 crashes when losing connection to HLA federation	86079
T3S-3158	Red/green flares 40/26.5mm illuminates too much at daylight	89789
T3S-3146	Aircraft Marker Lights	88668
T3S-3145	AAR logistics ammo report not calculating	87872
T3S-3143	gyroStabilized parameter doesn't work reliably	88518
T3S-3140	Preplaced vehicles start bouncing after a certain period of time during the simulation	88573
T3S-3126	CreativeX - Unhiding Entities on C2 map shows entity on both sides	88471
T3S-3095	NZ LAV III and Water Depth	87732
T3S-3094	12kn Ambulance does not function properly	87538
T3S-3091	SPz Puma - FoV of the PERI is attached to the MUSS System and not to PERI	87493
T3S-3086	Crash when multiple windows users use the same profile (W.I.P.)	86935
T3S-3070	Antenna falls down by itself	85180
T3S-3065	GB Support Vehicle 6T and 9T Mirror Points	86477
T3S-3048	Lamp Posts light way too bright	85593
T3S-3047	MICLIC Rope Issues	85968
T3S-3037	Objects Dog Green and Dog Brown have their names reversed	85129
T3S-3036	Road barrier small light is too bright	85126
T3S-3034	Land_demo_cse_house_15 door is invisible	85100
T3S-3002	Issues with Editor placed trenches	84551

Issue key	Summary	Netsuite Case
T3S-2914	Landing Gear of Aircraft not retracted during flight over DIS	76464
T3S-2697	US Army Tracked M1150 DriverLOD is obscured	
T3S-2673	M1A2 CITV cannot elevate or traverse	
T3S-2662	FS3 sight does not have thermals	
T3S-2115	Custom unit symbols are not saved in layers	67039
T3S-2093	Admins stay occupying seat after switching units	67614
T3S-1953	Unit Symbol Configuration isn't translated	65060
T3S-1854	Artillery Strike warhead defaults back to HE	
T3S-1745	Javelin scope stops working (zooms in)	
T3S-1176	Detaching cables does not clear in tow	46688
TD-643	CBRN - UI stays present in FPV	
TD-632	BLANK_ACTION_TEXT actions in Swedish vehicles	
TD-627	IED - Pressure Plate Object Overlay Script Error	
TD-626	Windows scaling breaks RWS	
TD-623	RWS - Rotation and elevation indicator is flickering	
TD-611	Triggering Mount Barrel option makes the player view blurry	
TD-610	CTD of SC0 in anonymous namespace'::FilterEnabledActions	
TD-609	CTD inside GetDriverGetOutPos - transport.cpp	
TD-605	PerfBoard 30% perf drop in mission p_z4_4PL_vs_1PL_v3 and 9% in d07_mapBuildingDestruction between 447/450 builds	
TD-603	Ending a mission with QM open breaks QM	
TD-585	QM - You can open QM when dead	
TD-584	Controlling aim / mouse cursor is switched after using Map Settings	
TD-581	VR - Other than player unit primary weapon and launcher are floating aside	
TD-542	VR - Unit primary weapon is floating levitating offset in front of you	
TD-480	CTD when running BS in OME preview	
TD-429	DOF set in RWS affects player camera when holding certain weapons	
TM-261	Puma cargo screens TI not working	

Issue key	Summary	Netsuite Case
TM-260	Swedish RWS - Polarities break when switching between them	
TM-255	Copy+pasting a unit from building to building doubles unit elevation (levitating)	
TM-254	Endless flood after using the Dingo RTT	
TM-253	Respawn will revive user on the roof of the building or on the different floor	
TM-252	Dingo vehicle - RWS optics view part will appear in the C2/RTE	
TM-250	AAR - Count of units in unit list	
TM-249	CBRN Equipment - notifications are missing information	
TM-248	Script error and Single litter remains when Bison ambulance is deleted in MP	
TM-246	Crash reports do not contain all logs	
TM-218	cursorTarget not functioning as expected in VBS4	
TM-165	FS3 sight does not have thermals	
TM-140	Filter is missing ToolTip	
TN-2495	Scrolling in the VBS4 editor skips a lot of items	
TN-2490	ATF30-2L script error while extending the rope length	
TN-2484	OpFor Symbology is not visible for an admin in 3D map by default	
TN-2441	CTD on autotest run end	
TN-2440	Script error when using weapon selection while turn out	
TN-2439	Geo - invalid value	
TN-2438	Script error - dropping Boarding Ladder from inventory	
TN-2398	Unit knocked out on a slope terrain wakes up tilted to the side	
TN-2396	Loading of data close to origin when shooting from shotgun	
TN-2387	Litening pods have a waypoint to [0.5, 0.5, 0]	
TN-2374	CTD on AAR close (UnLoadFile)	
TN-2368	New fog integration - Fog base / decay not applied in VBS4	
TN-2367	When unit dies it is removed from the group in the unit list	
TN-2361	Spawning ORBATs throws an error about Input value in the log	
TN-2347	Fog base altitude uses Meters insted of m	

Issue key	Summary	Netsuite Case
TN-2343	Dying while using Control Link in RTE kicks you to OME	
TN-2342	Toggle GMTI not recorded in AAR	
TN-2340	Optimize SendSymbologySIDC sending on Briefing screen	
TN-2274	You are Dead screen does not appear if player dies with UGV/UAV	
TP-268	JIP into PLAN/ORBAT Editor created Units joins Player into an empty Unit	
TP-265	Error on Choosing Assault Waypoint	
TP-262	Control AI causes ObjectSetVariable peaks in stresstest	
TP-256	Dismount behavior unavailable for mounted units	
TP-248	CTD in CAS if selecting Route in OME	
TP-246	Group selected not available for infantry units	
TP-241	Outdated or custom crew configuration popup	
TP-240	PLAN - CAS border of picked unit doesn't move with that unit	
TP-236	Flood while being on splash screens	
TP-234	Chalkboard is taking majority of time while time skipping big AARs	
TP-233	Waypoints links are broken after restart	
TP-232	Plan drawing is visible from 1st person user view after committing in execution (Plan)	
TP-225	ControlAI vehicles build from Plan show that they're Legacy AI	
TP-215	Group with issues	
TP-204	Editor - Copy Paste Linked Unit Generates Script Error	
TP-203	Group Selected option does not work correctly on multiple groups	
TP-202	Editor - Ungroup Selected Ungroups Everyone	
TP-149	Loading of 2D map too slow on SE terrain because of configs	
TP-77	Area marking kit - unexpected behavior after near explosion	
TP-73	Script error when clicking by LMB during Equipping with Objects	
TT-98	AI on rails has trouble moving with weapon state set to raised	
TZ-4602	Swedish RWS - Auto-focus is unreliable and results in blurry image	
TZ-4589	Disassembling inside building will send Mortar parts on the roof	

Issue key	Summary	Netsuite Case
TZ-4584	Script error in RTE after the disarming of IED	
TZ-4567	Script Error - New SPIKE Ammo Bearer	
TZ-4539	"Inconsistent, non-localized text for action ""DROP - BACKPACK"" in Quick Menu"	
TZ-4513	Landing Gear of Aircraft not retracted during flight over DIS	
TZ-4462	ABV MICLIC fires and detonates after 15 seconds	
TZ-4461	M1A2 - assistant gunner can reload the main gun while turned out	
TZ-4458	Flood of AskForAnimationPhase in turretcontrol.sqf	
VB-10184	Viewport groups with TI do not show object thermal factors	
VB-10143	Strings in settings (Ambient Occlusion)	
VB-10071	Fire is ice cold on its edges in TI	
VB-10049	ModificationPlugin.dll CTD after MP mission end	
VB-10018	Snow: weird outline colour	
VB-9981	Buildings have dark / missing textures	
VB-9974	Grass model placed above ground	
VB-9905	Some models have dark textures	
VB-9903	Slow vector exports	
VB-9882	Higher values in RoadLevels.xml cause roads to disappear	
VB-9831	CTD after reviving a player	
VB-9829	CTD ModificationPlugin.dll	
VB-9828	Freeze goes to CTD	
VB-9819	Opening a client that is connecting to a VWS takes a long time	
VB-9811	Geo broken road merge	
VB-9777	CTD after opening a battlespace in editor	
VB-9768	CTD inside VBSBlue.dll!Base::MemAllocInterface::Free when closing VBS under certain condition	
VB-9760	Pop up Cannot load material file vbs\blue\data\model_snow.rvmat.	
VB-9760	when placing some buildings in BS with snow"	
VB-9759	DPR CTD for Srf exports under VBS4 Master	
VB-9751	DPR crashing when attempting to run 3D tiles Dump to Disk	

Issue key	Summary	Netsuite Case
VB-9692	Old road is visible after changing the type in some locations	
VB-9688	MRT - Ignoring Material Swapping	
VB-9572	Some GSHP buildings' geometry collisions don't match their visual LOD	
VB-9536	setobjecttexture does not work	82995
VB-9376	Water shore shading is wrong	
VB-9085	Generic buildings are not visible in the new 2D map	
VBS4-775	Warning Message: No entry bin\config.cpp\CfgMagazines\.	
VBS4-3737	CTD after enabling beta UTF-8 feature in windows region settings or too long name of BS	
VBS4-7987	CTD - Send Form	
VBS4-9054	New splash screen - (some) translated strings are not centered	
VBS4-9345	Laser range finder UI has an incorrect measuring text	
VBS4-9674	Carry / Drop body animations are broken	
VBS4-10824	Regrouped Control AI groups show as Game AI	
VBS4-10923	[Stresstest] Freeze then CTD after looking at the C2	
VBS4-11413	Fix radio warnings spam	
VBS4-11438	[Stresstest] Flood of ObjectSetVariable messages due to script clean_pressureplate.sqf	
VBS4-12074	Infinite loading screen when closing RTE/Plan	
VBS4-12222	FDC visible on loading screen	
VBS4-12299	Enable heartbeat monitoring and resign of failed clients	
VBS4-12375	In some cases Geo edits are missing in OME and RTE in 2D and 3D views	
VBS4-12598	Cannot rename AAR	
VBS4-12710	CTD in mission execution (ExceptionPtrRethrow)	
VBS4-12851	The radio audio is distorted for monitored channels	
VBS4-12935	Unhiding Entities on C2 map shows entity on both sides	
VBS4-12970	Geo package file not found. Battlespace files may be corrupted.	
VBS4-12978	CTD in respawn of hidden unit with no group	
VBS4-12987	Roads created by Geo disappear after ending battlespace	

Issue key	Summary	Netsuite Case
VBS4-13010	Viewport Config SQF error on linking to Units in RTE	
VBS4-13038	CTD on VBS close (MultiplayerManagerComponent)	
VBS4-13069	Moving on the AAR timeline will duplicate riot equipment	
VBS4-13097	IOS doesn't register vehicles with URN set in OME	
VBS4-13114	CTD in PitchRadio when reading specific network message	
VBS4-13140	Aircraft Marker Lights	88668
VBS4-13141	[VDT T3S Implementation] Logistics report export does not export actual ammo value correctly	
VBS4-13163	CTD when using conversationStart with a nonexisting conversation	
VBS4-13525	VS2022 update creates numerous pdb files in the WOCRM root	
VBS4-13546	CTD when editing a line tool object	
VBS4-13565	PLAN - CAS Missions & DS Broken	
VBS4-13604	Mission with attached trailer saved in RTE causes CTD in OME	
VBS4-13628	Optics view is broken in HMD	
VBS4-13648	User Interface UI Scale settings not translated	
VBS4-13809	CTD while using revert in elevation tool	
VBS4-13818	Popup type/ is not a class (trailerLauncher accessed) whenever IOS connects to VBS vehicle	
VBS4-13848	CTD after pressing exit without saving	
VBS4-13924	Traffic Control objects script error	
VBS4-13946	Fix from VBS4-12571 is not present in the 23.2 release	
VBS4-13969	Noticeable FPS drop when calculating ZoomFactor using MapScreenPositionToGeoPosition	
VBS4-14004	Launcher 23.2.0 has language option for Japanese	
VBSGEO-1859	Unable to create an AI capable Y junction in Geo	
VBSGEO-1851	CTD in GeoCore when editing multilane roads	
VBSGEO-1827	CTD GeoCore.dll!RoadEditorDirector::OnLoad	
VBSGEO-1820	Geo changes not present in AAR	
VBSGEO-1795	Global Roads Bug Broken edit of global roads	
VBSGEO-1792	CTD when working with multilane routes	

Issue key	Summary	Netsuite Case
VBSGEO-1791	MP Bug Scale model is hard to be edited by dragging gizmos	
VBSGEO-1757	Some GEO models can't be rotated	
VBSGEO-1754	GEO folder disappeared	
VBSGEO-1739	Custom Geo line tool multiplicated	
VBSGEO-1683	Geo Error Server is unable to share Geo Project over the network in Lobby	
VBSGEO-1654	Geo - Moved or duplicated Line tools in view after save.	
VBSGEO-1644	CTD on a botnet in GeoCore.dll!MultiplayerListener_OnNetworkMessage	
VBSGEO-1640	Reverting GEO Surface changes only reverts a part of the surface	
VBSGEO-1625	LPP BUG Last node of line tool can't be erased	
VBSGEO-1121	CTD EE When using Flatten Elevation brush in Geo	
WW-551	AAR won't save into path which is longer than 260 characters	
WW-550	Remove Kick Off button from Lobby	
WW-549	Script error - after opening AAR Advanced stats and clicking on Vehicle	
WW-548	Script error - Error when placing Area Marking Kit spike in the same spot	
WW-545	Script error when placing Swedish units with Language set to French	
YT-573	Husky mine detection is not working	
YT-566	CAS - Second Mission Breaks UI	
YT-446	Not possible to delete OPFOR unit after they surrendered - script error	
YT-435	Legacy Forms - CTD When Receiving Forms While List Is Open	
YT-390	Old loading screen after closing OME	

3. VBS4 Release Notes 23.1

Bohemia Interactive Simulations continues to actively develop VBS4 with customer-specific projects enhancing the baseline for all customers, plus internal initiatives to constantly improve and enhance the capabilities of VBS4, its components, and associated tools - all aimed at providing the ideal platform for your training needs.

Bohemia Interactive Simulations has released the following versions and updates for VBS4 23.1.

Version	Major Features
23.1.0	General release for all customers.
23.1.1	Patch release with VBS Gateway enhancements and fixes for general and specific customer issues.
23.1.2	Patch release with issue fixes for specific customer issues.

VBS4 23.1.1 introduces the following new features:

- Various VBS Gateway enhancements that allow better entity mapping and filtering capabilities.

For more information, see [VBS Gateway Mapping / Filtering Enhancements \(on page 124\)](#).

VBS4 23.1.0 introduces the following new features:

- Retractable Radio Mast Antennas, attachable to vehicles for increased radio transmission range simulation.
For more information, see [Retractable Radio Mast \(on page 125\)](#).
- Electronic Warfare Ground Moving Target Indicator (GMTI) and Counter-Battery Sensor (CBS).
For more information, see [Electronic Warfare GMTI and CBS \(on page 126\)](#).
- Updated Mission Briefing, supporting HTML and PDF briefings.
For more information, see [Mission Briefings \(on page 128\)](#).
- Interactive Training Targets for gunnery training.
For more information, see [Training Targets \(on page 129\)](#).
- Time synchronization for VBS Plan, VBS Close Air Support (CAS), and VBS Call for Fire.
For more information, see [Time Synchronization \(on page 130\)](#).
- Mortar Carrier Control.
For more information, see [Mortar Carrier Control \(on page 131\)](#).
- Close Air Support (CAS) 5-Line and 9-Line Forms.
For more information, see [CAS 5-Line and 9-Line Forms \(on page 132\)](#).

- Weather Settings.

For more information, see [Weather Settings \(on page 133\)](#).

- New VBS4 Settings UI and reorganization.

For more information, see [VBS4 Settings New UI \(on page 134\)](#).

This VBS4 release also includes:

- [VBS Geo Improvements 23.1 \(on page 135\)](#)
- [VBS World Server Improvements 23.1 \(on page 136\)](#)
- [New Content in VBS4 23.1 \(on page 137\)](#)
- [Additional Enhancements \(on page 145\)](#)
- [Geo Project Versioning \(on page 38\)](#)

VBS4 23.1 also resolves a number of issues. For more information, see:

- [Product Maintenance \(on page 153\)](#)

This release includes a number of [VBS4 Known Issues and Limitations \(on page 477\)](#).

3.1 VBS Gateway Mapping / Filtering Enhancements

VBS Gateway has been enhanced with new mapping and filtering capabilities.

The screenshot shows the VBS Gateway interface. At the top, there are tabs for 'Active Entities', 'Mappings', 'Settings', and 'Log'. On the right, there are icons for STAT OFF, CIGI, DIS, RPR1, and RPR2. Below the tabs, there are sections for 'Unmapped' (1 Local, 0 Remote), 'Life Form' (3 Local, 2 Remote), 'Ground' (1 Local, 0 Remote), 'Air' (1 Local, 0 Remote), 'Marine' (0 Local, 0 Remote), 'Munitions' (0 Local, 0 Remote), and 'Other' (0 Local, 0 Remote). Buttons for 'Set all ON' and 'Set all OFF' are available for each category. A summary section shows 'Total entities' (6 Local, 4 Remote) with a 'Set all OFF' button. The main table lists entities with columns for Type, Ownership, Fuzzy, Remote Category, VBS Type, URN, Location, Speed (m/s), Altitude ASL (m), Damage (%), Side, and a 'Filter' icon. The table includes entries for various military vehicles and aircraft, such as Abrams MCR, AGM-65 Hydra, and M1A2 MCR. At the bottom, there is a search bar and a page navigation bar showing 1 of 1 per page 10.

Type	Ownership	Fuzzy	Remote Category	VBS Type	URN	Location	Speed (m·s ⁻¹)	Altitude ASL (m)	Damage (%)	Side	+ Filter
	Local	Original	SISO 3 1 225 13 80 0 0	vbs2_us_af_fighterpilot_d_berettam9 US USAF Desert - Fighter Pilot - Beretta M9	999978.69:1000025.19	0.00 m·s ⁻¹ 32.98 m	0.00	Friendly			
	Local	Original	SISO	vbs2_m1_abrams_mcr Objects - Accessories - MCR Mine Roller	1000047.13:999912.77	0.00 m·s ⁻¹ 33.08 m	0.00	Friendly			
	Remote DIS_1_3030_6059_2	Fuzzy	SISO Fuzzy: 1 2 225 2 4 1 0 (Original: 1 2 225 2 0 0 0)	vbs_us_af_a10a_gry_agm65_hydra_x US USAF Air - A-10A - GAU-8 - Hydra - AGM-65	1000031.28:999921.10	0.00 m·s ⁻¹ 32.94 m	0.00	Friendly			
	Remote DIS_1_3030_6059_1	Original	SISO 3 1 225 13 80 0 0	vbs2_us_af_fighterpilot_w_berettam9 US USAF Woodland - Fighter Pilot - Beretta M9	1000038.46:999937.19	0.00 m·s ⁻¹ 32.98 m	0.00	Friendly			
	Remote DIS_1_3030_6059_4	Fuzzy	SISO Fuzzy: 1 1 225 1 1 1 1 0 (Original: 1 1 225 1 0 0 0)	vbs2_us_army_m1a2_d_mcr_x US Army Tracked - Desert - M1A2 - MCR	1000043.70:999909.89	0.00 m·s ⁻¹ 33.00 m	0.00	Friendly			
	Remote DIS_1_3030_6059_3	Fuzzy	SISO Fuzzy: 3 1 1 1 1 3 0 0 0 (Original: 3 1 1 1 1 0 0 0)	vbs2_af_ana_grenadier_w_m16_m203 AF Army - Woodland - Grenadier - M16/M203	1000019.52:999931.38	0.00 m·s ⁻¹ 32.99 m	0.00	Friendly			

- New categories for unmapped entities, which allow differentiating between incoming unmapped entities (transmitted from another VBS4 instance or simulation product to the local VBS4 instance through VBS Gateway) and outgoing unmapped entities (transmitted from the local VBS4 instance to another VBS4 instance or simulation product through VBS Gateway), as well as mission entities, which allow you to track all unique entities (one of each class, if multiple ones of the same class are present) that physically appear in the simulation during the mission run, even after they cease to exist (for example, munitions). For more information, see **Mappings Page** in VBS Gateway UI in the VBS Gateway Manual.
- Fuzzy mapping which allows approximate entity mapping, when it is not possible to find one-to-one mappings between VBS4 entities and entities in other simulation products, connected to VBS Gateway. For more information, see **Fuzzy Mapping** in Configure General Settings and **Active Entities Page** and **Mappings Page** in VBS Gateway UI in the VBS Gateway Manual.
- Geofiltering which accepts entities or prevents them from appearing in the simulation, based on the new Gateway Geo Filter Editor Objects, that gives users the option to create geofiltering areas on the map, based on entity types and radiiuses. For more information, see **Filtering** in Configure General Settings and Configure Gateway Geofiltering in the VBS Gateway Manual.
- Blacklisting and whitelisting simulation products connected through VBS Gateway, based on their application IDs. For more information, see **Filtering Type** in Configure DIS Adapter and Configure RPR1 and RPR2 Adapters in the VBS Gateway Manual.

3.2 Retractable Radio Mast

The Retractable Radio Mast (RRM) is a type of Antenna which can be assigned to any vehicle using the VBS Radio UI (see Setting Up VBS Radio in the VBS4 Editor Manual).

NOTE

The **Land Rover Wolf - FFR** vehicle has a physical RRM, with an Antenna assigned by default, which is raised / lowered by units inside the vehicle. To configure other vehicles with an RRM Antenna, see Class Antennas in the VBS Developer Reference.



FEATURE NOTICE

This feature is part of VBS Radio Pro, a licensed product. For more information, contact sales@bisimulations.com.

Image-16: Land Rover Wolf - FFR with raised RRM



For more information, see Retractable Radio Mast in the VBS4 Editor Manual and Retractable Radio Mast Simulation in the VBS4 Trainee Manual.

3.3 Electronic Warfare GMTI and CBS

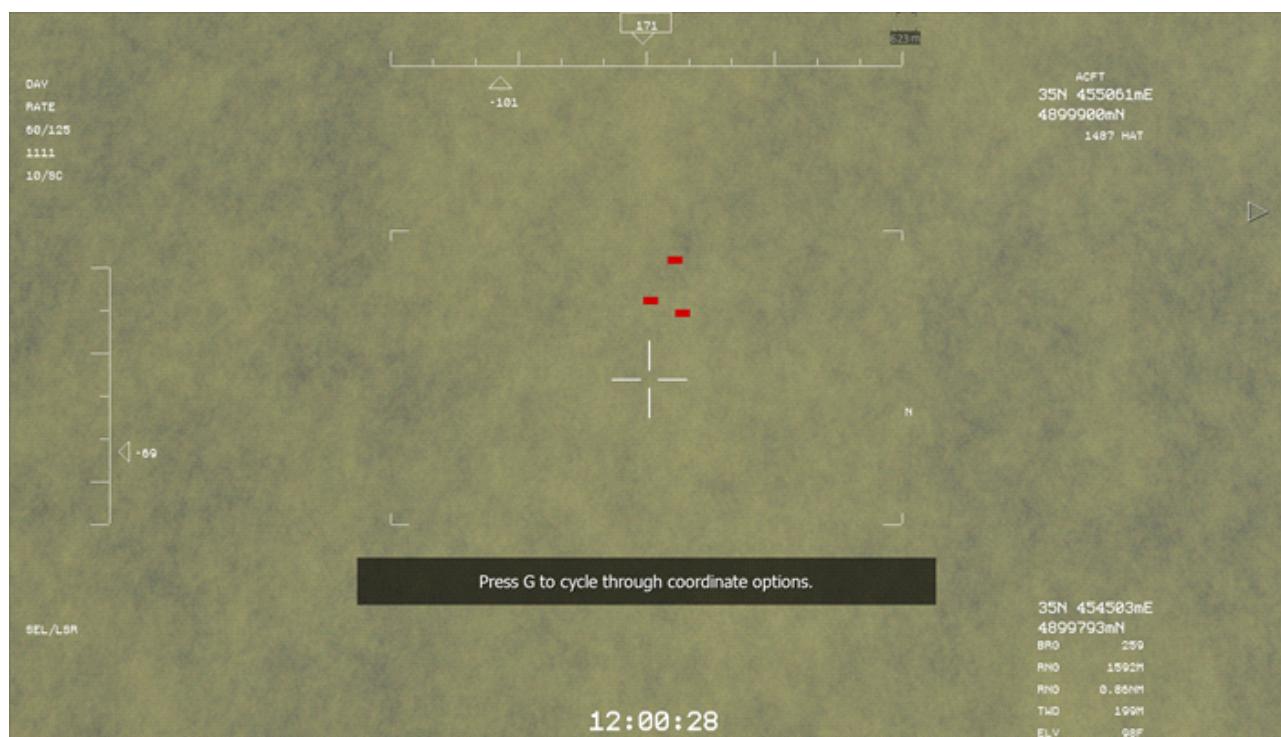
Electronic Warfare functionality was expanded to include the following features:

- **Ground Moving Target Indicator (GMTI) (below)**
- **Counter-Battery Sensor (CBS) (on the next page)**

3.3.1 Ground Moving Target Indicator (GMTI)

Administrators / Instructors are able to configure GMTI symbology, which appears above moving ground vehicles in-game. This enables Trainees using UAVs, or those in the Gunner position of other aircraft, to identify target vehicles.

Image-17: GMTI symbology seen from a UAV

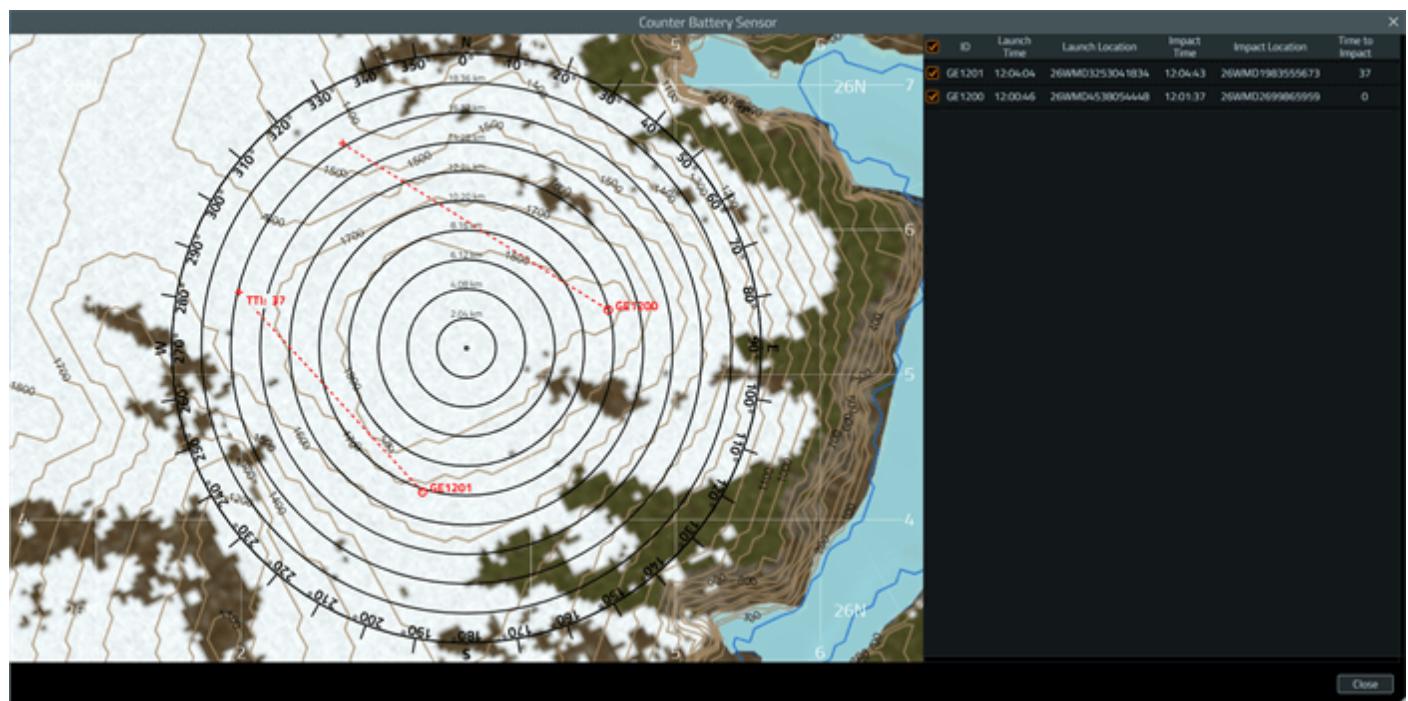


For more information, see **GMTI (Ground Moving Target Indicator)** in the VBS4 Editor Manual and **Ground Moving Target Indicator (GMTI)** in the VBS4 Trainee Manual.

3.3.2 Counter-Battery Sensor (CBS)

The CBS is a radar system that detects artillery projectiles fired by one or more guns, Howitzers or mortars. Using the trajectory of the projectile, it locates the position of the weapon that fired it on the ground, and the position where the projectile impacts the target.

Image-18: CBS dialog

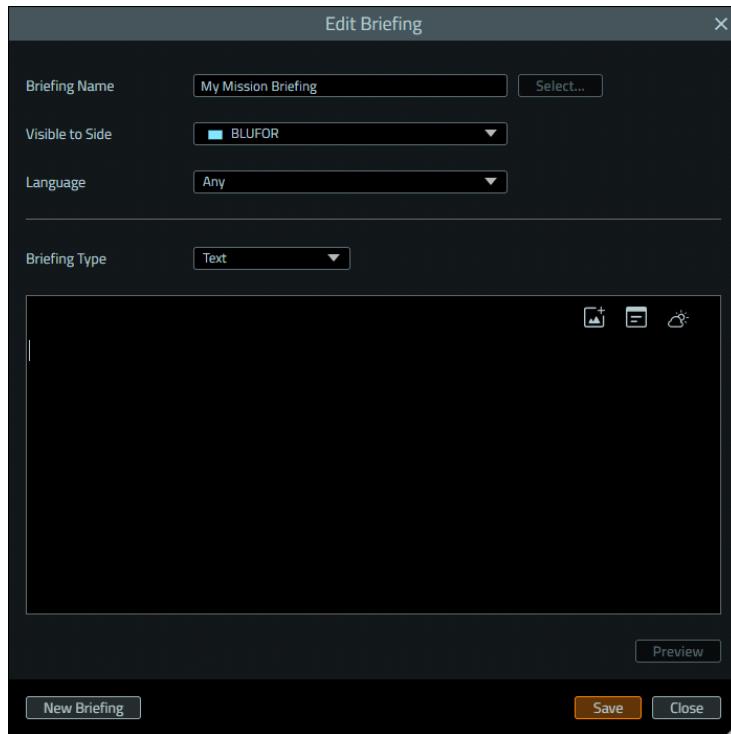


For more information, see CBS (Counter-Battery Sensor) in the VBS4 Editor Manual and Counter-Battery Sensor (CBS) in the VBS4 Trainee Manual.

3.4 Mission Briefings

The Mission Briefing dialog has undergone a major overhaul, with a new look of the Edit Briefing dialog. The dialog is now HTML based, meaning that users can now also add image and PDF files to the Mission Briefing.

Image-19: Edit Briefing dialog

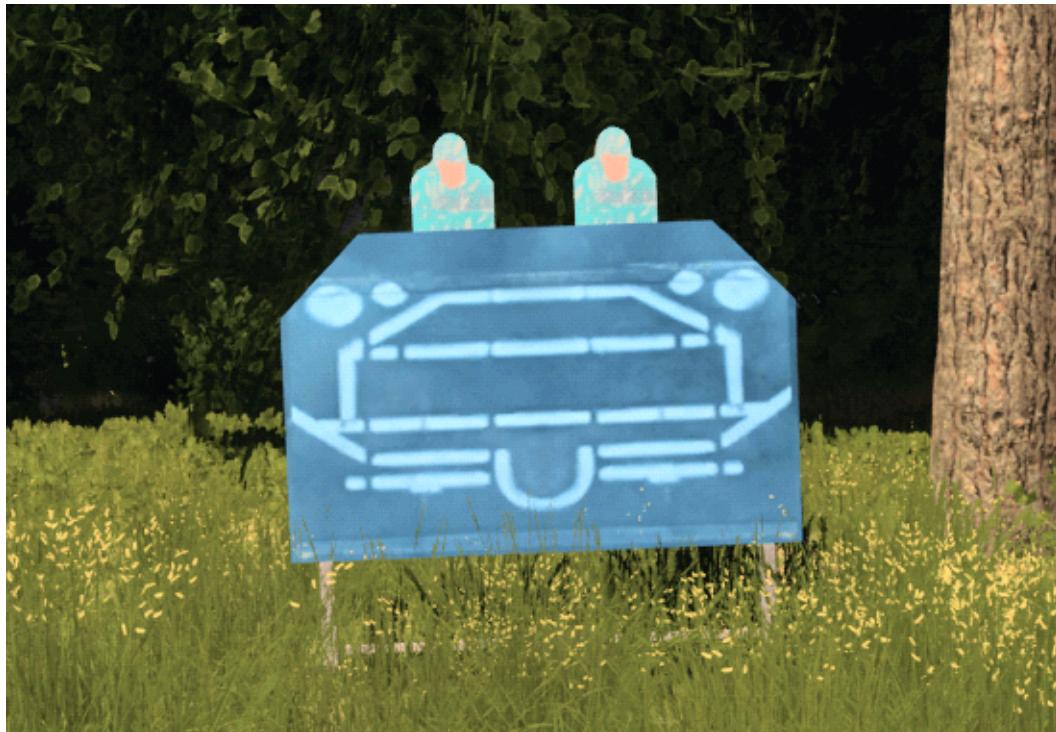


For more information, see [Edit the Mission Briefing](#) in the VBS4 Editor Manual.

3.5 Training Targets

Training Targets in the form of dummy units, vehicles, and other objects were made interactive. Administrators / Instructors now have the ability to set them as lowered at mission start, and raise / lower them at any time during a mission, using the context menu.

Image-20: Vehicle Training Target

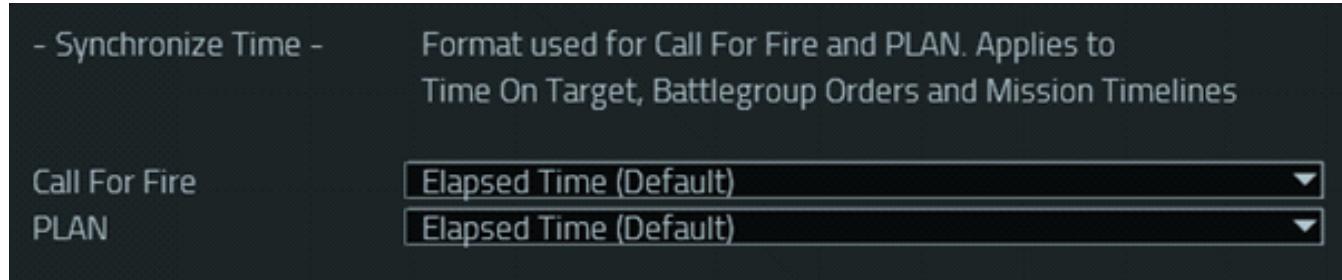


For more information, see Popup Targets in the VBS4 Editor Manual, Lower Target at Mission Start, and Lower / Raise Target in the VBS4 Instructor Manual.

3.6 Time Synchronization

The following features were added for VBS Plan, VBS Close Air Support, and VBS Call for Fire:

- Time settings for VBS Plan, VBS Close Air Support, and VBS Call for Fire can now be synchronized with the Elapsed Time or Mission Time, using the Scenario Settings dialog. This feature mainly affects VBS Plan Tactical Objects, and the Time On Target setting for VBS Close Air Support and VBS Call for Fire.



For more information, see Synchronize Time in the VBS4 Editor Manual.

- Time of Flight for projectiles in the VBS Close Air Support Event List Panel is now shown, in seconds.

For more information, see CAS Event List Panel in the VBS Close Air Support Manual.

3.7 Mortar Carrier Control

Mortar Carriers in VBS4 are now equipped with specific mortar controls, which enable Commanders to deploy / stow mortars, Mortar Gunners to aim them, and Loaders to fire them.

Image-21: Deployed mortar



For more information, see Mortar Carrier Control in the VBS4 Trainee Manual.

3.8 CAS 5-Line and 9-Line Forms

VBS4 now includes new 5-Line and 9-Line Forms, which can be used by JTAC units to request Close Air Support (CAS).

Image-22: CAS 9-Line Form

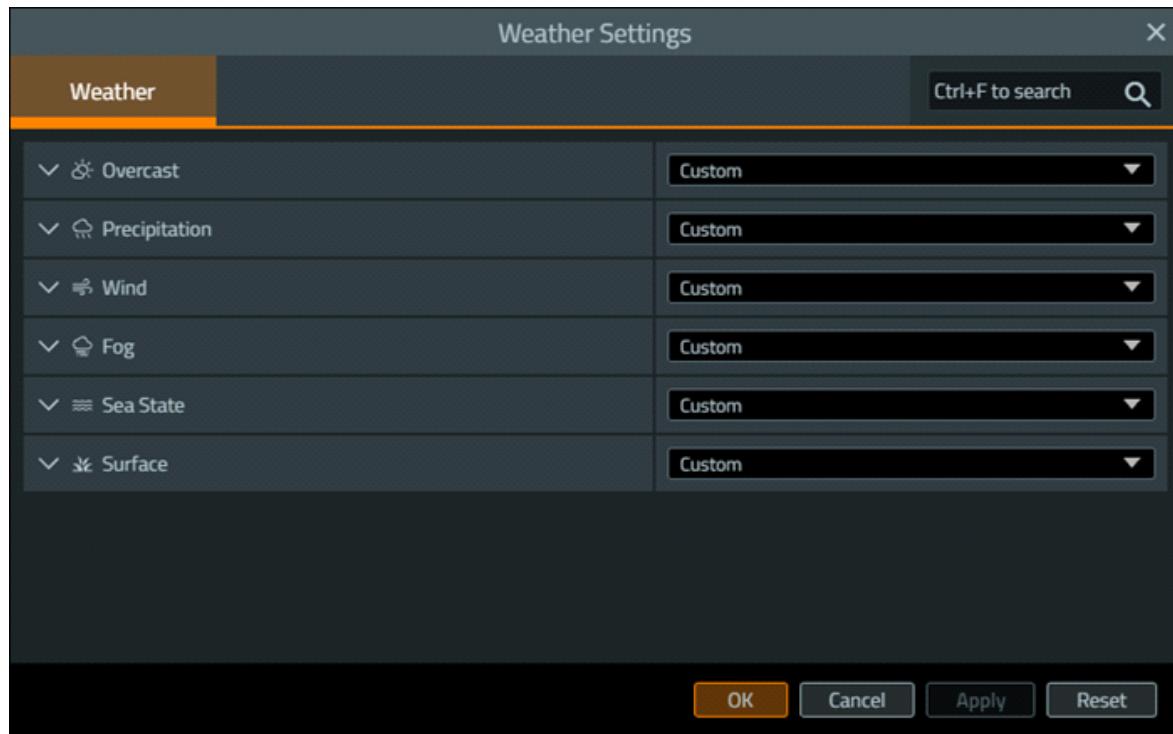
The screenshot shows a dialog box titled "CAS 9-line form". It contains nine input fields labeled "Line 1" through "Line 9", each with a descriptive label and a blank text input field. Below these is a section for "Remarks/ Restrictions" with two fields: "FAH" and "TOT", each followed by a separator and another input field. At the bottom right are two buttons: "Send" (orange) and "Close" (dark grey).

Line	Description	Input Field
Line 1	IP/BP	_____
Line 2	Heading / Offset	_____ / _____
Line 3	Distance	_____
Line 4	Target elevation	_____
Line 5	Target description	_____
Line 6	Target location	_____
Line 7	Type mark / Code	_____ / _____
Line 8	Location of friendlies	_____
Line 9	Egress	_____
Remarks/ Restrictions	FAH / LTL/PTL	_____ / _____
	TOT / TTT	_____ / _____

For more information, see Forms in the VBS4 Trainee Manual, VBS Close Air Support Execution, and VBS Close Air Support Example Execution in the VBS Close Air Support Manual.

3.9 Weather Settings

Weather Settings (including Sea States), which were previously adjusted in the Scenario Settings dialog (see Define Scenario Settings in the VBS4 Editor Manual), now have their own dedicated dialog, accessed from the Tools Menu in the VBS Editor.

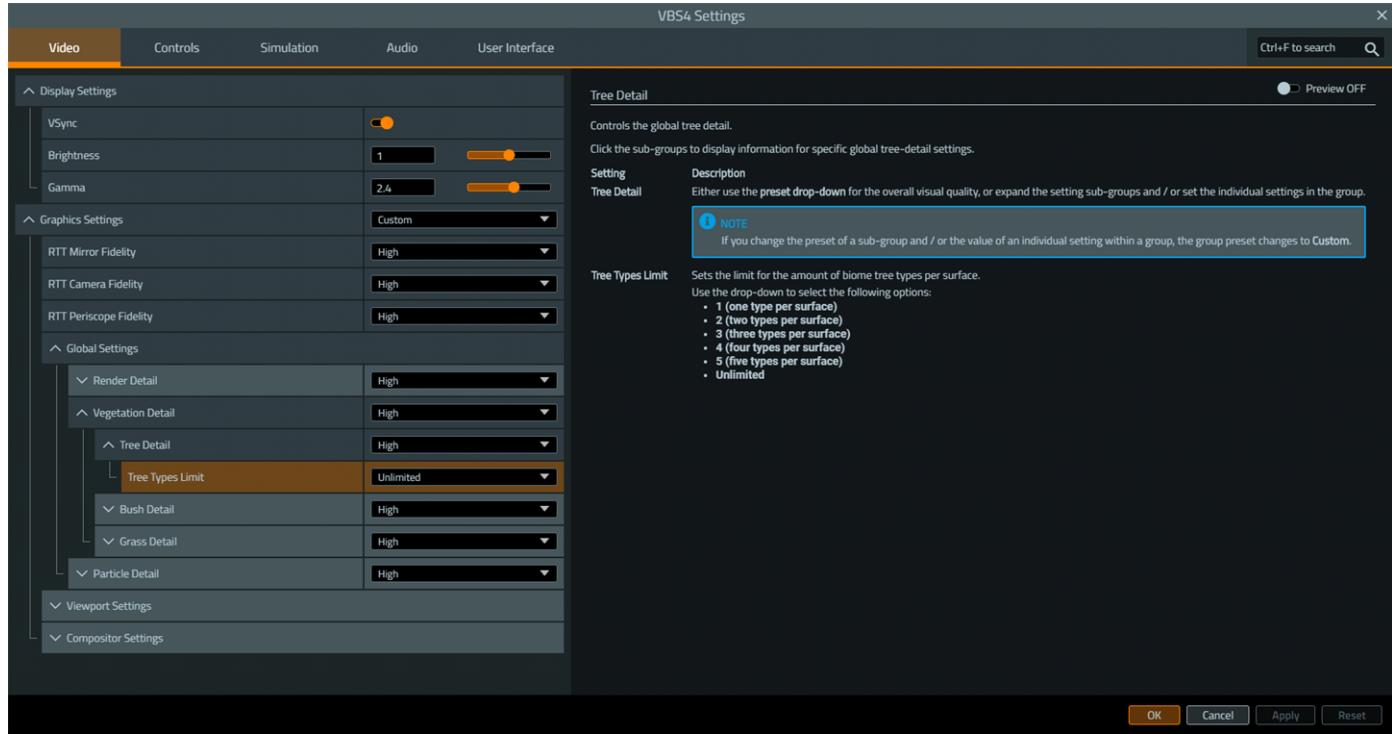


For more information, see Weather Settings in the VBS4 Editor Manual.

3.10 VBS4 Settings New UI

The Video, Audio, and User Interface VBS4 Settings have a new UI and organization.

Image-23: Video Settings in the new VBS4 Settings UI



The Search functionality in Video, Audio, and User Interface settings has been enhanced to navigate to the setting you are looking for, and remembering the position of the last modified Video / Audio / User Interface setting.

In addition, the XML Profile files for the Video, Audio, and User Interface settings have new organization, and some of their Profile options have changed.

For more information, see VBS4 Settings and VBS4 Profile Options in the VBS4 Administrator Manual.

3.11 VBS Geo Improvements 23.1

VBS4 includes the following improvements to VBS Geo in this release:

- [Geo Project Version \(below\)](#)

3.11.1 Geo Project Version

The Geo Project version used in VBS Geo 23.1 has changed to Geo Project version 1.2. As a result, VBS Geo 23.1 projects are backwards incompatible with earlier versions of VBS Geo.

For more information, see [Geo Project Versioning](#) in the VBS Geo Manual.

3.12 VBS World Server Improvements 23.1

VBS World Server 23.1 contains the following improvements:

- [General Improvements \(below\)](#)
- [VBS World Server User Interface \(below\)](#)

3.12.1 General Improvements

- Improvements have been made to more accurately show the state of battlespaces synced between VBS World Server and connected clients.
- Multiple cyber security vulnerabilities have been addressed associated with VBS World Server services and the VBS World Server UI.
- Improvements have been made to the configure and shutdown processes to make them more reliable.
- A new WPS service has been added to improve the server's WPS request infrastructure.
- The `vws_configure.exe` executable now checks for existing VBS World Server services that are running. If they exist, they will be properly shut down by the executable prior to reconfiguring the services. This may increase the time it takes for `vws_configure.exe` to finish configuring services.
- An issue was fixed that caused the Inset Server to not function properly when the server installation path contained a space.

3.12.2 VBS World Server User Interface

- Performance metric graphs for the VBS World Server machine and services have been added to the **Server Management** tab of the **VWS Dashboard**.
- The VBS World Server web UI is now compatible with legacy versions of Google Chrome dating back to version 68.
- Tile artifacts have been removed from the VBS Imagery display in the **Data Management** tab.
- The **Insets Management** panel can now load on multiple browser tabs simultaneously.
- An issue was fixed where the **Insets Management** panel would not display the list of insets if there was a space in the name of the `\Installation\` folder.

3.13 New Content in VBS4 23.1

VBS4 23.1 includes the following new content:

Name	Type / Category	Classname
P-8A Poseidon	Vehicle GB RAF Air	bisim_dt_gb_af_boeing_p8a_gry
Toyota Hilux	Vehicle GB RAF Wheeled - Woodland	bisim_dt_gb_af_hilux_hardtop_ylw_x
Landrover Defender 90	Vehicle GB RAF Wheeled - Woodland	bisim_dt_gb_af_defender_90_ylw_x
Aircraft Towing Vehicle MATT	Vehicle GB RAF Wheeled - Woodland	bisim_dt_gb_af_f59_ylw_x
Aircraft Towing Vehicle LATT	Vehicle GB RAF Wheeled - Woodland	bisim_dt_gb_af_f396e_ylw_x
Major Foam Vehicle	Vehicle GB RAF Wheeled - Desert - Woodland	bisim_dt_gb_af_mfv_tan_x bisim_dt_gb_af_mfv_red_x
Aircraft Refueller Single	Vehicle GB RAF Wheeled - Woodland	bisim_dt_gb_af_26320_bowser_ylw_x
Aircraft Refueller Twin	Objects GB RAF Wheeled - Woodland	bisim_dt_gb_af_lcars_ylw_x
ATLAS Cargo Loader	Vehicle GB RAF Wheeled - Woodland	bisim_dt_gb_af_atlas2_grn_x

Name	Type / Category	Classname
Terex MTD 2030T Crane	Vehicle GB RAF Wheeled - Desert - Woodland	bisim_dt_gb_af_ac35_tan_x bisim_dt_gb_af_ac35_grn_x
Field Electrical Power Supply (FEPS)	Objects GB RAF Wheeled - Desert - Woodland	bisim_gb_feps_trailer_tan_x bisim_gb_feps_trailer_grn_x
Aircraft Passenger Steps	Objects GB RAF Wheeled - Woodland	bisim_dt_gb_af_jbt_boardingstairs_gry_x
Watchman Radar	Objects Blue - Aeroway	Land_bisim_blue_radar_watchman_11m
ILS Antenna	Objects Blue - Aeroway	Land_bisim_blue_aero_antenna_il
RUBB Hangars	Objects Blue - Aeroway	Land_bisim_blue_hangar_rubb_efass_11m_001 Land_bisim_blue_hangar_rubb_efass_20m_001 Land_bisim_blue_hangar_rubb_efass_25m_001
Bulk Fuel Installation	Objects Blue - Aeroway	Land_bisim_blue_airfield_fuel_bladders_2x Land_bisim_blue_airfield_fuel_bladders_4x
Emergency Water Supplies	Objects Blue - Emergency	Land_bisim_blue_fire_ews_gb_001 Land_bisim_blue_fire_ews_gb_002
Concrete Blast Walls	Objects Blue - Barrier	Land_bisim_blue_concrete_blast_wall_2m_001 Land_bisim_blue_concrete_blast_wall_4m_001
Bomb Shelters	Objects Blue - Building	Land_bisim_blue_raf_blast_shelter_open

Name	Type / Category	Classname
Clambake	Vehicle / Objects GB Army Static - Desert - Woodland	bisim_gb_army_clambake_camera_tan bisim_gb_army_clambake_camera_green bisim_gb_army_clambake_controller_tan_x bisim_gb_army_clambake_controller_green_x
Livingstone	Vehicle GB Army Static	bisim_gb_army_livingstone_grn
M STAR Radar	Objects GB RAF Static - Woodland	bisim_dt_gb_af_mstar_grn_x
Riot Equipment	Equipment	vbs_gb_soldier_virtus_riotgear_lower_blk vbs_gb_soldier_virtus_riotgear_upper_blk
Field Cap (Bush Hat)	Equipment	vbs_gb_soldier_virtus_bushhat_mtp
9S80 (Dog Ear) Radar	Vehicle IG - Generic OPFOR Army Tracked - Desert - Woodland	bisim_ig_op_army_9s80_tan_x bisim_ig_op_army_9s80_grn_x
Viking T.1	Vehicle GB RAF Air	bisim_ig_gb_raf_g103a_viking_wht_x
FV-721 Fox	Vehicle Generic OPFOR Wheeled - Woodland	vbs_dvs_op_army_fv721_wdl_x
M9 Bayonet	Weapon Attached to M16	bisim_ig_m16a1_m9_blk
FAMAS F1	Weapon	bisim_ig_famas_f1_blk
GAIA 190MP	Vehicle Unmanned Vehicles	bisim_foxtech_190mp_wht_x
QLZ-87	Vehicle CN Army Static	vbs_cn_army qlz87_tripod_x

Name	Type / Category	Classname
FM-90	Vehicle Generic OPFOR Wheeled - Desert - Woodland	vbs_dvs_op_army_fm90_tan_x vbs_dvs_op_army_fm90_grn_x
Armbrust	Weapon	vbs_xx_armbrust_grn_launcher
Cement Mixer	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_scaniap410_cement_wht_x
Ford Ranger Pickup	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_fordranger_blk_x bisim_ig_civ_fordranger_blu_x bisim_ig_civ_fordranger_dgr_x bisim_ig_civ_fordranger_gry_x bisim_ig_civ_fordranger_lgr_x bisim_ig_civ_fordranger_org_x bisim_ig_civ_fordranger_red_x bisim_ig_civ_fordranger_wht_x
Kayak	Vehicle IG - Generic Civilian Watercraft	bisim_ig_civ_kayak_blu_x
Canoe	Vehicle IG - Generic Civilian Watercraft	bisim_ig_civ_canoe_red_x
LEVC Taxi	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_levc_blk_x
Farm Tractor	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_johndeere6r_250_grn_x
Dinghy	Vehicle IG - Generic Civilian Watercraft	bisim_ig_civ_dinghy_wht_x
Motor Yacht	Vehicle IG - Generic Civilian Watercraft	bisim_ig_civ_fairlinep46_gry_x
Pilot Vessel	Vehicle IG - Generic Civilian Watercraft	bisim_ig_civ_pilot_vessel_org_x

Name	Type / Category	Classname
UK Bus	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_dennise200_uk_x
Tipper Truck	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_scaniap410_tipper_blu_x
Oil Rig	Objects Blue - Building	Land_bisim_ind_geotypical_oilrig_nsea_01
Sewage Truck	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_dafcf370_sewage_ylw_x
Bulk Carrier	Vehicle IG - Generic Civilian Watercraft	bisim_bisim_ig_civ_bulk_carrier_blk_x
JIM Compact	Weapon	bisim_vectornix_jimcompact_tan
Vector 21 Nite	Weapon	bisim_vector21_nite_grn bisim_vector21_nite_tan

For more information about specific new content, see the following:

- [New Vehicles \(on the next page\)](#)
- [New Structures \(on page 143\)](#)

3.13.1 New Vehicles

The following new vehicles are available in this release:

P-8A Poseidon

The Boeing P-8 Poseidon is an American maritime patrol and reconnaissance aircraft developed and produced by Boeing, modified from their 737-800ERX commercial airliner. It was developed for the United States Navy (USN), but has been sold to several other nations including India, Australia, and the United Kingdom.

Toyota Hilux

An airfield support vehicle, the Toyota Hilux is used by the RAF as a general purpose vehicle for a variety of roles around RAF stations.

Available in VBS4 in the high-visibility yellow paint scheme.

Landrover Defender 90

The Landrover is ubiquitous in the British Armed Forces, this specific variant is the standard Defender 90 in the short wheelbase station wagon configuration. It is used by the RAF as a general purpose vehicle for a variety of roles around RAF stations.

Available in VBS4 in the high-visibility yellow paint scheme.

Aircraft Towing Vehicle MATT

The Medium Aircraft Tow Tractor (MATT) is the standard airfield tractor for all branches of the UK Armed Forces.

Capable of towing aircraft up to 70 tons in weight.

Aircraft Towing Vehicle LATT

The Large Aircraft Tow Tractor (LATT) is the heavy weight airfield tractor for the Royal Air Force.

Capable of towing aircraft up to 600 tons in weight.

Major Foam Vehicle

The standard airfield airport aircraft firefighting (ARFF) vehicle for all branches of the UK Armed Forces, the Unipower Carmichael Major Foam Vehicle was introduced to service in the mid 1990s. All vehicles were refurbished in the early 2010s to extend their service life, turning them into the Major Foam Vehicle 2. At the same time 10 vehicles were equipped for deployment to Afghanistan, which are also represented here.

Now being replaced by the Oshkosh Striker 3000.

Aircraft Refueller Single

A key feature on all RAF flying stations, Fuel Bowsers provide the ability to refuel aircraft for flying operations.

Multiple different types of bowser are in service, but the most common is the Aircraft Refueller Single based on a 6x4 MAN TGA 26.320 chassis. The Aircraft Refueller Single is capable of providing 20,000 litres of fuel.

Aircraft Refueller Twin

In order to support larger aircraft types, the Large Capacity Aircraft Refuelling (LCAR) trailer can be combined with the Aircraft Refueller Single to form the Aircraft Refueller Twin.

Capable of providing an additional 24,000 litres of fuel, the Aircraft Refueller Twin can provide 44,000 litres of fuel in total.

ATLAS Cargo Loader

Used for loading palletised supplies onto large cargo aircraft, the RAF operate a number of ATLAS Cargo Loaders as part of their logistics support fleet.

Terex MTD 2030T Crane

Part of the C Vehicles support fleet, the Terex MTD 2030T Crane (also known as AC35) is the standard medium crane for all branches of the UK Armed Forces.

It has a lifting capacity of 35 tonnes.

Aircraft Passenger Steps

Providing boarding access to larger transport aircraft, the Royal Air Force utilise a number of JBT Self-Propelled Aircraft Passenger Steps.

3.13.2 New Structures

The following new structures are available in this release:

Field Electrical Power Supply (FEPS)

The standard deployable power supply of the UK Armed Forces, the Field Electrical Power Supply (FEPS) provides stable power for communications, hospital, engineering, and other uses in the field.

Watchman Radar

The primary radar for all UK Armed Forces flying stations, the Watchman Radar provides terminal area / approach surveillance, and ground controlled approach surveillance coverage.

Provided in VBS mounted on top of a steel tower, it can often be seen mounted on concrete towers, or other airfield buildings.

ILS Antenna

One of the main visible components of the Instrument Landing System is the localiser antenna, provided in VBS as a typical low-mounted format, commonly seen at both civilian and military airfields across the globe.

RUBB Hangars

The RUBB Expeditionary Forces Aircraft Shelter System

(EFASS) Hangars are a series of temporary, deployable, aircraft shelters (hangars) available in 3 main widths (11m, 20m, and 25m).

Provided in VBS to the typical RAF configuration, the 11m variant has a Heli-Door, and the 20m and 25m variants both have Trident Doors.

Bulk Fuel Installation

The deployable Bulk Fuel Installation provides temporary, deployable storage for large quantities (>500,000 litres) of aviation fuel.

Emergency Water Supplies

Located all around UK Armed Forces flying stations, Emergency Water Supplies provide a large quantity of water for firefighting.

Provided in VBS, the smaller of the common types holds approximately 180,000 litres of water.

Concrete Blast Walls

Prefabricated reinforced concrete wall sections, used to provide deployable, reconfigurable blast protection on airfields.

The Concrete Blast Walls are available in 2m widths in either 2m or 4m heights.

Bomb Shelters

A legacy of the Second World War, most RAF stations still have numerous Bomb Shelters located around the technical and administrative buildings.

Open-topped, they provide little shelter against the weather or chemical attack, but will still be somewhat effective against fragmentation.

3.14 Additional Enhancements

VBS4 23.1.0 includes the following enhancements:

- [VBS4 User Interface and Workflow \(below\)](#)
- [VBS4 Controls \(below\)](#)
- [VBS4 Functionality \(on the next page\)](#)
- [Rendering and Performance Improvements \(on page 148\)](#)
- [VBS4 Settings \(on page 152\)](#)

3.14.1 VBS4 User Interface and Workflow

- The VBS Radio HUD now shows Direct Talk volume levels for whispering, talking, and shouting (from left to right).

Image-24: VBS Radio HUD with Direct Talk volume levels



The Direct Talk volume level can be controlled in-game, using the **Cycle Direct Talk Volume Level** control. See VBS Radio in the VBS Radio Manual.

3.14.2 VBS4 Controls

- The **Weapon Sight - Decrease Elevation** and **Weapon Sight - Increase Elevation** controls can now be used to adjust the throw force for grenades / stones. See VBS4 Controls Reference in the VBS4 Administrator Manual.

For more information, see Grenade Simulation in the VBS4 Trainee Manual.

- Added user-interface interaction support for XInput controllers (such as Xbox controllers).

For more information, see Microsoft Xbox Controls in the VBS4 Trainee Manual.

- Added dead-zone support for XInput controllers (such as Xbox controllers).

For more information, see Controls Settings in the VBS4 Administrator Manual.

- Added the **Cycle Direct Talk Volume Level** VBS Radio Direct Talk control to change volume level between whispering, talking, and shouting. See VBS4 Controls Reference in the VBS4 Administrator Manual.

3.14.3 VBS4 Functionality

- Vehicle animations can be transmitted over DIS / HLA, using VBS Gateway.

For more information, see Configure Transmittable Vehicle Animations in the VBS Gateway Manual.

- The Save As function in Execute Mode (RTE) and AAR can now be used to create new Battlespaces, which retain most of the functionality and features of their original Battlespaces.

For more information, see Save As in the VBS4 Instructor Manual and Creating a Battlespace from the AAR in the VBS4 AAR Manual.

- The Medical Simulation was expanded to include two new dressing type treatment options: Bandage / Field Dressing and Field Dressing with Trauma Pad.

For more information, see Advanced First Aid in the VBS4 Trainee Manual and Controlling Treatment Duration in the VBS4 Editor Manual.

- The VBS Radio Direct Talk range can now be set up for whispering, talking, and shouting. For more information, see the **DirectTalk_WhisperingDistance**, **DirectTalk_TalkingDistance**, and **DirectTalk_ShoutingDistance** parameters in VBSRadioSettings Configuration File in the VBS Radio Manual.

Direct Talk sound attenuation is applied in open spaces (but not in building interiors) and in compartments of specific vehicles.



FEATURE NOTICE

Sound attenuation in vehicle compartments is currently enabled on a subset of Swedish vehicles. However, future releases of VBS4 are expected to support sound attenuation on all vehicles.

- Added the **-dualCPU** command-line option, which enables usage of CPU-thread affinities on computers with more than one CPU, to split rendering from visual-data loading.

For more information, see Command Line and Launcher Options in the VBS4 Administrator Manual.

- The **-connect**, **-aarconnect**, and **-worldServer** command-line options have been updated to accept DNS names (including **localhost**), in addition to IP addresses.

For more information, see Command Line and Launcher Options in the VBS4 Administrator Manual.

- Branch Point Saving, previously used to save a Battlespace at a specific point in a scenario, is now done using **Save As** in the VBS4 Main Menu.

For more information, see Save As in the VBS4 Instructor Manual and Creating a Battlespace from the AAR in the VBS4 AAR Manual.

- Trainees are now prevented from taking items from other players on the same side during scenario execution.

For more information, see Equipment Inventory in the VBS4 Trainee Manual.

- Added the `-allBoneLods` to improve ship-flooding simulation (such as flooded decks).

For more information, see Command Line and Launcher Options in the VBS4 Administrator Manual.

- The following optics SQF commands have been re-enabled and / or updated in VBS4:

 **NOTE**

These commands have changes in the optics configuration associated with them. For more information, see Optics Configuration in the VBS Developer Reference.

- [getAperture](https://sqf.bisimulations.com/display/SQF/getAperture) (<https://sqf.bisimulations.com/display/SQF/getAperture>)
- [getOpticsAutoBC](https://sqf.bisimulations.com/display/SQF/getOpticsAutoBC) (<https://sqf.bisimulations.com/display/SQF/getOpticsAutoBC>)
- [getOpticsBlurCoef](https://sqf.bisimulations.com/display/SQF/getOpticsBlurCoef) (<https://sqf.bisimulations.com/display/SQF/getOpticsBlurCoef>)
- [getOpticsBrightness](https://sqf.bisimulations.com/display/SQF/getOpticsBrightness) (<https://sqf.bisimulations.com/display/SQF/getOpticsBrightness>)
- [getOpticsDOF](https://sqf.bisimulations.com/display/SQF/getOpticsDOF) (<https://sqf.bisimulations.com/display/SQF/getOpticsDOF>)
- [getOpticsNoise](https://sqf.bisimulations.com/display/SQF/getOpticsNoise) (<https://sqf.bisimulations.com/display/SQF/getOpticsNoise>)
- [getTIBlurLevel](https://sqf.bisimulations.com/display/SQF/getTIBlurLevel) (<https://sqf.bisimulations.com/display/SQF/getTIBlurLevel>)
- [getTIBrightness](https://sqf.bisimulations.com/display/SQF/getTIBrightness) (<https://sqf.bisimulations.com/display/SQF/getTIBrightness>)
- [getTINoise](https://sqf.bisimulations.com/display/SQF/getTINoise) (<https://sqf.bisimulations.com/display/SQF/getTINoise>)
- [setAperture](https://sqf.bisimulations.com/display/SQF/setAperture) (<https://sqf.bisimulations.com/display/SQF/setAperture>)
- [setOpticsAutoBC](https://sqf.bisimulations.com/display/SQF/setOpticsAutoBC) (<https://sqf.bisimulations.com/display/SQF/setOpticsAutoBC>)
- [setOpticsBlurCoef](https://sqf.bisimulations.com/display/SQF/setOpticsBlurCoef) (<https://sqf.bisimulations.com/display/SQF/setOpticsBlurCoef>)
- [setOpticsBrightness](https://sqf.bisimulations.com/display/SQF/setOpticsBrightness) (<https://sqf.bisimulations.com/display/SQF/setOpticsBrightness>)
- [setOpticsDOF](https://sqf.bisimulations.com/display/SQF/setOpticsDOF) (<https://sqf.bisimulations.com/display/SQF/setOpticsDOF>)
- [setOpticsNoise](https://sqf.bisimulations.com/display/SQF/setOpticsNoise) (<https://sqf.bisimulations.com/display/SQF/setOpticsNoise>)
- [setTIBlurLevel](https://sqf.bisimulations.com/display/SQF/setTIBlurLevel) (<https://sqf.bisimulations.com/display/SQF/setTIBlurLevel>)
- [setTIBrightness](https://sqf.bisimulations.com/display/SQF/setTIBrightness) (<https://sqf.bisimulations.com/display/SQF/setTIBrightness>)
- [setTINoise](https://sqf.bisimulations.com/display/SQF/setTINoise) (<https://sqf.bisimulations.com/display/SQF/setTINoise>)

3.14.4 Rendering and Performance Improvements

- AAR performance has significantly improved, especially for large scenarios, with up to a double increase in FPS, compared to previous versions of VBS4.
- Particle effects have been improved for the following effect types (with examples):
 - **Destruction Effects** - Vehicle destruction, anti-tank mines.
 - **Bullet Impacts** - Small (pistols, rifles, machine guns), medium (.50 cal HMGs, 14.5mm MGs), large (20 - 30mm AP autocannons), huge (90mm+ sabot round).
 - **Explosions** - Small (20 - 30mm HE from autocannon), medium (40mm or hand grenade), large (155mm HE shell), huge (2000lb bomb or Huge IED), medium thermobaric (SMAW-NE round), large thermobaric (RPG-7 TBG-7 round).
 - **Weapon-Firing Effects** - Cannon (M1A1 main gun), low-velocity gun (BMP-1 main gun), mortar (60mm / 80mm / 120mm), autocannon (M2A3 25mm Bushmaster), autocannon with muzzle brake (BMP-2), small arms (pistols, rifles, machine guns), grenade launchers (40mm UGL or GMG), missiles (TOW, Hellfire), recoilless guns (AT4, SPG-9).

NOTE

Some of these particle effects differ, based on the surfaces where the particle event, such as a projectile impact or an explosion, occurs. These surfaces include: water, ground dust / dirt, sand, snow, glass, metal, flesh, and so on.

Image-25: Large explosion from a 155mm HE shell

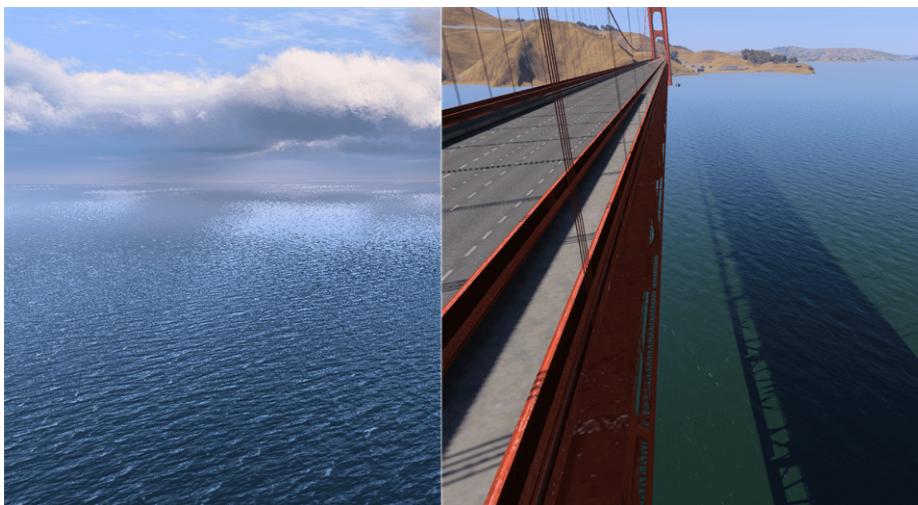


- VBS4 now has full DirectX 11 support. Among other aspects, this includes:
 - Multi-Function Displays (MFDs) that simulate real-life instruments in a vehicle, such as speedometers, or navigational devices, are now fully supported.
 - Switching between Render to Texture (RTT) modes is more stable.
 - In a multi-display VBS4 setup, full-screen is supported on multiple displays.

i NOTE

If you still need to run VBS4 with DirectX 9, see the `-dx9` command-line option in Command Line and Launcher Options in the VBS4 Administrator Manual.

- Water now shows cloud reflections and shadows cast by objects.



- Added the ability for Editor Objects to have light animation.

The airfield (**F8**) Objects > Vertical Obstruction Objects > Guard Light, Yellow/Yellow Editor Object uses light animation.



For information on how to configure light animation, see P3D Lights in the VBS Developer Reference.

- Added 3D-grass flattening for the player unit.

 **NOTE**

The flattening effect does not apply to vehicles or other units, besides the player.



- Added missile trails.



For information on how to configure missile-trail effects, see [Class CfgCloudlets](#) and [CfgWeaponEffects](#) in the VBS Developer Reference.

- Added damage charring (from bullet hits and explosions) to objects, also visible in Thermal Imaging (TI) modes.



For more information, see:

- SQF commands to add / remove charring to / from objects: [addCharring](https://sqf.bisimulations.com/display/SQF/addCharring) (<https://sqf.bisimulations.com/display/SQF/addCharring>) and [removeCharring](https://sqf.bisimulations.com/display/SQF/removeCharring) (<https://sqf.bisimulations.com/display/SQF/removeCharring>).
- Vehicle charring: Vehicle Repair in the VBS4 Editor Manual and Repairing Vehicles in the VBS4 Trainee Manual.

NOTE

The visual scene can have up to 24 damage-charring effects applied to the following objects (additional damage-charring effects applied to these objects, exceeding that limit, cause older damage-charring effects applied to the objects to disappear):

- Extruded buildings
- Biome trees

3.14.5 VBS4 Settings

- Added the **XInput Aim-Assist** simulation setting for XInput controllers.
For more information, see Simulation Settings in the VBS4 Administrator Manual.
- Added the **Automatic Door Animations** simulation setting.
For more information, see Simulation Settings in the VBS4 Administrator Manual.
- Added the **Send Outgoing Animations** and **Receive Incoming Animations**VBS Gateway settings.
For more information, see Configure General Settings in the VBS Gateway Manual.
- Added audio settings: **Primary Output Device**, **Radio Output Device**, and **Radio Input Device**.
For more information, see Audio Settings in the VBS4 Administrator Manual.

3.15 Product Maintenance

The following issues were resolved in VBS4 23.1.3:

Issue Key	Summary	NetSuite Case
CORE-1947	VBS4 severe performance drop when ASCOT begins transmitting.	
CORE-1952	Interop vehicles create local crew (and other elements) causing a massive performance hit.	
T3S-3106 SDKS-4115	Sensors do not work and UI appears with RenderTarget.	88115
T3S-3010 T3S-3041 SDKS-3595	Precision issue with CalculateQueryAPI CalculateIntersection.	84709
		85536

The following issues were resolved in VBS4 23.1.2:

Issue Key	Summary	NetSuite Case
T3S-3117	Visual stuttering of vehicles turning at low speed	88053
CORE-1754		
T3S-3118 VBS4-12729	B2FO optics UI issue	

The following issues were resolved in VBS4 23.1.1:

Issue Key	Summary	NetSuite Case
CONTENT-5878	BAE Amphibious Combat Vehicle (ACV)	
CORE-1041	ACV Phase 2 - Dual propeller simulation	
T3S-3059	Certain categories of VBS Gateway Mapping are disabled.	82815
TD-485	Cloud coverage values do not match via HLA.	
TD-486	Repeated freezes when rapidly updating weather.	
TD-487	Temperature: setTemperature and getTemperatureAir SQF fixes and UI application.	
TD-488	No rain applied due to order of precipitation application.	
VB-9736	Geo water placement tools are offset by ~1850m on Chernarus.	

Issue Key	Summary	NetSuite Case
VB-9737	AlignToTerrain Particles parameter does not function in VBS4.	73691
VBSGEO-1673	Line Geo models are difficult to move when a Geo elevation is present in the mission.	
VBSGEO-1682	Road Geo edits not working on Sahrani / Rahmadi, breaking existing roads.	

