

# Enemy Ambush



VBS4 24.1.1



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## 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. Enemy Ambush

This use case simulates a general enemy ambush, using role play (player control) and AI.

For IED Ambush, see the IED Ambush use case documentation.

For a walkthrough example of a simple Enemy Ambush scenario, see the following:

- [AI on Rails Enemy Ambush Example \(below\)](#)

The general workflow of an Enemy Ambush simulation in VBS4 contains two parts:

- [Enemy Ambush Preparation \(on page 17\)](#)
- [Enemy Ambush Execution \(on page 18\)](#)

For Enemy Ambush examples that have Preparation and Execution phases, see the following:

- [Enemy Ambush with Triggers and Waypoints \(on page 19\)](#)
- [UPR Enemy Ambush \(on page 19\)](#)

## 1.1 AI on Rails Enemy Ambush Example

You can create an Enemy Ambush scenario with [AI on Rails \(on page 21\)](#), which is similar to [Unit Path Recording \(UPR\) \(on page 63\)](#), but works with Control AI entities and is easier to use.

**Follow these steps:**

1. In the VBS4 Toolbar of the Battlespaces mode, select the **Battlespaces** tab.

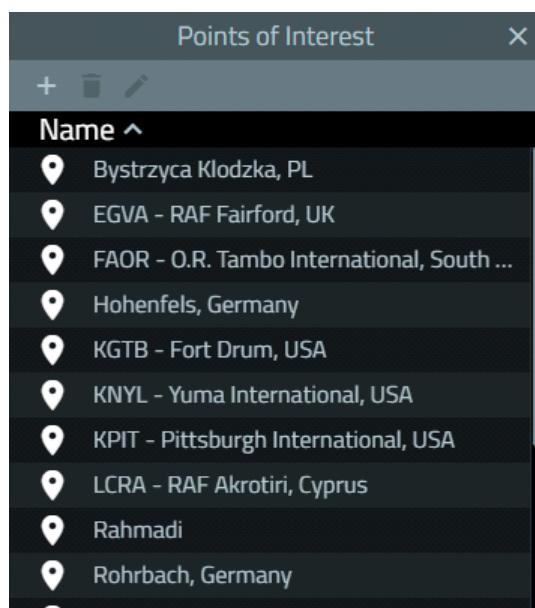
 **NOTE**

When starting the VBS4 Admin Client, the Battlespaces tab is selected by default.

## 2. Click the POI Icon.

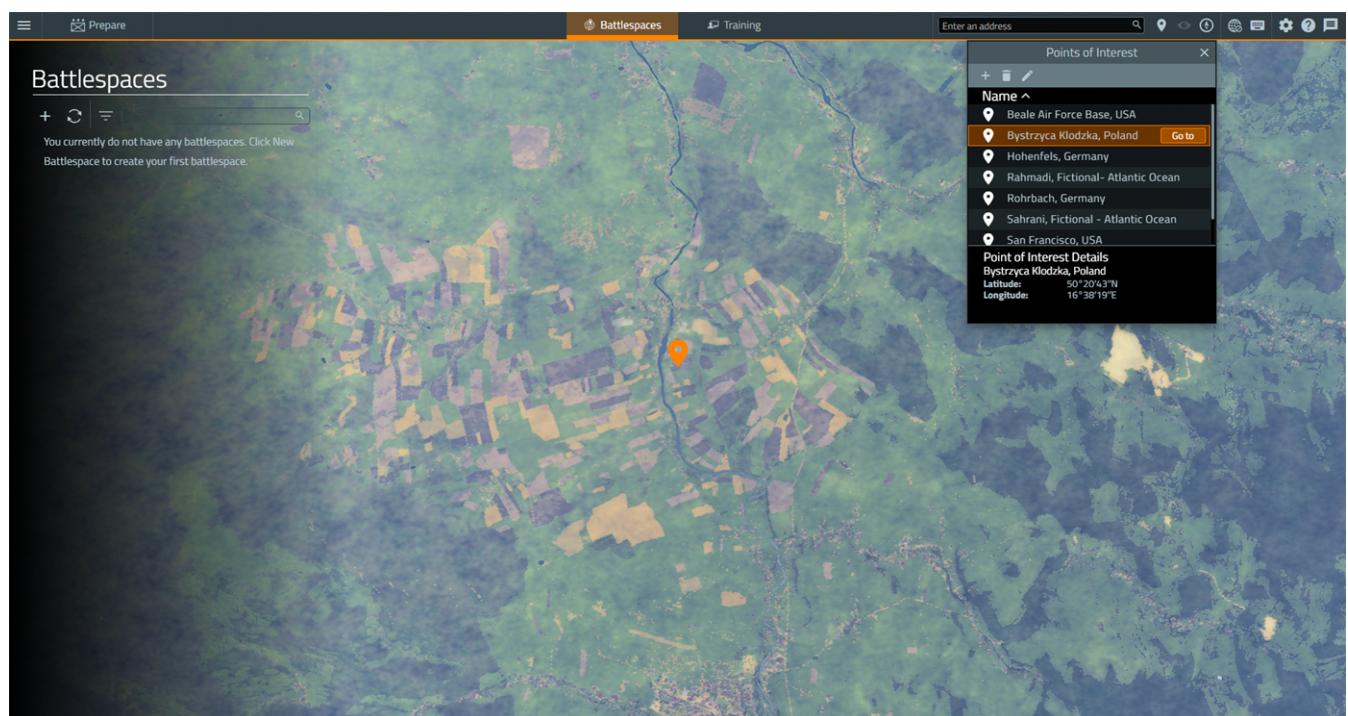


The Points of Interest Panel opens.



## 3. In the Points of Interest Panel, select **Bystrzyca Kłodzka, PL**, and click **Go to**.

The Whole-Earth Terrain rotates directly above the Bystrzyca Kłodzka terrain in Poland.



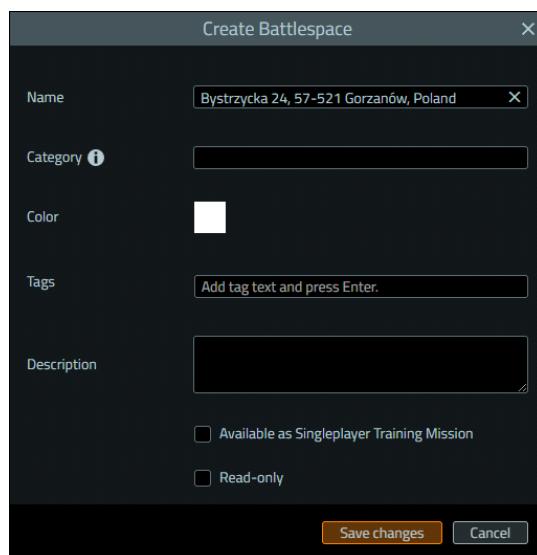
4. In the Search Bar of the VBS4 Toolbar, input the coordinates **50°20'34"N, 16°38'10"E**, and then press **Enter**.

Use the **Mouse Scroll Wheel** to zoom in to view the area displayed in the following image:



5. Click **+ New Battlespace** and click the location of the **yellow circle**.

The Create Battlespace Dialog opens, displaying the selected coordinates.

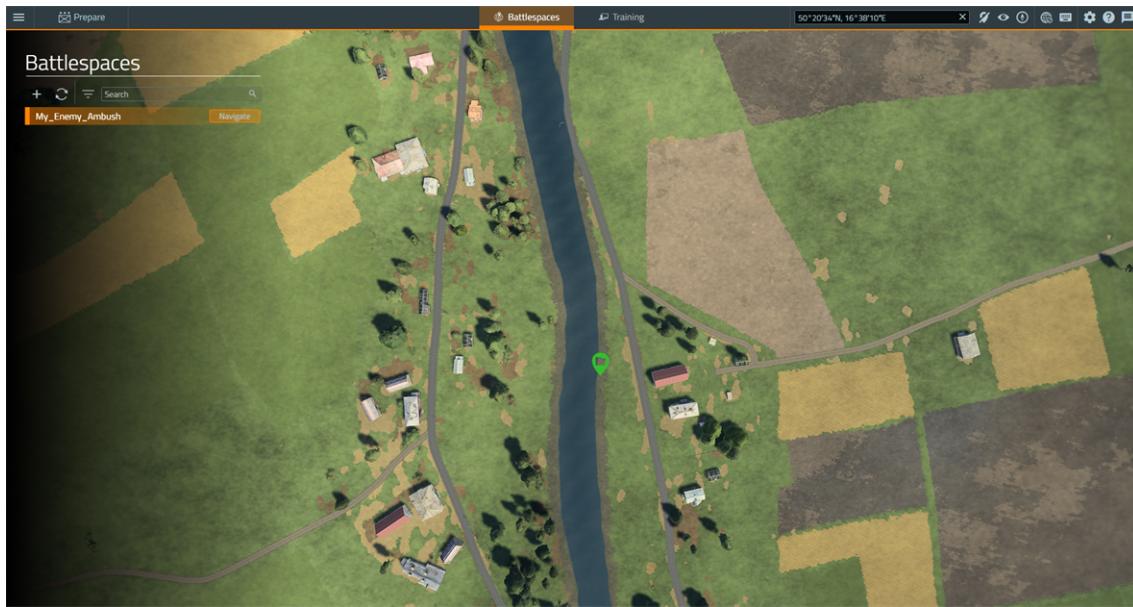


6. Input the following details in the Create Battlespace dialog:

Parameter	Value
Name	My_Enemy_Ambush
Color	Green #36b82c
Tags	MyUseCase
Description	Enemy Ambush Use Case

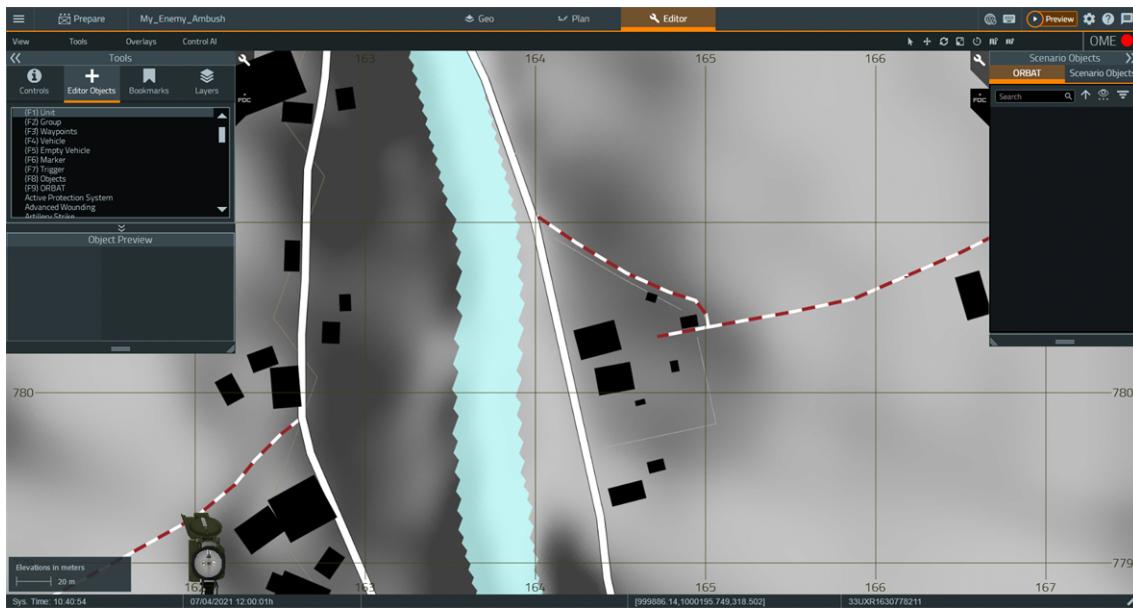
## 7. Click Save Changes.

VBS4 adds the Battlespace to the Battlespaces List.



8. Select the newly created **My\_Enemy\_Ambush** Battlespace to show a **green** icon added to the Whole-Earth Terrain in the designated location.
9. Under **Prepare > Editor**, click **Create**.

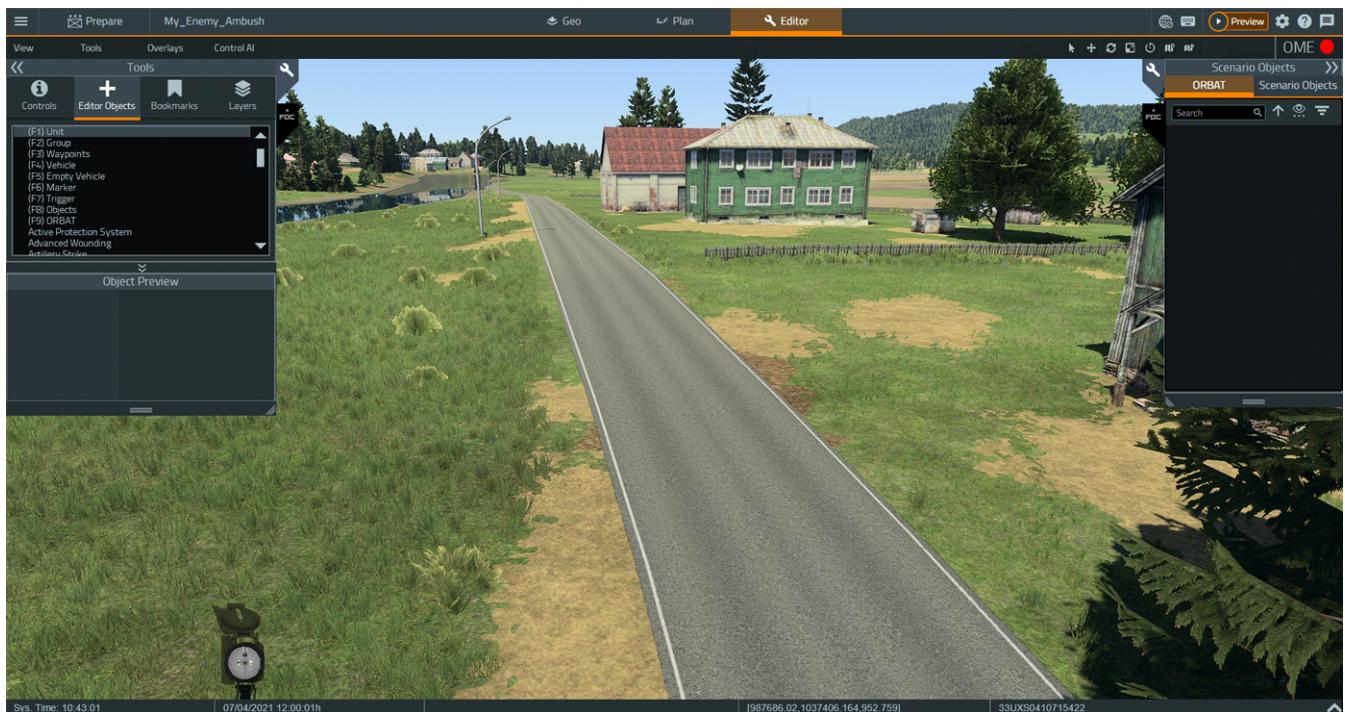
The Battlespace opens in VBS Editor (Prepare mode) in the 2D View.



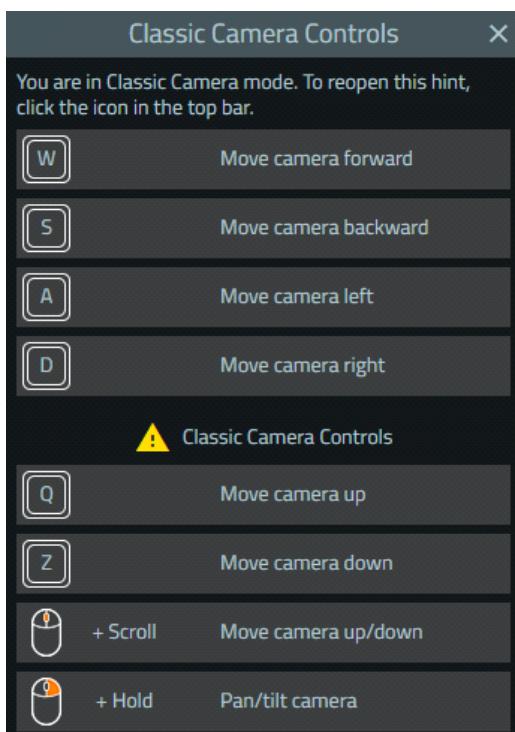
### TIP

If required, toggle terrain textures in the 2D View, select **View > Hide / Show Texture**.

10. Press **Map (M)** to switch to the 3D View of VBS Editor, and move the camera to the south, so that three houses are in view to the right of the road, as indicated in the following image:



Use the Classic Camera Controls to move the camera:



11. In the Tools Panel, select **(F4) Vehicle**, and double-click a location on the road, north of the farthest house, to place a BLUFOR vehicle.

12. In the Object Properties dialog, select the **US Army Wheeled - Woodland > M1114 HMMWV** vehicle.

13. Click **OK**.

The BLUFOR vehicle is placed.

14. Hold **LShift + RMB** and move the mouse left / right to rotate the vehicle, so that it aligns with the road, facing south. Press **Map (M)** to switch between 2D / 3D View.

The vehicle is positioned as indicated in the following image:

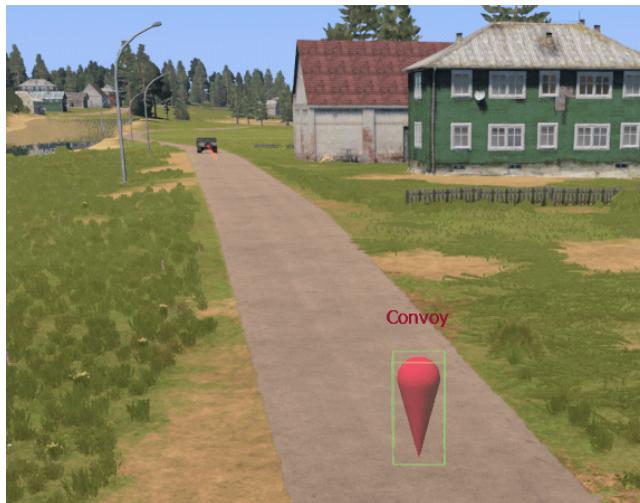


15. Hold **LShift**, click the vehicle, and click a location on the map, after the southernmost house in view, where you want the vehicle to drive.

