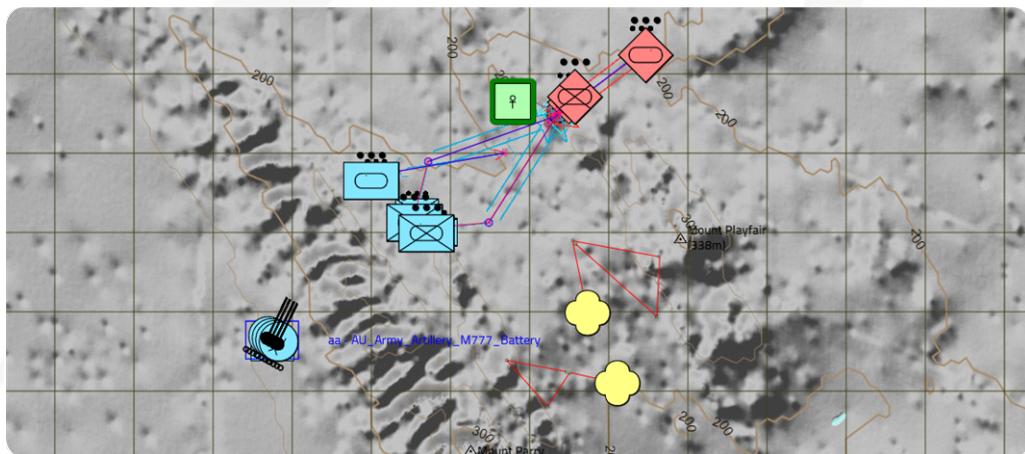


Artillery Support in VBS Plan



VBS4 24.1.1



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The BISim Wiki is the primary resource on VBS4 scripting:

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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. Artillery Support in VBS Plan

VBS Plan works together with VBS Call for Fire, and supports the execution of fire missions by all artillery tactical units in all the available ORBATs. These fire missions can be built in VBS Plan and are converted to VBS Call for Fire fire missions and gunlines that can be accessed and modified through the Fire Direction Center (FDC) UI (see [VBS Call for Fire - FDC UI \(on page 72\)](#)).

Add fire missions in VBS Plan using the Fire Mission Order (see [Fire Mission Order Tool \(on page 30\)](#)).

In addition, VBS Plan supports tactical defense behaviors for all tactical units, besides artillery.

Add defense behaviors in VBS Plan using the Defend Order (see [Defend Order Tool \(on page 57\)](#)).

For a walkthrough example of an artillery and defense scenario, see:

- [Artillery Support in VBS Plan Example \(below\)](#)

The general workflow of an artillery and defense simulation in VBS4 contains two parts:

- [Artillery Support Preparation \(on page 22\)](#)
- [Artillery Support Execution \(on page 23\)](#)

1.1 Artillery Support in VBS Plan Example

The purpose of this example is to create an AU Army scenario with artillery and defense behaviors using VBS Plan.

The scenario takes place in Australia and consists of the following Tactical Units (see [Units Tool \(on page 24\)](#)) and ambient wildlife:

- BLUFOR AU Army units:
 - 1 Artillery Battery (M777)
 - 1 Troop (M1A1)
 - 2 Platoon (M113A4)
- OPFOR units:
 - 1 Platoon (BMP-2)
 - 1 Platoon (T-80)
- Ambient wildlife:
 - Kangaroos

Scenario Execution Workflow

NOTE

Times are set in relation to the Elapsed / Mission Time, whichever is used. For more information, see Synchronize Time in the VBS4 Editor Manual.

1. **2 Platoon (M113A4)** execute an Advance Order (see [Advance Order Tool \(on page 40\)](#)) and Assault Order (see [Assault Order Tool \(on page 44\)](#)) on **1 Platoon (BMP-2)**, while the latter execute a Defend Order (see [Defend Order Tool \(on page 57\)](#)).
2. **1 Troop (M1A1)** execute Suppress Orders (see [Suppress Order Tool \(on page 48\)](#)) using an Objective Control Measure (see [Objective Tool \(on page 52\)](#)) on **1 Platoon (BMP-2)**, while the latter continue executing the Defend Order.
3. **1 Artillery Battery (M777)** fire at **1 Platoon (BMP-2)** using the Fire Mission Order (see [Fire Mission Order Tool \(on page 30\)](#)) and Target Control Measure (see [Target Tool \(on page 36\)](#)).
4. **1 Platoon (T-80)** counterattacks **2 Platoon (M113A4)** and **1 Troop (M1A1)** using an Assault Order, while **1 Artillery Battery (M777)** executes a fire mission using VBS Call for Fire (see [VBS Call for Fire - FDC UI \(on page 72\)](#) and [VBS Call for Fire Mission Management \(on page 78\)](#)) on **1 Platoon (T-80)**.