The following issues were resolved in VBS4 23.1.0:

Issue key	Summary	Netsuite Case
CONTENT-1797	Astar-350 - The gunner's head goes through the texture of the helicopter	
CONTENT-1924	BMP-1 shiny turret when vehicle is destroyed	
CONTENT-1974	K21 KNIFV - Heads going through hatch	
CONTENT-3257	OG-7V does not produce any sound of detonation	
CONTENT-3456	CAAM missiles are missing auto-destruction	
CONTENT-4012	Conflicting addon messages in RPT	
CONTENT-4463	The iron signs are badly aligned for NZ army wheeled vehicles	
CONTENT-4484	Gunner of the CZ Mi-171Sh is controlling the machinegun of the other side	
CONTENT-4507	Wrong textures after destruction	
CONTENT-4509	One of the doors in Military Barrack I does not open	
CONTENT-4511	Wreck of any Ural variant have shiny spare wheel texture	
CONTENT-4548	Ajax commander optic system missing green hot	
CONTENT-4571	ACATS ARH - pilot is not able to fire in 1st person view from Cannon	
CONTENT-4580	Drone will glide after running out of fuel	
CONTENT-4604	Unable to create unit, objectclass not found. when placing a BE Dingo 2 FUS	
CONTENT-4632	The player can move through the logs	
CONTENT-4637	SS-21 Scarab have strange shiny transparent wreck texture	

Issue key	Summary	Netsuite Case
CONTENT-4661	Weapons have zero accuracy, dirt running out of the receiver	
CONTENT-4691	Incorrect last LOD in HouseBlock_B5.p3d	
CONTENT-4704	Aircraft have rapidly strobing lights	
CONTENT-4742	Siamese Cycas collides with vehicles	
CONTENT-4748	Statue WW2 Monument Wall shiny texture	
CONTENT-4758	Missing ; at the end of the line messages in RPT	
CONTENT-4869	Copehill buildings missing windows, hatches, floors	
CONTENT-5131	Visible shadow of the Ajax driver	
CONTENT-5132	Previews of Ajax are not showing correct version	
CONTENT-5657	Incorrect particle thermal textures	
CONTENT-5679	Swedish configurations use M109 instead of Archer	
CONTENT-5741	The middle left seat does not allow soldiers to turn out from the Strf9040B	
CONTENT-5754	Some objects are charred black	
CONTENT-5788	Sound of the projectile detected by CBS can be heard too far away	
CORE-34	Yakushima - building with no collision - investigation	
CORE-113	Hovercraft swerve to the left	
CORE-116	FV510 (Warrior) AI miss targets with 30mm	
CORE-251	Peaks in physX on locality switch	
CORE-276	4K Full Screen not working (alt Ent)	
CORE-278	VBS4 Network License Dongle End of the Month Expired Error	74381
CORE-411	CTD after a DS shutdown	
CORE-462	VBS4 Loadtest - CTD on DS in NetworkClient::GetObject	
CORE-486	Flood of UpdateMan	
CORE-519	Script related network flood - groundsegmentsloop.sqf	

Issue key	Summary	Netsuite Case
CORE-523	Autoassign doesn't work, user is stuck in END_MISSION lobby	
CORE-525	Access denied: bin\config.cpp/CfgWeapons/ - in dbgview	
CORE-594	CTD on mission load	
CORE-599	IR controls do not work in Fennek vehicles	
CORE-609	Animation xxx is longer than corresponding engine buffer	
CORE-637	Peaks in Ambient Life Spawn	
CORE-644	Flood of ReferenceMarkUpdate killed DS	
CORE-649	CTD of Admin in RTE during onboarding mission	
CORE-669	Flooded lower deck on ships don't have water texture inside of cargo bay	
CORE-693	CTD when launching a mission in preview	
CORE-733	Warning message Convex component representing xxx not found gives no info about affected model	
CORE-742	Very bad performance during loadtests fix	
CORE-756	Ingame HUD/UI is not loaded immediately after mission load when hosting locally	
CORE-764	Interminable freeze when preview a BS in PhysXFoundation_64.dll!physx::shdfnd::BroadcastingAllocator	
CORE-820	VBS4 gets stuck at loading battlespace if Geo package had been deleted	
CORE-836	Memory Leak - Dedicated Server & Client	
CORE-848	Cumulation of objects in stresstest mission	
CORE-867	DS and SC0 CTDs due to -printpeaks in TimerCallStackPrint::~TimerCallStackPrint	
CORE-892	Investigate abeh08 autotest fail - issue/script error when civilians despawning	
CORE-897	Freeze in DebugExceptionTrap::GetStackWithContext	
CORE-912	FOLLOW-UP AAR from DS is not saved after Geo was deleted	

Issue key	Summary	Netsuite Case
CORE-921	-connect=localhost parameter on Admin shows error instead of the Battlespace selection	
CORE-924	JSONs from Loadtest and 2k are not generated correctly	
CORE-929	CTD in MallocImplDll::MSize	
CORE-936	CTD on client while hosting BS on DS	
CORE-944	Flood of Assertion failed 'Initialized()' - Preloaded areas not initialized! when get into lobby of mission on DS	
CORE-964	AAR - Low FPS while locked on player in jet (around 5 FPS), while flying	
CORE-965	Assertion failed '!isObjectNull && !isSensorNull' during explosions	
CORE-971	CTD in DecodeMessage	
CORE-975	Flood of UpdateMan and UpdatePositionMan	
CORE-976	CTD in Transport::GetURNMarking after a vehicle with Litening respawns	
CORE-987	Flood of Fail 'No subgroup'	
CORE-1003	Radar dish animation is broken - static object issue - follow-up	
CORE-1004	Deadlock caused by SymCleanup not being threadsafe and being accessed by the function DebugExceptionTrap::UpdateSearchPath	
CORE-1015	CTD when hitting play in AAR	
CORE-1027	AAR is not invisible to -connect=IP parameter + it's possible to become a seagull	
CORE-1031	Perf test peaks in SimulationPhysx4.dll	
CORE-1046	Time does not update based on accTime	
CORE-1047	Peaks in Diving while helicopter fly over the water	
CORE-1051	Tank scrapes - vehicles fall through the ground	
CORE-1057	Camera is shaking vigorously when zoomed in UAV	
CORE-1058	Damage charring effect is not removed after being repaired	
CORE-1059	AAR cannot be opened, it remains stuck in Loading AAR file - vbs2\maps\data\snowtexture_al.tif	

Issue key	Summary	Netsuite Case
CORE-1088	Freeze > CTD in lobby for 2 connected clients	
CORE-1100	Freeze after switching locality of 944C Excavator	
CORE-1121	TI modes turned fuzzy	
CORE-1127	VBS4 night_vision Spotlight intensity / size is far less than a visible Spotlight	82560
CORE-1143	AAR All except first AARs recorded on DS from one mission's run are lagging	
CORE-1144	VR CTD during the loading from briefing to the mission	
CORE-1154	CTD Memory corruption - Switching to UGV and back	
CORE-1160	AAR Player is stuck in the vehicle, which he gets out from	
CT-6504	Script error while Predator Gun Camera is selected	
CT-6506	Flood of ObjectSetVariable	
CT-6512	Improve latency of the Glinter object used for the signal lamp	
CT-6515	Simple tools and other items requires magazine	
CT-6522	Flood: CAS	
CT-6523	Weapon loadout will not be retained even if user agrees	77917
CT-6524	Script error when opening C2	
DVS2-325	Jammer range reset after save	
DVS2-347	Failed to load ElectronicWarfare saved data notification in OME	
DVS2-365	Disable Jammers visualization in AAR	
DVS2-372	Disable Antenna and Jammers visualization in C2 for Admin	
DVS2-395	Plenty of log messages (wrong api calls) in preview for Electronic Warfare component	
FEP-1004	VBSPitchRadio: Radio chat window doesn't close with mission view panel	
FEP-1008	Streaming Sensor with PseudoLoc causes the control buttons are unaligned	

Issue key	Summary	Netsuite Case
FEP-1045	Main menu - Progress bar isn't synchronized with real progress while uploading BSs on VWS fix	
FEP-1079	Main menu - Settings search loses focus fix	
FEP-1101	World Server Status stays open	
FEP-1106	Elements in BS preparation remain highlighted after cursor leaves	
FEP-1109	Disable hot keys while in Documentation	
FEP-1111	Gateway - Limit page numbers	
FEP-1138	Radio - Some of the present colors can't be selected fix	
FEP-1150	Radio - cannot input numbers from CZ layout keyboard	
FEP-1151	Some UTF-8 characters have inconsistent behavior in VBSRadio name	
FEP-1152	Main menu - Filter is not closed when you click on Earth fix	
FEP-1161	[ngl] Select jumping on open	
FEP-1162	Invisible area blocking mouse clicks in BS selection	
FEP-1172	VBS4 hotkeys are still active in VBS4 dashboard	
FEP-1173	Main menu - VBS does not remember BS filter selection fix	
FEP-1174	Main menu - Server Management is not hidden once you become gamemaster fix	
FEP-1176	Main menu - Newly created POIs are not listed alphabetically when created fix	
FEP-1178	Jammers - BalCheckbox indeterminate	
FEP-1188	Gateway - last line in Mappings is partly covered by search bar and web issues	
FEP-1208	Gateway - Select VBS model has useless scrollbar	
FEP-1232	Gateway - Long strings causes UI text to overflow	
FEP-1238	Radio - pressing enter leads to losing focus	
FEP-1241	Long BS name is not correctly shown in search results	
FEP-1249	Main menu Dialog window stays open after restart fix	

Issue key	Summary	Netsuite Case
FEP-1251	Filter Icon isn't visible when you resize the Scenario Objects window fix	
FEP-1253	Communication Panel - arrow for channel selection is not centered	
FEP-1255	Main menu - VBS4 Settings update response fail fix	
FEP-1266	Cannot use hamburger menu when server list is open	
FEP-1268	Antennas - BalCheckbox indeterminate	
FEP-1269	Quick Menu - Back and Next are not loaded (also errors)	
FEP-1274	Deprecation warning when sorting as Last modified	
FEP-1276	Search results are behind ToolTip (connected to the VWS)	
FEP-1281	Geo Tool panel has incorrect borders	
FEP-1284	Main menu - Ctrl+Enter key behavior after interaction with Earth improvement	
FEP-1287	Color picker - validator	
FEP-1289	Main Menu Settings - Non-html page is not properly closed fix	
FEP-1291	Main Menu Settings - some values cannot be changed with keyboard arrow fix	
FEP-1298	Plan - UI highlights all elements at once	
FEP-1322	Error when moving with geo panel	
FEP-1324	Control AI Civilian - text is not visible	
FEP-1338	Main menu - Execute label does not fit into button fix	
FEP-1345	Gateway - default Import folder is VBS3	
FEP-1370	Main menu - User can not host a session unless there is another server running on network fix	
FEP-1372	Main menu - Missing mission selection screen after server admin change	
FEP-1431	Main menu - Error in DevTools on start up fix	
FEP-1435	Measure distance tool menu is partly off-screen	
FEP-1459	Main menu Settings - Particle Effect Fidelity improvement	

Issue key	Summary	Netsuite Case
RAB-487	Player is not affected by ship movement.	
RAB-498	Implementation: RAF issues with Joystick inputs for UAV Camera	78265
RAB-553	XBox controller binding/behavior broken as of recent update	
RAB-595	VBS is not properly ended	
RAB-663	VBS is not properly ended (SessionManagerClient again)	
RAB-665	CTD in AAR when selecting Viewcast > Non-Grouped	
RAB-749	Gateway - non-vbs3_ prefixed ammunitions are not imported	
RAB-809	[VBSPitchRadio] Incorrect Capslock interaction, windows error and CTD	
RAB-830	Untranslated strings in alternative languages don't fall back to English	
RAB-835	Copied playable units don't show as playable	
T3S-1492	MGRS coordinate entry is case sensitive	53817
T3S-1599	M1A1 AIM(D) Fuel consumption not realistic	57035
T3S-2425	Raycasting not always working on 3D objects	74295
T3S-2592	Object Grasscutter does not have any effect	77804
T3S-2604	Replace 40mm Ammo Mag 5 round magazines with Single round magazines on the NL soldiers	77915
T3S-2634 TS-1935	Any formation other than Convoy will cause Control AI not to fire	78407
T3S-2649 TZ-4339	Artillery Dispersion should be measured in meters if the localization is set to United Kingdom	79210
T3S-2652	Typing in search bar of HELP while in preview	79335
T3S-2896	SQF: getSceneBrightness always returns 1	82657
T3S-2904	Opposite Hatch opens when turing out in Strf9040B	83002
T3S-2945	NL MoD - The Fire Direction Centre is not DIS ready	84251
T3S-2971	NL MoD 1.5 - Gateway - Unmapped Artillery Strike Munition	84623

Issue key	Summary	Netsuite Case
T3S-3003	NL MoD - Oostdorp covered trenches have no interior texture	84551
TD-186	FOW in C2 for vehicle groups of autopilot vehicles	
TD-196	Grenade force adjustment not applied in -oldGameplay	
TD-219	Can't tow a player controlled vehicle - reimplement in VBS4	
TD-220	Inconstant visibility of units in 2D map as a vehicle crew	
TD-221	RWS view disappears when in first person view and moving timeline in AAR	
TD-225	Line of sight doesn't work for ControlAI player	
TD-233	EW links disappear	
TD-242	CTD when switching to RWS in BE Dingo	
TD-250	CTD when tried to execute custom action	
TD-267	IEDs placed in OME change icons after starting the mission	
TD-269	Fog of war problems with unit visibility on C2 map	
TD-270	VBS window movement will make dialog window out of focus	
TD-272	In some cases OOF VBS can cause breaking buttons	
TD-399	Fog of War doesn't consistently return IsVisible for object which is clearly visible	
TM-50	User unable to Get in as Driver if seat is AI occupied	
TM-58	Radio spams hold fire and cease fire after revive	
TN-2082	Units stays selected when switching from Editor to Plan	
TN-2083	PLAN - Resizing tool has only small area of effect	
TN-2091	Wind speed is increasing	
TN-2092	PLAN: Not possible to select group of Ellipse Drawings after rotation	
TN-2097	Assertion failed: GWorld->GetMode() == GModeNetware	
TN-2104	UnitList ORBAT filters not showing groups when filtering for units	

Issue key	Summary	Netsuite Case
TN-2110	Battlespace saved from RTE/AAR does not contain units when opened in the editor	
TN-2111	When weapon is removed from equipped slot and put in inventory, it ceases to exists when battlespace is saved from RTE/AAR	
TN-2124	Fish are falling from the sky	
TN-2125	Waypoints for all sides are visible while filtering only specific side in ORBAT fix	
TN-2127	Assertion failed: GWorld->GetMode() == GModeNetware - FOLLOW UP	
TN-2128	Popup: Some links to this object exist, remove them first	
TN-2129	Popup: Mission contains outdated or custom crew configuration	
TN-2130	Wrong time saved in RTE	
TN-2133	Battlespace overview image cannot be loaded	
TN-2135	Saving from RTE when scenario settings were not adjusted leads to not every property being saved	
TN-2142	Trigger links to Control AI waypoints are incorrectly saved	
TN-2146	Metadata and disclosure message contain timestamp in local time	
TN-2148	Weapon stoppage - Mortars and static rocket launchers get weapon stoppage icons	
TN-2155	Trigger links to regular waypoints are not saved	
TN-2166	Secondary damage - building fires sink underground and desync in MP	
TN-2167	Group icon become a huge unit's icon after the mission preview	
TN-2168	Symbology unit icons not showing in RTE when there are spaces in VBS path	
TN-2170	Error creating Logic - type does not exist	
TN-2174	Failed to upload BS appears on VWS	
TN-2184	Debugview flood when player is in US HMMWV	
TN-2185	CTD when moving a group of units in editor	
TN-2187	CTD in TransformationAspectAPI::GetAttachedTo	

Issue key	Summary	Netsuite Case
TN-2204	Flood of SendSymbologySIDC	
TN-2224	Error when opening older mission	
TN-2226	Formation editor map zoom locked way too far	
TN-2246	Fake IED fails to consistently create crater in multiplayer	
TN-2277	ORBAT Filter Visualization do not work for respawned units	
TN-2310	Placing a group as 'Playable' makes the group leader player	
TN-2317	SA-15 gets destroyed while successfully launching its missile	
TN-2318	Units disappear after being removed from ambulance	
TN-2325	US Ground Unit M1A2 groups spawn M1A1s	
TN-2332	Another CTD in Chalkboard	
TS-1806	Perftest missions cai1 - cai6 need to be updated due to constant failure	
TS-1880	Randomly missing links in MP mission (CAI waypoints)	
TS-1917	Special-Collide and Overrides-Default Ammo controls are swapped in the Editor	
TS-1955	CTD - Subgroup_EnterCover behavior crashes VBS	
TS-1981	Holes in Coarse Navmesh	
TS-2031	CAI on Rails waypoint proxy is considered a real-world unit and therefore avoided by AI	
TS-2032	Convoy with 'Use Roads Only' set won't start	
TZ-3786	UnitList - Orbat doesn't load properly sometimes	
TZ-4230	Wrong magazine slot order in AAR when removing weapon	
TZ-4231	Kicked player is stuck on the loading screen fix	
TZ-4234	AskAnimationPhase flood when AU Route Clearance vehicle group added	
TZ-4255	Description and URN of vehicle are missing after respawn	
TZ-4262	Destroyed vehicles getting deleted after respawn	

Issue key	Summary	Netsuite Case
TZ-4268	The volume of the Effects is equally loud at a value between 2 and 10	
TZ-4270	The DIS entity state PDUs does not get unloaded at the time of exiting the AAR with AfterActionReviewAPI_v4::Unload()	71147
TZ-4320	Restarting a battlespace causes civilian spawn points to spawn too many civilians	
TZ-4340	JIP clients has wrong Respawn Settings when changed during mission	
TZ-4419	Surrendered weaponry levitates	
TZ-4440	M6-895 Mortar isn't available in the Ballistic Computer	
VB-8691	'Soft seams' present when merging adjacent Hgt data from GDAL plugin	
VB-8705	Artifacts in TI with snow enabled	
VB-8843	Strange offset to SRF data upon export from TT to VBS4	
VB-8897	Proper Geographic Bounds function	
VB-9093	Max snow precipitation is underwhelming	
VB-9181	AAR Falling shells (cartridges) cause terrible visual glitches when shooting	
VB-9227	Editor plugin ignores vector data	
VB-9236	Data Import failures for everything but Roads	
VB-9283	CTD while reconnecting to Blue	
VB-9286	CTD when coming back from RTE	
VB-9287	CTD in Globe::FreeMemory_v0	
VB-9291	Deadly invisible building in Bystrzyca Inset	
VB-9292	AAR - Particles from explosion do not appear	
VB-9311	Binarization of removal regions of obj doesn't work	
VB-9327	Lock in VBSBlue.dll!Base::ConditionVariableLock::Lock() when loading 2k mission followed by CTD	
VB-9337	VBS4 night_vision spotlight shines through water to sea floor and not visible from above	83023

Issue key	Summary	Netsuite Case
VB-9358	Visual glitches when flying close to the ground	
VB-9369	Base Water not being removed when user data is utilized	
VB-9372	Outlines of clouds are visible during head movement in HMD	
VB-9383	Green and blue windows in some global buildings	
VB-9403	The Sun illuminates area behind hills	
VB-9446	Objects have broken textures in NVG view	
VB-9461	NVGCompositor: CTD when forwardPlus Sensor Parameter is changed at runtime	
VB-9486	mapVec sqlite does not stream to client machine on VWS	
VB-9488	SQLite Live Loading is not working	
VB-9505	CTD during geo changes	
VB-9520	setRain causes large performance drop while changing rain state	
VB-9521	Puddles disappearing in front of the Player	
VB-9526	Water low LOD despite high settings UAV feed	80920
VB-9530	Clouds aren't rendered smoothly during fast movements and create rectangular objects	
VB-9535	Objects are visually sunk below the ground when seen at long distance	
VB-9539	CTD during smoketest in ControlBlockTypeless::SetDependencies	
VB-9540	Some lifeforms have deformed parts	
VB-9543	DataPipelineRunner CTD in loading global buildings	
VB-9566	Plugin renderer context corruption from D2D calls	
VB-9585	Thermal Imaging rendering broken on Dedicated Server	
VB-9629	Outlines of clouds are visible during quick zoom	
VB-9632	Crash with MemoryManager pop-up when ElectronicWarfare (CBS) is used near by North Pole	
VB-9646	Varjo CTD on close for VBS4	

Issue key	Summary	Netsuite Case
VBS4-3374	Searching for a specific coordinate and clicking it will result in [Object object] in the search bar	
VBS4-6766	Script error in Leopard 2A6 when lasing nearby vehicle	
VBS4-8802	FOLLOW-UP: Controls are not listed in num order properly	
VBS4-9380	Turn Off Crosshair should be renamed to Toggle Crosshair On/Off	
VBS4-9474	CTD when trying to speak on the radio	
VBS4-9615	XBOX Controller - Doesn't Recognize Hold Actions	
VBS4-9785	PerfBoard Perf drops in legacy AI missions	
VBS4-9812	CTD after closing VBS4 22.2.1.1	
VBS4-9882	GEO folder disappeared after saving of a battlespace	
VBS4-9910	CTD on SC1 during stresstest reproing in VBSPitchRadio	
VBS4-10197	CAI waypoints interaction broken (rotation and 3D clickability)	
VBS4-10414	Error message Warning: Cannot evaluate 'Protected', script error in setdisplaynames.sqf	
VBS4-10630	CTD in GeoCore.dll!MultiplayerManagerComponent after closing VBS4 23.1.	
VBS4-10745	Radio beep/squelch is played multiple times	
VBS4-11172	Artillery Strike script function mortar not working in VBS4	
VBS4-11502	Training Battlespace demo scenario has legacy Geo project	
VBS4-11676	Missing hint in case of User Interface > Localization	
VBS4-11708	CTD during AAR load (3 months old AAR) in CFF	
VBSGEO-1334	Elevation edits placed on top of each other cause several GEO issues	
VBSGEO-1441	Broken map locations causing players to sink into the ground	
VBSGEO-1451	Holes in the terrain edited in Geo	
VBSGEO-1594	VBS Geo Issues with translation and scale nudgers	
VBSGEO-1609	Exiting the Linear model style pop-up message can be triggered infinitely	

Issue key	Summary	Netsuite Case
VBSGEO-1610	Geo - Esc close Tool Panel	
VBSGEO-1613	LPP BUG End points of line models are not snapped on the edge of elevated terrain	
VBSGEO-1614	Undo BUG Undo does not work in combination with Erase and Line tool	
VBSGEO-1615	Erase/LPP BUG Select lines of some objects are too big	
VBSGEO-1619	Ellipsoidbiwgs84 flood when placing lines or roads in GEO	
VBSGEO-1620	Gap under the GEO History Box	
VBSGEO-1624	DX11 Flood in Draw when drawing the Geo area or line	
VBSGEO-1628	Freeze after trying to revert GEO changes	
VBSGEO-1631	CTD in GeoCore.dll!WaterEditorDirector::OnLoad	
VBSIII-22548	CZ Helicopter Pilot missing head in Object preview	
VBSIII-23998	Unit can go through wall in h33 (x)	
VBSIII-24185	Flickering carpet	
VBSIII-27995	File vbs2\sounds\sound_human\cough\male\male_cough5.wss not in bank	
VBSIII-29204	Hard to aim from DSHKM mounted on a Datsun	
VBSIII-30031	Reversed commander controls in T-72M4cz	
VBSIII-30136	Wrong label - non lethal on the Masterkey 12g ammo box	
WW-356	Dead units complete the action of getting out of the vehicle	
WW-368	Unit can get stuck in ActivityGetIn/Out when door collides with other objects	
WW-372	EW is visualizing and updating detections in OME after return from preview	
WW-375	Razor Wire is mispositioned after Roll up animation	
WW-379	CTD when using addAction SQF with empty string as parameter.	
WW-490	CTD when loading AAR fix	

Issue key	Summary	Netsuite Case
WW-513	Quick Menu - Radio channel switching	
WW-514	Waypoints not being deleted in UnitList after deletion from map	
WW-515	Script error - Error in expression <1>, Error Type Number, expected Bool.	
WW-517	Incorrect BS name in Server Admin Panel when loading into a scenario hosted by another Admin	
WW-520	Hazardous areas aren't enlarging in AAR	
WW-521	Control link name in Scenario Objects	
WW-526	Invalid read in Pitch Radio component	
WW-528	AU AP-3C Orion flood in IWV	
WW-531	Disabling Backblast Damage Simulation setting doesn't do anything	
WW-532	Cannot climb ladders deployed on ships	
YT-299	RWS vehicles - inconsistency with starting lights OFF	
YT-323	Loading screen assert	
YT-331	Weather state resets when RTE is closed with Close button	
YT-340	Script error in tactical ladder	
YT-357	FDC UI is not centered in 4k	
YT-359	CBRN HUD is not present in AAR	
YT-365	CTD - Wrong settings value (Json::Value::asInt(void))	
YT-440	Flood of ObjectSetVariable from evaluatedoorsandhatches.sqf script fix	
YT-444	Disorienting effect doesn't clear immediately	
YT-445	RBS-17 vehicles are causing flood fix	
YT-456	CAS UK Apache hit the ground and burned, script error happened	

4. VBS4 Release Notes 22.2

Bohemia Interactive Simulations continues to actively develop VBS4 with customer-specific projects enhancing the baseline for all customers, plus internal initiatives to constantly improve and enhance the capabilities of VBS4, its components, and associated tools - all aimed at providing the ideal platform for your training needs.

WARNING

VBS4 22.2 included significant backwards incompatible changes to Vegetation and Building Texture paths.

If you are upgrading from a version older than 22.2, review [Vegetation and Building Texture Repathing \(on page 172\)](#), and apply the necessary changes to your Insets and Battlespaces before using VBS4.

Bohemia Interactive Simulations has released the following versions and updates for VBS4 22.2.

Version	Major Features
22.2.0	General release for all customers.
22.2.1	Patch release resolving general and specific customer issues.
22.2.2	Patch release resolving general and specific customer issues.
22.2.3	Patch release resolving general and specific customer issues.

VBS4 22.2.0 introduces the following new features:

- An advanced new map with the following features:
 - A set of customizable default map layers, and the ability to add new ones from offline and online map-streaming sources, using different map-data formats.
 - The ability to customize the map styles.
 - The ability to export map regions as QGIS projects.

For more information, see [Advanced New Map and Map Layers \(on page 177\)](#).

- The VBS World Server user interface includes a new tab to manage Insets data.

For more information, see [VBS World Server Management UI Improvements \(on page 179\)](#).

- Instructors are now able to stream completed AAR recordings to Trainees in real-time, either in a classroom or remotely, with voice communication available utilizing VBS Radio.

For more information, see [AAR Streaming \(on page 180\)](#).

- Animals feature new herd behavior using Control AI.
For more information, see [Animals and Control AI \(on page 181\)](#).
- The VBS4 Settings have a new UI organization and XML configuration.
For more information, see [VBS4 Settings Reorganization \(on page 182\)](#).
- VBS4 includes additional chemical detection devices.
For more information, see [CBRN Detection Devices \(on page 183\)](#).
- A new Electronic Warfare editor object enables Radar and Signal Detection functionality to be enabled for units and vehicles.
For more information, see [Electronic Warfare \(on page 185\)](#).
- The Infantry Assault Bridge (IAB) is now available in VBS4.
For more information, see [Infantry Assault Bridge \(on page 186\)](#).
- VBS4 includes a new Respawn Settings Dialog to enable Administrators to quickly reactivate units and vehicles.
For more information, see [Respawn Settings Dialog \(on page 187\)](#).
- VBS4 enables Administrators to simulate weapon stoppages on trainee weapons, requiring the stoppage to be cleared before the trainee can fire again.
For more information, see [Weapon Stoppage \(on page 188\)](#).
- VBS4 includes Mixed Reality support to integrate VR scenarios with physical simulators.
For more information, see [Mixed Reality \(on page 189\)](#).

This VBS4 release also includes:

- [VBS Geo Improvements 22.2 \(on page 190\)](#)
- [VBS World Server Improvements 22.2 \(on page 191\)](#)
- [New Content in VBS4 22.2 \(on page 193\)](#)
- [Additional Enhancements \(on page 200\)](#)
- [Geo Project Versioning \(on page 38\)](#)

VBS4 22.2 also resolves a number of issues. For more information, see:

- [Product Maintenance \(on page 209\)](#)

This release includes a number of [VBS4 Known Issues and Limitations \(on page 477\)](#).

4.1 Vegetation and Building Texture Repathing

This release introduces significant changes to Vegetation and Building Textures in VBS4 and VBS Blue IG that make terrain backwards incompatible with previous releases (and also marks a complete split from VBS3 sources).

Introduction of 3D grass and improvements to the vegetation

Until now, the virtual path `vbs2\vegetation\` has been used for VBS3 vegetation, which is used in VBS4.

This release uses new paths to enable future improvements in vegetation in VBS4 and VBS Blue IG.

The new vegetation path starts with `bisim_vegetation*`

New vegetation configuration classes start with:

- `bisim_tree` instead of `vbs_tree`
- `bisim_bush` instead of `vbs_bush`
- `bisim_grass` instead of `vbs_grass`

Image-26: Vegetation in VBS4 22.2



Introduction of new building extrusion that influences everything from video settings, new 2D map rendering, to visual quality

The new procedural building texture paths start with `bisim_blue\bisim_blue_procedural*` instead of `vbs\blue\buildings*`.

Image-27: Buildings in VBS4 22.1**Image-28: Buildings in VBS4 22.2**

These changes required the regeneration of procedural buildings with new templates pointing to the new textures, and applying support for the new 2D map and video settings during the extrusion process.

NOTE

Download and install the latest **World Buildings** package from VBS License Manager to obtain the updated procedural buildings.

4.1.1 User Generated Insets

Vegetation

All user generated insets using trees (mainly VBS3 converted terrains) must be regenerated using the latest Terrain Conversion Tool to apply the new paths to the vegetation objects.

For details, see VBS3 to VBS4 Terrain Conversion Tool in the VBS World Server Manual.

NOTE

If the terrain was modified using Surfaces in VBS Geo to adjust the vegetation, the terrain works by default as Surface definitions have been updated in VBS4 to use the new texture paths.

VBS Geo automatically applies the new paths when a project opens, so that trees are automatically loaded from the new location.

Procedural Buildings

All user generated insets using previously procedurally generated buildings need to be regenerated using the latest TerraTools® or terrain data import to apply the new extrusion.

For details, see the TerraTools® documentation or Data Import in the VBS World Server Manual.

4.1.2 User Created Battlespaces

All user created missions that use manually placed trees in the Editor must be updated to use new configuration classes.

While the repath affects all vegetation from the `vbs2\vegetation\` folder, the change only requires a minor update in the mission file to allow for the new vegetation to be swapped in by changing all the config class names from:

- `vbs_tree` to `bisim_tree`
- `vbs_bush` to `bisim_bush`
- `vbs_grass` to `bisim_grass`

WARNING

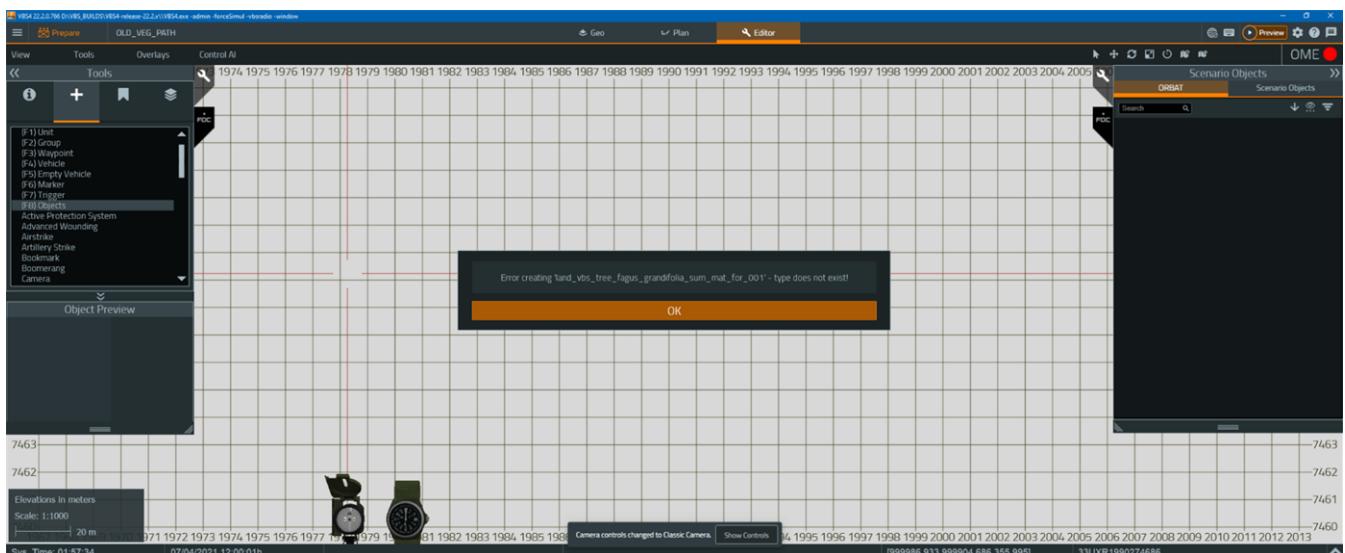
These changes make the mission backwards incompatible with VBS4 22.1.x and earlier versions. The missions only work in VBS4 22.2.x onwards.

The following example demonstrates how to update your missions.

Follow these steps:

1. Open the Battlespace in VBS4.

A warning appears about missing vegetation.



2. Navigate to the `\Missions\Battlespace\` folder in `\Documents\VBS4\Battlespaces\Battlespace\` and open the `mission.biedi` file in a text editor.
3. Locate and replace all the occurrences of:
 - Replace `land_vbs_tree` with `land_bisim_tree`
 - Replace `land_vbs_bush` with `land_bisim_bush`
 - Replace `land_vbs_grass` with `land_bisim_grass`
4. Repeat step 3 for all applicable vegetation.
5. Save `mission.biedi` and close the file.
6. Reopen the Battlespace in VBS4 and resave the mission.

The changes to the configuration classes propagate into the other mission files.

The Battlespace now opens without the popup warning and vegetation is back in place.

Example:

Change:

```
class _object_0
{
  objectType="object";
  height=0.00057899416;
  class Arguments
  {
```

```
SUB_TEAM="";
SIDE="all";
TYPE="land_vbs_tree_fagus_grandifolia_sum_mat_for_001";
EDIT_UNIT="";
...
};

};
```

To:

```
class _object_0
{
    objectType="object";
    height=0.00057899416;
    class Arguments
    {
        SUB_TEAM="";
        SIDE="all";
        TYPE="land_bisim_tree_fagus_grandifolia_sum_mat_for_001";
        EDIT_UNIT="";
        ...
    };
}
```

★ FEATURE NOTICE

For customers who are unable to make these changes, there is an option to distribute the addons with the old paths and configurations both for the textures as well as vegetation as a fallback. Contact support@bisimulations.com if you require assistance.

This option will not be supported from VBS4 23.1 onwards, so we recommend all customers update as soon as possible.

4.2 Advanced New Map and Map Layers

The VBS4 2D map view has been enhanced with the ability to add map layers, based on the following map-data formats, that can use both offline and online sources - the former being on your computer, and the latter using URLs:

- GeoJSON
- MBTiles ([.png](#) only, not [.Vector](#))
- RasterTiles
- KML
- KMZ
- WFS
- WMTS

You can add map data from third parties. For example, the VBS4 default map layers include Microsoft Bing Maps, Google Maps, and OpenStreetMap. They are switched off by default.

VBS4 comes equipped with a set of new default map layers that you can customize and add to, using your own custom map layers. Additionally, you can customize the map styles.

Image-29: VBS Editor showing the default VBS4 map layers

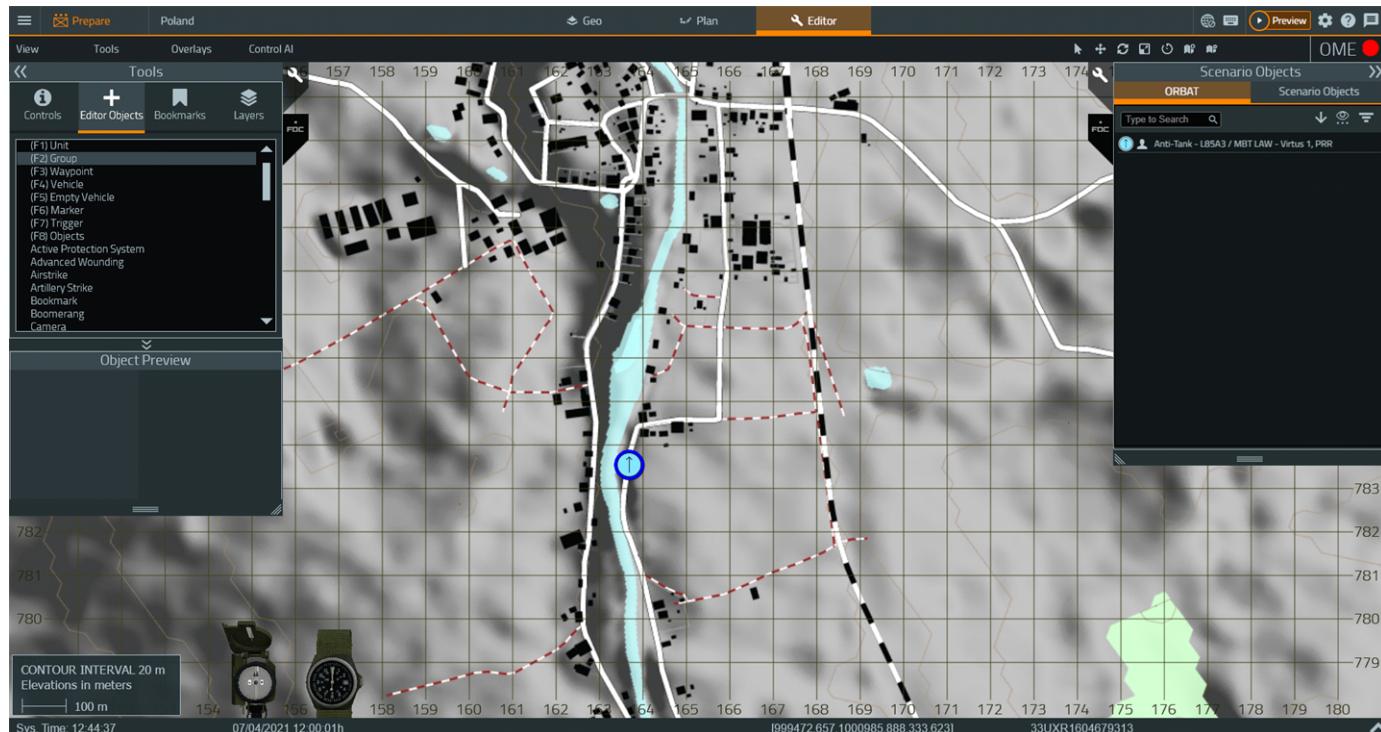
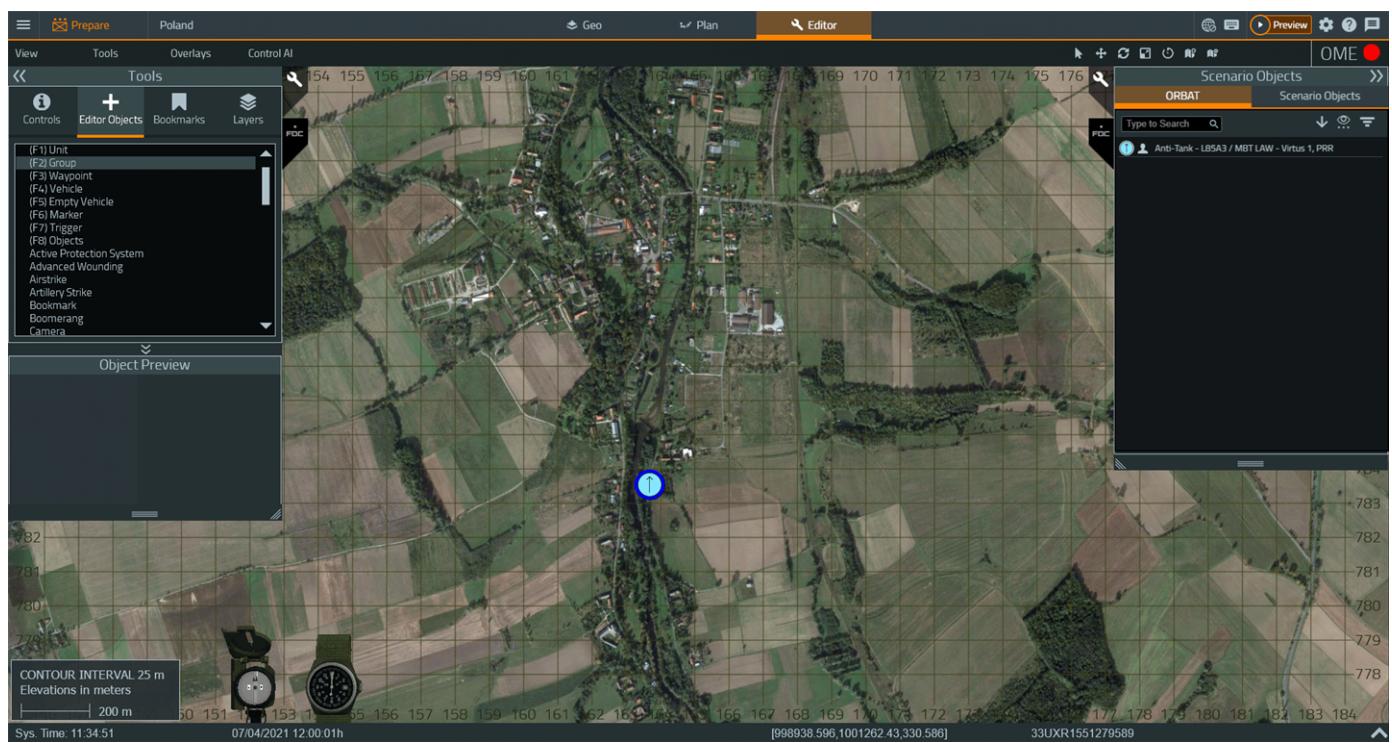


Image-30: VBS Editor showing the Google satellite map layer



For more information on how to enable the new map-layers view and how to customize the map styles, see Custom Map Styles in the VBS4 Administrator Manual.

For more information on how to use and customize the default map layers (for example, switch them on / off) and how to add new ones, see Custom Map Layers in the VBS4 Editor Manual.

In addition, you can export map regions as QGIS projects. For more information, see Map Export in the VBS4 Editor Manual.

4.3 VBS World Server Management UI Improvements

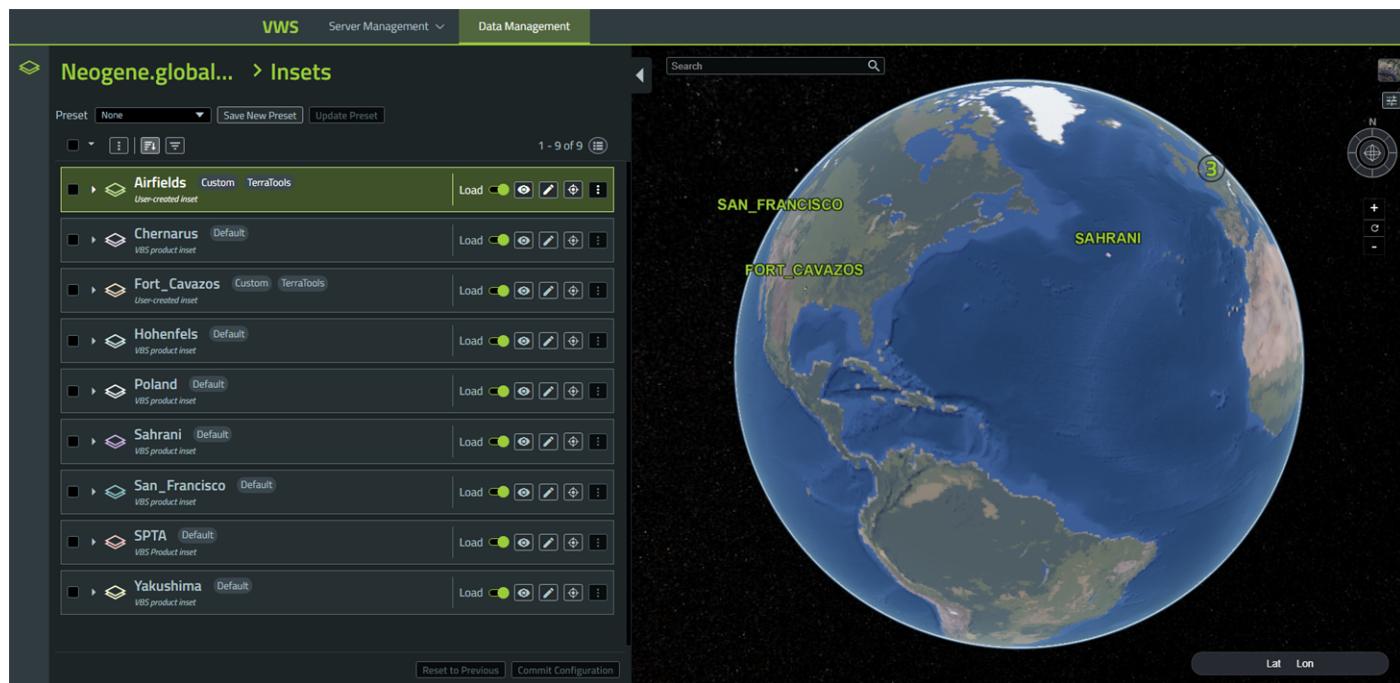
VBS World Server includes a new tab that provides an overview of the data on the server. The VBS World Server UI is accessible in a web browser or from a VBS4 Admin Client.

In this release, the VBS World Server UI monitors the overall VBS World Server status, enables the management of VBS World Server Services, allows for tracking of server logs from the new **Logs** tab, and enables the data management of terrain insets from the **Data Management** tab. It also includes a map interface for previewing terrain insets (see Globe View in the VBS World Server Manual).

Access the VBS World Server UI:

- From your web browser: *Server Machine IP Address:6606/#/dashboard*
- From the **World Server Status** dialog in the VBS4 Toolbar.

For more information, see VBS World Server User Interface in the VBS World Server Manual.



4.4 AAR Streaming

Instructors are now able to stream completed AAR recordings to Trainees in real-time, either in a classroom or remotely, with voice communication available utilizing VBS Radio.

Instructors are able to:

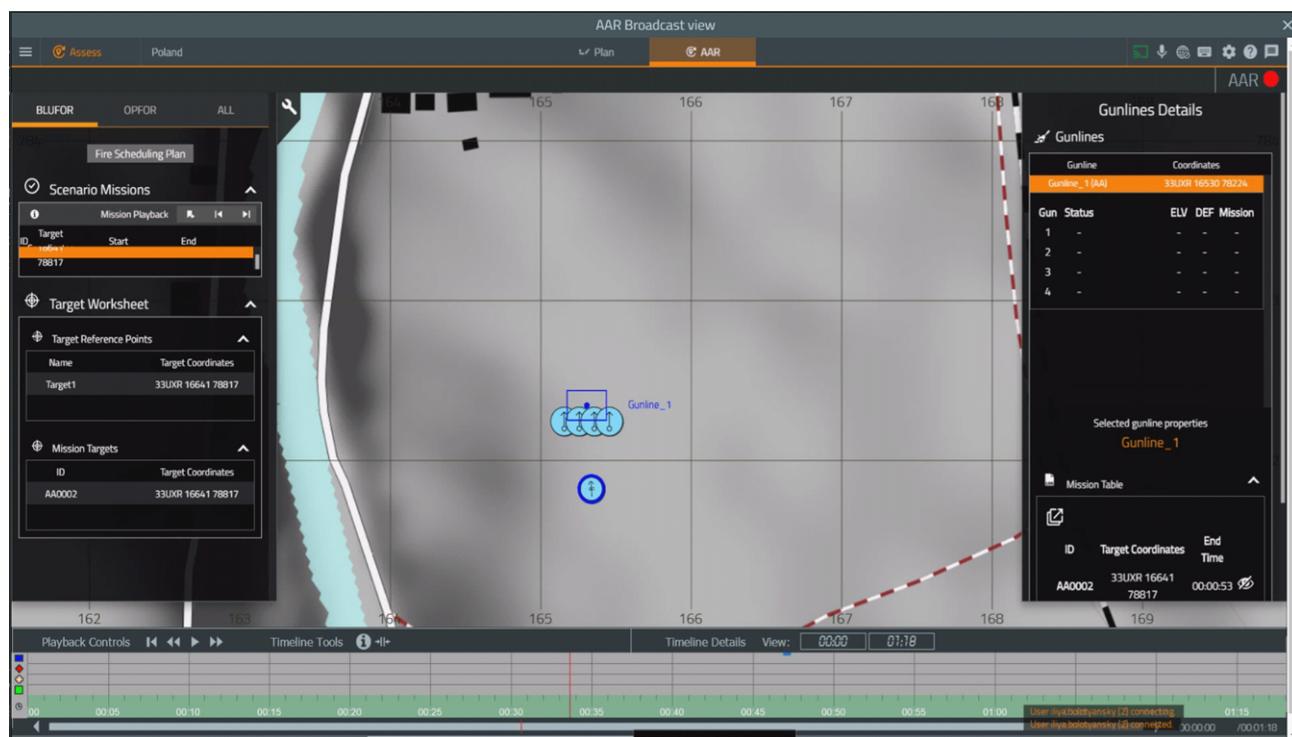
- Broadcast a completed AAR recording to Trainee monitors.
- Connect Trainee computers to their (host) computer using the `-aarconnect` parameter.
- Communicate with Trainees using VBS Radio by clicking the **Radio** icon.



Trainees are able to:

- Connect to and view completed AAR recording broadcasts using the **Connect to AAR Stream** button.
- Communicate with Instructors using VBS Radio by pressing **Push to Talk (Caps Lock)**.

Image-31: AAR Broadcast View



For more information, AAR Streaming in the VBS4 AAR Manual.

4.5 Animals and Control AI

VBS4 now has the ability to control the movement and behavior of animal herds, using Control AI. For that purpose, the Control AI - Military Editor Object was renamed to Control AI - Waypoints, to cover both military and animal use cases.

Added the following Control AI functionality:

- Create animal herds and give them waypoints, using the new Animal Herd Movement behavior.
- Animals respond to threats.
- Control animal-herd loiter radius and loiter timeout.

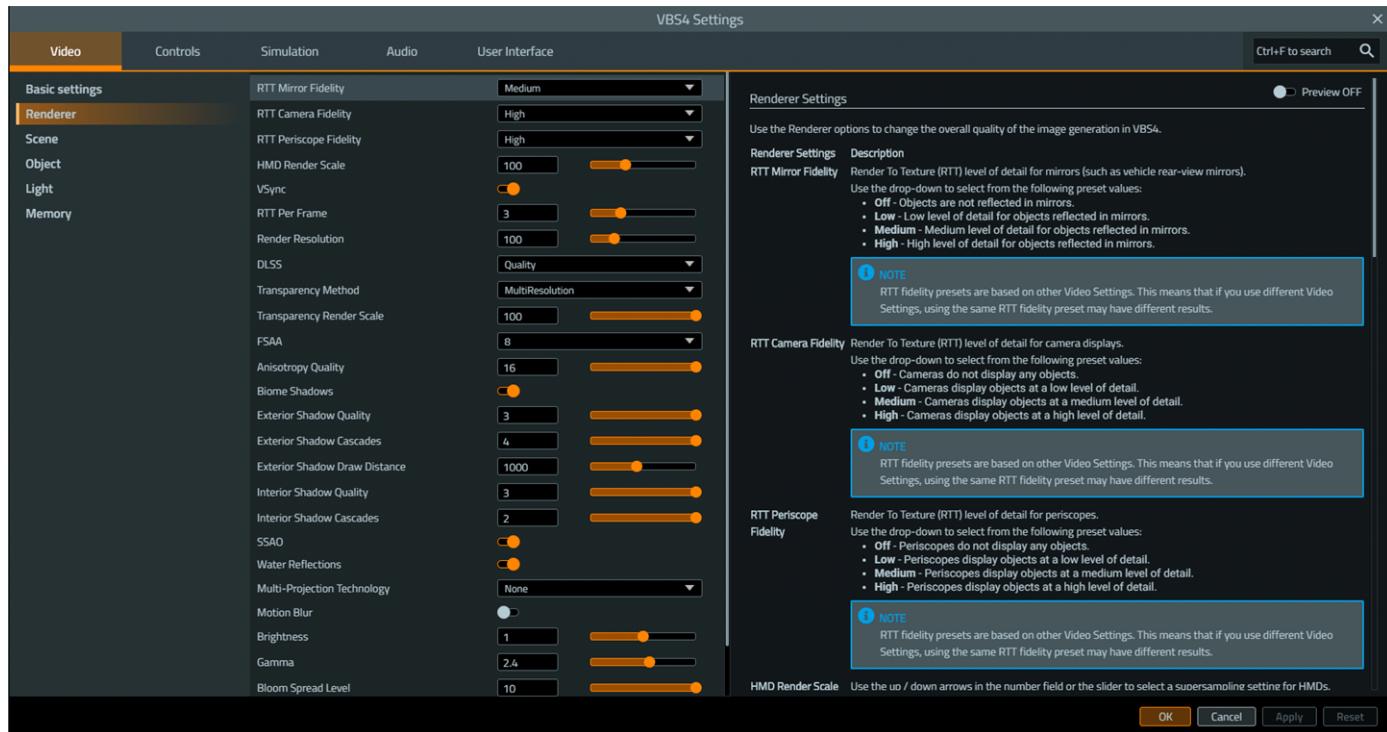
Image-32: Animal herd following an Animal Herd Movement waypoint



For more information, see Animal AI in the VBS4 Editor Manual.

4.6 VBS4 Settings Reorganization

The VBS4 Settings UI and XML configuration files have been reorganized.



The reorganization has the following aspects:

- New tab order.
- New tab, called User Interface, containing map styling and localization settings.
- The VBS4 Video Settings have new sub-tabs, and some of the options have new names.
- The VBS4 Profile options now use different XML files.

For more information, see VBS4 Settings and VBS4 Profile Options in the VBS4 Administrator Manual.

4.7 CBRN Detection Devices

VBS4 now has three new CBRN Detection Devices, which are as follows:

- **Chemical Agent Monitor (CAM)** - Detects Liquid Nerve Agents and Sarin Gas.



- **Lightweight Chemical Agent Detector (LCAD)** - Detects Liquid Nerve Agents, Mustard Gas, and Sarin Gas.



- **Man-Portable Chemical Agent Detector (MCAD)** - Detects Liquid Nerve Agents, Mustard Gas, Chlorine Gas, and Sarin Gas.



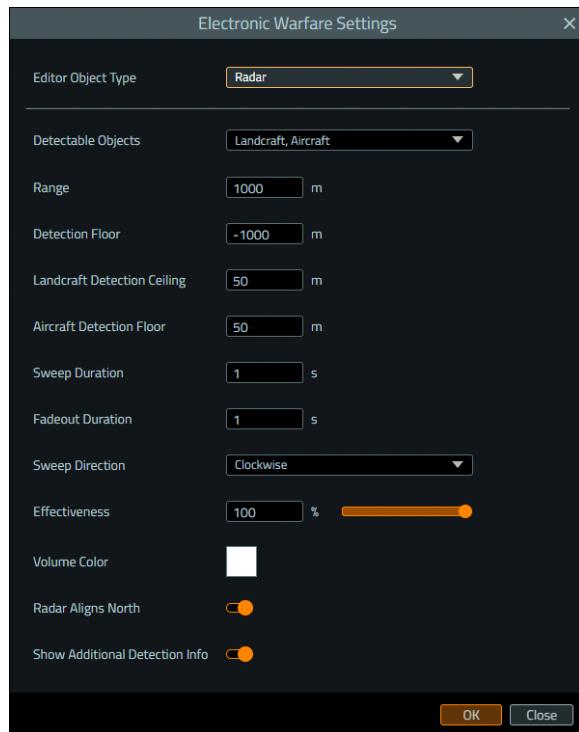
For more information, see CBRN Equipment in the VBS4 Editor Manual and CBRN Detection Devices in the VBS4 Trainee Manual.

4.8 Electronic Warfare

In VBS4, Electronic Warfare refers to an Editor Object (EO) which scenario designers can place in a scenario to equip units or vehicles with Radar or Signal Detectors.

- Radar can be used to detect Landcraft, Aircraft, and Watercraft within a specified distance.
- The Signal Detector can be used to detect units or vehicles equipped with Radar or using VBS PitchRadio radio channels, within a specified distance.

Image-33: Electronic Warfare Settings dialog for Radar

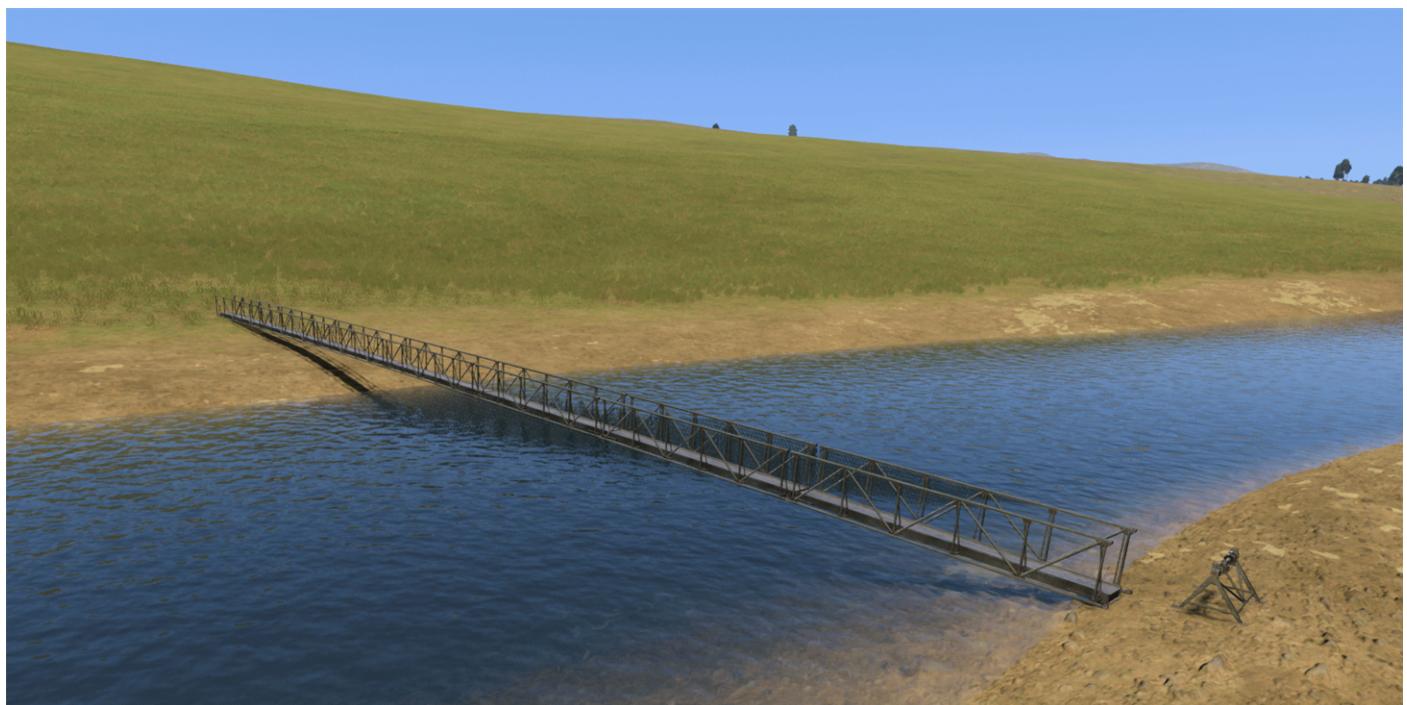


For more information, see Electronic Warfare in the VBS4 Editor Manual and Electronic Warfare Simulation in the VBS4 Trainee Manual.

4.9 Infantry Assault Bridge

The Infantry Assault Bridge (IAB) is a modular, light-weight, portable footbridge. In VBS4, the IAB components consist of aluminium bridge sections or "modules" and an assembly / disassembly trestle. The IAB is manually assembled / disassembled and can be transported by hand, truck, or fixed / rotary wing aircraft.

Image-34: IAB in VBS4

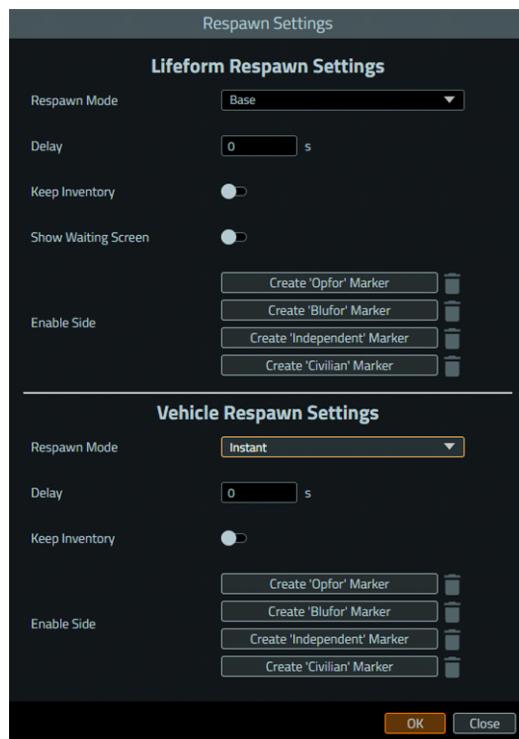


For more information, see Infantry Assault Bridge in the VBS4 Editor Manual and Infantry Assault Bridge Simulation in the VBS4 Trainee Manual.

4.10 Respawn Settings Dialog

In VBS4, you can now respawn entities using the Respawn Settings dialog. Previously, respawning was done using SQF scripting.

Image-35: Respawn Settings dialog



For more information, see Respawn Settings in the VBS4 Editor Manual.

4.11 Weapon Stoppage

This feature is used by Instructors during a scenario to jam the triggers of weapons that Player units are using, so that they are unable to fire. Weapon Stoppage can be applied to units using personal weapons and vehicle tripod-mounted machine guns, and can be cleared by Instructors or the Player units themselves.



For more information, see Generic Management Actions in the VBS4 Instructor Manual and Weapon Stoppage in the VBS4 Trainee Manual.

4.12 Mixed Reality

VBS4 includes Mixed Reality support to enable the creation of Masks. Masks are custom 3D shapes embedded in the VBS4 simulation view that enable VR users to see real world objects such as the controls of a physical simulator.

For more information, see Mixed Reality: Overview in the VBS4 Administrator Manual.



4.13 VBS Geo Improvements 22.2

VBS4 includes the following improvements to VBS Geo in this release:

- [User Interface \(below\)](#)

4.13.1 User Interface

- Geo model highlighting, selection, and controls have been updated to support more efficient and informative editing.
 - The box selection of models has been updated to now highlight models that will be part of the selection area.
 - **Ctrl** + box selection will now toggle the selection.
 - **Shift** + box selection will only add models to the selection.
- In VBS Geo 22.2, the behavior of how models react to terrain elevation changes has been improved. Models may take a few seconds to react, then they will update after the delay.
- The elevation displayed in the VBS Geo **Status Bar** has been changed from an Ellipsoid value to Geoid, as to match other VBS4 elevation reporting.

4.14 VBS World Server Improvements 22.2

VBS World Server 22.2 contains the following improvements:

- [General Improvements \(below\)](#)
- [VBS World Server User Interface \(on the next page\)](#)
- [VBS World Server Executables \(on the next page\)](#)
- [Terrain Conversion Tool \(on the next page\)](#)
- [World Data \(on the next page\)](#)

4.14.1 General Improvements

- The VBS World Server file server has been upgraded. The new system removes file size transfer limitations, improves file transfer capabilities and speeds, and allows for cloud-scaling.
- The newly-added Inset DB Server automatically creates insets in the VBS World Server User Interface as layers are imported via **Data Import**.
- The newly-added Proxy Server consolidates service endpoints through a reverse proxy server.
- The Terrain Conversion Tool process was improved to remove typos and erroneous folder creation.
- VBS Geo Data Import now uses the new building extrusion system, which includes improved building textures. See [Vegetation and Building Texture Repathing \(on page 172\)](#) for more information.

4.14.2 VBS World Server User Interface

- The VBS World Server user interface now uses a green color palette instead of a blue one.
- The VBS World Server Management UI now includes the **Data Management** tab which is an interface to monitor and manage terrain insets and other data, accessible in a web browser or from the VBS4 Toolbar.

For more information, see [VBS World Server Management UI Improvements \(on page 179\)](#).

- The **Logs** page has been added to the **Server Management** tab. This page gives information on the VBS World Server server log files found in `\VBS World Server\Logs\`. For more information, see Logs in the VBS World Server Manual.
- The VBS World Server VBSBlueServer Service now reports accurate network usage values.
- The VBS World Server fileserver service now returns appropriate network usage values for outbound network activity, e.g., when downloading an AAR file from the VBS World Server to a client.
- A **Stopping Services** warning dialog will now appear any time a service is being stopped with the VBS World Server UI.

4.14.3 VBS World Server Executables

- The Updater Tool for VBS World Server is renamed from `VBS_WorldServerUpdater.exe` to `Updater.exe`.
- The `vws_status.exe` and `vws_nanny.exe` have been removed from the VBS World Server installation. Service status, as well as other server operations, can now be accessed via the VBS World Server User Interface.

4.14.4 Terrain Conversion Tool

- The vegetation model references in VBS4 have been repathed. As a result, the vegetation script for the VBS3 to VBS4 Terrain Conversion Tool has been updated accordingly. Users can still use the tool exactly as before; however, any archived version of the `Xtract_VBS3toBlue_vegobj_attr_remap.txt` script with custom vegetation changes will need to be updated to use the new paths.

4.14.5 World Data

- The World Buildings and World Roads data has been updated to version 22.2. For more information, see Download VBS4 in the VBS4 Deployment Guide.

4.15 New Content in VBS4 22.2

VBS4 22.2 includes the following new content:

Name	Type / Category	Classname
Rescue Swimmer	Unit Generic Civilians	vbs_us_cg_rescueswimmer_red_m_medium_none_ none_none_none
Centaur	Vehicle GB Army AV - Desert - Woodland	vbs_gb_army_centaur_tan_x vbs_gb_army_centaur_casevac_tan_x vbs_gb_army_centaur_heavyammo_tan_x vbs_gb_army_centaur_lightammo_tan_x vbs_gb_army_centaur_wdl_x vbs_gb_army_centaur_casevac_wdl_x vbs_gb_army_centaur_heavyammo_wdl_x vbs_gb_army_centaur_lightammo_wdl_x
T150	Vehicle GB Army AV - Desert - Woodland	vbs_gb_army_t150_tan_x vbs_gb_army_t150_lightammo_tan_x vbs_gb_army_t150_blk_x vbs_gb_army_t150_lightammo_blk_x
THeMIS Casevac	Vehicle GB Army AV - Desert - Woodland	vbs_gb_army_themis_casevac_des_x vbs_gb_army_themis_casevac_wdl_x
Apollo	Vehicle GB Army Tracked - Desert - Woodland	vbs_gb_army_apollo_tan_rws_L134a1_x vbs_gb_army_apollo_tan_rws_L2a1_x vbs_gb_army_apollo_tan_rws_L7a2_x vbs_gb_army_apollo_grn_rws_L134a1_x vbs_gb_army_apollo_grn_rws_L2a1_x vbs_gb_army_apollo_grn_rws_L7a2_x
Atlas	Vehicle GB Army Tracked - Desert - Woodland	vbs_gb_army_atlas_tan_rws_L134a1_x vbs_gb_army_atlas_tan_rws_L2a1_x vbs_gb_army_atlas_tan_rws_L7a2_x vbs_gb_army_atlas_grn_rws_L134a1_x vbs_gb_army_atlas_grn_rws_L2a1_x vbs_gb_army_atlas_grn_rws_L7a2_x

Name	Type / Category	Classname
Argus	Vehicle GB Army Tracked - Desert - Woodland	vbs_gb_army_argus_tan_rws_L134a1_x vbs_gb_army_argus_tan_rws_L2a1_x vbs_gb_army_argus_tan_rws_L7a2_x vbs_gb_army_argus_grn_rws_L134a1_x vbs_gb_army_argus_grn_rws_L2a1_x vbs_gb_army_argus_grn_rws_L7a2_x
CRARRV	Vehicle GB Army Tracked - Desert - Woodland	vbs_gb_army_crarrv_tan_x vbs_gb_army_crarrv_uparmour_tan_x vbs_gb_army_crarrv_grn_x vbs_gb_army_crarrv_uparmour_grn_x
Combatant Craft, Medium	Vehicle US SOCOM Watercraft	vbs_us_soc_ccm_gry_x
V-BAT 128	Vehicle US USAF Air	vbs_us_soc_vbat_gry_x
Infantry Assault Bridge	Object GB Objects	bisim_dt_gdls_infantrybridge_bridge_section_grn_x bisim_dt_gdls_infantrybridge_launch_trestle_grn_x bisim_dt_gdls_infantrybridge_pontoon_grn_x
Remover	Vehicle GB Army Wheeled - Desert	vbs_gb_army_remover_trailer_tan_x
Magpie Class Survey	Vehicle IG - GB Royal Navy Watercraft	bisim_ig_gb_navy_magpie_gry_x
HALO Sound Ranging System	Object GB Objects	vbs_gb_army_halo_soundranging_grn_x
CAM	Equipment Object Object - CBRN	vbs_cam_grn
MCAD	Equipment Object Object - CBRN	vbs_mcad_grn
LCAD	Equipment Object Object - CBRN	vbs_lcad_grn

Name	Type / Category	Classname
F-35A Lightning II	Vehicle US USAF Air	vbs_us_af_f35a_gry_x
M1068A3	Vehicle US Army Tracked - Desert - Woodland	vbs2_us_army_m1068a3_d_x vbs2_us_army_m1068a3_w_x

For more information about specific new content, see the following:

- [New Vehicles \(on the next page\)](#)
- [New Personnel \(on page 199\)](#)
- [New Equipment \(on page 199\)](#)
- [New Structures \(on page 199\)](#)

4.15.1 New Vehicles

The following new vehicles are available in this release:

Centaur

Developed from Horiba Mira's Viking, the Centaur is a 6x6 wheeled unmanned platform, which can reach speeds of up to 40 km/h, with a payload capacity of 600 kg, and a range of 200 km. It is being used in development trials with the British Army, as a modular platform, used for ammunition resupply and CASEVAC.

T150

The Malloy T150 is a medium cargo quadcopter capable of transporting a 68kg payload up to 70km. It is being used in development trials with both the British Army and the British Royal Navy, as part of the move towards increased unmanned operations. Its main use is autonomous resupply at the Forward Edge of the Battle Area.

THeMIS Casevac

A variant of the existing Milrem THeMIS, the CASEVAC variant features two litter carriers, and is being used in development trials with the British Army, as a modular platform, used for ammunition resupply and CASEVAC.

Apollo

The Ajax, formerly known as the Scout SV (Specialist Vehicle), is a family of armored fighting vehicles being developed by General Dynamics UK for the British Army.

The Ajax is a development of the ASCOD armored fighting vehicle used by the Spanish and Austrian armed forces.

Apollo is the Repair variant of the Ajax family, fitted with a crane and specialist tools to allow repairs of Ajax-family vehicles in the field. It is armed with a Protector RWS, fitted with a 7.62mm GPMG, .50cal HMG, or 40mm Grenade Launcher.

Atlas

The Ajax, formerly known as the Scout SV (Specialist Vehicle), is a family of armored fighting vehicles being developed by General Dynamics UK for the British Army.

The Ajax is a development of the ASCOD armored fighting vehicle used by the Spanish and Austrian armed forces.

Atlas is the Recovery variant of the Ajax family, fitted with a winch and specialist equipment to allow recovery of Ajax-family vehicles in the field. It is armed with a Protector RWS, fitted with a 7.62mm GPMG, .50cal HMG, or 40mm Grenade Launcher.

Argus

The Ajax, formerly known as the Scout SV (Specialist Vehicle), is a family of armored fighting vehicles being developed by General Dynamics UK for the British Army.

The Ajax is a development of the ASCOD armored fighting vehicle used by the Spanish and Austrian armed forces.

Argus is the Engineer Reconnaissance variant of the Ajax family, fitted with lane marking equipment, a demountable dozer blade and systems to measure slope and gap width. It is armed with a Protector RWS, fitted with a 7.62mm GPMG, .50cal HMG, or 40mm Grenade Launcher.

CRARRV

The Challenger Armoured Repair and Recovery Vehicle (CRARRV) is an armored recovery vehicle based on the Challenger 1 hull, but using the updated Challenger 2 powertrain and tracks, and is designed to repair and recover damaged tanks on the battlefield. It has five seats but usually carries a crew of three soldiers from the Royal Electrical and Mechanical Engineers (REME).

It is fitted with a main winch with 50 tonnes-force pull in a 1:1 configuration or 98 tonnes-force pull using an included pulley in a 2:1 configuration and anchor point on the vehicle, plus a small auxiliary winch to aid in deploying the main winch rope. An Atlas crane capable of lifting 6,500 kg at a distance of 4.9 m, a dozer blade to use as an earth anchor / stabilizer, or in obstacle clearance and fire position preparation, and a large set of recovery and heavy repair tools.

It is armed with a 7.62mm GPMG and front and rear banks of smoke grenade dischargers.

Combatant Craft, Medium

Combatant Craft Medium (CCM) Mk 1 is a semi-enclosed multi-mission combatant craft for platoon-size maritime mobility in maritime denied environments. Developed by Vigor Industrial for the US Navy Special Warfare fleet, it is part of a family of new-design vessels in the Assault, Medium, and Large categories. It is a low observable, reconfigurable, multi-mission surface tactical mobility craft with a primary role to insert and extract special operations forces in low-medium threat environments. It can also provide limited fire support, carry out maritime interdiction and visit board search and seizure (VBSS) missions, counter terrorism and foreign internal defence operations. It is a replacement for the Naval Special Warfare Rigid Hull Inflatable Boat (RHIB) and the MK V Special Operations Craft (MK V SOC).

V-BAT 128

The V-BAT 128 unmanned aircraft system (UAS) is a vertical take-off and landing (VTOL) UAS manufactured by Martin UAV and chosen by the US Navy for a vertical take-off and landing (VTOL) unmanned aircraft system (UAS) prototyping and development effort. The V-BAT features open architecture, interchangeable payloads, and automatic transition to straight and level flight allow it to be deployed in a wide range of missions, such as force protection, aerial patrol, search and detection of targets, surveillance, and more.

Remover

Part of a larger package of ISTAR and base security equipment, Remover comprises of mast mounted cameras and sensors, mounted onto a trailer for portability. The system allows for area surveillance from a remote / protected position.

Magpie Class Survey

HMS Magpie is an inshore and coastal survey ship of the Royal Navy. She is the only ship of her class, but is one of a total of 38 multi-role workboats of various sizes being constructed to undertake various duties.

Based on Safehaven Marine's Wildcat 60 catamaran design, Magpie is 18m in length, with a displacement of 37 tonnes. She was built to accommodate a crew of 12 for up to seven days, with the capability of operating in all weathers.

F-35A Lightning II

The Lockheed Martin F-35 Lightning II is an American family of single-seat, single-engine, all-weather, stealth multirole combat aircraft, designed for both air superiority and strike missions. The F-35 has three main variants: the conventional takeoff and landing F-35A (CTOL), the short take-off and vertical-landing F-35B (STOVL), and the carrier-based F-35C (CV/CATOBAR).

The Royal Australian Air Force and the United States Air Force, among others, operate the F-35A variant of the Lightning.

M1068A3

A variant of the venerable M113 APC, the M1068 Standard Integrated Command Post System (SICPS) Carrier is an upgrade of the M577 Command Post Carrier. The M1068A3 variant is fitted with the same Reliability Improved Selected Equipment (RISE) package fitted to the other A3 variants of the M113 family, featuring a more powerful engine with a larger alternator to operate more powerful Command and Control (C2) equipment, a new steering system, and spall liners to enhance protection for the crew. It carries a variety of C2 equipment, including a digital communication suite featuring GPS and "blue force" tracking, radios, computers, and support for Commercial Off The Shelf computer equipment. The vehicle also carries a tent, the Modular Command Post System, which can be deployed to the rear of the vehicle to provide more operating space.

4.15.2 New Personnel

The following new units are available in this release:

Rescue Swimmer

The United States Coast Guard Aviation Survival Technician (AST) / Helicopter Rescue Swimmer team is called upon to respond in the most extreme rescue situations. High seas, medical evacuations, downed aviators, sinking vessels, and hurricanes are some of the deadly scenarios that Coast Guard rescue swimmers are trained to handle.