The (F3) Waypoints Object Properties dialog opens.

16. In the Object Properties dialog **Behavior** drop-down, select **Convoy** (leave the other settings as they are) and click **OK**.

A Convoy Order appears on the map.



17. Press **Map (M)** to switch to the 2D View.

18. In the Tools Panel, select (**F7**) **Trigger**, and double-click using **LMB** on a location to the south of the vehicle opposite the second house down the road.

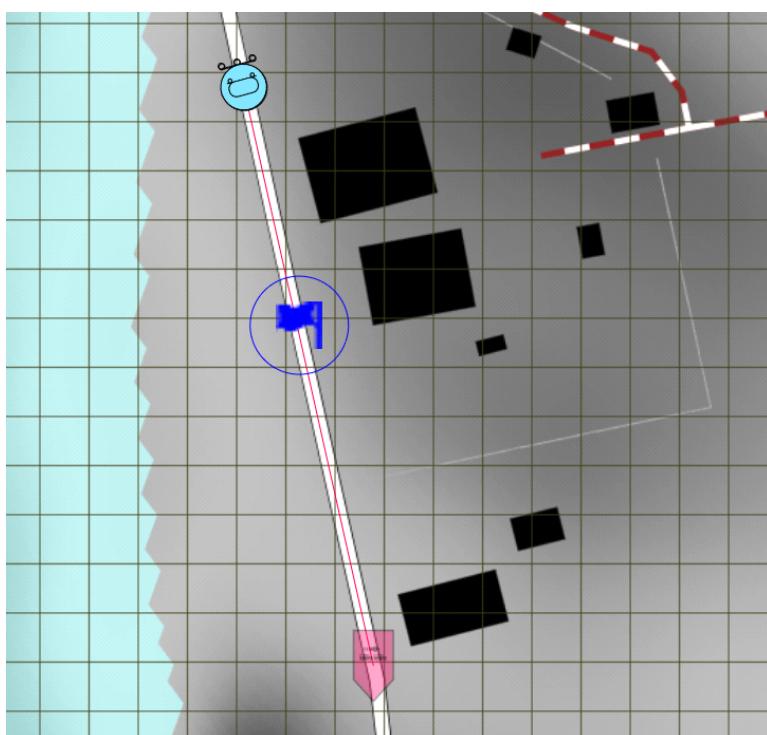
The Trigger Object Properties dialog opens.

19. In the Object Properties dialog, set the following properties:

- **Size (Left-Right):** 10
- **Size (Up-Down):** 10
- **Activation:** BLUFOR
- **Activation Type:** Present

20. Click **OK**.

A Trigger appears on the map.



21. Press **Map (M)** to switch to the 3D View.
22. In the Tools Panel, select (**F1**) **Unit**, and double-click a location behind the southernmost house, so that the location is obscured from view to the vehicle.
23. In the Object Properties dialog, select the **Generic OPFOR Woodland > Soldier - AK74** unit.
24. Click **OK**.

The OPFOR unit is placed.

25. Hold **LShift + RMB** and move the mouse left / right to rotate the unit, so that it faces the road.

The unit is positioned as indicated in the following image:



26. Press **Map (M)** to switch to the 2D View.

27. Hold **LShift**, click the unit, and click a location next to the road and opposite the southernmost house.

The (F3) Waypoints Object Properties dialog opens.

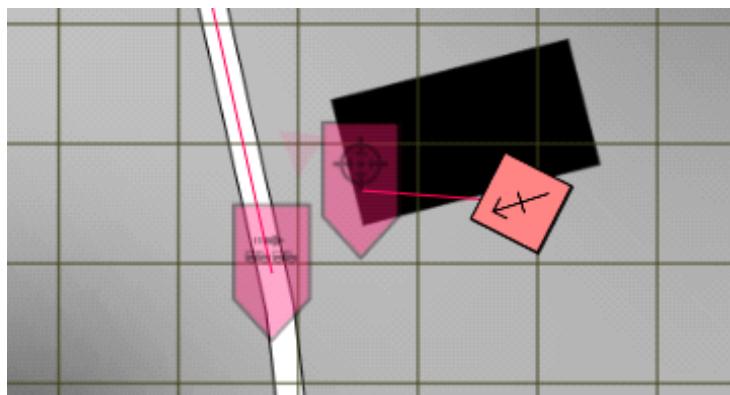
28. In the Object Properties dialog, in the **Behavior** list, select **Individual - Fire At**.

29. Set the following properties:

- **Speed:** Run
- **Stance:** Crouched
- **Weapon stance:** Raised
- **Weapon:** Primary
- **Firing mode:** Burst
- **On enemy spotted:** Open Fire
- **On direct fire:** Open Fire
- **Target (SQF code):** `blufor_target`

30. Click **OK**.

The AI on Rails Individual - Fire At Order is placed.



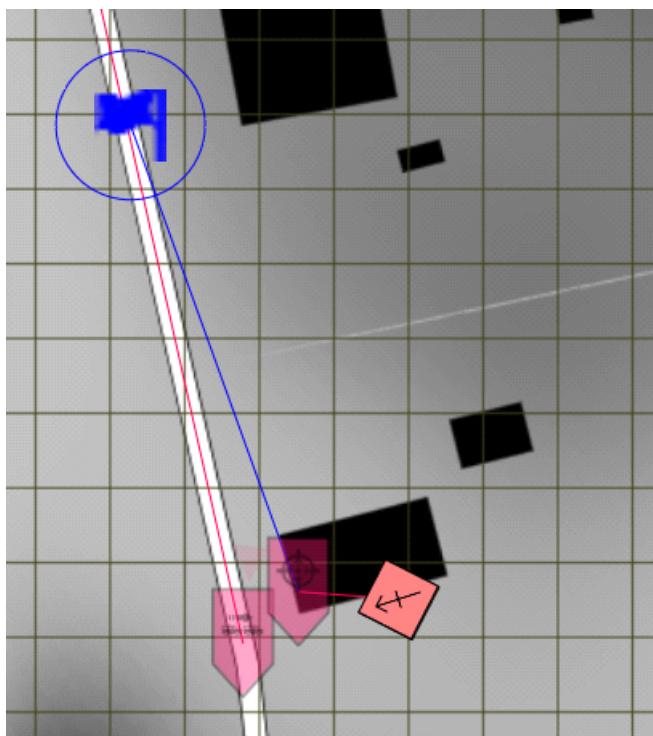
In the 3D View, the Individual - Fire At Order visual proxy is displayed in green.



31. Hold **LShift + RMB** and move the mouse left / right to rotate the Individual - Fire At Order, so that it faces the road in the following way:



32. Double-click the BLUFOR vehicle, set **Name** to `blufor_target`, and click **OK**.  
33. In 2D View, Hold **LShift**, click the Individual - Fire At Order, and click the Trigger.  
The Trigger is linked to the Individual - Fire At Order.



34. In the Tools Panel, select **(F1) Unit** and place a **VBS Objects > Invisible spectator (walking)** Player unit, anywhere on the map, where the Scenario takes place.
35. Expand the **Main Menu**, and under **Battlespaces**, select **Save**.  
The Scenario is saved.
36. Click **Preview** to preview the Scenario.
37. Press **Pause (Esc)** and in the VBS4 Toolbar, select **Editor** and press **Map (M)**, to switch to the 3D View.

Observe how, once the BLUFOR vehicle enters the Trigger area, the OPFOR unit runs crouched and / or crouches to attack the BLUFOR vehicle.

This example Scenario is expanded in Command-Detonated IED Ambush Example in the IED Ambush Use Case, where an IED detonates first, followed by an OPFOR unit ambush.

### NOTE

The Enemy Ambush Scenario is also available as a sample Battlespace on VBS World Server or in:

`\VBS_Installation\optional\Demo_Scenarios\Battlespaces\`

Compare your scenario to the sample by deploying the sample Battlespace to VBS4.

#### Follow these steps:

- For Online use cases, do the steps in [Copy Battlespace \(below\)](#) on the VBS World Server computer, and then synchronize the Battlespace on the VBS4 Client connected to VBS World Server.
- For Offline use cases, copy the Battlespace from the `\optional\` folder.

#### Copy Battlespace

1. Open the following folder in Windows File Explorer:

`\VBS_Installation\optional\Demo_Scenarios\Battlespaces\`

2. Copy the `UseCase_Name` folders to your local Battlespaces Folder (see the Introduction to VBS4 Guide) at:

`\Documents\VBS4\Battlespaces\`

Use the Battlespaces List to Filter Battlespaces (see the Introduction to VBS4 Guide) using **UseCase** as the filter.

Select the sample Battlespace and select **Prepare > Editor > Open** to review the Scenario.

## 1.2 Enemy Ambush Preparation

As an administrator, use VBS Editor in Prepare mode to create an Enemy Ambush Scenario.

### Follow these steps:

1. Use VBS Editor to create a new Scenario, or edit an existing one.

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

2. VBS4 has units with specific functionality for Enemy Ambush, including the following:

Unit	Description
OPFOR Unit	Any OPFOR unit that can be used to simulate Enemy Ambush. <b>NOTE</b> If you want to control the ambush units at the start of the scenario, they have to be set to <b>Player</b> or <b>Playable</b> .

Add personnel to the scenario.

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

3. VBS4 has vehicles with specific functionality for Enemy Ambush, including the following:

Vehicle	Description
OPFOR Vehicle	Any OPFOR vehicle that can be used to simulate Enemy Ambush. <b>NOTE</b> If you want to control the ambush vehicles at the start of the scenario, they have to be set to <b>Player</b> or <b>Playable</b> .

Add vehicles to the scenario.

For more information on placing vehicles, see Adding Vehicles in the VBS4 Editor Manual.

4. You can set the accuracy of your Enemy Ambush units, and control additional enemy engagement rules by using the [AI Rules of Engagement \(on page 38\)](#).
5. Add Waypoints and Triggers to Enemy Ambush personnel and vehicles.

You can add Waypoints for the enemy forces to attack. The Waypoint execution uses Triggers.

For more information, see [Waypoints \(on page 44\)](#) and [Triggers \(on page 52\)](#).

6. You can use [Unit Path Recording \(UPR\) \(on page 63\)](#) to make ambushes from buildings or from a certain position, and to make ambush units perform particular actions, to initiate an ambush. For more information, see [UPR Enemy Ambush \(on the next page\)](#).
7. You can use AI on Rails to perform the Enemy Ambush. For more information, see [AI on Rails Enemy Ambush Example \(on page 6\)](#).
8. Besides direct fire, you can also use indirect fire functionality in an Enemy Ambush.

VBS4 has specific functionality for indirect fire, including the following:

Indirect Fire Functionality	Description
VBS Call For Fire	<p>VBS Call For Fire provides a simulated Fire Direction Center (FDC) to setup and enable rapid fire support.</p> <p>For more information, see VBS Call for Fire Overview in the VBS Call for Fire Manual.</p>
Artillery Strike	<p>The Artillery Strike Editor Object allows real-time artillery support.</p> <p>For more information, see <a href="#">Artillery Strike (on page 69)</a>.</p>
Fire Support	<p>Some AI-controlled vehicles can provide fire support.</p> <p>For more information, see <a href="#">Fire Support (on page 75)</a>.</p>

9. Add additional BLUFOR units and / or vehicles.

10. Preview and save the mission.

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

## 1.3 Enemy Ambush Execution

As an administrator, use VBS Editor in Execute mode to run an Enemy Ambush Scenario.

Start the Scenario and open VBS Editor.

For more information, see Scenario Execution in the VBS4 Instructor Manual.

Use the Editor UI to modify the scenario as it runs.

A typical Enemy Ambush scenario has the following phases:

1. BLUFOR units and / or vehicles pass through Trigger area (see [Triggers \(on page 52\)](#)) area.
2. The Trigger activates on BLUFOR presence, and OPFOR ambush units attack.
3. Wounded units can request medical assistance from medics.

## 1.4 Enemy Ambush with Triggers and Waypoints

A basic Enemy Ambush involves a Trigger and Waypoints (see [Waypoints \(on page 44\)](#)).

### Follow these steps:

1. Create a Trigger with the following properties:

- **Activation:** BLUFOR
- **Activation Type:** Present

The Trigger is activated, when a BLUFOR unit or vehicle enters the Trigger area.

2. Create an [Advance Order \(on page 50\)](#) Waypoint, where the ambush group waits before the ambush begins.
3. Create an [Advance Order \(on page 50\)](#) Waypoint, where the ambush group moves to start the ambush.
4. Right-click the Waypoint, where the ambush group waits before the ambush, select **Link to Trigger** and click the Trigger.

In the scenario Execution phase, the ambush group waits at the first Waypoint, until the Trigger is activated. The Trigger causes the group to move to the next Waypoint and start the ambush.

5. Start the scenario.
6. You can add waypoints during the Execution phase in VBS Editor.
7. In VBS Editor, right-click the unit and select **Switch to Unit** (see [Interacting with Editor Objects](#) in the VBS4 Editor Manual), to take control of the AI unit.

## 1.5 UPR Enemy Ambush

You can use [Unit Path Recording \(UPR\) \(on page 63\)](#) to make ambushes from buildings or from a certain position, and to make ambush units perform particular actions, to initiate an ambush.

### Follow these steps:

1. Create a Trigger with the following properties:

- **Activation:** BLUFOR
- **Activation Type:** Present
- **On Activation:** `ambush_start = true;`

The Trigger is activated, when a BLUFOR unit or vehicle enters the Trigger area.

2. Set an OPFOR ambush unit to be the player.
3. Preview the scenario.

4. Open the VBS Editor, select **Tools > Enable Record Path Hot Key**, and close the VBS Editor.
5. Press **Player Path Recording (P)** to enable path recording.
6. As a player, perform the OPFOR unit ambush actions, such as moving to a position and firing different weapons.
7. Press **Player Path Recording (P)** again, enter a name for the recording, and save it.
8. Press **Esc**, open the VBS4 Main Menu, then select **Exit Battlespace** to exit the Battlespace and return to Prepare mode.
9. Create a UPR Editor Object (EO).
10. Select the recording that you saved.

 **WARNING**

To enable the recording in multiplayer, make sure to check **Mission Folder**, to save the recording in the Battlespace folder.

11. Set **Replay Condition** to: `!isNil {ambush_start}`

 **WARNING**

The recommended condition pattern is `!isNil {global_variable}`. The condition must always return a true or false result (not an undefined result) throughout the scenario. Otherwise, the UPR fails to activate.

12. Link the UPR EO to the OPFOR unit.
13. Set the player as another unit.
14. Save the scenario.
15. Preview the scenario.
16. Activate the BLUFOR Trigger you created in the Preparation phase, and observe the results of the ambush.

## 2. AI on Rails

You can specify the behavior of a Control AI entity by using the (F3) Waypoints Editor Object (see the VBS Control AI Manual), to give the entity a sequence of orders to perform. These orders can be as simple as movement from point A to point B with no autonomy, or composed together and combined with triggers, to create complex, branching plans.

The following sections describe how to build a progressively more complex behavior:

- [Individual Move \(on the next page\)](#) - Add a sequence of move orders to a single soldier.
- [Individual Fire At \(on page 24\)](#) - Add a sequence of move-and-fire orders to a single soldier.
- [Delayed Order Execution \(on page 27\)](#) - Use triggers to control when further orders should be executed.
- [Branching Orders \(on page 29\)](#) - Allow entities to choose from several orders to execute.
- [AI on Rails Orders \(on page 31\)](#) - AI on Rails orders that can be used. Each order behavior is applied to an entity using the (F3) Waypoints Editor Object (see the VBS Control AI Manual).

For an AI on Rails example mission, see Example Content in the VBS Control AI Manual.

## 3. Individual Move

You can create and link a move order to an ungrouped entity, for the entity to perform.

The green soldier proxy, displayed in the 3D Editor (Prepare / Execute Mode), reflects the target entity stance, position, and orientation.

### Follow these steps:

1. In the Editor (Prepare Mode), place a single, ungrouped Control AI entity on the map.
2. Shift-click the entity, and then click a position on the map (see [Waypoints \(on page 44\)](#)).
3. In the **Behavior** list, select **Individual - Move**.
4. Set the Order properties (see [Individual - Move Order \(on page 35\)](#)) and click **OK**.
5. Preview the mission.

The entity assumes the specified stance and moves to the destination.

**Image-1: An Individual - Move Order, at the end of which the soldier entity crouches**



You can link multiple move orders by linking multiple [Individual - Move Order \(on page 35\)](#) Editor Objects (see [Waypoints \(on page 44\)](#)). The entity performs these orders in sequence.