The scenario is divided into Preparation and Execution phases:

- [Artillery Support Example Preparation \(below\)](#)
- [Artillery Support Example Execution \(on page 22\)](#)

1.1.1 Artillery Support Example Preparation

The Preparation phase consists of creating the Battlespace located in Australia, setting up the Tactical Units, Orders, Control Measures, and ambient wildlife.

Follow these steps:

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

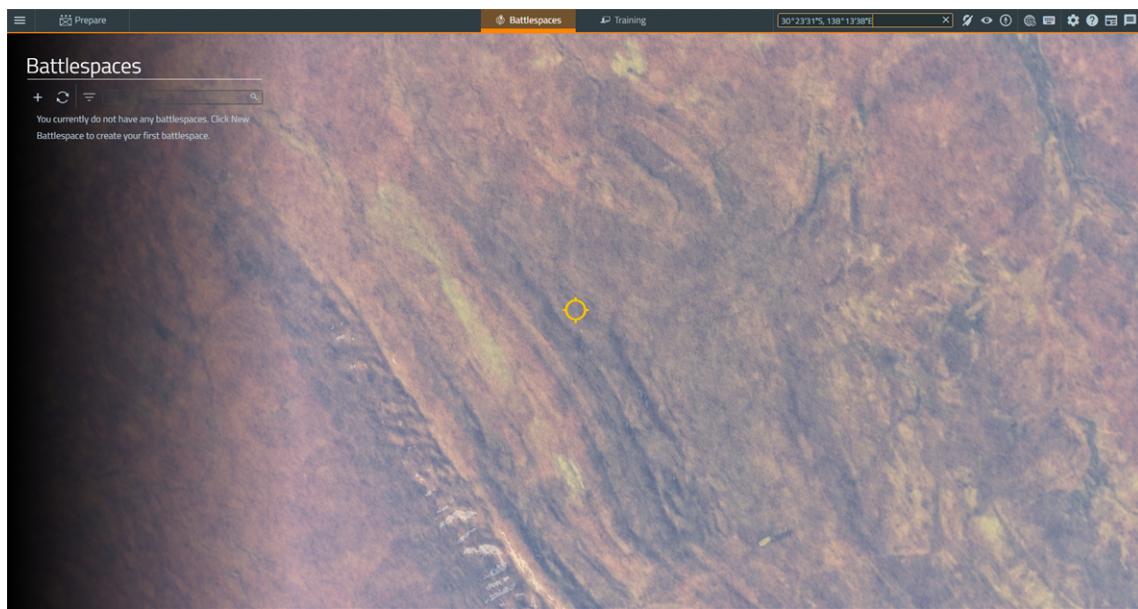
NOTE

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

2. In the Search Bar of the VBS4 Toolbar, input the coordinates **30°23'31"S, 138°13'38"E**, and then press **Enter**.

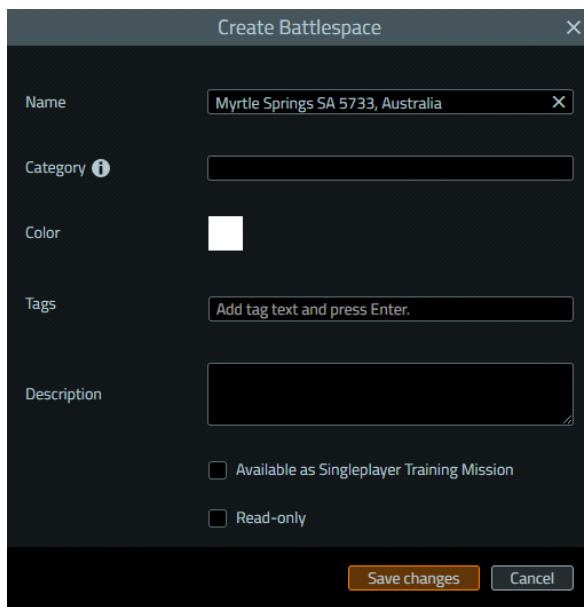
The Whole-Earth Terrain rotates directly above the specified location in Australia.

Use the **Mouse Scroll Wheel** to zoom in to view the area displayed.



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

The Create Battlespace dialog opens, displaying the selected coordinates.