4.15.3 New Equipment

The following new equipment is available in this release:

CAM

The Chemical Agent Monitor (CAM) is used to monitor equipment, stores and personnel for the presence of Nerve and Blister agent contamination.

MCAD

The Man Portable Chemical Agent Detector (MCAD) is used to detect and identify Chemical Warfare Agents (CWAs) and Toxic Industrial Chemicals (TICs).

LCAD

The Lightweight Chemical Agent Detector (LCAD) is used to detect Chemical Warfare Agents (CWA) and provide an alarm at attack level concentrations. It forms part of a two-tier detection capability with the Manportable Chemical Agent Detector (MCAD).

4.15.4 New Structures

The following new structures are available in this release:

Infantry Assault Bridge

The Infantry Assault Bridge is a lightweight, manually launched, footbridge for infantry and airborne troops that can be used to cross dry or wet gaps. One complete bridge set provides a clear span of 30 meters. With additional bridge modules and floats, even wider wet gaps can be crossed.

HALO Sound Ranging System

The Hostile Artillery Location system (HALO) is part of the British Army's Advanced Sound ranging Programme (ASP) capability.

HALO detects and pinpoints the position of enemy guns by measuring the time difference between reports sensed by clusters of microphones. A fully passive, unmanned, system, it can be deployed and left to feed back gunfire position reports autonomously.

4.16 Additional Enhancements

VBS4 22.2.0 includes the following enhancements:

- [VBS4 User Interface and Workflow \(on the next page\)](#)
- [VBS4 Functionality \(on the next page\)](#)
- [VBS4 Controls \(on page 204\)](#)
- [Rendering and Performance Improvements \(on page 205\)](#)

4.16.1 VBS4 User Interface and Workflow

- Server Management functionality has been added to the Main Menu to facilitate Scenario Management for Administrators.

For more information, see Server Management in the VBS4 Instructor Manual.

- The Server Admin Panel was added to enable administrators to remove non-responsive clients attempting to connect to the server, to make the mission load for everyone else.

For more information, see Server Management in the VBS4 Instructor Manual.

- Administrators can disable playable units in the Network Lobby to prevent trainees from using them.

For more information, see Network Lobby in the VBS4 Instructor Manual.

- The Quick Menu has been improved to provide more control information and make it easier to use.

For more information, see Quick Menu in the VBS4 Trainee Manual.

- The Filter Visualization Options icon was added to the Scenario Objects Panel to enable Administrators / Instructors to filter the visibility of entities in the ORBAT/ Scenario Objects tabs , and on the 2D / 3D Map.



For more information, see Scenario Objects Panel in the VBS4 Editor Manual and Instructor Interface in the VBS4 Instructor Manual.

- The Inventory UI improvements to make it easier to use.

For more information, see Equipment Inventory in the VBS4 Trainee Manual.

- Added the option to display various types of navigation-mesh artifacts.

For more information, see **Visible Nav Mesh Artifact** in Control AI Visualization in the VBS Control AI Manual.

- Additional progress information was added to VBS4 loading screens.
- The Debriefing page has been deprecated.

4.16.2 VBS4 Functionality

- Smoke Countermeasures were expanded to include diesel injection Smoke Generators for selected tanks.

For more information, see Smoke Generators in the VBS4 Trainee Manual.

- Added bayonet simulation.



For more information, see Bayonets in the VBS4 Trainee Manual.

- Three new wind gust settings (**Gusts Interval / Speed / Duration**) have been added to the Scenario Settings Object Properties dialog.

For more information, see Define Scenario Settings in the VBS4 Editor Manual.

- Improved Unit Path Recording (UPR) and Vehicle Path Recording (VPR):
 - The UPR and VPR have been standardized to use the same User Interface (UI).
 - UPR and VPR recordings can be saved in either the VBS4 Profile folder or the Battlespace folder.

For more information, see Unit Path Recording and Vehicle Path Recording (VPR) in the VBS4 Editor Manual.

- Improved IED functionality:
 - The IED and Pressure Plate can be moved / rotated separately in the 2D and 3D Views.
 - Colors are used for the Pressure Plate visualization in the 2D and 3D Views, based on the IED damage type - Deadly, Wound Only, Fake (No Damage).

For more information, see Placing IEDs in the VBS4 Editor Manual.

- Added the option to specify flee distance from threats for crowd panic in Civilian AI.

For more information, see Civilian AI in the VBS Control AI Manual.

- Ink-spots have been extended to be functional for vehicles as well as units.

For more information, see Ink-Spot Visualization in the VBS4 Instructor Manual.

- A GB ORBAT structure was defined for VBS Plan in the `.jsonc` files located at:

`\VBS4_Installation\Components\CGFPlanExecuter\doctrine\GB_Army\`.

To add GB ORBAT units to a Scenario, use the Units Tool in the VBS Plan Manual.

For information about VBS Plan ORBAT configuration, see Create Custom ORBATS in the VBS Plan Manual.

NOTE

The Create Custom ORBATS topic has been updated in VBS4 23.2.0 to use the ORBAT Editor (see the VBS4 Editor Manual). For the old ORBAT configuration, see the VBS4 22.2.0 version of the topic.



4.16.3 VBS4 Controls

- Introduced new Microsoft Xbox controls for infantry, land vehicles, and rotary-wing aircraft.
For more information, see Microsoft Xbox Controls in the VBS4 Trainee Manual.
- The light and laser controls for personal weapons and vehicles have been modified:
 - The **Headlights On / Off** control was replaced by the **Lights On / Off** control, which applies to both personal-weapon flashlights and vehicle lights.
 - The **Toggle Laser** control was replaced by the **Laser On / Off** control, which applies to personal-weapon and vehicle lasers.
 - Added the **Cycle Lights (All Modes)** control to cycle between the available personal-weapon flashlights / vehicle lights, and light modes.
 - Added the **Cycle Laser (All Modes)** control to cycle between the available personal-weapon / vehicle lasers, and laser modes.

For more information, see Controls Settings in the VBS4 Administrator Manual.

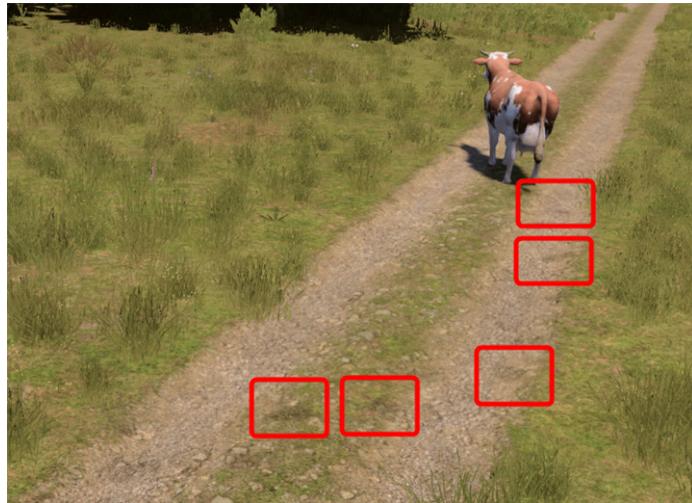
- Improved switching between personal items and vehicle weapons.
For more information, see Shooting from Moving Vehicles in the VBS4 Trainee Manual.
- Additional key bindings for switching weapons.
For more information, see Weapon Handling in the VBS4 Trainee Manual.
- Additional key bindings for adjusting leaf sights.
For more information, see Using Grenade Launchers in the VBS4 Trainee Manual.
- Additional key bindings for crouch control.
For more information, see Character Movement and Posture in the VBS4 Trainee Manual.
- Step Over added to the Action Menu.
For more information, see Character Movement and Posture in the VBS4 Trainee Manual.

4.16.4 Rendering and Performance Improvements

- Animals can leave tracks, when moving about, which are visible from a distance (outside the player vicinity). This is controlled by the **Enable Distant Footprint** simulation setting. For more information, see Simulation Settings in the VBS4 Administrator Manual.

For information on how to configure human / animal or vehicle models to leave tracks or tire marks, respectively, see Class TrailMarks in the VBS Developer Reference.

Image-36: Highlighted animal tracks



- Added sub-pixel rendering for air objects (mainly, aircraft, but also applies to tracer ammunition, for example), which allows you to visually enhance air-object visibility at larger distance, when a lower screen resolution is used.

Image-37: Gray dot / circle indicates the aircraft in the distance



Sub-pixel rendering for air objects is controlled by the **Air Dot Size** video setting. For more information, see Video Settings in the VBS4 Administrator Manual.

- Added motion blur.



The motion blur is controlled by the **Motion Blur** video setting. For more information, see Video Settings in the VBS4 Administrator Manual.

- Improved PAPI (Precision Approach Path Indicator) lights for airfields.

Image-38: PAPI lights (left) at Yakushima airport, Japan



For information on how to configure PAPI lights in VBS4, see P3D Lights in the VBS Developer Reference.

- Improved grass visualization from 2D to 3D.



- Added volumetric clouds.



To control volumetric clouds, see the **Overcast** settings in Define Scenario Settings in the VBS4 Editor Manual.

- Improved snow coverage on trees (now includes branches).

Image-39: Snow on branches of bare trees



- The roof geometry of extruded (procedural) buildings was improved to take collisions into account, so that such roofs are no longer treated as flat in VBS4.
- VRAM usage has been optimized.

The following table shows examples of VRAM optimization:

Terrain	Optimized VRAM Usage (in MB)	Unoptimized VRAM Usage (in MB)	Optimization Percentage
Yakushima, Japan	5149.965	6062.326	15.05%
Alps, Europe	3922.151	4539.213	13.59%

- VBS4 has been updated to ignore Microsoft Windows Sleep Modes. VBS4 will remain active even if no input is received.

4.17 Product Maintenance

The following issue was resolved in VBS4 22.2.3:

Issue Key	Summary	NetSuite Case
T3S-3024	Point lights created in VBS4 (illum, flares) do not appear in VBS Blue IG	85085
T3S-2782		80289
T3S-2486		75311
T3S-2287		71295
IGP-4824		

The following issue was resolved in VBS4 22.2.2:

Issue Key	Summary	NetSuite Case
T3S-2937	Placing a Radio Trigger lists all the triggers in the Radio Activation screen	83864
TM-30		

The following issues were resolved in VBS4 22.2.1:

Issue Key	Summary	NetSuite Case
VBS4-10492	Reset to default values in VBS Launcher (tooltip change)	
VBS4-9108	Numerical order of the IP address in VBS Launcher	
VBS4-7450	Admin able to define player names	
T3S-2860	VBS Launcher Remote execution detecting TXT files	81575
T3S-2849	Overlapping warning messages	81615
T3S-2840	Strf9040D2 Exclusive not firing salvo	81195
T3S-2654	Vehicles with Control AI do not avoid craters	79339
T3S-2632	Weapon loadout is not retained even if user agrees	77917
CORE-854	Rain does not render correctly with hmd	82711

The following issues were resolved in VBS4 22.2.0:

Issue Key	Summary	NetSuite Case
AT-3054	CTD VBSPitchRadio - VBSPitchRadio.dll!Core::AudioManager::PlayDirectTalkAudio()	
AT-3086	setNVGMode 1; does not change view to white phosphor in VBS4	73045
AT-3095	JIPing breaks Radio UI in non-reversible ways	
AT-3099	Carrying a body inside buildings causes teleportation	
AT-3100	Script error when releasing captured unit	
AT-3102	Vehicle respawn - Vehicles destroyed at the same time respawn on same spot	
AT-3134	2k units test - CTD on SC inside VBS4.exe!AStarNode	
CONTENT-1313	C-17 Globemaster ramp is broken	
CONTENT-1543	Small UGVs can't follow straight path	
CONTENT-1897	HX77 - ILHS - Loaded - cargo visually on vehicle after unloading it	
CONTENT-1903	Right lower mirror of Mastiff vehicles is all purple	
CONTENT-1969	Toyota Hiace and bus texture problems	
CONTENT-1990	ASLAV model contains non-convex components	
CONTENT-1993	Broken binoculars view in the vehicle	
CONTENT-2140	AU_ARMY_rifleman texture issues	
CONTENT-2143	Flying body after turn out from motorbike	
CONTENT-2149	Objects with physx simulation but without geometry	
CONTENT-2553	JCB acceleration makes it drive on rear wheels	
CONTENT-2730	Land Ceptor CAMM Launcher is unable to drive	
CONTENT-2755	HK417 and AK5C missing thermal textures	
CONTENT-2871	African Male does not place expected model for Black or Green shirt	
CONTENT-2876	Pacific 24 handling issues	
CONTENT-2950	2213 - OPFOR GBAD / Anti-Air not engaging aircraft	
CONTENT-2976	T-15 Armata is launching rockets in the direction of hull instead of turret direction	
CONTENT-2977	Wrong texture of some destroyed vehicles	
CONTENT-2983	LAW 80 is shooting out of unarmed transport position	

Issue Key	Summary	NetSuite Case
CONTENT-2990	Wheeled vehicles are getting crazy RPMs and acceleration in water	
CONTENT-2991	Boxer 8x8 is getting stuck in really easy terrain	
CONTENT-2996	Airplanes are losing all speed and inertia once they get destroyed	
CONTENT-2998	Destroyed aircraft do not produce any smoke or fire until they touch the ground	
CONTENT-3009	BV 309 Ambulance Sliding down the hill	
CONTENT-3012	AU Army AMCU backpack shines hot in thermal view	
CONTENT-3013	AU ARMY AMCU units have TI flickering texture jacket	
CONTENT-3019	Driver of the Kamaz Typhoon has wrong position	
CONTENT-3100	Peaks in physics (stresstest)	
CONTENT-3101	K2 vehicle machine-gun is in the wrong position with view optic mode	
CONTENT-3109	Hellfire and RBS-17 missiles are not able to direct hit even bigger targets	
CONTENT-3155	KP T-72 tracks in texture	
CONTENT-3245	Strf 9040D2 (Exclusive) without wreck model	
CONTENT-3256	OG-7V grenade for RPG-7 is sticking out of the barrel more than it should	
CONTENT-3290	BTR-80 can flip other vehicles	
CONTENT-3303	Gunner of GB vehicles can look into iron sights of top mounted weapon when hatch is closed	
CONTENT-3379	River Class - OPV - Batch 1 floods with no skeleton for this shape	
CONTENT-3455	All IG Characters are TomV	
CONTENT-3466	UGV Centaur broken wreck	
CONTENT-3471	GB L7A2s have wrong buttstock	
CONTENT-3503	Chernarus VBS4 22.2 Master texture problems DEV team	
CONTENT-3505	SPG-9 is pivoting strangely (elevation)	
CONTENT-3513	Pop-up when placing Queen Elizabeth ship	
CONTENT-3514	CTD while searching for a model in editor - Add FAIL for parser when empty class name is found	
CONTENT-3556	Aerovironment Raven in wrong build location	

Issue Key	Summary	NetSuite Case
CONTENT-3580	Vehicles are unable to drive on Gravel (sand) surface	
CONTENT-3961	IG Mazda bongo bugs	
CONTENT-3972	Russian bag after throwing away is not mapped>UNKNOWN	
CONTENT-3998	KJ2000 is incorrectly flat shaded	
CONTENT-4026	Old model of CRARRV still present	
CONTENT-4028	Missile Trail Model not completely transparent on the sides	
CONTENT-4030	Pilot of the SU-22 and SU-17 is sticking out of the cockpit	
CONTENT-4198	Optical sight of the M24 is getting hot in TI	
CONTENT-4335	FMV - IL-132 - PSG90A Rifle	
CONTENT-4346	STRB90 - Reflex sight missing	
CONTENT-4348	IL-108 - Patgb203 - Drivers View	
CONTENT-4351	Autotest Pop-up error Warning Message: Make not available (requested by vbs2\plants\plants_takistan\rocks\data*)	
CONTENT-4353	Autotest: Warning Message: Cannot load material file ca\air\data\materialy*	
CONTENT-4354	Autotest: Warning Message: Make not available (requested by vbs2\vehicles\land\tracked\bae_m113\data*)	
CONTENT-4357	Autotest: Warning Message: Make not available (requested by ca\wheeled\data\camobig_nohq.tga)	
CONTENT-4358	Autotest: Warning Message: Cannot load material file ca\wheeled\data\camonetbig.rvmat	
CONTENT-4368	Uparmor CRARRV have green texture on hull parts and armor	
CONTENT-4375	Error followed by crash in bld_mideast\data\residential_small_2_000_a	
CONTENT-4382	Tracks of the Leopard do not react to the terrain	
CONTENT-4446	Cannot load material files linked in P3Ds starting with \ (e.g. \vbs2\vehicles\water\ships\civ_mv_alabama\data*)	
CONTENT-4497	Stinger and Javelin does not produce sound when locking on target	
CONTENT-4498	Strv122B - black rectangle obscures Commander TI optics view	
CONTENT-4499	Weird model of destroyed sandbags	
CONTENT-4503	Invalid layered move in action pullgrenademiddlelowvelocity	

Issue Key	Summary	NetSuite Case
CONTENT-4505	Performance warning flood: Moving static attached object. Parent: vbs2\people\us\usarmy_rifleman_ocp\usarmy_rifleman_medium_ocp_spes.p3d, Attachment: vbs2\exclusive\gb\dvs\objects\medical_objects\autoject.p3d.	
CONTENT-4506	Flood of Performance warning: Moving static attached object kmw_leguan_bridge.p3d	
CONTENT-4540	Perfect shape SA-13 have wreck / burned texture	
CONTENT-4563	GB AV it is possible to walk through destroyed vehicle / AV LOW ARMOUR / BPS/BPL	
CONTENT-4570	Unit Supply Tanker and Tactical air refueler does not refuel vehicles	
CONTENT-4571	ACATS ARH - pilot is not able to fire in 1st person view from Cannon	
CONTENT-4574	GMV HMMWV Gunner is teleported on the roof after using personal items	
CONTENT-4577	vbs_forprot_mastiff3 broken animations	
CONTENT-4585	9T IMM L7A2 vehicle right mirror is upside down	
CONTENT-4587	SPTA - Imber House 12 - invisible stairs	
CONTENT-4589	Cannot load material file vbs2\structures\buildings\bld_spta\copehill\data\copehill_small_house_63_base.rvmat	
CONTENT-4593	Chernarus - model for the fallen leaves is missing	
CONTENT-4594	Rocks missing textures	
CONTENT-4597	vbs_gb_army_fv510_warrior_wdl_x is missing from the 22.2 UK pre-release	
CONTENT-4598	Some vehicles do not create any tracks (normal or snow)	
CONTENT-4599	Reflection in BV vehicle rear mirrors is not visible (pink fulfill)	
CONTENT-4601	Chernarus - flags are not rendered properly	
CONTENT-4605	Steering wheel not animated	
CONTENT-4606	AH-1Z has double landing lights in Prerelease	
CONTENT-4669	Make not available (requested by 'vbs2\weapons\rifles\bae_sa80\data\bae_sa80_l3a1_bayonet_ti_alt.tif')	
CONTENT-4675	Animation xxx not found or empty messages in RPT	
CONTENT-4692	Puma HC.1 GPMG version is present in VBS4 master but not in release	

Issue Key	Summary	NetSuite Case
CONTENT-4699	US Army OCP units in MOPP suit level 4 texture parts missing	
CORE-4	CTD when turned out unit switches to grenade	
CORE-17	Dedicated Server - scripts executed with a delay	
CORE-18	Windmill and Windturbine have stuttering animation on blades	
CORE-20	Wrong order of the addon loading folders	
CORE-21	Script command setDrawMode is non-functional in VBS4	
CORE-22	Vehicle Command Controls - Adjustment of Thermal Imaging Brightness and Contrast has no effect	
CORE-28	Unit shot to the head by tank may survive the head amputation	
CORE-30	CTD during onboarding mission	
CORE-35	Various functions performed on larger distances in 2D causes FPS drops	
CORE-37	Camera state input doesn't work properly in AAR	
CORE-39	Swedish Bgbv 120 and Bgbv 90 vehicles doesn't have enough power/weight	
CORE-42	Freeze goes to CTD after switching to Preview	
CORE-48	Visual stutter / surging on moving vehicles	
CORE-49	Flood of RelocateAIBrain message between SCs and DS in Stresstest	
CORE-58	GEO placed buildings can't be destroyed on DS (Needs more hits than in SP)	
CORE-64	Large objects do not have collisions	
CORE-107	Rebuilding Config Cache takes long time while opening VBS4 with a complex terrain present	
CORE-131	Tracked vehicles are out of control while swimming	
CORE-134	Getting in and out of a vehicle under water resets the Air Indicator bar	
CORE-142	Freeze when reviving yourself in a specific mission	
CORE-146	CreativeX - Airplanes are jittering in a network hosted scenario	75614
CORE-149	Direct damage from artillery strikes	
CORE-159	Different state of fallen Geo objects (poles, fences) on client after JIP	
CORE-163	Vehicle after using a HOOK can run through the hooked vehicle	

Issue Key	Summary	NetSuite Case
CORE-168	Rotor wash particles do not change by surface type (snow)	
CORE-203	Levitating speed bumps when mission run on DS	
CORE-218	updateMan flood on server	
CORE-226	JIP during a loading of a mission blocks loading	
CORE-227	render_resolution_1 blue setting not working in VBS4	
CORE-234	Unable to access UAV during runtime on hosted mission or DS	
CORE-248	Many potential peaks	
CORE-249	Shiny dust particles in AAR	
CORE-254	AAR: black smoke when shooting	
CORE-274	Abseil rope causing CTD	
CORE-275	IR sight settings in CV9040 doesn't work	
CORE-280	VBS4 perftest - small but measurable drop in ai03 mission	
CORE-282	Wrong lasing distance with Laser Designator	
CORE-284	Flooding based on the number of revives	
CORE-289	IZLID beam not visible in MP	
CORE-290	Craters are not visible after JIP	
CORE-293	Vehicles driveable despite being on fire - post repair	
CORE-297	Destroyed airplanes don't burn and smoke on DS	
CORE-298	Playtest potential peaks	
CORE-299	Peaks in attached soldier	
CORE-305	Main cannon in CV9040 can't be damaged through collision	
CORE-318	MemoryUsage value is TimeEvent in JSON (follow-up for CORE-239)	
CORE-325	Wildflecken: CTD	
CORE-329	Delayed damage on Strykers on DS within World Server	
CORE-336	When run mission on DS for the first time / after restart - no terrain / player starts in different position	
CORE-337	CTD localhost (lobby)	
CORE-338	2k units test - CTD on SC inside VBSBlue.dll!ObjectBank::OnObjectDetached	

Issue Key	Summary	NetSuite Case
CORE-341	High performance drops and freezes in RTE / OME	
CORE-348	VBS4 HMD Legacy UI 3D Surface Drawing Incompatible with DLSS render parameters	
CORE-366	Marker lights stay on when vehicle is destroyed	
CORE-368	Low FPS when playing AAR	
CORE-369	IZLID beam is not correctly visible in AAR	
CORE-371	Infinite freeze	
CORE-374	Different battlespace is loaded for host and connected client	
CORE-377	Trainee consent is needed for mission start	
CORE-395	CTD of user client when got into simulation - FMV Team F playtest	
CORE-396	Distant scenery objects ignored by rangefinder and projectiles	
CORE-401	Flood of UpdateClientCameraPosition	
CORE-403	No particles visible in TI in AAR (core-147 subtask)	
CORE-431	End Battlespace on Hosted server freezes VBS	
CORE-438	Gain / Level Day adjustments on RWS doesn't work	
CORE-439	Deadlock in ReadHandleCache	
CORE-443	CTD when previewing specific mission	
CORE-457	GameStateExt.cpp(36812) : Assertion failed 'entry'	
CORE-458	Automatic mission start is not working	
CORE-459	When session is lost, you are stuck in simulation (admin, client)	
CORE-460	Engine of wheeled amphibious vehicles gets destroyed in water	
CORE-467	Unable to change side once you return from briefing	
CORE-468	Crash in ReadHandleCache during FileServer flush	
CORE-470	Particles persist after Retry / Restart Battlespace	
CORE-474	CTD in AAR when attempting to switch sensor to NV or TI	
CORE-482	Flickering grid in 2D map (RTE / Plan)	
CORE-484	CTD in RTE (preview)	
CORE-485	Geo changes causing issues in the AAR	

Issue Key	Summary	NetSuite Case
CORE-488	Injected smoke origin orientation wrong in MP	
CORE-489	In the options / controls / choose a control / next or preview seems to give you a random result	
CORE-495	'End Battlespace' causes getting stuck on 'Waiting for other clients to get to correct state' in a local scenario	
CORE-501	CTD when exiting VBS	
CORE-512	Convoy_example scenario - Script error in expression in Scenario Settings	
CORE-516	Stresstest: Freeze in ObjectCollisionLine	
CORE-518	'End Battlespace' causes getting stuck on 'Waiting for other clients to get to correct state' in a local scenario again	
CORE-526	Script error from scenario settings on older missions (prior to global overrides)	
CORE-542	Preview - Game AI doesn't react properly	
CORE-548	Previously set Scenario Settings are transported into newly created BSs	
CORE-550	Flickering Driver monitors of GB vehicles	
CORE-551	VBS4 MP Perftest - CTD on DS inside VBS4_Diag.exe!SoftLink<Object,SoftLinkTraitsLocked	
CORE-552	Client CTD after #missions	
CORE-569	IR Strobe beacon do not work	
CORE-581	Precipitation settings keeps resetting to 0 when closing Object Properties window	
CORE-586	INIT.sqf is not re-read when pushing RETRY	77697
CORE-587	setPrecipitationType script is not working	
CORE-590	DS CTD accessing magazine slots array out of bounds	
CT-5447	CTD encountered when using table type in Move node, Boundaries property	
CT-6286	Force geometry loading of remote Control AI	
CT-6321	Duplicated user actions and event handlers	
CT-6338	CAI waypoints does not indicate being selected in 2D editor view	
CT-6432	Wildflecken: PUMA - smoke screen does not work	

Issue Key	Summary	NetSuite Case
CT-6472	Suppress Area / Observe Sector Menu UI elements throw script errors	
FEP-683	[Radio] UI Elements in radio settings stay focused until next refresh	
FEP-957	Upload offline battlespaces - Battlespace uploading dialog gets stuck	
FEP-958	VBSPitchRadio: VOX threshold slider is not displaying mic input anymore	
FEP-982	Preview window in Video options does not preview anything	
FEP-984	Call For Fire: localization does not work	
FEP-992	Some settings missing help	
FEP-993	Created BS does not get selected	
FEP-997	VBS4 Settings - Controls cannot be changed	
FEP-1003	QuickMenu items do not get updated after menu is opened	
FEP-1006	Notifications panel couldn't be closed when settings or servers opened in parallel	
FEP-1007	Upload Offline Battlespaces UI - Names don't fit well	
FEP-1012	The AAR download initiates a doubled BS download	
FEP-1013	Battlespaces can be overwritten because of case sensitivity	
FEP-1020	Delete BS will not wrap the text (long text is not visible)	
FEP-1034	Notification side panel progress notifications issues	
FEP-1035	World Server Status panel not visible when Notifications open	
FEP-1064	Battlespace uploading - text overflow	
FEP-1071	Host locally in Training tab disappears from focus within a few seconds	
FEP-1074	VSB Radio Pro - issue with channel selection when creating radio type	
FEP-1107	RTE UI becomes unclickable and greyed out	
FEP-1142	Quick Menu - unable to close via Esc key	
FEP-1143	End Battlespace option present in lobby	
FEP-1145	Quick Menu - errors	
FEP-1155	Notification bar shows Downloading instead of Uploading AAR to VWS	
FEP-1165	Translation is not falling back to EN	
FEP-1169	Filter Visualization icon is active even there's no change	

Issue Key	Summary	NetSuite Case
FEP-1180	VBS4 Settings window stays open and blocks VBS4 training	
FEP-1181	AAR not present in list when recorded in a Hosted environment	
RAB-6	UI_hideInAdminInventory also hides the ammo in Weapon / Ammo module	68499
RAB-10	ApplyCenterOffset not working	
RAB-25	Unit Symbol Configuration changes are not saved after loading units from layers	
RAB-46	LVCCanEnterExternalTurret no longer works	
RAB-48	User sees main menu while going to preview from OME	
RAB-73	Artillery Strike warhead defaults back to HE	
RAB-111	Massive Id Veh flood in c_vf14_checkTurretsFreelook autotest mission	
RAB-141	Flood of [UnitListControl.14876 Error: Call to MissionApi::IsPlayer(2:74), failed with errcode=-4	
RAB-145	Floods of warning messages at the start of the mission	
RAB-160	Wireshark shows detonation from both PCs	
RAB-162	Roadlink unlock error! flood after mission is ended	
RAB-165	Flood during Stresstest [1]	
RAB-176	VBS4 pre-release pop up and CTD - [AutotestAPI_v1] - Failed to RequestAPI	
RAB-197	CTD in M1A2 in Moves::LoadAnimationPhases()	
RAB-224	3D Particles missing in AAR; causes debug log flood when recording	
RAB-228	Rpt flood on client Invalid post effect handle (Stress test)	
RAB-233	Spam messages about missing MapCenterOffset parameter in the log	
RAB-253	Control AI do not leave footprints	
RAB-256	RTE - Ungroup selected gives script error on the screen	
RAB-273	Stresstest and loadtest json files have wrong name	
RAB-281	Short measuring range in json files during stresstest and loadtests	
RAB-298	Plan AI - Air Unit script error	
RAB-315	Crashing MV-22B causes CTD	

Issue Key	Summary	NetSuite Case
RAB-319	AAR Bullet Camera no longer works	
RAB-350	Symbology and Nametags are lagging behind their respective entities in 3D	
RAB-351	Toggle Personal Items doesn't toggle between personal items and vehicle weapons	
RAB-352	Battlespace / Mission name issues	
RAB-359	When driving over bridges dust and vehicle track effects are based on the surface under the bridge	
RAB-401	V-BAT is returned on the ship when a LAND waypoint is assigned on the ground	
RAB-449	Can Host MP Session (Simulation Settings) - does not work	
RAB-450	Advanced Vehicle Settings not remembered going to RTE	
RAB-451	No radio icons in RTE	
RAB-452	Dedicated server CTD while testing RWS	
RAB-477	Step Over user action and icon while being a driver of FV4034 - TES	
T3S-1993	How to fly UAV across river without drop in height	65314
T3S-2052	VRLT2 - URN is wrong facing on right side of vehicle	
T3S-2350	Main gun machine guns do not produce particle effects	71072
T3S-2417	No Nav / Marker Lights	73547
T3S-2444	Maglite flashlight is too heavy	73029
T3S-2555	Mine marker and signs take no damage	76622
T3S-2598	VBS4 Tigr-M spare wheel heats up	77814
T3S-2640	Turrets on rear of CH-53 stuck on zoomed mode	
TD-9	Contamination component spams SQF call every simulation step	
TD-49	CAI waypoints of other groups / units are visible and editable from C2	
TD-79	Removing map hint from C2 map in client mode	
TD-113	CTD on client after aborting / restarting the mission on DS	
TD-189	Advanced wounding - duplicated injuries / wounds after examination	
TD-197	Some vehicles are turned to Civilian when destroyed with crew inside	

Issue Key	Summary	NetSuite Case
TD-198	'Get out' action spawns the unit inside of the ship	
TD-210	Script error upon IED explosion - iedOnExplode.sqf not found	
TD-211	CAS Aircraft is not visible for admin (spectator) in RTE	
TD-212	CAS Control Measures marker displaced when editing coordinates	
TD-213	Script error when auto respawning while looking into the Inventory	
TF-1924	Flood during Stresstest - updateAISubgroup	
TF-1994	Investigation - higher amount of UpdatePositionMan Incoming messages	
TF-2043	Small boats not following waypoints	48319
TF-2044	CAS tool (old) causing massive DS FPS drop for a short duration on aircraft spawn	
TF-2048	Investigate problem with duplicate shapes of the same name	
TF-2049	Crash reporter is not working	
TF-2050	BlueDX11Renderer uses dangling string pointer (possible CTD)	
TF-2060	VBS4 Online client froze when VWS is closed / stopped	
TF-2070	Peaks in Transport::Sound	
TF-2100	Flood of full updateMan messages ~50% of whole incoming traffic	
TF-2101	Autostart parameter doesn't work properly when higher than 1	
TF-2134	Large hitches caused by line interesection checks - visibility part	
TF-2138	Flood of full updateMan - follow-up	
TF-2150	Flood of Assertion failed '&animContext == _geomAnimContext' on admin and user	
TF-2151	Turret keeps rotating with PL dead body	
TF-2155	CTD when adding units in a new Battlespace	
TF-2157	Locality switch causes players to see one event differently	
TF-2169	Locality switch causes players to see one event differently - follow-up	
TF-2177	Visible battlespace icons in Spectator camera	
TF-2181	Strange object falling - slow invalidation of destructed object and duplication + peak	

Issue Key	Summary	NetSuite Case
TF-2185	Saved camera state is sometimes missing time	
TF-2187	Flood of Assertion failed 'false' - ERROR: Network message type variable error calculation	
TF-2192	Cutting geometry to tiles produces artifacts	
TF-2193	Radio HUD is visible in the loading screen of VBS scenario	
TF-2201	CTD in lights after VB-8491	
TF-2206	-printpeaks causes flood <no-function>() in file <no-file> on line 0 MODULE:<no-module>	
TF-2208	Radio HUD visible in Init statements when JIPing	
TK-372	AAR - new objects added in RTE are frozen in AAR timeline	
TN-1656	[Plan] Phaseline time not updated on shape	
TN-1792	PLAN - Prism has two Sides options	
TN-1810	[Plan] Phase line endings are displayed incorrectly while placed	
TN-1812	PLAN: Not possible to delete group of Drawing Objects by Delete button	
TN-1814	PLAN: Not possible to deselect Phase Line after dragging and moving it	
TN-1830	PLAN objects on specific meridian are deleted after saving BS	
TN-1845	Plan - Objects from history cannot be deleted	
TN-1851	Placing SBF order without rotating it leads to broken bounding box	
TN-1869	Plan drawings are visible on globe after exiting AAR	
TN-1874	Locking an UAV on a target does lock on a different position	
TN-1967	Symbology takes dead units into account	
TN-2036	CTD when using assault in plan tool.	
TN-2069	[Plan] Using ENTER to confirm unit order is broken	
TN-2078	Map Filtering - AAR Orbat does not show new units in a vehicle	
TN-2080	Peaks Ambient life (even when disabled)	
TN-2081	AAR - Stoppage disappears after ~2s	
TN-2084	CTD while switching camera in UAV	
TS-1272	Convoy does not return fire in case of one-shot-kill	
TS-1419	Freeze after looping control AI waypoints	

Issue Key	Summary	NetSuite Case
TS-1460	Fix table functions to work with InternalTable natively	
TS-1473	Time format label in Plan UI panels is incorrectly anchored	
TS-1482	CTD when BIUK Type45 is destroyed	
TS-1507	Abeh06 Timeouts	
TS-1535	Lock camera sometimes does not work	
TS-1620	Grenade throwing line missing	
TS-1632	Control AI Vehicle Pathfinding FPS Drop	
TS-1693	Don't allow Angry Civilians to be used in Control AI Civilian module	74092
TS-1711	CTD on close	
TS-1721	Error flood in civilian pattern of life	
TS-1727	Deleting point vehicle of CAI group makes the group permanently stop	
TS-1751	DS CTD in VBS4_Diag.exe!gears::GetObjectHandleFromNetworkObject	
TZ-3847	Admins stay occupying seat after switching units	67614
TZ-3894	GB vehicles winching issues	
TZ-3928	Searchlight / spotlights during the mission change to point lights during AAR playback	73127
TZ-3964	CTD related to -aarconnect	
TZ-3991	CTD during mapBuildingDestruction perftest in Landscape::ExplosionDamageEffects	
TZ-4000	GetMissionDirectory returns _tmpPREVIEWsave in OnMissionLoad after leaving mission preview	
TZ-4160	Freeze when shooting from Strf 9040 monitored in IOS	
TZ-4170	Start / Stop recording Controls still available	
TZ-4179	Moving units vertically possible in paused AAR	
TZ-4182	IOS not reporting while replaying AAR	
TZ-4202	Freeze in IOSVideoStreaming.dll after switching scenarios	
TZ-4207	IOS AAR GS do not show any information about RWS in AAR	
TZ-4213	Script error message appears when admin adds Artillery Strike	
TZ-4218	RWS - LRF Continuous Measurement wrong information	

Issue Key	Summary	NetSuite Case
VB-8003	Propellers shadows can be seen in cargo of Chinook helicopters	
VB-8261	Snow coverage on some trees isn't visible from a distance and when camera angle is different	
VB-8281	Temperature is unbounded for opaque objects	
VB-8285	DPR (server config) CTD on VWS startup	
VB-8290	Terrain Detail - when set below 0.8 surface will jump	
VB-8291	OWS Server: CTD during stresstest	
VB-8299	CTD on DS in VBSBlue.dll!OceanModel::SampleOceanTexture	
VB-8303	Glasses visible through periscopes	
VB-8317	Vehicle trails in snow are hot in TI	
VB-8351	Fired rounds not leaving the muzzle (general issue)	
VB-8354	Reimplement frustum culling for RTTs in VBS4	
VB-8361	Network Streaming Plugin (server) CTDs in ZMQ on VWS startup	
VB-8365	Streaming sampler sometimes causes stutters	
VB-8415	RoadPlugin.dll MemAllocInterface CTD during fly by Alps perftests	
VB-8455	Tree branches are squirming in the wind	
VB-8492	Blue critical errors are causing CTD instead of showing pop-up and being logged	
VB-8501	Geo surface Sand returns Soil material	
VB-8507	CTD on DS when starting a mission	
VB-8544	CTD in Microprofile in a heavy frame	
VB-8580	CTD in CommonPlugin during initialization	
VB-8612	DS CTD on close	
VB-8613	Playtest CTD	
VB-8625	DS CTD when launching a mission	
VB-8649	Snow on nearly all of the geo surfaces in the winter months	
VB-8658	VBS4 22.1.x crashes when trying to connect to a VWS 22.2	
VB-8659	CTD in VBSBlue.dll!Globe::FreeMemory_v0(...)	
VB-8663	Cache causing trouble	

Issue Key	Summary	NetSuite Case
VB-8665	No notification for the unreachable world server	
VB-8677	Random CTD in AlbedoPlugin StreamingTextureLoader	
VB-8722	CTD when launching user	
VB-8726	DbgView: [DiagManager] Assertion failed: 'false' Make not available	
VB-8728	DbgView: Assertion failed: 'false' [TextureProvider] Failed to load mip level 0 of 'dz\plants2_dz\misc\data\misc_nq.paa'	
VB-8845	Cannot load texture #color(0,0,0,true) pop-up after switching to UAV or entering Challenger optics	
VB-8884	Lights In Models Turn Off When Not Being Faced	
VB-8885	CTD when closing VBS4	
VB-8887	[VR] Freeze when leaving the vehicle through Vehicle Interaction Menu	
VB-8899	FPS drop to 1 when zoom in to SPTA map on the Globe	
VB-8904	CTD in DataSourceRegion::DataExists in 2k test	
VB-8947	Mission created in different build cannot be opened / replayed in another build properly	
VB-8965	LODs disappear / reappear / flicker more frequently as of recent builds	
VB-8966	VBS4 Loadtest - CTD on clients in PolyProperties::PrepareTL	
VB-8992	Stresstest: Freeze in GetPotentialCollisionObject	
VB-8993	CTD in VBSBlue.dll!DX11::EngineDD1	
VB-8994	Completely black weapons or equipment in a dark environment	
VB-8996	CTD on client	
VB-9018	Duplicated roads and paths on SPTA	
VB-9032	Newly binarized HGT are causing CTDs	
VB-9043	Soft seams on GDAL live terrain	
VB-9045	Seams and Holes in Network Streamed Terrain	
VB-9056	San Francisco - bridges are broken (Golden Gate as well)	
VB-9062	Trees have some LODs and falling animations of other types of trees	
VB-9090	Road widths aren't always accurate	

Issue Key	Summary	NetSuite Case
VB-9096	CTDs with the same CallStacks and Insufficient quota to complete the requested service	
VBS4-3248	On DS vehicles hit the Concertina wire instead going through	
VBS4-4064	Tank K2 is not able to spin around its own vertical axis	
VBS4-4234	AV Centaur too weak to drive uphill	
VBS4-4784	New Land Rover is destroyed easily with small arms	
VBS4-5571	GEO placed line objects sometimes stick to the original surface instead of a modified one	
VBS4-5904	Building roof is missing	
VBS4-6010	Smoke particles (and others) are not present	
VBS4-6121	Driving of the Strf 9040 (its exclusive versions) is broken	
VBS4-6163	CTD after #missions	
VBS4-6203	MyContent Remove loading from \mycontent and make only \mydata the acceptable location	
VBS4-6273	Geo edit not working in mission when -profiles parameter is used with -autotest or -config param loading missions from cfg files	
VBS4-6451	Fix Radio Standalone Installer	
VBS4-6469	Remnant file after uninstalling the VBS4 - VBS4DebugUI.ini	
VBS4-6642	Vehicles falling through bridges	
VBS4-7295	Purple global buildings near Ft Hood (some inside as well)	
VBS4-8154	2k units test - CTD on SCs and user client inside VBS4exe!std::Invoker_functor::_Call(EntityAIFull::UpdateMagazineAddedRemovedListeners	
VBS4-8210	AAR - Absence of the CAS UI	
VBS4-8371	CTD in VBSPitchRadio.dll when creating AudioSubmix [Timebox: B-sized]	
VBS4-8389	CTD in EditorPlugin.dll!VectorEditor::Reset	
VBS4-8607	Strings in settings (STR_SETTINGS_VIDEOSETTINGS_SCENE)	
VBS4-8750	Missing texture on global buildings	
VBS4-8854	Railroads present in ControlAI as roads for vehicles	
VBS4-9194	VR script error: It is not possible to interact with any vehicle via handhelds	

Issue Key	Summary	NetSuite Case
VBSGEO-1202	CTD in Geo while using Elevation brush tool to flatten the area.	
VBSGEO-1207	EE Bug Using Flatten brush near road with level terrain turned on raise terrain indefinitely	
VBSGEO-1224	Potential CTD: Geo uses invalid LogAPI handle during shutdown	
VBSGEO-1259	CTD from small Surface Brush Transition in Geo	
VBSGEO-1283	CTD in GEO during undoing terrain edits	
VBSGEO-1330	Elevation appears different on different clients	
VBSGEO-1417	Deadlock in GeoProjectStreamingPlugin.dll when Admin wants to return from Briefing to Lobby	
VBSGEO-1429	Launching VBS4 with geopackage in live loading folder causes CTD	
VBSGEO-1453	Missing Battlespace name if opened in Geo	
VBSIII-19787	Analogue throttle simulation option does not work	
VBSIII-22811	Inconsistent names for Machinegunner in Object editor	
VBSIII-23999	Follow up - UCS - 2019 - Muzzleflash on vehicles for UCS weapons	
VBSIII-27650	Performance drop 30% when ships get close	
VBSIII-27725	Disappearing wheels on burning vehicles	
VBSIII-28271	SE police unit doesn't have bulletproof armor.	
VBSIII-28634	Copehill Building - 78 has a see through wall from the inside	
VBSIII-28650	PzF3 is not handled correctly by units	
VBSIII-29629	M1131 Stryker wheels wobble when moving, not centered on axle	
VBSIII-29778	PT-91 Twardy PKM Coax and AMX 10RCR Coax weapons incorrect position of firing animation	
VBSIII-29804	Reticle in Optics View in FV510 is barely visible	
VBSIII-29857	Mi-8SMV Hip-J - propellers restored after hitting ground (destroyed)	
VBSIII-30099	vbs_ru_army_urau9_grn_x bad driving behaviour	
VBSIII-30118	Extruding black box from side of building - Land_copehill_sdetached_house_55_base	
VBSIII-30262	Growler wrong optic mode	
VBSIII-30265	Growler tires do not rotate when moving	

Issue Key	Summary	NetSuite Case
VBSIII-30288	B-1B Missing Crew Member	
VBSIII-30598	Tgb 16 - you can turn out on position without hatch	
VBSIII-30765	Foxhound machinegun issues	
VBSIII-30813	Misaligned MG sight in CZ Land Rover vehicles	
WW-10	AAR - Vehicle crew remains levitating after vehicle is removed in RTE	
WW-32	Gateway - stuck bomb in the ground after airstrike	
WW-109	VBS3/VBS4 mirror cameras are not positioned properly	
WW-140	Large AAR takes a long time to rewind	
WW-246	VBS3 Radio failed to create instance of audio engine	75662
WW-247	Corrupted battlespace when uploading it to DS	
WW-265	Strike fighters have option to auto-hover in Action Menu	
YT-130	Inventory script errors	
YT-131	Big peaks (13s) in the loading of VBS to mission in IED scripts	
YT-134	Boat Custom Speed waypoint (forceSpeed) is set in m/s not km/h	55822
YT-135	Playtest peaks in Chalkboard	
YT-137	Peaks in Man::SimulateDiving()	
YT-138	Peaks in unit creation	
YT-144	Peaks on a DS in Interop2Entity::FillInteropData	
YT-145	Additional peaks from YT-135	
YT-146	Peaks in Man::CheckAndRepairPotencialState	
YT-160	Peaks when when you shoot from tank	
YT-163	Peaks in Draw Cursors	
YT-165	Peaks in amputations	
YT-166	Peaks in vehiclesstatic.sqf	
YT-167	Large glitches caused by line interesection checks - onShot event part	
YT-168	AI rubberbanding in basic scenario	
YT-170	Peaks in Respawn	
YT-173	Potential peaks when ships are present	

Issue Key	Summary	NetSuite Case
YT-177	Geometry peak when restoring link from a network message	
YT-207	Hand To Hand Combat Weapon CTD (C_ub7)	
YT-209	AAR - Hazardous area editor objects are not created	
YT-222	Unit description variable doesn't get updated when changed	
YT-230	Script error - moving an object into weapon inventory	
YT-232	Deleted radio triggers in RTE will appear as VBS2_deleted triggers	
YT-233	Script error while equipping vehicle with additional loadout	
YT-247	Object Editor Objects are sometimes undesirably highlighted	
YT-256	New splash screen - unable to click anywhere	
YT-257	-windowmode=2 startup param does not show the console window	
YT-258	Inconsistent IncomingProjectile Behaviour (c_z13_aps_lwr)	
YT-261	No Error pop-up when failed VBS4 fails to load battlespace	
YT-269	Thrown grenades explode in front of the unit	
YT-274	Duplicate curRsc Returns Null Display	
YT-285	Everyone is playing same Battlespace	
YT-294	CTD while opening AAR	
YT-295	VolumeCD error message and no sound when launching VBS on CV9040 three monitors setup	
YT-297	The Server Admin Panel is visible during Previewing	
YT-302	Stuck preview loading screen	
YT-303	Server Admin panel - indication of client state with color is wrong (disable for now)	
YT-309	Loading screen text occasionally occurs pixelated	
YT-316	CTD when T-150 UAV without fuel hits the ground from high altitude	

5. VBS4 Release Notes 22.1

Bohemia Interactive Simulations continues to actively develop VBS4 with customer-specific projects enhancing the baseline for all customers, plus internal initiatives to constantly improve and enhance the capabilities of VBS4, its components, and associated tools - all aimed at providing the ideal platform for your training needs.

Bohemia Interactive Simulations has released the following versions and updates for VBS4 22.1.

Version	Major Features
22.1.0	General release for all customers.
22.1.1	Zero day patch.
22.1.2	Update patch including UAV Video Streaming and new controls for ADF Landing Craft.
22.1.3	V-BAT 128 UAV for a specific customer.

VBS4 22.1.3 introduces the following new features:

- V-BAT 128, a long-endurance Vertical Takeoff or Landing (VTOL) UAV.
For more information, see [V-BAT 128 UAV \(on page 232\)](#).

VBS4 22.1.2 introduces the following new features:

- Video streaming of UAV cameras to NATO - STANAG 4609 imagery systems is now available.
For more information, see [UAV Video Streaming \(on page 234\)](#).

VBS4 22.1.0 introduces the following new features:

- VBS Close Air Support introduces simulated Close Air Support (CAS) using VBS Plan.
For more information, see [VBS Close Air Support \(CAS\) \(on page 235\)](#).
- The VWS Management UI provides an interface to monitor and manage VWS Services, accessible in a web browser or from the VBS4 Toolbar.
For more information, see [VBS World Server Management UI \(on page 237\)](#).
- Mine Marker Kit that allows detecting and marking mines.
For more information, see [Mine Marker Kit \(on page 238\)](#).

This VBS4 release also includes:

- [VBS World Server Improvements 22.1 \(on page 241\)](#)
- [VBS Geo Improvements 22.1 \(on page 239\)](#)
- [New Content in VBS4 22.1 \(on page 242\)](#)

- [Additional Enhancements \(on page 250\)](#)
- [Geo Project Versioning \(on page 38\)](#)

VBS4 22.1 also resolves a number of issues. For more information, see:

- [Product Maintenance \(on page 255\)](#)

This release includes a number of [VBS4 Known Issues and Limitations \(on page 477\)](#).

5.1 V-BAT 128 UAV

The V-BAT 128 is a long-endurance Vertical Takeoff or Landing (VTOL) UAV, which can be used in:

- Search and Rescue (SAR) operations.
- Border security.
- Rapid tactical deployment.
- Firefighting and disaster management.
- Transportation and logistic resupply.
- Infrastructure protection.

Image-40: V-BAT aboard a Combatant Craft Medium (CCM)



The V-BAT has the following characteristics in VBS4:

- It uses the Unmanned Vehicle System (UVS) interface, which replaces the existing Control Link Editor Object used with other UAVs. The UVS relies on the UV Network (a new Editor Object), to which UVS-compatible UAVs / UGVs are assigned. The UVS interface facilitates switching to the UAVs / UGVs in the UV Network, and control as Pilot or Operator.
- It allows the player to simultaneously act as the V-BAT Pilot and Sensor Operator.
- It can transition between horizontal and vertical / hover flight modes, where the hover mode is used to survey an area.
- It can land on compatible watercraft, such as the Combatant Craft Medium (CCM), when the watercraft is either stationary or moving.

For more information, see:

- V-BAT Scenario Design in the VBS4 Editor Manual
- Using the V-BAT in the VBS4 Trainee Manual

Also, see:

- UV Network in the VBS4 Editor Manual
- Unmanned Vehicle System (UVS) in the VBS4 Trainee Manual

5.2 UAV Video Streaming

VBS4 enables you to stream the camera view from a UAV to an external NATO - STANAG 4609 type imagery system, using the following Editor Objects (EOs):

- Control Link
- Sensor Streaming

Depending on how the EO are set up, the video stream can be viewed outside of VBS4.

The resulting camera view is that of the player unit who is operating the UAV.

For more information, see UAV Video Streaming in the VBS4 Editor Manual.

Image-41: Streamed UAV Camera View



5.3 VBS Close Air Support (CAS)

VBS Close Air Support provides 2D and 3D simulated Close Air Support (CAS) using VBS Plan, which allows collaborative multiplayer training for Joint Terminal Attack Controllers (JTACs) / Forward Air Controllers (FACs), and Instructors.

FEATURE NOTICE

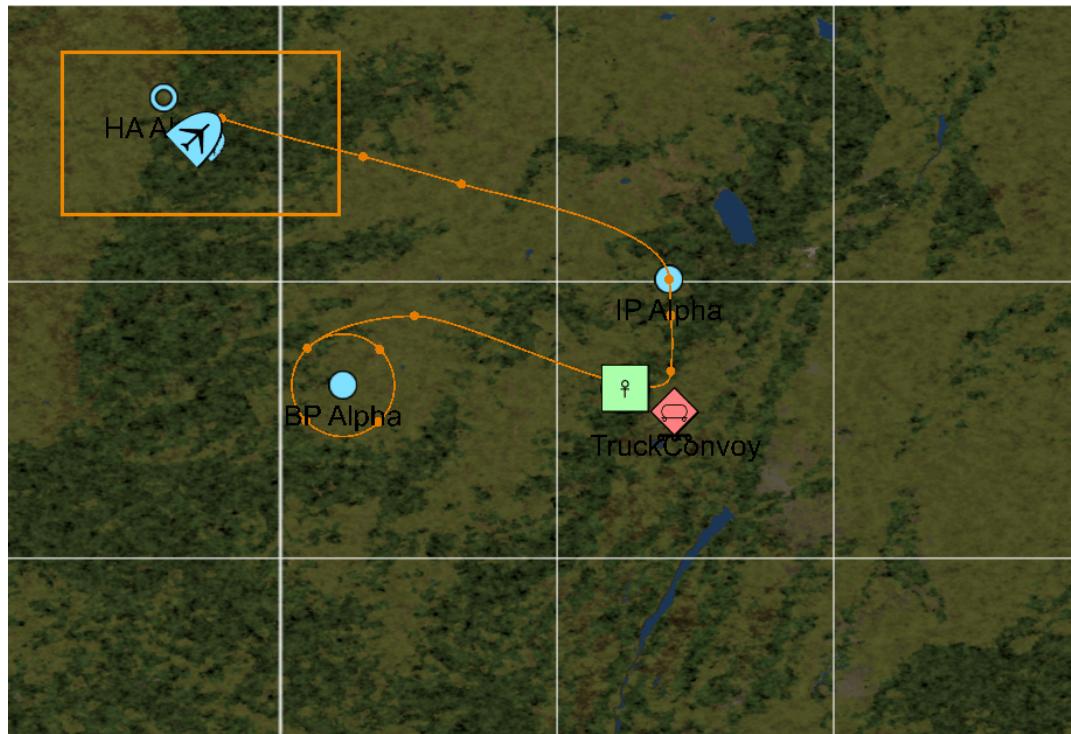
VBS Close Air Support may be subject to additional licensing. For more information, contact sales@bisimulations.com.

The following CAS features are supported:

- Creation of CAS aircraft units (rotary- and fixed-wing), using real ORBAT (Order of Battle) affiliations, based on the following country codes: AE, AU, CA, CZ, Civilian, FR, GB, Generic OPFOR, IN, KR, NL, NZ, SE, US.
- CAS Mission Order Tool that allows you to create CAS missions for CAS Units, coordinated between Instructors and JTAC players.
- CAS Control Measures:
 - No Fly Zone (NFZ) Tool that enables you to indicate areas on the map where CAS flight is not allowed.
 - No Fire Area (NFA) Tool that enables you to indicate areas on the map where CAS firing is not allowed.
 - Control Point (CP) Tool that allows you to indicate points for fixed-wing CAS Unit check-ins with Air Control, prior to moving to the Initial Point (IP).
 - Initial Point (IP) Tool that allows you to indicate points for fixed-wing CAS Units as starting points for the run-in to the target.
 - Holding Area (HA) Tool that allows you to indicate points for rotary-wing CAS Unit check-ins and CAS briefing, prior to moving to the Battle Position (BP).
 - Battle Position (BP) Tool that allows you to indicate points for rotary-wing CAS Units to commence attacks on targets.
- Logging of CAS-related events and mission phases during scenario execution and After Action Review (AAR).
- Display splines (planned aircraft flight trajectories) in the 2D and 3D Views, that can be adjusted in real-time by scenario administrators.
- Various targeting options for stationary and moving targets.
- Configure aircraft flight parameters, such as maximum speed, dive angle, and others, in addition to weapon systems, loadouts, munitions, and dispersion, using JSON.
- Different attack patterns: Level, Orbit, Pop Up, Dive.

- Adjustable flight altitude that allows aircraft to stay above / below the given Above Ground Level (AGL) / Above Sea Level (ASL) values.

For more information, see VBS Close Air Support in the Introduction to VBS4 Guide.



5.4 VBS World Server Management UI

VBS World Server includes a new management interface accessible in a web browser or from a VBS4 Admin Client.

In this release, the VBS World Server UI monitors the overall VBS World Server status and enables the management of VBS World Server Services.

Access the VBS World Server UI:

- From your web browser: *Server Machine IP Address:6606/#/dashboard*
- From the World Server Status Dialog in the VBS4 Toolbar.

For more information, see Managing VBS World Server in the VBS World Server Manual.

5.5 Mine Marker Kit

The Mine Marker Kit can be used by Trainees to detect and mark mines with warning signposts.

For more information, see Mine Marker Kit in the VBS4 Trainee Manual.

Image-42: Detected mine with warning signpost



5.6 VBS Geo Improvements 22.1

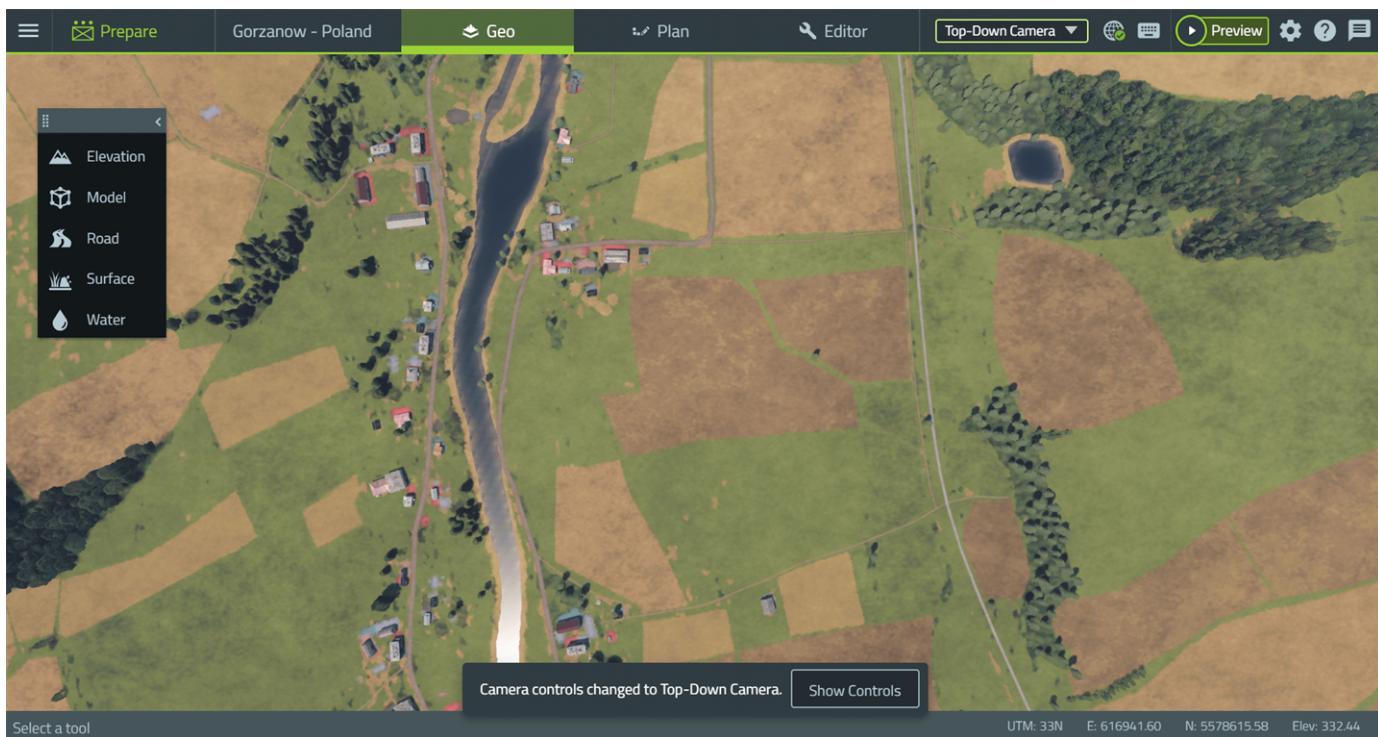
VBS4 includes the following improvements to VBS Geo in this release:

- [Top-Down Camera \(below\)](#)
- [Ground Cutting and Vegetation Removal \(on the next page\)](#)
- [Geo Project Compression \(on the next page\)](#)
- [Error Messages \(on the next page\)](#)

5.6.1 Top-Down Camera

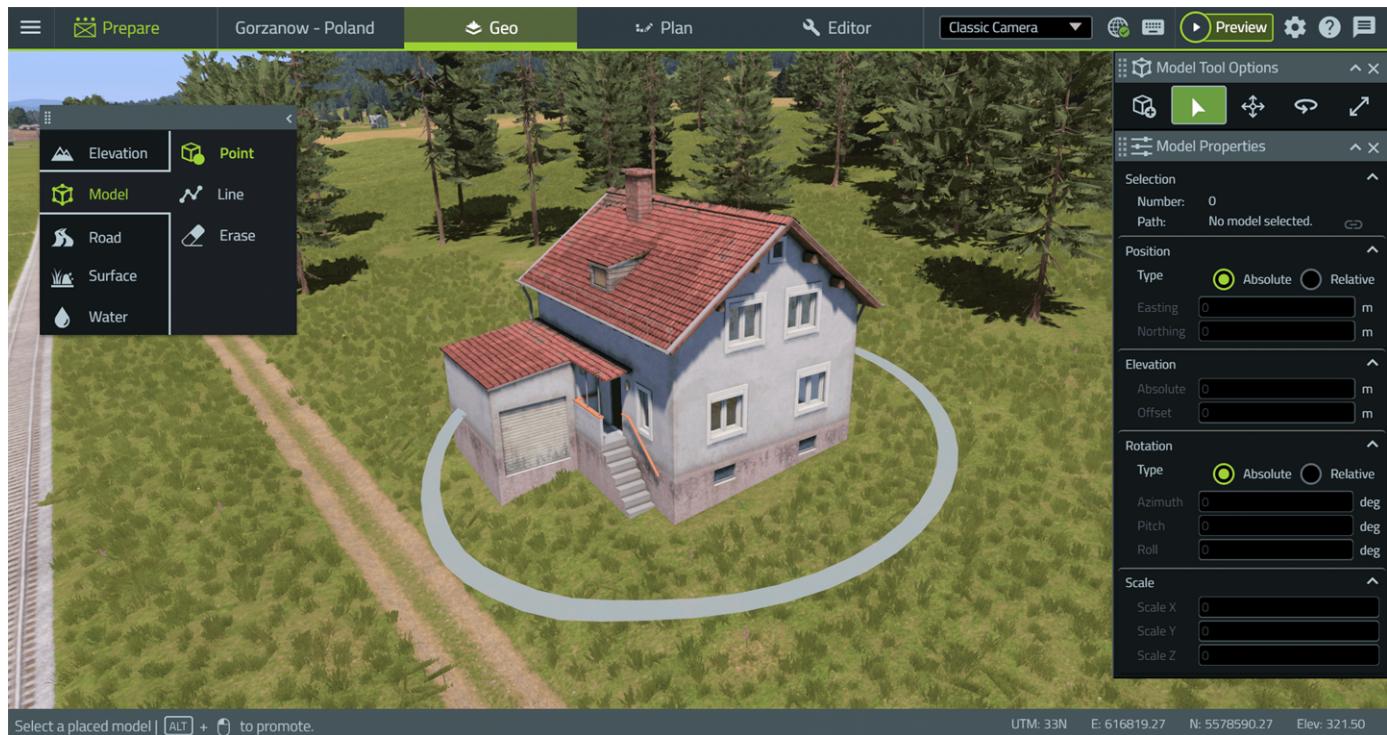
This release introduces a top-down camera specific to VBS Geo with locked orientation to always look directly down at the surface.

For more information, see [Camera Controls](#) in the [VBS Geo Manual](#).



5.6.2 Ground Cutting and Vegetation Removal

In earlier releases, VBS Geo placed models would not automatically clear away biome vegetation and would not cut into the terrain for models that contain underground structures. In the VBS4 22.1 release, this dual limitation has been resolved. Shortly after being placed, vegetation and ground will be automatically removed, causing all VBS Geo-placed objects to behave properly both in and out of VBS Geo.



5.6.3 Geo Project Compression

Geo Projects are now automatically compressed as they are uploaded to the VBS World Server. This improves performance and transfer times for uploading the Geo Project as well as sharing the Geo Project to other connected clients. However, this does result in backwards-incompatibility between VBS4 22.1 and earlier versions.

For more information, see [Geo Project Versioning \(on page 38\)](#) in the VBS Geo Manual.

5.6.4 Error Messages

Errors now appear in VBS Geo whenever it is unable to import data to the VBS World Server or load data from the VBS World Server.

5.7 VBS World Server Improvements 22.1

VBS World Server 22.1 contains the following improvements:

- [VBS World Server Management \(below\)](#)
- [VBS World Server System Requirements \(below\)](#)
- [VBS World Server User Interface \(below\)](#)

5.7.1 VBS World Server Management

- The VBS World Server Management UI provides an interface to monitor and manage VWS Services, accessible in a web browser or from the VBS4 Toolbar.

For more information, see [VBS World Server Management UI \(on page 237\)](#).

- Symbolic links in the `\Installation\data\` folder to other nested VBS World Server folders were removed to simplify navigation.

5.7.2 VBS World Server System Requirements

- VBS World Server is no longer required to be installed on an NTFS-formatted drive.

5.7.3 VBS World Server User Interface

- The location results returned by the geolocation search bar were improved.

5.8 New Content in VBS4 22.1

VBS4 22.1 includes the following new content:

Name	Type / Category	Classname
Marder IFV	Vehicle DE Army Tracked - Desert - Woodland	vbs_de_army_marder_1a5_des_x vbs_de_army_marder_1a5_wdl_x
Leopard 2	Vehicle DE Army Tracked - Desert - Woodland	vbs_de_army_leopard2a5_des_x vbs_de_army_leopard2a6_des_x vbs_de_army_leopard2a4_wdl_x vbs_de_army_leopard2a5_wdl_x vbs_de_army_leopard2a6_wdl_x
ScanEagle	Vehicle US USMC Air	vbs_us_ms_scaneagle_gry_x
ScanEagle Mk4 Launcher	Vehicle Unmanned Vehicle	vbs2_scaneagle_launcher
ScanEagle Skyhook	Vehicle Unmanned Vehicle	vbs2_scaneagle_skyhook
Arafura Class OPV	Vehicle AU Navy Watercraft	vbs_au_navy_arafura_gry_x
LHD Landing Craft	Vehicle AU Navy Watercraft	vbs_au_navy_lcm1e_gry_x
Mexeflote	Vehicle AU Navy Watercraft	vbs_au_navy_mexeflote_gry_x
UH-60M Black Hawk	Vehicle US Army Air	vbs_us_army_uh60m_grn_x
Medium Wheeled Tractor (Protected)	Vehicle GB Army Wheeled - Desert - Woodland	vbs_dvs_gb_army_case_721_des_x vbs_dvs_gb_army_case_721_grn_x

Name	Type / Category	Classname
D5N Bulldozer	Vehicle GB Army Tracked - Desert - Woodland	vbs_gb_army_d5n_tan_x vbs_gb_army_d5n_grn_x
Medium Dump Truck	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_trakker450_tan_x vbs_gb_army_trakker450_grn_x
Light Wheeled Tractor (All Arms)	Vehicle GB Army Wheeled - Woodland	vbs_gb_army_jcb_3cx_grn_x
Light Wheeled Tractor	Vehicle GB Army Wheeled - Woodland	vbs_gb_army_jcb_4cx_grn_x
Small Generic Fishing Boat	Vehicle Generic Civilian Watercraft	VBS_civ_fishingboat_small_blu_x VBS_civ_fishingboat_small_grn_x VBS_civ_fishingboat_small_random_x VBS_civ_fishingboat_small_red_x
Large Generic Fishing Boat	Vehicle Generic Civilian Watercraft	VBS_civ_fishingboat_large_blu_x VBS_civ_fishingboat_large_grn_x VBS_civ_fishingboat_large_random_x VBS_civ_fishingboat_large_red_x
Windmill and Wind Turbine	Objects DVS2 Demo Content	land_demos_dvs2_windmill land_demos_dvs2_demos_dvs2_windturbine
Airfield Windsock	Objects Honington - Objects	honington_windsock
UCS High Visibility Vest	Equipment	
STK-40 AGL	Weapon	
UK Civilian Fire Fighter	Unit GB Civilians	vbs_gb_civ_fireman_black_m_medium_none_none_none
UK Civilian Fire Engine	Vehicle	bisim_ig_volvofl_fireengine_uk_x
UK Civilian Police Officer	Unit GB Civilians	vbs_dvs_gb_police_beatofficer

Name	Type / Category	Classname
UK Civilian Police Car	Vehicle IG - Generic Civilian Wheeled	bisim_ig_fordfocus_policecar_uk_x
UK Civilian Paramedic	Unit IG - Generic Civilian	bisim_ig_civilian_paramedic_uk_m
UK Civilian Ambulance	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_mercedessprinter_ambulance_uk_x

For more information about specific new content, see the following:

- [New Vehicles \(on the next page\)](#)
- [New Personnel \(on page 248\)](#)
- [New Equipment \(on page 249\)](#)
- [New Structures \(on page 249\)](#)

5.8.1 New Vehicles

The following new vehicles are available in this release:

Marder IFV

The Marder is a German infantry fighting vehicle (Schützenpanzer or SPz) and was the backbone of the Panzergrenadiere (mechanized infantry) of the German Army from the 1970s through to the present day. It is available in VBS4 in its 1A5 variant.

The Marder has undergone numerous and significant upgrades over its lengthy service life, including upgrades and additions to the armament, improvements to the fire control and optics systems, improvements to the engine, drive train, and environmental systems, modifications to the hull, suspension, radios, and other equipment, and finally significant improvements to the armor protection.

The primary armament is a Rheinmetall 20 mm MK 20 Rh-202 autocannon, a coaxially mounted 7.62 mm MG3 machine gun, and a turret-mounted MILAN ATGM launcher.

Leopard 2

The Leopard 2 is a German main battle tank developed in the 1970s to replace the first generation Leopard. It is available in VBS4 in its German 2A4, 2A5, and 2A6 variants.

Like the Marder, the Leopard 2 has also undergone numerous and significant upgrades over its service life, including upgrades to the armament, fire control and optics systems, improvements to the engine, drive train, and environmental systems, modifications to the hull, turret, suspension, radios, and other equipment, and also significant improvements to the armor protection.

The tank is armed with a Rheinmetall 120 mm L44 or L55 smoothbore cannon, a coaxial MG3, and a pintle mounted MG3 for the loader.

ScanEagle

The ScanEagle is a small, long-endurance, low-altitude unmanned aerial vehicle (UAV) used for reconnaissance. ScanEagle carries a stabilized electro-optical and / or infrared camera on a lightweight inertial stabilized turret system, and an integrated communications system.

ScanEagle needs no airfield for deployment. Instead, it is launched using a pneumatic launcher (see below), and is recovered using the "Skyhook" retrieval system, which uses a hook on the end of the wingtip to catch a rope suspended from the Skyhook (see below).

ScanEagle Mk4 Launcher

The Mk4 ScanEagle-Launcher provides a preparation and launch capability on a castor-wheeled platform to ease handling in the tight confines of the flight deck of a ship.

ScanEagle SkyHook

The Skyhook provides a compact recovery capability for the ScanEagle aircraft.

Arafura Class OPV

The Arafura class is a class of offshore patrol vessels being built for the Royal Australian Navy (RAN). The ships will use a modular mission payload system to fulfill specific roles; primarily border patrol, mine warfare, and hydrographic survey. Their design is based on the Lürssen-designed Darussalam-class, operated by the Royal Brunei Navy. Each vessel has a gross displacement of 1,640 tonnes, and measures 80 meters (260 ft) long, with a beam of 13 meters (43 ft) and a draft of 4 meters (13 ft). Propulsion power is from two MTU 16V diesel engines rated at 4,440 kilowatts (5,950 hp) each, which drive variable pitch propellers and give a top speed of 22 knots (25 mph).

Shipboard armament consists of a single Oto Marlin 40 mm gun and two M2HB-QCB 12.7 mm machine guns. Each vessel carries two 8.5-metre (28 ft) rigid inflatable boats and a single 10-metre (33 ft) boat, which are intended as the primary means of deploying offensive force in the ships' border patrol role. A single unmanned aerial vehicle is carried and deployed from an open utility deck.

LHD Landing Craft

The LCM-1E is a class of amphibious mechanized landing craft known as the LHD Landing Craft (LLC) in Australian service. The craft are designed to deliver troops and equipment onshore from amphibious assault ships during amphibious assaults.

The landing craft have the ability to operate over-the-horizon, as they are equipped with radar navigation, GPS, gyro needle / magnetic compasses and HF communications equipment, VHF and UHF. This allows them to operate up to 20 nautical miles (37 km; 23 mi) from their mothership.

The landing craft can be armed with two FN MAG 58 7.62mm machine guns in Australian service.

Mexeflote

The Mexeflote is a landing raft used to move goods and vehicles between ship and shore, the design has been in service with the Royal Logistics Corps since the 1960s. Australia acquired two Mexeflotes when the Royal Australian Navy purchased HMAS Choules (formerly RFA Largs Bay).

Mexeflote itself is not a vessel per-say, but a system of modular components which can be joined together to form a number of floating structures, from small rafts, to pontoons, to large rafts, and large causeways linking a ship to shore. Provided in VBS as the "Standard" Mexeflote configuration, the raft consists of 3x bow sections, 12x centre sections, 3x stern sections, 2x propulsion units, an accommodation unit, and a storage unit. Other accessories include a navigation mast, mooring bollards, and safety railings.

UH-60M Black Hawk

The Sikorsky UH-60 Black Hawk is part of a family of four-blade, twin-engine, medium-lift multipurpose helicopters manufactured by Sikorsky Aircraft. Sikorsky submitted the S-70 design for the United States Army's Utility Tactical Transport Aircraft System (UTTAS) competition in 1972, subsequently entering service with the US Army in 1979 as the UH-60A, to replace the Bell UH-1 Iroquois as the Army's tactical transport helicopter.

Over the following 4 decades numerous electronic warfare, special operations, special purpose, and improved variants have been introduced to service. The UH-60M Black Hawk features improved design wide chord rotor blades, uprated engines and gearbox, Integrated Vehicle Health Management System (IVHMS) computer, and new glass cockpit. Production began in 2006, with entry to service soon after in 2007.

Small Generic Fishing Boat

A generic smaller size outrigger-trawler commonly seen off the North-East Coast of the United States.

Large Generic Fishing Boat

A generic larger size outrigger-trawler commonly seen off the North-East Coast of the United States.

UK Civilian Fire Engine

A typical British Civilian Fire Engine.

UK Civilian Police Car

A typical British Civilian Police Car.

UK Civilian Ambulance

A typical British Civilian Ambulance.