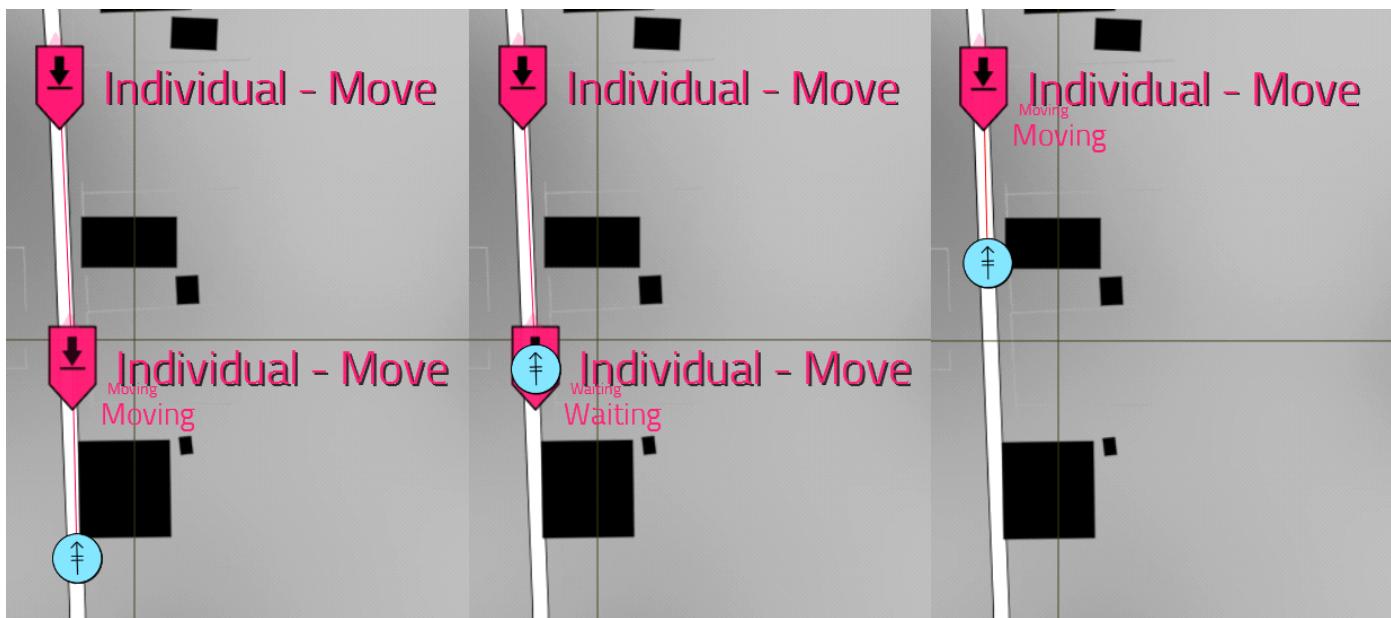
You can also set the entity to wait at its destination for a specified amount of time, before continuing with the next order.

**Follow these steps:**

1. Create an [Individual - Move Order \(on page 35\)](#), based on the previous procedure.
2. In the Order properties, enter the number of seconds for the entity to wait, before continuing with to the next order, in the **Wait After Finishing (s)** field.
3. Shift-click the order, and then click a position on the map for the next order.
4. Set the Order properties, based on the previous procedure.
5. Preview the mission.

The entity moves to the first destination, waits for the specified amount of time, and then continues moving to the second destination.

**Image-2: From left to right: the entity moves to the first waypoint, waits, and continues to the second waypoint**



## 4. Individual Fire At

You can create and link a move-and-fire order to an ungrouped entity, for the entity to perform. The green soldier proxy, displayed in the 3D Editor (Prepare / Execute Mode), reflects the entity stance, position, and orientation.

The entity first performs the move (similarly to [Individual Move \(on page 22\)](#)), and then fires at the specified target (the entity automatically reloads). You can fire at either an object, such as an enemy entity, or an ASL2 position on the terrain.

This section demonstrates an example, where a soldier performs the following order sequence:

1. Moves to the first position and fires at a falling target.
2. Moves to the next position and fires at an ASL2 position on the terrain.

### Follow these steps:

1. In the Editor (Prepare Mode), place a single, ungrouped Control AI entity on the map.
2. Place two falling-target objects (any object from [\(F8\) Objects > Targets - Falling](#)) on the map and give them names (for example, `ftarget1` and `ftarget2`).
3. Shift-click the entity, and then click a position on the map (see [Waypoints \(on page 44\)](#)).
4. In the **Behavior** list, select **Individual - Fire At**.
5. In **Target (SQF Code)**, specify the name of the first falling-target object (for example, `ftarget1`).

**NOTE**

It can be any SQF code that returns an Entity or Position (in ASL2 format). The SQF script is evaluated **only after** the move is performed. Therefore, the entity fires at the target **only after** it performs the move. If the target is moving, only the target position at the time of the SQF code evaluation is taken into account.

6. In **Weapon**, select the weapon the entity should use (based on the weapons the entity has) to fire at the target. In **Firing Mode**, select the firing mode, which can be either **Single** (single rounds) or **Burst** (burst rounds). In both firing modes, you can set the number of rounds / bursts to fire in **Rounds**, as well as the waiting period between each round / burst in **Wait Between Rounds (s)**.
7. Set the other Order properties (see [Individual - Fire At Order \(on page 32\)](#)) and click **OK**.
8. Shift-click the Fire At Order, and then click a position on the map, for the next move-and-fire waypoint.

9. In **Target (SQF Code)**, specify the ASL2 position of the second falling-target object (for example, using the SQF script: `ftarget2 modelToWorldASL2 [0,0,1]` - this fires 1m above the ASL2 position of the target, which would be on the ground).

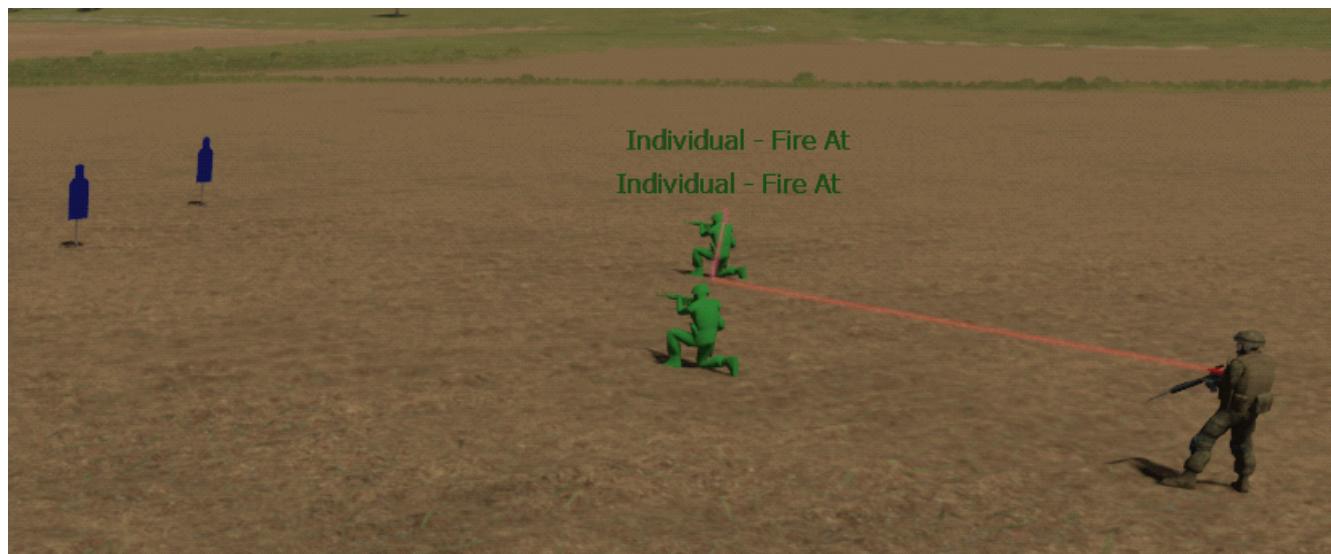
10. Set the other Order properties and click **OK**.

11. Preview the mission.

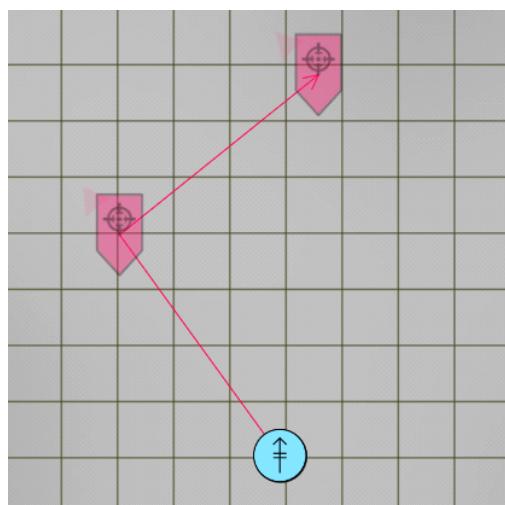
The entity does the following:

1. Moves to the first firing position.
2. Fires at the first target and the target falls down.
3. The entity then moves to the second firing position.
4. Fires 1m above the ASL2 ground position of the second target, which results in hitting the target.

**Image-3: Fire At Order settings and the finished example scenario**



**Image-4: Fire At Orders, connected as waypoints**



**Image-5: The entity aims and fires at a falling target****Considerations:**

- If the entity has a weapon, but no ammunition (which is indicated in the 2D Editor (Execute Mode)), it waits for the administrator to edit the entity loadout, to provide it with usable ammunition.
- If the entity has no weapon of the selected type, it waits at its firing position, until the administrator edits the entity loadout, to provide it with a weapon of this type.
- The entity cannot fire at dead targets (for example, if the target is killed by the first shot, the entity does not fire the remaining rounds).
- Setting the target to `enemySoldier` is not the same as `getPosASL2 enemySoldier`. The former aims at the chest of the target and considers target velocity, while the latter aims at a static position near the feet of the target / ground.
- Aiming can take some time, if the target is too far. If the waiting period between rounds / bursts is set to 0, re-aiming between rounds / bursts can still take more than 0 seconds.
- If the given target is too far, the entity waits at its firing position.

## 5. Delayed Order Execution

You can control when an order is executed by linking a trigger to it.

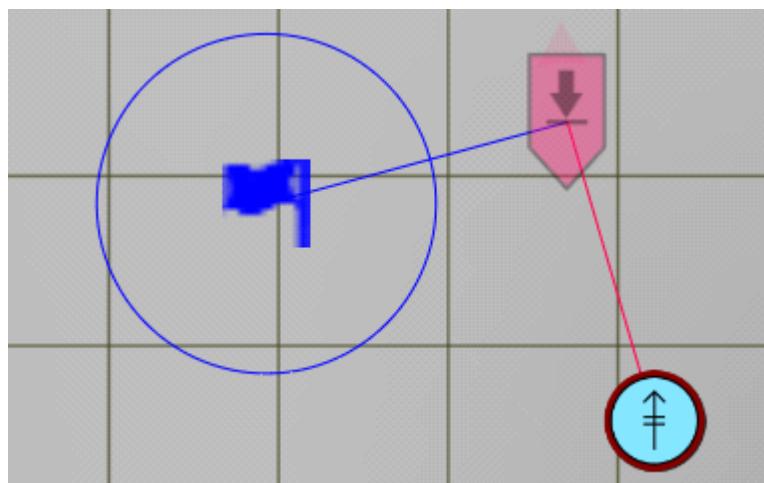
When a Control AI entity finishes an order, and the next order in the sequence has a linked trigger, the execution of the next order is delayed, until the trigger is activated. Similarly, if a trigger is linked to an existing order, and that order is linked to a Control AI entity, it does not start executing the order, until the trigger is activated.

### Follow these steps:

1. Set up an **Individual - Move Order**, as described in [Individual Move \(on page 22\)](#).
2. Create a trigger, and set its **Activation** field to **Radio Alpha**.
3. Link the order to the trigger.
4. Link the order to an entity.
5. Preview the mission.

The entity does not begin executing the order, until the radio trigger is activated.

**Image-6: An Individual - Move Order linked to an entity and a trigger**



You can link multiple triggers to a single order. The order is then delayed, until any of the triggers is activated. This way, you can specify multiple activation conditions for an order. For example, a Control AI entity can be set to crest a ridge, when either a BLUFOR soldier enters a trigger area, or when a radio trigger is manually activated by an administrator.

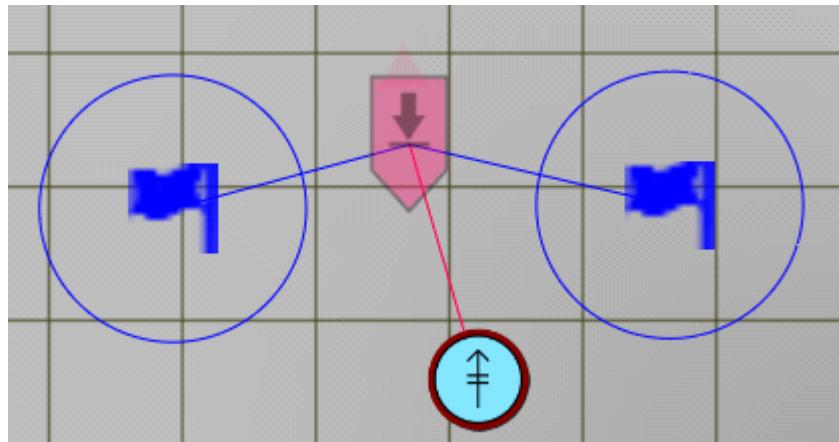
### Follow these steps:

1. Set up an **Individual - Move Order** with a linked radio trigger, as described in the previous procedure.
2. Create a second trigger, and set its **Activation** field to **BLUFOR**, and its **Activation Type** field to **Present**.

3. Link the order to the second trigger.

4. Preview the mission.

**Image-7: An Individual Move - Order linked to an entity and two triggers**



## 6. Branching Orders

You can have an entity select one of several orders to execute.

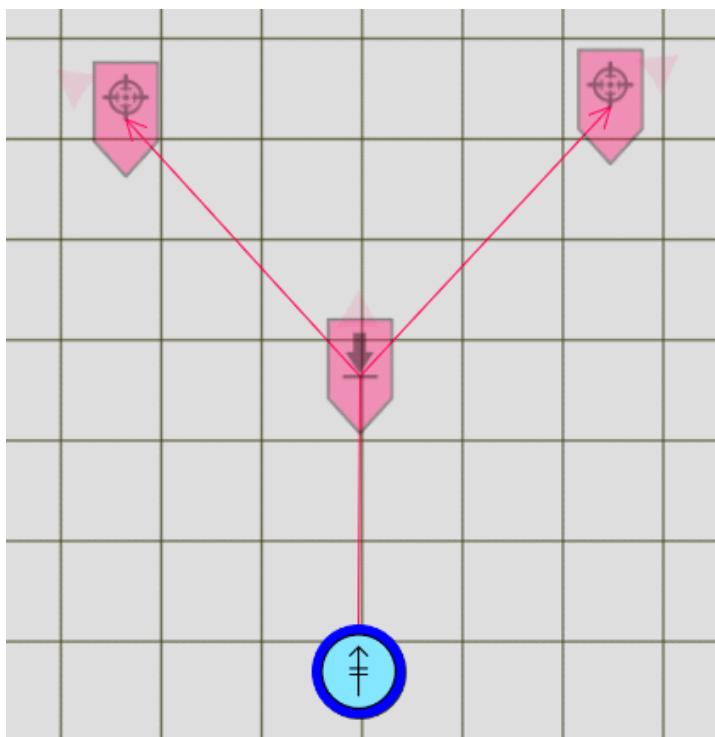
In the most basic case, when the entity finishes an order and there are subsequent orders to select from, the selection is done randomly.

**Follow these steps:**

1. Set up an **Individual - Move Order / Individual - Fire At Order**, as described in [Individual Move \(on page 22\)](#) / [Individual Fire At \(on page 24\)](#). Make sure the order is linked to an entity.
2. Create two additional Individual Orders and link them to the order created in step 1.
3. Preview the mission.

The entity executes the first order, and then randomly chooses one of the two subsequent orders.

**Image-8: Branching orders example**



You can also use branching orders together with triggers, to have an entity select an order based on scenario conditions or manual trigger activation, as described in the example below:

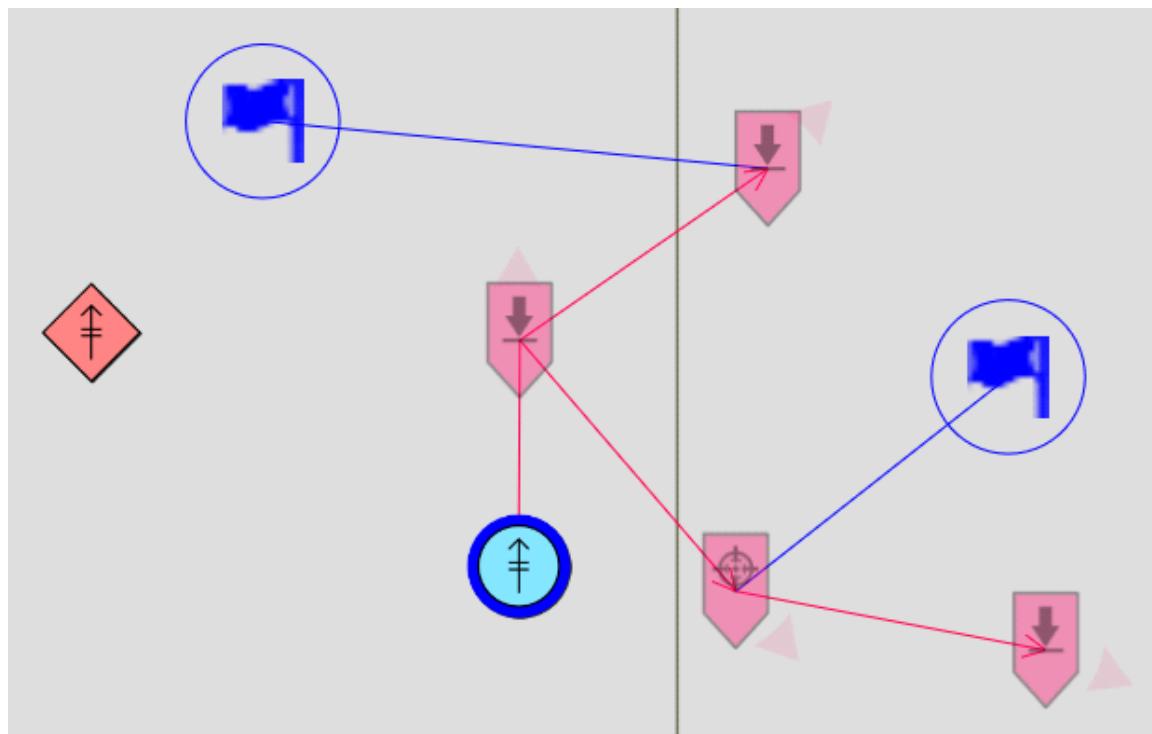
**Follow these steps:**

1. Set up an **Individual - Move Order**. In its properties, set all of its reactions to **Hold Fire**.
2. Create a trigger, and set its **Activation** field to **Radio Alpha**.
3. Create an **Individual - Move Order**. In its properties, set all of its reactions to **Hold Fire**. Link this order to the trigger created in step 2, and then link it to the order created in step 1.