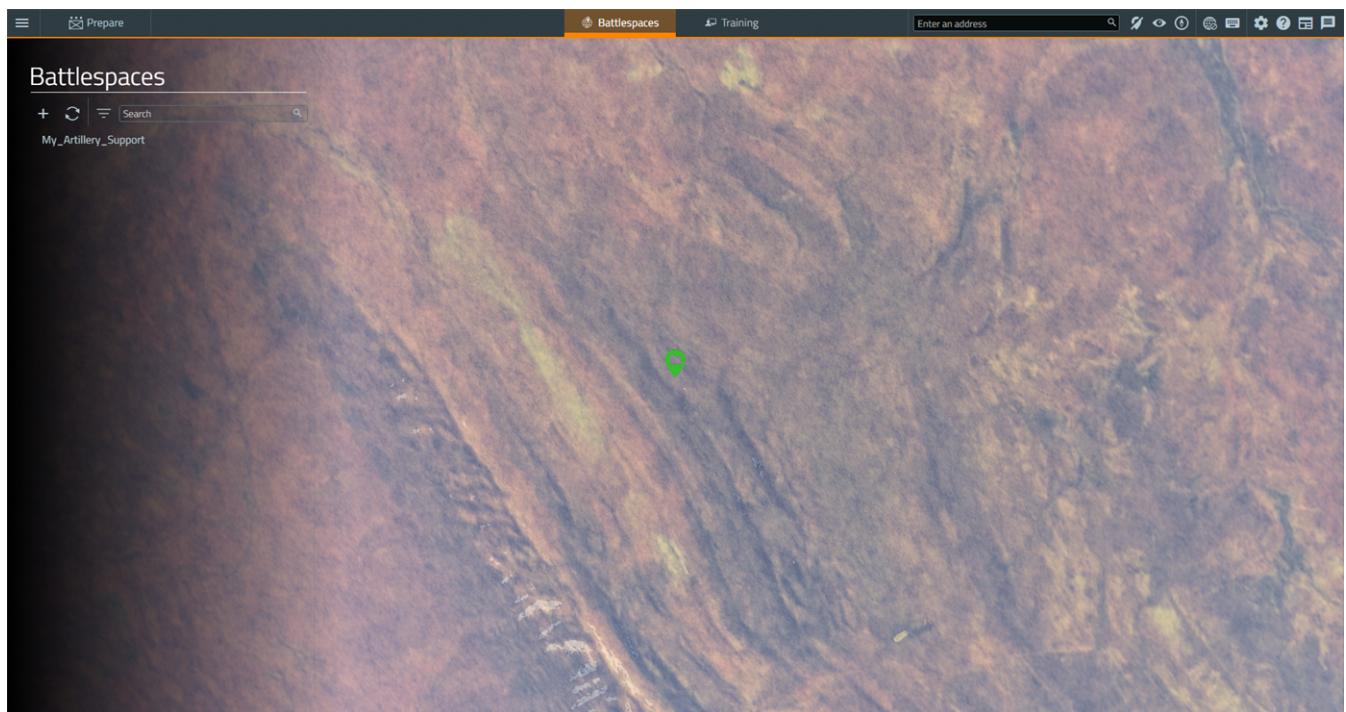


4. Input the following details in the Create Battlespace dialog:

Parameter	Value
Name	My_Artillery_Support
Color	Green #36b82c
Tags	MyUseCase
Description	Artillery Support Use Case