Medium Wheeled Tractor (Protected)

Based on the Caterpillar 938G wheeled loader, the Medium Wheeled Tractor (Protected) is modified to provide enhanced protection to the operator. Featuring modifications to the suspension and driver train, it also features a fully armored cab, with mine and IED protection. Used for a variety of engineering roles; earth moving, excavating, mechanical handling trenching, dozing, grading and digging, the MWT(P) was procured as an Urgent Operational Requirement for deployment to Afghanistan, where the standard (unprotected) JCB 436 EHT were not deemed suitable.

D5N Bulldozer

The Caterpillar D5N Bulldozer performs light excavation tasks in support of various mobility, counter-mobility and survivability missions. It can dig pits and positions for armored vehicles, troops or artillery systems. It can dig anti-tank ditches and create other obstacles. This bulldozer can clear obstacles, demolish structures and open routes.

Medium Dump Truck

The Iveco Trakker AD380T45W 6x6 was selected in three variants (Truck Mounted Loader, Medium Dump Truck, Self Loading Dump Truck), along with other 6x6 and 8x8 variants to replace a variety of legacy vehicle makes and models with a standardised fleet of Medium Mobility Engineering Support Vehicles.

Light Wheeled Tractor (All Arms)

The JCB 3CX, known as the Tractor Wheeled Light, All Arms (or Light Wheeled Tractor, LWT) is based on the successful JCB 3CX design. Introduced to supplement the 4CXM (see below), it is intended to provide the British Army's Royal Logistic Corps (RLC), Infantry and Royal Artillery units with a versatile mechanical aid, with high output, capable of undertaking a wide variety of field defence tasks, handling defence stores and combat supplies. It is deployable to and between sites, capable of keeping up with supported units, and is both road-mobile and deployable on the In-Service plant trailer or Light Equipment Transporter.

Light Wheeled Tractor (All Arms)

The JCB 4CX, known as the Tractor Wheeled Light, Standard / Air Portable (or Light Wheeled Tractor, LWT) is based on the successful JCB 4CX design. Modifications include reinforced suspension, better cross-country mobility and has an adaptable low profile cab, which makes it suitable for airlifting by the C-130 Hercules cargo aircraft. It also has lifting hooks on all four corners and can be carried underslung by the CH-47 Chinook helicopter, and can be fitted with an armor kit.

5.8.2 New Personnel

The following new units are available in this release:

UK Civilian Fire Fighter

A typical British Civilian Fire Fighter in protective clothing.

UK Civilian Police Officer

A typical British Civilian Police Officer in High Visibility clothing.

UK Civilian Paramedic

A typical British Civilian Paramedic in standard uniform.

5.8.3 New Equipment

The following new equipment is available in this release:

UCS High Visibility Vest

Designed specifically for the GB Army Virtus units, but compatible with any UCS enabled character, a typical High Visibility safety vest, worn as part of a soldier's PPE when working with or around vehicles.

STK-40 AGL

The STK 40 AGL, formerly the CIS 40 AGL, is a 40 mm automatic grenade launcher, developed in the late 1980s and produced by the Singaporean defense firm Chartered Industries of Singapore (CIS, now ST Kinetics). The launcher is employed primarily by the Singapore Armed Forces and the police and security forces of several other countries.

5.8.4 New Structures

The following new structures are available in this release:

Windmill and Wind Turbine

A generic 16th Century windmill, common across northwestern Europe, especially The Netherlands and The United Kingdom.

Also available is a generic 21st Century wind turbine, increasingly common across the globe as the drive for renewable energy and decarbonization is expanding their development and use. The model in-game represents a medium sized turbine (70m high, with 60m diameter blades), commonly seen in European wind farms.

Airfield Windsock

A standard RAF-type airfield windsock, used to provide an indication of the direction and strength of the wind to pilots.

5.9 Additional Enhancements

VBS4 22.1.2 includes the following enhancements:

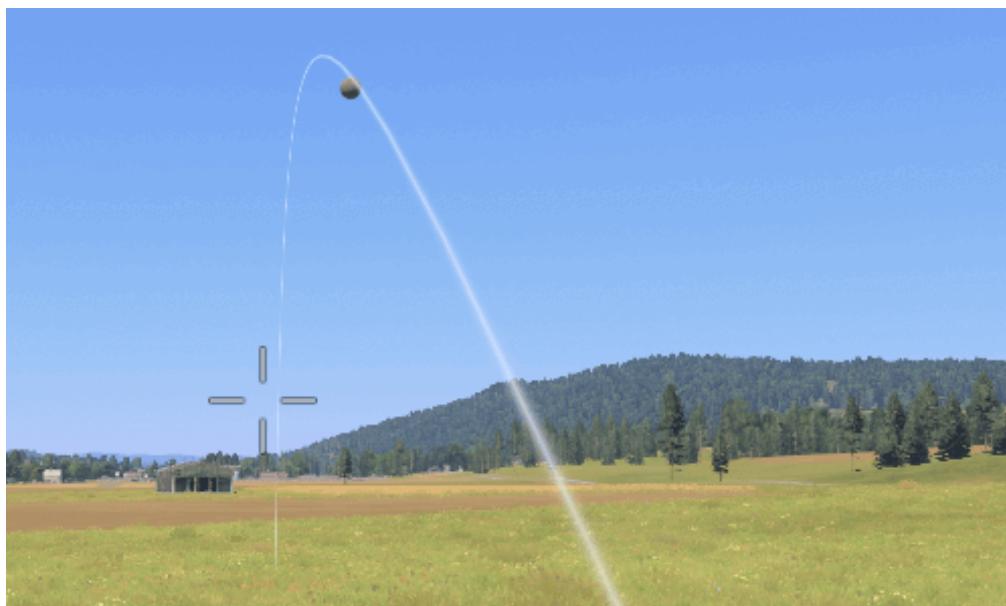
- New landing craft engine thrust controls added with default mappings for XBox controllers.

For more information, see VBS4 Controls Reference in the VBS4 Administrator Manual and Water Vehicle Controls in the VBS4 Trainee Manual.

VBS4 22.1.0 includes the following enhancements:

- Grenade throwing / launching:
 - Improved the throw accuracy and simplified the throw method, using fewer mouse controls.
 - Introduced the **Throw Grenades Instantly** simulation setting, which allows throwing grenades instantly, skipping the grenade-throwing animation sequence.
 - Introduced the **Show Grenade Lethal Range** simulation setting, which shows the approximate lethal range, using a bubble visualization, for thrown and launched grenades.
 - Introduced the `-oldGameplay` command-line option that allows using the old grenades functionality, prior to these grenade enhancements.

For more information, see Grenade Simulation in the VBS4 Trainee Manual.



- New default key bindings for the DAGR, Laser Pointers, and Crouching.

For more information, see Defense Advanced GPS Receiver (DAGR), Laser Sighting Using Personal Weapons, and in the VBS4 Trainee Manual.

- New prototype of commanding Control AI subordinates.

For more information, see Commanding Subordinates in the VBS4 Trainee Manual.

- New **Look Through Optics / Sights** control option added to the VBS4 Controls settings. When mapped to the RMB (second mouse button), pressing and holding the RMB brings up weapon optics until the button is released.

For more information, see Controls Settings in the VBS4 Administrator Manual.

- Improvements to disposable, single-shot weapons such as the AT-4 and LAW rocket launchers. These weapons are now pre-loaded with a single shot and cannot be reloaded. After firing, the weapon is dropped and disappears from the simulation after ~60 seconds.
- Improvements to controls for joysticks and gamepads to enable double-tap and tap-hold combinations.

To configure controls, see Controls Settings in the VBS4 Administrator Manual.

- Support added for NVIDIA DLSS 2.0. DLSS (Deep Learning Super Sampling).

For more information, see the Rendering table in Video Settings in the VBS4 Administrator Manual.



- Exterior Shadow Draw Distance setting added to the Video tab in VBS4 Settings.

For more information, see the Rendering table in Video Settings in the VBS4 Administrator Manual.

- The `-oscache` startup parameter has been removed from VBS4.

Changes to VBS4 data management mean that this parameter has minimal benefit and potentially creates multi-threading issues. VBS4 is updated to ignore this startup parameter.

- VBS Blue Dynamic Terrain Modification Integration improvements, including:

- Vehicle tracks now instantly appear behind vehicles.

i NOTE

Vehicle tracks vanish from the terrain after a few minutes.

- Bullet holes on the terrain can be seen.

i NOTE

Bullet holes vanish from the terrain after a few minutes.

- Footprints can be seen.

i NOTE

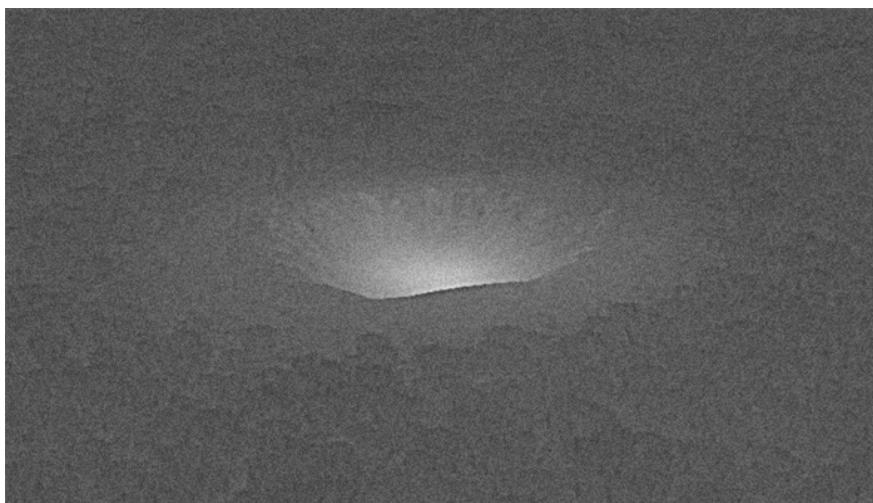
Footprints are created on a segment basis in VBS4, meaning that the oldest segment vanishes after a maximum of 10 segments. Each segment contains 6 footprints.



- Thermal Imaging (TI) improvements, including:
 - Multiple fixes of TI representations for soldiers and vehicles.
 - Return of heat marks when vehicles and soldiers remain in one place long enough for heat to transfer.



- Craters now properly show as hot-post objects in TI.



- Administrators are now able to change the position and size of the compass, watch, and Mini-Map by adjusting parameters in the [VBS4.USER.xml](#) file.

For more information, see VBS4 Profile Options in the VBS4 Administrator Manual.

- Additional snow controls have been added, with three new settings in the Scenario Settings dialog, including:

- Road Plowing



- Snow on trees



- Snow on extruded buildings



For more information, see [Define Scenario Settings](#) in the VBS4 Editor Manual.

5.10 Product Maintenance

The following issues were resolved in VBS4 22.1.3:

Issue key	Summary	NetSuite Case
TZ-3980	Marker lights visibility upgrade	73547
T3S-2417		
CORE-132	CTD when closing VBS4 from AAR - in Renderer.dll	
TF-2714	CTD after closing VBS4 with X	
VB-8549	Terrain tearing with blend height export	

The following issues were resolved in VBS4 22.1.2:

Issue key	Summary	NetSuite Case
YT-161	[CBRN] Chemical hazards negative effects fix	
YT-151	Sarin blackout effect does not get cleared fix	
TS-1465	Deployed boarding ladder fix	
VBS4-6735	Albedo texture in 2D map too low resolution to clearly identify buildings and roads fix	
VB-8451	Geo + Obj Buildings do not have animated doors	
CONTENT-3496	PUMA - order of reticles fix	
VBS4-6499	Remote Batch Launch is setting incorrect connect IP fix	
T3S-2378	Bad physics when trying to attach hook from one vehicle to another while the hook passes under the vehicle	
T3S-2377	Retract winch physics fix	72987
VB-8349	Update plugin configs to prefer local data	
VBS4-6728	Geo models disappear in a new Battlespace created via Save As on Preview	

The following issues were resolved in VBS4 22.1.0:

Issue key	Summary
WS-1602	Freeze during AAR upload
WS-1561	Hide the albedo roads check box from the VBS3 TCT dialog

Issue key	Summary
WS-1545	VWS Translation Setup
WS-1530	ConsoleLog for VWS DS
WS-1446	TCT - LightPost workaround in vbs3_to_vbs4_lightpoints.tcl
WS-1305	Geocoder - support better searches in English
WS-1155	Phototexture TCT hitting long file path error while other layers are fine
WS-818	TCT - Copy binarization logs from TT project to client Xtract output folder
TSTT-14065	Export TIFF (height) Crash
YT-121	Script error - Scenario Settings Time Limit
VBSIII-30115	Launcher - cancel button does nothing
VBSIII-30092	Copehill Container - 40ft - White - 03 - popup when object is destroyed
VBSIII-30039	Mission time minutes out of sync with seconds.
VBSIII-30000	Building roof displays outline of destroyed model when not destroyed
VBSIII-29999	Building roof displays dark parts in the shade
VBSIII-29802	IG View Editor doesn't display views in multiple view groups
VBSIII-29698	RWS aiming through iron sights
VBSIII-29693	No sound when reloading custom machine guns
VBSIII-29692	AV UGV - wrong texture after destruction
VBSIII-29662	FRMOD - Small freeze when turning on & off the HHMD detector
VBSIII-29648	EPEIgnorePair network flood
VBSIII-29286	Conversations Dialog not fully localized
VBSIII-28317	Bv410 Ambulance - Medics are missing
VBSIII-28289	Bv309 Ambulance - Commander position is named Cargo
VBSIII-27171	Engine off does not work for submarines
VBSIII-26617	Placing DShKM Machinegun - API turret always shows pop-up No entry 'bin\config.cpp\CgfVehicles\' . even after object was deleted (ERROR unit).
VBSIII-24316	Assertion failed 'facade'
VBSIII-21660	C-27J Spartan US SOCOM kills people inside
VBSIII-20527	LCAC Mouse steering is reversed
VBSIII-20309	Auto-Guide AT is probably an obsolete setting

Issue key	Summary
VBSGEO-1226	CTD just zooming around in Geo
VBSGEO-1217	CTD on startup in GeoCore.dll!Log::Info
VBSGEO-1212	CTD in GEO on FlattenApplication()
VBSGEO-1190	Introducing GeoPackage .zip compression
VBSGEO-1161	CTD after save as in Geo on AddEmptyTiles()
VBSGEO-1152	Reverted height geo edits leave ghosts of former edits from distance
VBSGEO-1151	Geo Elevation Area Flatten tool is counting height from pre-reverted state
VBSGEO-1124	Geo height edits seem to save wrongly (height is multiplied)
VBS4-6194	Manual Update - Assigning Single AVs
VBS4-6156	Manual Update - Localization Settings
VBS4-6014	Leopard 2A6 missing optics crosshair - Leopard 2 and PT91 FCS BASELINING OF COMPONENTS
VBS4-5881	Cannot load texture (tree_ca.paa)
VBS4-5577	CTD VWS DS WeaponsState::TransferMsg
VBS4-5540	Launcher CTD on failing the NetworkDiscovery
VBS4-4985	Launcher - Batch Launch/Remote Execution - Not possible to launch VBS4 locally
VBS4-4969	BD8 - Wire Obstacle QuickFix
VBS4-4858	Control Example content - Geo pop up when opened in Editor
VBS4-4647	VBS4 Varjo MR Masking Issue with Webview writing to Alpha Channel.
VBS4-4619	Unit cannot pass through bush model
VBS4-2052	Police siren cannot be switched off
VB-8232	Endurance test in low maxmem environment will result in CTD
VB-8231	Biome object CTD
VB-8143	Error popup SQLite Error 26 in desktop.ini kills startup of VBS4 Master
VB-8142	Double IPD Bug Fixes HMD
VB-8130	BlueIG 21.1.1 FULL SCREEN(ALT+ENTER) with HMD causes incorrect views to render to screen.
VB-8117	Far water is not rendered
VB-8069	CTD while starting VBS4 with -hmd without any HMD device
VB-8066	Chinook surrounding dust way too much bright

Issue key	Summary
VB-8057	Scaled objects are culled incorrectly
VB-8039	CTD on shutdown in VolumeDataBank
VB-8035	Leopard textures don't load properly
VB-8011	Fog flickers on the ground
VB-8010	San Francisco - skyscraper touches the space
VB-8005	Plants displaying red through the side of boats
VB-7984	VBS4 Perftest - CTD inside VBSBlue.dll VolumeDataBank CreateResource
VB-7973	TI - Vehicle camo (Des/Wood) significantly effects TI image
VB-7964	Random CTD in material bank
VB-7950	Broken terrain textures
VB-7945	Hot proxies / Different default TI texture in Blue
VB-7944	Plant model rendering strangely in VBS4 21.1 build
VB-7940	Vehicles do not leave traces on snow
VB-7933	Dynamic Terrain Modifications - extend Tracks plugin to handle footsteps
VB-7932	waterVec.sqlite is not Live-Loading in VBS4
VB-7931	Blue IG near plane culls precipitation effects
VB-7915	Update forest appearance with snow in albedo
VB-7913	Craters to use dynamic terrain modifications
VB-7912	Heatmarks in Blue
VB-7910	Water is being incorrectly rendered in thermal
VB-7909	Increase the effect of weather affecting thermal
VB-7877	Caracal cabin lights move while viewed in VR
VB-7876	VWS signals all services running even though license is invalid
VB-7873	Interior shadow casters use wrong set of objects
VB-7854	VRLT2 - Crash on VRLT0039
VB-7853	VRLT2 - Crash dump from VRLT057
VB-7848	Unknown Material Code for Objects
VB-7845	Terrain texture mapping is not good enough
VB-7844	Water Removal - Lingering Artifacts

Issue key	Summary
VB-7839	Particles are too dark
VB-7838	CTD during stress test after mission loaded
VB-7822	Remove snow for craters
VB-7799	Playtest - Peaks in UpdateBlueWeather (200-300ms)
VB-7798	Glass can be seen through in Thermals
VB-7764	Snow in the water
VB-7747	Dynamic Terrain Modifications - Tracks Optimizations
VB-7715	Scene preparation should lock resources
VB-7713	High speed wind animation doesn't work for impostors
VB-7685	Video option controlling density of forests
VB-7683	WMTS albedo stream - problems near Cambodia
VB-7668	2D OME/RTE is limited to 50FPS
VB-7637	BingDataPlugin unhandled exception
VB-7550	Potential network streaming cache bug with surface mask data - geo data import
VB-7545	San Francisco, Coit Tower - floating in the air
VB-7362	Integration of the flat snow into VBS4
VB-7349	Road rendering to respect orthogonality and road width
VB-7324	Horizontal lines in atmosphere when object is added, MRT
VB-7293	Predator drone propeller alpha causes transparency of clouds
VB-7254	Investigate Unknown Value Dirt Ring Surface Map Artifact
VB-6954	Flat Snow - Snow on Extruded Buildings
VB-6952	Flat Snow - Ploughed road control
VB-6943	Flat Snow - Snow on trees, new parameter of overcast (independent on others)
TZ-3855	Retry should be removed from multiplayer hamburger menu for VBS4 22.1.0
TZ-3813	Test Blue integration of Snow to VBS4
TZ-3797	Grenade launchers - use scroll wheel to adjust leaf sights
TZ-3796	Y-Axis Inverted Joystick Control Setting non-functional for Gamepads
TZ-3787	Main menu - Change Battlespace is not an option in the menu while in the RTE or Plan
TZ-3784	(SR-119) - Mounted Personnel get contaminated from CBRN threats

Issue key	Summary
TZ-3778	Scenario settings don't change cloud and fog effects in OME
TZ-3777	Deleting Intel changes the time and makes it dark/light
TZ-3769	Design how users will be able to trigger mine marking functionality
TZ-3768	TZ-3735 Follow-up: baseline grenades not knocking-out soldiers
TZ-3767	AAR failed to transfer from VWS to admin running AAR
TZ-3766	Add colorBorderDisabled config entry for buttons
TZ-3765	Grenades - make adjust throwing force mode always on
TZ-3759	HUD - Change the minimap/compass/watch size / location
TZ-3757	Carry extra weapons sway through SQF committee + SDK
TZ-3754	Antipersonnel mines glow red when a prone unit is nearby
TZ-3752	Prone soldier next to antipersonnel mine can flag it
TZ-3750	BD8 - Minefield Core - Improvements Prototype
TZ-3748	(SR-119) CBRN Hazardous Areas - limited Effects from Threats
TZ-3744	HUD - Improve visibility of incoming shot indicator and remove friendly fire
TZ-3743	Controls - Hold for optics (not toggle)
TZ-3741	Controls - Hold to crouch (not toggle)
TZ-3740	Controls - 2 new default key mappings
TZ-3739	Inventory - Change Action menu option string for picking up objects
TZ-3737	Controls - optics movement is slow on controller
TZ-3736	Realistic single-shot rocket weapons like AT-4: prototype
TZ-3734	Grenades - Throwing should be instant on keypress
TZ-3733	Need MOPP Equipment to be put on in the correct order
TZ-3703	Vehicles with RTT to be fixed for multiple vehicles & multiplayer
TZ-3696	Placed chemlight are under ground
TZ-3682	BE Dingo 2 Gunner camera view shows view from another vehicle
TZ-3630	Stresstest: Spam on the mission load, CGFPlanExecuter.6420
TZ-3560	Options not fully translated
TZ-3293	VBS3 bottom bar time is 1 minute behind
TS-1398	Script error when lowering ramp of HET trailer

Issue key	Summary
TS-1369	2158 - Hidden/Unhide entity option not available in RTE
TS-1365	Investigate autotest fail: alib27 Tracked vehicles obstacles, alib24
TS-1358	3D Compass not visible in vehicles
TS-1350	CTD - Rotating Bushmaster With Attachment
TS-1348	Complex animations module arrows no longer show orientation
TS-1347	Switching to Swedish in optics view is broken for FMV RWS display.
TS-1346	FRMOD - Complex animations won't play unless triggered / rotated
TS-1342	Fix softer vehicle clearance in pathfinding.
TS-1337	Prototype snapping path to road center for Prefer roads
TS-1307	GBOSS camera use blocked by removed Security Camera mode
TS-1306	Group IDs mismatching
TS-1305	C2 - ability to control your movement
TS-1295	Defend waypoint for single autopilot vehicles
TS-1294	UGV Defend waypoint can't be rotated in C2
TS-1289	Improve control & difficulty displays in VBS4
TS-1287	Defend behavior will try and park when it can't reach destination
TS-1286	UGV btset throws an error when Control Editor license is missing.
TS-1285	Fix particles in sandstorm
TS-1284	Mix of UGVs and Autopilot doesn't stay grouped properly on loading
TS-1277	Enable Sandstorm EO
TS-1275	Line-type formations based on point vehicle, not immediate leader
TS-1257	CAI Convoy does not identify rockets (and thrown stuff) as incoming fire
TS-1252	CTD when deleting leading vehicle in convoy (staggered column)
TS-1249	UGV Group DSA Overrides
TS-1248	Convoy Group DSA Overrides
TS-1247	Halt/Continue logic for Convoy waypoint and Convoy formation
TS-1245	GetExternalVariable lua function should be case insensitive
TS-1241	Convoy behavior error when following in formation.
TS-1240	Add spacing option to the UGV_Control waypoint

Issue key	Summary
TS-1239	Improve the formations in the UGV_Control behavior
TS-1238	Improve the formations in the Convoy Behavior
TS-1223	Messages in C2 Reports Panel are not persistant
TS-1221	Change current behavior option creates a new UGV control (move) waypoint instead
TS-1202	Create 'getVariable' command for Lua
TS-1200	Improve load time errors in decorators
TS-1195	Enumerate BTSets in Lua
TS-1191	Behavior tree node: Follow entity with offset
TS-1187	Create a script function to list all (applicable) named waypoints
TS-1184	Make sure the description of Control AI - Military EO shows up in all appropriate places
TS-1183	Add description parameter to Control AI - Military EO
TS-1150	ORBATAPI::GetSubordinates returns only a subset of units in group.
TS-1146	Node decorator - Restart If
TS-1140	SDK functions for autonomous vehicles
TS-1136	Show AI debugging based on object selection
TS-1128	Convoy driver individual changes to speed, spacing, halt/continue
TS-1120	Group removed when one member is revived
TS-1118	Add convoy halt/continue logic to UGV_Control convoy.
TS-1116	Implement Convoy move in formation behavior
TS-1115	Add 'Formation' drop-down to Convoy waypoint
TS-1114	Implement UGV move in formation behavior
TS-1113	Add Formation Drop-down to UGV_Control Waypoint
TS-1111	UGV Defend Behavior
TS-1110	Create UGV_Defend Waypoint
TS-1106	Assigning waypoint to single units creates a group and prevents further editing of that unit
TS-1102	CTD on close in SetHint()
TS-1095	Deleting follow behavior will not end it if its waypoint was previously opened
TS-1090	getMuzzlePoint is centered on gunner, not on the barrel of the tank's gun.

Issue key	Summary
TS-1058	Disabled Vehicles disappear from convoy
TS-1009	ABEH09 Secure Position - occasional fail
TS-744	Vec3 conversion to string is unhelpful in VBS4
TS-100	Optional properties of BT nodes should treat a nil result as being omitted
TN-1720	Freeze - during AAR upload
TN-1670	Waypoint information not shown in 3D view
TN-1669	Particles are not hot in AAR in TI mode
TN-1662	Unit symbols are disappearing in the briefing on leftclick
TN-1659	Battlespace.json is not updated with every save
TN-1657	ADF - Some symbols in Unit Symbol Configuration do not work
TN-1652	[VDT Implementation]- ADF - Custom unit symbology does not appear in AAR
TN-1651	Controls - Ability to map long press
TN-1649	Incorrect appearance of grenade trajectory lines in NVG
TN-1647	Copy / pasting grouped shapes is broken
TN-1639	SR-275 AAR optics mask GB L85 on SSARF and AJAX
TN-1637	Plan - Selecting an order via the Orders menu does not fully deselect the old shape
TN-1632	Ships do not follow MOVE waypoints in VBS4
TN-1631	AAR freeze at 20 minute mark
TN-1627	NV Goggles - horizon lightening
TN-1626	setWeaponMode Tweak to Support Throw & Put
TN-1625	RWS Laser Pointer beam disappears in certain angles/distances
TN-1620	3D billboard text rotates with the objective shape
TN-1618	Controls - Doubletap keys on joysticks/xbox controllers
TN-1617	Editor - select a group's waypoints when you select a group
TN-1616	Launcher halts when client doesn't receive message - remove the confirmation pop-up and report the fail at the end
TN-1578	CTD when exiting loophole
TN-1577	Broken POV of spectator in First Person Camera
TN-1575	Default Simulation settings should be changed for some values

Issue key	Summary
TN-1552	[Plan] Placing polygon in 3d view is broken
TN-1551	[Plan] It's not possible to navigate with keyboard while in drawing placement mode
TN-1547	PLAN - Resizing / reshaping an object causes the applied pattern to disappear.
TN-1546	PLAN - Boundary line tool - render text on surface option has no effect
TN-1493	Accessing menu prevents use of in-game chat (and admin hashtag commands)
TN-1486	PLAN - Render text on surface causes that the text is hidden below the object
TN-1450	CTD after re-plugging headphones
TN-1415	Display Humidity in the Atmospheric Parameter HUD
TN-1286	Workflows - UI - Training tab - Training mission image
TK-347	Grenade Launchers have a visible aiming line when the weapon is on back
TK-340	Groups created in editor using Shift+click are not grouped in the mission lobby
TK-339	Duplicated ammo crate if stolen while it is dragged by another soldier
TK-329	Soldier stuck in pose after carrying dead body
TK-328	Cannot drag a crate after your weapon is put on back
TK-311	Massive flood of AskForPilotOpticsMode outgoing messages
TK-148	GatewayUI partly hidden by MainMenuUI in VBS4 - engine part
TK-72	QA Night Vision is not visible in AAR for commanders of some vehicles
TK-62	Assertion '!m.Observer->IsLocal()'
TF-2047	VBS4 MP is sometimes stucked on loading screen
TF-2037	CTD when switching back to original Player Unit
TF-2033	30s peaks in old AI visibility checks
TF-2032	Massive flood of CreateWeaponFacade
TF-2026	No craters in AAR
TF-2023	DS CTD on VBS4 Master
TF-2022	Break Formation option disappears from RTE context menu
TF-2019	Big peaks in STE/VWS components
TF-2015	Dead ungrouped units are alive on a DS if a SC0 is connected
TF-2008	Proximity IEDs create unrealistic crater shapes
TF-2002	Buildings - collisions and different collision LOD than the visual one

Issue key	Summary
TF-2000	Stresstest - Array index out of range
TF-1999	CTD AIUnit::GetFormationAbsoluteFreeY()
TF-1995	CTD of Dedicated server while using vehicles with a lot of RTTs > CTD1
TF-1991	CTD while coming to full stop in Pitt DT terrain
TF-1989	CTD inside EntityAIFull::LeaderPathPilot
TF-1987	Crosshair is broken in some Leopard2 / PT-91
TF-1985	Hand gestures can not be seen on client VBS4 instance
TF-1982	DS CTD during 2kUnits perftest (A heap has been corrupted)
TF-1960	Massive peaks (stresstest) caused by missiles / locality checks
TF-1958	Deselecting vehicle in RTE causes tracks to disappear
TF-1954	Use Blue tech from VB-7933 to apply the footprints
TF-1947	Server CTD inside WeaponsState::TransferMsg when equipping grenade in STP1B inventory
TF-1944	VDT Implementation of No precipitation at high altitude battlespaces
TF-1943	Add console log file for DS when run without console window (eg as service on VWS)
TF-1937	Armed units are unable to swim in VBS4
TF-1925	Hitching/long frames in general VBS4 usage
TF-1921	Flood of UpdateMan and UpdatePositionMan
TF-1918	Time in OME incorrectly based on globe position
TF-1916	MEDEVAC helicopter gets destroyed after successful landing
TF-1914	Optimize craters and their heat marks
TF-1913	Backblast can damage unit with allowDamage false
TF-1912	Locality switch (EPENET) is causing vehicle to jump / stop
TF-1911	Assert - RoadLinkBuilder try to acces index out of the array
TF-1910	Assert - Data are added multiple times in Road Source plugin
TF-1908	Playtest - 13th Oct 2021 - Interminable freeze when mission was loaded
TF-1906	Bullets are recorded to AAR
TF-1905	DLSS 2.0 is integrated to VBS
TF-1902	All weather effects (hail, sleet, snow) have rain sounds

Issue key	Summary
TF-1900	Stresstest - Crash of DS, SC and of all clients in ObjGetWeaponState()
TF-1899	Deserialization of mission.handles sometimes fail because of waypoint count mismatch
TF-1896	Pressing I hides VBS4 HTML top bar as well / Camera XML Jumping in main menu
TF-1893	Petework - Grenade improvements - tweak physics
TF-1890	Vehicle thermal hotspots not functional
TF-1888	Shooting the ground has no effect
TF-1883	Map legend does not reposition correctly when window size changes
TF-1881	IEDs are randomly not rendered in VBS4
TF-1874	Playtest - 15th Sep 2021 - Top 10 Peaks
TF-1872	Fix a few thermal imaging bugs
TF-1846	Playtest - Peaks in simulation (batch #3)
TF-1845	Peaks Suspendable scripts to interrupt on blocking calls
TF-1843	Asynchronous object list creation
TF-1818	MP: Every other battlespace listed in a server config file is skipped
TF-1542	HMMWV can survive a drop from 20 meters and drive away
TF-1532	Amputated gibbs and limbs are causing peaks
T3S-2245	VBS Launcher issues when silent launching for the first time
T3S-2214	CAS Strafe Run - Weird flight behavior
T3S-2199	Utility Van Flipping When Braking
T3S-2101	Mikado Drone - Engine Off function is missing
T3S-1912	FRMOD - Small freeze when turning on & off the HHMD detector
T3S-1570	IG View Editor doesn't display views in multiple view groups
T3S-1567	freeCam rotation issue
T3S-1483	MWD dies when running into a vehicle
T3S-1221	engineBrakeCoef on complex gearboxes doesnt work
SDKS-2317	Marker Sample Improvement
IGP-6158	EnvironmentListenerAPI::OnCraterCreated provides invalid position for #crateronvehicle
IGP-6143	Implement EnvironmentAPI::GetTimeProgressionRate() in VBS3/4

Issue key	Summary
IGP-5964	1520 - Bridges do not show destroyed state after hit by HE on SPTA and Jedborough
IGP-5933	Support Geo Packages from VBS4 Workflow updates
IGP-5891	Support SDK extension messages in VBSExternalNetworking
IGP-5494	GB Navy Arctic 28 RHIB not visible when spawned over interop
FEP-773	[MM] Tags don't follow style guide
FEP-678	[MM] Clearing searched place does not clear place marker
FEP-676	[Plan] Unit text is not vertically aligned
FEP-669	[MM] Text of notification should be able to copied
FEP-663	[ng-library][Plan] User cannot save color with different opacity
FEP-662	[Plan] Setting small custom height on Tools panel hides some options
FEP-661	[Plan] Caret orientation in submenu is not consistent with top menu
FEP-660	[Plan] Drop-down menu arrows are visible through drop-down list
FEP-659	[Plan] Hard to find the Export button, misplaced
FEP-658	[Plan] Timeline buttons are missing tooltips
FEP-657	[Plan] Scrubber is placed before start of recording
FEP-655	[Plan] While reordering overlays, hamburger button icon is shown on map
FEP-654	[Plan] Unit symbol Object Properties displays wrong properties
FEP-653	[Plan] Marker type has symbols trimmed for Army, Army Group and Theatre
FEP-652	[Plan] Freedraw tool - Object properties are missing stroke setting
FEP-644	[MM] Add a last modified column to the MP battlespace selection screen
FEP-618	[MM] Remember IP and port in manual connection dialog
FEP-616	[MM] Disable markers visibility button while POI list is open
FEP-524	GatewayUI partly hidden by MainMenuUI in VBS4
CT-6147	Remove behavior signatures creation from Control Editor
CT-6131	Integrate VWS status panel by adding server status button in main menu opening the HTML window overlay
CT-6124	ADF: Scan Eagle orienting north once in the launcher.
CT-6105	Remove Behavior Tree Signatures
CT-6101	(SR-209) Support 1:50k Map Preset in C2

Issue key	Summary
CT-6097	Plan Symbol Library is broken
CT-6086	Troop Carrier - Rear gunner (unit) is not created on vehicle spawn
CT-6043	Rain sound starts earlier than the actual rain
CT-6031	Husky GPR UI can be seen in Menu after exiting mission
CT-6001	HUD for PUMA stays visible when a mission is aborted
CT-5960	Simple Legacy AI follow behavior
CT-5909	Create Hull-Turret indicator for UGVs / Tanks
CT-5907	Create WFOV hud for UGVs
CT-5846	Create DSA Editor panel
CT-5840	Create automatic dismissal of dialog manager notifications
CT-5839	Show notification when receiving ownership of AVs
CT-5737	Automatic Autopilot disable by key
CT-4349	Control AI - Doesn't Import All Waypoints Into C2
CONTENT-3117	Error message on Sahrani
CONTENT-3116	Building door and window frames missing or misaligned on Copehill buildings
CONTENT-3114	Husky - T-MDV, GPR - you can see through GPR at front
CONTENT-3112	No Ammunition on ANZAC boat - ILLUM and SMOKE WP
CONTENT-3111	SS-POL-50 - The holster for Sig Sauer P225 and holster for magazines is empty
CONTENT-3110	Patgb 360 Repair has broken towing
CONTENT-3108	Weird snow particles flying from tracks/wheels obstructing view
CONTENT-3097	Player exits vehicle on wrong side - follow up
CONTENT-3036	Female soldiers have male names
CONTENT-3035	AMCU Helmet, Gloves, Boots Rendering Issue
CONTENT-3033	Floods of vbs2\vehicles\land\tracked\vickers_fv4034\gb_fv4034\data\sound\cr2_trav.wss not in bank
CONTENT-3010	Grenade launchers - use scroll wheel to adjust leaf sights - content update
CONTENT-3000	View blocked by a blue square when using night vision optics in the M1A2
CONTENT-2987	Tanks are flipping front when gets destroyed
CONTENT-2905	Bv410 Ambulance - 'Animate object' visual issues

Issue key	Summary
CONTENT-2904	Wrong string name of Unit - Helmet instead of Beret
CONTENT-2895	CTD after going over the deployed bridge of Brobv120
CONTENT-2894	Tracks and wheels of tracked vehicles are spinning wrong way and speed
CONTENT-2863	CTD if you destroy crane while extending rope
CONTENT-2861	Anti-Personnel Mines don't produce a detonation sound
CONTENT-2837	Glass missing from JLTVs (AlphaBlend)
CONTENT-2827	Vehicles reversing from hill reach too high speed and RPM
CONTENT-2820	CTD of DS and SCs in PlaceEmptyMagazineOnGround
CONTENT-2775	Generic Independent Navy Sailor
CONTENT-2754	Grg m86's scope is obstructed by hand
CONTENT-2748	Ensure all UK weapons have TI materials set
CONTENT-2736	Boats in VBS4 do not show RPM
CONTENT-2729	IR Laser/Illuminator
CONTENT-2722	Il-76 and G17A tilt backwards, Assertion failed 'GWorld->GetMode() == GModeNetware' spam
CONTENT-2719	Harrier is currently doing 'Short Takeoff and Vertical Landing'
CONTENT-2586	CTD while opening AAR in AttachmentsNetworkRepresentation()
CONTENT-2559	Degradation to Maritime Platforms
CONTENT-2554	VBS4 soaktest - new CTD - VBS4_Diag.exe!gears::NetworkObjectToldHashMapTraits
CONTENT-2131	VBS4 has no footstep sounds
CONTENT-2001	MAG Aero Coast Guard - HC-130J
CONTENT-2000	MAG Aero Coast Guard - Large Fishing Vessel
CONTENT-1999	MAG Aero Coast Guard - Small Fishing Vessel
CONTENT-1982	Concertina wire and spike strips sometimes fall underground
CONTENT-1978	GPU solver pipeline fail
CONTENT-1968	AV UGV is missing texture in VBS4
CONTENT-1919	CTD of Dedicated server while using vehicles with a lot of RTTs > CTD2
CONTENT-1918	Closely placed cones - improve collision configuration for new PhysX
CONTENT-1917	Vehicles can drive underwater

Issue key	Summary
CONTENT-1902	Limited slip differential doesn't work correctly when the vehicle starts uphill
CONTENT-1874	DVS - Pacific 24 reverse speed too fast
CONTENT-1851	ADF Landing Craft - Mexeflote
CONTENT-1850	ADF Landing Craft - LHD Landing Craft (LLC)
CONTENT-1835	Attached MG's on second sim client view weirdly moving
CONTENT-1826	VBS4 does not report conflicts with requiredAddons[]
CONTENT-1807	Update Wildcat rotors to latest standard
CONTENT-1748	Implement surface moisture simulation for PhysX4 materials
CONTENT-1743	VWS and SC0 crash during an UGV and UAV use case mission (physX4)
CONTENT-1697	Rotor/Prop blurs broken by swap selections
CONTENT-1608	Number of wheels of Globemaster III are multiplied
CONTENT-1544	Rope can't be connected to static object
CONTENT-1375	SSR-527, 528, 529 - Archer's canon is moving during driving with gunner inside
CONTENT-1366	Personal Equipment Controls - When unit aims by rocket launchers, hands immersed into launcher obstruct view
CONTENT-1353	Vehicles behavior inconsistencies when driving uphill
CONTENT-1124	Add armbands to newer character models
AT-3038	VBSPitchRadio: Debug level messages are logged when using -vbsradio parameter
AT-3032	Several big peaks in Pitch radio feature check
AT-2989	User dies after diving in a submarine
AT-2987	VBSPitchRadio - Can't change audio input/output device during runtime
AT-2972	Control AI - Civilian menu - Threat Detection menu text is cut off
AT-2959	VBSPitchRadio: Update Pitch runtime with revised patch and check its impact on radio mission deployment
AT-2957	Blue - Switching from NVG to ACOG weapon optics leaves user blinded at night
AT-2954	VBSPitchRadio: Proper icons for communication types should be used in the HUD
AT-2953	VBSPitchRadio: Add visual indication of incoming traffic
AT-2934	VBSPitchRadio: Include settings file in the diagnostic dump
AT-2921	SPz Puma ABM/ HE Ammunition doesn't work correct
AT-2908	Radio - Radio UI left panel dimensions need adjusting in AAR

Issue key	Summary
AT-2905	Tracers are not visible in AAR (again)
AT-2899	VBSPitchRadio: Rewrite the HUD to a webpage
AT-2867	VBSPitchRadio: Default settings should be changed
AT-2866	VBSPitchRadio: Icon for direct talk and radio talk should be different in AAR
AT-2863	[Plan] Disappearing UI in Global settings
AT-2862	[MM] After filtering BS in mission selection screen, the UI should scroll up
AT-2855	VBSPitchRadio: Pack radio dump into a zip
AT-2848	Groups not properly displayed in MP lobby due to mission.sqm issue
AT-2847	VBSPitchRadio: Direct talk should be audible from a larger distance
AT-2846	VBSPitchRadio: State dump for reporting radio issues
AT-2822	Show IP and machine name
AT-2821	Disable globe movement in MP lobby
AT-2820	JIP into dead units
AT-2816	Fix flipped hazardous area strings
AT-2809	Static Objects don't animate in AAR
AT-2801	VBS4 editor object craters doubled after JIP
AT-2796	Triggers aren't visible in the HTML Unit List when added in OME and previewed
AT-2731	Radio's Gateway JAVA is not started when Battlespace name contains special characters
AT-2728	Crash when resizing window in AAR
AT-2727	Starting formation of any group is always wedge
AT-2681	Disable the BACK button in Lobby when -connect is used
AT-2620	defineCollisionVolume does not appear in VBS4

6. VBS4 Release Notes 21.1

Bohemia Interactive Simulations continues to actively develop VBS4 with customer-specific projects enhancing the baseline for all customers, plus internal initiatives to constantly improve and enhance the capabilities of VBS4, its components, and associated tools - all aimed at providing the ideal platform for your training needs.

Bohemia Interactive Simulations has released the following versions and updates for VBS4 21.1.

Version	Major Features
21.1.0	Internal release.
21.1.1	Early release for a specific customer.
21.1.2	General release for all customers.
21.1.3	Update for a Korean localization and issue resolutions.
21.1.4	Update to resolve specific customer issues.
21.1.5	Update to resolve specific customer issues.
21.1.6	Update to resolve specific customer issues.
21.1.7	Update to resolve specific customer issues.

VBS4 21.1.0 introduces the following new features:

- VBS4 includes a simple workflow for Singleplayer Training.
For more information, see [Singleplayer Training \(on page 274\)](#).
- VBS4 includes architectural and UI improvements to simplify the workflow for Multiplayer Training.
For more information, see [Multiplayer Workflow Improvements \(on page 275\)](#).
- VBS4 includes a new water editing mode in VBS Geo.
For more information, see [Water Editing \(on page 278\)](#).
- VBS4 includes new Viewport and Render Target Config Editor Objects that allow you to create complex camera scenes.
For more information, see [Viewport and Render Target Config Editor Objects \(on page 279\)](#).
- VBS4 supports Microsoft Bing™ Maps integration.
For more information, see [Microsoft Bing Maps Integration \(on page 280\)](#).
- VBS4 includes new Scenario Settings for puddles and snow coverage.
For more information, see [Puddles and Snow Coverage \(on page 281\)](#).

- Additional hazardous substances, equipment, and detection equipment for CBRN use cases.
For more information, see [CBRN Contamination \(on page 282\)](#).
- Bohemia Interactive Simulations has launched a Customer Portal to provide easy access to online materials such as manuals, tutorial videos, and to quickly raise support tickets.
For more information, see [BISim Customer Portal \(on page 283\)](#).

 **WARNING**

Changes to the Geopackage format in this release make Battlespaces created in VBS4 21.1.x backwards incompatible with VBS4 20.1.x.

Battlespaces created in VBS4 20.1.x require editing to restore Elevation and Surface edits for use in VBS4 21.1.x.

For more information, see [Updating VBS4 20.1.x Battlespaces to VBS4 21.1.x \(on page 41\)](#).

This VBS4 release also includes:

- [VBS Geo Improvements 21.1 \(on page 284\)](#)
- [VBS World Server Improvements 21.1 \(on page 287\)](#)
- [New Content in VBS4 21.1 \(on page 289\)](#)
- [Additional Enhancements \(on page 373\)](#)

VBS4 21.1 also resolves a number of issues. For more information, see:

- [Product Maintenance \(on page 381\)](#)

This release includes a number of [VBS4 Known Issues and Limitations \(on page 477\)](#).

6.1 Singleplayer Training

VBS4 includes a simple workflow to facilitate Singleplayer Training.

- Administrators can mark any Battlespace as Available for Singleplayer Training.
- Trainees are provided a Training Menu of the available Battlespaces.

With a single click, Trainees enter the Scenario as the primary player unit.

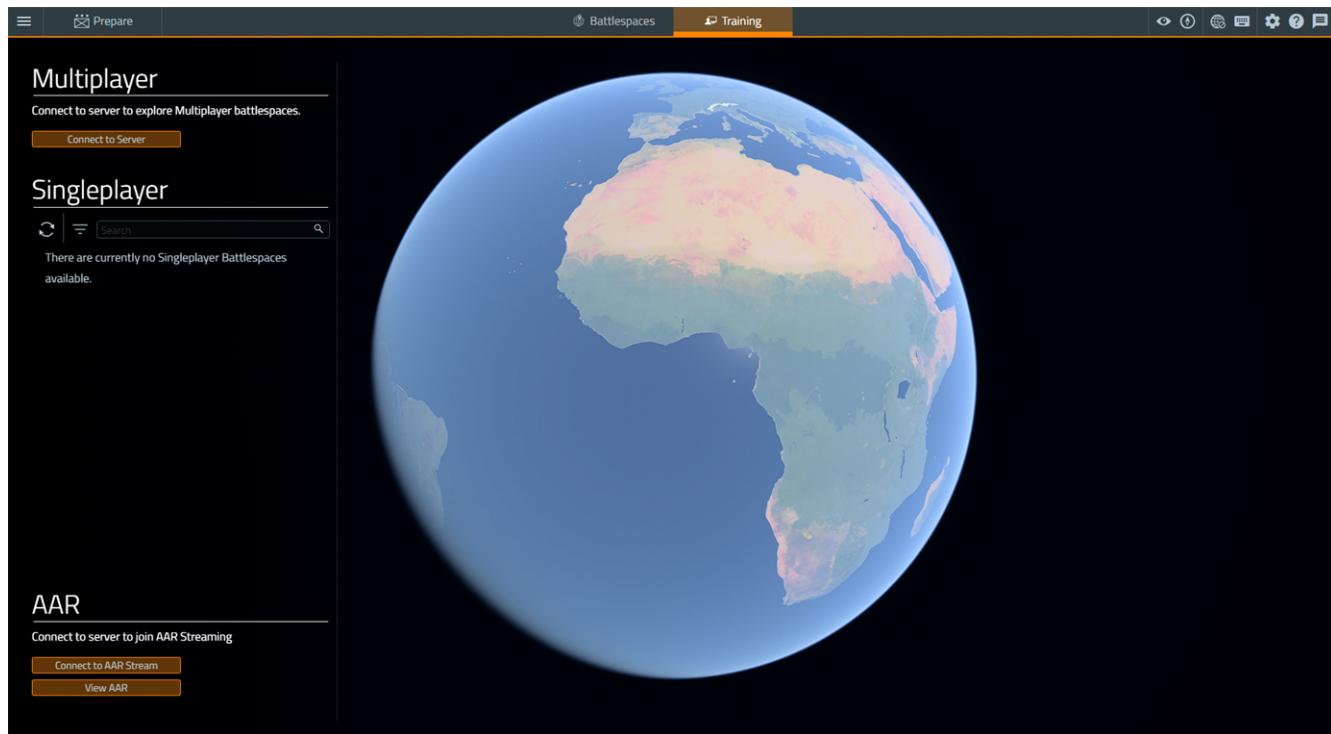
Trainees can access Battlespaces stored on the local VBS4 Client or from the VBS World Server when connected.

NOTE

When connected to VBS World Server, that version of the Battlespace automatically downloads and executes hosted on the VBS4 Client.

For more information, see:

- Create Battlespaces and Edit Battlespace Details in the Introduction to VBS4 Guide
- Single Player Training in the VBS4 Trainee Manual



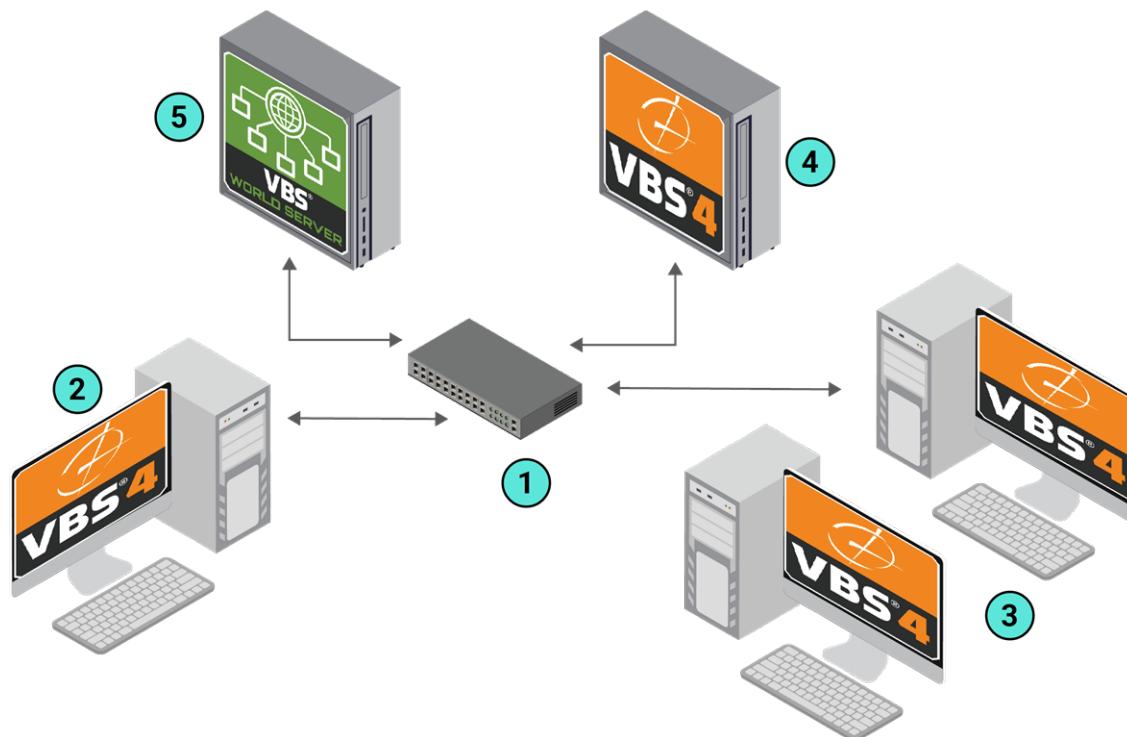
6.2 Multiplayer Workflow Improvements

VBS4 includes a number of architectural and UI improvements to make running Multiplayer Training Scenarios easier.

Separate VBS World Server and Dedicated Servers

In previous releases the VBS4 instance installed on the VBS World Server always hosted the Scenario for Online use cases. A separate Dedicated Server could only be used for Offline use cases without a connection to VBS World Server.

In this release, any Dedicated Server on the network can be used to host the Scenario for Online or Offline use cases. For Online use cases, the connected VBS World Server streams the base Whole-Earth Terrain and acts as a central repository of Battlespaces.



- | | | |
|---|------------------|---|
| 1 | VBS World Server | For Online use cases where VBS World Server acts as a central repository of Battlespaces and streams the Whole-Earth Terrain to all connected VBS4 Clients. |
|---|------------------|---|

NOTE

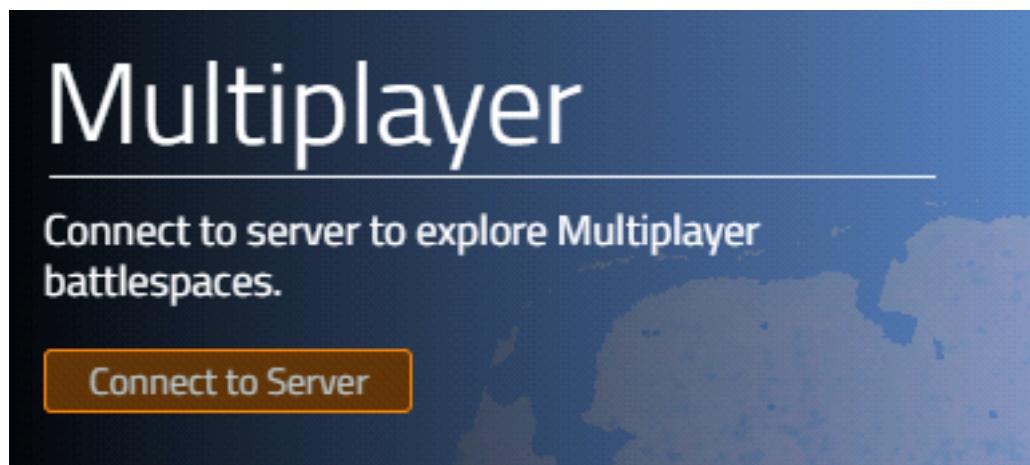
For Offline use cases, the VBS World Server is not required.

2	VBS4 Dedicated Servers	In typical use cases, a Dedicated Server is used to Host the Scenario Execution.
		<p>NOTE</p> <p>For less demanding Scenarios with smaller numbers of Trainees a VBS4 Admin Client can Locally Host the Scenario.</p>
3	VBS4 Admin Clients	Instructors use VBS4 with Admin privileges to start and manage the Scenario.
4	VBS4 Trainee Clients	Trainees use VBS4 without Admin privileges to participate in the Scenario.

Server Connection in the User Interface

For Multiplayer Training, the Administrator uses the Training Mode UI to select:

- The Dedicated Server to use to host the Scenario.
- The Battlespace to Execute from any that they have access to:
 - On a connected VBS World Server.
 - On their local VBS4 Admin Client.
 - On the selected Dedicated Server.



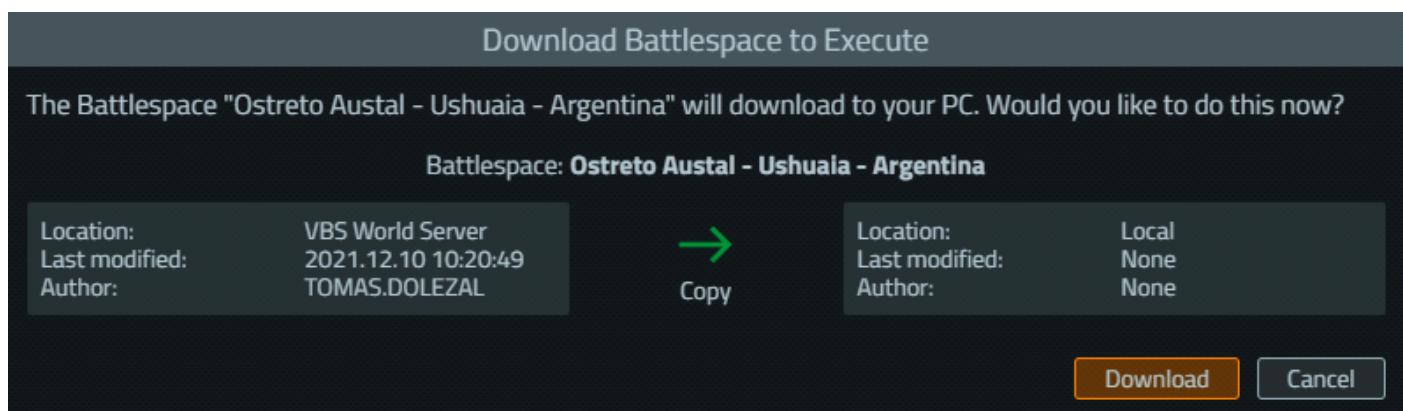
Automatic Battlespace Copying

To ensure a consistent experience across all users, VBS4 automatically copies the selected Battlespace to all participating VBS4 Clients.

When you Execute a Scenario, you select whether to use the version on the VBS World Server, the local VBS4 Admin Client, or the Dedicated Server. To ensure that all computers participating in the Scenario use the same version of the Battlespace, VBS4 automatically copies the selected version as follows:

- If the VBS World Server version is used, it downloads to the VBS4 Admin Client and uploads to the Dedicated Server, overwriting any versions on those computers.
- If the local VBS4 Admin Client version is used, it uploads to the Dedicated Server, overwriting that version. The VBS World Server version is not affected.
- If the Dedicated Server version is used, no overwriting occurs and the VBS World Server and VBS4 Admin Client versions are not affected.
- When VBS4 Trainee and Admins Clients join a running Scenario they download a temporary copy of the Battlespace from the Dedicated Server and any locally stored versions of the Battlespace are not affected.

Before Battlespaces are overwritten, a prompt appears with an option to cancel.



Simpler Hosted Workflow

For less demanding Scenarios, with fewer connected Trainees, the Administrator can Locally Host the Scenario on their VBS4 Admin Client.

Simply select the Battlespace and click **Host**, and then connect the VBS4 Trainee Clients to the VBS4 Admin Client.



Automatic AAR Download

To simplify the Assess workflow, AAR Recordings automatically download to the VBS4 Admin Client.

For more information about the Multiplayer Workflow, see in the Introduction to VBS4 Guide.

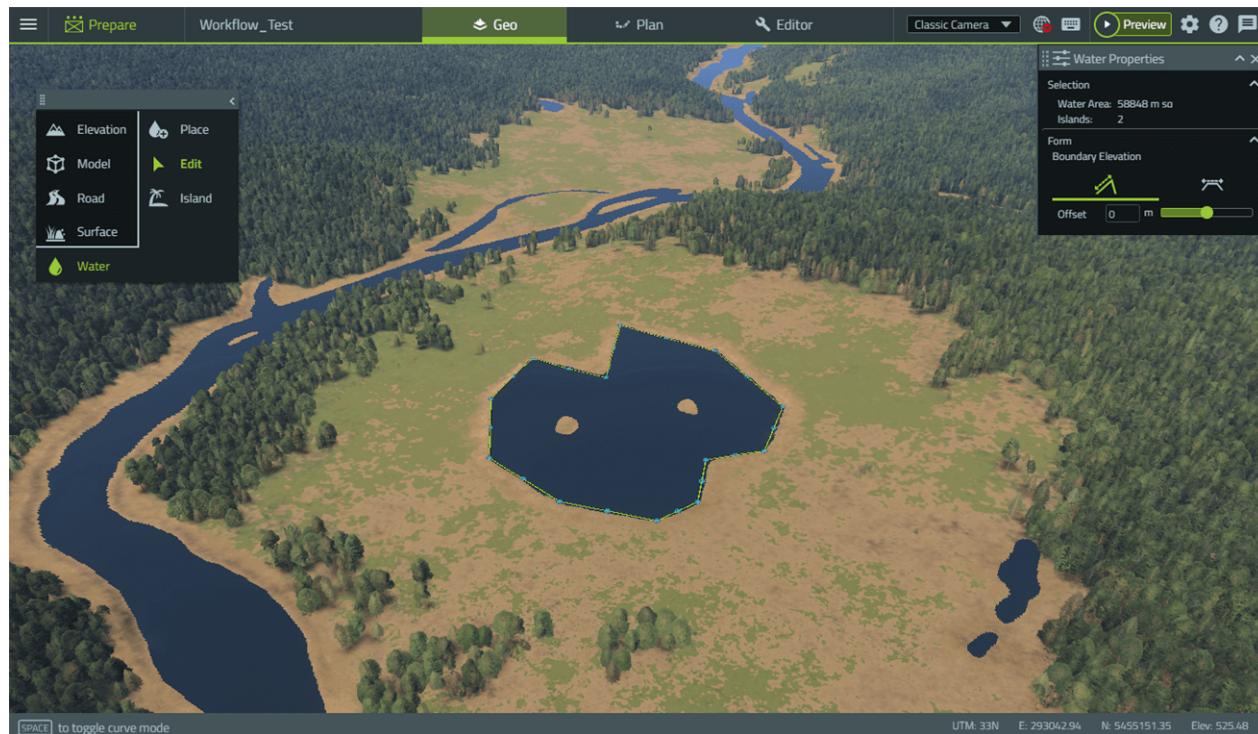
6.3 Water Editing

VBS Geo includes a new water editing feature for creating and editing inland bodies of water.

Use the Water Place tool to draw an area to cover with water and then optionally add Islands, edit the shape, and the water boundary elevation type.

VBS Geo creates water areas with a maximum depth of 10m and automatically adjusts the banks to fit the terrain.

For more information, see Placing and Editing Water in the VBS Geo Manual.

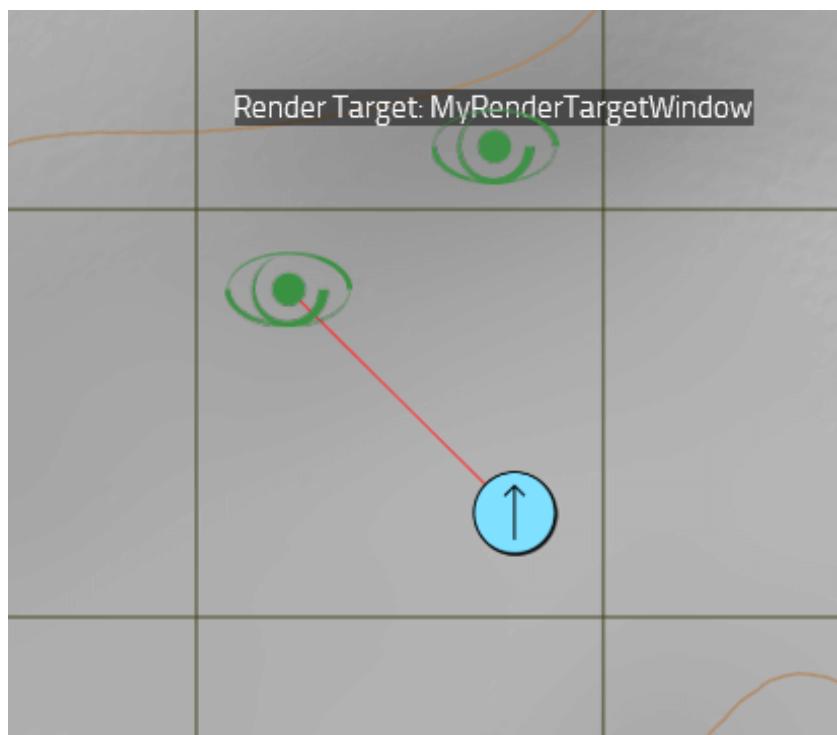


6.4 Viewport and Render Target Config Editor Objects

The Viewport and Render Target Config Editor Objects allow you to:

- Add a Viewport / Camera to a scene.
- Configure the Viewport / Camera and where it is rendered.
- Link the Viewport / Camera to other entities in the scene.
- Configure the Viewport / Camera and render target using XML files.

For more information, see Viewport Config and Render Target Config in the VBS4 Editor Manual.



6.5 Microsoft Bing Maps Integration

VBS4 can be integrated with Microsoft Bing™ Maps to stream terrain data in the 3D View, substituting the default procedural building models with higher-fidelity ones.

WARNING

The following considerations apply:

- In order to stream data from Microsoft Bing Maps, VBS4 requires internet access and a valid Bing Maps Key.
- Combining Microsoft Bing Maps and VBS World Server data is not supported.

TIP

You can find more information about existing and upcoming detailed Earth insets (such as cities) on the [Microsoft Bing Blogs](https://blogs.bing.com/maps?tagname=Bing%20Maps%20Imagery&groupid=9) (<https://blogs.bing.com/maps?tagname=Bing%20Maps%20Imagery&groupid=9>) website.

For more information, see Starting VBS4 with Microsoft Bing Maps in the VBS4 Administrator Manual.

Image-43: 3D View of Berlin, Germany



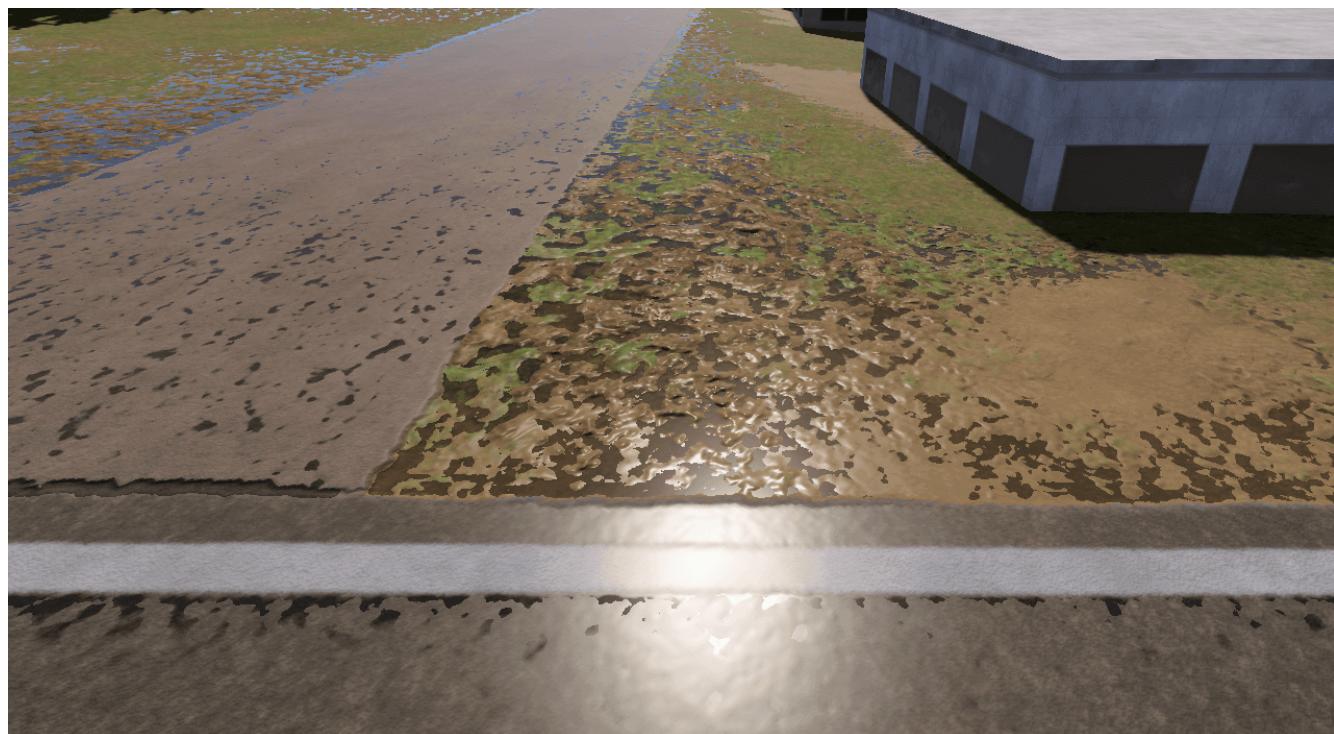
6.6 Puddles and Snow Coverage

The following new settings have been added to the Scenario Settings Object Properties dialog:

Setting	Description
Moisture	Increases / decreases the size and distribution of puddles.
Visualize Moisture	Enables / disables the rendering of puddles.
Snow Coverage	Increases / decreases the depth of snow coverage.

For more information, see in the VBS4 Editor Manual.

Image-44: Increased Moisture Scenario Setting in VBS4



6.7 CBRN Contamination

VBS4 includes new enhanced CBRN capabilities, with additional hazardous substances, a range of detection and decontamination equipment available for Trainees to use, and a new Hazardous Area Editor Object, which enables Administrators / Instructors to accurately define and configure contaminated areas on maps.

New hazardous substances include:

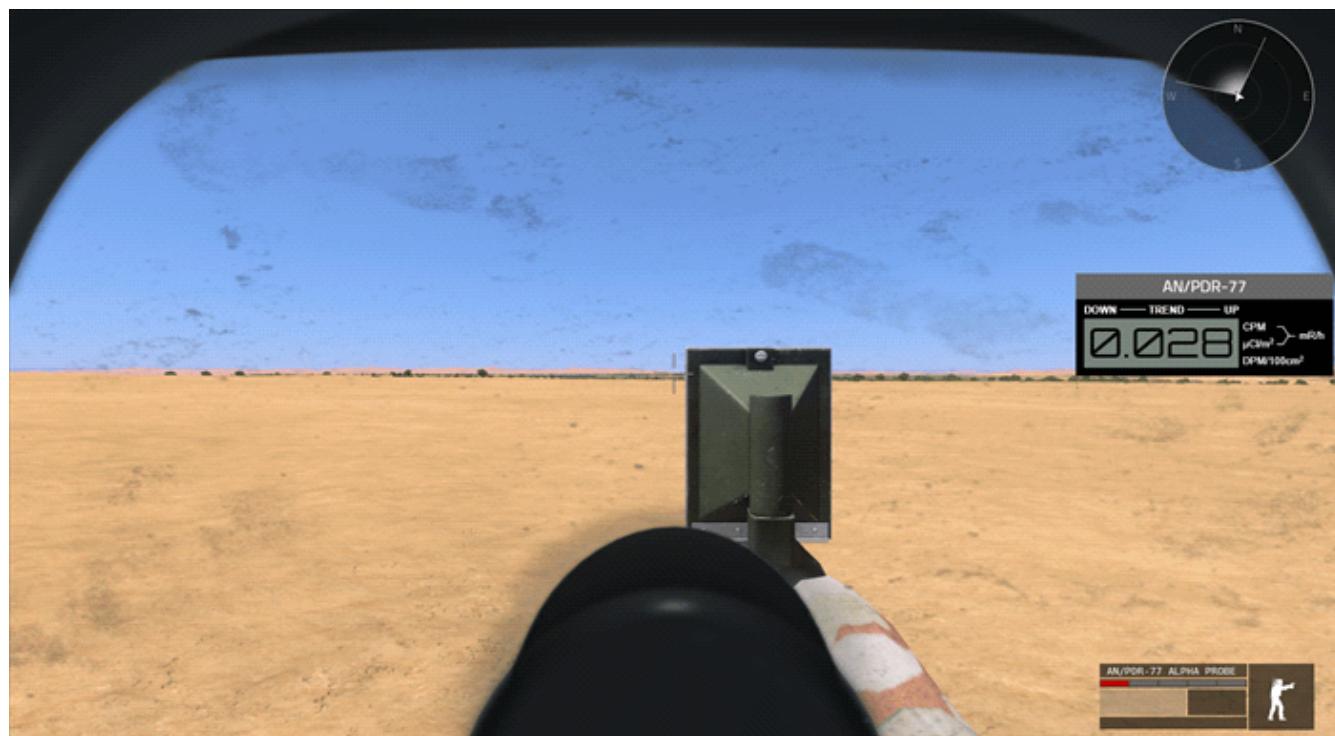
- Liquid Nerve Agent (LNA)
- Radioactivity

Available equipment includes the following:

- CBRN Area Marking Equipment
- CBRN Decontamination Equipment
- CBRN Detection Devices
- CBRN Forms
- CBRN Suits Crate
- M8 and M9 Detection Paper
- SCBA Mask

For more information, see in the Introduction to VBS4 Guide.

Image-45: AN / PDR-77 Radiation Detection Device



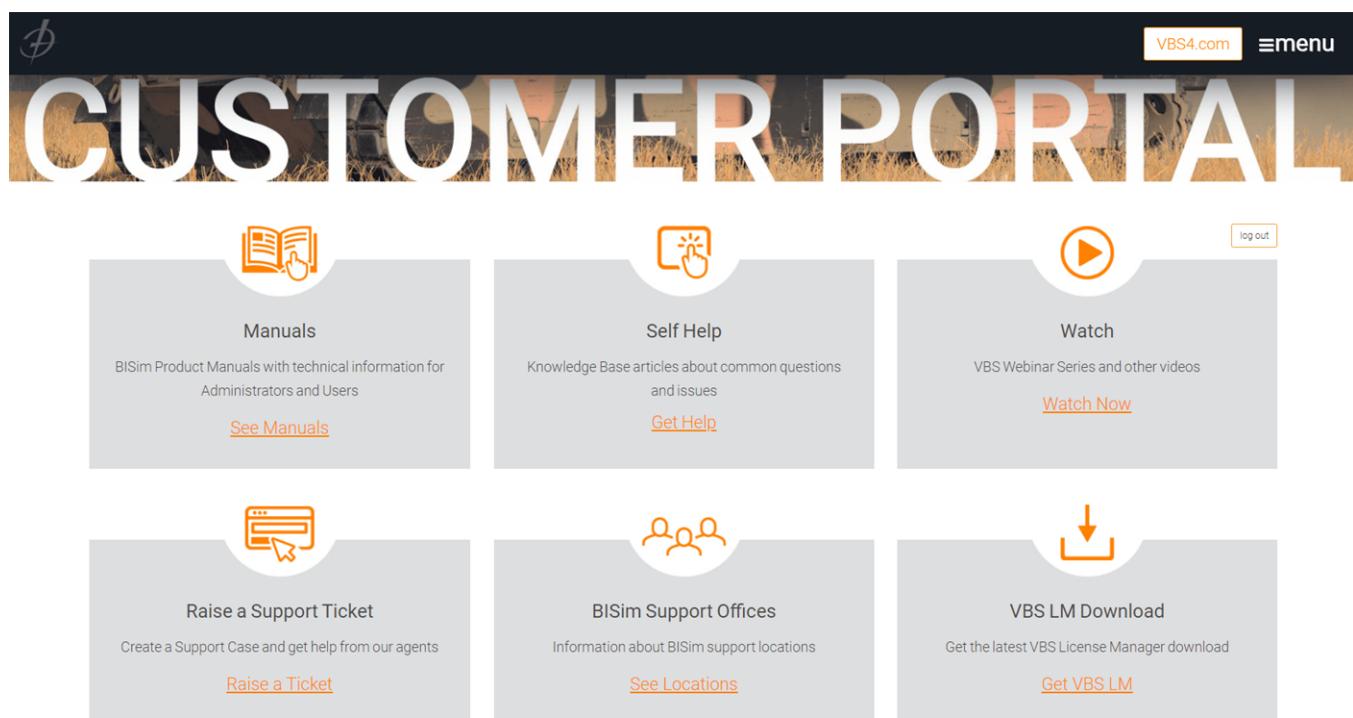
6.8 BISim Customer Portal

Bohemia Interactive Simulations has launched a new customer portal on its website, <https://bisimulations.com/support/customer-portal>, offering an enhanced support experience for our customers.