4. Create a second trigger, set its **Activation** field to **OPFOR** and its name to "**Target\_Zone**" (without the quotation marks). Adjust its size as necessary.
5. Create an **Individual - Fire At Order**. In its properties, set all of its reactions to **Hold Fire**, and set the **Target (SQF Code)** field to "**(list Target\_Zone) select 0**" (without the quotation marks). Link this order to the trigger created in step 4, and then link it to the order created in step 1.
6. Create an **Individual - Move Order**. Link this order to the order created in step 5.
7. Link the order created in step 1 to a **BLUFOR** entity.
8. Create an **OPFOR** entity.
9. Preview the mission.

The BLUFOR entity moves to the first order. It waits there, until the OPFOR entity is moved into the trigger area created in step 4. Then it engages that entity and proceeds on. However, if the radio trigger is manually activated by an administrator before the OPFOR entity enters the trigger area, the entity moves away immediately.

**Image-9: Branching orders with triggers example**



## 7. AI on Rails Orders

AI on Rails uses the (F3) Waypoints Editor Object (see the VBS Control AI Behavior Pack Manual) and consists of the following orders:

 **NOTE**

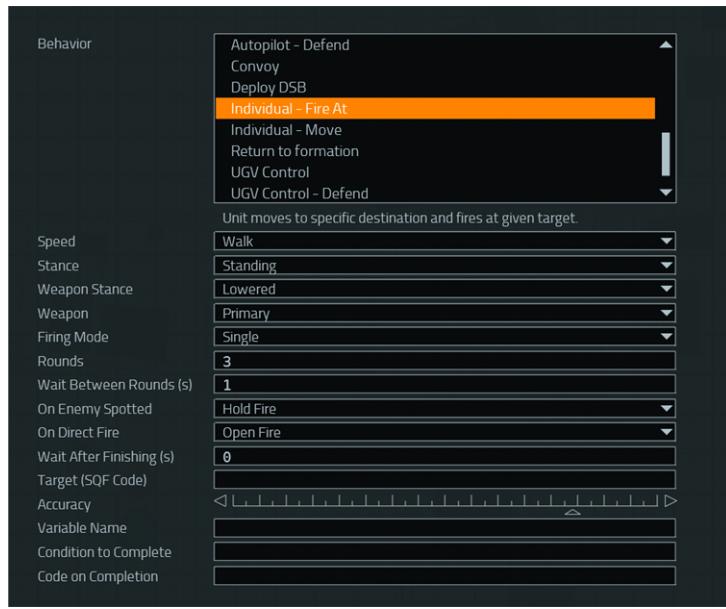
Each order can only be assigned to individual, ungrouped entities.

Order Type	Description
Individual - Fire At Order (on the next page)	The entity assumes the specified stance and speed, moves to target position, orients itself according to the specified heading, and fires at the specified target.
Individual - Move Order (on page 35)	The entity assumes the specified stance and speed, moves to target position, and orients itself according to the specified heading.

## 8. Individual - Fire At Order

Assigns a waypoint to an individual entity to fire at the given target (the entity automatically reloads). The speed, stance, reactions, and fire target of the entity can be configured. The position is the location of the (F3) Waypoints Editor Object (see the VBS Control AI Manual) on the map.

**Image-10: Individual Fire At - Order settings**



### Follow these steps:

1. Select the **(F3) Waypoints** Editor Object from the Editor Objects List, and place it on the map.
2. In the **Behavior** list, select **Individual - Fire At**.
3. Set the [Individual Fire At Settings \(below\)](#).
4. Set the [Waypoint Completion Settings \(on the next page\)](#).
5. Click **OK** to confirm.

The Individual - Fire At Order behavior is set up.

### Individual Fire At Settings

Setting	Description
<b>Speed</b>	Desired move speed of the entity. <ul style="list-style-type: none"> <li>• <b>Slow Walk</b></li> <li>• <b>Walk</b></li> <li>• <b>Run</b></li> </ul>

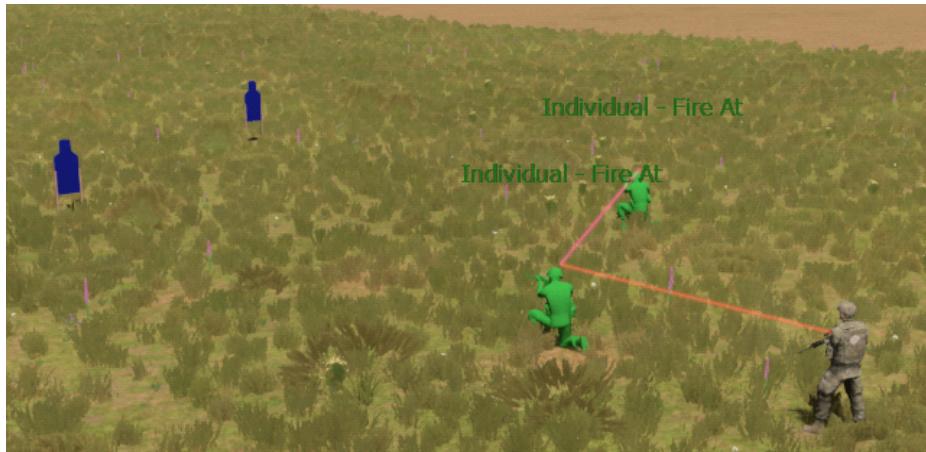
Setting	Description
<b>Stance</b>	Desired stance to assume during the move. <ul style="list-style-type: none"> <li><b>Standing</b> - Entity is upright and walks / runs to the destination.</li> <li><b>Crouched</b> - Entity is crouched and moves in a lowered stance to the destination.</li> <li><b>Prone</b> - Entity lays down and crawls to the destination.</li> </ul>
<b>Weapon Stance</b>	Defines how the weapon should be carried during the move. <ul style="list-style-type: none"> <li><b>Lowered</b> - Weapon is lowered.</li> <li><b>Raised</b> - Weapon is aimed and ready to fire.</li> </ul>
<b>Weapon</b>	The weapon the entity should use to fire at the target. <ul style="list-style-type: none"> <li><b>Primary</b> - The primary weapon of the entity.</li> <li><b>Pistol Weapon</b> - A pistol.</li> </ul>
<b>Firing Mode</b>	The firing mode. <ul style="list-style-type: none"> <li><b>Single</b> - Single rounds.</li> <li><b>Burst</b> - Burst rounds.</li> </ul>
<b>Rounds</b>	The number of rounds to fire at the target.
<b>Wait Between Rounds (s)</b>	The number of seconds to wait between each round / burst.
<b>On Enemy Spotted</b>	Controls how the entity reacts, when spotting the enemy. <ul style="list-style-type: none"> <li><b>Open Fire</b> - Entity stops and opens fire on any visible threats.</li> <li><b>Hold Fire</b> - Entity ignores visible threats.</li> </ul>
<b>On Direct Fire</b>	Controls how the entity reacts to incoming enemy fire (defined by shots impacting or passing around the entity at a short distance). <ul style="list-style-type: none"> <li><b>Open Fire</b> - Entity stops and opens fire on any visible threats.</li> <li><b>Hold Fire</b> - Entity ignores incoming fire.</li> </ul>
<b>Wait After Finishing (s)</b>	Controls how long (in seconds) the entity holds its target position after finishing the order, before continuing to execute further orders.
<b>Target (SQF Code)</b>	Target to fire at. Can be any SQF code that returns an Entity or Position (in ASL2 format).
<b>Accuracy</b>	Firing accuracy of the entity.
<b>Variable Name</b>	In <b>Variable Name</b> , enter the Order waypoint name, which can be used in SQF scripts.

## Waypoint Completion Settings

Set the Order waypoint completion settings:

Option	Description
<b>Condition to Complete</b>	Condition that needs to be fulfilled to complete the waypoint for the selected Order behavior.
<b>Code on Completion</b>	SQF code to execute on waypoint completion.

**Image-11: Individual - Fire At example in the 3D Editor (Prepare Mode)**



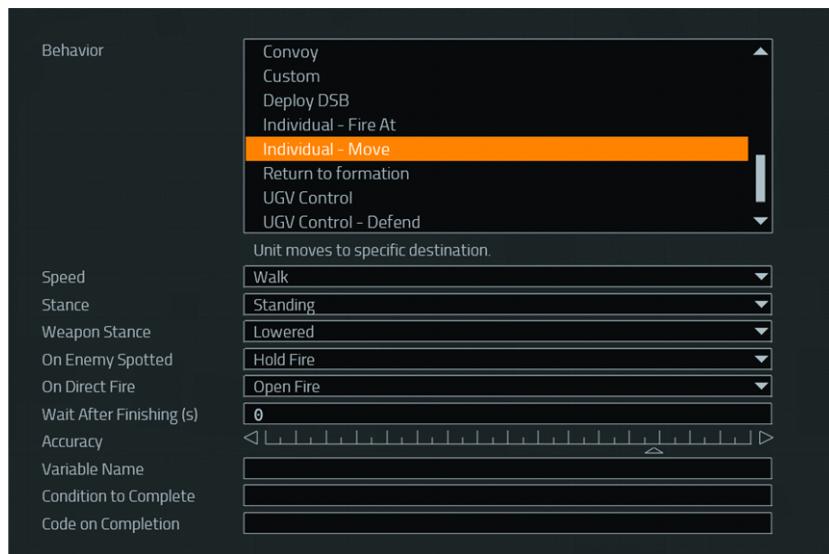
### Considerations:

- If the entity has a weapon, but no ammunition (which is indicated in the 2D Editor (Execute Mode)), it waits for the administrator to edit the entity loadout, to provide it with usable ammunition.
- If the entity has no weapon of the selected type, it waits at its firing position, until the administrator edits the entity loadout, to provide it with a weapon of this type.
- The entity cannot fire at dead targets (for example, if the target is killed by the first shot, the entity does not fire the remaining rounds).
- Setting the target to `enemySoldier` is not the same as `getPosASL2 enemySoldier`. The former aims at the chest of the target and considers target velocity, while the latter aims at a static position near the feet of the target / ground.
- Aiming can take some time, if the target is too far. If the waiting period between rounds / bursts is set to 0, re-aiming between rounds / bursts can still take more than 0 seconds.
- If the given target is too far, the entity waits at its firing position.

## 9. Individual - Move Order

Assigns a waypoint to an individual entity. The speed, stance, and reactions of the entity can be configured. The position is the location of the (F3) Waypoints Editor Object (see the VBS Control AI Behavior Pack Manual) on the map.

**Image-12: Individual Move - Order settings**



### Follow these steps:

1. Select the **(F3) Waypoints** Editor Object from the Editor Objects List, and place it on the map.
2. In the **Behavior** list, select **Individual - Move**.
3. Set the **Individual Move Settings** (below).
4. Set the **Waypoint Completion Settings** (on the next page).
5. Click **OK** to confirm.

The Individual - Move Order behavior is set up.

### Individual Move Settings

Setting	Description
Speed	Desired move speed of the entity. <ul style="list-style-type: none"><li>• Slow Walk</li><li>• Walk</li><li>• Run</li></ul>

Setting	Description
<b>Stance</b>	Desired stance to assume during the move. <ul style="list-style-type: none"> <li><b>Standing</b> - Entity is upright and walks / runs to the destination.</li> <li><b>Crouched</b> - Entity is crouched and moves in a lowered stance to the destination.</li> <li><b>Prone</b> - Entity lays down and crawls to the destination.</li> </ul>
<b>Weapon Stance</b>	Defines how the weapon should be carried during the move. <ul style="list-style-type: none"> <li><b>Lowered</b> - Weapon is lowered.</li> <li><b>Raised</b> - Weapon is aimed and ready to fire.</li> </ul>
<b>On Enemy Spotted</b>	Controls how the entity reacts, when spotting the enemy. <ul style="list-style-type: none"> <li><b>Open Fire</b> - Entity stops and opens fire on any visible threats.</li> <li><b>Hold Fire</b> - Entity ignores visible threats.</li> </ul>
<b>On Direct Fire</b>	Controls how the entity reacts to incoming enemy fire (defined by shots impacting or passing around the entity at a short distance). <ul style="list-style-type: none"> <li><b>Open Fire</b> - Entity stops and opens fire on any visible threats.</li> <li><b>Hold Fire</b> - Entity ignores incoming fire.</li> </ul>
<b>Wait After Finishing (s)</b>	Controls how long (in seconds) the entity holds its target position after finishing the order, before continuing to execute further orders.
<b>Accuracy</b>	Firing accuracy of the entity.
<b>Variable Name</b>	In <b>Variable Name</b> , enter the Order waypoint name, which can be used in SQF scripts.

## Waypoint Completion Settings

Set the Order waypoint completion settings:

Option	Description
<b>Condition to Complete</b>	Condition that needs to be fulfilled to complete the waypoint for the selected Order behavior.
<b>Code on Completion</b>	SQF code to execute on waypoint completion.

**Image-13: Individual - Move example in the 3D Editor (Prepare Mode)**

# 10. AI Rules of Engagement

The AI Rules of Engagement (ROE) Editor Object (EO) is a tool that is used to influence some basic attributes and behaviors of AI entities. It enables you to fix AI into predetermined locations and postures, and apply engagement rules based on perceived hostile targets.

## Follow these steps:

1. In VBS Editor, select **Module** from the Editor Objects List.
2. Right-click a location on the map, and select **New Object**.
3. Expand the **Module** drop-down, select **AI Rules of Engagement**, and click **OK**.

The AI Rules of Engagement Object Properties dialog opens:



4. Specify the [Selection Methods \(on page 41\)](#) to control how AI entities are selected and influenced by the AI ROE EO properties. These properties can be combined to form a variety of selection criteria. However, the type of selection method can exclude certain properties. In the drop-down, the options methods are:
5. Input fields the remaining [Parameters \(below\)](#), and click **OK**.

The AI Rules of Engagement icon appears on the map, and when the mission runs AI entities behave as defined by the module parameters.

Parameters	Description
<b>Description</b>	Name that appears in the object tooltip and in the Scenario Objects Panel.
<b>Selection Method</b>	See <a href="#">Selection Methods (on page 41)</a> .

Parameters	Description
<b>Applies to</b>	Allows you to refine the selection process further by only applying the AI ROE EO properties to specific sides. When this option is not relevant, the entire AI ROE control is disabled, or entries are removed when a specific side is used by another AI ROE EO.
<b>Move Options</b>	<p> <b>FEATURE NOTICE</b></p> <p>Only the <b>Full</b> option is supported for AI. See One AI in the VBS4 Release Notes.</p> <p>Choose from the options and is available for all AI ROE EO types with no restrictions applied. The available options are:</p> <ul style="list-style-type: none"> <li>• <b>None</b> - The default setting that prevents all AI entities from performing any type of lateral movement. This includes fleeing, moving to waypoints, and any form of advance to engage the enemy.</li> <li>• <b>Limited</b> - Limited movement allows AI entities to follow waypoints and, when enabled, perform fleeing or seek cover actions. However, all aggressive advance to engage the enemy and flanking maneuvers is disabled.</li> <li>• <b>Full</b> - Enables the default AI movement options with no restrictions on the AI, unless disabled using <b>Seek Cover</b> or <b>Allow Fleeing</b>.</li> </ul> <p>In addition, the following check-boxes are available:</p> <ul style="list-style-type: none"> <li>• <b>Seek Cover</b> - Disabled by default, when no movement is allowed for the AI. If enabled, AI entities seek cover from a perceived threat. When used with the <b>Inside Area</b> selection method, AI entities do not advance outside the defined area.</li> <li>• <b>Allow Fleeing</b> - Disabled by default, when no movement occurs. This option allows you to enable or disable the default fleeing behavior (this functionality does not account for any area restrictions).</li> </ul>
<b>Weapon Control Status</b>	<p>Set the combat mode, or how AI entities on all sides respond to perceived threats. This setting also applies to all AI under player control, and can be overridden using the Object Properties dialog for units and vehicles (see Adding Units and Adding Vehicles in the VBS4 Editor Manual) or the Weapon Control Status options (see the various <a href="#">Waypoints (on page 44)</a>).</p> <p>The available options are:</p> <ul style="list-style-type: none"> <li>• <b>Weapons Free</b> - Fire at enemy forces, when they are encountered.</li> <li>• <b>Hold Fire</b> - Do not fire at enemy forces, when they are encountered.</li> </ul> <p> <b>NOTE</b></p> <p>If the AI ROI EO is deleted or when the AI entities get out of the AI ROE area, the AI entities use <b>Inherit</b> as their combat mode (inherit the combat mode from the group the entity is in, unless the entity is not part of a group).</p>

Parameters	Description
Stance	<p><b>★ FEATURE NOTICE</b></p> <p>Temporarily disabled for AI. See One AI in the VBS4 Release Notes.</p> <p>In addition to the <b>Weapon Control Status</b>, you can configure a specific stance for the AI entity, instead of the default behavior, allowing the AI to automatically adopt a stance suitable for situation. This stance is applied while the AI entity is controlled by an AI ROE EO. If AI ROI EO is removed, the AI entity reverts back to its default behavior. The stance options are:</p> <ul style="list-style-type: none"><li>• <b>Default</b> - The default behavior, where the AI entity automatically adopts the stance it considers most appropriate.</li><li>• <b>Prone</b> - Maintains a prone stance, regardless of any move orders.</li><li>• <b>Crouched</b> - Remains crouched, regardless of any move orders.</li><li>• <b>Upright</b> - Remains standing, regardless of any move orders.</li></ul> 