5. Click **Save Changes**.

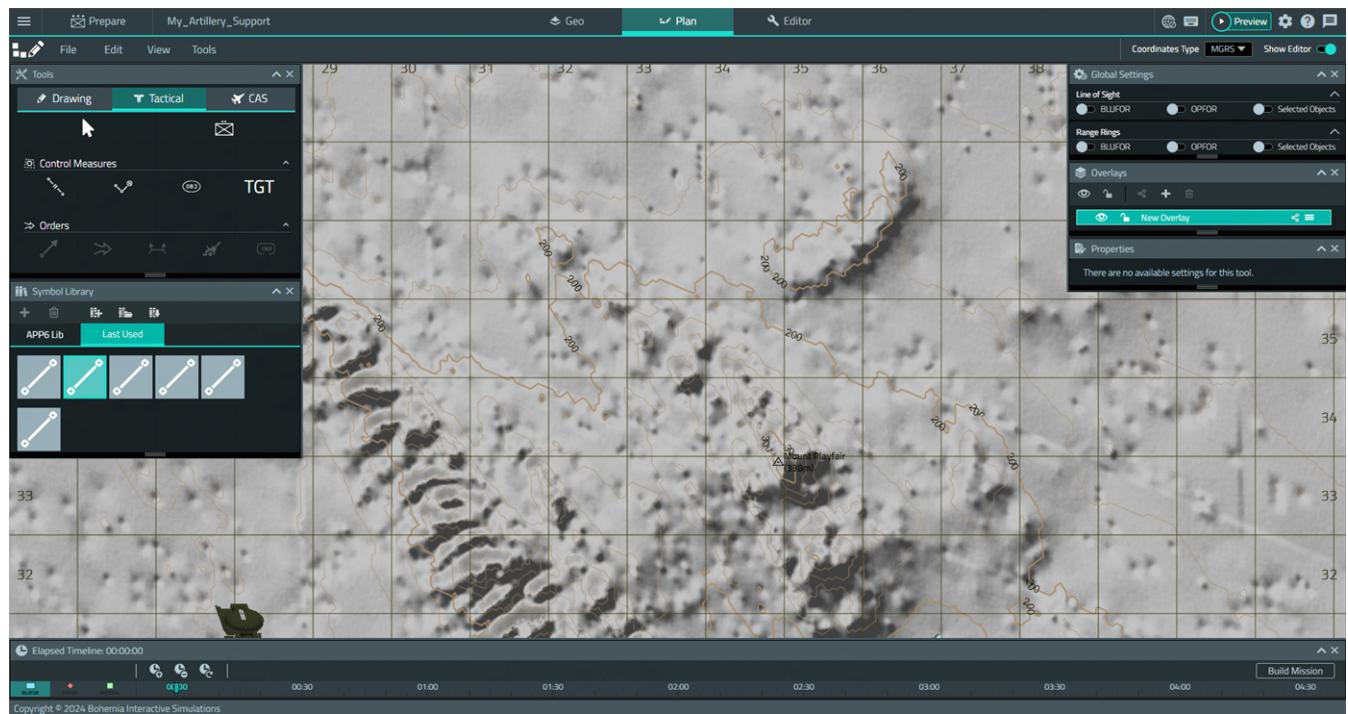
VBS4 adds the Battlespace to the Battlespaces List.



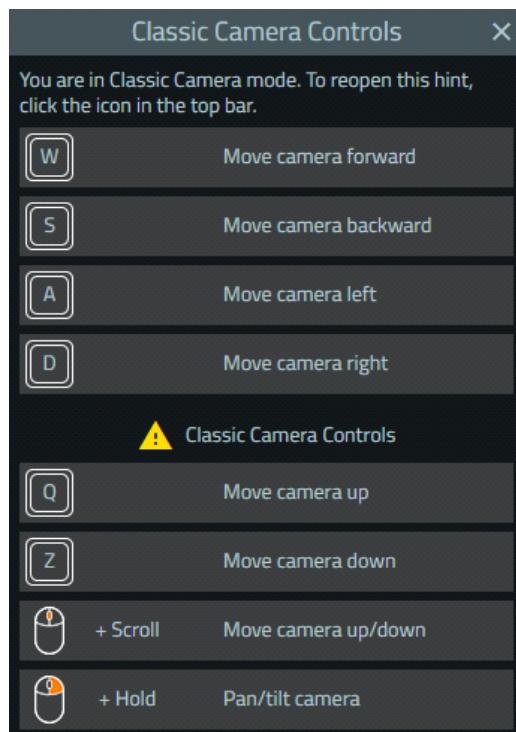
6. Select the newly created **My_Artillery_Support** Battlespace to show a **green** icon added to the Whole-Earth Terrain in the designated location.

7. Under Prepare > Plan, click Create.

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



Use the Classic Camera Controls to move the camera:



8. In the Tools Panel, select the **Tactical** tab and click the **Units Tool**.



The Tactical Units table appears (you can drag the bottom-right corner to resize the table).