From the new, easy-to-use portal, customers can:

- Access the manuals for the full suite of Bohemia Interactive Simulations products
- Download the newest version of the VBS License Manager
- Read Knowledge Base articles
- View over 90 hours of webinars and video tutorials
- Request technical help from our experienced worldwide support team.

To sign up for the portal, simply go to <https://bisimulations.com/support/customer-portal>. All customers who have active Bohemia Interactive Simulations Support licenses in their organization can request a login and password to gain access to the portal.



6.9 VBS Geo Improvements 21.1

The following features and improvements have been introduced to VBS Geo as part of this release:

- [User Interface \(below\)](#)
- [Elevation \(on the next page\)](#)
- [Model Placement \(on the next page\)](#)
- [Roads \(on the next page\)](#)
- [Surface Editing \(on page 286\)](#)
- [Water Editing \(on page 286\)](#)
- [VBS4 Integration \(on page 286\)](#)

WARNING

Changes to the Geopackage format in this release make Battlespaces created in VBS4 21.1.x backwards incompatible with VBS4 20.1.x.

Battlespaces created in VBS4 20.1.x require editing to restore Elevation and Surface edits for use in VBS4 21.1.x.

For more information, see [Updating VBS4 20.1.x Battlespaces to VBS4 21.1.x \(on page 41\)](#).

6.9.1 User Interface

- Drop-down boxes now automatically scroll to the previously selected item to enhance ease of use.
- Priority loading for libraries has been added to significantly shorten the load time of the preview images based on the current selection or filter.
- Notification Dialogs have been added to warn users when the Geo Project file is locked during either save or load.
- Added status bar tooltip mouse-overs for hints to allow for better readability and user experience in smaller window sizes.
- Updated various status bar hints where the wording was incorrect or imprecise or reduced the number of hints shown for familiar shortcuts.
- Helper shapes of various Geo vector tools now follow water surfaces instead of going under it.
- Fixed various inconsistencies, undocking issues, and unpleasant transitions in various dialogs
- Fixed missing tooltips across the Geo interface.

6.9.2 Elevation

- Saving and Loading of elevation data has been changed to allow for faster saving and loading time as well as *time-to-execution*.
- Fixed rare or potential deadlocks that were caused by the loading of Geo elevation changes during execution startup.
- Context menus now correctly reflect the available and functional choices for the user.

6.9.3 Model Placement

- Support for merge, split, and invert has been added for line placement vectors.
- Ability to tweak models position / rotation / scale using the keyboard in Models - Point - Edit mode has been added.
- Ability to change elevation offset pre-placement of a model in Models - Point - Place mode has been added.
- Properties in Models - Point - Edit mode now always switch to *Absolute* values if the user selects a single model after multiple models have been selected.
- Context menus now correctly reflect the available and functional choices for the user.
- Fixed rare or potential deadlocks that were caused by the loading of Geo placed models during execution startup.
- Fixed a crash that would occur if a Geo project was opened and models that were part of groups were not part of the build.
- Scale limit of 10 should now be correctly applied through all user actions.
- Fixed an issue where copy pasted models did not keep their properties when added to the clipboard.

6.9.4 Roads

- Support for merge, split, and invert has been added for Road vectors.
- Context menus now correctly reflect the available and functional choices for the user.
- Fixed an issue where the user was not able start placing roads after finishing the previous one in Road - Place mode.
- Fixed a duplicated road creation when the user auto-generated a crossroads by overlapping a new road over an existing one in either global or inset data.
- Fixed an issue where road placement could sometime be enabled in the Editor.
- Fixed an issue where the road style placed did not match the one selected in the road library.

6.9.5 Surface Editing

- Saving and Loading of surface data has been changed to allow for faster saving and loading time as well as *time-to-execution*.
- Surfaces are now editable around any water area.
- Context menus now correctly reflect the available and functional choices for the user.

6.9.6 Water Editing

- New water editing mode has been added to VBS Geo. This tool can be used to add new or edit existing lakes and rivers.

For more information, see Placing and Editing Water in the VBS Geo Manual.

6.9.7 VBS4 Integration

- The VBS Geo project version has been introduced to the header of the `.gpkg` file containing version of the project and version of the GeoCore that saved it.
- VBS Geo now logs its output to the `\Log\Geo.log` file in the VBS4 installation folder.
- VBS Geo projects from version 20.1 are backed up in their original form into `\Documents\Geo\` folder when saving to the newer version.

For more information, see [Geo Project Versioning \(on page 38\)](#).

- VBS Geo projects are always saved in the as `geoproject.gpkg` in:
`\Documents\Battlespaces\Battlespace_Name\`

Older project Geopackages are renamed automatically on load / save.

6.10 VBS World Server Improvements 21.1

VBS World Server 21.1 contains the following improvements:

- [Battlespaces and Battlespace Management \(below\)](#)
- [Data Import \(below\)](#)
- [Data Removal \(below\)](#)
- [Terrain Conversion Tool \(on the next page\)](#)
- [Terrain Insets \(on the next page\)](#)
- [VBS World Server Management \(on the next page\)](#)
- [World Data \(on the next page\)](#)

6.10.1 Battlespaces and Battlespace Management

- A bug was fixed which caused Battlespace uploads and downloads to sometimes fail.
- The folder size limit for downloading Battlespaces from the server to the client was raised to 7 GB. Battlespaces will download properly to the client up to this limit.
- Several training and demonstration Battlespaces have been added to the VBS World Server, which can be accessed and managed by VBS4 clients connected to the VBS World Server. These samples can be found in the `\Installation\Data\Battlespaces` folder.

For more information on these Battlespaces, see the following topics:

- [Training Battlespace](#)
- [VBS Use Cases Documentation](#)

6.10.2 Data Import

- A bug was fixed that prevented color-paletted surface mask data (generated by TerraSim's MaterialMAP™) from being properly displayed when imported to the VBS World Server.

6.10.3 Data Removal

- A bug was fixed with the Data Removal process which prevented layers with spaces in their file name from being properly deleted. These layers can now be removed from the VBS World Server using the Data Layer Management tool.

6.10.4 Terrain Conversion Tool

- Terrains with 25 characters or more will now have their name truncated with an underscore (previously was a tilde).
- An issue was fixed that caused some models to not receive proper light configurations in VBS4 after the Terrain Conversion process.
- An issue was fixed that caused instability with the connection to the VBS World Server from the VBS3 Terrain Conversion Tool interface.
- An issue was fixed that caused extracted phototexture data to be improperly named during the conversion process for multimap terrains.

6.10.5 Terrain Insets

- The streetlights in the Hohenfels terrain inset were improved so that ground features and surfaces are more realistically illuminated at night.
- Airfield lighting has been added to the San Francisco International Airport (SFO), including all real-world taxiway, runway, and approach lights. This lighting is visible throughout the day and follows all FAA specifications.

6.10.6 VBS World Server Management

- Input source files and their output SQLite files are no longer deleted from the temporary file folder after Data Import or running the VBS3 to VBS4 Terrain Conversion Tool. These files can be found in the following folder:

`\Installation\data\Sandbox\PDrive\VWS_temp\`

6.10.7 World Data

- User-imported buildings and roads data added using Data Import or the VBS3 to VBS4 Terrain Conversion Tool automatically override any underlying World Data of the same type.

6.11 New Content in VBS4 21.1

VBS4 21.1 includes the following new content:

Name	Type / Category	Classname
AW139	Vehicle Generic Civilian Air	vbs_xx_civ_aw139_wht_x
Caracal	Vehicle FR Army Air - Woodland	vbs_fr_army_ec725_gry_x vbs_fr_army_ec725_gry_gpmg_x
Gazelle	Vehicle FR Army Air - Woodland	vbs_fr_army_air_sa341_wdl_x
Fennec	Vehicle FR Army Air - Woodland	vbs_fr_army_fennec_wdl_x
MH-60T Jayhawk	Vehicle US Coast Guard Air	vbs_us_cg_mh60_red_x
MH-65D Dolphin	Vehicle US Coast Guard Air	vbs_us_coastguard_mh60_red_x
PUMA IFV	Vehicle DE Army Tracked - Desert - Woodland	vbs_de_army_puma_des_x vbs_de_army_puma_wdl_x
M1A1 AIM	Vehicle AU Army Tracked - Woodland	vbs_au_army_m1a1_aim_wdl_x
Aladin	Vehicle Unmanned Vehicles	vbs_de_army_aladin_wht_x
Mikado	Vehicle Unmanned Vehicles	vbs_emt_mikado_wht_x

Name	Type / Category	Classname
Yamaha Grizzly 450 ATV	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_grizzly450_tan_x vbs_gb_army_grizzly450_grn_x
Landrover Wolf TUM	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_landrover_wolf_tum_ffr_tan_x vbs_gb_army_landrover_wolf_tum_ffr_grn_x vbs2_gb_army_landrover_wolf_110_d_hardtop_bowman_x vbs2_gb_army_landrover_wolf_110_d_softtop_bowman_x vbs2_gb_army_landrover_wolf_110_w_hardtop_bowman_x vbs2_gb_army_landrover_wolf_110_w_softtop_bowman_x
Scimitar 2	Vehicle GB Army Tracked - Desert - Woodland	vbs_gb_army_fv107mk2_tan_x vbs_gb_army_fv107mk2_grn_x
Queen Elizabeth Class	Vehicle GB Royal Navy Watercraft	vbs_gb_navy_queenelizabeth_gry_x
Hawk T.2	Vehicle GB RAF Air	vbs_gb_af_hawk128_blk_aim9_x
Voyager KC.3	Vehicle GB RAF Air	vbs_gb_af_kc3_gry_x
MiG-29SMT	Vehicle RU AF Air	vbs_ru_af_mig29smt_spl_aa11_as20_x
E-2D Hawkeye	Vehicle US Navy Air	vbs_us_navy_e2d_hawkeye_gry_x
Bell B-206 Jet Ranger	Vehicle Generic Civilian Air	vbs_xx_civ_b206_wht_x
Sikorsky S-76C	Vehicle Generic Civilian Air	vbs_xx_civ_s76_wht_x
Sikorsky S-92	Vehicle Generic Civilian Air	vbs_xx_civ_s92_wht_x

Name	Type / Category	Classname
Jackal 2	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_hmt_jackal2_tan_gmg_x vbs_gb_army_hmt_jackal2_tan_l7a1_x vbs_gb_army_hmt_jackal2_grn_gmg_x vbs_gb_army_hmt_jackal2_grn_l7a1_x
Coyote	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_hmt_coyote_tan_gmg_x vbs_gb_army_hmt_coyote_tan_l7a1_x vbs_gb_army_hmt_coyote_grn_gmg_x vbs_gb_army_hmt_coyote_grn_l7a1_x
Ridgback	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_ridgback_tan_l134a1_x vbs_gb_army_ridgback_tan_l2a1_x vbs_gb_army_ridgback_tan_l2a1_hwti_x vbs_gb_army_ridgback_tan_l7a2_x vbs_gb_army_ridgback_bfa_tan_l134a1_x vbs_gb_army_ridgback_bfa_tan_l2a1_x vbs_gb_army_ridgback_bfa_tan_l2a1_hwti_x vbs_gb_army_ridgback_bfa_tan_l7a2_x vbs_gb_army_ridgback_cv_tan_rws_l134a1_x vbs_gb_army_ridgback_cv_tan_rws_l2a1_x vbs_gb_army_ridgback_cv_tan_rws_l7a2_x vbs_gb_army_ridgback_grn_l134a1_x vbs_gb_army_ridgback_grn_l2a1_x vbs_gb_army_ridgback_grn_l2a1_hwti_x vbs_gb_army_ridgback_grn_l7a2_x vbs_gb_army_ridgback_bfa_grn_l134a1_x vbs_gb_army_ridgback_bfa_grn_l2a1_x vbs_gb_army_ridgback_bfa_grn_l2a1_hwti_x vbs_gb_army_ridgback_bfa_grn_l7a2_x vbs_gb_army_ridgback_cv_grn_rws_l134a1_x vbs_gb_army_ridgback_cv_grn_rws_l2a1_x vbs_gb_army_ridgback_cv_grn_rws_l7a2_x

Name	Type / Category	Classname
Mastiff	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_mastiff2_bfa_tan_l134a1_x vbs_gb_army_mastiff2_bfa_tan_l2a1_x vbs_gb_army_mastiff2_bfa_tan_l2a1_hwti_x vbs_gb_army_mastiff2_bfa_tan_l7a2_x vbs_gb_army_mastiff3_tan_l134a1_x vbs_gb_army_mastiff3_tan_l2a1_x vbs_gb_army_mastiff3_tan_l2a1_hwti_x vbs_gb_army_mastiff3_tan_l7a2_x vbs_gb_army_mastiff2_eod_tan_rws_l134a1_x vbs_gb_army_mastiff2_eod_tan_rws_l2a1_x vbs_gb_army_mastiff2_eod_tan_rws_l7a2_x vbs_gb_army_mastiff2_bfa_grn_l134a1_x vbs_gb_army_mastiff2_bfa_grn_l2a1_x vbs_gb_army_mastiff2_bfa_grn_l2a1_hwti_x vbs_gb_army_mastiff2_bfa_grn_l7a2_x vbs_gb_army_mastiff3_grn_l134a1_x vbs_gb_army_mastiff3_grn_l2a1_x vbs_gb_army_mastiff3_grn_l2a1_hwti_x vbs_gb_army_mastiff3_grn_l7a2_x vbs_gb_army_mastiff2_eod_grn_rws_l134a1_x vbs_gb_army_mastiff2_eod_grn_rws_l2a1_x vbs_gb_army_mastiff2_eod_grn_rws_l7a2_x
Wolfhound	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_wolfhound_tsv_tan_l134a1_x vbs_gb_army_wolfhound_tsv_tan_l2a1_x vbs_gb_army_wolfhound_tsv_tan_l2a1_hwti_x vbs_gb_army_wolfhound_tsv_tan_l7a2_x vbs_gb_army_wolfhound_tsv_grn_l134a1_x vbs_gb_army_wolfhound_tsv_grn_l2a1_x vbs_gb_army_wolfhound_tsv_grn_l2a1_hwti_x vbs_gb_army_wolfhound_tsv_grn_l7a2_x
M915 Tractor Unit	Vehicle US Army Wheeled - Desert - Woodland	vbs2_us_army_m915_d_x vbs2_us_army_m915_w_x

Name	Type / Category	Classname
M1000 HET Trailer	Object US Army Wheeled - Desert - Woodland	vbs_us_army_m1000_het_tan_x vbs_us_army_m1000_het_wdl_x
Aeryon Skyranger	Vehicle Unmanned Vehicle	vbs_aeryon_skyranger_x
Runway Caravan	Vehicle GB RAF Wheeled - Woodland	vbs_gb_raf_eurocargo_runwayvan_red_x
Fuel Bowser	Vehicle GB RAF Wheeled - Woodland	vbs_gb_raf_tga_bowser_ylw_x
F-35B Lightning II	Vehicle GB RAF Air	vbs_gb_af_f35b_gry_gau22_x
Terrier	Vehicle GB Army Tracked - Desert - Woodland	vbs_gb_army_terrier_tan_x vbs_gb_army_terrier_twmp_tan_x vbs_gb_army_terrier_grn_x vbs_gb_army_terrier_twmp_grn_x
Athena	Vehicle GB Army Tracked - Desert - Woodland	vbs_gb_army_athena_tan_rws_L134a1_x vbs_gb_army_athena_tan_rws_L2a1_x vbs_gb_army_athena_tan_rws_L7a2_x vbs_gb_army_athena_grn_rws_L134a1_x vbs_gb_army_athena_grn_rws_L2a1_x vbs_gb_army_athena_grn_rws_L7a2_x
20T 8x8 LHD, IMMLC, ABLE	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_able_tan_x vbs_gb_army_able_uparmor_tan_x vbs_gb_army_able_grn_x vbs_gb_army_able_uparmor_grn_x
20T 8x8 LHD, IMMLC, BV	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_bv_tan_x vbs_gb_army_bv_uparmor_tan_x vbs_gb_army_bv_grn_x vbs_gb_army_bv_uparmor_grn_x

Name	Type / Category	Classname
20T 8x8 LHD, IMMLC, TBT	Vehicle GB Army Tracked - Desert - Woodland	vbs_gb_army_tbt_tan_x vbs_gb_army_tbt_tan_no10bridge_x vbs_gb_army_tbt_tan_no12bridge_x vbs_gb_army_tbt_grn_x vbs_gb_army_tbt_grn_no10bridge_x vbs_gb_army_tbt_grn_no12bridge_x
SV, Recovery, IMM, 8x8	Vehicle GB Army Wheeled - Desert - Woodland	vbs_gb_army_sx45_rv_tan_x vbs_gb_army_sx45_rv_uparmor_tan_x vbs_gb_army_sx45_rv_grn_x vbs_gb_army_sx45_rv_uparmor_grn_x

Name	Type / Category	Classname
SV Cargo Light, 6T, MM, 4x4	Vehicle	vbs_gb_army_hx_6t_grn_x
	GB Army Wheeled	vbs_gb_army_hx_6t_crane_grn_x
	- Desert	vbs_gb_army_hx_6t_cargo_grn_x
	- Woodland	vbs_gb_army_hx_6t_cargo_crane_grn_x
		vbs_gb_army_hx_6t_troop_carrier_grn_x
		vbs_gb_army_hx_6t_troop_carrier_crane_grn_x
		vbs_gb_army_hx_6t_tan_x
		vbs_gb_army_hx_6t_crane_tan_x
		vbs_gb_army_hx_6t_cargo_tan_x
		vbs_gb_army_hx_6t_cargo_crane_tan_x
		vbs_gb_army_hx_6t_troop_carrier_tan_x
		vbs_gb_army_hx_6t_troop_carrier_crane_tan_x
		vbs_gb_army_hx_6t_uparmored_grn_x
		vbs_gb_army_hx_6t_uparmored_crane_grn_x
		vbs_gb_army_hx_6t_uparmored_cargo_grn_x
		vbs_gb_army_hx_6t_uparmored_cargo_crane_grn_x
		vbs_gb_army_hx_6t_uparmored_troop_carrier_grn_x
		vbs_gb_army_hx_6t_uparmored_troop_carrier_crane_grn_x
		vbs_gb_army_hx_6t_uparmored_tan_x
		vbs_gb_army_hx_6t_uparmored_crane_tan_x
		vbs_gb_army_hx_6t_uparmored_cargo_tan_x
		vbs_gb_army_hx_6t_uparmored_cargo_crane_tan_x
		vbs_gb_army_hx_6t_uparmored_troop_carrier_tan_x
		vbs_gb_army_hx_6t_uparmored_troop_carrier_crane_tan_x
		vbs_gb_army_hx_6t_epba_grn_x
		vbs_gb_army_hx_6t_epba_crane_grn_x
		vbs_gb_army_hx_6t_epba_cargo_grn_x
		vbs_gb_army_hx_6t_epba_cargo_crane_grn_x
		vbs_gb_army_hx_6t_epba_troop_carrier_grn_x
		vbs_gb_army_hx_6t_epba_troop_carrier_crane_grn_x
		vbs_gb_army_hx_6t_epba_tan_x
		vbs_gb_army_hx_6t_epba_crane_tan_x
		vbs_gb_army_hx_6t_epba_cargo_tan_x

Name	Type / Category	Classname
		vbs_gb_army_hx_6t_epba_cargo_crane_tan_x vbs_gb_army_hx_6t_epba_troop_carrier_tan_x vbs_gb_army_hx_6t_epba_troop_carrier_crane_tan_x

Name	Type / Category	Classname
SV Cargo Medium, 9T, MM, 6x6	Vehicle	vbs_gb_army_hx_9t_grn_x
	GB Army Wheeled	vbs_gb_army_hx_9t_crane_grn_x
	- Desert	vbs_gb_army_hx_9t_cargo_grn_x
	- Woodland	vbs_gb_army_hx_9t_cargo_crane_grn_x
		vbs_gb_army_hx_9t_troop_carrier_grn_x
		vbs_gb_army_hx_9t_troop_carrier_crane_grn_x
		vbs_gb_army_hx_9t_tan_x
		vbs_gb_army_hx_9t_crane_tan_x
		vbs_gb_army_hx_9t_cargo_tan_x
		vbs_gb_army_hx_9t_cargo_crane_tan_x
		vbs_gb_army_hx_9t_troop_carrier_tan_x
		vbs_gb_army_hx_9t_troop_carrier_crane_tan_x
		vbs_gb_army_hx_9t_uparmored_grn_x
		vbs_gb_army_hx_9t_uparmored_crane_grn_x
		vbs_gb_army_hx_9t_uparmored_cargo_grn_x
		vbs_gb_army_hx_9t_uparmored_cargo_crane_grn_x
		vbs_gb_army_hx_9t_uparmored_troop_carrier_grn_x
		vbs_gb_army_hx_9t_uparmored_troop_carrier_crane_grn_x
		vbs_gb_army_hx_9t_uparmored_tan_x
		vbs_gb_army_hx_9t_uparmored_crane_tan_x
		vbs_gb_army_hx_9t_uparmored_cargo_tan_x
		vbs_gb_army_hx_9t_uparmored_cargo_crane_tan_x
		vbs_gb_army_hx_9t_uparmored_troop_carrier_tan_x
		vbs_gb_army_hx_9t_uparmored_troop_carrier_crane_tan_x
		vbs_gb_army_hx_9t_epba_grn_x
		vbs_gb_army_hx_9t_epba_crane_grn_x
		vbs_gb_army_hx_9t_epba_cargo_grn_x
		vbs_gb_army_hx_9t_epba_cargo_crane_grn_x
		vbs_gb_army_hx_9t_epba_troop_carrier_grn_x
		vbs_gb_army_hx_9t_epba_troop_carrier_crane_grn_x
		vbs_gb_army_hx_9t_epba_tan_x
		vbs_gb_army_hx_9t_epba_crane_tan_x
		vbs_gb_army_hx_9t_epba_cargo_tan_x

Name	Type / Category	Classname
		vbs_gb_army_hx_9t_epba_cargo_crane_tan_x
		vbs_gb_army_hx_9t_epba_troop_carrier_tan_x
		vbs_gb_army_hx_9t_epba_troop_carrier_crane_tan_x

Name	Type / Category	Classname
SV Cargo Medium, 9T, IMM, 6x6	Vehicle	vbs_gb_army_hx_9t_imm_grn_x
	GB Army Wheeled	vbs_gb_army_hx_9t_imm_crane_grn_x
	- Desert	vbs_gb_army_hx_9t_imm_cargo_grn_x
	- Woodland	vbs_gb_army_hx_9t_imm_cargo_crane_grn_x
		vbs_gb_army_hx_9t_imm_troop_carrier_grn_x
		vbs_gb_army_hx_9t_imm_troop_carrier_crane_grn_x
		vbs_gb_army_hx_9t_imm_tan_x
		vbs_gb_army_hx_9t_imm_crane_tan_x
		vbs_gb_army_hx_9t_imm_cargo_tan_x
		vbs_gb_army_hx_9t_imm_cargo_crane_tan_x
		vbs_gb_army_hx_9t_imm_troop_carrier_tan_x
		vbs_gb_army_hx_9t_imm_troop_carrier_crane_tan_x
		vbs_gb_army_hx_9t_imm_uparmored_grn_x
		vbs_gb_army_hx_9t_imm_uparmored_crane_grn_x
		vbs_gb_army_hx_9t_imm_uparmored_cargo_grn_x
		vbs_gb_army_hx_9t_imm_uparmored_cargo_crane_grn_x
		vbs_gb_army_hx_9t_imm_uparmored_troop_carrier_grn_x
		vbs_gb_army_hx_9t_imm_uparmored_troop_carrier_crane_grn_x
		vbs_gb_army_hx_9t_imm_uparmored_tan_x
		vbs_gb_army_hx_9t_imm_uparmored_crane_tan_x
		vbs_gb_army_hx_9t_imm_uparmored_cargo_tan_x
		vbs_gb_army_hx_9t_imm_uparmored_cargo_crane_tan_x
		vbs_gb_army_hx_9t_imm_uparmored_troop_carrier_tan_x
		vbs_gb_army_hx_9t_imm_uparmored_troop_carrier_crane_tan_x
		vbs_gb_army_hx_9t_imm_epba_grn_x
		vbs_gb_army_hx_9t_imm_epba_crane_grn_x
		vbs_gb_army_hx_9t_imm_epba_cargo_grn_x
		vbs_gb_army_hx_9t_imm_epba_cargo_crane_grn_x

Name	Type / Category	Classname
		vbs_gb_army_hx_9t_imm_epba_troop_carrier_grn_x
		vbs_gb_army_hx_9t_imm_epba_troop_carrier_crane_grn_x
		vbs_gb_army_hx_9t_imm_epba_tan_x
		vbs_gb_army_hx_9t_ust_grn_x
		vbs_gb_army_hx_9t_ust_uparmored_grn_x
		vbs_gb_army_hx_9t_ust_uparmored_epba_grn_x
		vbs_gb_army_hx_9t_ust_tan_x
		vbs_gb_army_hx_9t_ust_uparmored_tan_x
		vbs_gb_army_hx_9t_ust_uparmored_epba_tan_x
		vbs_gb_army_hx_9t_imm_ust_grn_x
		vbs_gb_army_hx_9t_imm_ust_uparmored_grn_x
		vbs_gb_army_hx_9t_imm_ust_uparmored_epba_grn_x
		vbs_gb_army_hx_9t_imm_ust_tan_x
		vbs_gb_army_hx_9t_imm_ust_uparmored_tan_x
		vbs_gb_army_hx_9t_imm_ust_uparmored_epba_tan_x

Name	Type / Category	Classname
SV Cargo Heavy, 15T, MM, 8x8	Vehicle	vbs_gb_army_hx_15t_grn_x
	GB Army Wheeled	vbs_gb_army_hx_15t_crane_grn_x
	- Desert	vbs_gb_army_hx_15t_cargo_grn_x
	- Woodland	vbs_gb_army_hx_15t_cargo_crane_grn_x
		vbs_gb_army_hx_15t_tan_x
		vbs_gb_army_hx_15t_crane_tan_x
		vbs_gb_army_hx_15t_cargo_tan_x
		vbs_gb_army_hx_15t_cargo_crane_tan_x
		vbs_gb_army_hx_15t_uparmored_grn_x
		vbs_gb_army_hx_15t_uparmored_crane_grn_x
		vbs_gb_army_hx_15t_uparmored_cargo_grn_x
		vbs_gb_army_hx_15t_uparmored_cargo_crane_grn_x
		vbs_gb_army_hx_15t_uparmored_tan_x
		vbs_gb_army_hx_15t_uparmored_crane_tan_x
		vbs_gb_army_hx_15t_uparmored_cargo_tan_x
		vbs_gb_army_hx_15t_uparmored_cargo_crane_tan_x
		vbs_gb_army_hx_15t_epba_grn_x
		vbs_gb_army_hx_15t_epba_crane_grn_x
		vbs_gb_army_hx_15t_epba_cargo_grn_x
		vbs_gb_army_hx_15t_epba_cargo_crane_grn_x
		vbs_gb_army_hx_15t_epba_tan_x
		vbs_gb_army_hx_15t_epba_crane_tan_x
		vbs_gb_army_hx_15t_epba_cargo_tan_x
		vbs_gb_army_hx_15t_epba_cargo_crane_tan_x
		vbs_gb_army_hx_15t_epls_grn_x
		vbs_gb_army_hx_15t_epls_uparmored_grn_x
		vbs_gb_army_hx_15t_epls_uparmored_epba_grn_x
		vbs_gb_army_hx_15t_epls_tan_x
		vbs_gb_army_hx_15t_epls_uparmored_tan_x
		vbs_gb_army_hx_15t_epls_uparmored_epba_tan_x

Name	Type / Category	Classname
Oshkosh Wheeled Tanker	Vehicle Objects GB Army Wheeled - Desert - Woodland	vbs_gb_army_mtvr_wtanker_tan_x vbs_gb_army_mtvr_wtanker_grn_x vbs_gb_army_mtvr_wtanker_cstf_tanx vbs_gb_army_mtvr_wtanker_cstw_tan_x vbs_gb_army_mtvr_wtanker_tar_tan_x vbs_gb_army_mtvr_wtanker_cstf_grn_x vbs_gb_army_mtvr_wtanker_cstw_grn_x vbs_gb_army_mtvr_wtanker_tar_grn_x
Stormer HVM	Vehicle GB Army Tracked - Desert - Woodland	vbs_gb_army_stormer_des_x vbs_gb_army_stormer_grn_x
Chengdu J-20	Vehicle CN AF Air	vbs_cn_af_j20_gry_x

Name	Type / Category	Classname
Caucasus Region Civilians	Unit Generic Civilians	vbs_xx_civ_eueast_c_medium_none_none_none_outfit01 vbs_xx_civ_eueast_c_medium_none_none_none_outfit02 vbs_xx_civ_eueast_c_medium_none_none_none_outfit03 vbs_xx_civ_eueast_c_medium_none_none_none_outfit04 vbs_xx_civ_eueast_c_medium_none_none_none_outfit05 vbs_xx_civ_eueast_m_medium_none_none_none_outfit01 vbs_xx_civ_eueast_m_medium_none_none_none_outfit02 vbs_xx_civ_eueast_m_medium_none_none_none_outfit03 vbs_xx_civ_eueast_m_medium_none_none_none_outfit04 vbs_xx_civ_eueast_m_medium_none_none_none_outfit05 vbs_xx_civ_eueast_m_medium_none_none_none_outfit06 vbs_xx_civ_eueast_m_medium_none_none_none_outfit07 vbs_xx_civ_eueast_m_medium_none_none_none_outfit08 vbs_xx_civ_eueast_m_medium_none_none_none_outfit09 vbs_xx_civ_eueast_m_medium_none_none_none_outfit10 vbs_xx_civ_eueast_f_medium_none_none_none_outfit01 vbs_xx_civ_eueast_f_medium_none_none_none_outfit02 vbs_xx_civ_eueast_f_medium_none_none_none_outfit03 vbs_xx_civ_eueast_f_medium_none_none_none_outfit04 vbs_xx_civ_eueast_f_medium_none_none_none_outfit05 vbs_xx_civ_eueast_f_medium_none_none_none_outfit06

Name	Type / Category	Classname
		vbs_xx_civ_eueast_f_medium_none_none_none_outfit07
		vbs_xx_civ_eueast_f_medium_none_none_none_outfit08
		vbs_xx_civ_eueast_f_medium_none_none_none_outfit09
		vbs_xx_civ_eueast_f_medium_none_none_none_outfit10
General Service Respirator	Equipment	vbs_xx_cbrnmask_gsr_blk
M3E1 MAAWS	Weapon	vbs_us_m3e1_maaws_grn
M50 Protective Mask	Equipment	vbs_xx_cbrnmask_m50_blk
M9 Medic Aid Bag	Equipment	vbs_backpack_medic_m9_mtp
Radio Backpack	Equipment	vbs_backpack_radio_generic_mtp
M2010 Sniper Rifle	Weapon	vbs2_us_xm2010 vbs_xx_m2010_blk vbs2_us_xm2010_des vbs_xx_m2010_tan vbs_xx_m2010_tan_anpas13 vbs_xx_m2010_tan_anpvs29
Eye Protection	Equipment	vbs_glasses_revisionsawfly_blk vbs_glasses_wileyxpt1_blk
SCBA	Equipment	vbs_backpack_scba_scott_airpak75_mtp
Level A Suit	Equipment	vbs_us_mc_cbrnSoldier_levelb_wht_m_medium_none_none
Type 2 Suit	Equipment	vbs_us_mc_cbrnSoldier_level2_tan_m_medium_none_none
M26 (JSTDSS Pump + Jetwash Lance)	Equipment	vbs_m26_grn_x vbs_m26_lance_grn

Name	Type / Category	Classname
CBRN Equipment	Equipment	vbs_anpdr77_probe_alpha_grn vbs_anpdr77_probe_beta_grn vbs_anpdr77_probe_micro_grn vbs_anpdr77_probe_pancake_grn vbs_anpdr77_probe_xray_grn vbs_anpdr77_alpha_grn vbs_anpdr77_beta_grn vbs_anpdr77_micro_grn vbs_anpdr77_pancake_grn vbs_anpdr77_xray_grn vbs_m4a1_jcad_grn vbs_cbrn_marker_atom_x vbs_cbrn_marker_bio_x vbs_cbrn_marker_gas_x vbs_atnaa_wht vbs_cana_wht vbs_rsdl_grn_x vbs_m100_grn_x
15Zh58 (SS-25) TEL	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_15zh58_tan_x bisim_ig_op_army_15zh58_wdl_x
1L13-3 (Box Spring) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_1l133_tan bisim_ig_op_army_1l133_grn
1RL113 (Tall King) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_1rl113_tan bisim_ig_op_army_1rl113_grn

Name	Type / Category	Classname
1RL119 (Side Net) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_1rl119_tan bisim_ig_op_army_1rl119_grn
1RL130 (Odd Pair) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_1rl130_tan bisim_ig_op_army_1rl130_grn
1RL131 (Spoon Rest) Radar	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_1rl131_tan_x bisim_ig_op_army_1rl131_grn_x
1RL141 (Odd Group) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_1rl141_tan bisim_ig_op_army_1rl141_grn
1RL19 (Thin Skin) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_1rl19_tan bisim_ig_op_army_1rl19_grn
30N6E (Flap Lid) Radar	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_30n6e_tan_x bisim_ig_op_army_30n6e_grn_x
36D6 (Tin Shield) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_36d6_tan bisim_ig_op_army_36d6_grn

Name	Type / Category	Classname
55K6E Command Post	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_55k6e_tan_x bisim_ig_op_army_55k6e_grn_x
5N62B (Square Pair) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_5n62b_tan bisim_ig_op_army_5n62b_grn
5N87 (Back Trap) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_5n87_tan bisim_ig_op_army_5n87_grn
64N6 (Tomb Stone) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_64n6_tan bisim_ig_op_army_64n6_grn
91N6E (Big Bird) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_91n6e_tan bisim_ig_op_army_91n6e_grn
85mm AA KS-12	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_ks12_tan bisim_ig_op_army_ks12_grn
92N6E (Grave Stone) Radar	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_92n6e_tan_x bisim_ig_op_army_92n6e_grn_x

Name	Type / Category	Classname
96L6E (Cheese Board) Radar	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_96l6e_tan_x bisim_ig_op_army_96l6e_grn_x
9A84 (SA-12 Giant) LL	Vehicle IG - Generic OPFOR Army Tracked - Desert - Woodland	bisim_ig_op_army_9a84_tan_x bisim_ig_op_army_9a84_grn_x
9A85 (SA-12 Gladiator) LL	Vehicle IG - Generic OPFOR Army Tracked - Desert - Woodland	bisim_ig_op_army_9a85_tan_x bisim_ig_op_army_9a85_grn_x
9P78-1 Iskander-M	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_9k720_launcher_tan_x bisim_ig_op_army_9k720_launcher_grn_x
9S18M1 (Snow Drift) Radar	Vehicle IG - Generic OPFOR Army Tracked - Desert - Woodland	bisim_ig_op_army_9s18m1_tan_x bisim_ig_op_army_9s18m1_grn_x
9S19 (High Screen) Radar	Vehicle IG - Generic OPFOR Army Tracked - Desert - Woodland	bisim_ig_op_army_9s19_tan_x bisim_ig_op_army_9s19_grn_x
9S36 (Chair Back) Radar	Vehicle IG - Generic OPFOR Army Tracked - Desert - Woodland	bisim_ig_op_army_9s36_tan_x bisim_ig_op_army_9s36_grn_x

Name	Type / Category	Classname
9S552 Iskander CV	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_9k720_command_tan_x bisim_ig_op_army_9k720_command_grn_x
Admiral Grigorovich Class Frigate	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj11356_gry_x
Air Cushion (Iranian) BH.7	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_bhcbh7_des_x
Airbus A310	Vehicle IG - Generic Civilian Air	bisim_ig_civ_a310_wht_x
Aircraft Baggage Conveyor	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_gse_baggageConveyor_wht_x
Aircraft Baggage Truck	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_gse_baggageTruck_wht_x
Aircraft Baggage Wagon	Object IG - Generic Civilian Wheeled	bisim_ig_civ_gse_baggageWagon_wht_x
Aircraft Catering Truck	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_gse_cateringTruck_wht_x
Aircraft Follow Me Car	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_gse_followMeCar_ylw_x
Aircraft Tow Tractor	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_gse_towTractor_wht_x
Aircraft Towbar	Object IG - Generic Civilian Wheeled	bisim_ig_civ_gse_towBar_ylw_x

Name	Type / Category	Classname
Airport Bus	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_gse_bus_gry_x
AS-365 Dauphin	Vehicle IG - Generic Civilian OPFOR AF Air	bisim_ig_op_af_as365_wht_x
Auto Rickshaw	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_autorickshaw_ylw
BAZ-69092 Tow Vehicle	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_baz69092_tan_x bisim_ig_op_army_baz69092_grn_x
Beechcraft 36 Bonanza	Vehicle IG - Generic Civilian Air	bisim_ig_civ_beechcraft36_wht_x
BM-27M Uragan-1M	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_9k57m1_tan_x bisim_ig_op_army_9k57m1_grn_x
Cessna 172 Skyhawk	Vehicle IG - Generic Civilian Air	bisim_ig_civ_cessna172_wht_x
Civilian Airport Worker	Unit IG - Generic Civilian	bisim_ig_civ_airportWorker_m
Club K Container	Vehicle IG - Generic OPFOR Army Static - Woodland	bisim_ig_op_army_3m54_blu
Communications Satellite	Vehicle IG - Generic Civilian Air	bisim_ig_civ_comsatelite
Construction Worker	Unit IG - Generic Civilian	bisim_ig_civ_constructionworker_m

Name	Type / Category	Classname
Defense Satellite	Vehicle IG - Generic Civilian Air	bisim_ig_civ_defsatelite
Delta IV Class Submarine	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj667_gry_x
DJI S1000	Vehicle Unmanned Vehicles	vbs_dji_s1000_blk_x
DJI Spark	Vehicle Unmanned Vehicles	vbs_dji_spark_wht_x
EC145	Vehicle IG - Generic Civilian Air	bisim_ig_civ_ec145_ylw_x
Emergency Medical Technician	Unit IG - Generic Civilian	bisim_ig_civ_emt_m
Fire Fighter	Unit IG - Generic Civilian	bisim_ig_civ_fireman_m
Flycatcher Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_flycatcher_tan bisim_ig_op_army_flycatcher_grn
GAZ-66 Truck	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_gaz66_1v110_tan_x bisim_ig_op_army_gaz66_cargo_tan_x bisim_ig_op_army_gaz66_1v110_grn_x bisim_ig_op_army_gaz66_cargo_tan_x
GAZ-69	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_gaz69_tan_x bisim_ig_op_army_gaz69_grn_x
Gepard Class Frigate	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj11661_gry_x

Name	Type / Category	Classname
Grumman LLV	Vehicle IG - Generic Civilian Wheeled	bisim_ig_civ_grummanllv_wht_x
HQ-2 Launcher	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_hq2_tan bisim_ig_op_army_hq2_grn
HQ-6A (LY-60) Acquisition Radar	Vehicle IG - Generic OPFOR Army Wheeled - Woodland	bisim_ig_op_army_ly60_radar_grn_x
HQ-6A (LY-60) TEL	Vehicle IG - Generic OPFOR Army Wheeled - Woodland	bisim_ig_op_army_ly60_launcher_grn_x
Imaging Satellite	Vehicle IG - Generic Civilian Air	bisim_ig_civ_imgsatelite
International Space Station	Vehicle IG - Generic Civilian Air	bisim_ig_civ_iss
Iranian Soldier	Unit IG - Generic OPFOR	bisim_ig_ir_army_soldier_des_m
ISIS Fighter	Unit IG - Generic OPFOR	bisim_ig_isis_soldier_blk_m
J-11 Flanker-L	Vehicle IG - Generic OPFOR AF Air	bisim_ig_op_af_j11_gry_x
Jet Ski	Vehicle IG - Generic Civilian Watercraft	bisim_ig_civ_kawasaki_tx15f_red_x
KJ-2000 Mainring	Vehicle IG - Generic OPFOR AF Air	bisim_ig_op_af_kj2000_blu_x

Name	Type / Category	Classname
KN-02 Hwasong-11 TEL	Vehicle IG - Generic OPFOR Army Wheeled - Woodland	bisim_ig_op_army_kn02_grn_x
Krivak Class Frigate	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj1135_gry_x
M1978 Koksan	Vehicle IG - Generic OPFOR Army Tracked - Woodland	bisim_ig_op_army_m1978_grn_x
Man in Wheelchair	Unit IG - Generic Civilian Wheeled	bisim_ig_civ_wheelchair_blk
Mazda Bongo	Vehicle IG - Generic Civilian Wheeled IG - Generic OPFOR Army Wheeled - Woodland	bisim_ig_civ_mazdabongo_wht_x bisim_ig_op_army_mazdabongo_dshk_wht_x
Mohajer-2 UAV	Vehicle Unmanned Vehicles	vbs_ghods_mohajer2_wht_x
MR-104 (Drum Tilt) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_mr104_tan bisim_ig_op_army_mr104_grn
MZKT-7930 Tractor	Vehicle IG - Generic OPFOR Army Wheeled - Desert - Woodland	bisim_ig_op_army_mzkt7930_tan_x bisim_ig_op_army_mzkt7930_grn_x
Nanuchka III Class Corvette	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj1234_gry_x

Name	Type / Category	Classname
Neon Antonov Class Logistics Ship	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj1595_gry_x
Oscar Class Submarine	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj949_gry_x
Pauk Class Corvette	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj12412_gry_x
PL-12 Missile	Missile	vbs_xx_pl12_aa vbs_mag_m_pl12_aa
PL-8 Missile	Missile	vbs_xx_pl8_aa vbs_mag_m_pl8_aa
PL-9 Missile	Missile	vbs_xx_pl9_aa vbs_mag_m_pl9_aa
Police Officer	Unit IG - Generic Civilian	bisim_ig_civ_policeofficer_m
Romeo Class Submarine	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj633_gry_x
RSN-75V (Fan Song-E) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_snr75_e_tan bisim_ig_op_army_snr75_e_grn
RSNA-75M (Fan Song-F) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_snr75_f_tan bisim_ig_op_army_snr75_f_grn
Safir Military Vehicle	Vehicle IG - Generic OPFOR Army Wheeled - Desert	bisim_ig_op_army_fathsafir_tan_x

Name	Type / Category	Classname
Sierra II Class Submarine	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj945_gry_x
Skiff	Vehicle IG - Generic Civilian Watercraft	bisim_ig_civ_skiff_wht_x
SM-90 (SA-2) Launcher	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_snr75_tan bisim_ig_op_army_snr75_grn
SON-9 (Fire Can) Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_son9_tan bisim_ig_op_army_son9_grn
Speedboat	Vehicle IG - Generic Civilian Watercraft	bisim_ig_civ_speedboat_wht_x
Su-35 Flanker-E	Vehicle IG - Generic OPFOR AF Air	bisim_ig_op_af_su35_blu_x
Tarantul Class Corvette	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj1241_gry_x
Tiara 3900 Yacht	Vehicle IG - Generic Civilian Watercraft	bisim_ig_civ_tiara3900_blu_x
Toyota RAV-4, PK MG (1998)	Vehicle IG - Generic OPFOR Army Wheeled - Woodland	bisim_ig_op_army_toyotarav4_blu_x
Type 039 Yuan Class Submarine	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_type039a_gry_x

Name	Type / Category	Classname
Type 051 Luda Class Destroyer	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_type051_gry_x
Type 053H3 Jiangwei Class Frigate	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_type053h3_gry_x
Type 056 Jiangdao Class Corvette	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_type056_gry_x
Type 093 Shang Class Submarine	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_type093_gry_x
Type 69 II MBT	Vehicle IG - Generic OPFOR Army Tracked - Desert - Woodland	bisim_ig_op_army_type692_tan_x bisim_ig_op_army_type692_grn_x
Type 702 Radar	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_type702_tan bisim_ig_op_army_type702_grn
Type 85 (YWH531H) APC	Vehicle IG - Generic OPFOR Army Tracked - Desert - Woodland	bisim_ig_op_army_type85_apc_des_x bisim_ig_op_army_type85_apc_wdl_x
Udaloy Class Destroyer	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj1155_gry_x
Ural-375	Vehicle IG - Generic OPFOR Army Wheeled - Woodland	bisim_ig_op_army_ural375_cargo_grn_x

Name	Type / Category	Classname
ZPU-1	Vehicle IG - Generic OPFOR Army Static - Desert - Woodland	bisim_ig_op_army_zpu1_tan bisim_ig_op_army_zpu1_grn
ZPU-2	Vehicle IG - Generic OPFOR Army Static - Woodland	bisim_ig_op_army_zpu2_grn
Zubr Class LCAC	Vehicle IG - Generic OPFOR Navy Watercraft	bisim_ig_op_navy_prj12322_gry_x
Catalina 34 Sailboat	Vehicle IG - Generic Civilian Watercraft	bisim_ig_civ_catalina34_wht_x
Reliance Class Cutter	Vehicle IG - Generic BLUFOR Navy Watercraft	bisim_ig_blu_navy_reliance_class_gry_x
47' Motor Lifeboat	Vehicle IG - Generic BLUFOR Navy Watercraft	bisim_ig_blu_navy_47mlb_gry_x
U-2S	Vehicle US USAF Air	vbs_bihrlle_u2s_blk_x

For more information about specific new content, see the following:

- [New Vehicles \(on the next page\)](#)
- [New Personnel \(on page 338\)](#)
- [New Equipment \(on page 338\)](#)
- [VBS Blue IG Models \(on page 344\)](#)

6.11.1 New Vehicles

The following new vehicles are available in this release:

AW139

The AgustaWestland AW139 is a 15-seat medium-sized twin-engined helicopter developed and built by AgustaWestland, now part of Leonardo Helicopters. It is marketed at several different roles, including VIP / corporate transport, offshore transport, fire fighting, law enforcement, search and rescue, emergency medical service, disaster relief, and maritime patrol.

Produced in a search and rescue configuration for the Priority 1 Air Rescue SART project, the aircraft features twin winches, and a targetable search light.

Caracal

The Eurocopter EC725 Caracal, now called Airbus Helicopters H225M, is a long-range tactical transport military helicopter developed from the Eurocopter AS532 Cougar for military use. It is a twin-engined aircraft and can carry up to 28 seated troops along with two crew, depending on customer configuration. The helicopter is marketed for troop transport, casualty evacuation, and combat search and rescue duties, and is similar to the civilian EC225.



Aladin

The EMT Aladin (German: Abbildende Luftgestützte Aufklärungsdrohne im Nächstbereich, airborne reconnaissance drone for close area imaging) is a small, man-portable light reconnaissance miniature unmanned aerial vehicle (UAV) employed by the Bundeswehr (German Army).

The UAV can be radio-controlled via a portable control station, or fly according to previously set GPS coordinates. It features a day and night camera and video-relay. It can be transported in two suitcases, which contain the disassembled drone, and a backpack with the control station. The aircraft can be assembled and disassembled without tools in the field within five minutes.

Gazelle

The Aérospatiale Gazelle (company designations SA 340, SA 341 and SA 342) is a French five-seat helicopter, commonly used for light transport, scouting and light attack duties. It is powered by a single Turbomeca Astazou turbine engine and was the first helicopter to feature a fenestron tail instead of a conventional tail rotor. It was designed by Sud Aviation, later Aérospatiale, and manufactured in France and the United Kingdom through a joint production agreement with Westland Aircraft.



MH-60T Jayhawk

The Sikorsky MH-60T Jayhawk is a multi-mission, twin-engine, medium-range helicopter operated by the United States Coast Guard (USCG) for search and rescue, law enforcement, military readiness and marine environmental protection missions. It was originally designated HH-60J before being upgraded and redesignated beginning in 2007.

Chosen to replace the HH-3F Pelican, the Jayhawk is a member of the Sikorsky S-70 family of helicopters and is based on the United States Navy's SH-60 Seahawk helicopter. Development began in September 1986, first flight was achieved on 8 August 1989, and the first HH-60J entered USCG service in June 1990. Production ended in 1996 after 42 helicopters were produced; three retired SH-60F Seahawks were also remanufactured to MH-60T specifications beginning in 2010. A total of 42 MH-60Ts are in service with the Coast Guard.

Sikorsky S-76C

The Sikorsky S-76 is an American medium-size commercial utility helicopter, manufactured by the Sikorsky Aircraft Corporation. The S-76 features twin turboshaft engines, four-bladed main and tail rotors, and retractable landing gear.

MH-65D Dolphin

The Eurocopter MH-65 Dolphin is a multi-mission, twin-engined, short-range helicopter operated by the United States Coast Guard (USCG) for medevac-capable search and rescue (SAR) and armed Airborne Use of Force missions. It is a variant of the French-built Eurocopter AS365 Dauphin, and was originally designated HH-65A before going through a series of upgrades, and being redesignated beginning in 2000.

The SA366 G1 Dauphin version was selected by the United States Coast Guard in 1979 as its new short range recovery (SRR) air-sea rescue helicopter, replacing the Sikorsky HH-52A Sea Guard. In total 99 helicopters, optimized for the USCG's search and rescue role tasks and given the designation HH-65A Dolphin, were acquired.

Fennec

The Eurocopter AS550 Fennec, now called Airbus Helicopters H125M is part of a family of lightweight, multipurpose military helicopters manufactured by Eurocopter Group (now Airbus Helicopters). Based on the AS350 Ecureuil and AS355 Ecureuil 2 series, they are named after the fennec fox. The armed versions of the AS550 and AS555 can be fitted with coaxial weapons, rockets, torpedoes and various other munitions.



Mikado

The AirRobot AR 100-B, known as Mikado (Mikroaufklärungsdrohne für den Ortsbereich, micro reconnaissance drone for the local area) in Bundeswehr (German Army) service is a micro reconnaissance drone from the German manufacturer AirRobot.

The system is designed for use in built-up or difficult to access areas, and can be handled and used by a single operator. The UAV can be controlled via a portable control station, or video glasses. It features day, night, and thermal cameras with live video-relay.

PUMA IFV

The Puma is a German infantry fighting vehicle (Schützenpanzer or SPz) designed to replace the aging Marder IFVs currently in service with the German Army.

The Puma incorporates a number of technological advances and state-of-the-art technologies, including the ability to flexibly mount different armor packages, a compact, one-piece crew cabin that enables direct crew interaction, which is air conditioned, NBC-proofed and has a fire suppressing system using non-toxic agents.

The primary armament is a Rheinmetall 30 mm MK 30-2/ABM (Air Burst Munitions) autocannon, a coaxially mounted 5.56 mm HK MG4 machine gun, and a turret-mounted EuroSpike Spike LR missile launcher, which carries two missiles. The Spike missile is known as Mehrrollenfähiges Leichtes Lenkflugkörper-System (Multi-role capable light guided missile system) (MELLS) in German service.



Landrover Wolf TUM

A highly modified version of the Landrover Defender, the Landrover Wolf has been the backbone of light utility roles within the UK MoD since the mid 1990s. With no fewer than 97 variants and 10,000 vehicles procured, it is a common sight where ever British armed forces are seen.

The "Truck, Utility, Medium" or "TUM" is the longer 110" wheelbase variant, and will be provided in both General Service (GS) and Fitted For Radio (FFR) variants.

Sikorsky S-92

The Sikorsky S-92 is an American twin-engine medium-lift helicopter built by Sikorsky Aircraft for the civil and military helicopter markets. The S-92 was developed from the Sikorsky S-70 helicopter and has similar parts such as flight control and rotor systems.

M1A1 AIM

Purchased by the ADF to replace the aging Leopard AS1 tanks then in service, the M1A1 AIM Abrams is an improved hybrid of the US Army and USMC M1A1 series production Abrams MBT. Fitted with Forward-Looking Infra-Red (FLIR) and Far Target Locate sensors, a tank-infantry phone, communications gear, including FBCB2 and Blue Force Tracking to aid in crew situational awareness, and a thermal sight for the .50 caliber machine gun.



Queen Elizabeth Class

The Queen Elizabeth class is a class of two aircraft carriers of the United Kingdom's Royal Navy. The lead ship, HMS Queen Elizabeth, was named on 4 July 2014, in honor of Elizabeth I (not Elizabeth II).

The vessels currently have a displacement of approximately 65,000 tonnes, but the design anticipates added weight over the lifetime of the ships. The ships are 280 meters (920 ft) long and will have a Carrier Air Wing (CVW) of up to forty aircraft. They are the largest warships ever constructed for the Royal Navy.

Hawk T.2

The BAE Systems Hawk is a British single-engine, jet-powered advanced trainer aircraft. It was first flown at Dunsfold, Surrey, in 1974 as the Hawker Siddeley Hawk, and subsequently produced by its successor companies, British Aerospace and BAE Systems, respectively. It has been used in a training capacity and as a low-cost combat aircraft.

The Hawk 128 is the new Advanced Jet Trainer (AJT) for the RAF and Royal Navy, known as the Hawk T Mk.2, or more commonly Hawk T.2 in service. The 128 includes modern LCD displays instead of conventional instrumentation and is powered by the Rolls-Royce Adour 951 engine.

Yamaha Grizzly 450 ATV

Driving motorcycles, especially off-road in challenging circumstances, requires skill and experience, and they do not have a great deal of load carrying capacity, both in weight and volume. Quad bikes, on the other hand, can tow trailers with significant loads and although driving quad bikes off road safely, is far from a trivial task, they do seem to have displaced motorcycles in most forces, the UK being no exception.

The standard Yamaha Grizzly 450 is adapted for military service by replacing the engine with a diesel variant, as well as adding a NATO towing hitch, winch, run flat sealant for the tires, IR lighting, left-hand throttle, and other minor modifications.



Voyager KC.3

The Airbus A330 Multi Role Tanker Transport (MRTT) is an aerial refueling tanker aircraft based on the civilian Airbus A330. Known as the Voyager in RAF service, it is available in two versions. The Voyager KC.2 is equipped with two Cobham 905E under-wing refueling pods, the Voyager KC.3 with a Cobham 805E Fuselage Refueling Unit (FRU) in addition to the under-wing pods. None of the RAF aircraft are currently fitted with the Aerial Refueling Boom System (ARBS). Both versions of Voyager are powered by a pair of Rolls-Royce Trent 772B-60 engines.

E-2D Hawkeye

The Northrop Grumman E-2 Hawkeye is an American all-weather, carrier-capable tactical airborne early warning (AEW) aircraft. This twin-turboprop aircraft was designed and developed during the late 1950s and early 1960s by the Grumman Aircraft Company for the United States Navy.

The latest E-2 version is the E-2D Advanced Hawkeye, which features an entirely new avionics suite including the new AN/APY-9 radar, radio suite, mission computer, integrated satellite communications, flight management system, improved T56-A-427A engines, a glass cockpit, and aerial refueling.

Scimitar 2

The FV107 Scimitar is an armored tracked military reconnaissance vehicle used by the British Army, one of the CVR(T) series of vehicles, it entered service in 1971. Following a risk mitigation program, a contract was awarded in December 2010 for the development, testing and management of an upgraded Scimitar.

The Scimitar Mk.II, or more commonly Scimitar 2 was fitted with a new hull and improved armor to give better mine-blast protection for the crew. The new hull is much larger than the original Scimitar, providing additional space and improved crew conditions. The vehicle was also fitted with mine-protected (suspended and piston-mounted) seating in every crew position. The modified vehicles have also been re-engined with a Cummins BTA 5.9 liter diesel engine and David Brown TN15E+ automatic gearbox, as well as refurbished suspension, new road wheels and tracks.



Bell B-206 Jet Ranger

The Bell 206 is a family of two-bladed, single- and twin-engined helicopters, manufactured by Bell Helicopter at its Mirabel, Quebec, plant. Originally developed as the Bell YOH-4 for the United States Army's Light Observation Helicopter program, it was not selected by the Army. Bell redesigned the airframe and successfully marketed the aircraft commercially as the five-seat Bell 206 JetRanger. The new design was eventually selected by the Army as the OH-58 Kiowa.

Coyote

Coyote Tactical Support Vehicles (TSV) are a lengthened 6x6 variant of the Jackal design, used as medium load carriers, artillery tractors and a range of other platform variants. The extra two wheels give a heavier vehicle approaching 10,500 kg, and allows for transportation of supplies and equipment over similar terrain as the Jackal, the payload for supplies and equipment is 3,900 kg.

MiG-29SMT

The Mikoyan MiG-29, NATO reporting name: Fulcrum, is a twin-engine jet fighter aircraft designed in the Soviet Union. Developed by the Mikoyan design bureau as an air superiority fighter during the 1970s, the MiG-29, along with the larger Sukhoi Su-27, was developed to counter new US fighters such as the McDonnell Douglas F-15 Eagle and the General Dynamics F-16 Fighting Falcon. The MiG-29 entered service with the Soviet Air Forces in 1982.

While originally oriented towards combat against any enemy aircraft, many MiG-29s have been furnished as multi-role fighters capable of performing a number of different operations, and are commonly outfitted to use a range of air-to-surface armaments and precision munitions. Later models feature improved engines, glass cockpits with HOTAS-compatible flight controls, modern radar andIRST sensors, and considerably increased fuel capacity; some aircraft have also been equipped for aerial refueling.

Following the dissolution of the Soviet Union, the militaries of a number of former Soviet republics have continued to operate the MiG-29, the largest of which is the Russian Air Force. The Russian Air Force is in the process of upgrading its existing fleet to the modernised MiG-29SMT configuration.

Jackal 2

The Jackal or MWMIK (Mobility Weapon-Mounted Installation Kit) is a family of vehicles designed and developed by Supacat Ltd at their factory in Honiton, Devon (UK) for use by the British Army and Royal Air Force Regiment.

Following experience in Afghanistan, an improved variant, Jackal 2 was ordered in 2009. The crew has been increased to four and the main armament gun ring moved forward to give it an all round arc of fire. The chassis has been upgraded, allowing the vehicle to carry a greater payload and armor, and providing more strength for protection against roadside bombs. It also has a larger 6.7 l engine



Ridgback

Ridgback is a 4x4-wheel drive protected patrol vehicle based on the US Cougar platform. It also shares a high degree of commonality with Mastiff, its big brother.

Ridgback comes in three variants: battlefield ambulance, command variant and troop carrying vehicles. Ridgback troop carrying vehicles are equipped with either a protected weapon station or a remote weapon station, and can mount a 7.62mm general purpose machine gun, 12.7mm heavy machine gun or 40mm automatic grenade launcher.

The Ridgback fleet is being reconditioned after its service in Afghanistan, as it is being converted from an Urgent Operational Requirement to the core equipment program for use in the Army 2020 force structure. Some vehicles are being converted from one variant to another to meet their new roles supporting the Army 2020 transformation and on future contingent operations.

Mastiff

Mastiff is a 6x6-wheel drive protected patrol vehicle based on the US Cougar platform. It also shares a high degree of commonality with Ridgback, its little brother, and Wolfhound, the Tactical Support Vehicle variant.

Mastiff comes in several variants: battlefield ambulance, command variant, troop carrying, and Explosive Ordnance Disposal (EOD) vehicles. Mastiff troop carrying vehicles are equipped with either a protected weapon station or a remote weapon station, and can mount a 7.62mm general purpose machine gun, 12.7mm heavy machine gun or 40mm automatic grenade launcher.

The Mastiff fleet is being reconditioned after its service in Afghanistan, as it is being converted from an Urgent Operational Requirement to the core equipment program for use in the Army 2020 force structure. Some vehicles are being converted from one variant to another to meet their new roles supporting the Army 2020 transformation and on future contingent operations.

Wolfhound

Wolfhound is a 6x6 variant of the Mastiff, and is part of the Tactical Support Vehicles (TSV) group along with the Husky and the Coyote. The TSV fleet is used to accompany front line patrols and carry essential combat supplies such as water and ammunition.

It provides a highly protected load-carrying vehicle to carry out a variety of tasks such as moving bulky stores for use in the construction of forward bases and also as a gun tractor and gun limber for the Royal Artillery's 105 light gun.

Wolfhound is armed with a 7.62 GPMG self-defence weapon and the normal fit of radio and electronic equipment.

M915 Tractor Unit

The M915 is a tractor unit used for line haul missions by the United States Army. It is a commercial type conventional 6x4 rear wheel drive 14-ton semi-tractor designed for use on improved roads.

Not a new model, but a long-missing Desert variant of the existing M915 model in the VBS library.



M1000 HET Trailer

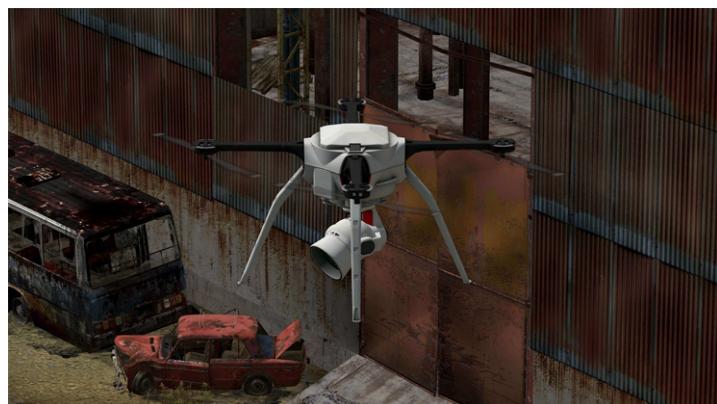
The M1000 Heavy Equipment Transporter Trailer is used with the M1070A0 and M1070A1 tractors. The M1000 was originally developed as a private venture by Southwest Mobile Systems (later Systems & Electronics Inc (SEI), now DRS Technologies) as a response to a possible US Army requirement for transporting M1 and M1A1 MBTs. A production order for 1,066 M1000 units was placed by the U.S. Army in 1989.



Aeryon Skyranger

The Aeryon SkyRanger R60 is a small reconnaissance unmanned aerial vehicle (UAV) designed and built by Aeryon Labs of Waterloo, Ontario, Canada.

The SkyRanger R60 is a vertical take-off and landing VTOL quadcopter requiring no launch equipment. It can hover in a fixed position and weighs 9.9 lb (4.5 kg) without payload.



Runway Caravan

On all RAF flying stations, a Runway Controller is positioned at the threshold of the operating runway to provide final checks "last look checks" of an aircraft prior to takeoff, or on approach to landing. To provide shelter from the weather, the controller is provided with a Runway Caravan. Essentially a mobile control tower, the Runway Caravan provides an elevated observation position, as well as radio, lighting, and signaling equipment (and a toilet!).

The current generation of caravan is mounted on a Ford Iveco 'Cargo' 120E15 chassis.



Fuel Bowser

Also a key feature on all RAF flying stations, Fuel Bowsers provide the ability to refuel aircraft for flying operations.

Multiple different types of bowser are in service, but the most common is the 6x4 MAN TGA 26.320. Capable of providing 20,000 liters of fuel, a tanker-trailer is also available on some stations (not modeled for VBS) to increase capacity to support larger aircraft.



F-35B Lightning II

The Lockheed Martin F-35 Lightning II is an American family of single-seat, single-engine, all-weather, stealth multi-role combat aircraft, designed for both air superiority and strike missions. The F-35 has three main variants: the conventional takeoff and landing F-35A (CTOL), the short take-off and vertical-landing F-35B (STOVL), and the carrier-based F-35C (CV/CATOBAR).

The Royal Air Force and Royal Navy operate the F-35B variant of the Lightning.



Terrier

The Terrier vehicle is an air-transportable armored combat engineer vehicle for the Royal Engineers. It was developed as a replacement vehicle for the FV180 Combat Engineer Tractor used by the British Army.

A clam shell front bucket and side mounted excavator arm allow the vehicle to perform earth moving and obstacle removing tasks. It has enhanced mine protection and can be operated by remote control from up to 1,000 m (3,300 ft) in dangerous environments such as mine clearance. In normal operations it will have a crew of two.



Athena

The Ajax, formerly known as the Scout SV (Specialist Vehicle), is a family of armored fighting vehicles being developed by General Dynamics UK for the British Army.

The Ajax is a development of the ASCOD armored fighting vehicle used by the Spanish and Austrian armed forces.

Athena is the Command and Control variant of the Ajax family. It is armed with a Protector RWS, fitted with a 7.62mm GPMG, .50cal HMG, or 40mm Grenade Launcher, as well as a Javelin ATGM.



20T 8x8 LHD IMMLC ABLE

The 20T 8 x 8, Left Hand Drive (LHD), Improved Medium Mobility Load Carrier (IMMLC), Automotive Bridge Launching Equipment (ABLE) vehicle forms the bridge-launching part of the BR-90 General Support Bridging system. Developed by Alvis Unipower (truck) and NEI Thompson (bridge and bridge launching equipment) the system is now supported by BAE Systems. It shares a common chassis with the Bridging Vehicle and the Tank Bridge Transporter.

The ABLE vehicle is positioned with its rear pointing to the gap to be crossed and a lightweight launch rail is extended across the gap. The bridge is then assembled and winched across the gap supported by the rail, with sections added until the gap is crossed. Once the bridge has crossed the gap, the ABLE launch rail is recovered. A standard General Support Bridging system consists of an ABLE vehicle and 2 x Bridging Vehicles (BV) which carry the additional bridge sections to deliver a 32 meter bridge set. A 32 meter bridge can be built by 10 men in 30 minutes by day and 40 minutes at night.



20T 8x8 LHD IMMLC BV

Supporting the ABLE variant, the 20T 8 x 8, Left Hand Drive (LHD), Improved Medium Mobility Load Carrier (IMMLC), Bridging Vehicle (BV) forms the component-supply part of the BR-90 General Support Bridging system. Developed by Alvis Unipower (truck) and NEI Thompson (bridge equipment) the system is now supported by BAE Systems. It shares a common chassis with the Automotive Bridge Launching Equipment and the Tank Bridge Transporter.

With the ABLE vehicle deployed, the BV vehicles provide a supply of components with which to construct the bridge. All vehicles of ABLE and BV types are fitted with an Atlas 5003 M5 crane to facilitate the handling of bridge components as well as the launch beam.



20T 8x8 LHD IMMLC TBT

The final 20T 8 x 8, Left Hand Drive (LHD), Improved Medium Mobility Load Carrier (IMMLC), variant, the Tank Bridge Transporter (TBT) provides logistical support for the BR-90 Close Support Bridging system. Originally supporting the Chieftain AVLB, the TBT now carries the modern BR-90 variants in support of the Challenger 2 based Titan AVLB.

The 20T 8x8, LHD, IMMLC, TBT provides the off-road capability to go anywhere that the Titan AVLB can go, and provide it with additional bridges. Able to carry 1x No.10, or 1x No.11, or up to 2x No.12 bridges, the TBT is equipped with mechanisms to allow it to load and offload these bridges, but it is not able to lay or recover them.



SV Recovery 15T IMM 8x8

The Support Vehicle, Recovery, 15T, Improved Medium Mobility (IMM) 8x8, or more commonly the "SVR" is part of a family of vehicles introduced to service in 2007 to replace numerous different types of life-expired trucks in service across all branches of the UK MoD.

The fleet replacement, and its subsequent capability enhancement projects provided new trucks in the 6T (4x4), 9T (6x6), and 15T (8x8) Cargo, 9T (6x6) Tanker, 15T (8x8) EPLS, Medium Mobility variants, as well as 9T (6x6) Cargo, 9T (6x6) Tanker, 15T Recovery (8x8), 15T (8x8) LEAPP, Improved Medium Mobility variants. All vehicles can be fitted with various radio, winterization, and armored cab kits. Some of the Cargo variants feature specialized sub-variants for specific role support, such as prime mover equipment for Rapier, tail lifts, cranes, winches, and a modular troop-seat.

The Support Vehicle Recovery is based on the MAN SX45 32.440 chassis, and is fitted with an Atlas 600.2M1 crane, Rotzler TR200/5 main winch, Rotzler HZ010 auxiliary winch, Rotzler TR080/5 self-recovery winch, and an EKA Super Compact Recovery Device.

Available in both standard cab, and Fortress uparmored variants.

Although the Support Vehicle Recovery already exists in the VBS library, this new model has been developed to support the animation and functionality of the crane, main winch, and recovery device.



SV Cargo Light, 6T, MM, 4x4

The Support Vehicle Cargo Light, 6T, Medium Mobility (MM) 4x4, or more commonly the "SV 6 Ton" is part of a family of vehicles introduced to service in 2007 to replace numerous different types of life-expired trucks in service across all branches of the UK MoD.

The fleet replacement, and its subsequent capability enhancement projects provided new trucks in the 6T (4x4), 9T (6x6), and 15T (8x8) Cargo, 9T (6x6) Tanker, 15T (8x8) EPLS, Medium Mobility variants, as well as 9T (6x6) Cargo, 9T (6x6) Tanker, 15T Recovery (8x8), 15T (8x8) LEAPP, Improved Medium Mobility variants. All vehicles can be fitted with various radio, winterization, and armored cab kits. Some of the Cargo variants feature specialized sub-variants for specific role support, such as prime mover equipment for Rapier, tail lifts, cranes, winches, and a modular troop-seat.

The Support Vehicle 6T is based on the MAN HX60 18.330 chassis, and can be fitted with a combination of flat platforms, drop sides, canvas tilt, and crane options.

Variants added include: Flat Platform, Cargo, and Troop Carrier, both with and without a Crane. Available in both standard cab, and Fortress uparmored variants.

Although the Support Vehicle 6T already exists in the VBS library, this new model has been developed to support enhanced logistics behaviors, including troop carrying, and autonomous vehicle control.

SV Cargo Medium, 9T, MM, 6x6

The Support Vehicle, Logistics, 9T, Medium Mobility (MM) 6x6, or more commonly the "SV 9 Ton" is part of a family of vehicles introduced to service in 2007 to replace numerous different types of life-expired trucks in service across all branches of the UK MoD.

The fleet replacement, and its subsequent capability enhancement projects provided new trucks in the 6T (4x4), 9T (6x6), and 15T (8x8) Cargo, 9T (6x6) Tanker, 15T (8x8) EPLS, Medium Mobility variants, as well as 9T (6x6) Cargo, 9T (6x6) Tanker, 15T Recovery (8x8), 15T (8x8) LEAPP, Improved Medium Mobility variants. All vehicles can be fitted with various radio, winterization, and armored cab kits. Some of the Cargo variants feature specialized sub-variants for specific role support, such as prime mover equipment for Rapier, tail lifts, cranes, winches, and a modular troop-seat.

The Support Vehicle 9T is based on the MAN HX58 25.440 chassis, and can be fitted with a combination of flat platforms, drop sides, canvas tilt, and crane options.

Variants added include: Flat Platform, Cargo, and Troop Carrier, both with and without a Crane, and Unit Support Tanker. Available in both standard cab, and Fortress uparmored variants.

Although the Support Vehicle 9T already exists in the VBS library, this new model has been developed to support enhanced logistics behaviors, including troop carrying, and autonomous vehicle control.

SV Cargo Medium, 9T, IMM, 6x6

The Support Vehicle, Logistics, 9T, Improved Medium Mobility (IMM) 6x6, or more commonly the "SV 9 Ton" is part of a family of vehicles introduced to service in 2007 to replace numerous different types of life-expired trucks in service across all branches of the UK MoD.

The fleet replacement, and its subsequent capability enhancement projects provided new trucks in the 6T (4x4), 9T (6x6), and 15T (8x8) Cargo, 9T (6x6) Tanker, 15T (8x8) EPLS, Medium Mobility variants, as well as 9T (6x6) Cargo, 9T (6x6) Tanker, 15T Recovery (8x8), 15T (8x8) LEAPP, Improved Medium Mobility variants. All vehicles can be fitted with various radio, winterization, and armored cab kits. Some of the Cargo variants feature specialized sub-variants for specific role support, such as prime mover equipment for Rapier, tail lifts, cranes, winches, and a modular troop-seat.

The Support Vehicle 9T IMM is based on the MAN SX44 25.440 chassis, and can be fitted with a combination of flat platforms, drop sides, canvas tilt, crane, and fuel tanker options.

Variants added include: Flat Platform, Cargo, and Troop Carrier, both with and without a Crane, and Unit Support Tanker. Available in both standard cab, and Fortress uparmored variants.

Although the Support Vehicle 9T already exists in the VBS library, this new model has been developed to support enhanced logistics behaviors, including troop carrying, and autonomous vehicle control.

SV Cargo Heavy, 15T, MM, 8x8

The Support Vehicle, Logistics, 15T, Medium Mobility (MM) 8x8, or more commonly the "SV 15 Ton" is part of a family of vehicles introduced to service in 2007 to replace numerous different types of life-expired trucks in service across all branches of the UK MoD.

The fleet replacement, and its subsequent capability enhancement projects provided new trucks in the 6T (4x4), 9T (6x6), and 15T (8x8) Cargo, 9T (6x6) Tanker, 15T (8x8) EPLS, Medium Mobility variants, as well as 9T (6x6) Cargo, 9T (6x6) Tanker, 15T Recovery (8x8), 15T (8x8) LEAPP, Improved Medium Mobility variants. All vehicles can be fitted with various radio, winterization, and armored cab kits. Some of the Cargo variants feature specialized sub-variants for specific role support, such as prime mover equipment for Rapier, tail lifts, cranes, winches, and a modular troop-seat.

The Support Vehicle 15T is based on the MAN HX77 32.440 chassis, and can be fitted with a combination of flat platforms, drop sides, canvas tilt, crane, and fuel tanker options.

Variants added include: Flat Platform and Cargo, both with and without a Crane, and the Enhanced Palletized Load System. Available in both standard cab, and Fortress uparmored variants.

Although the Support Vehicle 15T already exists in the VBS library, this new model has been developed to support enhanced logistics behaviors, including autonomous vehicle control.

Oshkosh Wheeled Tanker

Based on the successful MTVR Mk.31 operated by the USMC, the Wheeled Tanker system comprises of a tractor unit and 3 different tanker trailers.

The Wheeled Tanker tractor unit is manufactured by Oshkosh, and is able to be fitted with an uparmor kit.

The Tactical Air Refueller is capable of carrying 15,000 liters of fuel, and is equipped with pumping equipment suitable for refueling aircraft.

The Close Support Tanker (Fuel) is capable of carrying 20,000 liters of fuel, and is equipped with pumping equipment suitable for refueling ground vehicles.

The Close Support Tanker (Water) is capable of carrying 18,000 liters of water, and is equipped with pumping equipment suitable for offloading the potable water.



Stormer HVM

The Stormer is a development of the CVR(T) family of vehicles (Scorpion, Scimitar, Spartan etc.), and is essentially a larger, modernised version with an extra road-wheel on each side.