Parameters	Description
<b>Weapon Inaccuracy</b>	<p>Specifies the accuracy of AI weapons fire. <b>Weapon Inaccuracy 0</b> never misses, the default <b>Level 1</b> represents a trained weapons user, and <b>Level 20</b> approximates firing anywhere within a 90° firing arc.</p> <div style="border: 1px solid #0070C0; padding: 10px; margin-top: 10px;"> <p><b>NOTE</b></p> <p>Overrides the <b>Weapon Inaccuracy</b> in Advanced Unit Settings (see the VBS4 Editor Manual):</p> <ul style="list-style-type: none"> <li>• If the AI Rules of Engagement EO is placed in Prepare Mode, it overrides the weapon accuracy of all the units it applies to.</li> <li>• If the AI Rules of Engagement EO is placed in Preview / Execute Mode, it overrides all the units it applies to that are present in the scenario at that point. Therefore, the weapon inaccuracy of any units placed in the scenario after the AI Rules of Engagement EO placement is not overridden by the AI Rules of Engagement EO.</li> </ul> <p>Use appropriate <b>Weapon Control Status</b> to enable the AI to fire.</p> </div> <p>The <a href="#">setDispersionFactor</a> (<a href="https://sqf.bisimulations.com/display/SQF/setDispersionFactor">https://sqf.bisimulations.com/display/SQF/setDispersionFactor</a>) script command may be used to control the Weapon Inaccuracy for an individual unit. However, the Weapon Inaccuracy in the UI is exponential compared to the weapon inaccuracy (dispersion) factor set by the command:</p> <ul style="list-style-type: none"> <li>• Level 1 = factor 1</li> <li>• Level 2 = factor 4</li> <li>• Level 5 = factor 25</li> <li>• and so on</li> </ul>

## 10.1 Selection Methods

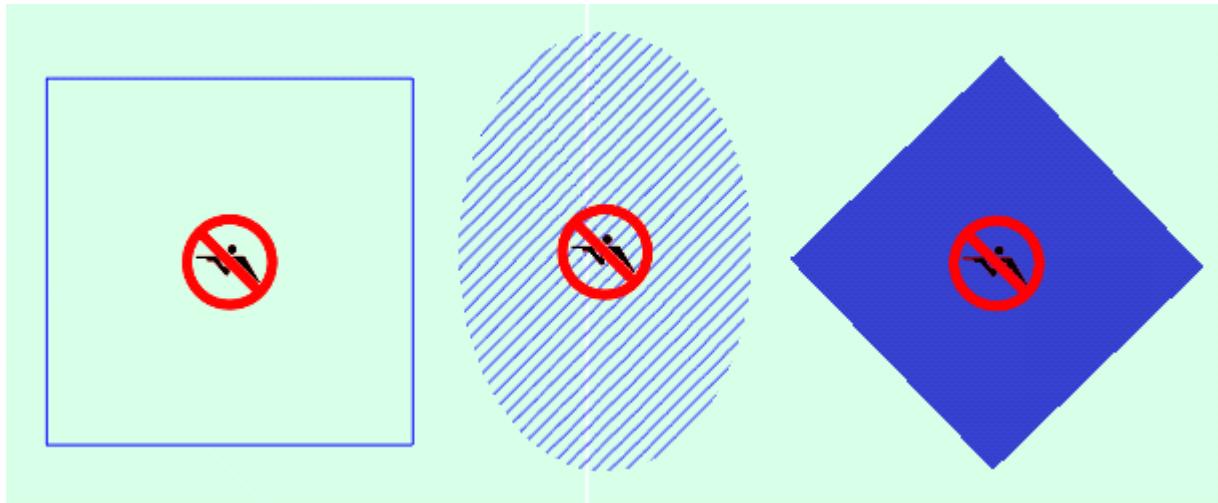
### All

This selection method relates to all AI entities in the scenario and is the most basic way to apply restrictions and behaviors to AI entities. However, the method comes with a number of restrictions and exclusions. In some cases, you can only have one type of AI ROE EO influencing factions in a mission. For example, you can only have one AI ROE EO of type **All** influencing all sides at any point in time. While you cannot have more than one AI ROE EO influencing AI entities on the **All** side, you can have multiple AI ROE EOs influencing each of the specific sides.

### Inside Area

This selection method allows you to influence all AI in a specific area. Unlike the **All** option, you can have multiple areas that also overlap (in overlapping areas, only one AI ROE EO has control over the AI). The sub-properties of **Inside Area**, that become available if **Inside Area** is selected, are:

- **Area** - Defines the shape of the applied area. There are two options: **Rectangular** and **Round**.
- **Height(Meters)** - Defines the dimensions of the given area in meters (can also be the radius).
- **Width(Meters)** - Defines the dimensions of the given area in meters (can also be the radius).
- **Style** - Defines the draw style and fill pattern used when displaying the area in 2D map view, for example:



## Linked

This selection method allows you to select individual entities or groups for specific behaviors, and for a more precise selection of control over entities compared to the **All** and **Inside Area** options. Linking and unlinking AI ROE EOs is performed in the same way you would link any other Editor Object or group (see Linking Editor Objects in the VBS4 Editor Manual). For example, you can exclude entities from the behaviors of the alternative selection methods, as its properties override all other AI ROE EOs.

Like the **Inside Area** selection method, there is no limit to the number of AI ROE EOs that can use the linking method. The side option is not enabled for this method as it is irrelevant. However, there are some specific limitations that apply:

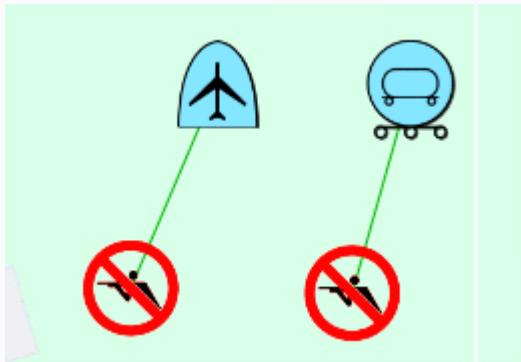
- You cannot link two AI ROE EOs to the same group leader or unit / vehicle.
- You cannot link to individual subordinates of a group.
- You cannot link to echelons.

Each selection method has a hierarchy of influence - AI ROE EOs with the **Linked** selection method have priority over all types. Likewise, the **Inside Area** selection method takes priority over the **All** selection method.



## EXAMPLE

If you want all AI ground entities to remain stationary, yet still allow fixed wing aircraft freedom of movement, you need to link the aircraft with an AI ROE EO set to allow all movement.



# 11. Waypoints

Link an AI entity / group to a (F3) Waypoints Editor Object (see the VBS Control Manual) to use it as a waypoint. You can link several waypoints to create a complex path.

## **WARNING**

The (F3) Waypoints Editor Object behaviors are not fully optimized for VBS4, and can cause reduced performance, when used in large quantities in the Scenario.

Waypoints are divided into the following waypoint-behavior categories:

- AI on Rails
- Military AI
- Convoy AI
- Bridge Laying
- Convoy AI
- Aircraft AI
- Civilian Riot AI
- Animal AI

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

For SQF waypoint functions and their parameters, see Waypoint Functions and Parameters in the VBS Control AI Manual.

## **WARNING**

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

Create an AI entity / group by adding units or vehicles using (F1) Unit / (F4) Vehicle / (F2) Group in the Editor Objects List (to link the units / vehicles to create a group, see Creating and Adding to Groups with Links in the VBS4 Editor Manual).

**To create a waypoint for an entity / group in the Editor (Prepare / Execute Mode), choose one of the following approaches:**

- Using only an entity / group object:
  1. Right-click the entity / group and select **Orders > Assign New Waypoint**, then click a position on the map to create a waypoint.
  2. In the **Behavior** list, select the AI Order (waypoint behavior), set the Order properties, and click **OK**.

- Using two Editor Objects - an entity / group object and a (F3) Waypoints Editor Object:
  1. Make sure that **(F3) Waypoints** is selected in the Editor Objects List (you can press **F3** to select it) and place it on the map to indicate the position of the waypoint.
  2. In the **Behavior** list, select the AI Order (waypoint behavior), set the Order properties, and click **OK** to create the waypoint.
  3. Right-click the entity / group and select **Orders > Assign Existing Waypoint**, then click the waypoint.

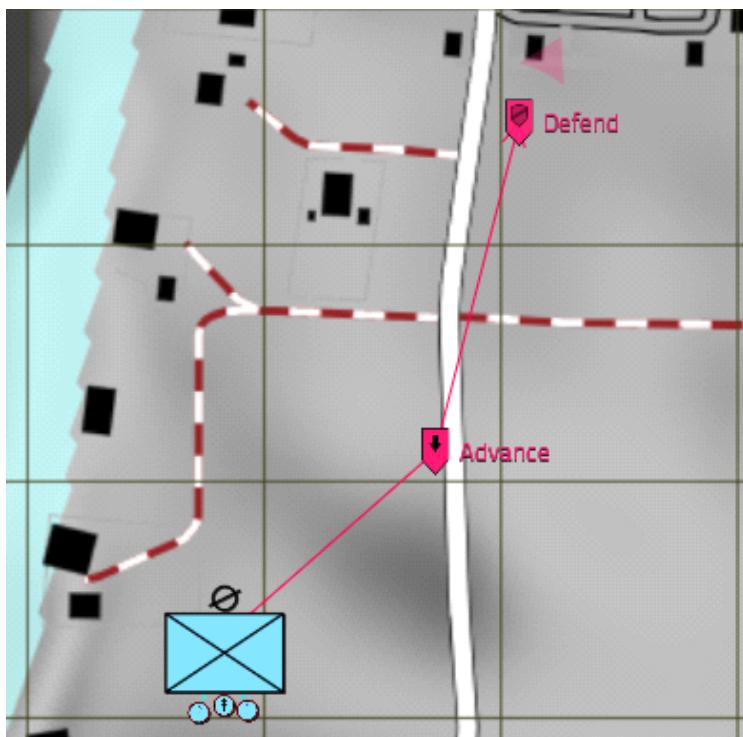
The entity / group has a waypoint.

#### To create a path / chain that consists of waypoints, choose one of the following approaches:

- Using one waypoint:
  1. Create a waypoint based on the previous procedure.
  2. Right-click the waypoint and select **Assign Next Waypoint**, then click a position on the map for the next waypoint.
- Using two or more waypoints:
  1. Create two or more waypoints based on the previous procedure.
  2. Press **Shift + LMB** on the first waypoint, and click the second waypoint to create a link that defines the order in which the waypoints are completed. Proceed in the same fashion with the remaining waypoints.
  3. (Optional) You can also create a loop / cycle of waypoints: right-click the last waypoint, select **Create Cycle**, then click the first waypoint.

The two or more waypoints are linked to create a more complex path.

**Image-14: An example path of two waypoints**



For information on how to link existing (F3) Waypoints Editor Objects and other Editor Objects, see [Linking Existing Waypoints to Other Editor Objects \(below\)](#).

## 11.1 Linking Existing Waypoints to Other Editor Objects

You can link existing (F3) Waypoints Editor Objects to the following Editor Objects (EOs) in the Editor Objects List:

- **(F1) Unit** - Assigns a waypoint to a unit (see Adding Units in the VBS4 Editor Manual).
- **(F2) Group** - Assigns a waypoint to a group (see Adding Groups in the VBS4 Editor Manual).
- **(F4) Vehicle** - Assigns a waypoint to a vehicle (see Adding Vehicles in the VBS4 Editor Manual).
- **(F7) Trigger** - Synchronizes a waypoint with a trigger (see Triggers in the VBS4 Editor Manual).  
For waypoint-to-waypoint synchronization, see [Waypoint Synchronization \(on page 48\)](#).

### Follow these steps:

1. Do one of the following:
  - For the **(F1) Unit** / **(F2) Group** / **(F4) Vehicle** EOs, right-click the (F3) Waypoints Editor Object, select **Link to Entity**.
  - For the **(F7) Trigger** EO, right-click the (F3) Waypoints Editor Object, select **Link to Trigger**.
2. Click the EO.

The link between the (F3) Waypoints EO and the other EO is established.

## 11.2 Branching Waypoints

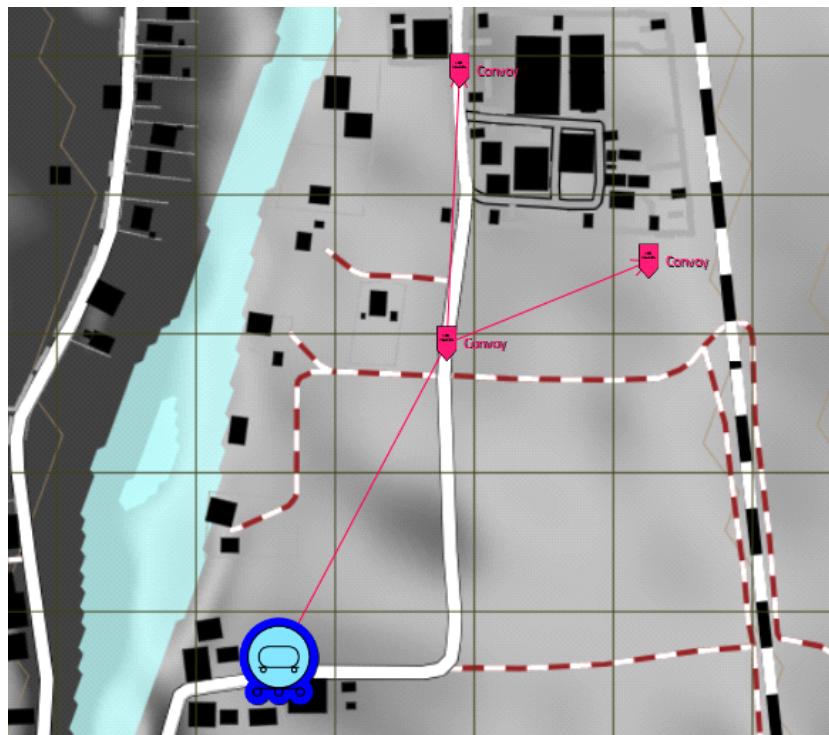
You can create branching waypoints for AI entities / groups to choose from (for example, based on trigger conditions).

**Follow these steps:**

1. Create an AI unit (or a vehicle that contains AI units, if creating a convoy) and select it.
2. Right-click the unit and select **Orders > Assign New Waypoint**, and then click the map where you want the branching waypoint to be.
3. In the **Behavior** list, select the AI Order (waypoint behavior), set the Order properties, and click **OK**.
4. Right-click the branching waypoint and select **Assign Next Waypoint**, and click the map, where a branch of the waypoint should be. Update the branch settings as required and click **OK**.
5. Repeat step 4, until you have all the waypoint branches.

The AI now has a branching waypoint. For a more detailed example, see Branching Orders in the VBS Control AI Manual.

**Image-15: Convoy branching waypoints**



## 11.3 Waypoint Synchronization

You can synchronize the execution of one waypoint / Order with another.

**Follow these steps:**

1. Create two waypoints.
2. Right-click one waypoint, and select **Sync to Waypoint**.
3. Click the other waypoint you want to synchronize with the first one.

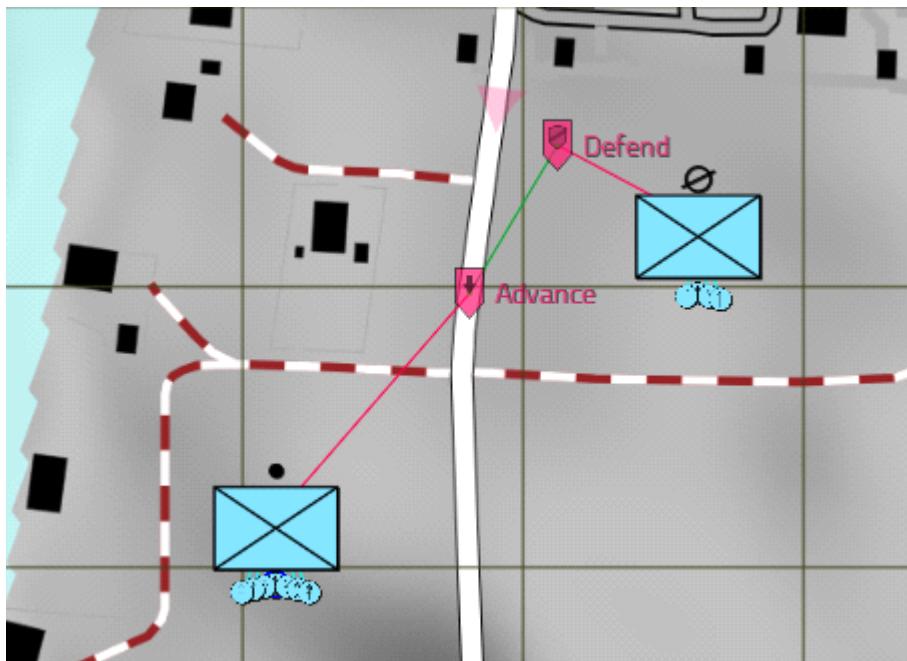
The two waypoints are synchronized.

**NOTE**

You can synchronize one waypoint to more than one waypoint.

To remove the waypoint synchronization, right-click the waypoint you want to unsynchronize and select **Sync to Waypoint**, then either click the specific waypoint you want to unsynchronize from, or click an empty location on the map to unsynchronize the former waypoint from all the waypoints it is synchronized with.

**Image-16: Synchronized Advance and Defend waypoints**



## 11.4 Waypoint Considerations

The following considerations apply to waypoints:

- It is possible to create chains of waypoints.
- Waypoint chains can contain branching waypoints.
- Deleting a waypoint in a chain automatically links the other waypoints to the next waypoint (if there is any).
- Waypoint name types and any waypoint status information is only displayed, if the waypoint is selected.