The Stormer HVM variant provides a mobile platform for the Starstreak High Velocity Missile (HVM) system providing both protection and excellent mobility, with eight ready to fire missiles and a further nine stowed inside.



Chengdu J-20

The Chengdu J-20, also known as Mighty Dragon, is a single-seat, twin-jet, all-weather, stealth fifth-generation fighter aircraft developed by China's Chengdu Aerospace Corporation for the People's Liberation Army Air Force (PLAAF). The J-20 was introduced into service in March 2017, the J-XX (which would result in the Chengdu J-20) development program was started in the late 1990s as a response to Western 5th generation fighter programs.



U-2S

The Lockheed U-2, nicknamed "Dragon Lady", is an American single-jet engine, high altitude reconnaissance aircraft operated by the United States Air Force (USAF) and previously flown by the Central Intelligence Agency (CIA). It provides day and night, high-altitude (70,000 feet, 21,300 meters), all-weather intelligence gathering.

The U-2S represents the latest upgrade of the aircraft, with an updated General Electric F118 engine, improved sensors, and the addition of a GPS receiver.

6.11.2 New Personnel

The following new units are available in this release:

Caucasus Region Civilians

Generic civilian models to represent typical people you would see in the Caucasus region.

10x Male characters, 10x Female characters, and 5x Child characters.

They are built as UCS components, and all of their clothing can be interchanged with any other UCS items to create additional variation. They are compatible with the Western, Korean, and Refugee civilians.

6.11.3 New Equipment

The following new units are available in this release:

General Service Respirator

The General Service Respirator is a military gas mask designed to replace the previous S10 respirator for the British Armed Forces. It was designed by DSTL and Scott Safety in collaboration with the MoD.

The respirator was officially adopted into service with the Armed Forces on 26 August 2010, and training started during 2011, with British Forces Germany being first to field them.



M2010 Sniper Rifle

The M2010 Enhanced Sniper Rifle (ESR) is derived from and replaced the M24 Sniper Weapon System, and was designed to give snipers longer range in the mountainous and desert terrain of the War in Afghanistan.

M3E1 MAAWS

The M3E1 Multi-Role Anti-Armor Anti-Personnel Weapon System (MAAWS) is an improved and modernised variant of the venerable Carl Gustaf recoilless rifle, originally designed and produced by Bofors in Sweden. The weapon is an 84mm man-portable reusable anti-tank weapon, and one of many recoilless rifle designs that were common in its era.

The M3E1 is shorter, lighter, and has improved interfaces for both the operator (grips, pads, and carry handles) and the weapon (MIL-Std Rail Interface System). It also comes as standard with the Aimpoint FCS13RE in US service, an advanced optic system which includes a laser range finder, and lead-angle compensation.



M9 Medic Aid Bag

The M9 Medic Aid Bag is a lightweight, thin-profile backpack, designed to carry the necessary emergency support items for operational medics working in confined spaces.

They are UCS accessories in VBS, and can be worn by any UCS-compatible character.



M50 Protective Mask

The M50 series protective mask consisting of the M50 and M51 variants, officially known as the Joint Service General Protective Mask (JSGPM) is a lightweight, protective mask system consisting of the mask, a mask carrier, and additional accessories.

They are UCS accessories in VBS, and can be worn by any UCS-compatible character.



Radio Backpack

A generic Modular Lightweight Load-carrying Equipment (MOLLE) Assault Pack, used by Radio Operators to carry their equipment.

It was added at the request of the US Army to allow easy identification of Radio-Equipped characters in-game, visible via the whip aerial protruding from the top of the pack.

They are UCS accessories in VBS, and can be worn by any UCS-compatible character.



Eye Protection

Standard equipment for all soldiers in the US Army includes ballistic protective eyewear. Added at the request of the US Army, Wiley-X PT-1 and Revision Sawfly glasses, equipped by default to all US Army units in-game.

They are UCS accessories in VBS, and can be worn by any UCS-compatible character.

SCBA

The Scott™ Air-Pak™ Self Contained Breathing Apparatus (SCBA) is a modular system of personal air supply, based around a common cylinder carrier which can be equipped with different varieties of air cylinder and face mask. Depicted in VBS fitted with a 4500 PSI / 45 Minute air cylinder, as used by the USMC.

They are UCS accessories in VBS, and can be worn by any UCS-compatible character.



Level A Suit

The Kappler™ Frontline 500 HAZMAT Suit provides Level A protection against a broad array of chemicals, flame resistance, and radiant heat. Used by the USMC in HAZMAT fire situations.



Type 2 Suit

The Lion MT94 HAZMAT Suit provides Type / Class 2 protection against a range of chemical and biological contaminants. Used by the USMC in HAZMAT fire situations.



M26 (JSTDS-SS Pump + Jetwash Lance)

The M26 Joint Service Transportable Decon System – Small Scale (JSTDS-SS) is a lightweight, transportable decontamination system. Designed to conduct both operational and thorough decontamination of military personnel and materiel, the systems can be deployed rapidly, are fully operational in less than 30 minutes and can be transported by a variety of military vehicles.

It is essentially a portable diesel pressure washer, which is used to wash down vehicles and equipment to remove contaminants.



CBRN Equipment

As part of the PDSS16 project, a number of pieces of CBRN equipment have been added to the build:

M4 Joint Chemical Agent Detector (JCAD), a pocket-size, rugged handheld detector that automatically detects, identifies and alarms to chemical warfare agents and toxic industrial chemical vapors.

AN/PDR-77, including Alpha, Beta, Gamma, X-Ray, "Pancake", and "micro-R" probes. A multipurpose radiation detection system. Designed for nuclear accident and incident response

Antidote Treatment Nerve Agent Autoinjector (ATNAA) autoinjector, which provides atropine and pralidoxime chloride in a single delivery system that can be administered in the case of exposure to certain chemical / nerve agents.

Convulsive Antidote, Nerve Agent (CANA) autoinjector, which provides diazepam in a delivery system that can be administered in the case of exposure to certain chemical / nerve agents.

Reactive Skin Decontamination Lotion (RSDL) kit, which is intended to remove or neutralize chemical warfare agents and T-2 Toxin from the skin.

M100 Sorbent Decontamination System, a powdered sorbent used in operator spray-down operations associated with immediate decontamination of vehicles and equipment.

33 gallon containers with water and decontaminant

NATO standard CBRN markers for Atomic, Biological, and Gas threats.

Tarps and Shuffle Pits for use during decontamination

Engineer Tape for marking and restricting areas for decontamination or other purposes.



6.11.4 VBS Blue IG Models

VBS4 also includes a set of models added for VBS Blue IG use cases. These models are intended to provide visual representations of the vehicles and objects and do not include fully featured simulation of their functionality.

15Zh58 (SS-25) TEL

The RT-2PM Topol (Russian: РТ-2ПМ Тополь ("Poplar"); NATO reporting name SS-25 Sickle; GRAU designation: 15Ж58 ("15Zh58"); START I designation: RS-12M Topol) is a mobile intercontinental ballistic missile designed in the Soviet Union and in service with Russia's Strategic Missile Troops.



1L13-3 (Box Spring) Radar

The 1L13-3 Nebo radar (NATO reporting name: Box Spring) is a mobile 2D early warning radar operating in the A/B Band.

It is a general surveillance / early warning radar.

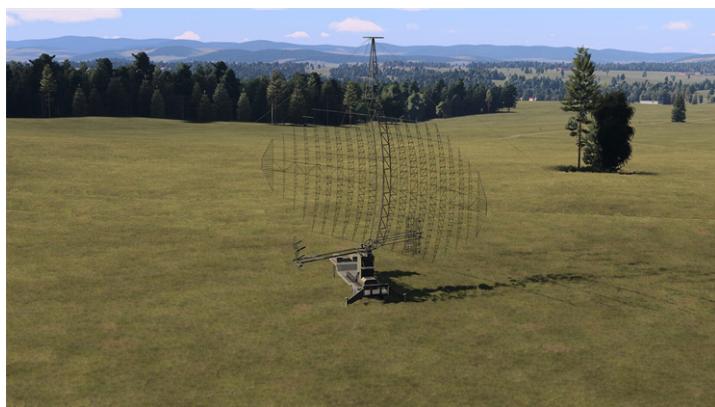


1RL113 (Tall King) Radar

The 1RL113 Lena radar (NATO reporting name: Tall King) is a mobile 2D early warning radar operating in the VHF band.

Technically, the variant shown in VBS is the 5N84 "Oborona-14" Tall King C, with the 1RL113 being the same antenna equipment mounted on a purpose built, permanent structure, and known to NATO as Tall King A, and the 44Zh6 Furgon being somewhere between the two in terms of mobility, which was known to NATO as Tall King B.

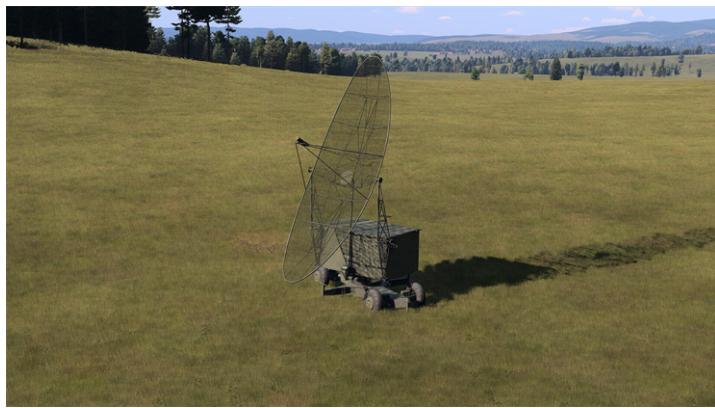
It is a general surveillance / early warning radar, but is often operated with the SA-5 surface to air missile.



1RL119 (Side Net) Radar

The 1RL119 radar (NATO reporting name: Side Net) is a trailer mounted height finding radar operating in the E Band.

It is most commonly operated with the SA-2, SA-3, SA-4, and SA-5 surface to air missiles.



1RL130 (Odd Pair) Radar

The 1RL130 radar (NATO reporting name: Odd Pair) is a trailer mounted height finding radar operating in the E Band.

It is most commonly operated with the SA-5 surface to air missile.



1RL131 (Spoon Rest) Radar

The 1RL131 Terek radar (NATO reporting name: Spoon Rest D) is a mobile 2D early warning radar operating in the VHF Band.

It is a general surveillance / early warning radar, but is often operated with the SA-2, SA-3, and SA-6 surface to air missiles.



1RL141 (Odd Group) Radar

The 1RL141 radar (NATO reporting name: Odd Group) is a trailer mounted height finding radar operating in the E Band.

It is most commonly operated with the SA-5 surface to air missile.



1RL19 (Thin Skin) Radar

The 1RL19 radar (NATO reporting name: Thin Skin) is a trailer mounted height finding radar operating in the E Band.

It is most commonly operated with the SA-4, SA-6, and SA-8 surface to air missiles.



30N6E (Flap Lid) Radar

The 30N6E radar (NATO reporting name: Flap Lid B) is a mobile, multi-function phased-array engagement radar operating in the I/J Band. Flap Lid A is trailer mounted, Flap Lid B is mounted on a MAZ-7310 truck.

It is most commonly operated with the SA-10 surface to air missile.



36D6 (Tin Shield) Radar

The 36D6 radar (NATO reporting name: Tin Shield) is a mobile 3D search and acquisition radar operating in the S Band.

It is most commonly operated with the SA-10 surface to air missile.



55K6E Command Post

The 55K6E Command Post is the command and control component of the S-400 Triumf (NATO reporting name: SA-21 Growler) surface to air missile system.

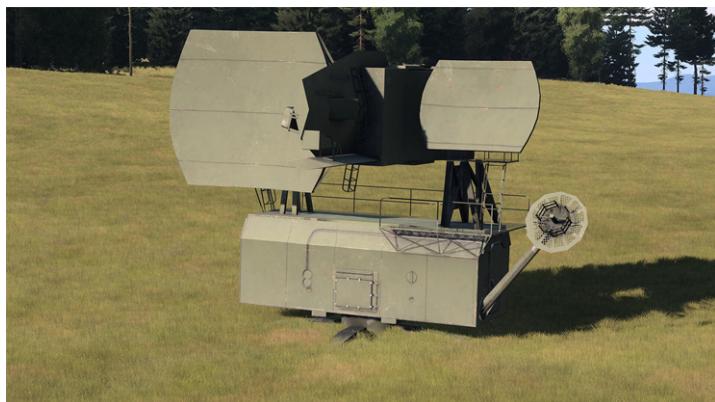
It is mounted on an 8x8 Ural 5323 chassis.



5N62B (Square Pair) Radar

The 5N62B radar (NATO reporting name: Square Pair) is a stationary search and acquisition radar operating in the H Band.

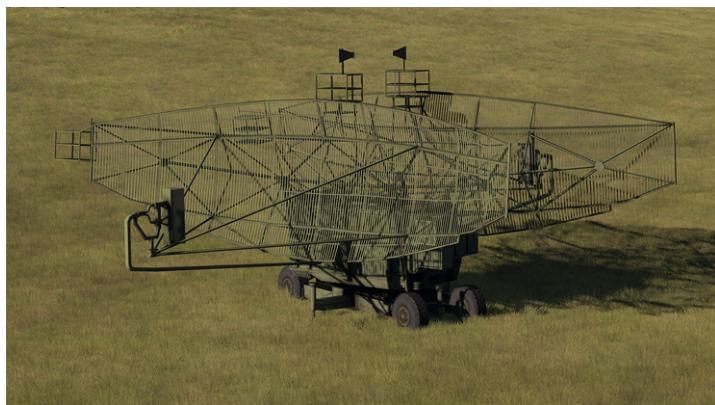
It is most commonly operated with the SA-5 surface to air missile.



5N87 (Back Trap) Radar

The 5N87 radar (NATO reporting name: Back Trap) is a mobile 2D early warning radar operating in the E/F Band.

It is most commonly operated with the SA-5 surface to air missile.



64N6 (Tomb Stone) Radar

The 64N6 radar (NATO reporting name: Tomb Stone) is a trailer mounted, phased-array search and acquisition radar operating in the C Band.

It is most commonly operated with the SA-10, SA-20, and SA-21 surface to air missiles.



91N6E (Big Bird) Radar

The 91N6E radar (NATO reporting name: Big Bird) is a trailer mounted, phased-array search and acquisition radar operating in the S Band.

It is most commonly operated with the SA-10, SA-20, and SA-21 surface to air missiles.



85mm AA KS-12

The KS-12 is a Russian-made towed anti-aircraft gun which was introduced with the Soviet army in 1939. Currently the KS-12 85mm remains in service with over a dozen armed forces around the world, many of whom keep it in active front line service.



92N6E (Grave Stone) Radar

The 92N6E radar (NATO reporting name: Grave Stone) is a mobile, multi-function phased-array engagement radar operating in the I/J Band.

It is mounted on a MZKT-7930 truck. It is most commonly operated with the SA-21 surface to air missile.



96L6E (Cheese Board) Radar

The 96L6E radar (NATO reporting name: Cheese Board) is a mobile, multi-function phased-array early warning and acquisition radar operating in the C Band.

It is mounted on a MZKT-7930 truck. It is most commonly operated with the SA-21 surface to air missile.



9A84 (SA-12 Giant) LL

The 9A84 Transporter Erector Launcher / Transloader is equipped with an erecting mechanism for 2 containers of the SA-12 Giant surface to air missile, and a crane to allow the transloading / reloading of both itself and other TELAR/TEL vehicles within the missile battery.



9A85 (SA-12 Gladiator) LL

The 9A85 Transporter Erector Launcher / Transloader is equipped with an erecting mechanism for 4 containers of the SA-12 Gladiator surface to air missile, and a crane to allow the transloading / reloading of both itself and other TELAR/TEL vehicles within the missile battery.



9P78-1 Iskander-M

Part of the 9K720 Iskander (NATO reporting name SS-26 Stone) short-range ballistic missile system, the 9P78-1 is the Transporter Erector Launcher of the system. The vehicle carries 2 9M723 ballistic missiles, with a published range of 415km, and capable of carrying conventional and nuclear warheads.



9S18M1 (Snow Drift) Radar

The 9S18M1 radar (NATO reporting name: Snow Drift) is a mobile phased-array acquisition radar operating in the Centimetric Band. It is mounted on a GM-569 tracked chassis.

It is most commonly operated with the SA-11 and SA-17 surface to air missiles.



9S19 (High Screen) Radar

The 9S19 Imbir radar (NATO reporting name: High Screen) is a mobile, phased-array acquisition and tracking radar operating in the X Band. It is mounted on a MT-T tracked chassis.

It is most commonly operated with the SA-12 and SA-23 surface to air missiles.



9S36 (Chair Back) Radar

The 9S36 radar (NATO reporting name: Chair Back) is a mobile, telescopic lift mounted, phased-array acquisition and tracking radar operating in the Centimetric Band. It is mounted on a GM-569 tracked chassis.

It is most commonly operated with the SA-17 surface to air missile.



9S552 Iskander CV

The 9S552 Command Post is the command and control component of the 9K720 Iskander (NATO reporting name: SS-26 Stone) ballistic missile system.

It is mounted on an 6x6 Kamaz 4310 chassis.



Admiral Grigorovich Class Frigate

The Admiral Grigorovich class, also referred to as Krivak IV class, Russian designation Project 11356P/M, is a class of frigates built by the Yantar Shipyard in Kaliningrad for the Russian Navy and Indian Navy. Based on the Talwar class, six ships were ordered for the Russian Black Sea Fleet under two contracts in 2010 and 2011 as a complement to the Admiral Gorshkov class frigates.



Air Cushion (Iranian) BH.7

The British Hovercraft Corporation BH.7 (also known as the Wellington class) was a medium size hovercraft. It was the first quantity-production hovercraft to be specifically developed for military applications. The Imperial Iranian Navy would be a key military operator, having placed multiple orders for models of the BH.7.



Airbus A310

The Airbus A310 is a wide-body airliner developed and manufactured by Airbus, as a response to demand for an aircraft smaller than the A300. Keeping the same eight-abreast cross-section, the A310 is shorter than the initial A300 variants, and can carry up to a maximum of 275 passengers, depending on the seating configuration.



Aircraft Baggage Conveyor

The generic aircraft baggage loading conveyor allows the ground handling agents to load loose baggage on to aircraft where containerized baggage handling is not available.



Aircraft Baggage Truck and Wagon

The generic aircraft baggage truck / tractor provides ground handling agents mobility and pulling power to move baggage and small / light aircraft around the airport.

The generic aircraft baggage wagon provides ground handling agents the capability to move large amounts of baggage around the airport.



Aircraft Catering Truck

Aircraft catering trucks are usually commercial vehicles modified with lifting bodies, so that they may enable almost universal unloading of unused food and drink from the aircraft, and the loading of fresh food and drinks for passengers and crew.



Aircraft Follow Me Car

The generic Follow-Me Car allows airport marshallers to provide directions for pilots taxiing on the ground at unfamiliar airports. Typically a commercial vehicle finished in a black and yellow checkerboard pattern, along with specialist lighting and radio equipment.



Aircraft Tow Tractor

Aircraft Tow Tractors allow ground handling staff to move aircraft without having to rely on the thrust produced from the aircraft's engines. They are most commonly used to push an aircraft away from the gate when it is ready to leave, but may also be used to reposition aircraft, or transfer them to/from hangar or servicing facilities.



Aircraft Towbar

Aircraft Towbars provide a connection and adaptor between the universal connection on a Tow Tractor and the landing gear of an aircraft. They provide the Tow Tractor the ability to move and control the aircraft being towed.

Airport Bus

Buses at airports are used to move people from the terminal to either an aircraft or another terminal. Airport buses often have a low profile to allow passengers to disembark directly to the apron.



AS-365 Dauphin

AS365 Dauphin (Dolphin), also formerly known as the Aérospatiale SA 365 Dauphin 2, is a medium-weight multipurpose twin-engine helicopter produced by Airbus Helicopters. In production for over 40 years, over 1000 have been built. The design was also used as the basis for the US Coast Guard's HH-65 Dolphin.



Auto Rickshaw

The auto rickshaw is a common form of urban transport, both as a vehicle for hire and for private use, in many countries around the world. They are especially common in countries with tropical or subtropical climates, since they usually are not fully enclosed, and in many developing countries because they are relatively inexpensive to own and operate.

BAZ-69092 Tow Vehicle

The BAZ-69092 is a Russian artillery tractor and missile vehicle that was developed as a successor to the MAZ-537 and MAZ-7310 by Bryansk Automobile Plant. It can haul semi-trailers and loads with mass of 13-21 metric tons, both on and off road.

Beechcraft 36 Bonanza

The Beechcraft Bonanza is an American general aviation aircraft introduced in 1947 by Beech Aircraft Corporation. The six-seater, single-engined aircraft is still being produced by Beechcraft and the model 36 Bonanza, introduced in 1968, features a stretched fuselage and improved engine.



BM-27M Uragan-1M

An upgrade to the Cold War era BM-27, the BM-27M Uragan-1M (Hurricane) mounts a modernised version of the 9P140 launcher on to the MZKT-7930 chassis. Capable of firing 12 300mm rockets, or 15 220mm rockets.

Cessna 172 Skyhawk

The Cessna 172 Skyhawk is an American general aviation aircraft introduced in 1956 by the Cessna Aircraft Company. The four-seat, single-engine, high wing, fixed-wing aircraft is still being produced by the Cessna Aircraft Company.



Civilian Airport Worker

A generic Airport Worker in North American style personal protective equipment. Commonly seen on the apron of airports performing any number of tasks, from marshaling aircraft, to loading baggage, or refueling the aircraft.



Club K Container

The 3M54 Kalibr (NATO reporting name SS-N-27 Sizzler) is a family of Russian surface ship-, submarine-launched and airborne anti-ship and coastal anti ship (AShM), land attack cruise missiles (LACM) and anti-submarine missiles developed by the Novator Design Bureau (OKB-8). The Club-K variant is a containerized version of the weapons, where the entire system is placed in standard 20- and 40-foot sea containers. Designed to defeat surface and ground targets. The complex can be mounted on shorelines, vessels of various classes, rail platforms and trucks.

Communications Satellite

A communications satellite is an artificial satellite that relays and amplifies radio telecommunications signals to create a communication channel between a source transmitter and a receiver at different locations on Earth. There are about 2,000 communications satellites in Earth's orbit, used by both private and government organizations.

Construction Worker

A generic Construction Worker in North American style personal protective equipment.

Defense Satellite

Defense Satellites may be grouped broadly into categories covering observation or communication, and are deployed by around 12 countries in the world. Observation satellites can be used for Missile Early Warning, Nuclear Explosion Detection, Electronic Reconnaissance (ELINT), Optical Imaging Surveillance (IMINT), or Radar Imaging Surveillance. Communication satellites can be used to provide secure global communications, secure GPS, and other classified systems.

Delta IV Class Submarine

The Delta-class are a series of nuclear-powered ballistic missile submarines, designed and built in the Soviet Union, which formed the backbone of the Soviet and Russian strategic submarine fleet since their introduction in 1973. They carry nuclear ballistic missiles of the R-29 Vysota family, with the Delta IV-class carrying the R-29RM (NATO reporting name SS-N-23 'Skiff').

Seven Delta IV-class submarines, Soviet designation Project 667BDRM Delfin (NATO reporting name Delta IV) were built; all are still in service in the Russian Navy. The submarines, based at the Sayda Guba Naval Base, operate in the Northern Fleet.

DJI S1000

The DJI S1000 is a commercial, professional-grade octo-copter, designed for high level photography and cinematography. Most often equipped with a digital SLP camera and lens, it is capable of carrying a 6 Kg payload with a flight time of 15 minutes.



DJI Spark

The DJI Spark is a commercial, consumer-grade mini quad-copter, designed to allow users to take photos and video from unconventional (read: airborne) camera angles. It is unable to carry any meaningful payload, and has a flight time of 15 minutes.



EC145

The EC145 (now known as the Airbus Helicopters H145) is a twin-engine light utility helicopter, capable of carrying up to nine passengers along with two crew, depending on configuration.

The helicopter is marketed for passenger transport, corporate transport, emergency medical services (EMS), search and rescue, parapublic and utility roles.



Emergency Medical Technician

A generic Emergency Medical Technician in North American style clothing / equipment.

Fire Fighter

A generic Fire Fighter in North American style personal protective equipment.

Flycatcher Radar

The Flycatcher radar system is a dual I/J/K-Band short range air defense fire control system. It has an all-weather capability and track-while-scan capability and can simultaneously control three anti-aircraft guns or SAM rocket launchers.

GAZ-66 Truck

The GAZ-66 is a Soviet and later Russian 4x4 off-road military truck produced by GAZ. It was one of the main cargo vehicles for motorized infantry of the Soviet Army and is still employed in former Soviet Union countries. Almost one million vehicles of this type were built for both military and civil use.

GAZ-69

The GAZ-69 is a Soviet and later Russian 4x4 off-road light military truck produced by GAZ. The GAZ-69 was the main basic light off-road vehicle of the Soviet Army, replacing the types used during the Second World War, until it itself was replaced by the UAZ-469 in the 1960's

Gepard Class Frigate

Project 1166.1 (NATO reporting name: Gepard) is a class of frigates that were intended as successors to the earlier Koni-class frigates and Grisha, and Parchim-class corvettes. The first unit of the class entered service in 2002, and 5 more have since been completed. Moderately armed, and with a short endurance, the ships are designed as inexpensive multipurpose patrol ships for operation in the littoral zone.

Grumman LLV

The Grumman Long Life Vehicle (LLV) is an American light transport truck model, designed as a mail truck for the United States Postal Service, which is its primary user.

HQ-2 Launcher

A Chinese modification / upgrade of the Soviet S-75 (NATO reporting name SA-2 Guideline), the HQ-2 (Hong Qi, or "Red Banner") is still in service in large numbers with the Peoples Liberation Army.

HQ-6A (LY-60) Acquisition Radar

The HQ-6 (Hong Qi, or "Red Banner") is part of a family of Chinese missiles, largely based on the Italian Selenia Aspide missile. The entire SAM system consists of four truck mounted radars (one search / surveillance radar and three tracking / fire control radars), one power supply truck, and six transporter erector launchers (TEL)s.

HQ-6A (LY-60) TEL

The HQ-6 (Hong Qi, or "Red Banner") is part of a family of Chinese missiles, largely based on the Italian Selenia Aspide missile. The entire SAM system consists of four truck mounted radars (one search / surveillance radar and three tracking / fire control radars), one power supply truck, and six transporter erector launchers (TEL)s.

Imaging Satellite

An Earth observation satellite or Earth remote sensing satellite is a satellite used or designed for Earth observation (EO) from orbit, including spy satellites and similar ones intended for non-military uses such as environmental monitoring, meteorology, cartography and others. The most common type are Earth imaging satellites, that take satellite images, analogous to aerial photographs; some EO satellites may perform remote sensing without forming pictures, such as in GNSS radio occultation.

International Space Station

The International Space Station (ISS) is a modular space station (habitable artificial satellite) in low Earth orbit. It is a multinational collaborative project between five participating space agencies: NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada). The station serves as a microgravity and space environment research laboratory in which scientific research is conducted in astrobiology, astronomy, meteorology, physics, and other fields.

Iranian Soldier

A typical soldier of the Islamic Republic of Iran Army.

ISIS Fighter

A typical fighter of the so-called Islamic State militant group.

J-11 Flanker-L

The Shenyang J-11 (NATO reporting name: Flanker-L), is a twin-engine jet fighter, based on the Soviet-designed Sukhoi Su-27 air superiority fighter. The J-11 has been modified and upgraded by the Shenyang Aircraft Corporation to incorporate more domestic systems and enhanced capability in to the airframe.

Jet Ski

A typical consumer-level personal watercraft, this particular model is a Kawasaki STX-15F, powered by a 1.5litre 112kW engine, providing the craft with a top speed of 52 kts on calm water.

KJ-2000 Mainring

The KJ-2000 (NATO reporting name: Mainring) is a Chinese Airborne early warning and control system comprising domestically designed electronics and radars installed on a modified Ilyushin Il-76 airframe.

KN-02 Hwasong-11 TEL

The KN-02 Hwasong-11 is a North Korean reverse-engineered locally produced modification of the OTR-21 Tochka short-range ballistic missile. The KN-02 is a short-range, road-mobile ballistic missile, whose Transporter Erector Launcher (TEL) is a locally fabricated version of the Belarusian MAZ-630308-224 or -243 6x4 or 6x6 commercial heavy utility truck.

Krivak Class Frigate

The Project 1135 Burevestnik (NATO reporting name: Krivak) were a series of frigates and guard ships (patrol boats) built in the Soviet Union primarily for the Soviet Navy since 1970. These ships are commonly known by their NATO reporting class name of Krivak and are divided into Krivak I, Krivak II, Krivak IV (navy), and Krivak III (coast guard) classes. This model represents the Krivak II variant.

M1978 Koksan

The M-1978 Koksan is a 170 mm self-propelled gun of North Korean design and manufacture. It is based on a Chinese Type 59 tank chassis, fitted with a 170 mm gun in an open mount with no superstructure, and is stabilized when firing by two large folding spades at the rear.

Man in Wheelchair

A typical manual wheelchair, common for use when walking is difficult or impossible due to illness, injury, old age related problems, or disability.

Mazda Bongo w/DShK (1999)

The Mazda Bongo is a cabover van and pickup truck manufactured by the Japanese automobile manufacturer Mazda since 1966. It has been built with rear-, middle-, as well as front-mounted engines. This model represents a third generation variant, turned in to a "technical" by the improvised fitting of a DShK machine gun to the load bed.

Mohajer-2 UAV

The Qods Mohajer is an Iranian single-engine tactical unmanned aerial vehicle (UAV) built by the Qods Aviation Industry Company in four main variants (-1 thru -4) from the 1980s to the present day. The Mohajer family is primarily used for reconnaissance, and is among the most mature and well-known Iranian UAVs.

MR-104 (Drum Tilt) Radar

The MR-104 Rys (NATO reporting name: Drum Tilt) is a fire control radar operating in the H/I bands. It is usually seen fitted to ships as part of the gun fire control system.

It has also been deployed in a trailer mounted variant by the North Korean People's Army, associated with fire control of ZPU-4 anti-aircraft guns. How effective this is, remains to be seen.

MZKT-7930 Tractor

MZKT-7930 Astrolog is a Russian 8x8 heavy offroad truck, designed and developed by MZKT in Belarus. Used as the basis for Transporter Erector Launchers, Radar carriers, bridge layers, and other engineering / logistics vehicles, the MZKT-7930 series forms part of the modern truck series being employed as part of the ongoing modernization of Russian Armed Forces.

Nanuchka III Class Corvette

The Project 1234 Ovod (NATO reporting name: Nanuchka), are series of corvettes (small missile ships in Soviet classification) built for the Soviet Navy and export customers between 1969 and 1991. The ships were designed around the P-120 Malakhit ("Siren") anti ship missile, and feature a mixed armament of Guns and Missiles for self defense.

Neon Antonov Class Logistics Ship

The Project 1595 coastal logistics ship (NATO reporting name: Neon Antonov), is a class of Russian Coast Guard vessels. The vessels were designed to supply Border Guard installations in the Pacific Ocean, so the design is essentially a small freighter that carries defensive armament to engage surface and air threats.

Oscar Class Submarine

Project 949 Granit and Project 949A Antey, (NATO reporting names Oscar I and Oscar II respectively), are a series of nuclear-powered cruise missile submarines designed in the Soviet Union for the Soviet Navy. They are currently in service with the Russian Navy with some of the vessels planned to be modernized as Project 949AM, to extend their service life and increase combat capabilities.

Pauk Class Corvette

Project 1241.2 Molniya-2 (NATO reporting name: Pauk) are a class of small patrol corvettes built for the Soviet Navy and export customers between 1977 and 1989. The ships are designed for coastal patrol and inshore anti-submarine warfare, and are a patrol version of the Tarantul class (which is designated Project 1241.1), being slightly longer and having diesel engines instead of gas turbines.

PL-12 Missile

The PL-12 (Pī Lì-12 or "Thunderbolt-12") is an active radar-guided beyond-visual-range air-to-air missile developed by the People's Republic of China. It is considered comparable to the US AIM-120 AMRAAM and the Russian R-77.

PL-8 Missile

The PL-8 (Pī Lì-8 or "Thunderbolt-8") is a short-range, infrared-homing air-to-air, and ground-to-air, missile developed from the Israeli Python-3 by the People's Republic of China.

PL-9 Missile

The PL-9 (Pī Lì-9 or "Thunderbolt-9") is a short-range, infrared-homing air-to-air missile developed by the People's Republic of China.

Police Officer

A typical American style Police Officer. This officer wears the uniform style of the NYPD.

Romeo Class Submarine

The Project 633 (NATO reporting name: Romeo) is a class of Soviet diesel-electric attack submarine, built between 1957 and 1961. By today's standards Romeo class submarines are considered obsolete, but they still have some value as training and surveillance vessels.

RSN-75V (Fan Song-E) Radar

The RSN-75V radar (NATO reporting name: Fan Song-E) is a trailer mounted fire control and tracking radar operating in the G Band.

It is operated with the SA-2E surface to air missile.

RSNA-75M (Fan Song-B) Radar

The RSNA-75M radar (NATO reporting name: Fan Song-B) is a trailer mounted fire control and tracking radar operating in the E/F Bands.

It is operated with the SA-2 surface to air missile.

RSNA-75M (Fan Song-F) Radar

The RSNA-75M radar (NATO reporting name: Fan Song-F) is a trailer mounted fire control and tracking radar operating in the E/F Bands.

It is operated with the SA-2 surface to air missile.

Safir Military Vehicle

Safir (meaning "traveler") is an Iranian 4x4 multipurpose military vehicle built by Fath Vehicle Industries. The Safir weighs 1.5 tonne and is based on the Willys M38.

Sierra II Class Submarine

Project 945 Barrakuda and Project 945A Kondor, (NATO reporting names Sierra I and Sierra II respectively), are series of nuclear-powered attack submarines designed in the Soviet Union for the Soviet Navy. They are currently in service with the Russian Navy.

Skiff

The term skiff is used for a number of essentially unrelated styles of small boats. Traditionally, these are coastal craft or river craft used for leisure, as a utility craft and for fishing, and have a one-person or small crew. This model represents a small vessel powered by an outboard motor, with a crew / capacity of one.

Slava Class Guided Missile Cruiser

Project 1164 Atlant (NATO reporting name Slava), is a class of guided missile cruisers designed and constructed in the Soviet Union for the Soviet Navy, and currently operated by the Russian Navy. The design started in the late 1960s, based around use of the P-500 Bazalt missile, and was intended as a less expensive conventionally powered alternative to the nuclear-powered Kirov-class battlecruisers.

SM-90 (SA-2) Launcher

The S-75 (NATO reporting name SA-2 Guideline) is a Soviet-designed, high-altitude air defense system, built around a surface-to-air missile with command guidance. The SM-90 is the single-rail launcher component of the larger S-75 (NATO: SA-2) system.

SON-9 (Fire Can) Radar

The SON-9 radar (NATO reporting name: Fire Can) is a trailer mounted fire control radar operating in the E Band.

It is most commonly operated with the KS-19 Anti-Aircraft Gun.

Speedboat

A typical consumer-level watercraft, this particular model of speedboat is a Finnmaster T8, powered by a 180-260kW engine, providing the craft with a top speed of 41 kts on calm water.

Su-35 Flanker-E

The Sukhoi Su-35 (NATO reporting name: Flanker-E) is the designation for two improved derivatives of the Su-27 air-defense fighter. They are single-seat, twin-engine, supermaneuverable aircraft, designed by the Sukhoi Design Bureau and built by the Komsomolsk-on-Amur Aircraft Plant.

The type was originally developed by the Soviet Union from the Su-27 and was known as the Su-27M. It incorporated canards and a multi-function radar giving it multi-role capabilities.

Tarantul Class Corvette

Project 1241.1 (NATO reporting name: Tarantul) are a class of Soviet missile corvettes built for the Soviet Navy and export customers between 1977 and 1984. The ships are designed for short-range anti-ship-missile engagement with the P-15 (SS-N-2) missile.

Tiara 3900 Yacht

The Tiara 3900 is a typical 40 foot fishing / cruising yacht, fitted with two 405 kW engines, the Tiara 3900 is capable of 32kts.

Toyota RAV-4, PK MG (1998)

The Toyota RAV4 is a compact crossover SUV (sport utility vehicle) produced by the Japanese automobile manufacturer Toyota. This model represents a first generation "face lift" variant, turned in to a "technical" by the improvised fitting of a PK machine gun to the load bed.

Type 039A Yuan Class Submarine

The Type 039A submarine (NATO reporting name: Yuan) is a class of diesel-electric submarine in China's People's Liberation Army Navy. It is China's first AIP powered submarine and presumed to be one of the quietest diesel-electric submarine classes in service. This class is the successor of the Type 039 submarine.

Type 051 Luda Class Destroyer

The Type 051 destroyer (NATO reporting name: Luda) was a class of guided missile destroyers deployed by China. It was the first guided missile destroyer fielded by the People's Liberation Army Navy (PLAN), and the first designed and built in China. 17 were built from 1970 to 1990.

Type 053H3 Jiangwei Class Frigate

The Type 053H3 (NATO reporting name: Jiangwei II) are a class of air defense frigates that entered service with the People's Liberation Army Navy Surface Force in the 1990s and 2000s. The class comprises of 10 vessels, all of which remain in active service. They were a follow-on of the Type 053H2G Jiangwei I class.

Type 056 Jiangdao Class Corvette

The Type 056 (NATO reporting name: Jiangdao) is a class of corvette deployed by the Chinese People's Liberation Army Navy (PLAN). They replace older patrol craft and some of the Type 053H frigates.

Type 093 Shang Class Submarine

The Type 093 (NATO reporting name: Shang) is a class of second generation nuclear-powered attack submarines deployed by the Chinese People's Liberation Army Navy Submarine Force.

Type 69 II MBT

The Type 69-II is a Chinese second generation main battle tank. It is a development of the Type 59 (based on the Soviet T-54A) with technologies derived from T-62. They were the first main battle tanks developed independently by China. With a crew of 4, and armed with a 100mm smoothbore main gun, the Type 69-II is typical of tanks of its generation.

Type 702 Radar

The Type 702 radar is a Chinese trailer mounted fire control radar operating in the C Band.

It is most commonly operated with Chinese 35mm Type 90 and 37mm Type 74/79 Anti Air Artillery.

Type 85 (YW531H) APC

The Type 85 is a tracked armored fighting vehicle produced by Norinco (industrial index: Type YW531H). It is an improved version of the Type 63 armored personnel carrier. The Type 85 series was developed from 1985, exclusively for the export market; for the PLA, the very similar Type 89 AFV was designed.

Udaloy Class Destroyer

Project 1155 Fregat and Project 11551 Fregat-M (NATO reporting names Udaloy-I and Udaloy-II respectively) are series of anti-submarine guided missile destroyers built for the Soviet Navy, seven of which are currently in service with the Russian Navy. They complement the Sovremenny-class destroyers in anti-aircraft and anti-surface warfare operations.

Ural-375

The Ural-375 is a general purpose 4.5 ton 6x6 truck, produced at the Ural Automotive Plant in the Russian SFSR since 1961. The Ural 375 replaced the ZIL-157 as the standard Soviet Army truck in 1979, where it formed the basis for numerous different logistics, engineering, and combat vehicles.

ZPU-1

The ZPU (Russian: ЗПУ; зенитная пулемётная установка, romanized: zenitnaya pulemotnaya ustanovka, meaning "anti-aircraft machine gun mount") is a family of towed anti-aircraft gun based on the Soviet 14.5x114mm KPV heavy machine gun. It entered service with the Soviet Union in 1949 and is used by over 50 countries worldwide.

ZPU-1 is the single-barreled variant.

ZPU-2

The ZPU (Russian: ЗПУ; зенитная пулемётная установка, romanized: zenitnaya pulemotnaya ustanovka, meaning "anti-aircraft machine gun mount") is a family of towed anti-aircraft gun based on the Soviet 14.5x114mm KPV heavy machine gun. It entered service with the Soviet Union in 1949 and is used by over 50 countries worldwide.

ZPU-2 is the twin-barreled variant.

Zubr Class LCAC

Project 1232.2 Zubr (NATO reporting name: "Pomornik") is a class of Soviet-designed air-cushioned landing craft (LCAC). The hovercraft was designed to sealift amphibious assault units (such as marines and tanks) from transport vessels to shores, as well as to transport and plant naval mines.

Catalina 34 Sailboat

The Catalina 34 is a small recreational keelboat, built predominantly of fiberglass, with wood trim. It has a masthead sloop rig, an internally-mounted spade-type rudder and a fixed keel. First built in 1985, nearly 1,500 were produced, making it a common sight across the United States.

Reliance Class Cutter

The Reliance-class is one of a family of Medium Endurance Cutter or WMEC vessels operated by the United States Coast Guard. Entering service between 1964 and 1969, the Reliance-class cutters are used for law enforcement and search and rescue missions. The Reliance-class is due for replacement by the new Heritage-class cutters, planned to enter service in 2022.

47' Motor Lifeboat

The 47-foot MLB is the standard lifeboat of the United States Coast Guard (USCG). It is designed to weather hurricane force winds and heavy seas, capable of surviving winds up to 60 knots (110 km/h), breaking surf up to 6 m (20 ft) and impacts up to three G. If the boat should capsize, it is capable of self-righting in less than ten seconds.

6.12 Additional Enhancements

VBS4 21.1.3 includes the following enhancements:

- Expanded support for Head-Mounted Display (HMD) vendors and types.
For more information, see Virtual Reality Headsets in the VBS4 Administrator Manual.
- Customer specific UI localization.

To switch languages, use the Localization Settings in the VBS4 Administrator Manual.



FEATURE NOTICE

Customer specific localization is delivered as a customer exclusive addon and is not available by default.

- Korean Manuals localization.

To switch to Korean, use the Localization Settings in the VBS4 Administrator Manual.

VBS4 21.1.0 includes the following enhancements:

- Radio Jamming Device added.

For more information, see Radio Jamming Device in the VBS4 Editor Manual.

- Magnus Effect implementation for projectiles.

For more information see the Advanced Ballistics setting in the VBS4 Administrator Manual.

- Additional Video Settings.

For more information, see Video Settings in the VBS4 Administrator Manual,

- Editor UI rethemed to more closely match the VBS4 style.

- Improved atmospheric effect for light sources.



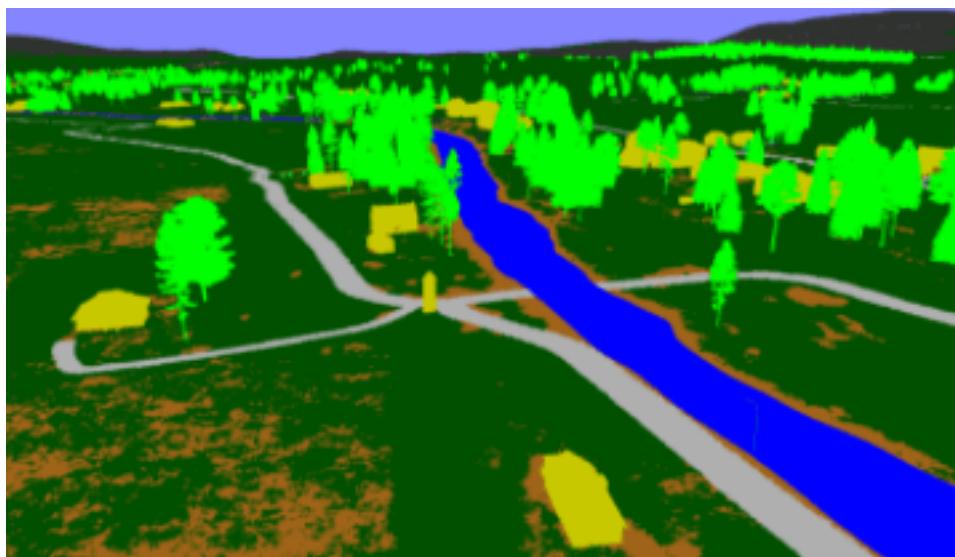
- Visualization of selected objects.



- Cut-out of water surfaces improved for better rendering of boats and underwater structures.



- New compositor added for object classification.



- Ability to render transparent objects in low resolution for performance boost enabled.



- Support added for the rendering of transparent objects in Thermal Vision.



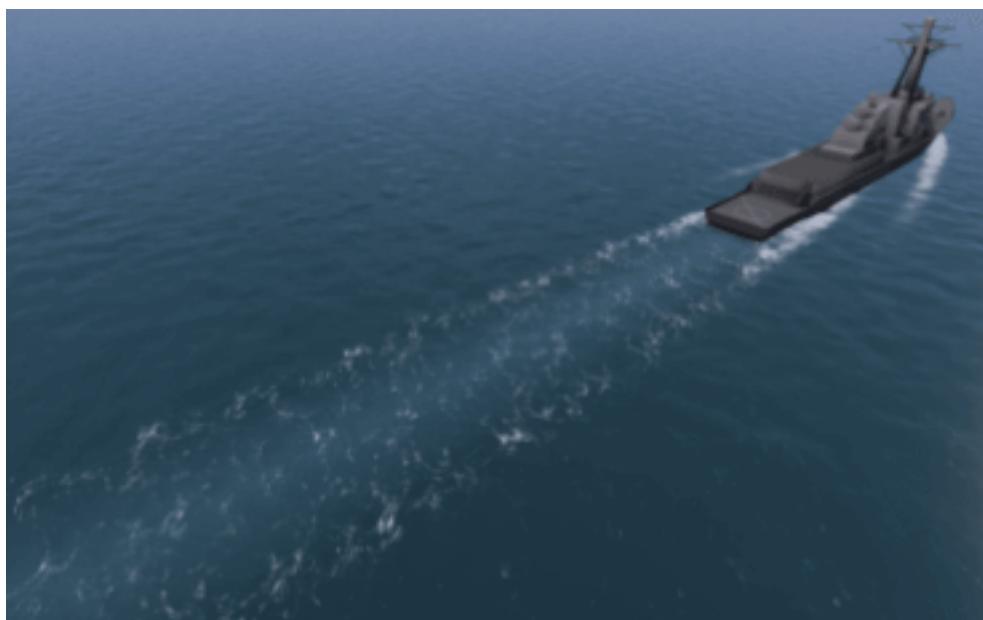
- Support added for the rendering of transparent objects in Night Vision.



- Rendering of grass improved.



- Improved rendering of ship wakes.



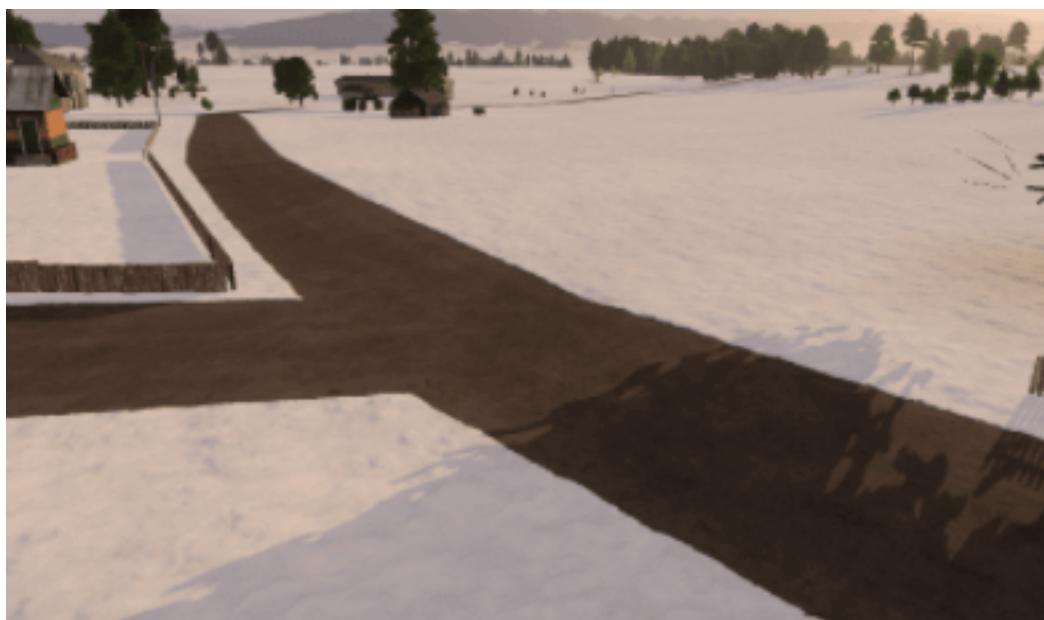
- Automatic dynamic range and black level adjustment for Thermal Imaging added.



- Forest shading improved.



- Snow coverage rendering implemented.



- Integration of snow and puddle technology into VBS4.

For more information, see [Puddles and Snow Coverage \(on page 281\)](#).



- Configurable temperature behavior for particles added. Particle systems can now define how the temperature of each particle develops over time.



6.13 Product Maintenance

The following issues were resolved in VBS4 21.1.7:

Issue key	Summary	Netsuite Case
RAB-158	Incorrect number of detonations when firing from ext turret.	
TS-1481	CTD when ext unit enters cargo slot.	
RAB-160	Wireshark shows detonation from both PCs.	

The following issues were resolved in VBS4 21.1.6:

Issue key	Summary	Netsuite Case
T3S-2385	Static objects randomly disappear on simulation retry.	
CT-6253		

The following issues were resolved in VBS4 21.1.5:

Issue key	Summary	Netsuite Case
T3S-1816	Not all PDUs created when VBS local entity fires turret of non local entity.	62680
RAB-40		
T3S-2360	LVCCanEnterExternalTurret no longer works.	
RAB-46		
T3S-2354	LightAspectAPI_v2 mode not transmitted to client instances.	71504
VBS4-6382		

The following issues were resolved in VBS4 21.1.4:

Issue key	Summary
AT-3039	No reticle with vehicle's view optic mode in VR.
AT-3046	NV green color is applied to the outside of view optic.
CONTENT-2952	Wrong color of a tank crew helmet.
CONTENT-3031	K9 vehicle, part of the model occludes the view optic.
CONTENT-3101	K2 vehicle machine-gun is at the wrong position with view optic mode.
VBSGEO-1205	Raster fixes for VBS Geo elevation.
VBSIII-30399	Content Library classes broken.

The following issues were resolved in VBS4 21.1.3:

Issue key	Summary
VB-7842	All lights shine through terrain when in interior scene mode
VBS4-3300	Korean Translation - VBS4 21.1
TN-1561	Localization - PLAN - Import / Export Dialog Windows do not work at all
TN-1540	Localization - Strings in menu boxes sometimes overlap
TN-1504	C2 Command View Option not localized
TN-1503	Order labels in AAR not localized
TN-1502	Radio Presets not Localized in Right Panel
TN-1501	Confirming YES / NO buttons in checkboxes aren't translated
TN-1500	Localization Fixes - Report Panel
TN-1499	Doubled information in bottom indicator
TN-1498	Localization Fixes - Unit List
TN-1497	Debriefing not fully localized
TN-1495	Add Translation for Dead and Announcement Channel for Pitch Radio
TN-1489	Localization fixes: VBS Plan - Follow-up
TN-1481	Localization Fixes - Plan Unit Symbol Dialog - USMC, US Army, AU Army
TN-1480	Validate final translation for a localized delivery
TN-1479	VBS Plan: Sharing rules – Side names
TN-1478	VBS Plan: Fire Mission Order – ammo type
TN-1475	Names of groups generated by Plan are not localized
TN-1474	Localization fixes: Plan Unit Symbol Dialog - All USAF strings (from CAS)
TN-1473	Switching Location does not automatically change Language
TN-1471	AAR Icons legend broken sizing with longer strings
TN-1470	MP Lobby multiple strings not translated
TN-1468	[KOREAN] FDC remaining not localized / translated strings
TN-1460	Localization Fixes - Color Picker (NgLibrary)
TN-1459	Localization Fixes - Dialog Manager
TN-1455	AI Feedback Labels not localized

Issue key	Summary
TN-1453	Radio channels with non-Latin characters are unsupported
TN-1452	Control AI Order labels not localized
TN-1440	Plan - File dialogs have hardcoded strings
TN-1434	Localization fixes: VBS4 main menu
TN-1433	Localization fixes: VBS Plan
TN-1421	L10n improvements - #1 - Shared translations per product
TF-1855	Interminable freeze when using Ground Control Station (88s and more)
SDKS-2369	VBS4 Using a Viewport on the main window causes issues after the first run
SDKS-2330	Bluedrop VBS4 TerrainMeshQueryAPI::RequestTerrainObjects Implementation
IGP-6105	Spot lights from VBS4 not replicated in BlueIG
IGP-5874	Spot Light Cone Angles are different between BlueIG and VBS3
FEP-673	RTL support - rightToLeftInput - frontend - part 2
FEP-633	RTL support - rightToLeftInput - frontend - part 1
CONTENT-2123	Engine of some vehicles works even when marked as inoperable
AT-2819	CTD with vehicle position in VR

The following issues were resolved in VBS4 21.1.2:

Issue Key	Summary
WS-1397	AAR failed to download after #missions
VBSGEO-1154	CTD on Admin, Client and SC0
VBSGEO-1146	Workflows Bug Roads added in Geo disappear after rejoining the mission
VBSGEO-1145	SE Bug Insets sometime break brushes
VBSGEO-1136	CTD in Intersections while in Geo
VBS4-4358	KO Translation Updates 21.1.2
VBS4-4202	Launcher Update Bing Tooltip post Legal Review
VB-7824	Stresstest - bot CTD
VB-7814	Stresstest - Freeze on mission load (waiting on data streaming) II.
VB-7809	CTD in the mission load
VB-7797	Stresstest - Freeze on mission load (waiting on data streaming)
VB-7788	CTD on startup after closing VBS4 previously

Issue Key	Summary
VB-7787	Stresstest - freeze roadplugin
VB-7786	CTD in Blue ResourceSystem GetCachedAccess
VB-7785	CTD when first stresstest mission was loading
VB-7779	Merge Varjo Systems 3.2 and HMD Improvements - Backport to 21.1
VB-7763	Performance drops after switching to optics (V) and focusing (RMB)
VB-7693	DrawHeightMap_v0 failed: Failed to create buffer
VB-7267	Water is broken in HMD (reflections)
TZ-3700	AAR failed to download after #missions
TZ-3695	ADF VV&A: 20.1.18.4 b313 delivered build unable to import and export chalkboard
TZ-3687	CTD when closing VBS during AAR download from DS
TS-1230	Can't walk through opened doors in houses cause there are second invisible doors
TN-1556	Refresh BS list icon is stuck in refresh state after manually refreshing the list
TN-1554	Flood of PublicExec messages
TN-1549	AAR failed to download because of spaces in name
TN-1542	Port -clientstatelog parameter into the release exe
TN-1541	DS battlespaces not listed
TN-1496	Battlespace icon is not visible on globe after new BS is created + list of BS is not updated
TN-1488	[KOREAN] Incorrect and inconsistent Korean font for automatically generated battlespace names
TN-1485	Battlespace cannot be executed without refreshing the BS list - no playable slots
TK-309	CTD when starting VBS4 and minimizing the window
TF-1853	Particle effects in TI on low preset look very broken
TF-1844	Local tracers are stuck inflight in clusters
TF-1839	Tracers get stuck mid-flight in clusters
TF-1838	Playtest - Peaks in simulation #4 Many big (400 ms) peaks in shotshell:SimulateMovement
TF-1837	Playtest - Peaks in simulation (batch #2)
TF-1836	Playtest - Peaks in simulation (batch #1)
TF-1835	Playtest - Peaks in simulation (duplicate)

Issue Key	Summary
TF-1829	[VDT] USSOCOM - Coordinate System changes from MGRS to UTM
TF-1828	Flood of asserts on mission start
TF-1826	Player hardlocked in "peek / lean" animation if grenade is thrown while peeking
TF-1824	CTD in VBSSTE.dll when closing Prepare via Save and Close
TF-1823	Stresstest - Peaks in [8432] Buoyancy::IsCloseToWater()
TF-1804	Dropping or reviving unit on a sloping terrain might cause Player being tilted
CT-5958	Remove non-working search boxes from MP lobby
CONTENT-1989	KR T-80 disappear after a shot from main canon
CONTENT-1981	IG X AS-365 Dauphin: "Cannot load texture" popup on destruction
CONTENT-1971	T-72 AI poor shooting distance
CONTENT-1970	Korean T-80 gunner can control the turret and fire main gun when turned out
CONTENT-1965	Weapons do not eject empty casings from the correct place
CONTENT-1923	VBS4 soaktest - CTD inside SimulationPhysX4.dll
AT-2784	DS CTD during mission load in Pitch Radio
AT-2778	Performance: ~50% of main thread time spend in Radio

The following issues were resolved in VBS4 21.1.1:

Issue key	Summary
TN-1469	Retry button is sometimes missing in preview and training state.
TF-1810	Peaks in initSkew
CONTENT-1950	Korea 21.1.1 - K9 Gunner's optics
CONTENT-1948	Korea 21.1.1 - Commander machine guns
CONTENT-1947	Korea 21.1.1 - K200 floating crew
CONTENT-1946	Korea 21.1.1 - K200 incorrect machinegun
CONTENT-1941	CTD in SetObjectKinematicState() when (pausing / rewinding / scrubbing)
CONTENT-1932	Korea 21.1.1 - K200 has blue tires in Blue engine
CONTENT-1931	Korea 21.1.1 - Update remaining vehicle crew
CONTENT-1879	Slow movement to right / left
AT-2768	Decrease RTT per frame in VBS4 presets
AT-2765	CTD in AAR when selecting Viewcast > Non-Grouped

Issue key	Summary
AT-2764	Battlespaces are not sorted alphabetically anymore by default
AT-2763	Camera jumps above player in the beginning / during mission on DS

The following issues were resolved in VBS4 21.1.0:

Issue key	Summary
YT-105	PLAN - Drawings are visible in preview in 1st person
YT-103	Bushmaster with mine roller explodes on mission start
YT-102	Unit edit in ballistics computer show battlespace menu
YT-101	Invalid / Missing Unit and Group Object Handles when saving a mission
YT-100	Old Plan save files cannot be loaded.
YT-98	No entry 'bin\config.cpp\RsclnGameUI\VBS_UnitInfo\Controls\SafetySwitchMessage\colorBackground'.
YT-96	C2 Markers cause a script error when trying to copy them
YT-95	Hidden Entities - Enable In VBS4
YT-88	Objects not visible when pasted in 3D view in Plan
YT-87	[VDT INVESTIGATION] JIP Warning Message not affected by -minerrlevel
YT-85	'Missing semicolons at the end of the line' entries in RPT (in vbs2\vbs_systems\verbal_command\cfgavailbindkeys.hpp)
YT-83	CTD when selecting Map Settings (View menu)
YT-81	Getting hands in front of your sights - Personal Equipment Controls - UI issues
YT-79	LRF in RWS vehicles does not report any numbers
YT-78	"In placing mode, it's impossible to switch to different symbol"
YT-76	[KOREAN] OE Markers not fully localized
YT-74	[KOREAN] Demo missions are not localized
YT-70	Broken text when using special characters and numbers in TextPrimitive (Draw)
YT-68	Pre-existing RTT vehicle system screens within the FOXHOUND do not work
YT-66	[KOREAN] Training Battlespace not localized
YT-65	[KOREAN] Spectator Camera not localized
YT-64	[KOREAN] IG View Config not fully localized
YT-63	[KOREAN] OE Verbal Command not fully localized

Issue key	Summary
YT-61	[KOREAN] OE Sound Source not fully localized
YT-60	Code input is RTL in trigger condition field
YT-59	Context menu stay opened on switch between Editor and Plan
YT-58	[KOREAN] OE Close Air Support not fully localized
YT-57	[KOREAN] OE Active Protection System not fully localized
YT-56	[KOREAN] OE Measure distance tool not fully localized
YT-55	[KOREAN] OE Control AI Military not fully localized
YT-54	Plan UI localization fixes
YT-52	Assertion failed: 'false' - objectsdata.cpp
YT-50	Sound source volume is too loud
YT-49	RWS error doesn't show up if turret is destroyed
YT-47	UI of the CV9040 does not produce sound
YT-42	Switching to / from Simulation tab breaks top panel and interaction
YT-41	Default Launcher presets does not save changes
YT-40	Switching to Plan from Editor does not remove editor UI assets
YT-39	Unit list - don't show all soldiers
YT-38	Redesign VBS4 UI to match VBS4 style guide
YT-36	IOS is not counting the mission time elapsed
YT-35	"SWE exclusive interaction do not work, panels removed by Alt"
YT-34	Set Default Start date
YT-33	PRF code isn't shown properly for Laser Designator - RBS-17
YT-31	Update turret FCS to account for Magnus Effect for ballistic corrections
YT-27	Sound of breathing won't stop when taking off the mask.
YT-25	Autotest for Contamination component
YT-20	Police tape can be placed through (some) objects
YT-18	M9 tape not detecting chemical agents
YT-17	Copied units with CBRN contamination can not be cleared via right click menu
YT-16	Advanced wounding action is no longer present
YT-12	Turned out turret transform in M1127 Stryker is broken

Issue key	Summary
YT-8	Script errors when shooting cannons
YT-7	""Load Cargo"" is missing in Action Menu of player interacting with aircraft KC-130J Hercules II"
YT-6	Area Marker Tape - used commands are not working in VBS4
YT-5	"Decontamination targetSelection mode, icon above units is static"
YT-2	M8 paper does not change color
WS-1354	Installation of VWS 21.1 and VBS4 21.1 on a clean / fresh environment testing
WS-1352	Add doc for importing elevation first in Data Import
WS-1349	Document how to move data from older versions of VWS to new
WS-1348	Document the need for same VBS4 and VWS versions
WS-1341	VWS Support for VBS4 Workflow Update
WS-1340	VWS fileserver cleanup for 21.1 - remove archive folder
WS-1321	VWS 21.1 Final Testing
WS-1317	Filter extraneous files / export node exes out of TT-Wibu Post 21.1
WS-1308	VWS 21.1 release candidate for Korean Translation Release
WS-1299	Document usage of the --remove command in vws_nanny.exe
WS-1293	Add tag to vws_nanny for no user manual entry to exit program
WS-1291	Data Removal needs to remove the removal regions _gshp from TCT
WS-1290	Layers in ..\Geoserver\data_dir\.. remain after data removal
WS-1289	New TT Wibu Build for 21.1
WS-1281	VWSAPI returns transfer success when connection to VWS was interrupted
WS-1280	Rename battlespaces not working
WS-1279	running vws_nanny.exe from the command line is not working
WS-1277	VWS 21.1 World Airfield Installer
WS-1275	Filter extraneous files / export node exes out of TT-Wibu
WS-1272	VWS 21.1 Instance Setup & Testing
WS-1268	"VWS API validation in TCT, DI & Publish2VWS"
WS-1265	Ensure core inset data override (removal regions) is functional for TCT
WS-1264	Connecting IG Clients

Issue key	Summary
WS-1263	Monitor Services on Clients Update
WS-1261	VWS 21.1 Installer
WS-1254	TCT - Update lightpoint script to support the new lightpoint attributes
WS-1253	VWS VBS4 21.1 TT Support
WS-1251	Unable to upload HTML files
WS-1246	Add the training Battlespace to the VWS\data\Battlespaces by default for the VWS installation for 21.1
WS-1243	Resolve VWS connection issues in VBS3 TCT dialog
WS-1242	Add VBS4 21.1 support to the TCT and Data Import TerraTools templates
WS-1241	Change the character used in truncation for TCT ~
WS-1240	Update VWS and TCT doc to highlight proper client / server setup
WS-1234	Data Removal is broken for data import / geo backdrop
WS-1231	VWS 21.1 Branching
WS-1230	Allow uploading individual missions / AARs
WS-1226	Object and Lightmap SQLite Files not being removed by Data Manager
WS-1213	Update TerraTools Wibu Build in VWS
WS-1211	Data Import - roads and buildings crashing VBS4
WS-1206	Doc the VWS connection workflows - local and remote server
WS-1198	Update and improve definition of VWS hardware requirements
WS-1174	Build VWS exes with 21.1 file versions
WS-1170	"Test the VBS4 20.1.x-era World buildings, veg removal, roads, and airfields in VBS4 21.1"
WS-1164	Ensure global data override (removal regions) is functional for TCT
WS-1158	Data Removal UI - Does not work in AWS
WS-1142	Hardcode Geo Data Import & Terrain Conversion to use Localhost
WS-1115	Uploads and Downloads to VWS acting inconsistently (and failing)
WS-1102	Run VWS master assembly daily
WS-1058	Add Blue tools to the VWS build
WS-992	Ensure global data override (removal regions) is functional for Data Import
VBSIII-29477	Humidity Setting

Issue key	Summary
VBSIII-29411	Manual Update - Spectator Units
VBSIII-29405	Document new MEDEVAC re-spawn markers
VBSIII-29395	Manual Update - Reference Marks visibility
VBSIII-29394	Event Handlers Catchup
VBSIII-29359	Popup when placing KP Air Force Su-25 model
VBSIII-29344	Manual Update - insert a chapter about using HHMD
VBSIII-29323	Improve SQF doc about Scope
VBSIII-29306	Update the AI / Player settings for units
VBSIII-29244	Change Follow Target to Follow Callsign
VBSIII-29216	Update setVariable and AARRecordValue
VBSIII-29074	AV Lua Functions
VBSIII-29073	Prefer Roads Option for Convoys
VBSIII-29063	Manual update - Gateway setting - ApplyCenterOffset
VBSIII-29044	getMarkerPos behavior change breaking customer SE missions
VBSIII-28998	GLAM SQF Commands / Functions
VBSIII-28975	Group Assignment and Ownership Transfer
VBSIII-28946	CTD in stresstest 27/01/21 when closing DS by X on exclusive CV9040
VBSIII-28911	The Jet Wash gun M26 does not have a shadow
VBSIII-28887	New AVs
VBSIII-28886	Last-Mile Resupply
VBSIII-28878	Doc - GLAM Phase I
VBSIII-28697	AAR simple statistics
VBSIII-28695	The blurred textures being visible on helicopter's blades
VBSIII-28614	Add PUMA as a Use Case
VBSIII-28613	CAT 938G gets stuck on the grass
VBSIII-28596	Update SQF command reload
VBSIII-28591	Manual update - Active View Entity Refresh Interval
VBSIII-28582	AAR CTD - out of memory
VBSIII-28514	New SCBA SQF commands

Issue key	Summary
VBSIII-28511	Update SQF command opticsStabilizationOverride
VBSIII-28494	CBRN suit bags levitating after they are throw away on the ground
VBSIII-28388	CTD on multiple aircraft models after destruction in edited autotest mission
VBSIII-28230	CTD when CAT 938G colliding with trees
VBSIII-28176	Doc - T08 / T09
VBSIII-28144	Flood of {warning} Locator locator_center for attachment slot
VBSIII-27920	DVS - Small Boat - (PhysX) Bucket Behavior
VBSIII-27868	Engine - UCS Optic in use animationsource
VBSIII-27837	CTD in AttachmentSlot::ApplyNetworkRepresentation
VBSIII-27642	VBS Scripting Reference update - setVehiclePosition known issues and generating equivalent page using setPos
VBSIII-27600	UCS body Armor
VBSIII-27407	Vehicle goes under other vehicle
VBSIII-27405	Freeze and unusable VBS4
VBSIII-27391	Investigate and optimize scene preload jobs
VBSIII-27387	PhysX Refactor : Render frame interpolation
VBSIII-27386	DisableGeo isn't applied on wheels
VBSIII-27380	Advanced scene Manager - merge and split
VBSIII-27331	Radar and Compass do not work
VBSIII-27325	MICLIC does not work with physx
VBSIII-27243	Include BE_Dingo in Manuals
VBSIII-27140	API refactor
VBSIII-26837	Prepare docker image to build with latest VS 2017
VBSIII-26244	Streaming of dynamic objects
VBSIII-26171	PhysX Refactor Bug: Vehicles slide to side
VBSIII-26059	Engine - Disposable Launcher Magazine
VBSIII-23944	Headphones are not working if plugged in-game
VBSIII-19204	PhysX Refactor : Networking
VBSIII-19149	PhysX Refactor : VehicleType : Things

Issue key	Summary
VBSIII-19148	PhysX Refactor : VehicleType : Grenades
VBSIII-19147	PhysX Refactor : VehicleType : UGVs and UAVs
VBSIII-19146	PhysX Refactor : VehicleType : Hovercrafts
VBSIII-19145	PhysX Refactor : VehicleType : Ships
VBSIII-19144	PhysX Refactor : VehicleType : Helicopters
VBSIII-19143	PhysX Refactor : VehicleType : Planes
VBSIII-19142	PhysX Refactor : VehicleType : Tanks
VBSIII-19141	"PhysX Refactor : VehicleType : wheeled vehicles, cars, trailers"
VBSIII-19139	PhysX Refactor : Scripts
VBSIII-19138	PhysX Refactor : Disable collisions after creation / forced move
VBSIII-19137	PhysX Refactor : Knockable obstacles
VBSIII-19136	"PhysX Refactor : Damage (collision reporting, fx, damage, land / wheel contact)"
VBSIII-19135	PhysX Refactor : Physical animations and physical turret
VBSIII-19134	PhysX Refactor : Non-physical animations
VBSIII-19133	PhysX Refactor : Buoyancy
VBSIII-19132	PhysX Refactor : Proxies
VBSIII-19131	PhysX Refactor : Collision and dominance groups
VBSIII-19129	"PhysX Refactor : Joints, ropes and winches"
VBSIII-19124	PhysX Refactor : MaterialManager
VBSIII-19123	PhysX Refactor : SceneManager
VBSIII-18527	PhysX Refactor : TerrainManager : Stream VBS terrain and static objects around vehicle
VBSIII-18205	Volume Parameter for Class Sounds does not work with more than one sound being played
VBSIII-18087	can walk through closed doors
VBSIII-15783	Ability for swappable materials (rvmat)
VBSGEO-1126	UTF8 Bug AAR CTD on Load
VBSGEO-1125	Workflows Bug AAR recorded on AAR Simclient does not contain info to load GeoProject
VBSGEO-1122	CTD RE when Editing a road in Geo

Issue key	Summary
VBSGEO-1119	Roads Context Post-place Split / Reverse not enabled while shortcuts work
VBSGEO-1118	"Water ""Deadlock"" on selecting bigger water bodies (Draw + Blue)"
VBSGEO-1117	MP Bug Cannot Promote .obj based / Reselect placed trees (Intersection Fail)
VBSGEO-1113	GPKG Versioning Backup saved on Preview causing unnecessary popup.
VBSGEO-1112	"Water Highlights Visual artifact to 0,0 when placing a point"
VBSGEO-1111	Stresstest: CTD in SC1 in GeoCore.dll when closing by X
VBSGEO-1108	Workflow UTF8 BSs are not downloaded correctly to cache and loaded
VBSGEO-1105	DXT1 Previews cause crash in the Geo Library (T3S-1647)
VBSGEO-1103	Cursor Point Bug Preplace draw point on mouse does not respect water correctly
VBSGEO-1102	Doc - 21.1.0 Basic Water Editing
VBSGEO-1101	Doc - 21.1.0 Geo Mini Features / General Updates Documentation
VBSGEO-1100	Doc - 21.1.0 Geo Package Versioning / Backwards Incompatibility for Rasters
VBSGEO-1099	Doc - 21.1.0 Known Issues
VBSGEO-1098	Doc - 21.1.0 Geo Release Notes
VBSGEO-1093	Water Vectors in this mode have double drawn points on each vertex of the polygon.
VBSGEO-1092	GPKG Bug Legacy warning when loading locked file
VBSGEO-1091	Water Vector drawing doesn't support water surface
VBSGEO-1090	Geo 21.1.0 Baby Feature Requests
VBSGEO-1089	Geo 21.1.0 BugCity
VBSGEO-1088	Preview Bug Deadlock on mission preview on Hohenfels with Elevation edit
VBSGEO-1087	Plugin Bug Loading via plugin locks the file and cannot be removed
VBSGEO-1086	Core UTF-8 CTD in GeoCore.dll
VBSGEO-1085	MP Bug Changes done to inset .OBJ and .GSHP are not present during Preview (but work on Host / Execute))
VBSGEO-1084	Log Geo should be logging into a file in \log
VBSGEO-1083	Workflows Launcher Updates to support new possibilities
VBSGEO-1081	Workflow Korean BS cannot be opened / Creating one CTDs
VBSGEO-1080	Workflow Korean named .gpkg is gibberish on download
VBSGEO-1079	UI Bug Post VWS workflows Import Data / Overlays locked in Geo even when online

Issue key	Summary
VBSGEO-1078	Workflow Upload notification fake fails on BS with empty \Geo folder (without it or with .gpkg all is fine)
VBSGEO-1075	Plugins Geo plugins can cause deadlock in plugin pipeline - GeoCore
VBSGEO-1073	Roads Airfield Road is drawn while other is selected in library (default state)
VBSGEO-1070	Workflow Integrate Port Hopping from HTTP Server
VBSGEO-1068	UI Dev Create a reusable dialog for backend to show errors / info / warning
VBSGEO-1066	Water Validity checking for overlapping polygons / points of water bodies.
VBSGEO-1064	Saving GDAL spam on save due to the .temp suffix & potentially others
VBSGEO-1063	Water Undo stacks needs water instead of road messages
VBSGEO-1061	Water UI / BE Visual State in Edit when no polygon selected
VBSGEO-1060	Water Elevation Picker should visually behave like in EE / SE
VBSGEO-1058	[VBS4] CTD after creating mission with a lot of objects
VBSGEO-1057	VM Bug Missing Icons after refactor
VBSGEO-1056	MP Bug MP models don't cut terrain and don't remove vegetation
VBSGEO-1055	LPP Bug Segment models are not placed
VBSGEO-1054	UI Bug Status Bar for Model Adding / Removing from Selection String update
VBSGEO-1052	Workflow Integrate Plugin Control into the new execution control
VBSGEO-1050	RE Bug Global / Inset roads cannot be selected
VBSGEO-1048	Water Adding Islands / Polygons with Holes in Geo
VBSGEO-1046	RE Bug Roads width parameter changes to 10 on edit
VBSGEO-1044	Core Blue Update to 142.19.x Trunk Blue
VBSGEO-1043	RE Bug Existing road from inset is doubled when creating a crossroad with it
VBSGEO-1042	GeoStreamingPlugin does not work in UTF-8 implementation
VBSGEO-1040	Water Integrate Context Menus and Status Bar
VBSGEO-1039	UI Dev Implement Basic Priority Loading for faster loading of LPP
VBSGEO-1038	GeoProjectStreamingPlugin HTTP+API for Updated Workflow
VBSGEO-1036	Water Building Editing Functionality in Geo
VBSGEO-1035	Bug MP CTD while baking and unbaking on customer terrain
VBSGEO-1032	CTD Loading a project with deleted global buildings (if not in build) causes crash

Issue key	Summary
VBSGEO-1030	UI Bug Status bar text doesn't fit in window mode
VBSGEO-1029	RE Bug Road draw enabled in editor
VBSGEO-1028	Water Prepare new basic Creation Mode UI & co.
VBSGEO-1026	Feature 21.1 Workflow Updates to .GPKG handling
VBSGEO-1023	MP Bug CTD while switching to move / rotate / scale (gizmos)
VBSGEO-1022	Doc - VBS Geo 21.1.0
VBSGEO-1021	UI Dev Show Name of BS up top
VBSGEO-1020	CTD when using Elevation tool in GEO
VBSGEO-1019	Water Design Icons for UI
VBSGEO-1016	Water GeoCore Vector Editing Code Generalization
VBSGEO-1014	Feature 21.1 Basic Water Editing
VBSGEO-1013	Mystery boxes instead of trees thumbnails in Geo Model Library
VBSGEO-1012	TD UI Draggable Windows Improvements / Fixes
VBSGEO-1011	MP Bug Rotation / Scale nudging is not sensitive enough
VBSGEO-1010	Flood of Assertion failed: 'HasMultiProjectionState_v0() == false' when using Geo
VBSGEO-1004	UI QoL LPP modal dialog hover menu should linger for a second
VBSGEO-1003	UI QoL Scrolling of modal dialog between node and segment
VBSGEO-1002	Undo Bug CTD when undoing and redoing RE placement
VBSGEO-1001	UI Dev Cannot scroll in unattached history window by default
VBSGEO-999	UI Dev Update to Angular 11 for Geo / Main Menu / Settings
VBSGEO-995	Duplication Removal Vectors and Models
VBSGEO-991	UI LPP Bug Missing tooltip for add model button in Node tab
VBSGEO-988	UI Spreadsheet of panel and dialog text
VBSGEO-986	"UI Dev Library ""scrolls"" to the selected item / drop-down (in SE) scrolls to selected item"
VBSGEO-985	"MP Bug Model Properties Eating and Northing input field arrows causing large, unexpected jumps"
VBSGEO-982	UI Bug Tabs highlighting is misaligned
VBSGEO-981	SE Bug Surface actions show model icon in the History panel
VBSGEO-980	Core Blue Update to 140.x Trunk Blue

Issue key	Summary
VBSGEO-979	Feature 21.1 Core Functionality & Maintenance
VBSGEO-976	Translation Cleaning up remainder of the HC strings
VBSGEO-975	Translation Mouse Cursor Text
VBSGEO-974	Translation Undo Stack Strings
VBSGEO-973	Translation Road Preset and LPP Styles Name Translation
VBSGEO-972	Feature 21.1 Translation Fiesta
VBSGEO-971	UI Dev Minor Changes to LPP Dialog
VBSGEO-970	"UI Dev Always revert to ""Absolute"" values upon reselection in MP"
VBSGEO-969	MP Feature Rotational / Scale nudge keys
VBSGEO-968	Main Menu Bug Import Geo Project list is empty if a Battlespace is opened with right-click in the main menu
VBSGEO-967	Core CTD on late invalidation during shutdown in GeoCore
VBSGEO-965	MP/Blue Bug CTD in Octree
VBSGEO-963	MP & Draw CTD ModelPlacementTool::UpdateSelectionControls
VBSGEO-962	"Rasters ""Saving Edits Only"" Way for Raster Layers"
VBSGEO-961	Save / Load Bug CTD on loading project in Obj / Gshp data loading
VBSGEO-960	Road Bug Road Preset option modifications are retained when they should not be
VBSGEO-959	MP Bug Model Properties coordinates do not match what is reported in the status bar
VBSGEO-958	RE Bug User is not able to start placing another road after clicking away
VBSGEO-956	Vectors Bug Road appearing under model line placement in linked project
VBSGEO-955	LPP Bug Unfinished lines show up upon preset changes
VBSGEO-950	LPP Add support for Auto adjust per style
VBSGEO-949	LPP Bug disappearing line models after save / close / reopen / edit first point
VBSGEO-947	MP Point Implement a keybind to change elevation of objects preplace + edit
VBSGEO-946	"MP Point Implement ""Nudging"" by Arrows / PGUP / PGDOWN"
VBSGEO-945	MP Bug Model properties are not saved into clipboard
VBSGEO-941	Curves Bug Helper circle is not redrawn after curve mode is disabled and enabled again
VBSGEO-939	LPP UI Conditional placement cannot be disabled

Issue key	Summary
VBSGEO-937	LPP UI + BE Clean up the Modal Status Bar messages.
VBSGEO-935	".GPKG When saving the .gpkg ""failure"" message if thrown even if success"
VBSGEO-932	GPKG Introduce saving to .backup when saving to newer version.
VBSGEO-931	Roads Unlock added VBS3 / Residential Textures in Geo in 20.1.2
VBSGEO-930	Roads Bug Roads are duplicated IF SELECTED on return from Preview
VBSGEO-929	UI Debt Cleaning up Status Bar String / SVG Tech (SVG-Arbiter)
VBSGEO-925	Core GDAL Update to Version 3
VBSGEO-924	Roads Bug Click away to deselect does not always work properly
VBSGEO-921	"LPP Styles need to be imported when ""Import Geo Project"" is called"
VBSGEO-919	Core 21.1 .GPKG Project Versioning
VBSGEO-918	LPP Support for Skew
VBSGEO-917	Saving Bug UI reports project saved even if the file was locked and unable to save
VBSGEO-915	LPP Styles associated with BS need to be uploaded / download
VBSGEO-911	MP Bug Models don't snap to the surface when rotated through rotation gizmo
VBSGEO-908	Core 21.1 Code Duplication Removal
VBSGEO-907	RE+LPP Bug Inconsistency in selections while splitting
VBSGEO-906	Context Menu UI Bring right click menu consistency across tools
VBSGEO-903	Update Geo to latest Blue 20.3 interface
VBSGEO-902	RE Bug Roads are highlighted in other vector modes of other tools
VBSGEO-897	Feature 21.1 RMB Context Menu Finalization
VBSGEO-894	Vectors undo-redo after LPP split / merge
VBSGEO-893	GPKG Introduce Version / Version Loading / Saving into the package
VBSGEO-890	Context Menu Backend Integration
VBSGEO-886	Vectors Support for Copy / Cut / Paste
VBSGEO-883	EE Bug Line flatten cannot set terrain to negative elevation
VBSGEO-881	LPP Presets Non-release content is included in the presets
VBSGEO-880	LPP Deadlocks Draw when placing preset without model in the build
VBSGEO-874	Undo Bug LPP Unbind undone leaves models behind
VBSGEO-873	Erase Bug LPP Models post Unbind cannot be deleted / behave like still on line

Issue key	Summary
VBSGEO-868	"MP Bug Model for point placement not selected in library, but still attached to cursor after tool switch and return to model point tool"
VBSGEO-867	SE Bug Trees not removed by adding 100% Bare Earth surface in Geo
VBSGEO-866	VM & Draw Bug CTD while editing roads
VBSGEO-865	Roads Bug While moving a road vertex sometimes it deselects itself mid-move.
VBSGEO-863	MP PP Bug Model Properties elevation input fields behaving oddly
VBSGEO-861	Core Bug CTD when closing running battlespace connected to DS
VBSGEO-859	Roads Bug Road renders after undo (ctrl+z) mid-drawing
VBSGEO-856	VM Bug Undo issues in road placement with the new road library
VBSGEO-855	LPP Bug Placed and confirmed line disappears unless vector is deselected
VBSGEO-853	Core Geo Project is not unloaded post execution on local host
VBSGEO-852	UI Bug Bad status bar message shown immediately after completed road or model line placement
VBSGEO-850	VM Bug Changing radius of curve while editing areas in curve mode leading to buggy behaviors
VBSGEO-849	"VM Change default curve radius to 20m, turn off outline points"
VBSGEO-848	UI Bug Elevation brush strength and offset parameters tied
VBSGEO-847	MP Baking Provider queries are slow
VBSGEO-846	UI SE Add 38 as Urban Area and change 13 from Urban Area to Urban Grass
VBSGEO-845	UX Road and model line deselection should be possible via click-away OR double enter
VBSGEO-844	UI Import Geo Project Introducing Locks for d>1000km and Minor Visual Updates
VBSGEO-843	R T Optimized road invalidations
VBSGEO-842	"UI Bug Inconsistent size of right click menu, right-hand side icons"
VBSGEO-841	"UI Bug ""Add backdrop image"" dialog issues with error functionality"
VBSGEO-840	EE Bug Higher resolution LOD edits are not flattened correctly
VBSGEO-839	Core Camera wrong tooltip shown when switching to geo
VBSGEO-838	UI Bug Input fields remaining issues
VBSGEO-835	UI Dev Alphabetically order road thumbnails
VBSGEO-834	LPP Issues Some presets are still growing and Double Enter is Broken

Issue key	Summary
VBSGEO-833	LPP UI Disable Access to the LPP Editor
VBSGEO-832	LPP UI Change in presets to IDs and move name to an attribute
VBSGEO-831	LPP BE Change in presets to IDs and move name to an attribute
VBSGEO-829	UI Bug Selection text is not shown after deselecting and selecting the same model again
VBSGEO-827	"Core Camera Centering does not work in ""Simulated"" Camera. "
VBSGEO-826	Roads Bug Crossroads on uneven terrain create uneven roads
VBSGEO-824	UI Dev Change max and min for model placement randomization to use dual slider
VBSGEO-821	VM Bug Lingering vector after road delete through context menu
VBSGEO-820	MP Bug Erase Tool is not erasing walls and fences by Linear Placement
VBSGEO-818	"LPP Integrate Final Workflows with ""submodule"" Editor"
VBSGEO-814	LPP Bug Models stay around when tools switched mid placement
VBSGEO-813	"UI Bug Input fields too quick to revert inputs, makes it often impossible to type '-' or '0'"
VBSGEO-811	CTD On close in GeoCore.dll
VBSGEO-810	"CTD In MP on ""Geo Close to Main Menu"""
VBSGEO-809	VM Finalize sharp and curve edge cursor icon indicator implementation
VBSGEO-808	Bug Backdrop image error not indicating correct requirement
VBSGEO-807	VM Disable the shared vector layer until Layers come around
VBSGEO-806	"SE Bug Different surface blend appears, when applying to a terrain around the edit"
VBSGEO-804	MP Various CTDs related to Drawing
VBSGEO-801	VM Bug Post Outline Hover Scaling it's impossible to Select Vertices
VBSGEO-800	LPP Bug Model line vector selection proximity too large
VBSGEO-799	UI Bug Notification Panel is behind Geo UI
VBSGEO-797	UI Dev Finalize tool defaults and thresholds
VBSGEO-796	VM Bug Distance measurements in cursor text during road drawing are broken up by automatic crossroads
VBSGEO-794	Core Always have something selected in Libs upon first entry to Tool
VBSGEO-791	IO Dev Remove compression and pyramid requirements for images from backdrop image data check

Issue key	Summary
VBSGEO-789	Roads CTD while dragging road on Sahrani
VBSGEO-787	Core UI ESC key should not close panels when in focus
VBSGEO-786	VM Prototype cursor icons to indicate add / edit and sharp / curve corner
VBSGEO-785	Roads CTD while moving road vector in Geo
VBSGEO-784	Core Hookup Center / Cursor Text to the UI
VBSGEO-783	Core UI Updates to the Burger Menu
VBSGEO-782	Core Split Data (.jsons / potential .icons for cursor) away from GeoCore
VBSGEO-780	Core AAR Geo inset is not recorded on hosted server
VBSGEO-779	Bug Roads Right click during vector adjustment results in two vectors
VBSGEO-778	Road Highlight road being snapped to during road placement (like in Edit)
VBSGEO-776	Core UI Add camera switch to top nav bar in geo
VBSGEO-775	VM Bug Out of bounds vector dragging - ghost shape never disappears
VBSGEO-774	Bug Camera Orbit camera slings you across terrain when panning at low elevations
VBSGEO-773	CTD On Save in GDAL
VBSGEO-771	CTD Clicking on File Browser Icon in Data Import / Overlay
VBSGEO-770	Draw\VM Bug Curve circle flickering
VBSGEO-768	Roads Bug CTD on place and move
VBSGEO-767	EE Bug History brush does not fully revert elevation edits
VBSGEO-764	MP Add support for 2D Map in Editor
VBSGEO-763	VM Bug Vertex hover rings don't scale together with vertices on zoom in / out
VBSGEO-762	EE Bug Smooth and flatten raise / lower terrain massively at certain area
VBSGEO-761	Core CTD in VectorManager.dll on closing
VBSGEO-760	TD GeoCore Internal Componentization
VBSGEO-759	Roads Bug Undo is one step behind when changing width
VBSGEO-758	VM Bug All roads are selected upon project load
VBSGEO-757	"Core Change Default Camera to ""Simulated"" and Integrate with Camera Switch "
VBSGEO-755	MP Unlock .obj Objects by ALT-LMB in Edit Mode
VBSGEO-754	R T BE Support For Presets & Connection to Frontend

Issue key	Summary
VBSGEO-753	Core Bug Geo is Active in Main Menu Causing Stutter (especially when network is bad)
VBSGEO-751	Core Prepare Disable / Enable Cursor Text Functionality.
VBSGEO-750	"Core Prepare ""Center To Geo Edits"" Functionality"
VBSGEO-748	Release 20.1 Branch out for all components
VBSGEO-746	LPP UI Linear Model Placement Phase 3 - Editor Clean Up and Hookup
VBSGEO-743	SB Frontend
VBSGEO-742	SB Backend
VBSGEO-736	Roads Bug End points of roads cannot be dragged or selected in place mode
VBSGEO-734	VM I Dragging of Vectors
VBSGEO-732	LPP Prototype Backend with the Style Editor
VBSGEO-730	MP I Vegetation Library Add support for scopeGeo filtering
VBSGEO-727	MP I Highlight Models to be Deleted in Erase
VBSGEO-724	MP I Deselect model in model library when model is unequipped from the cursor
VBSGEO-717	Core UI Minor Updates P1
VBSGEO-713	"R W&H Make AI respect the ""custom"" width of roads"
VBSGEO-709	"EE Bug Flatten and smooth brush lowers terrain to 0m at certain Earth lat, long"
VBSGEO-699	R W&H Develop UI for Width / Height / Texture (Hardcode) Support
VBSGEO-698	UI Bug Incorrect model library thumbnails after consecutive Battlespace opens
VBSGEO-697	Core Disable Import / Overlay when there is no connection to VWS
VBSGEO-684	LPP Add support for Undo that we lost during decomp
VBSGEO-682	SE Bug Surfaces not properly editable around water areas
VBSGEO-681	R W&H Backend for new parameters in Road Vectors in Blue 138+
VBSGEO-680	Loc Fix / Remove hardcoded strings from the UI and port them to the Stringtable
VBSGEO-671	EE Bug Custom area / line flatten can't handle negative numbers
VBSGEO-669	EE I Improving Raster Tools and editing at higher detail
VBSGEO-662	MP Bug Model objects updated on simple clicks
VBSGEO-651	UI Bug Undocked window changes position on tool switch
VBSGEO-648	UI Dev Update randomization sliders in Model Placement to use dual slider

Issue key	Summary
VBSGEO-644	R W&H Generated roads can sometimes be outside of the respective Geo roads
VBSGEO-643	MP I Add support for vegetation clearing
VBSGEO-642	MP I Add support for underground cutting
VBSGEO-637	EE Bug Terrain changes by brush stop showing after repeated redo
VBSGEO-636	VM Bug RMB context menu - delete doesn't work
VBSGEO-594	LPP Create additional line tool definitions
VBSGEO-583	Core ESC should behave the same across all tools
VBSGEO-539	UI Bug vertical size limit is not applied in window mode
VBSGEO-523	UI Bug White borders on sliders move around
VBSGEO-409	MP Bug Scale limit is not applied on reselected and already scaled objects
VBSGEO-379	Vectors Support for Merge / Split / Invert of Vectors
VBSGEO-374	MP Bug Both selection circles drawn for grouped objects of different offsets
VBS4-4087	CLONE - VBS4 - Rover III view does not match Controller
VBS4-4055	VBS Launcher Minor UX Updates to -bingKey parameter
VBS4-4032	#NAME?
VBS4-4026	Enable 3D trees in low video preset
VBS4-4021	Some RTTs are too bright
VBS4-4005	Manual update - VBS World Server > Known Issues
VBS4-4001	AI Pack Known Issues
VBS4-3994	Training Battlespace Improvements
VBS4-3993	"Integrate Bing ""Thing"" into Launcher+VBS4 + Release Build"
VBS4-3973	Manual Update - Configure Dedicated Server for VBS World Server
VBS4-3971	Script error when lowering ramp of HET trailer
VBS4-3951	Manual Update - Artillery Support in VBS Plan
VBS4-3946	Manual Update - lower resolution optimization
VBS4-3943	Manual update - AI Pack 1 Change Log
VBS4-3942	Manual Update - Starting VBS Radio
VBS4-3940	Manual update - VBS Call for Fire Overview
VBS4-3938	Manual Update - Server Startup Parameters

Issue key	Summary
VBS4-3937	MyData Folder Structure Missing in 21.1.x (and KR Build)
VBS4-3934	Manual Update - Enemy Ambush
VBS4-3932	Proof-read the Intro and Trainee sections of the VBS4 Manuals
VBS4-3931	Manual Update - Convoys
VBS4-3926	Manual update - VBS4 Toolbar
VBS4-3925	Windows firewall blocks Geo from streaming
VBS4-3923	Manual Update - Manual Loading
VBS4-3920	Manual update - VBS Radio Standalone
VBS4-3916	Make VBS4 Training Battlespace available for SP
VBS4-3907	Synchronize VBS3 and VBS4 assembly.xml
VBS4-3904	Manual update - Polish AFV Control Setup
VBS4-3901	Manual update - Navigation mesh
VBS4-3867	Mine roller script error
VBS4-3865	Drivers Codemeter update to WIBU 7.21a in Dist
VBS4-3833	PDF Review
VBS4-3778	Wrong Use Of Ordnance
VBS4-3777	VS01RWS content missing in release builds
VBS4-3773	Manual update - Joining a Multi-Player Scenario
VBS4-3772	[CBRN] Player isn't able to use CBRN items + Script Error
VBS4-3768	Manual update - VBS4 Trainee Overview
VBS4-3761	Training UI
VBS4-3748	Integrating Bing Map Data
VBS4-3746	SE exclusive STRF 9040 TTT control profiles missing
VBS4-3741	Manual update - Setup VBS for Strf 9040 TTT
VBS4-3739	Optional Battlespaces Deployed on VWS
VBS4-3732	Manual Update - Add more detail to the Viewport config page
VBS4-3717	Manual update - VBS Geo Overview - video not working
VBS4-3706	Manual update - Grid tool - object properties needs update
VBS4-3705	Manual update - Text tool - missing Base Alt.

Issue key	Summary
VBS4-3702	Process UI Translation
VBS4-3653	Real time sharing foundations
VBS4-3603	Manual Update - Using the Husky MkIII
VBS4-3598	Manual Update - DROPS / PLS
VBS4-3564	Manual update - VBS Gateway Troubleshooting - VBS3 info
VBS4-3560	Manual update - Basic Server Configuration - Difficulty setting bad example picture
VBS4-3549	Manual update - Automatically Start Network Scenarios - server.cfg file
VBS4-3546	Doc - View Port EO
VBS4-3543	VBS4 21.1 Content Library
VBS4-3542	VBS4 21.1 Offline Wiki
VBS4-3522	Launcher Updates
VBS4-3515	Workflow Release Note
VBS4-3510	Singleplayer Release Note
VBS4-3507	Manual update - Simulation Clients - location of saved AAR
VBS4-3482	Launcher Icons
VBS4-3472	Update Tactical Ladder Topic
VBS4-3468	"Typo in VBS4 settings - ""emissive"""
VBS4-3460	Filter Improvements
VBS4-3449	Manual Update - Execute the Scenario
VBS4-3448	Manual Update - Scenario Preview
VBS4-3446	Manual Update - Modify the Mission
VBS4-3443	Manual Update - Setup VBS for VS01 - RWS
VBS4-3437	BS Synchronization
VBS4-3431	Manual update - Vehicle Checkpoints - HMMMV
VBS4-3415	BS Deletion
VBS4-3414	BS Copying Warning
VBS4-3408	Manual update - AI Rules of Engagement
VBS4-3407	Manual update - Vehicle Command Controls
VBS4-3405	DS on VWS Updates

Issue key	Summary
VBS4-3402	New Content VBS4 21.1
VBS4-3401	VBS4 Search Bar accept non-English characters
VBS4-3391	Manual update - BISA Interface Overview
VBS4-3388	AI Pack Changelog VBS4 21.1
VBS4-3386	Manual update - CFF Scenario Execution
VBS4-3385	InputHandlerAPI regenerates with different SHA
VBS4-3372	Manual update - VBS4 Toolbar
VBS4-3367	Update UC Topics
VBS4-3366	Update QS Topics
VBS4-3365	Main Menu Screenshots
VBS4-3364	Manual update - Global Display Information
VBS4-3363	Execute Updates
VBS4-3362	Prepare Updates
VBS4-3360	MP Training - Trainee
VBS4-3359	SP Training - Admin
VBS4-3358	SP Training - Trainee
VBS4-3340	Manual update - Customizable Symbology
VBS4-3304	Prepare UI Translation
VBS4-3302	Prepare VBS4 Manuals Translation
VBS4-3301	Prepare UI Translation
VBS4-3297	AAR - popup at the start: Cannot open object vbs2\customer\structures\poland\models\poland_brg_1_0_2.pd3
VBS4-3291	Doc - AAR Workflow changes
VBS4-3290	Document the new VBS4 Snow and Puddle Controls
VBS4-3288	CTD after trying to place hidden object (s)
VBS4-3282	Doc - Geopackage copying
VBS4-3275	Some of the exes in VBS builds are signed without a timestamp
VBS4-3273	Copyright notice in VBS4 mission loading screen is outdated
VBS4-3272	Copyright notice in VBS4 splash screen is outdated

Issue key	Summary
VBS4-3266	Review DS Doc
VBS4-3264	Review Deployment Options
VBS4-3263	Review VWS DS doc
VBS4-3262	Review Autostart Doc
VBS4-3259	Manual update - Differences from VBS3
VBS4-3258	Manual update - VBS4 - Whole-Earth Battlespace
VBS4-3250	Manual update - Control AI Waypoints - Branching waypoints wrong instructions
VBS4-3247	Clean up driver\codemeter\ artifactory package
VBS4-3244	Manual Update - VBS Plan blocked hotlinks
VBS4-3238	New Video Settings
VBS4-3205	Manual update - Create the Plan - Build mission confusing instructions
VBS4-3160	Workflow Analysis for Doc
VBS4-3155	Documentation update - createMissionDisplay and openDSInterface commands were removed
VBS4-3114	Update Sys Reqs
VBS4-3097	CTD of SC0 when executing Battlespace on VWS DS
VBS4-3049	Manual update - Quick Start Guide
VBS4-3036	Stretcher Issue Workaround
VBS4-3012	Synchronize list of customer codes between VBS3 and VBS4\VWS\Blue IG
VBS4-3011	Assess Doc Impact of VDT Projects
VBS4-2971	Doc - VBS4 Workflow 21.1
VBS4-2921	Documentation update - Change the image for Vehicle Weapon Optics
VBS4-2824	MD5 Checksum Ignored for Silent Installer
VBS4-2823	Warning message for unsupported File System
VBS4-2775	Blacklist OWS Plugin and 3DTiles Plugins from release VBS4 builds
VBS4-2759	Update Manual - VBS World Server Gateway Steps
VBS4-2732	Missing content in VBS4 without sources on P:\
VBS4-2653	VRInteraction is missing for other customers than WOCRM and EZYQC_UK
VBS4-2641	Video Embedding

Issue key	Summary
VBS4-2621	Unit List Screenshots
VBS4-2595	Documentation button (?) with broken link
VBS4-2378	[KOREAN] Startup of VBS is not localized (Loading banks etc)
VBS4-2350	Manual update - Quick Start Guide
VBS4-2345	Document Pete's UI Updates
VBS4-2327	Manual Update - Commanding in First Person / Command View
VBS4-2196	Manual Update - Logistics report
VBS4-2193	Manual Update - Winching
VBS4-2152	VBS4 Launcher Changes
VBS4-2093	Incorrect copyright notice in loading screens
VBS4-2064	CTD when watching AAR until end and watch it again
VBS4-1956	Doc - VBS4 21.1.Pre
VBS4-1955	Wrong name of training battlespace
VBS4-1863	VBS4+VWS installation - VBS4 Updater does not calculate the expected size of global data
VBS4-1774	Bug FDC UI panels stay open when tabbing to Geo
VBS4-1728	Update mission loading progress bar
VBS4-1711	Geo Import data UI - shifted File input field
VBS4-1700	Unmapped entity after mapping import is still displayed as unmapped
VBS4-1530	Disable CORS in WebView
VBS4-1515	Crash reporter is not adding pdb files for dlls
VBS4-1415	Threads invoked by boost thread pool in VBS4 are hiding unhandled exceptions
VBS4-1369	Diagnostics component is not signed
TZ-3671	WASD etc. keys not functioning in RTE when unit list has focus
TZ-3656	VBS4 Gateway - External vehicles have no collision
TZ-3651	VBS4 client freezes when connecting to WS on localhost in VBSSTE component
TZ-3650	Using scenario setting will always change water color
TZ-3648	Autotest mission won't end automatically when run as MP/DS
TZ-3647	New Unit List does not show partial damages

Issue key	Summary
TZ-3645	IOS does not connect to 127.0.0.1
TZ-3644	AIs (Civilian) are not affected by contamination properly
TZ-3643	PLAN - Set Overlays Sharing menu isn't complete
TZ-3642	Deleting synced AAR in online mode deletes it from everywhere without properly notifying the user
TZ-3641	"PLAN - import overlay ""OPEN"" button not active"
TZ-3640	PLAN - Objective tool - unable to change the name
TZ-3639	Server panel is hidden behind Multiplayer Battlespaces dialog
TZ-3638	CTD after selecting Burke Class weapon ammunition type in FDC
TZ-3635	Wanted sea states does not work and UI indicator broken
TZ-3634	Editor object craters can manifest multiple times in the mission execution
TZ-3633	Scenario Settings Intel object removal leads to script error
TZ-3629	Vehicles not properly grouped in 3D in Orbat list
TZ-3623	Local settings override language addons
TZ-3622	Tactical ladders don't work
TZ-3621	Huge FPS drop when destructible building is destroyed
TZ-3620	Script error <>null>> execvm '\vbs2\vehicles\Land\Whe>
TZ-3619	CLONE - class AttenuationsEffects does not function in VBS4
TZ-3618	Fix to prevent chain explosions in minefields
TZ-3609	VPR Object List Hiding
TZ-3607	[VDT Investigation] librti1516e64.dll is missing and gives an error message
TZ-3606	Copy pasted vehicles doesn't have reference in the Unit list in OME (instead there are two drivers)
TZ-3605	AAR - Unit List Is Empty
TZ-3600	Traverse zones force gun pointing backwards
TZ-3598	All other forces are visible documentation fixes
TZ-3597	CLONE - IOS Interface is not expanding correctly
TZ-3595	"Too many of MulticastOrder, UpdateMan and UpdateTank messages"
TZ-3591	invalid stof argument periodically seen in dbg view in mission
TZ-3588	Puma PTR - 3.1 - Changing optics

Issue key	Summary
TZ-3586	Puma PTR - 4.1b - Degrees / mils change not consistent
TZ-3584	Puma PTR - 4.1b - Compass cannot be used while turned out
TZ-3583	Puma PTR - Port Headphones are not working if plugged in-game fix
TZ-3580	WGC: Allow spawning Compositions without symbol through CGFCommandAPI
TZ-3578	WGC: Move equipment mapping from scripts to JSON configs
TZ-3577	Puma PTR - 4.1b - Cannot toggle personal weapons when turned out
TZ-3574	Puma PTR - 7.1 - Camera HUD option only for cargo seats
TZ-3572	PUMA PTR - ABM / AHEAD munition bounces off unit [investigation]
TZ-3570	Port TZ engine tasks to VBS4
TZ-3569	Puma PTR - 3.5 - Munition only explodes on impact
TZ-3566	T3S Tree and Bush Destruction Issues - Diginext
TZ-3562	Puma PTR - 3.7 - All other forces are visible
TZ-3559	WGC: Investigate and POC sending unit GUID with entity update DIS msgs
TZ-3556	pseudo-loc in LocalizationComponent doesn't work for current VBS4 build
TZ-3545	Puma PTR - 4.2 - Sometimes gunner is able to shoot while in commander override
TZ-3543	"Puma PTR - 2.3 - Possible to dismount using the mouse wheel selection ""get out"""
TZ-3541	WGC: Finalize and baseline the CGF API
TZ-3539	WGCSenarioDefinition component reusability improvements
TZ-3537	Move WGC specific doctrine files from CGFPlanExecuter to WGCSenarioDefinition
TZ-3535	WGC: Loadout not set for individually spawned squads
TZ-3533	WGC: Fix setting unit positions
TZ-3532	WGC: Fix Behavior assignment to Armor sections
TZ-3531	WGC: Assigning of orders doesn't work for new file version when spawning in OME.
TZ-3528	WGC: Tidy-up component logging
TZ-3527	WGC: Assign orders to specific squads
TZ-3526	WGC: Make sure orders for armor platoons work
TZ-3524	WGC: Make sure orders for infantry work
TZ-3522	WGC: Make sure orders for mechanized infantry work
TZ-3521	WGC: assigning magazines when loading scenario takes too long

Issue key	Summary
TZ-3520	WGC: Assigned orders make groups do requested actions (do work)
TZ-3519	WGC: Modify Assign order component function to work with squads
TZ-3518	WGC: Initialize vehicle sections from GMI message
TZ-3516	WGC: Higher echelons missing when loading a GMI message in preview mode in 2d map view
TZ-3514	TextShape input during drawing
TZ-3513	WGC - Mortar units should be mobile
TZ-3501	WGC: Script error after importing the mission a second time
TZ-3498	WGC: Initialize battlespace according to GMI message units location
TZ-3493	WGC: Dynamic doctrine files for spawning squads and platoons
TZ-3484	WGC: Updating squad loadout according to GMI message
TZ-3462	Changing new layers name will cause placed unit to not be visible in unitlist
TZ-3458	playtest - Contamination indicator icons sometimes need unitlist refresh to show recent data.
TZ-3457	playtest - M-26 not showing the particle effect
TZ-3456	playtest - script error
TZ-3455	M9 tape attached to objects don't work
TZ-3452	New Unit list does not use custom descriptions
TZ-3451	AI units who get into contaminated vehicles are not contaminated
TZ-3450	Editor freeze when creating groups
TZ-3449	WGC: Spawn pre-defined platoons / squads from GMI message
TZ-3446	Contamination: Pinpoint mode for detection devices doesn't work in VBS4
TZ-3445	Measure of VBS4 editor and UnitList loading times
TZ-3444	Contamination - Cargo Function Doesn't Contaminate
TZ-3440	Contamination HAs are not shown properly in RTE in VBS4
TZ-3438	Distinguish playable units in OME unit list
TZ-3435	Gas Mask & createSoundSource - Too quiet & doesn't Loop
TZ-3434	SCBA - Switching Into Remote Unit Kills Player
TZ-3430	Detection Device - Doesn't Show UI On Second Load
TZ-3428	Selection sync between the map and the unit list can be too long

Issue key	Summary
TZ-3426	Network interface option backwards compatibility
TZ-3424	AN/PDR-77 - switching probes makes UI disappear
TZ-3418	investigate : CBRN suits crate takes a long time to load in AAR
TZ-3416	Units in vehicles should be contaminated by HAs
TZ-3415	HA and other objects disappear in mission preview
TZ-3413	UnitList filters UI / UX design iteration
TZ-3412	Investigate UnitList loading time with CSE mission
TZ-3411	Update engine to use TranslationAPI_v3
TZ-3409	AI spin turrets uncontrollably
TZ-3404	Selecting higher echelon doesn't select all units i the hierarchy
TZ-3400	Type 2 Suit
TZ-3399	Level A Suit
TZ-3398	M100 has broken visualization
TZ-3396	Adjust sensitivity of JCAD. At least 1 bar when you spot contamination
TZ-3393	Decontamination menu in the inventory accessible in OME
TZ-3391	T08 - Too Many Scripts Message
TZ-3390	CBRN - Mask UI Is Not Restored After BPL
TZ-3384	Free look toggle while typing into unit list search box
TZ-3377	"UI of PDR, JCAD and M8 should be in the same theme"
TZ-3372	T08 - Artillery Strike Hazardous Area Created Below Ground
TZ-3371	M8 paper reload issue
TZ-3370	Decontamination equipment is visible in AAR unit list
TZ-3359	Port T08 features into VBS4
TZ-3358	Enable Unit list in VBS4 Master
TZ-3352	GFT CLIN 1009 - M7 Bradley FIST - Jerky Turret Movement in FS3
TZ-3342	Give feedback to player when you decontaminate other
TZ-3320	Create description text for the treatment mode
TZ-3307	Allow player weapon control with map open
TZ-3305	Detection equipment should be cfg based rather than hardcoded

Issue key	Summary
TZ-3304	Substance protection logic for individually worn CBRN suit parts
TZ-3301	Higher Echelons not expanding and collapsing properly in the unit list
TZ-3294	Allow specification of network interface for multicast by name or MAC
TZ-3281	UnitList not showing FFD UGV waypoints correctly
TZ-3280	Contamination devices were duplicated
TZ-3264	Gunline units shouldn't be visible in RTE unit list.
TZ-3235	UnitList performance drop in RTE
TZ-3217	Bandwidth and FPS monitoring scripts used in stresstests stopped working completely
TZ-3212	Search filter not working properly
TZ-3210	Markers are missing their names and icons
TZ-3202	Two objects have the same NetworkId
TZ-3197	Light source not visible in UL
TZ-3187	Waypoints needs to be selectable
TZ-3181	UnitListControl to support multiselect - scenario objects
TZ-3163	Unit List - marker issues
TZ-3158	Unit list - last item is selected and can't be unselected
TZ-3147	Pressing delete doesn't delete the (selected) unit in the unit list
TZ-3146	Scrollbar dragging persists outside of the scrollbar
TZ-3145	"Option ""High Altitude Burst"" is missing in drop down menu for Artillery Strike"
TZ-3119	CTD when switching from commander to driver position
TZ-3113	Script error when killing / reviving / (un)grouping / placing a unit
TZ-3111	New Config Property - playerAllowReloadWhenTurnedOut
TZ-3109	preview is not possible after placing a vehicle
TZ-3097	Day optic mode is default in ViewOutOptics
TZ-3096	UnitListControl to reflect layers in RTE / OME
TZ-3089	Unit list - blinking cursor in search field when not selected
TZ-3072	CTD inside Turret::TransferMsg trying to get out a unit
TZ-3070	Clicking waypoints in UnitList should move map to their location

Issue key	Summary
TZ-3058	Finalize display of editor objects
TZ-3034	UnitListControl to display waypoints properly
TZ-3031	Cannot deselect object in 3D OME with HTML UnitList present
TZ-2999	[REQ 1.12] Prototype of CBRN-1 and CBRN-3 reports.
TZ-2986	UnitListControl to support multiselect
TZ-2984	UnitListControl keeps unnecessary keyboard focus after clicked
TZ-2980	HTML UnitListControl in RTE to display icons for editor objects
TZ-2979	UnitListControl in RTE to display script logic editor objects
TZ-2976	Optimize fetching EditorObject properties through MissionEditorAPI
TZ-2966	As an Admin I would like to see Yellow Outline around unit symbology on 2D map
TZ-2963	Contamination icon next to the unit in the Unit list
TZ-2943	Unhiding a mortar group does not unhide its mortars
TZ-2918	Hidden crewed boats are visible in the briefing screen
TZ-2836	inGunnerMayFire = false is allowing Turret to be moved
TZ-2768	RAF Honington map - BNG coordinates option missing in Map Settings
TZ-2657	MRH not working after BPL
TSTT-13722	Integrate - Blue Node - VBS4 21.1 pluginConfig updates for binarization - removal regions / vec water
TSTT-13690	(Regr) Integrate - Blue Node - use the tools in VWS distro when in VWS mode
TSTT-13689	(Regr) Integrate - VWS Data Import: Make process identical to TCT using Publish2VWS
TSTT-13688	Integrate - Support inset data override: Removal regions
TSTT-13670	VWS Integrate - Update the Blue node to not write PBOs when no p3d models are generated
TSTT-13667	"Integrate - Blue Node - Support new objects xml format, lightpoint attrs, and pluginconfigs"
TSTT-13649	ca models missing attribution after apply model library script
TSTT-13639	VWS Blue node output to Publish2VWS changes
TSTT-13636	Blue Node - VBS4 21.1 pluginConfig updates for binarization - removal regions / vec water
TSTT-13633	Blue Node - Blue-extruded buildings are getting incorrect elevations

Issue key	Summary
TSTT-13603	Update the Blue node to not write PBOs when no p3d models are generated
TSTT-13465	Blue Node - Add support for VBS4 21.1
TSTT-13430	VWS Data Import: Make process identical to TCT using Publish2VWS
TSTT-13420	"Blue Node - Support new objects xml format, lightpoint attrs, and pluginconfigs"
TSTT-13377	Color palette surface maps from MaterialMAP are not supported in VWS data import
TSTT-13344	Blue Node - use the tools in VWS distro when in VWS mode
TSTT-12616	Support inset data override - Removal regions
TS-1199	CGF Plan Executer disables wreck collisions
TS-1177	Double check for exiting AAR
TS-1168	geoContent and planContent attributes are always set to false for new projects
TS-1151	AAR GS weird target IDs
TS-1108	"Make sure UGV set to ""Follow callsign"" provides UGV-specific reports"
TS-1104	"CTD on both the Client, SC0 and World Server "
TS-1092	Document the Lua functions for overriding vehicle clearance
TS-1085	Fix HHMD detectors not to cause Civilian to panic
TS-1080	Battlespace preview is broken (_tmpPREVIEWsave is not updated)
TS-1068	Confirmation pop up is present when leaving RTE
TS-1064	Make CAI vehicles to reasonably detect static vehicles as obstacles
TS-1060	Allow player drivers of follower vehicles in AI Convoy
TS-1053	FindPath should allow specifying the nav mesh to be used
TS-1049	Big flood - GearsSendToOthers (DamageModel) during stresstest
TS-1048	Vehicles cannot be deleted in OME
TS-1043	Resurrected soldiers should have brains
TS-1033	Explicitly specify vehicle clearance to use for pathfinding
TS-1032	Take vehicle clearance into account when pathfinding
TS-1030	"Add convoy option ""Prefer roads""
TS-1021	AAR Gunnery Statistics components missing in VBS4 SE build
TS-1020	Port VBS Radio Firewall Exception to VBS4 installer.
TS-1010	Remove hint when exiting Optics view in Swedish RWS vehicles

Issue key	Summary
TS-994	It's not possible to place non tactical unit symbol in Plan
TS-985	VBS creates WP for vehicle by itself
TS-984	Gunner can't move with turret
TS-980	9040-I-159 Breaking and steering at the same time
TS-969	9040-I-160 Engine never dies
TS-966	AU M777 battery update to 4 guns instead of 6
TS-944	Armored and AT elements defend broken upon loosing a vehicle
TS-939	2000 Control AI units - OME takes a long time to load
TS-929	Add a crouch phase to the Soldier fight behavior.
TS-925	Mech. Inf. JTAC uses laser designator as a weapon
TS-924	Add decision point control measure
TS-922	Plan AI soldiers return fire when struck by artillery
TS-914	Trigger linked to Civilian AI activity module not considered
TS-912	Fix a hole in vehicle section path logic
TS-909	Doc Localization
TS-908	SBF doesn't work for vehicle gunners
TS-896	Upgrade the Defend Order's Plan Drawing
TS-894	Defend does not complete
TS-893	Control AI Waypoint Filtering - filter does not work properly for new types of units
TS-891	Script error when Section + Defend is created
TS-890	MH: Defend Behavior Path Checks for Infantry Echelons
TS-888	"Control AI units are ""squatting"" "
TS-880	MH: Improve Armor Section Defend Behavior
TS-879	MH: Path-finding accessibility check for Armor Sections and Platoons
TS-872	Add observation post control measure
TS-864	Create basic area control measure
TS-855	ADF aerial orbats with legacy AI
TS-851	New orbats allowing a move order
TS-846	Defending soldiers should proactively detect and shoot at approaching enemies.

Issue key	Summary
TS-844	Improve ABEH16 losses autotest to test all existing infantry orbats
TS-841	Remove / Replace hard-coded tables from Plan AI weapon selection
TS-840	"Failing autotests alib29, alib40, alib21 "
TS-837	M1A1 AIM and ASLAV25 target priority infantry vs armored
TS-821	Add support of battlespaces and geo edits for autotest startup param
TS-820	Bushmasters / M113s prioritize vehicles they cannot attack
TS-819	Bushmaster Section does not have a Mil Symbol designated
TS-814	AU plan AT gunners do not shoot on vehicles first
TS-812	User adds the DEFEND waypoint in OME/RTE
TS-811	User adjust settings for the defend order
TS-809	Implement DEFEND order button.
TS-807	Update ADF orbats with Australian artillery units
TS-798	Create Placeholder Defend Waypoint
TS-796	Adapt Jakub's Neburka "losses framework" (ABEH16) to test ADF orbats.
TS-795	Create / Improve one or more autotests to test ADF target and weapon selection.
TS-785	Create ADF version of c_plan autotests
TS-784	Debug Orbat Spawner can't correctly create composition soldiers and groups.
TS-763	ADF Mot. and Mech. Inf. platoons retreat in Move order
TS-762	Update weapon configs for ADF orbats
TS-759	Non existent playable unit is listed in lobby after retrying execution on DS
TS-758	Implement Lua API for inheritance queries for magazines and ammunition
TS-757	"Implement Lua API for configuration entry queries for weapons, magazines, ammunition"
TS-755	Remove old orbat spawning scripts
TS-754	Mission configs broken during preview
TS-753	Change the case of Upload offline battlespaces
TS-751	Control AI Orbat spawner tool should read Orbats from Plan
TS-747	ADF Orbats in VBS Plan
TS-742	CTD in Draw

Issue key	Summary
TS-741	Battlespaces UI displayed while connected to DS
TS-740	CTD during stresstest
TS-735	New edit in Geo is not uploaded upon close and save
TS-730	Followup: Battlespace cannot be deleted until folder is opened
TS-728	remoteTimestamp is present in client local BS json
TS-725	Legacy AI vehicles are unable to drive on long distance
TS-724	NVG remains in main menu when leaving editor or mission
TS-723	Not possible to request MEDEVAC
TS-722	Issues with tree geometry - Geo edits
TS-719	"Change VBS4 WIBU, behavior pack"
TS-718	Battlespaces cannot be deleted
TS-716	Mission preview is broken (tmp mission folders)
TS-714	Unable to Abort or Retry Preview when running through DS
TS-707	Disallow trailing spaces and dots in battlespace names
TS-706	Executing a local-only battlespace results in an erroneous state
TS-705	Creating a new battlespace with the same ID as a previously existing one overwrites it
TS-696	Re-enable advanced wounding
TS-695	Re-enable the towing module
TS-693	BS Content Check Fails for Plan / Geo if using Save and Close
TS-682	StressTest - OPFOR Controlled Vehicle Shown In OPFOR C2 As BLUFOR Unit
TS-681	FP Exception while setting camera position on VBS4 start-up
TS-679	Battlespace icons are visible in orbital camera
TS-662	Script error when converting VBS3 mission with intel object to VBS4
TS-656	Event handlers are not removed after RETRY mission
TS-645	Issues with tree geometry - destroying trees
TS-587	Vehicles hit obstacles when obstacle center is too far from road center line
T010-172	Finish remaining vehicles
T010-104	Only points laying on spline are visible.
T010-81	Add Selection Tool & Orbat Tool To CAS Tab

Issue key	Summary
TO10-78	Update aircraft list buttons state according to the aircraft status
TO10-74	Cancel button bug in Create CP / IP - UI keeps reopening on tab switch.
TO10-62	Broken counting in the default Point naming
TO10-60	New Mission Orders UI not opening
TO10-56	When you click on placed target you need to see a highlight (Orange box)
TO10-55	When you place CP and try to use coordinates it doesn't work with the plan (It doesn't move the point to the coordinates)
TO10-49	CH and Abort mission buttons are working
TO10-48	Make Plan symbols follow the real position when the mission is running.
TO10-47	Make CAS splines and aircraft movement realistic
TO10-30	All aircraft should follow the Mission spline and attack the same target
TO10-12	After attack force aircraft to follow egress and return to CPA into holding pattern
TN-1462	Script Error when placing first Unit on the map
TN-1451	Unable to upload the battlespace on DS, if battlespace have non-Latin name
TN-1448	Finalize Korean Translation
TN-1447	Drivers Add necessary commands to allow HTTP provider to run as non admin
TN-1446	Monitor Server Statistics don't create the csv file
TN-1445	Training Boolean value in Battlespace.json is defaulted to false value
TN-1442	PLAN - Drawings changes are not presented in AAR
TN-1441	"Error when creating battlespaces via ""save as"" (follow up task)"
TN-1432	FileTransferAPI - OnTransferComplete() is not called for transfers that fail to bind socket
TN-1424	It's possible to uncheck all sources of BS when in mission selection screen
TN-1413	FileTransferAPI - Assumes that remote client has port always open
TN-1410	Selecting POIs from list is broken
TN-1405	Toggle Markers Visibility button shows markers it shouldn't
TN-1403	Hide Training Mission preview image
TN-1402	Hide POI button and Search bar for Trainees
TN-1397	AAR should be downloaded to GM's PC after mission ends
TN-1388	Battlespace hash is not recalculated after editing outside VBS

Issue key	Summary
TN-1384	Disable Execute button when no Player units in Training mission
TN-1383	Pass number of player units to frontend
TN-1382	Update Download / Upload overwrite confirmation dialogs
TN-1381	Battlespace Context Menu Execute button does nothing
TN-1379	Update World Server Status Panel
TN-1373	Confirmation dialog for downloading training mission from VWS for admin
TN-1372	"When mission is uploaded from admin to DS and aborted, it is still shown as local only"
TN-1367	Training missions without player unit cannot be started
TN-1366	Asses part of Battlespace menu lacks slider
TN-1364	Confirm the manual server connection IP dialog by Ctrl+Enter key
TN-1363	AAR is not deleted after successful download from DS or SC
TN-1362	More robust transfer of battlespaces
TN-1356	Fix navigation issues and component clean-up
TN-1355	Filter in Battlespaces tab is not indicating that filtering is active
TN-1354	Workflows - Discard button backend for AAR Save dialog (in mission)
TN-1353	Workflows - AAR not being sent from Simclient
TN-1352	All UI disappears after pressing ESC twice in main menu
TN-1350	Engine popups are obscured by the WebView UI
TN-1349	Upload battlespace hamburger menu is present in Training tab
TN-1347	Workflows - UI - Battlespaces tab - Battlespace upload / download notification
TN-1342	Workflows - Save AAR Dialog - Connect notification to backend
TN-1336	Validation of V4WU in the master
TN-1335	"Confirmation dialog for ""Abort"" and ""Change Battlespace"" buttons in hamburger menu"
TN-1334	Workflows - UI - Multiplayer Mission Servers dialog - Load data and connect workflow
TN-1330	[KOREAN] FDC - Target Coordinates not translated
TN-1329	[KOREAN] Close Air Support is not completely localized
TN-1320	Add confirmation dialog to Save AAR 'Discard' response
TN-1314	Hide drawing option causes Chalkboard unusability

Issue key	Summary
TN-1311	Workflows - UI - Mission Selection screen - Mission transfer
TN-1310	Workflows - UI - Training tab - Start singleplayer mission
TN-1308	Script Error when loading AAR and in RTE
TN-1306	Workflows - UI - Save AAR dialog - Frontend Config UI changes
TN-1305	Workflows - UI - Battlespaces tab - Upload locally stored AARs to VWS
TN-1304	C2 - Player outline is not updated when switching into unit in a vehicle
TN-1303	"Workflows - UI - Save AAR dialog - Download AARs from DS or SimClient when ""Save AAR locally"" is enabled"
TN-1301	Workflows - UI - Battlespaces tab - AAR download notification
TN-1300	Workflows - UI - Battlespaces tab - AAR upload notification
TN-1292	Workflows - UI - Mission Selection screen - Load data
TN-1282	Blufor group has Opfor icon
TN-1276	[FirestormLRTV][VR] Incorrect distance between reticle lines
TN-1262	Slight difference between Lased and compass azimuth
TN-1257	CTD on JIP when waypoints are assigned to higher echelon
TN-1255	AARStats plugin is not present in VBS4
TN-1251	[Plan Autotests] VBS4 CAI tests are failing inconsistently
TN-1250	Angle of controller when holding LRTV is not ergonomic
TN-1249	Firestorm UI in VBS3 is more transparent than it should be
TN-1242	Text is not visible for disabled buttons
TN-1240	VRLT Hands offset in vehicle after walking around
TN-1239	[VBS3] VR Optics are broken when switching between LRTV device and primary weapon with VR optic
TN-1228	CTD when Gateway is not able to create / access Log folder on startup
TN-1225	ACATS ARH Flechette rocket causes script error
TN-1224	Script error in OME / C2 when placing marker
TN-1220	Dev defines cleanup
TN-1219	Move fn_getInheritedCfg.sqf to config category
TN-1216	Webview: Enable webpage to be rendered onto main screen / RTT
TN-1215	Webview: LRTV configuration of RTT and webview texture in VR

Issue key	Summary
TN-1214	VR Button Interaction: Mapping firestorm buttons to VR controllers
TN-1212	Implement stabilization of the hands to prevent shaking of the LRTV image in VR
TN-1211	Compass heading based on item direction in VR
TN-1210	Optic State Base VR
TN-1208	Multiline popup not right aligned
TN-1206	It's not possible to rotate drawings by SHIFT+RMB drag
TN-1204	Require -vrplan parameter for enabling VR Plan menu
TN-1193	Markers in map disappears during exercise
TN-1192	"Plan - VBS4 bundle does not activate ""Plan PRO"" features"
TN-1190	Contamination - Cargo Function - update in unit list
TN-1177	Symbols from SymbolLibrary don't get propagated to others when committing
TN-1168	Strange highlighting of Add unit button in VR
TN-1163	"Adding unit in VR plan - MIL 2525C menu is not shown on first click to ""Unit"" in radial menu"
TN-1161	Stutters during creation of unit in VR plan when dragging unit symbol and turn around
TN-1159	"It's not possible to exit planning session correctly if not ""gamerunner"""
TN-1154	Cannot map old -> new ObjectHandle when loading a mission saved in RTE
TN-1149	Planner is stuck in loading if correct unit type slot is not available in the lobby
TN-1148	Menu is stuck for VR planner when disconnected from lobby
TN-1144	Hide POI makers in VR Plan
TN-1141	""VR Spectator (Invisible)"" is invisible to other planners"
TN-1137	Low performance when moving Objective shape
TN-1130	Exiting VR Plan Dialog pop-up
TN-1128	Add duplicate button
TN-1127	UI Notification system
TN-1126	Change drawing icon on radial menu
TN-1125	Implementing radial sub menu
TN-1113	Latest segment of drawing has cylindrical shape
TN-1108	Newly added objects in VR Plan does not use optimized mode

Issue key	Summary
TN-1105	VR Plan UI is not present
TN-1096	Entering preview erase list of overlays in Plan
TN-1094	Unit Tool is highlighted Red when placing an ORBAT entity
TN-1093	Implement new VR avatar head
TN-1092	Changing oculus controller model to new one
TN-1091	Thicken laser pointer
TN-1089	"Remove incorrect Plan ""export requires license"" tooltip"
TN-1088	Improve bounding box performance
TN-1087	Implement local BS uploading
TN-1081	VR Plan UI is gone
TN-1075	Support by fire - naming objective
TN-1073	Boundary line echelons
TN-1072	Support by fire - choosing objective
TN-1071	Phaseline times
TN-1070	Basic creation functionality
TN-1069	Compass 2.0 behavior improvement
TN-1066	VBS4 VR Plan - Cancel button does not close menu
TN-1061	Laser pointer lagging behind editor camera movement
TN-1058	Hamburger menu is hidden by Plan UI
TN-1057	Configure yo configurables, bro
TN-1055	Pop-up message appears when opening mini map in AC-130
TN-1054	Performance drops when moving laser pointer
TN-1046	Orange strings are appearing above UI icons
TN-1042	Stuttering / freezes when user enters VR mission
TN-1041	Huge performance drop when placing Assault order
TN-1040	Confirming drawing after undoing some steps breaks the drawing
TN-1004	Units are not visible through drawings
TN-1003	VR Planners missing nametags on JiP
TN-994	Very low performance at 4km distance drawing tool

Issue key	Summary
TN-990	Controllers are invisible in VR Plan
TN-980	Compass implementation
TN-979	Main menu: Multiplayer menu
TN-978	Main menu: Camera control
TN-976	Radio integration
TN-949	Chalkboard side panels are visible
TN-947	VR Plan performance tests
TN-943	Missing feedback when the laser is toggled on. No perceived change
TN-942	Turn off mouse cursor
TN-941	An option to adjust movement speed controlled through a joystick click
TN-940	Highlighted outline on hover
TN-939	Max zoom out limit set
TN-938	Changing elevation caused mild / moderate vertigo and jelly legs for all users
TN-937	"After clicking on another menu item, the previously selected tool is still active"
TN-934	[VR Plan] Add a limit to interaction distance
TN-932	Reduce rotation angle
TN-931	Unreliable elevation: when press joystick up or DOWN
TN-930	Closing a tactical symbol dialog does not select the cursor tool
TN-929	Laser offset when interacting with UI
TN-918	Simplification of Chalkboard Architecture
TN-912	Remapping control schemes on VR controllers
TN-911	Hide tactical markers outside of Plan
TN-910	Control points don't switch from 2D to 3D
TN-909	[VRInteraction] CTD if -hmdVendor parameter is not passed
TN-905	Editing Drawings
TN-904	Selectable viewing between MIL STD 2525 symbology or 3D simulation models
TN-900	Tactical unit symbol workflow improvements
TN-899	Toggleable laser pointer
TN-898	3D Model for unit avatars

Issue key	Summary
TN-897	Left controller laser pointer is visible when unit symbol tool is displayed
TN-894	Restyle Tactical Symbol Dialog for VR Plan
TN-880	VR Unit Orders
TN-878	MGRS labels for Plan units
TN-877	Upgrade CKB and Plan to use Angular File Picker component
TN-876	Symbol library: Highlighted symbol should mimic behavior like in VBS3
TN-875	VR Plan - Camera UX update
TN-873	[VRInteraction] WebView Widgets are rendered under Draw primitives
TN-872	VR Plan - Laser pointer does not intersect with Controller UI
TN-871	[VRInteraction] Overlapping WebView widgets cause unresponsive UI
TN-869	Controller UI improvements
TN-866	Create VR Planner units & avatars
TN-865	Place Tactical Symbol in VR Plan
TN-864	Saving Plan / Mission in RTE on DS / VWS
TN-861	DrawingComponent input problems
TN-860	CursorToolSelect for VR
TN-856	Make VRUIControl controller position calculation work in Main Menu
TN-855	[VRInteraction] VRUiControl outputs wrong position in OME/RTE
TN-853	Commit Overlay from VR Controller
TN-852	Save Mission from RTE
TN-851	ControlSchemeVR implementation in DrawingComponent
TN-848	Engine UI is not rendered in HMD When using Single-pass stereo or Multi-view Rendering
TN-844	CTD during shutdown after using RWS vehicle
TN-842	Control camera in RTE using handheld input
TN-840	Pause AI Time Control
TN-839	DrawingComponent input refactor
TN-838	Create basic webview using the VRUIControl API
TN-837	[TA] Refactor to allow for multiple WebViews in VRUIControl (in VRInteraction component)

Issue key	Summary
TN-836	[TA] Implement the Gears API for VRUIControl (inside VRInteraction component)
TN-835	[TA] VRInputHandlerAPI (inside VRInteraction component)
TN-831	Swedish STRV 9040 units do not complete orders given.
TN-827	Assertion flood / CTD in VBS4 garbage collector
TN-826	Disable Render Resolution setting in VBS4 UI
TN-825	Script error upon entering RTE/C2
TN-816	DS broken after scenario is closed with forceEnd
TN-815	VBS4 and BlueView presets are still out of sync
TN-814	Plan SE Mechanized infantry platoon - not moving SQ group during the assault order
TN-812	VBS4 start-up time degradation
TN-811	Units are displayed as groups in Briefing
TN-808	CTD after clicking on Units icon in VBS4 Plan
TN-803	Unable to close context menu box by clicking outside of it in VBS Plan.
TN-801	Shift key will cause Object Properties and Unit Properties to be deselected in the Global settings inside VBS PLAN
TN-800	Freeze while creating screenshots
TN-799	Performance drop in Alps fly missions
TN-795	"When selecting leading vehicle in 3D, whole group is selected"
TN-794	RTT mirrors are broken
TN-793	CTD when placing Phase Line
TN-792	Plan generated forces - Playable checkbox is not working
TN-782	Rendering resolution doesn't scale when resizing window in VBS4
TN-781	Outdated custom crew configuration popup
TN-780	Joystick controls keep resetting after quitting VBS4 instance
TN-779	DebugUI is bound to F11 key
TN-775	"CTD after retry in preview (Symbology, customized symbols)"
TN-772	Incorrectly named groups built in Plan
TN-771	VBS4 - Entry Point Not Found - Windows Server 2016
TN-769	CTD on closing during stresstest

Issue key	Summary
TN-768	AfterActionReviewListenerAPI -- OnComponentRecordedData is called twice
TN-767	DiscreteFOV is continuous not stepped for individual weapons
TN-766	M1114 ADS - Infantry-like nightvision through gunner optics
TN-765	AAR - Doesn't Display Higher Echelons
TN-764	Check boxes in Plan do not respond
TN-761	Save as option does not save VBS Plan symbols (units / orders)
TN-760	Deleting the whole text of a shape will leave the text unchanged
TN-752	Clicking on Phase line on timeline adjusts its timing in certain cases
TN-751	Changes to CGF-Plan Orbat JSONs.
TN-749	Re-enable Water Current EO
TN-747	Symbology not working in preview sometimes
TN-746	Orbats spawned via script command missing MSDL handles
TN-744	Implement TI Modes
TN-740	2D Polygon tool missing from Plan
TN-735	CTD caused by symbology
TN-734	VBS4 screenshot tool
TN-731	AI Feedback - increase character allowance & change verbiage
TN-706	CTD when closing headless client in symbology
TN-700	Line of Sight not colliding with buildings in OME
TN-696	Some infantry units missing symbol on first preview after building the mission
TN-694	Tactical unit symbol tool - changing Higher formation and Unique designation breaks placing symbols
TN-671	VBS3 JFST Symbology - placing single tank / helicopter / jet with more than 1 crew inside shows as a Section
TN-669	More complex higher echelon structures have incorrect symbol
TN-590	Remove 'Gridline' and 'Import BMP Overlay' menu options from Plan & rename 'Reset Panels'
TN-547	Script error when Clear is used on mission with Plan
TN-398	Unselectable area in Plan
TN-387	Panel resizing is not working

Issue key	Summary
TN-379	"Context menu in 3D view contains ""Default camera"" menu item"
TN-322	Symbol library is broken
TN-250	Width/Length change of the object properties is broken
TN-192	Chalkboard in AAR - first committed drawing stays visible
TK-290	Main menu LMB / RMB no longer closes BS action selection
TK-288	Gunnery Stats missing in AAR > Tools
TK-268	Battlespace pin color editing reflects only after restart
TK-263	Each BS in main menu throws error when connected to clean VWS
TK-262	Fix vehicle map icons
TK-259	[VDT T3S Implementation] - Tracers disappear too quickly from gunner's POV
TK-256	DESIGN - Error message when loading defaults in Editor settings
TK-254	"When in the pause menu the text shows C2 icon, but says Editor, however there is no ""Editor"" button on the screen at that point."
TK-251	Incorrect notification when uploading / downloading AAR / BS from VWS
TK-250	Incorrect server state reported in server selection screen
TK-249	""Save As"" in the hamburger menu creates empty mission"
TK-247	Plan symbols are black and without texture
TK-238	Fix for unit map icons
TK-235	QA Snow and puddle AAR testing
TK-232	CTD when the window is narrowed to zero during startup
TK-231	QA /Light is not shown for some light sources
TK-227	CTD in Renderer.dll when loading into the Editor
TK-226	Freeze creating Geo data while accessing VWS on 20MB+ Battlespace
TK-225	Server CTD after mission Execution
TK-208	Test - Snow control Implementation
TK-193	QTD: Units from DIScover sliding and constantly changing state (weapon drawn / slung)
TK-192	[VDT Implementation] Entities changing sides in gateway will not change
TK-191	[VDT Implementation] Unable to map Unmapped entity when the class name does not appear in Gateway UI

Issue key	Summary
TK-189	SQF command isPlayable not working
TK-184	CTD on Loading an AAR Recording
TK-151	QA - Blue puddles testing part 2 (on world server)
TK-150	QA - Blue puddles testing part 1 (locally)
TK-132	VBS3 to VBS4 porting initiative part 1 - port of T3S-1636
TK-131	VBS3 to VBS4 porting initiative part 1 - port of T3S-1637
TK-126	VBS3 to VBS4 porting initiative part 2a
TK-121	VBS3 to VBS4 porting initiative part 2b
TK-120	VBS3 to VBS4 porting initiative part 1
TK-114	Update the wakes in master (polish fix)
TK-108	Validation of TK-5 in VBS4
TK-82	Localize TacticalUnitSymbol
TK-81	Test UI changes from Ondrej's team
TK-80	"Freeze in OnBeforeSimulation in ""Done"" and Close Prepare"
TK-78	Helicopter wheel brakes seem to be always active
TK-74	VBS plan JSON in localization
TK-68	[KOREAN] FDC New Mission not fully localized
TK-67	[KOREAN] OE Module not fully localized
TK-63	Merge the ship wakes into vbs4 master
TK-57	obsolete showShotTrajectories shown after mission retry
TK-30	Speed of a boat following waypoint is not ok
TK-7	Mastiff causes a CTD when deleting them from a networked mission
TK-5	VBS is not sending the ground contact as 0 point via DIS
TF-1817	Change default window size
TF-1792	CTD in SetViewportState
TF-1791	Explosions and backblast having effect on long range
TF-1787	Fuzzy compass in simulation
TF-1779	Connection error: unknown error when connecting to a non-existing DS
TF-1774	[VBS4] TI mode desync when going out of optics (TI Black Hot / White Hot)

Issue key	Summary
TF-1773	Missing sounds error upon starting session
TF-1772	Move waypoints not triggering for solo players
TF-1768	Losing control over player
TF-1767	Movement stuck during Join In Progress
TF-1752	Stresstest: Update ignored spam in lobby during JIP (Diag exe)
TF-1751	Blue static libs update - 21S10
TF-1744	Confirming battlespace creation leads to VBS freeze (roughly 4 seconds)
TF-1742	Moisture Slider doesn't propagate values at the beginning of a mission
TF-1741	AAR Is Not Saved on the SC If The Recording Is Started From Mission Lobby
TF-1738	FPS logs are not saved correctly to JSON files
TF-1737	Viewports Visible globe inside some helicopter displays
TF-1736	CTD - random crash
TF-1735	CTD - BatchQueryPlugin::UTMBatchSampler::LoadRoads - update PSDK
TF-1734	VBS4 perftest - CTD in SamplerPreloader::Simulate
TF-1732	RTT mirrors related flood in RPT
TF-1731	CLONE - VBS4 IEDs attached to a vehicle do not move correctly
TF-1728	Change variables that are loaded from *.cfg file
TF-1727	"VWS DS crashed after closing of clients (admin, user, headless user)"
TF-1726	[Workflows - Engine] Asynchronous file transfer - Limit number of ports / threads
TF-1725	[Workflows - Engine] Asynchronous file transfer - prio follow-up
TF-1722	Unexpected token in JSON file - invalid json format
TF-1721	Incorrect locality after Switch to vehicle (or switch to unit)
TF-1720	[Workflows - Engine] Asynchronous file transfer - follow-up
TF-1719	Control AI entities DIS Fire PDU has invalid coordinates
TF-1718	Show MessageBox instead of CTD with non-ANSII characters in app path
TF-1717	Major peaks in old AI cover processing
TF-1716	Can walk through building walls
TF-1715	Destructed objects don't recover on mission restart
TF-1714	Camera is moving on its own after an explosion in 3D RTE

Issue key	Summary
TF-1712	Fix assert list->Used >=0
TF-1709	Entering ACATS ARH causes CTD
TF-1708	CTD when closing headless client via X
TF-1707	Assertion: unbound.Size() > level
TF-1706	CTD after start smoke test mission CommonPlugin.dll!PSDK::Cache
TF-1705	2000 Unit demo client CTD
TF-1704	flood of ObjectSetVariable
TF-1703	VBS4 horrible laser performance - freezes in c1Obl
TF-1701	UpdateTurret / UpdatePosition Turret message flood
TF-1700	Diving equipment remains visible on unit after it's taken off
TF-1698	Editor object validation not being applied (across all objects)
TF-1697	Recognize new p3d version in plugins and VBS4
TF-1696	CTD with -connect=localhost
TF-1693	tmpPREVIEWFiles are not deleted in diag or unopt
TF-1692	Gitlab build overrides AppName with TargetName
TF-1690	[Workflows - Engine - Clean-up] DisplayRemoteMissions removal
TF-1688	Crash reporter is not invoked when VBS crashes in multiple threads at once
TF-1687	CTD in threads while closing or starting up VBS4 in perftests runs
TF-1686	Delete the hack introduced in TF-1603
TF-1684	Objects and units sink under ground in MP session executed on VWS
TF-1680	Broken interpolation for remote entities
TF-1675	Crash in modification plugin
TF-1671	[Workflows - Engine - Feature] Start singleplayer mission
TF-1661	[Workflows - Engine - Clean-up] DisplayMain display refactor
TF-1660	[Workflows - Engine - Clean-up] Mid-risk display deletion Phase 2
TF-1659	[Workflows - Engine - Clean-up] Mid-risk display deletion Phase 1
TF-1658	[Workflows - Engine - Clean-up] Low-risk display deletion Phase 3
TF-1657	[Workflows - Engine - Clean-up] Low-risk display deletion Phase 2
TF-1656	[Workflows - Engine - Clean-up] Low-risk display deletion Phase 1

Issue key	Summary
TF-1654	[Workflows - Engine - Clean-up] STE component update to new VS toolset
TF-1651	[Workflows - Engine - Feature] Asynchronous file transfer - Implementation
TF-1650	[Workflows - Engine - Feature] Asynchronous file transfer - SDK
TF-1644	Crash Reporter is not invoked for some CTD types
TF-1642	Fix the Microprofile for VBS4 main thread
TF-1638	CTD after start mission with Blue newer than 142.13.172203
TF-1618	"Video settings located in ""Other"" tab are not translatable"
TF-1605	Viewports Review and merge
TF-1599	Cannot set RTT per frame
TF-1597	Abort button on DS kick all the players, but it should return them to missions list
TF-1592	[KOREAN] AAR not fully localized
TF-1591	[KOREAN] Localization of chalkboard text
TF-1588	Create a component to log all frame times
TF-1585	[KOREAN] Video / Audio Settings not fully translated
TF-1582	VBS4 perftest - Drop in z04 4PLvs1PLv3 between 65/67 builds
TF-1579	Peaks in ShotShell::SimulateMovement
TF-1578	Encoding problem when a mission is saved as Korean name.
TF-1577	Support suspendable threads in BatchQuery plugin
TF-1576	Asserts fire in Release
TF-1575	AutoPlayer feature - using AI controlled player slots - basic implementation using legacyAI brain
TF-1557	CTD when watching AAR from Blue trunk playtest
TF-1555	CTD of DS after perftest mission ends
TF-1554	Unit killed while detaching hook from M88A2
TF-1545	VR CTD long term fix
TF-1544	Larger missions tend to have performance problems
TF-1543	Pause menu UI is not visible for mission started with -init parameter
TF-1539	VBS4 autotests have Battlespace UI visible during mission run
TF-1536	"CTD on exit, when using VR Plan"

Issue key	Summary
TF-1531	Satchels flickering in the air around moving soldier
TF-1530	Tracers are not displaying
TF-1526	CTD on shutdown - VBSSTE.dll
TF-1525	missionName returns partial folder path in OME preview
TF-1518	Craters are not deleted over time
TF-1515	Generating engine in GS issues
TF-1514	VBS4 Blue trunk - DLL error for HMD
TF-1509	CTD of DS on VWS - ExternalScene::AddObject
TF-1506	CTD after trying to modify marker while holding shift
TF-1503	VBS4 Blue trunk - purple objects / missing textures on Sahrani
TF-1501	VBS4 Blue trunk - slow proxy / model loading
TF-1499	Start-up for printing peaks call stacks
TF-1498	VBS4 CTD with -hmd=OpenVR start up parameter
TF-1496	Config browser UI closes every time you change config path
TF-1493	VBS4 perftest - remaining drop in z04 4PLvs1PLv3 mission
TF-1492	Animations not sync with setExternalPoseUpBody command
TF-1491	External units are immortal when 2 VBS clients are connected via Legion
TF-1490	CTD when placing vehicle in editor
TF-1489	Reduce stutters by deleting craters asynchronously
TF-1487	Flood of GroupAddSubordinate
TF-1485	Loading previously saved already built VRplan mission multiplies units
TF-1484	Flickering and freezes are observable in VR Plan again
TF-1483	Saving mission during collaborative MP session is broken
TF-1481	Object spawned / deleted repeatedly at the same location gets spawned with a random offset
TF-1474	VBS4 perftest - Potential drop between 278/279 builds
TF-1472	CTD on shutdown (with Legion adapter)
TF-1471	Remove NEXUS macros
TF-1470	Opening doors on SPTA is not working

Issue key	Summary
TF-1469	Low performance placing units
TF-1468	Spawning the J-11 Flanker-L in VBS4 causes it to crash
TF-1465	Performance is lower when at max height
TF-1464	Freeze when loading the mission
TF-1461	IsSomeRoadway is broken in VBS4
TF-1460	Better draw jitter fix
TF-1459	CTD in Draw when deleting primitive
TF-1458	Legion / Ownership transfer
TF-1455	Huge stutters when lasing with AC-130
TF-1454	Not possible to execute mission on DS
TF-1453	Update Control AI waypoint to only show on the 2D Map
TF-1449	Draw CTD adding a new primitive
TF-1448	Code clean-up Bulldozer / 3DE / Fusion Interface
TF-1447	Saving in VR Plan does nothing
TF-1446	Building the mission is adding units without deleting old ones in MP
TF-1442	CTD in shutdown sequence during large scale test
TF-1441	CTD in FoW during large scale test
TF-1440	Save As saves incorrect geo / plan content values to BS.json
TF-1438	VBS4.xml Config options do not work - VBS4 part
TF-1436	AAR - destroyed vehicles do not have wreck texture + issues with repair
TF-1434	Tree Destruction Spawns Wrong Trees (if Season Changed)
TF-1433	CheckCursorTarget Performance hit
TF-1432	"Peaks in the ""Entity::SimulationReady"""
TF-1431	(not so)Automatically Start Network Missions
TF-1430	CTD while aborting VBS example battlespace
TF-1429	Gearbox Mode setting resetting on VBS4 restart, making manual gearbox unusable in HMD
TF-1428	Update video options after VB-6896
TF-1427	Legion Detonation event for ammo

Issue key	Summary
TF-1425	Add blue terrain refinement to preloading
TF-1424	Headless mode does not create window process that can accept inputs.
TF-1423	CTD when player create battlespace with long name
TF-1421	Video Settings not getting applied
TF-1420	MBT cannon 'class of weapons' causes targets to go bananas on impact
TF-1419	VBS silently fails to open Battlespaces with longer names
TF-1418	Repaired BMP-3 vehicle has a wreck texture
TF-1416	Application hangs at Receiving screen if mission loading is aborted
TF-1415	MBTs jumping upon firing
TF-1413	The parameter -init=playmission[",'mission_name'] is no longer working
TF-1411	Attached objects lag behind unit animations
TF-1410	PlayerRole incoming messages have quite a large number
TF-1409	Ability to control rain puddles through diag manager
TF-1408	VBS3 crashes when loading a mission with a particular vehicle
TF-1407	Improve terrain intersections for VR Plan
TF-1406	VBS4 UAV will not zoom while in a networked VWS scenario
TF-1405	Adding / editing UCS weapons in RTE at night makes them pitch black
TF-1403	"Clients stuck in ""Waiting for an Administrator to start a training mission"""
TF-1402	Remotely simulated vehicles proxies are not in sync - rubberbands against the vehicle
TF-1401	Freeze when preview Battlespace with nav mesh enabled in OME
TF-1399	Grouped unit cant be grouped again after being killed and revived
TF-1398	External units are not displayed in RTE until new unit is added
TF-1395	Investigate rendering freezing when new objects are added in RTE
TF-1390	Perfdrop in int19 VehiclesMoving mission
TF-1389	Assertion flood while using VR - Assertion failed 'CheckMainThread()'
TF-1388	Freezes and stutters in the jet
TF-1387	Issues with fake legs
TF-1386	Switching to C2 in a Preview keeps admin stuck in C2 functions
TF-1381	Missing helicopter rotors after engine is turned off