## 12. Advance Order

The group (infantry / vehicle / both) advances in formation to the given position (the location of the (F3) Waypoints Editor Object (see the VBS Control AI Manual) on the map), choosing the fastest path to the destination, while preferring speed of movement over engaging and eliminating the enemy.

### NOTE

The following considerations apply:

- In a chain of (F3) Waypoints Editor Object Orders (see [Waypoints \(on page 44\)](#)), the group occupies a position only if the Advance Order is the last (F3) Waypoints Editor Object.
- The Advance Order applies to infantry, land vehicles, and watercraft, while aircraft use the Fly Order, Loiter Order, and Land Order (see the VBS Control AI Manual) to move to the given position.
- Land forces can also use the Tactical Move Order (see the VBS Control AI Manual).

**Image-17: Advance Order settings**



### Follow these steps:

1. Select the **(F3) Waypoints** Editor Object from the Editor Objects List, and place it on the map.
2. In the **Behavior** list, select **Advance**.

3. In the **Weapon Control Status** drop-down, select the behavior for engaging enemy forces, when they are encountered:

Option	Description
No Change	No change in the behavior upon encountering enemy forces.
Weapons Free	Fire at enemy forces, when they are encountered.
Hold Fire	Do not fire at enemy forces, when they are encountered.

 **NOTE**

The Weapon Control Status is related to the following SQF commands:

- [combatMode](https://sqf.bisimulations.com/display/SQF/combatMode) (<https://sqf.bisimulations.com/display/SQF/combatMode>)
- [setCombatMode](https://sqf.bisimulations.com/display/SQF/setCombatMode) (<https://sqf.bisimulations.com/display/SQF/setCombatMode>)
- [unitCombatMode](https://sqf.bisimulations.com/display/SQF/unitCombatMode) (<https://sqf.bisimulations.com/display/SQF/unitCombatMode>)
- [setUnitCombatMode](https://sqf.bisimulations.com/display/SQF/setUnitCombatMode)  
(<https://sqf.bisimulations.com/display/SQF/setUnitCombatMode>)

4. In **Variable Name**, enter the Order waypoint name, which can be used in SQF scripts.

5. Set the Order waypoint completion settings:

Option	Description
Condition to Complete	Condition that needs to be fulfilled to complete the waypoint for the selected Order behavior.
Code on Completion	SQF code to execute on waypoint completion.

6. Click **OK**.

The Advance Order behavior is set up.

 **WARNING**

Bohemia Interactive Simulations advises scenario Administrators not to change the **Advanced** settings for the behavior to work correctly.

# 13. Triggers

A Trigger is an abstract game entity that waits until a certain condition returns true (for example, a unit or vehicle enters a specific area) and then carries out a specific action (for example, once a unit or vehicle has entered a specific area, an enemy ambush commences).

The location and dimensions of a Trigger are not always relevant, nor does a Trigger need to have any activation effects. Triggers may be linked to a unit or vehicle Editor Object, which means that only the linked unit or vehicle can activate the Trigger.

This topic covers the following Trigger aspects:

- [Basic Trigger Settings \(below\)](#)
- [Advanced Trigger Settings \(on page 58\)](#)
- [Trigger Shortcuts \(on page 61\)](#)
- [Trigger Linking \(on page 61\)](#)

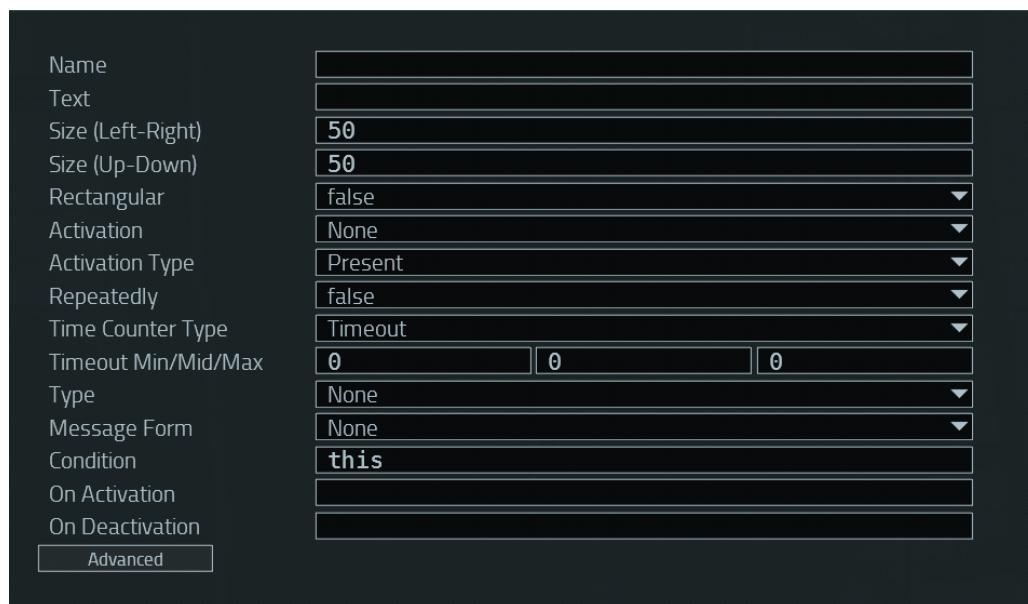
## 13.1 Basic Trigger Settings

You can add a Trigger to the map by specifying the basic Trigger settings.

**Follow these steps:**

1. Click the **Trigger** Editor Object type in the Editor Objects List, and double-click the 2D map.

The Trigger dialog appears:



- Fill in the **Basic Trigger Settings** (on the next page) (for advanced settings, see [Advanced Trigger Settings \(on page 58\)](#)):

**NOTE**

In a multiplayer environment, scripts running in the **Condition**, **On Activation**, **On Deactivation** fields are executed on each computer locally across the network. If the aim of a Trigger script is to execute once and have a global effect, an additional check must be added to make sure that the script does not run multiple times. In some cases, to synchronize the Trigger state across the network, a delay should be introduced (for example, if the Trigger activation leads to vehicle destruction) to avoid incorrect scenario behavior.

**WARNING**

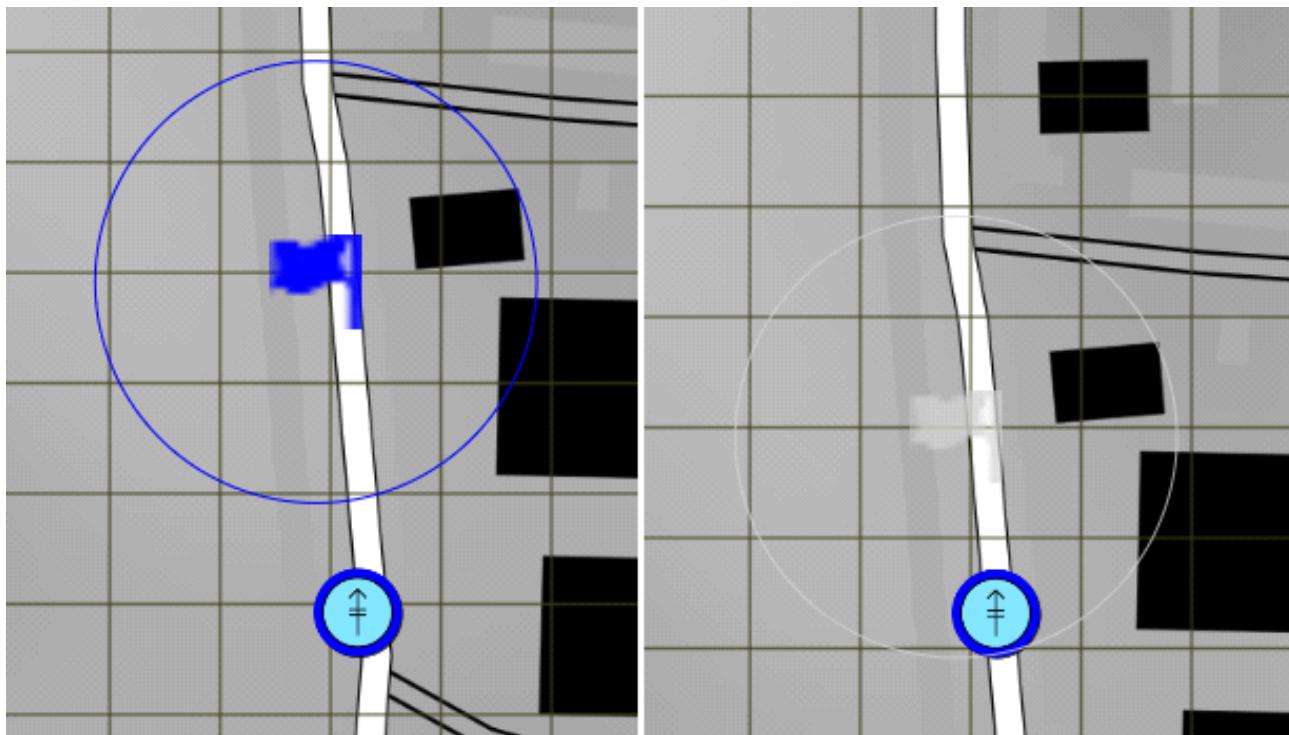
Administrators / Instructors who join a scenario in progress should be aware that they may see Trigger symbols on the 2D Map and Trigger options on the radio visualization, suggesting that they were not triggered when, in fact, they were and should be disabled.

- Click **OK** to create the Trigger.

The Trigger appears in the 2D view of VBS Editor.

When activated, the Trigger icon changes from **blue** to **gray**.

**Image-18: Trigger icon / activated Trigger icon**



## Basic Trigger Settings

Field	Description
<b>Name</b>	Defines the name of the Trigger, allowing it to be used in script code. The name must comply with normal variable name rules (no spaces, reserved characters or words allowed, and duplicate name warnings may not be given).
<b>Text</b>	If the Trigger is activated by a radio command, this text replaces the default radio command name in the command menu, and in the radio visible on the mission map.
	 <p>This text is also displayed in VBS Editor when the mouse cursor hovers over the Trigger, allowing the user to quickly identify what the Trigger is and what it does.</p>
<b>Size (Left-Right), Size (Up-Down)</b>	<p>These two options define the dimensions of the Trigger in meters, assuming the Trigger has not been rotated.</p> <p>For example, a Trigger area may be 50m x 50m, meaning that any unit that moves into this area activates the Trigger.</p>
<b>Rectangular</b>	Defines whether or not the Trigger is shaped as a rectangle or an ellipse.

Field	Description
<b>Activation</b>	<p>Provides a number of activation methods for the Trigger, and determines the value of the variable <b>this</b> in the <a href="#">Condition (on page 57)</a> field, each time the Trigger is evaluated.</p> <p><b>NOTE</b> If the Trigger is linked to a unit or group, only the relevant options are available.</p> <p>The options are:</p> <ul style="list-style-type: none"><li>• <b>None</b> - The Trigger relies solely on the result of the <a href="#">Condition (on page 57)</a> field to determine whether or not the <a href="#">On Activation (on page 58)</a> code needs to be executed.</li><li>• <b>OPFOR, BLUFOR, Independent, Civilian, Anybody</b> - Defines which unit side can activate the Trigger. For example, if activation is set to <b>OPFOR</b>, the Trigger executes the <a href="#">On Activation (on page 58)</a> code when an OPFOR unit or vehicle enters the Trigger area.</li><li>• <b>Game Logic</b> - Activated by a Game Logic (GL) object. For more information, see Game Logic in the VBS4 Editor Manual.</li><li>• <b>Radio Alpha - Radio Tango</b> - This Trigger is activated by a radio command available to all players who are group leaders and / or administrators (using the Command Menu, see 0. Radio in Commanding Subordinates in the VBS4 Trainee Manual).</li></ul>  <ul style="list-style-type: none"><li>• <b>Seized by BLUFOR / OPFOR / Independent</b> - The Trigger activates when the seizing side is deemed to be in control of the area. This Trigger type works with timeout values - a low level of presence activates the Trigger after a period of time closer to the maximum timeout, and the other way around. Depending on unit types, the seizing side can be outnumbered and still satisfy the minimum required level of presence for the maximum timeout.</li></ul> <p><b>NOTE</b> You can force the activation of a Trigger in Execute mode - right-click the Trigger in 2D view and select <b>Activate Trigger</b>.</p>

Field	Description
<b>Activation Type</b>	<p>If the Trigger activator is a side or an object, the Trigger is activated if that side / object is or is not present in the Trigger area.</p> <p>To be considered present, an object must be alive (or not destroyed). The options are:</p> <ul style="list-style-type: none"> <li>• <b>Present</b> - The Trigger activates when an object matching the <a href="#">Activation (on the previous page)</a> setting is in the Trigger area.</li> <li>• <b>Not Present</b> - The Trigger activates when no object matching the <a href="#">Activation (on the previous page)</a> setting is in the Trigger area.</li> <li>• <b>Detected by BLUFOR - Detected by Civilians</b> - The Trigger activates when a unit of the specified side is first detected. It has no relation to Trigger location or size. A unit is considered detected when the leader of any other group of a different side first identifies the unit in-game.</li> <li>• <b>EngagementStart</b> - The Trigger activates when an engagement starts.</li> <li>• <b>EngagementEnd</b> - The Trigger activates when an engagement ends.</li> </ul>
	<div style="border: 1px solid #0070C0; padding: 10px; margin-top: 10px;"> <span style="color: #0070C0; font-size: 1.5em; border-radius: 50%; width: 1.2em; height: 1.2em; display: inline-block; vertical-align: middle; margin-right: 0.2em;"></span> <b>NOTE</b>            Also depends on <b>Defeat Timeout</b> (see Define Scenario Settings in the VBS4 Editor Manual).         </div>
<b>Repeatedly</b>	<p>Defines how many times the Trigger can be activated. A setting of <b>true</b> means that the Trigger can be activated more than once.</p> <p>Only repeatable Triggers can be deactivated, since single-use (non-repeatable) Triggers remain active for the duration of the mission. Most repeatable Triggers can only be reactivated once they have been deactivated (radio Triggers do not follow this rule).</p> <div style="border: 1px solid #0070C0; padding: 10px; margin-top: 10px;"> <span style="color: #0070C0; font-size: 1.5em; border-radius: 50%; width: 1.2em; height: 1.2em; display: inline-block; vertical-align: middle; margin-right: 0.2em;"></span> <b>NOTE</b>            If set to <b>true</b>, the Trigger icon remains blue throughout the scenario, if set to <b>false</b>, the Trigger icon changes to gray when it is activated, see <a href="#">Trigger icon / activated Trigger icon (on page 53)</a>.         </div>
<b>Time Counter Type</b>	<p>Selects the type of countdown timer used for the Trigger:</p> <ul style="list-style-type: none"> <li>• <b>Countdown</b> - The condition must be true for the entire length of the timer before the Trigger activates.</li> <li>• <b>Timeout</b> - Once the condition is met, the timer runs, and then the Trigger activates (does not matter if the condition is no longer true at this point).</li> </ul>
<b>Timeout Min/Mid/Max</b>	<p>These counters add a degree of randomness to Triggers to make Trigger activation less obvious to the player. These values specify a delay in seconds prior to Trigger activation. The <b>Min</b>, <b>Mid</b>, and <b>Max</b> values define the delay in seconds, and if the values are different, then a random value between them is determined.</p>

Field	Description
Type	<p>These are several types of Trigger activation effects and abstract types that are generally unavailable through script code. They take place immediately after the <a href="#">On Activation (on the next page)</a> code block is executed.</p> <p>The options are:</p> <ul style="list-style-type: none"><li>• <b>None</b> - The Trigger has no effect other than that which is scripted in the <a href="#">On Activation (on the next page)</a> block (this is the default).</li><li>• <b>Guarded by BLUFOR / OPFOR / Independent</b> - The Trigger center point defines a point to be guarded. A group must be linked to the Trigger for this option to be valid.</li></ul>
	<div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"><p><b>NOTE</b></p><p>While available in the menu, these three options are not implemented in VBS4.</p></div>
	<div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"><p><b>NOTE</b></p><p>This option is deprecated.</p></div>
	<div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"><p><b>NOTE</b></p><p>This option is deprecated.</p></div>
Message Form	<p>Use the drop-down to select a form to be automatically sent when the Trigger activates (<a href="#">Contact Report</a>, <a href="#">LOCSTAT</a>, <a href="#">MEDEVAC</a>).</p> <p>For more information about forms, see <a href="#">Using Forms in the VBS4 Trainee Manual</a>.</p>
Condition	<p>The Trigger activates when this script code block returns true. In the script code block, the variable <b>this</b> refers to any conditions chosen in the <a href="#">Activation (on page 55)</a> options above, and <b>thisList</b> refers to an array of objects that are currently inside the Trigger area and are on the activation side or option chosen (<b>thisList</b> does not always refer to units that are activating the Trigger).</p> <p>If the activation type is not side related, <b>thisList</b> returns an empty array, and a seized-by-side Trigger returns units of any side. If you leave the <a href="#">Condition (above)</a> box blank, the Trigger never activates. Using a script code based condition allows for the creation of more complex activation requirements, including multiple <b>and</b> / <b>or</b> conditions.</p>

Field	Description
<b>On Activation</b>	This script code block is executed when the Trigger conditions are met, irrespective of the Trigger type. Any actions defined by the Triggers type take place immediately after this activation block begins.
<b>On Deactivation</b>	This script code block is executed the first time a repeatable Trigger condition returns false after having been previously true. Radio Trigger types do not deactivate, or at least never execute the <b>On Deactivation</b> block. As for the <b>On Activation (above)</b> block, the special variables <b>thisList</b> and <b>this</b> retain the same meanings.

## 13.2 Advanced Trigger Settings

You can specify advanced Trigger settings add effects to the Trigger behavior.