Issue key	Summary
TF-1380	"Remove ""Glob.noRoads"" parameter since it is obsolete"
TF-1379	CTD in Diag - DisplayMissionEditor::OnTreeLButtonDown
TF-1378	Scheduled code not run during editor initialization & missing map variable
TF-1377	Compass doesn't update in RTE
TF-1375	CTD when AF National Police units are placed
TF-1374	External skeleton weapons flicker
TF-1373	CTD encountered when previewing build mission
TF-1372	Area select doesn't select crew inside vehicle
TF-1367	Update deprecated Blue functions in the engine (Blue 20.3)
TF-1366	"Issues in Spawn all auto test - freezes, script error, pop up"
TF-1363	Cars to leave more space on crossroads
TF-1361	Drawing primitives each frame causing jittering
TF-1360	CTD on close (null GSoundsys)
TF-1359	CTD - deleting group attached to Higher Echelon
TF-1357	Integrate craters flattening to VBS4
TF-1354	Grabbed hook from M88A2 will take vehicle to the air
TF-1353	Draw distance text disappears too soon for Measure Distance Tool
TF-1352	Certain Vehicles crash VBS4 on preview.
TF-1351	[VRInteraction] WebView Widgets flicker when moving (VBS4)
TF-1347	Consolidate nuget package versions across projects
TF-1346	Markerlights have reduced visibility and missing flare
TF-1345	Externally controlled bone animation desync
TF-1342	Peaks in Symbology
TF-1340	Door issues - not animating all geo properly
TF-1339	RTE - Inkspot Does Not Render in 3D Mode
TF-1338	Hybrid testing workflow - User is not able to connect to DS
TF-1335	Integrate wind emitters
TF-1334	Control AI filtering does not work for some type of vehicles
TF-1331	VPR glitching landing gear

Issue key	Summary
TF-1330	CTD on DS after a while - RoadwaySamplerModule
TF-1328	Improve VBS4 compile time
TF-1327	Missing muzzle flash in 1st person - m4a1
TF-1326	UCS weapon is invisible in weapon editor
TF-1325	"20% Perf drop in ""z03 benchmarkPoland"" mission"
TF-1324	Switch Blue to 20.3
TF-1323	Gauges in HMMWV are blurred
TF-1322	Workaround for freeze in Blue
TF-1321	CTD - StressTest Smoke - Crash on Alt-Enter
TF-1319	OPV River Class open door not working
TF-1318	Legacy AI has problem to avoid obstacle that is more than 100m far away
TF-1315	OPFOR units in BLUFOR lobby
TF-1314	Random CTDs during freeze investigation
TF-1313	No collisions if you switch to different UTM zone.
TF-1309	Animation stutters when unit is close to vehicle / object (door)
TF-1306	Heads of dead / lying soldiers flicker above bodies
TF-1304	Muzzle flash - Polish tanks
TF-1302	50%-ish FPS drop upon entering certain vehicles
TF-1301	Units generated via groups are (partially) invisible
TF-1300	"Huge spam of [ObjectSpatialComponent] Failed to set transformation: [LooseOctree]
	Failed to move, position is outside"
TF-1299	Buildings in insets + made in Geo are indestructible
TF-1297	Major peaks caused by the environment sounds
TF-1296	Improve region traversal / checking data presence in batch query plugin
TF-1295	CTD after retrying with mission in background
TF-1294	FOLLOWUP: No check before modulo in Ship::GetLastMissileIndex causing division by zero
TF-1293	CTD when tried to select Mech Inf platoon
TF-1292	Destructible buildings - Low FPS and CTDs
TF-1288	CTD on DS (recording AAR)

Issue key	Summary
TF-1287	VBS4 spawns underground crater objects
TF-1285	Stutters in Blue particle simulation
TF-1283	Multiple decapitated floating heads in the vehicle
TF-1281	Equipment with optics - clipping through the model when out of optics
TF-1279	Disappearing map objects when shooting at Sahrani
TF-1277	FPS drop during free camera fly over Sahrani
TF-1276	Logging of Blue
TF-1275	CTD in NewFogOfWar
TF-1274	Freeze after time acceleration in preview
TF-1270	Bushes don't get destroyed
TF-1269	Tracers not visible in TI
TF-1267	Terrible stutters while flying in the jet
TF-1266	CTD driving a Stryker with roller into anti-personnel minefield
TF-1265	Legacy AI vehicles don't avoid vehicles and crash into them while driving on road
TF-1262	Significant perf drop while shooting from DShK
TF-1261	Direct engine call to return map control getMap
TF-1257	Jet contrails destroy performance
TF-1256	AAR issues with sea state
TF-1255	AAR SC Became Unresponsive And Disconnected From DS After Admin Saved AAR Manually
TF-1252	Not all vehicle pilot lod animations work
TF-1250	Performance drop of DS
TF-1249	CTD on DS - NetworkServer::getUnitsForBalancing
TF-1248	Artillery strike ILLUM IR visible as normal light
TF-1245	Objects with wrong geometry spawned in south-east Spain
TF-1244	"Update VBS4 wibu, engine and core service "
TF-1242	IR laser is not visible from 3D RTE NV
TF-1241	CTD during loadtest -> AIBrain::GetVehicle()
TF-1239	Tracers visible inside gun

Issue key	Summary
TF-1238	Converted battlespaces are missing MapCenterOffset after saving
TF-1236	Control AI Waypoint Filtering by Unit Type
TF-1235	Control AI Waypoint Filtering by Level of Command
TF-1233	Compass and watch have broken texture in OME/RTE
TF-1232	Legacy AI CTD Near a Destroyed Bridge
TF-1230	"Gateway not working in VBS4 (can not see external units), encountered CTDs as well"
TF-1227	Re-enable check for revision number in the release
TF-1226	Fix autotest framework changes introduced in TF-1191 to work correctly with Jenkins
TF-1224	Finetune sea color presets
TF-1223	Component autotests should not produce FPS or bandwidth logs
TF-1218	Seastates: Different boat behavior in AAR and MP
TF-1213	Major peaks caused by Fog of War
TF-1212	Performance Drop While Aiming With AK-74 (Stresstest)
TF-1211	Can't see through sights of RPG-7 (Stresstest)
TF-1208	CTD when starting VBS4 on unsupported system
TF-1207	Particle effect for M1A1's coax machinegun in wrong place
TF-1206	Bullets hit inside of gun in areas under 0m
TF-1205	Snap to surface broken in deep steep water
TF-1203	Advanced Sea States Polishing
TF-1201	Enable Sling Loads in VBS4
TF-1200	Physics simulation issue when vehicle driving near small lakes
TF-1197	Make a proper fix for CTDs from TF-1196
TF-1192	External Scene Refactor - fallout
TF-1190	Mass Collisions Issue
TF-1186	"Assert - Some static objects loaded for langrid x,y are not in that langrid"
TF-1181	Units that are not rendered do not experience collisions with other geometry
TF-1176	Update options preset to match BlueOptions presets
TF-1167	Control AI Waypoints behavior selection saving fix
TF-1148	Assertion floods in VBS4 performance test pipeline

Issue key	Summary
TF-1085	Remove old scene rendering code from landscape and scene
TF-1079	Fatigue cannot be enabled
TF-875	Deleted resources from Blue and plugins are referenced during shutdown
TF-853	VBS4 sometimes doesn't stream some objects for collision
TF-835	CTD in - HlInterface::DeleteObject
TF-800	CTD in TankEPE::Simulate() - DS and bots
TF-745	Equipment of dead unit is taken off body and put on again when zoom in / out in AAR
TF-612	Mortar deployment breaks player input
TF-539	Remove boost and its threadpool from the engine used by Gears parallel tasks
TF-315	VBS4 opens on the primary monitor only
TERRAIN-1626	Repack airfields.zbo for VBS4 21.1
TERRAIN-1597	Rebinarize Poland bridge model zbo to Blue.21.1
TERRAIN-1588	Hohenfels Spotlights Inverted Pitches
TERRAIN-1587	BK Poland & Hohenfels Missing Bridge Models
TERRAIN-1524	Broken terrain and navmesh at Bystrzyca Kłodzka
TERRAIN-1503	Procedural Airfields - Update the 9 world airfields with latest tech
TERRAIN-1499	SFO - Lighting Improvements
T3S-2018	VRLT2 - VRLT030 PC Crash
T3S-2015	Remote Fighter Entity Jittering
T3S-1956	VBS3 vs VBS4 TerrainMeshQueryAPI height offset different by about 32 meters
T3S-1935	Reload the gun while the player is turned in
T3S-1918	Possible Documentation Update for setLightMode
T3S-1887	NV in VR shows black stencil
T3S-1853	Tracers disappear too quickly from gunner's POV
T3S-1845	SV uparmored has distorted views in RTE mirrors
T3S-1776	VBS4 IEDs attached to a vehicle do not move correctly
T3S-1774	VBS4 - Rover III view does not match Controller
T3S-1773	Tunguska (SA-19 Grison) missing animations
T3S-1759	VBS4 - Some high zoom cameras shake vigorously

Issue key	Summary
T3S-1740	fn_vbs_artilleryStrike example is missing parameters
T3S-1488	Gateway add remote mapping drop-downs do not populate correctly
T3S-1271	Bluedrop - Gearbox Calculator not functioning properly
SDKS-2302	TI - Red Cold option missing from Sensor Options in Viewport Config editor object
SDKS-2185	Bluedrop Smoke & Burning Effect
SDKS-2160	5.01 - Bluedrop - SDK Collision Volumes (VBS4) - Volume on volume
SDKS-2050	5.01 - Bluedrop - SDK Collision Volumes (VBS4)
SDKS-2046	4.03 - Bluedrop - SDK Lighting Control (IR Searchlight) (VBS4)
SDKS-2042	3.01 - Bluedrop - Dynamic Light Brightness (VBS4)
SDKS-2031	Add in licensing for the multi viewport / render target feature
SDKS-1954	TurretAspectAPI v3
SDKS-1849	JFST StaticObjectAspectListener issues
IGP-5997	Update VBSExternalNetworking in VBS4 21.1.0
IGP-5957	Gateway_ViewAttachGroup does not work in AAR
IGP-5947	Only enable VBSExternalNetworking when in a mission
IGP-5946	Remove IGHost=1 cfg entry
IGP-5931	Drop particles shouldn't be stored in the JIP list
IGP-5929	Refactor VBSExternalNetworking's endpoint directors
IGP-5895	Enable logging in VBSExternalNetworking by default
IGP-5878	VBSExternalNetworking (IG) missing from DebugUI when Multicast / UDP NIC is changed
IGP-5837	Eliminate temporary SART-related changes from VBSExternalNetworking
IGP-5789	Add protocol versioning to VBSExternalNetworking
IGP-5780	1199 - Prox fuzes require to show visual effects from the fragments
IGP-5775	Port JFST VBS3 engine changes into VBS4
IGP-5771	VBS host: Local-only objects don't update their position
IGP-5479	Interop spawned point / spotlights do not appear in BlueIG
IGP-5378	Simulation mode not hiding the entity
IGP-5373	BlueIG Camera Randomly flies away during interop mission

Issue key	Summary
IGP-5058	Update VBSExternalNetworking settings
IGP-2445	Dismounts that have been wounded / bloodied do not display as such in Blue IG.
FEP-639	Wrong text under singleplayer option for a Trainee
FEP-638	VBS4 place search broken
FEP-587	Thai characters cannot be used in Battlespace UI
FEP-574	UI console logs spams debug output
FEP-572	Dialog draggable padding issues
FEP-552	[KOREAN] Fix Symbol Library translation
FEP-535	Gateway - non-resizing GUI
FEP-527	MainMenuUI - Settings - Extra preview button
FEP-517	Update vbs-plan-ui and vr-plan-ui to Angular 11
FEP-515	Edit Battlespace UI Does Not Accept Non-Latin Characters
CT-5914	Training mission - odd wall at the firing range
CT-5904	DESIGN Training mission - tree in firing lane D
CT-5899	Training mission - no counter at the pistol training
CT-5898	Uncategorized settings in Other tab
CT-5885	Limitation - terrain type does not work with extruded buildings (actors won't change formation in urban terrain)
CT-5867	Update SQF command setEditorObjectScope
CT-5844	getEditorScopeN enum changed since 21.1
CT-5836	Remove libbz2 dependency
CT-5832	Can't give waypoints to structured groups (created from PLAN)
CT-5792	Script error when moving the Convoy Waypoint with player inside an empty AV vehicle
CT-5791	2000 Control AI units demo - empty CSV files
CT-5781	Ungrouped vehicles cannot be grouped again
CT-5780	Rename Follow target and Deactivate Autopilot
CT-5779	AV vehicle with autopilot set in Advanced settings issues
CT-5760	Not able to assign UAV to admin / RTE or user / C2
CT-5757	Can't ungroup vehicles from RMB in 3D

Issue key	Summary
CT-5756	Civilian AI area is not fading out when added on a different layer
CT-5752	Fuel indicator is misplaced in vehicle properties
CT-5751	Autopilot / driver epenet switching
CT-5749	Autonomous vehicle - AAR Logistics reports
CT-5747	Manual Control aiming on AV UGVs does not work
CT-5742	Autopilot related error when running mission with Plan
CT-5739	Can't give waypoint to ungrouped Autopilot vehicle
CT-5738	Remote control for Autopilot vehicles
CT-5736	Driver should be able to look around in autopilot driven vehicle
CT-5730	Create AV Indicator in unitlist - VBS4 test / merge
CT-5725	Control AI Infantry group doesn't change formation in urban area
CT-5720	Autopilot group status incorrect on starting / loading mission
CT-5719	UGV Assign To not showing in AAR
CT-5718	Set AV Indicator Lights when switching autopilot
CT-5715	CTD when driver is player in a specific vehicle with autopilot enabled
CT-5714	Allow player in ControlAI Group
CT-5712	Allow toggling autopilot from C2
CT-5711	Autonomous vehicles on AAR - Unit on map
CT-5698	Allow mixed convoy groups (AVs and normal vehicles)
CT-5695	Add autopilot option to Editor - Empty Vehicle dialog
CT-5694	Lua functions for autonomous vehicles
CT-5693	Autopilot switching works over network
CT-5692	Use autopilot in a vehicle for autonomous driving
CT-5691	Create autopilot unit in a vehicle
CT-5689	Create Tethering indicator in Unit list
CT-5686	Vehicles with more than 16 hitpoints start with some of them broken
CT-5683	Zeroing cross isn't in the middle of the reticle
CT-5669	Allow toggling between AI and Player driver for AVs
CT-5658	STRB 90 Driver exits boat incorrectly

Issue key	Summary
CT-5655	Adding waypoint repairs vehicle
CT-5651	Script error when loading any AAR
CT-5650	Logistics report issues
CT-5649	Unit ranks not localized
CT-5646	Text part of symbols from symbol library is not rendered in reasonable height above the surface
CT-5645	Adding TRPs default back to Drawing Tab
CT-5641	Placing 2nd player unit in OME causes script error spam and breaks symbology
CT-5640	Copying Player vehicle does not reflect properly in Object Properties
CT-5637	Battlespaces can(not) have dots in their names
CT-5633	Javelin locking on non-existent targets
CT-5630	When Reaper Feed is locked info is reduced
CT-5627	Separate repository for Civilian EO UI
CT-5626	Optimize Control AI Movement Evaluation
CT-5625	FDC enables Editor panel in Plan
CT-5624	Civilian dialog broken after running mission with non-existent classname in civilian EO
CT-5622	Logistics report not displaying damaged vehicles in AAR
CT-5619	AI Rules of Engagement object is visible in 3D RTE on DS
CT-5616	Script error in initCivilian.sqf in F4F_Rohrbach mission
CT-5605	Plan Target name text disabled rotation broken by 3D
CT-5602	TGT UI issues
CT-5594	Pop-up message SkipMultiplayerBriefing appears after resetting Simulation settings on DS or MP
CT-5583	CFF-FDC Gunline does fire too far away from the target
CT-5572	"Reduce artillery mission options (ammo, fuse)"
CT-5570	Adjust spread of shells
CT-5569	Artillery units rotation set in mil radians
CT-5568	Enable fire mission in the left dialog in plan for US Mortars
CT-5567	FDC UI is not showing any missions (placed in FDC+plan)
CT-5566	LSC+FDC: Artillery hits have offset from target in a longer mission

Issue key	Summary
CT-5564	Add simple artillery fire order in VBS Plan - REVIEW
CT-5561	Target name disappears when its selected after other target or objective
CT-5560	Pop-up dialog on mission start / preview
CT-5558	Orbat deselected after adding first FireMission order
CT-5556	Default artillery order Time on Target
CT-5553	Objectives selected in SBF properties are not properly saved
CT-5541	Rotation: convert mils to degrees
CT-5539	Text of TRL isn't centered
CT-5535	Fire order in context menu only for Artillery
CT-5517	First Artillery plan change in RTE (cancel mission)
CT-5516	Connect Artillery order from Plan with CFF
CT-5514	TRP creation dialog - prevent modification of different shapes by the dialog
CT-5513	Implement resizing control points for target reference line
CT-5509	Move Behavior Pack 1 example missions to optional folder in VBS4
CT-5508	Camera control dialog can not be closed
CT-5507	Create a fire mission order (back end)
CT-5506	Create target dialog
CT-5495	Add simple artillery fire order in VBS Plan (front end)
CT-5494	Add Target Reference Point in VBS Plan
CT-5492	LegacyAI units cannot plan through crossroads
CT-5489	Legacy AI Abrams tanks never shoot again
CT-5488	Vehicle Command Controls - Spacebar to Cycle Weapon Selection doesn't work
CT-5487	Environmental sounds do not work in VBS4
CT-5483	"Remove ""Mission Folder"" in Control AI - Custom waypoint in VBS4"
CT-5480	Legacy AI vehicles avoid driving on bridge or stop on bridge
CT-5477	Control AI - Custom relative path doesn't work on VWS
CT-5474	Vehicles are not being damaged by collision
CT-5469	BP1 sample missions needs to be re-created for VBS4
CT-5465	Draw albedo texture in mini map

Issue key	Summary
CT-5463	Fix legacyAI for inset bridges
CT-5458	Enable Mini-map in VBS4
CT-5456	Some units not moving in CSE 2000 mission
CT-5452	Move node does not end for far away unreachable destination
CT-5440	Traffic Debug Visualization is not present
CT-5425	Minimize synchronous and main thread tasks in AI library
CT-5387	Control AI Custom does not load BTSet with relative path on VBS4
CT-5384	Airstrike does not work
CT-5270	Script error appears when placing orbat from Control AI Orbat spawner
CT-5228	Mark roads in navmesh automatically
CT-3737	AI on rails - Status message when weapon is missing
CONTENT-1910	"Korean K21 missing ""side"" config in 21.1 build"
CONTENT-1909	Korean K200 broken in 21.1 build
CONTENT-1905	Korean T-80 broken in 21.1 build
CONTENT-1901	Revert AlphaBlend changes in generic rvmats
CONTENT-1881	East European men are missing their hats
CONTENT-1873	A-Frame causes explosion of both vehicles
CONTENT-1872	Stresstest: Driving through the ground and floating away
CONTENT-1871	Some objects are offset in PhysX
CONTENT-1847	Stutters and performance drops when flying in jet
CONTENT-1832	PhysX performance issue in CAS (Plan)
CONTENT-1806	CreateJointExt sqf command should throw script error instead of assert when incorrect syntax is used
CONTENT-1803	Soldiers are spawned inside ships after get out action
CONTENT-1800	Several issues with the LCAC vehicle
CONTENT-1799	CTD in PX4 on VWS DS
CONTENT-1750	'String not translated' error messages in NATS
CONTENT-1749	Unit in cargo position next to the driver is sitting on the roof
CONTENT-1740	Assertion failed: Link cannot be resolved

Issue key	Summary
CONTENT-1739	CTD - Destroying trailer which has vehicle on top of it crashes in PhysX library
CONTENT-1720	Driver of HMMWV is waving through door texture after the gunner is killed
CONTENT-1698	CTD on JIP in SimulationPhysX4.dll
CONTENT-1696	MH-60T Jayhawk new bugs
CONTENT-1651	Helicopter wheel brakes seem to be always active - follow up task
CONTENT-1646	Korea - Borderless NVGs
CONTENT-1645	Korea - Gunner & Commander Optics TI Mode
CONTENT-1644	Korea - Commander Optics Override
CONTENT-1643	Korea - Commander Optics Rotation Limits
CONTENT-1642	Korea - Tank Optics Zoom Levels
CONTENT-1639	CTD on VWS DS after mission start
CONTENT-1626	Water placed objects fall through the terrain
CONTENT-1603	Damage applied by vehicle collision is too high
CONTENT-1592	The izlid is not animating with the turret on the vbs2_us_mc_ah1z_x
CONTENT-1563	K2 & K21 VR Optics config changes
CONTENT-1561	Configure hardcoded vehicle params - tireType
CONTENT-1528	Inverse Magnus Effect
CONTENT-1526	VBS4 Strf9040 Machinegun is unresponsive
CONTENT-1511	Quadbike colliding with big vehicle causes its destruction
CONTENT-1504	Pop-up HX77 Loaded
CONTENT-1503	Some of P1SART helicopters have issues with rotor shadow in VBS4
CONTENT-1491	UH-1Y doorgunner is turn-out position and AI does not fire
CONTENT-1489	Bv410 does not turn properly
CONTENT-1404	Assertion failed '((result) >= 0)' flood in RPTs
CONTENT-1403	Vehicles hit invisible objects
CONTENT-1371	CTD during playtest (SoftLink)
CONTENT-1370	CTD when a unit walked through tow link
CONTENT-1365	CTD when two ropes are moving
CONTENT-1348	Firestorm Reticles

Issue key	Summary
CONTENT-1346	Angry Civilian Gestures
CONTENT-1339	Popup when placing OPV Riverclass Batch 1
CONTENT-1338	CTD on client when trying to JIP to playtest
CONTENT-1332	CTD when moving LCAC Griffon in 3D map
CONTENT-1326	CTD on server and one client when deploying two DSBs
CONTENT-1306	The shadows of the palm trees are checkered
CONTENT-1300	CTD on DS after mission start
CONTENT-1297	Conversion of Legacy rocks to PBR - ART
CONTENT-1296	Vector Processor provider (Models for placement) - ART
CONTENT-1294	Create cone for IG use cases
CONTENT-1211	Puma PTR - periscope hidden selections fix
CONTENT-1194	CTD in VBS in OnPxSubstep callback
CONTENT-1186	CTD in PxVehicleUpdate
CONTENT-1183	P1SART - Catalina 34 Deck
CONTENT-1181	Non EPE vehicles are created as statics
CONTENT-1160	"Update P1AR weapons to use ""correct"" models"
CONTENT-1140	Korea P1 - Panzerfaust 3D Optics
CONTENT-1139	Korea P1 - K2 Rifle 3D Optics
CONTENT-1138	Korea P1 - K2 Rifle
CONTENT-1137	Korea P1 - K21 KNIFV
CONTENT-1136	Korea P1 - K2 Black Panther
CONTENT-1130	Ability for swappable materials (rvmat) - AAR backwards compatibility fix
CONTENT-1128	Magnus Effect
CONTENT-1112	P1SART - Naming (display and config class) fixes
CONTENT-1105	Create new VR models
CONTENT-1098	STRF front bumper is levitating in front of the vehicle
CONTENT-1097	M113A4 cargo / FR Gazelle crew sticks out of the roof
CONTENT-1089	GFT CLIN 1009 - Javelin Missile
CONTENT-1081	Rubbing parameter of helicopter particle effects needs to change.

Issue key	Summary
CONTENT-1080	Test SE Exclusive CV90 driving performance
CONTENT-1078	Pb8 - unit standing on driver's seat
CONTENT-1061	VBS4 Build missing customer.pbo
CONTENT-1060	P1SART - Abseil animation
CONTENT-1057	Default weapon vbs_gb_l129a1 (GB Marksman Virtus units) has no optic and is not visible in the inventory
CONTENT-1046	Merge UCS Weapon Mounts and related to VBS4
CONTENT-1039	Gear can't be manually animated
CONTENT-1030	Fix removeWeapon command alternate syntax #1
CONTENT-1012	Birrle U2 - Beale AFB Buildings
CONTENT-1008	Make wheel sweeps optional
CONTENT-1003	Gas mask that will block vision in VR
CONTENT-1001	VR ready CTLS
CONTENT-999	UK binoculars suitable for VR
CONTENT-998	MBT-LAW 3D optic
CONTENT-995	P1SART - Helicast animation
CONTENT-994	P1SART - Ready for pickup hand signal
CONTENT-993	P1SART - All Clear hand signal
CONTENT-930	Lookaround in vehicle doesn't work
CONTENT-929	Limit usage of UCS optics on vehicles based on turned in / out state
CONTENT-895	Towing and trailers doesn't work
CONTENT-891	"Dog" target LOD issues"
CONTENT-869	Add marker lights to light systems
CONTENT-838	UCS Optics of UCS weapons on vehicles
CONTENT-835	UCS ContainersTypes in turrets
CONTENT-834	UCS Component animations
CONTENT-833	UCS Weapon Mounts
CONTENT-832	Content Project - Physx Refactor
CONTENT-733	VRLT2 - JFST Jackal 2 Improvements

Issue key	Summary
CONTENT-678	P1SART - 600lb seasoning weight
CONTENT-677	P1SART - Strop
CONTENT-675	P1SART - Litter
CONTENT-674	P1SART - Catalina 34 Sailboat
CONTENT-673	P1SART - Reliance Class Cutter
CONTENT-672	P1SART - 47 Foot MLB
CGF-691	Assertion failed 'person->GetAiObservable().IsAwaitingBrain()'
CGF-686	Update of navmesh path sometimes makes it worse
CGF-677	Fix Control AI SDK tests
CGF-648	Road flag not marked in coarse navmesh
CGF-600	Control AI Actor to Respect Disabled Simulation - Interop
CGF-594	Add VBS4DN WIBU feature check - VBS4
CGF-584	Update AI library to the latest VS 2017 Toolset on GitLab CI
CGF-514	Top of config browser is cut off by top bar in VBS4
CGF-499	CTD when driving through Civilian area on DS
CGF-341	Cars oscillate between brake and throttle
AT-2746	Vehicle view optic zooming change takes turn back and forth at a driver position
AT-2734	"Updating presets for ""3D tree draw distance"""
AT-2730	[VDT Implementation] VRLT2 - VRLT030 PC Crash
AT-2719	Exaggerated View Mode In Menu But Not Enabled
AT-2716	CTD while saving AAR on locally hosted DS
AT-2713	Radio Admin windows do not disappear when previewing mission
AT-2709	Throw warning about URI encoded battlespace
AT-2707	Include Radio Jamming documentation in VBS4 manual
AT-2702	VRInteraction webview panels bleached
AT-2701	It's not possible to connect to the DS on the first try
AT-2700	Server list is empty after some actions
AT-2699	Crash reporter gathers files only from appdata
AT-2695	Losing connection to DS while selecting mission hides pop-up

Issue key	Summary
AT-2691	FileTransferAPI - All transfers stuck after 4 transfers fail
AT-2690	CTD when creating new Battlespace via context menu
AT-2682	Battlespace renaming doesn't rename the BS folder
AT-2679	Some battlespaces are not listed in the VBS4 main menu
AT-2676	Change main menu buttons availability and abort functionality
AT-2668	CTD when creating Battlespace with more than 30 Korean characters
AT-2666	VRInteraction with new BlueVRInterface changes
AT-2665	[Korean Translation] Additional Missing translations
AT-2664	Radio Gateway files are not saved to the mission folder if mission name contains Korean symbols
AT-2656	Not possible to save AAR with Korean characters
AT-2655	[VBSPitchRadio] Wrong Representation of Korean Symbols
AT-2651	VRInteraction panels missing or cannot be interacted with
AT-2641	Fix for RWS control responsiveness when Joining in Progress missions
AT-2640	[Korean Optics] Determine HMD fallback state
AT-2639	[Korean Optics] Disable rendering of the main scene in the main viewport
AT-2638	[Korean Optics] Create a viewport for the HMD fallback
AT-2637	[Korean Optics] Blend HMD fallback texture with the hmd-UI one
AT-2633	[KOREAN] Fix Korean settings translations in VBS4 20.1.6
AT-2631	VBS4 is stealing the mouse cursor when accessing Radio Settings
AT-2613	VBS Radio does not work if a unit has Korean character for its URN name
AT-2612	Grenades do no damage
AT-2598	Freeze when starting a mission
AT-2596	[VR] Rotation of pintle mounted weapon is unrealistically slow
AT-2594	[VR] Inventory levitating above the player when personal items disabled
AT-2576	Replace UK JTAC's SSARF with Firestorm
AT-2568	[FirestormLRTV] Fix Keybindings for bottom buttons for Valve Index
AT-2548	Pressing F in UCS optics causes avatar to jump
AT-2545	[VRInteraction] Adjust wearable inventory slot for binoculars

Issue key	Summary
AT-2534	[VR] Firestorm UI entries are not legible
AT-2525	Create function to generate keybindings file through VRInteraction
AT-2509	[VRInteraction] Fix duplicate VR hands after CTD / JIP
AT-2506	VBS Radio channels are not recorded in AAR
AT-2504	"LSAS vehicle systems breaks old ""Multiple Screens"" systems."
AT-2499	[VRInteraction] Validation Failed each frame when inside vehicles
AT-2497	[VRInteraction] Add support for HP Reverb
AT-2495	Add support for UCS optics when lasing
AT-2494	SetOpticsState doesn't change TI polarity properly with UCS weapon
AT-2493	[FirestormLRTV] Fix small bugs
AT-2492	[FirestormLRTV] Fix loading data from config
AT-2486	Reduce size of VR Menu
AT-2485	Letterbox display
AT-2484	Reticles
AT-2483	Show LRF return dialogue
AT-2482	Button highlights
AT-2481	Firestorm active check: desktop
AT-2479	Basic Info: Provide basic info to LRTV
AT-2478	Compass: Show compass and heading in LRTV (desktop)
AT-2460	Properly group LSAS user actions in VR
AT-2459	"Vehicle systems ""six"" cameras wrongly bind with camera feed"
AT-2448	LSAS option missing in the Action menu
AT-2447	[VBS4][Non-VR] LSAS auto-closes when VIS is open
AT-2443	[Assist] Misc: Migrate the Firestorm work from VRInteraction to FirestormLRTV repository
AT-2442	Menu States Logic: Direct menu: Zoom / polarity / misc
AT-2441	Menu States Logic: Direct menu - Switching TI / Day mode
AT-2438	VR UI Freeze when interacting with LSAS
AT-2436	LSAS black screens when enabling TI modes

Issue key	Summary
AT-2429	Optics State: Simulation effects
AT-2427	Menu States Logic: Lasing workflow (direct menu / LRF enabled / LRF active)
AT-2418	[Firestorm] Initial base technology for Optic States
AT-2416	Incorrect hand state when holding binoculars in VR
AT-2415	Fix interaction sphere for binoculars
AT-2414	Holographic weapon sight - update rvmat format in VBS4
AT-2411	LSAS user actions only in VR
AT-2408	PitchTalk internal exception with Korean system locale
AT-2402	[VBS4] HUD is always fixed to headset
AT-2399	Vehicle systems menu for LSAS
AT-2386	LSAS camera final HUD
AT-2384	LSAS quick action menu interactions
AT-2382	Hand Position Filtering - change scaling multiplier
AT-2373	Create repository: Firestorm
AT-2369	Keybind to enable weapon stability
AT-2364	Auto-respawn causes VR controllers to stop responding
AT-2363	Slew to commanders view stops working
AT-2358	User Input: Component reacts to user defined actions
AT-2357	Warrior Optics - Separate LRF Aiming Point Engine Technology
AT-2356	Puma IFV - Ramp UserAction is visible twice
AT-2354	Broken hud elements in Puma
AT-2345	Eventhandler incoming Projectile is not called for first projectile
AT-2333	DIS settings files saving destination fix
AT-2330	[VBS4] Dynamically created HUD RTT does not work
AT-2329	Puma 'soft lock' full implementation
AT-2320	Radio Jamming functionality is a part of the Radio Standard License
AT-2317	Puma: countermeasures modes and missile defense - misdirect missile
AT-2314	Laser Jammer - simulation effect
AT-2309	Damaged optics for PUMA

Issue key	Summary
AT-2307	Radio Pro should check for VBS4 Bundle feature when used in VBS4
AT-2299	Puma ABM set fuze distance
AT-2296	Puma camera system - Labels on RTT
AT-2295	RTT Cameras for PUMA
AT-2294	Clear up camera screen positions and desired names for PUMA camera system
AT-2289	CTD caused by _weaponFacadeCargo
AT-2288	Unequipped Weapon data are not cleared
AT-2285	VBS4 installation - Driver_Install.exe is not installing vcRedist automatically
AT-2284	VBS Radio channels are not visible in AAR and VBS4
AT-2282	Add stabilizeTurretRoll to DE_Puma
AT-2280	ensure binoculars reticule is functioning in VRLT
AT-2255	Puma camera memorypoints added to model
AT-2246	Puma rear ramp open / close vehicle interaction
AT-2244	Reloading of a weapon is not instant proper solution
AT-2242	Rotate Rocket Launcher slot 180 degrees - currently it looks like it is up side down
AT-2241	Deadlock in VrlInteraction
AT-2235	Logic SMT 171B (Trailer) Script error at the start of a mission
AT-2234	Switch icons and help page in VRLT
AT-2232	Incorrect Binoculars offset on right hand in VBS4
AT-2231	Grenades type cycling wrong behaviors
AT-2230	"Enable ""Switch ammo"" and ""Reload"" button in Weapon menu"
AT-2226	Correct the look of the spheres
AT-2224	No Radio Admin option in OME>TOOLS
AT-2223	Validation of Puma commander override
AT-2222	Puma Commander turret slew to view
AT-2220	Switching weapon mode does not work for client side
AT-2217	muzzledirection tech was not ported into VBS4
AT-2214	Commander and Gunner can launch smoke
AT-2213	Puma turret angle up on start of rotation

Issue key	Summary
AT-2211	AirBurst Munitions can be programmed - UI effort
AT-2210	Update opticsStabilizationOverride with gyro-stabilization
AT-2209	Popup on 22 rounds left
AT-2207	Disable default throwing animation for hand grenades
AT-2198	Rework interaction menu to not have submenus
AT-2196	Assert in VrUiUpdater.cpp on mission start
AT-2194	Default VR controllers are visible along with hands
AT-2186	Hand model flickering / lagging / locality
AT-2185	BMS panel doesn't adjust height relative to stance
AT-2169	Cannot Load Radio Preset
AT-2167	Implementation for user actions in VR
AT-2162	Validate admin can remotely turn help on
AT-2154	Bumping VBSPitchRadio version
AT-2146	Inventory should be positioned correctly in different player stances
AT-2145	Sort out collisions / visibility for all VRLT spawned objects (inventory)
AT-2144	Reloading of a weapon is not instant
AT-2142	Admin announcement button getting stuck
AT-2135	Pintle weapons in VR: camera orientation fixes in VBS4
AT-2129	Scroll bar not showing in radio UI
AT-2123	Wearable inventory configurable slots
AT-2117	Gas mask put on via gesture in VR
AT-2116	Change Default VRLT unit rotation speed value
AT-2115	Gas mask vision blocking for VR
AT-2114	Basic implementation of pintle turret control in VRLT
AT-2112	VRLT Actions sent from UI don't work
AT-2109	Implement transitions between UI menus
AT-2104	Confirm red dot sights with parallax is working in VBS4
AT-2101	Validation of WorldDrawAPI primitives do not properly work in VBS4 (-hmd)
AT-2100	VR Config file check / update on launch

Issue key	Summary
AT-2092	Place VR hands position on weapon based on models
AT-2091	Spawn correct magazine for VR reloading
AT-2088	Help page in VR - Step 1
AT-2079	Vaulting in VR
AT-2077	Make VRLT UI rendered in VBS4 HMD
AT-2076	Basic binoculars functional in VR
AT-2073	New syntax for placeOnSurface in VBS4
AT-2072	Towing addon in VBS4
AT-2065	Throw hand grenades with VR controllers - first iteration
AT-2064	API for user actions for VR
AT-2061	VR hand can open and close
AT-2056	Weapon reloading on intersect
AT-2046	Initial technology for wearable inventory
AT-2042	CTD of world server on start-up caused by VRInteraction component
AT-2041	Wearable Inventory for multiple weapons
AT-2024	Telescopic optics should function in VR in VBS4
AT-2023	CTD in CallForFire after you load AAR
AT-2020	VR Optics / controller stability / filtering
AT-2006	Radio jamming - Managing the jamming
AT-2002	UI Tech cleanup
AT-1998	Fix VR motion - sidestepping and rotating
AT-1997	Make mini-menu go to the appropriate sub-category instead of back
AT-1992	Radio jamming object - applying the effect and linking to objects / positions
AT-1966	Implement basic gas mask functionality for VRLT

7. VBS4 Release Notes 20.1

Bohemia Interactive Simulations continues to actively develop VBS4 with customer-specific projects enhancing the baseline for all customers, plus internal initiatives to constantly improve and enhance the capabilities of VBS4, its components, and associated tools - all aimed at providing the ideal platform for your training needs.

Bohemia Interactive Simulations has released the following versions and updates for VBS4 20.1.

Version	Major Features
20.1.0	Initial general release for all customers.
20.1.1	Customer exclusive update for VRLT.
20.1.2	General release update for all customers.
20.1.3	Release update primarily for a specific customer.
20.1.4	Patch update introducing Korean localization and the customer exclusive Firestorm feature.
20.1.5	Patch update focused on issue resolutions.
20.1.6	Patch update focused on issue resolutions.
20.1.7	Patch update focused on issue resolutions.

VBS4 20.1.4 includes the following new features:

- UK exclusive Firestorm laser range finder in VRLT.
- Korean localization of the UI and Manuals.

VBS4 20.1.2 introduces the following new features:

- This release fully supports integration with VBS Blue IG.
For more information, see [VBS Blue IG Support \(on page 458\)](#).
- Artillery and Defend Orders in VBS Plan with an integration with VBS Call for Fire.
For more information, see [Artillery and Defend Orders \(on page 460\)](#).
- VBS Geo includes a new Model Line Placement Tool and various other improvements.
For more information, see [VBS Geo Improvements 20.1 \(on page 462\)](#).
- VBS World Server includes various improvements including updates to the Terrain Conversion Tool.
For more information, see [VBS World Server Improvements 20.1 \(on page 464\)](#).

VBS4 20.1.1 introduces the following new features:

- VR in Land Training introduces a demonstration of Virtual Reality display and control for trainees.

For more information, see [VR in Land Training \(on page 466\)](#).



FEATURE NOTICE

This functionality is not available in baseline VBS4 and has been delivered on a customer exclusive basis.

This VBS4 release also includes:

- [Additional Enhancements \(on page 467\)](#)

VBS4 20.1 also resolves a number of issues. For more information, see:

- [Product Maintenance \(on page 468\)](#)

7.1 VBS Blue IG Support

VBS4 can now act as a host and broadcast viewpoints to VBS Blue IG.

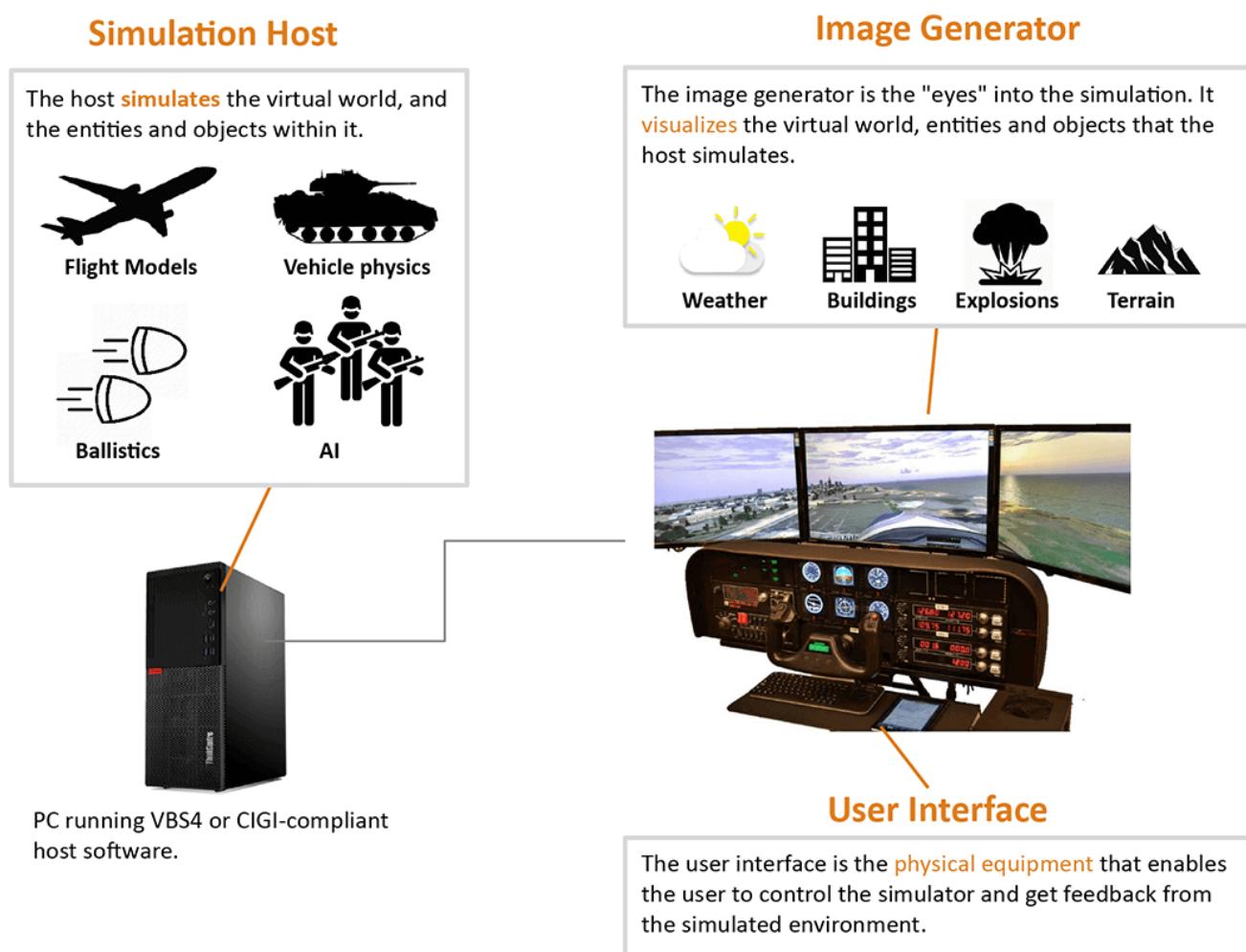
The VBS Blue Image Generator (VBS Blue IG) provides high-fidelity visualizations of data from VBS3, VBS4, and Common Image Generator Interface (CIGI) simulations. VBS Blue IG is a whole-earth rendering solution, eliminating the need to limit simulations to the confines of terrain databases. With this software, highly detailed insets can be combined with procedurally generated terrain and vegetation to simulate scenarios anywhere on earth.

Using the CIGI protocol, a simulation host such as VBS3, VBS4, or any compliant host connects to and controls the IG.

Designed to support high-performance computer image generation for the full range of military training and special operations applications, VBS Blue IG runs on standard, unmodified COTS hardware or scalable graphics systems.

The figure below illustrates how the simulator and image generator work together.

Image-46: A basic overview of Simulators and Image Generators



VBS Blue IG delivers highly realistic visual and sensor scenes, with long-view distances and large numbers of moving entities on a whole-world terrain, while enabling a single IG to be utilized in Air, Sea and Land domains.

Image-47: Several IG outputs blended to project a seamless image on to a dome



For more information, see the VBS Blue IG Manuals and Quick Start: VBS Blue IG with VBS4 Host in the VBS4 Administrator Manual.

7.2 Artillery and Defend Orders

The LandSim Core project for the Australian Defence Force introduces a set of new features in VBS Plan to support more advanced use cases featuring Artillery Support and Defend Orders:

- AU Army Units added to the Units Tool.

For more information, see Units Tool in the VBS Plan Manual.

- Fire Mission Orders added for all Artillery Units.

For more information, see Fire Mission Order Tool in the VBS Plan Manual.

- Target Tool added for use by Fire Mission Orders.

For more information, see Target Tool in the VBS Plan Manual.

- Defend Order added for all Units except Artillery.

For more information, see Defend Order Tool in the VBS Plan Manual.

- Added the following control measure drawings:

- Assembly Area
- Engagement Area
- Friendly Area
- Named Area of Interest
- Target Area of Interest
- Decision Point
- Observation Post

For more information on the Area control measures, see Area Tool in the VBS Plan Manual.

For more information on the Decision Point and Observation Post control measures, see Decision Point Tool and Observation Post Tool in the VBS Plan Manual.

These new tools enable the rapid creation of more advanced Scenarios using VBS Plan. When the mission is built, the Units placed in VBS Plan are converted to individual entities, and the Orders are converted to the applicable AI behaviors and waypoints.

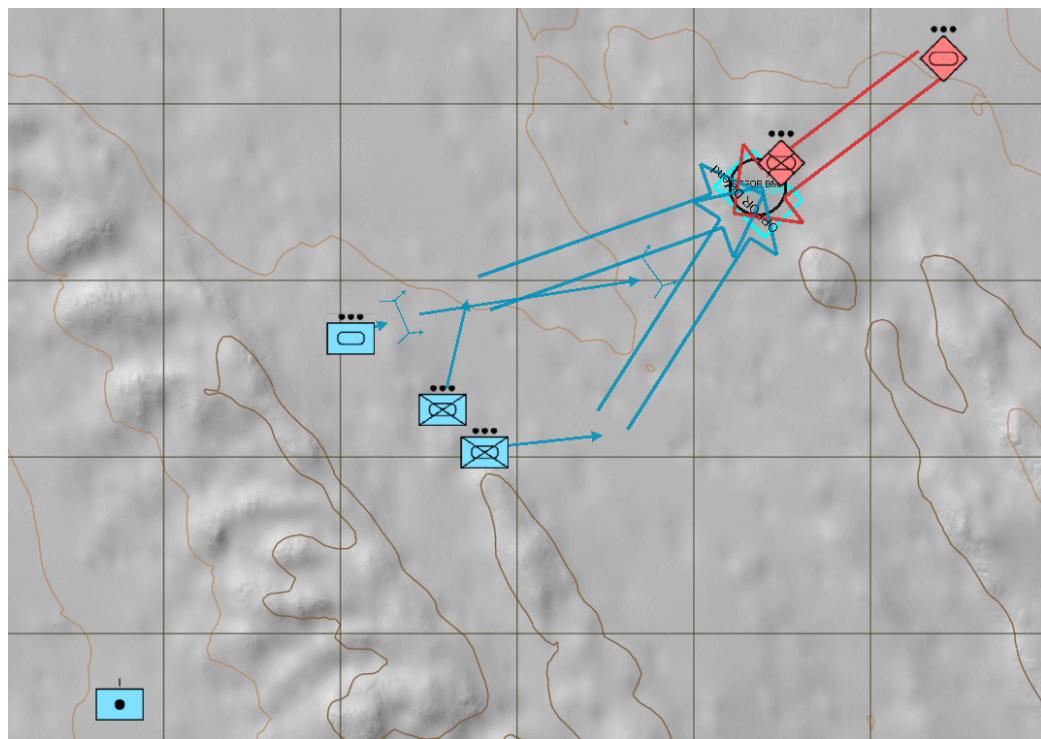
For more information, see VBS Plan Overview in the VBS Plan Manual.

Artillery Orders are fully integrated with VBS Call for Fire and convert into Fire Missions that execute as planned and can also be modified during Scenario Execution using the Fire Direction Center user interface.

For more information, see Call for Fire Mission Management in the VBS Call for Fire Manual.

A use case describing the workflow for these features is documented and features a full walkthrough example using AU Army units.

For more information, see [VBS4_Artillery_Support.pdf](#) in the `\docs\PDF\UseCases\` folder of your VBS4 installation.



7.3 VBS Geo Improvements 20.1

The following features and improvements have been introduced to VBS Geo as part of this release:

- [User Interface \(below\)](#)
- [Elevation \(below\)](#)
- [Model Placement \(below\)](#)
- [Roads \(on the next page\)](#)
- [Surface Editing \(on the next page\)](#)
- [VBS4 Integration \(on the next page\)](#)

7.3.1 User Interface

- Flickering in the helper circle and preview vectors while using the **Curve** mode has been heavily reduced.
- Flickering in the tool brush and model selection rings has been heavily reduced.
- Clicking in and out of the text field in the **Add Backdrop Image** dialog no longer clears any warning messages displayed in the dialog.

7.3.2 Elevation

- The values of the **Smooth** and **Offset** effects in the **Elevation Brush's Strength** option are no longer tied together.
- The **Elevation Line** tool's **Flatten** effect can now flatten to elevation below 0.

7.3.3 Model Placement

- The **Line Placement Style Editor** has been added to the **Model Line** tool options. This tool can be used to create user-defined model line styles. For more information, see [Creating, Editing, and Managing Model Line Styles](#) in the VBS Geo Manual.
- The **Skew To Slope** option has been added to the **Linear Model Properties** panel. This option is used to place models along the drawn linear feature and adjusts their skew to the underlying elevation.
- The **Auto-adjust Vector Length** option has been added to the **Linear Model Properties** panel. This option causes drawn vectors to be adjusted to fit the contents of a model line style.
- A search bar has been added to the **Linear Model Properties** panel for quickly finding default and user-made model styles.
- Linear model features can now be cut, copied, and pasted using the **Model** mode's **Line Edit** tool.

- Default model line styles, such as fences and walls, have been updated to use the **Skew To Slope** option when applicable.
- The **Absolute** elevation of a model can now be set below a negative offset value in the **Model Properties** panel.
- Models edited with the **Rotation** gizmo correctly resnap to the terrain based on their offset value.
- A bug was fixed which caused the **Curve** mode to be disabled after placing a single curve with the **Model Line** tool.
- A bug was fixed that caused VBS4 to freeze or crash to the desktop when drawing primitives or selecting a large number of models.
- A bug was fixed which caused VBS4 to freeze if a nonexistent model was defined in a model line style.

7.3.4 Roads

- Roads can now be cut, copied, and pasted in **Road Edit** mode.
- New City Road variants were added to the Road Presets.
- When placing roads, roads are now highlighted when multiple roads cross over each other to make road snapping and crossroad creation easier.
- A bug was fixed that caused roads to not be deselected when clicked away while in the **Place** mode.
- Road presets imported from VBS3 now have displacement maps. These displacement maps provide detailed elevation information when zoomed in.
- Roads no longer disappear when their vectors start and end in the same location.
- Roads are no longer duplicated when selected upon returning from the **Preview**.

7.3.5 Surface Editing

- A bug was fixed which caused singular surface edits to not be correctly loaded or to incorrectly remove trees once the edits were loaded.

7.3.6 VBS4 Integration

- Performance was improved of VBS Geo-placed objects in VBS4 and the loading of their collision geometry.

7.4 VBS World Server Improvements 20.1

VBS World Server 20.1 contains the following improvements:

- [VBS World Server 20.1.2.1 \(below\)](#)
- [VBS World Server Management \(below\)](#)
- [World Data \(below\)](#)
- [Data Import \(below\)](#)
- [Terrain Conversion Tool \(below\)](#)

7.4.1 VBS World Server 20.1.2.1

An update to VBS World Server was released with VBS4 20.1.5 to resolve the following issues:

- Enable the VBS World Server API to accept UTF-8 Battlespace names.
- Update the Geocoder API to return valid values using UTF-8 encoding.

7.4.2 VBS World Server Management

- The VBS World Server management executables were updated to improve the configuration of firewall rules. As a result, VBS World Server is now accessible even when the server's firewalls are enabled.
- VBS World Server file server performance has been greatly improved when a large number of clients are interacting with a server that has a large number of Battlespaces.
- Intermediate folders for VBS World Server processing are no longer written to the root drive.
- For computers without VBS Developer Suite installed and the accompanying P: drive, VBS World Server now creates this drive dynamically in the Sandbox area.

7.4.3 World Data

- World data can now be installed onto the VBS World Server using the Updater tool.

7.4.4 Data Import

- The VBS World Server data import process can now be successfully executed from the default VBS World Server installation location.

7.4.5 Terrain Conversion Tool

- The Terrain Conversion Tool can now be successfully executed from the default VBS World Server installation location.

- Converted heightmaps (elevation data) are now automatically streamed to clients in real-time after conversion, meaning that the VBS4 server no longer requires a restart for this data to be loaded.
- Converted heightmap data (`_VBS3hgt.tif`) is now placed inside the terrain inset folder along with other converted VBS4 layers (`.sqlites`).
- More naming schemes for mapping custom road models to VBS4 roads are now supported.
- A bug was fixed where VBS3 terrains with a Predefined AI Road Network would have none of its roads converted.

7.5 VR in Land Training

Virtual Reality in Land Training (VRLT) explores the utility and possibilities of VR-enabled capabilities within VBS4. This includes enhancing the ability of the Trainee to interact smoothly with the virtual environment, using new hardware (either experimental or COTS) integrated within BISim's technology.

Currently, BISim is developing new and improved Dismounted Soldier Simulation (DSS) capabilities within VBS4 to take advantage of hand and finger tracking, IK-based interaction, and new technologies that allow Trainees to interact with weapons, and each other, in ways not previously possible.

VRLT enables Trainees to move around a scenario and use weapons and inventory objects, using a combination of gestures, motion controller buttons, and floating menu icons in VR. In addition, Trainees can access a VR version of the Quick Menu (see Quick Menu Actions in the VBS4 Trainee Manual), BMS and Video Admin live-streams, and a Help Panel, which offers diagrams and information about the specific motion controllers they are using.

★ FEATURE NOTICE

This functionality is not available in baseline VBS4 and has been delivered on a customer exclusive basis.



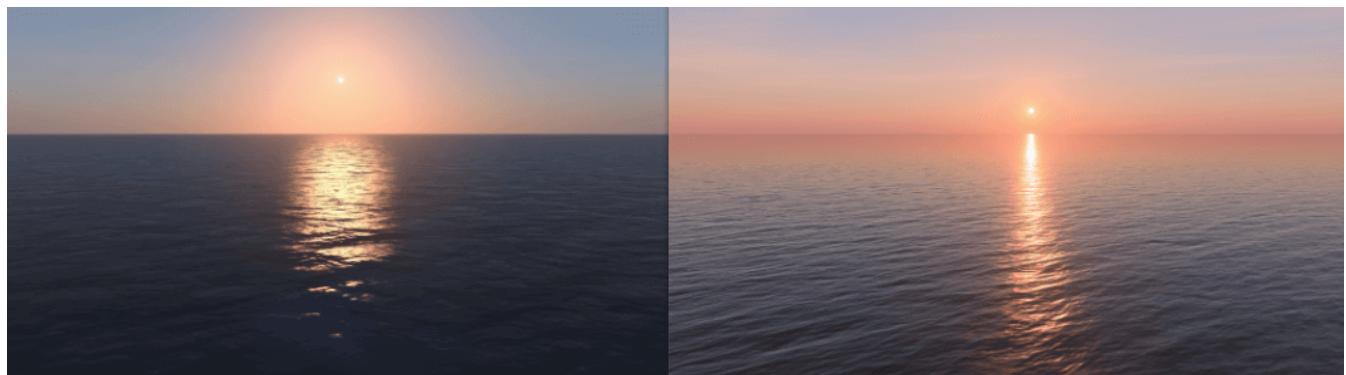
7.6 Additional Enhancements

VBS4 20.1.2 includes the following enhancements:

- Control AI units now have the capability to use ATGMs, when equipped with them.
- VBS Launcher has been reorganized to enable simpler selection of Client and Server startup parameters.

For more information, see [Command Line and Launcher Options](#) in the VBS4 Administrator Manual.

- Improvements to the PBR Water Shader provide more realistic water lighting effects.



- Improvements to Wind Emitters. Helicopters cause visible wind effects on trees and ground vegetation.
- Earth moving vehicles, such as the HME Mechanical Digger, can flatten craters created by explosions.

7.7 Product Maintenance

The following issues were resolved in VBS4 20.1.7:

Key	Summary
T3S-1853	Fix for tracers disappearing too quickly from Gunner PoV
TK-259	

The following issues were resolved in VBS4 20.1.6:

Key	Summary
TN-1330	Fix for Korean translation of FDC - Target Coordinates
TN-1329	Fix for Korean translation of Close Air Support
CONTENT-1646	Enable borderless NVGs
CONTENT-1644	Fix for Commander override with vehicle optics
CONTENT-1643	Fix for Commander vehicle optics rotation limits
AT-2633	Fix for Korean translation of Video Settings

The following issues were resolved in VBS4 20.1.5:

Key	Summary
WS-1157	Fix to enable the Geocoder API to support UTF-8
WS-1180	Fix to enable the VWS API to support UTF-8
YT-74	Improve Korean localization of the Demo Missions
TF-1578	Fix an encoding issue with Korean mission names
T3S-1774	Fix an issue with the Rover III view not matching the controller
AT-2616	Fix an issue with higher sea levels in TI sensors.
AT-2613	Fix an issue with VBS Radio for units with Korean URN names
AT-2596	Fix the slow rotation of pintle mounted weapon in VR
AT-2594	Fix the inventory levitating above players in VR when personal items are disabled
AT-2408	Fix an internal exception in PitchTalk with the Korean system locale

The following issues were resolved in VBS4 20.1.4:

Key	Summary
VRLT2-16	Firestorm LRTV implementation
CONTENT-1177	Korean Models Phase 2 - 2021
VBS4-2287	VBS4 Korean localization improvements.
VBSGEO-972	VBS Geo Korean localization improvements.
VBS4-2168	VBS4 UI and Manuals translation to Korean.
VBS4-2759	Correction to the Configure Dedicated Server for VBS World Server topic in the VBS4 Manuals.
YT-78	Fixes an issue selecting another symbol in VBS Plan.
YT-68	Fixes the RTT vehicle system in the Foxhound.
TN-1096	Fixes an issue when entering Preview erases the list of overlays in VBS Plan.
TN-894	Restyle the Tactical Symbol Dialog for VR Plan
TN-767	Fix for stepped DiscreteFOV on Recon III binoculars
CT-5602	Fix for TGT button highlighting in VBS Plan
CGF-489	Fix for incorrect symbol display in the Briefing with Dedicated Server.

The following issues were resolved in VBS4 20.1.3:

Key	Summary
SDKS-2050	SDK Collision Volumes
SDKS-2160	SDK CollisionAspect volume on volume
SDKS-2044	SDK Lighting Control (VBS4)
SDKS-2045	SDK Lighting Control (Searchlight) (VBS4)
SDKS-2046	SDK Lighting Control (IR Searchlight) (VBS4)
AT-2383	LSAS HUD screen can have 8 camera views in it - flatscreen
AT-2384	LSAS quick action menu interactions
AT-2386	LSAS camera final HUD
AT-2399	Vehicle systems menu for LSAS
AT-2388	Stresstest LSAS in VBS4

Key	Summary
AT-2387	LSAS compass
AT-2395	Camera directions icons
AT-2397	LSAS cameras: memory points and configuration
VBSIII-28749	TI mode breaks multiple RTT
AT-2486	Reduce size of VR Menu
AT-2460	Properly group LSAS user actions in VR

The following issues were resolved in VBS4 20.1.2:

Issue key	Summary
VBSGEO-963	Model Placement & Draw CTD: ModelPlacementTool::UpdateSelectionControls
VBSGEO-961	Save / Load CTD on loading project in Object / Geometry shape data loading
VBSGEO-960	Road Preset option modifications are retained when they should not be
VBSGEO-959	Model Placement: Model Properties coordinates do not match what is reported in the status bar
VBSGEO-956	Road appearing under model line placement in linked project
VBSGEO-955	Line Placement Tool: Unfinished lines show up upon preset changes
VBSGEO-949	Line Placement Tool: Disappearing line models after save / close / reopen / edit first node in the vector
VBSGEO-941	Curves: Helper circle is not redrawn after curve mode is disabled and enabled again
VBSGEO-939	Line Placement Tool: Conditional placement cannot be disabled
VBSGEO-931	Roads Placement: Added VBS3 / Residential Textures in Geo
VBSGEO-930	Roads Placement: Roads are duplicated if selected on return from Preview mode
VBSGEO-924	Road Placement: Click away to deselect does not always work properly
VBSGEO-911	Model Placement: Models don't snap to the surface when rotated through rotation gizmo
VBSGEO-902	Roads are highlighted in other vector modes of other tools
VBSGEO-886	Vectors: Enabled support for Copy / Cut / Paste
VBSGEO-883	Elevation Editor: Line flatten cannot set terrain to negative elevation
VBSGEO-880	Line Placement: Deadlock in Draw component when placing preset without model in the build

Issue key	Summary
VBSGEO-867	Surface Editor: Trees not removed by adding 100% Bare Earth surface in Geo
VBSGEO-863	Model Properties elevation input fields behaving oddly
VBSGEO-848	Elevation brush strength and offset parameters tied together
VBSGEO-841	UI Bug Add backdrop image dialog issues with error functionality
VBSGEO-778	Road Placement: Highlight road being snapped during road placement
VBSGEO-770	Curve circle flickering
VB-7070	Compositor v1 parameters can't be set through API
VB-7068	Level of terrain changed in Rohrbach > levitating / sunk vegetation, columns
VB-7065	Broken river / shores when Geo terrain edits are loaded
VB-7057	Blue HMD sending 0,0 viewport to VBS4
VB-7051	DataSourceHMD changes the camera transformation on its own
VB-7044	Fixed particle rendering draw distance
VB-7034	Add VBS4DN WIBU feature check - Blue
VB-7022	CTD when unsupported content is used
VB-7018	Particle emissivity color is applied incorrectly
VB-6997	CTDs after switching Day / Night optics in TGB 16 - RWS
VB-6978	Customizable signs do not have their correct colors assigned by user
VB-6976	Airport lights are not visible during the day
VB-6970	Fixed debug spam when running -hmd=varjo
VB-6966	CTD / freeze when resizing the application window
VB-6938	CTD in NetworkStreamingPlugin
VB-6896	Updated VBS4 Settings used for Particle Draw distance and Particle effect Fidelity
VB-6889	Scene: Scene's are over exposed
VB-6886	Switching to fullscreen requires resize event to initialize the width and height
VB-6862	VBS4 stuck in the loading screen under DONE when starting the application connected to VWS
VB-6841	Broken rendering of muzzle flash billboard particle
VB-6828	CTD when using script for custom textures
VB-6825	Opening the rear door of the Stryker makes the ground disappear for the crew

Issue key	Summary
VB-6814	Application freeze after large memory consumption
VB-6807	CTD when starting VBS4 with Exterior shadows OFF and Interior shadows ON
VB-6805	HTC Vive controllers are not rendered
VB-6801	CTD in CreateMemoryPointInfo()
VB-6788	3D trees behave strangely when wind is enabled and they transition between LODs
VB-6773	Oculus Quest controllers are not rendered
VB-6760	Compositors / NVG defaults makes whole screen black
VB-6754	Bloom issues - HMD, black pixels appearing on the horizon
VB-6753	Deadlock when content is present on the VWS and not on the VBS4 client
VB-6750	Geo Trees not removed by adding 100% Bare Earth surface in Geo
VB-6744	CTD when trying to create a new Battlespace
VB-6742	Exiting VBS leaves zombie process behind
VB-6731	Flood on Dedicated Server and VWS
VB-6730	Raining and snowing inside of buildings
VB-6725	PBOs valid in VBS3 throwing corruption errors during VBS4 binarization
VB-6723	Objects spawn permanently invisible
VB-6721	Deadlock instead of returning an error on init on unsupported GPU
VB-6715	Animation selections only read from first LOD
VB-6712	Surface Edits around Water cause visual surface changes to water banks
VB-6709	SSAO + FSAA creates aliasing on the ground
VB-6708	Billboard trees with low vegetation fidelity ignore destruction transform
VB-6701	Surface artifacts post invalidation in certain areas
VB-6691	Trees provided as vegetation objects but not rendered
VB-6690	CTD at start - Fatal program exit request
VB-6662	Simulation time set to July 2 causes snow in Europe
VB-6648	CPU simulation with time offset clamps FPS to 60
VB-6644	Road Placement: Same priority (type) roads with different textures cause visual artifacts
VB-6620	Clouds pop in at certain angles

Issue key	Summary
VB-6565	Flares are not affected by weather
VB-6427	Glowing trees at night
VB-6379	No terrain in NVG / TI while in HMD
VB-6378	-vsync cmd line parameter changes video settings
VB-6360	Eye Adaptation - tuning
VB-6158	CTD shortly after launch
VB-5746	Section animations for vehicles
TS-759	Non existent playable unit is listed in lobby after retrying execution on DS
TS-682	OPFOR Controlled Vehicle Shown In OPFOR C2 As BLUFOR Unit
TN-1096	Entering preview erase list of overlays in Plan
TN-1094	Unit Tool is highlighted Red when placing an ORBAT entity
TN-1058	Hamburger menu is hidden by Plan UI
TN-1055	Pop-up message appears when opening mini map in AC-130
TF-1468	Spawning the J-11 Flanker-L in VBS4 causes it to crash
TF-1454	Not possible to execute mission on DS
TF-1449	Draw component CTD adding a new primitive
TF-1442	CTD in shutdown sequence during large scale test
TF-1441	CTD in Fog of War during large scale test
TF-1440	Save As saves incorrect Geo / Plan content values to Battlespace.json
TF-1436	AAR - destroyed vehicles don't have wreck texture and issues repairing vehicles
TF-1434	Tree Destruction Spawns Wrong Trees (if Season Changed)
TF-1433	CheckCursorTarget Performance hit
TF-1432	Peaks in the Entity::SimulationReady
TF-1431	Automatically Start Network Missions
TF-1430	CTD while aborting VBS example Battlespace
TF-1429	Gearbox Mode setting resetting on VBS4 restart, making manual gearbox unusable in HMD
TF-1424	Headless mode does not create window process that can accept inputs.
TF-1423	CTD when player creates a Battlespace with a long name

Issue key	Summary
TF-1421	Video Settings are not getting applied
TF-1419	VBS silently fails to open Battlespaces with long names
TF-1418	Repaired BMP-3 vehicle has a wreck texture
TF-1416	Application hangs at Receiving screen if mission loading is aborted
TF-1415	MBTs jumping upon firing
TF-1413	The parameter -init=playmission["mission_name"] is no longer working
TF-1411	Attached objects lag behind unit animations
TF-1410	PlayerRole incoming messages have quite a large number
TF-1406	VBS4 UAV will not zoom while in a networked VWS scenario
TF-1405	Adding / editing UCS weapons in RTE at night makes them pitch black
TF-1403	Clients stuck in Waiting for an Administrator to start a training mission
TF-1399	Grouped unit cant be grouped again after being killed and revived
TF-1398	External units are not displayed in RTE until new unit is added
TF-1395	Investigate rendering freezing when new objects are added in RTE
TF-1389	Assertion flood while using VR - Assertion failed 'CheckMainThread()'
TF-1388	Freezes and stutters while flying low with a jet
TF-1381	Missing helicopter rotors after engine is turned off
TF-1379	CTD in Diag - DisplayMissionEditor::OnTreeLButtonDown
TF-1377	Compass doesn't update in RTE
TF-1375	CTD when AF National Police units are placed
TF-1374	External skeleton weapons flicker
TF-1373	CTD encountered when previewing a Plan built mission
TF-1372	Area select doesn't select crew inside vehicle
TF-1360	CTD on close (null GSoundsys)
TF-1357	Integrate crater flattening to VBS4
TF-1354	Grabbed hook from M88A2 will take vehicle to the air
TF-1353	Draw distance text disappears too soon for Measure Distance Tool
TF-1352	Certain Vehicles CTD VBS4 on preview.
TF-1346	Marker lights have reduced visibility and missing flare

Issue key	Summary
TF-1345	Externally controlled bone animation desync
TF-1342	Peaks in Symbology
TF-1340	Door issues - not animating all geo properly
TF-1339	RTE - Inkspot Does Not Render in 3D Mode
TF-1334	Control AI filtering does not work for some type of vehicles
TF-1331	Vehicle Path Recording glitching landing gear
TF-1330	CTD on DS after a while - RoadwaySamplerModule
TF-1327	Missing muzzle flash in 1st person - m4a1
TF-1326	UCS weapon is invisible in weapon editor
TF-1323	Gauges in HMMWV are blurred
TF-1321	CTD on Alt-Enter
TF-1318	Legacy AI has problem to avoid obstacle that is more than 100m far away
TF-1315	OPFOR units in BLUFOR lobby
TF-1309	Animation stutters when unit is close to vehicle / object (door)
TF-1304	Muzzle flash - Polish tanks
TF-612	Mortar deployment breaks player input
TERRAIN-1415	Some roads on Sahrani have grass on them
CT-5605	Plan Target name text disabled rotation broken by 3D
CT-5594	Pop-up message SkipMultiplayerBriefing appears after resetting Simulation settings on DS or MP
CT-5583	CFF-FDC Gunline does fire too far away from the target
CONTENT-1100	Strv122B - Commander TI optics obscured
CONTENT-1047	Personal Equipment Controls - When unit aims by Javelin, hands immersed into launcher obstruct view
CONTENT-1039	Gear can't be manually animated
CONTENT-1030	Fix removeWeapon command alternate syntax #1
CONTENT-955	ADF variants of M252 and M777
CONTENT-824	Blue artifact obstructing view in gunner optics thermal imaging
WS-865	VWS API is slow / failing when FileServer is under large load

Issue key	Summary
WS-931	Terrain Conversion Tool: Support live loading of VBS3 Heightmap
WS-959	VWS connection problems caused by firewalls turned on
	Data Import and Terrain Conversion Tool failure with long VWS installation paths

8. VBS4 Known Issues and Limitations

This release of VBS4 includes the following known issues and limitations:

- [Known Issues \(below\)](#)
- [Known Limitations \(on page 479\)](#)

8.1 Known Issues

This release of VBS4 includes the following known issues:

- VBS4-15958: Performance drop in Control AI missions concerning Mechanized March due to visibility raycasts.
- RAB-1237: When running a Battlespace without caches on World Server clients with high number of users, peaks can occur during the simulation on VBS4 Simulation Clients causing simulations to stutter or rubberband before the caching is complete.
- VBS4-16719: Copy pasting orders in VBS Plan is currently disabled. Drawings and symbols can be copied as necessary.
- VBS4-16600: Ammo and fuel override menus are hidden behind the autopilot menu in Editor unit placement dialog.
- VBS4-16594: Pistol is spawned behind soldier model after it's drawn from holster in VR.
- VBS4-16488: PLAN - Artillery Fire Mission cannot be deleted.
- VBS4-16641: PLAN - Grid Cell Column's naming being reset to default.
- VBS4-16639: PLAN - Changing Coordinates cannot be confirmed by pressing Enter.
- TM-444: River Class Ship turrets and the occupying units get duplicated when Player enters them while using a dedicated server.
- VBS4-16238: Puma turret slew to view function does not work.
- VBS4-15913: Airstrike Editor object is inoperable with One AI.
- VBS4-15838: V-Bat, MV-22 - most of functionality is not supported with One AI.
- VBS4-15757: NoAI parameter does not work.
- VBS4-15741: Fast Rope doesn't work anymore after -oneAI being default.
- VBS4-15680: Litters are picked up by AI only after second try when using 4 carriers.
- T3S-3240: Strykers w/MGO Optic* - Machine-gun rounds not striking at the appropriate ranges.
- T3S-3207: M4A1 Carbine RCO (ACOG) and M240 MGO do not impact where reticule marks indicate.

- T3S-3046: Grsp92 cannot hit laser targets above 500m distance.
- CONTENT-8512: Quadcopter T150 - propellers are not visible.
- CONTENT-8334: Lowered mineplow is not adjusted and remains above the ground for certain models.
- CONTENT-7692: Virtus Soldier when using BMI has texture issues.
- CONTENT-5782 RPT: Material xxx is using unsupported pixel / vertex shader.
- CONTENT-5703: South Korean Units are equipped with M16A2 by default.
- CONTENT-5121: Models (some with underground LOD) placed in GEO flip 90° when bumped into.
- CONTENT-4747: RPT: Bad muzzle direction messages for multiple weapons.
- CONTENT-4743: RPT: Config class missing messages.
- CONTENT-4713: RPT: Warning: Unaccessible ladder point for AI.
- CONTENT-4572: Loudness of shooting from a certain distance is same like loudness of shooting next observer unit.
- CONTENT-2870: Wildcat AH-1 wreck has no collisions.
- CORE-1650: RWS camera stuttering due to performance issues caused by double rendering.
- VBS4-15355: Expanding hazardous areas are z-fighting in 3D/RTE.
- VBS4-16348: VBSPitchRadio - Admin server doesn't use the custom pitch prti server and tries to always connect to localhost:8992.
- VBS4-15799: Strange or missing animation when shooting during replay of Unit Path Recording.
- VBS4-15733: Missing movement animation when using Unit Path Recording.
- T3S-3389: VBS Radio fails at start sometimes during mission start.
- VBS4-16426: Non-distinguished Javelin Attack Mode in Quick Menu.
- VBS4-16421: The Map is reloaded in the Briefing.
- VBS4-16394: Significant FPS drops when looking up while using search action in inventory dialog.
- VBS4-16376: AudioSettings use incorrect volumeFx value when in default state.
- VBS4-15906: Cursor interaction is available for CV9040 commander on driver seat.
- VBS4-15483: USMC Laser Dazzler doesn't work.
- VBS4-15482: When you leave Battlespace without saving it, the Battlespace marker is not highlighted even though the Battlespace is still selected.

NOTE

Known issues are considered to be higher priority for resolution in upcoming releases.

8.2 Known Limitations

This release of VBS4 includes the following known limitations:

- Game AI is deprecated in this release and replaced by Control AI, leading to a number of disabled or partially supported features.

For more information, see [One AI \(on page 13\)](#) and Artificial Intelligence (AI) in the Introduction to VBS4 Guide.

- Performance with terrains from VBS3, such as Sahrani, is not as good as native VBS4 terrains.
- Use of Bing data is experimental and not currently intended for simulation use.
- Surface Radar functionality is currently disabled.
- Chemlights editor object is currently disabled.
- Heat Haze Effect is currently disabled.
- Issues with the lighting of units when standing in the shadow.
- Missing bridges and tunnels in the global data distribution.
- Various imprecisions in global buildings data, especially rooftops.
- Missing hybrid NVG TI sensor functionality.
- Airports are not recognized by AI even though they are visually present.
- VBS4 currently does not support non-ASCII characters in the Windows profile name, which causes instability.
- **Low** and **Normal** Graphics Settings presets may produce visual defects on height changes in terrain deformation details, such as vehicle tracks in snow. Instead of using the **High** preset, you can increase the **Terrain Vertex Count** video setting to reduce these visual effects.

NOTE

Known limitations are considered to be lower priority and may not be resolved in upcoming releases.