### Follow these steps:

1. To specify advanced settings, click the Trigger object on the map, and click **Advanced**.

The advanced Trigger settings appear in the Trigger dialog:

Effect Condition	<b>true</b>
Anonymous	= No Sound =
Voice	= No Sound =
Environment	No Sound
Trigger	No Sound
Track	No Music
Type	None

2. Fill in the following fields:

Field	Description
<b>Effect Condition</b>	Must evaluate to true (in addition to the main Trigger condition) for the effect to be activated.
<b>Anonymous</b>	A sound effect that is played everywhere.
<b>Voice</b>	A sound effect that comes from the position of the Trigger.
<b>Environment</b>	A non-locational sound (for example, wind) that seems to come from everywhere.
<p><b>NOTE</b> The options <b>Meadows</b> and <b>Trees</b> are deprecated, and therefore, non-functional.</p>	
<b>Trigger</b>	A brief sound effect (for example, alarm bell).
<b>Track</b>	An ambient sound effect (such as music), based on the values available in the drop-down, that plays when the effect condition is true and the trigger is activated. To insert other custom sound effects, see Custom Sounds and Conversations in the VBS4 Scripting Manual and Sound Configuration in the VBS Developer Reference.
<p><b>NOTE</b> The other custom sound effects are not added to the <b>Track</b> drop-down.</p>	

3. Specify the [Type Effects \(on the next page\)](#).

4. Click **OK** to update the Trigger.

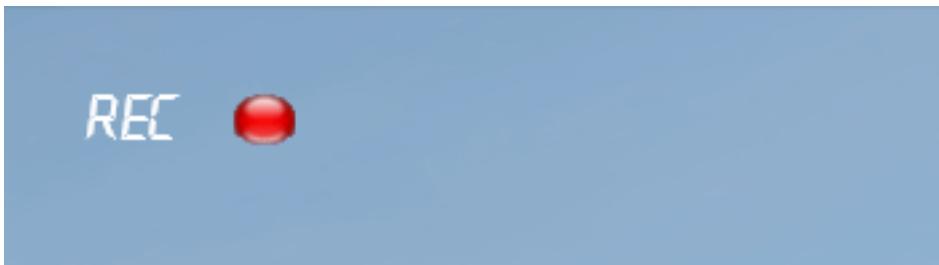
The Trigger is updated with the advanced settings.

## Type Effects

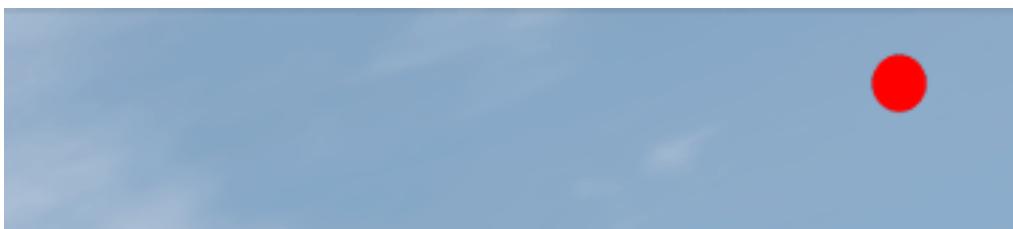
- **None** - No effect.
- **Resource** - Offers several game resources that can be displayed (each game resource has additional fade effects that can be specified in the **Effect** field, see [Fade Effects \(below\)](#)):
  - **binocular** - Displays a binoculars view:



- **RECORDing** - Displays a recording sign:



- **Recording sign** - Displays another recording sign:



- **Object** - Even though it is selectable, no options are available for this effect type in VBS4.
- **Text** - The message to display.

## Fade Effects

The fade effects are:

- **PLAIN** - Displays the specified text / object / resource.
- **PLAIN FADED** - Displays the specified text / object / resource. Plain text is shown near the bottom of the screen.

- **BLACK** - Causes the screen to turn completely black, and displays the optional text / object / resource. All other GUI is hidden behind this black screen.
- **BLACK FADED** - Causes the screen to turn completely black without fading in, and displays the optional text / object / resource. All other GUI is hidden behind this black screen. If **speed** is not specified, the black screen and the displayed element disappears instantly after 5-10 seconds. Otherwise, it stays black with the element still visible.
- **BLACK OUT** - Same as **BLACK**.
- **BLACK IN** - Reveals the GUI after the black screen is withdrawn along with the optional text / object / resource.
- **WHITE OUT** - Causes the screen to turn completely white, and displays the optional text / object / resource. All other GUI is hidden behind this white screen. This can easily blind the player, so it should be used with caution. Make sure that fade-in time is set when using this option.
- **WHITE IN** - Withdraws the white screen and reveals the GUI.

## 13.3 Trigger Shortcuts

Triggers can be copied and pasted just like all other Editor Objects.

Once a Trigger is added, there are two specific mouse and keyboard combinations that can be used:

- **Rotate Trigger** - Hold **LShift**, hold the **RMB**, and move the mouse left to right to rotate the Trigger once it is added to the map (as if you are rotating a unit or vehicle).
- **Change Trigger Activation Area** - Hold **LAlt**, hold the **RMB**, and move the mouse forward and back to change the size of the Trigger activation area in-game.

## 13.4 Trigger Linking

It is possible to link units and vehicles to Triggers.

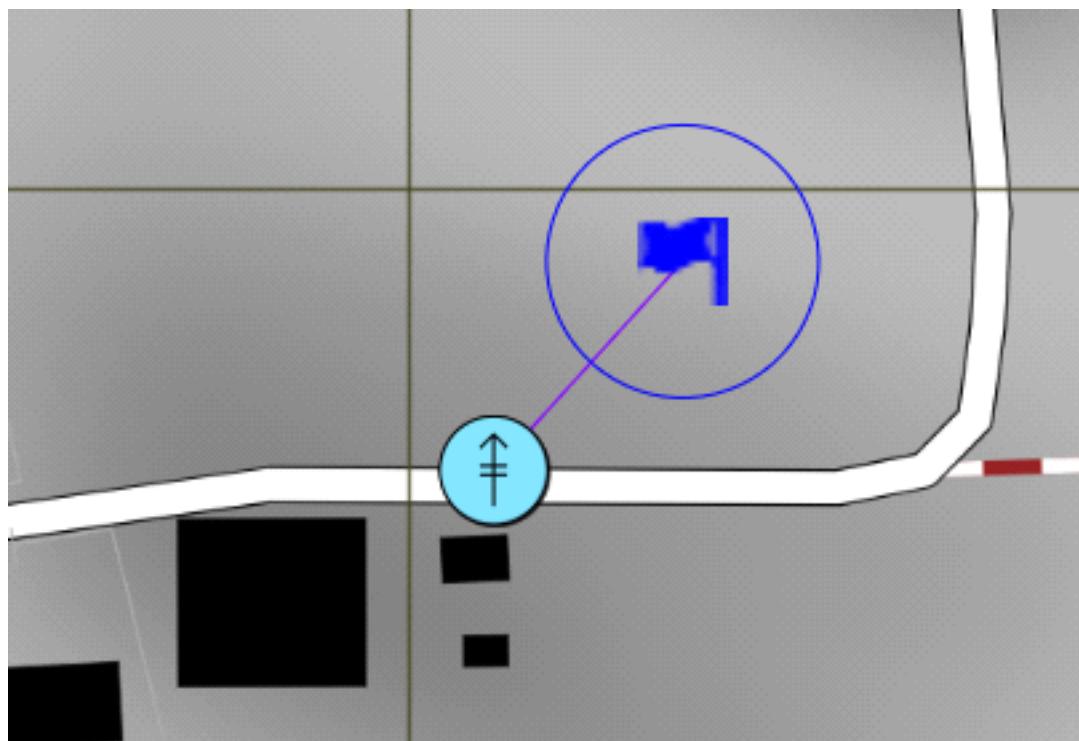
**Follow these steps:**

1. Right-click a unit or a vehicle Editor Object in the VBS Editor 2D view.
2. Click **More... > Attach to Trigger** in the context menu.

The link arrow is drawn from the Trigger to the mouse cursor position.

3. Click the Trigger you wish to link to.

A line is drawn from the unit or vehicle to the Trigger to indicate the link.

**Image-19: A vehicle linked to a Trigger**

Once the link is in place, the Trigger does not activate unless all linked units and vehicles are within the Trigger area.

**NOTE**

If you set **Activation** to **Radio**, the other units linked to the Trigger do not affect the Trigger activation - making a radio call is enough to activate the Trigger.

To clear a Trigger link, repeat steps 1 and 2 of the previous procedure, and click an empty space in the 2D view.

# 14. Unit Path Recording (UPR)

Unit Path Recording (UPR) enables the playback of pre-recorded character movement and actions during a mission. The AI character assigned to the path follows the recorded path reliably and repeatedly without any random deviations.

UPR is designed to record basic land movement.

## Follow this process:

1. [Create UPRs \(below\)](#) using VBS Editor in Prepare Mode to record a character path.
2. [Use UPRs \(on page 66\)](#) using VBS Editor in Prepare Mode to add recorded paths to a Scenario.
3. **Optional:** Use [UPR Scripts \(on page 68\)](#) to execute UPR commands with SQF scripting.

For vehicle path recording, see Vehicle Path Recording (VPR) in the VBS4 Editor Manual.

## UPR Records:

- Character movement and stance.
- Primary, secondary, and pistol weapons firing.
- Grenade throwing.

## UPR Limitations:

- UPR ignores vertical movement, unless there are stairs.
- UPR does not record opening doors or climbing ladders.
- UPR does not record underwater diving - it replays as floating on the surface.
- UPR does not record skydiving.
- If the AI unit stops to engage the enemy, it does not return to its recorded path after the engagement.

UPR requires a UPR Editor Object, a recording, and an AI character unit.

## 14.1 Create UPRs

Create a UPR by recording a character path while controlling the character.

### Follow these steps:

1. Ensure that there is a control binding for **Player Path Recording**. Open the Controls Settings, and filter for **Editor Controls**. By default, **Player Path Recording** is bound to P.
2. Open the VBS Editor in Prepare Mode on the terrain where you want to use the recording later.

3. Place the character unit you intend to use during playback.

**NOTE**

The unit is not strictly tied to the recording. It is possible to use a different unit for playback, but the visual simulation of the character may be degraded (for example, if the unit does not carry the same weapons).

4. Preview the mission (press **Scenario Preview (H)**).
5. Open the VBS Editor in Preview Mode (press **Map (M)**).
6. Open the **Tools** menu and select **Enable Record Path Hot Key**.
7. Press **Esc** to return to the simulation.
8. Maneuver the character to the point where you want the recorded path to start.
9. Press **Player Path Recording (P)** to start Unit Path Recording.

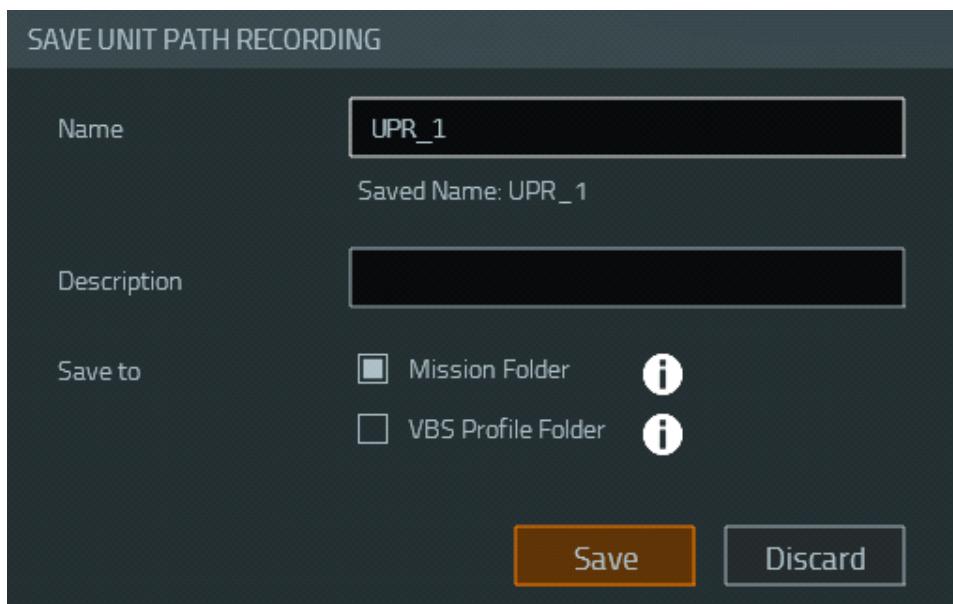
The HUD displays the current duration of the recording.



10. Maneuver the character along the path you require, performing posture changes, and weapon use as required.
11. To finish your recording, press **Player Path Recording (P)** to open the Save Recording dialog.

**NOTE**

Recording automatically stops if the character enters a vehicle, is killed, or a body part is amputated.



12. Input a **Name** and a **Description** for the recording.

13. Do one of the following:

- Check **Mission Folder**, if you want to save the recording to the Battlespace folder:

`\Battlespace Folder\UnitPathRecordings\`

- Check **VBS Profile Folder**, if you want to save the recording to the VBS4 Profile folder:

- Default VBS4 Profile location:

`\Documents\VBS4\UnitPathRecordings\`

- Other VBS4 Profile location:

`Path\User\UnitPathRecordings`

`Path` is specified using the `-profiles=Path` command-line option.

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

 **NOTE**

The following considerations apply:

- When there are two recordings with the same name in the **Mission Folder** and **VBS Profile Folder**, the former takes priority.
- To use the UPR in a multiplayer network mission, copy the path recording from your **VBS Profile Folder** location to the following folder on the server hosting the mission, or to the mission folder you want to pack:

`\Documents\VBS4\Battlespaces\Battlespace\Missions\Battlespace\UnitPathRecordings\`

14. Click **Save** to save the recording. If you want to discard the recording, click **Discard**.

The UPR recording is saved as a `Recording_Name.path` file, and you can also use it with an AI character.

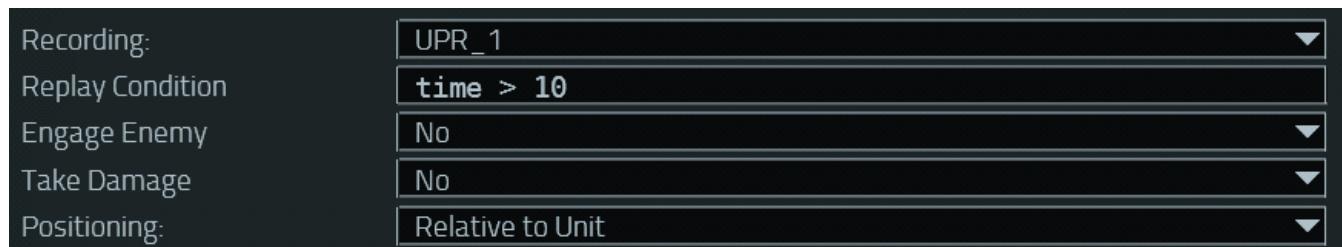
## 14.2 Use UPRs

Select UPRs in a scenario to replay the recorded path as part of the scenario.

### Follow these steps:

1. Open or create a mission on the terrain you wish to use the recording on.
2. Select the **Unit Path Recording** Editor Object, right-click on the map, and select **New Object**.

The UPR Object Properties dialog opens:



3. Set the following object properties, and click **OK**:

- **Recording:** Select the recording you want to use.

**NOTE**

Only recordings made on the same terrain are available. The editor displays the recording names without their timestamps, so multiple recordings with the same name may appear. Recordings are listed in time order, oldest first.

- **Replay Condition:** Select a condition for the recording to play. The default is a 10 second delay, but you can specify any valid script syntax. Use scripting that returns a Boolean true or false result.
- **Engage Enemy:** Select this to enable the AI character to stop following the recording and respond to enemy action instead.
- **Take Damage:** Select this to enable the AI character to take damage during playback.
- **Positioning:** Select **As Recorded** to use the start position of the recording or **Relative to Unit** to use the linked character position as the start point.

**NOTE**

Using **Relative to Unit** may have undesirable results. Due to changes in the relative positions of objects and buildings, the AI character may encounter obstacles that were not present on the recorded path. AI characters always follow the recorded path and walk through these obstacles as if they were not present.

The map displays a green icon with the name of the recording and a path indication.



4. Add the AI character unit that you want to follow the path to the map as an AI character.

**i** **NOTE**

If you use **As Recorded**, the character teleports to the start position when the path start condition is met. Place the character as close as possible to the start point with the appropriate orientation.

5. Right-click the UPR Editor Object icon, select **Link to Unit**, and click on the AI character.

When the mission starts, the AI character follows the recorded path when the conditions are met and performs the same posture changes and primary weapon actions. When the recording ends, the AI character resumes its previous behavior.

## 14.3 UPR Scripts

VBS4 includes scripting functionality to support Unit Path Recording. For more information, see the following topics in the [VBS Scripting Reference](#) (<https://sqf.bisimulations.com/display/SQF/VBS+Scripting+Reference>):

### Script Commands:

- [uprStartRecording](#) (<https://sqf.bisimulations.com/display/SQF/UPRStartRecording>)
- [uprStopRecording](#) (<https://sqf.bisimulations.com/display/SQF/UPRStopRecording>)
- [uprSaveRecording](#) (<https://sqf.bisimulations.com/display/SQF/UPRSaveRecording>)
- [uprDiscardRecording](#) (<https://sqf.bisimulations.com/display/SQF/UPRDiscardRecording>)
- [uprStartPlayback](#) (<https://sqf.bisimulations.com/display/SQF/UPRStartPlayback>)
- [uprStopPlayback](#) (<https://sqf.bisimulations.com/display/SQF/UPRStopPlayback>)
- [uprGetMetaInfo](#) (<https://sqf.bisimulations.com/display/SQF/UPRGetMetaInfo>)
- [uprGetTimelineInfo](#) (<https://sqf.bisimulations.com/display/SQF/UPRGetTimelineInfo>)
- [uprRecordingUnits](#) (<https://sqf.bisimulations.com/display/SQF/UPRRecordingUnits>)
- [uprPlaybackUnits](#) (<https://sqf.bisimulations.com/display/SQF/UPRPlaybackUnits>)

### Event Handlers:

- [uprRecordEnd](#)  
(<https://sqf.bisimulations.com/display/SQF/VBS+Event+Handlers#VBSEventHandlers-UPRRecordEnd>)
- [uprPlaybackEnd](#)  
(<https://sqf.bisimulations.com/display/SQF/VBS+Event+Handlers#VBSEventHandlers-UPRPlaybackEnd>)

## 15. Artillery Strike

VBS4 includes an option to provide real-time Artillery Strike support, using the Artillery Strike Editor Object (EO). Placing physical artillery on the map is not required.

### NOTE

To add aircraft support to missions, see Close Air Support in the VBS4 Editor Manual. Existing missions that use the previous version of the Artillery Strike object still function correctly.

In the Editor Objects List, select **Artillery Strike**, and double-click the location of the strike in the map.



## Follow these steps:

1. Select the **Ordnance** you want to use.
2. Select the **Warhead** you want to use. The options depend on the selected **Ordnance**.

### NOTE

The following considerations apply:

- Chemical warheads are configurable, see Configure CBRN Weapons in the VBS Developer Reference.
- The 155 mm SM BONUS warhead requires that target vehicle engines are hot. If a target vehicle is standing idle, the BONUS round does not hit it. The target vehicle must either move or have the following script placed in the **Initialization Statements** field of its Object Properties dialog:

```
this engineOn true; this setVehicleTiPars [1, 0.3, 0];
```

3. Select the **Fuse Type** to use from the drop-down menu (the available Fuse Type is dependent on the Warhead selected in step 4).

Fuse types have the following specific behavior.

Fuse	Description
<b>High Altitude Burst</b>	Explodes high above the target.
<b>Quick / Impact</b>	Ordnance explodes on contact.
<b>Delay</b>	Ordnance explodes after the specified <a href="#">Fuse Time (0.00s) (below)</a> .
<b>Fuse Time (0.00s)</b>	Available if <a href="#">Delay (above)</a> is selected, with a range from 0.00 s to 0.05 s.
<b>Proximity</b>	Ordnance explodes at the specified distance from the target.
<b>Fuse Distance</b>	Available if <a href="#">Proximity (above)</a> is selected, and ranges from 10 ft to 43 ft (or 3 m to 13 m if the metric system is used).
<b>Near Surface Blast</b>	Ordnance explodes just above the target.

4. Specify a **Dispersion Diameter (ft / m)** to determine the possible target area. The rounds fall in a random position within the area specified.

**i NOTE**

You can adjust the dispersion diameter directly from the map screen in the same way as resizing a trigger or marker. Hold **LAlt + RMB** and move the mouse forward and back to change the size of the dispersion area.

5. Specify the **No. of Rounds** each gun in the battery fires.

**i NOTE**

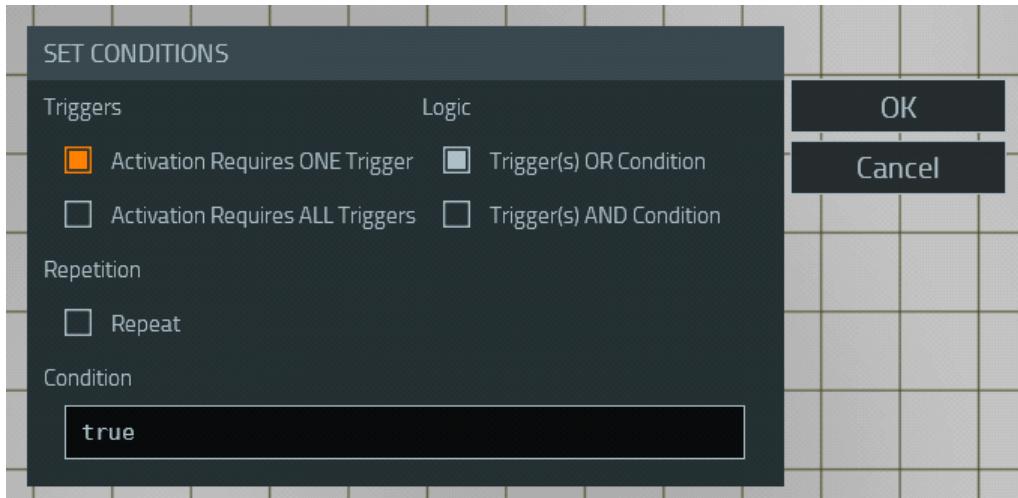
When using CBRN rounds, the recommended maximum you can use at one time is 10, depending on your hardware configuration.

6. Specify the **Gun Reload Time (s)** to determine the time between firing rounds.
7. Specify the **No. of Guns** in the battery.
8. Specify a **Delay Between Guns (s)** to determine a firing delay between guns in the battery.
9. Specify a **Delay Until Start (s)** to determine when the Artillery Strike begins.
10. **Optional:** Click **Set GPS Coordinates** to open the GPS Coordinate Settings dialog and specify a new target location.

11. **Optional:** Click **Set Conditions** to specify a set of scripted conditions or triggers required to start the Artillery Strike.

**NOTE**

To associate an Artillery Strike with a Trigger, see [Artillery - Trigger Synchronization \(on page 74\)](#).



Condition	Description
<b>Activation requires ONE Trigger</b>	Artillery Strike starts when one of the triggers linked to it is activated.
<b>Activation requires ALL Triggers</b>	Artillery Strike starts when all the triggers linked to it are activated.
<b>Trigger(s) OR Condition</b>	The conditions of the triggers (linked to the Artillery Strike EO) are evaluated using logical OR.
<b>Trigger(s) AND Condition</b>	The conditions of the triggers (linked to the Artillery Strike EO) are evaluated using logical AND.
<b>Repeat</b>	If selected, the Artillery Strike is repeated every time the conditions set in <b>Triggers</b> , <b>Logic</b> , and <b>Condition</b> are met.
<b>Condition</b>	Another condition that is taken into account, when the conditions of the linked triggers are evaluated.

12. Click **OK**.

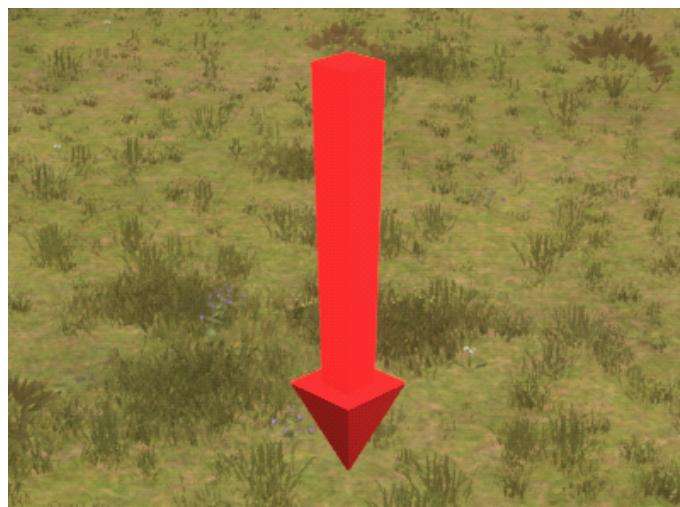
The VBS Editor adds an Artillery Strike icon to the 2D map in the target location, surrounded by an oval to indicate the dispersion area. When the scenario runs, the Artillery Strike starts based on any delay specified, or when the scripted conditions are met.

In 3D Camera View, the Artillery Strike target position displays a 3D arrow.

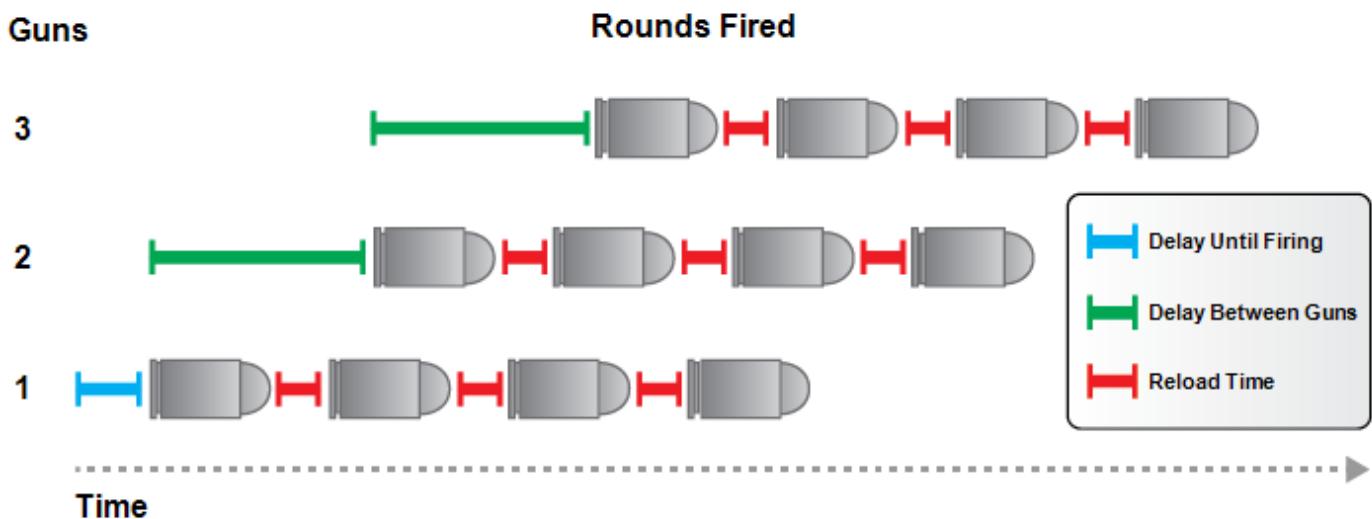
Both the Artillery Strike icon and the 3D arrow change color, based on the time remaining to the firing of the artillery strike.

Color	Description
Green	>10s to firing
Yellow	<10s to firing
Red	Fired

**Image-20: Artillery Strike 3D arrow**



The following diagram illustrates the firing pattern of a 3 gun battery, with firing delays before the start, between rounds, and between guns.



## 15.1 Artillery - Trigger Synchronization

You can synchronize the activation and / or the deactivation of a trigger with an Artillery Strike Editor Object.

### Follow these steps:

1. In Prepare Mode, create and place both **Artillery Strike** and **Trigger** Editor Objects on the map.

 **NOTE**

For the synchronization to work correctly, the linkage has to be done in the Prepare mode rather than in Execute mode.

2. Right-click the **Artillery Strike** object, select **Link to Condition Trigger**, and click the **Trigger** object.

The **SET CONDITIONS** dialog appears.

3. Click **OK** twice.

The Artillery Strike is now synchronized with a trigger.

# 16. Fire Support

Administrators can request Fire Support from certain AI-controlled vehicles.

Fire Support can be provided by any ship, wheeled, tracked, or static vehicle that meets the following criteria:

- At least one weapon turret.
- An AI unit in a position with a turret.
- A primary weapon that is an area weapon, such as a machine gun, grenade launcher, or artillery.
- The vehicle must contain only AI units.

## NOTE

In addition, there are the following limitations:

- The entities providing fire support cannot follow the AI Order waypoints after the fire support is completed. For more information, see One AI in the VBS4 Release Notes.
- Fire Support vehicles do not reposition in order to fire. They must be positioned so that the target is within their turret traverse limits.
- Fire support is available for helicopters, but the results are unreliable due to the typically small traverse limits on helicopter turrets.
- The AC-130 aircraft may not provide Fire Support with the desired accuracy of land-based artillery vehicles, since it is primarily designed to be used by a human-controlled weapons operator, rather than by an AI gunner and AI pilot.
- For artillery vehicles (such as mortars, howitzers, ship mounted cannons, and rocket launchers), setting a high trajectory is recommended. However, due to the small firing range on some maps, they may not be usable.

## Follow these steps:

1. In Execute mode, right-click the vehicle you want to provide Fire Support, and select **Orders > Order Fire Support**.

## NOTE

If this option is not available in the context menu, the vehicle is not able to provide Fire Support.

A black arrow appears on the map, linked from the vehicle to your cursor.

2. Click the location on the map you want the support vehicle to target.

The Fire Support Object Properties dialog opens.



3. Input the [Fire Support Settings \(below\)](#).

4. Click **OK**.

VBS4 places a target icon on the map, linked to the Fire Support vehicle by a red line, and the vehicle fires either immediately or after the specified delay.

To cancel a Fire Support order, right-click the target icon, and select **Delete Object**.

### Fire Support Settings

Property	Description
Turret	Select the vehicle turret to use.
Weapon	Select the weapon you want to use (depends on the turret selected).
Ammo	Select the ammunition you want to use (depends on the weapon selected).

**NOTE**  
Illuminating rounds and smoke-airburst rounds have a default detonation height above the target.

Property	Description
Trajectory	For weapons that allow elevations greater than 45 degrees, you can select a <b>Default</b> or <b>High</b> trajectory.
	<div style="border: 1px solid #0070C0; padding: 10px; margin-top: 10px;"><p><b>i</b> <b>NOTE</b></p><p>High trajectory fire takes longer to reach the target and has shorter minimum and maximum ranges, but the increased angle can hit targets that are behind terrain or buildings.</p></div>
Fire Type	Select the weapon fire mode: <ul style="list-style-type: none"><li>• <b>Single</b></li><li>• <b>Burst</b></li><li>• <b>Automatic</b></li></ul> The available options depend on the weapon type.
	<div style="border: 1px solid #0070C0; padding: 10px; margin-top: 10px;"><p><b>i</b> <b>NOTE</b></p><p>The Weapon Information section at the bottom of the dialog updates depending on your selection.</p></div>
Number of Rounds	Input how many times the weapon should fire.
Charge Weight ( $N$ )	When applicable, use the slider to select a charge weight (1 - $N$ ).
Delay Between Rounds / Bursts	Input a time delay in seconds between firing: <ul style="list-style-type: none"><li>• <b>Single</b> - This is the delay between each shot.</li><li>• <b>Burst</b> - This is the time delay between the first shot of each burst.</li><li>• <b>Automatic</b> - Not applicable.</li></ul>
Delay Before Start	Input a time delay in seconds before the first shot. The time delay starts when you click <b>OK</b> .
Output Information	Select the level of feedback sent to your side chat for the Fire Support action: <ul style="list-style-type: none"><li>• <b>No Output</b> - No messages display.</li><li>• <b>Full Output</b> - Messages appear when fire support starts, for each shot / burst fired, and when fire support ends.</li><li>• <b>Start / End</b> - Messages appear when fire support starts and finishes.</li></ul>

Property	Description
<b>Weapon Information</b>	Applies to vehicles that do not have a direct line-of-sight to the target, or are firing at elevations greater than 45 degrees to provide feedback about the validity of the configured firing solution: <ul style="list-style-type: none"><li><b>Solution</b> - Valid / Target is out of range.</li><li><b>Estimated Time of Arrival</b> - Shown in seconds.</li><li><b>Optimal Charge Weight</b> - Shown as an integer.</li></ul>

**i NOTE**

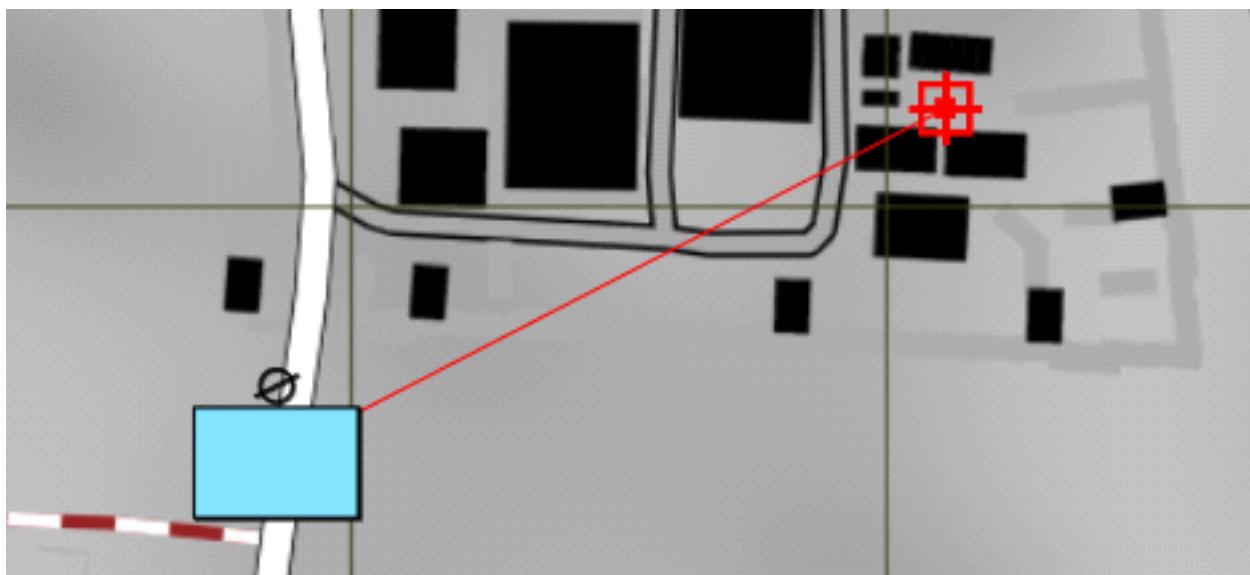
This section shows only for weapons that have charge weights.

If the weapon cannot fire at the specified target (for example because of a limited firing arc or elevation), an appropriate message displays in your side chat (in Full Output and Start / End mode), and the Fire Support task is canceled.

**i NOTE**

If you exit Execute mode before any ongoing Fire Support finishes the firing stops. If you order multi-round Fire Support you can move the target location (click and drag) between rounds, or cancel the Fire Support request.

**Image-21: Fire Support vehicle linked to a target icon**



In 2D map view, vehicles with a direct line-of-sight to the target have a red target icon and line. Vehicles without a direct line-of-sight to the target have a yellow line and target icon (Preparing), followed by a blue line and target icon (Firing).