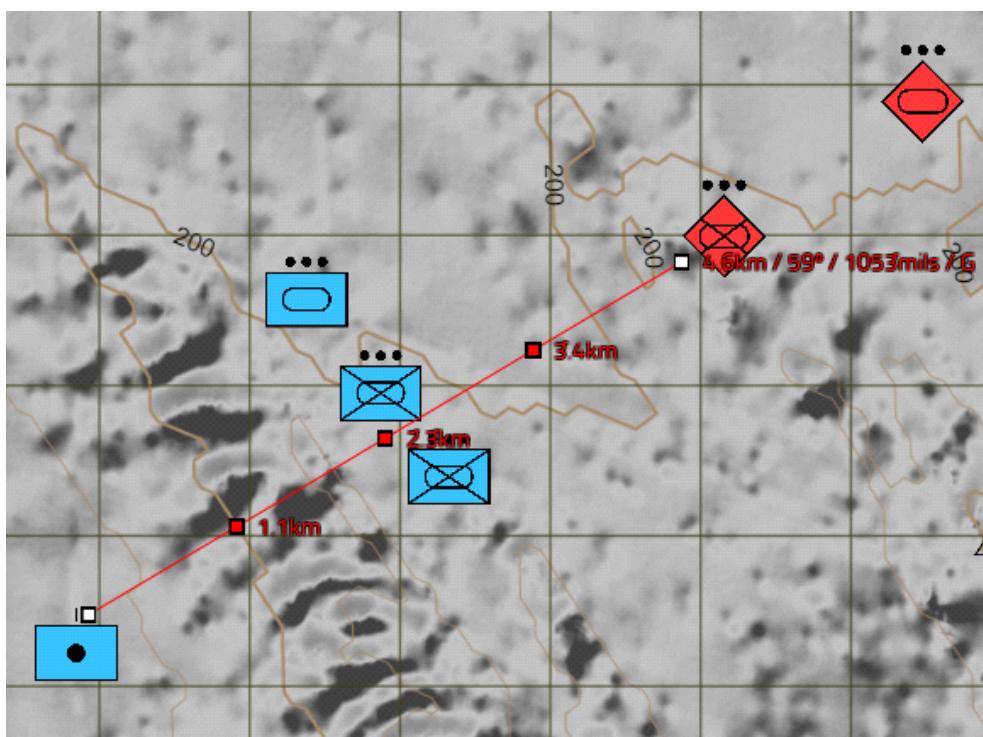
Units - MIL 2525C				
Affiliation	Type	Subtype	Label	Symbol Preview
AE	Air Unit	<input checked="" type="radio"/> Artillery	<input checked="" type="checkbox"/> Artillery Battery (M...)	
AU	Ground Unit	<input type="radio"/> Cavalry	<input checked="" type="checkbox"/> Artillery Section (M7...)	
CA		<input type="radio"/> Engineer	<input checked="" type="checkbox"/> Mortar Platoon (M2...)	
CZ		<input type="radio"/> Infantry	<input checked="" type="checkbox"/> Mortar Section (M2...)	
Civilian		<input type="radio"/> Mechanized Infantry		
FR		<input type="radio"/> Motorized Infantry		
GB		<input type="radio"/> Signals		
Generic OPFOR		<input type="radio"/> Tank		
IN				
KR				
NL				

9. Place the following Tactical Units next to one another:

- One **AU > Ground Unit > Artillery > Artillery Battery (M777)**
- One **AU > Ground Unit > Tank > Troop (M1A1)**
- Two **AU > Ground Unit > Mechanised Inf. > Platoon (M113A4)**
- One **Generic Opfor > Ground Unit > Mechanized Infantry > Platoon (BMP-2)**
- One **Generic Opfor > Ground Unit > Armor > Platoon (T-80)**

Select a unit in the Tactical Units table, click **Place** (the Tactical Units table disappears - repeat the previous step to open the table again to select the other units), then click a position on the map to place the unit.

10. Drag the Tactical Units so that the positioning is as follows:



NOTE

Position **Artillery Battery (M777)** about 4.6 km from **Platoon (BMP-2)**.

TIP

To measure the distance from the target, in the VBS4 Toolbar, select **Editor** and use the [Measure Distance Tool \(on page 63\)](#). After measuring the distance, you can delete the distance line, to avoid object cluttering.

The distance is measured between the VBS Plan unit symbols, rather than the built units (see step 18), and serves as an approximation of how the units should be positioned in relation to one another.

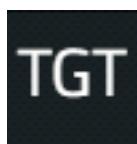
To go back to VBS Plan, select **Plan** in the VBS4 Toolbar.

11. Add a BLUFOR artillery Target:

- In the Tools Panel, select the **Tactical** tab.
- Expand **Control Measures** (expanded by default).



- Click the **Target Tool**.



- Click near **Platoon (BMP-2)**.
- Set the following Specific Properties for the Target:

Specific Property	Value
Target Type	Rectangular
Name	Artillery Target
Azimuth	802
Width	400
Length	300

- Click **Create New Target**.

The artillery Target is created.

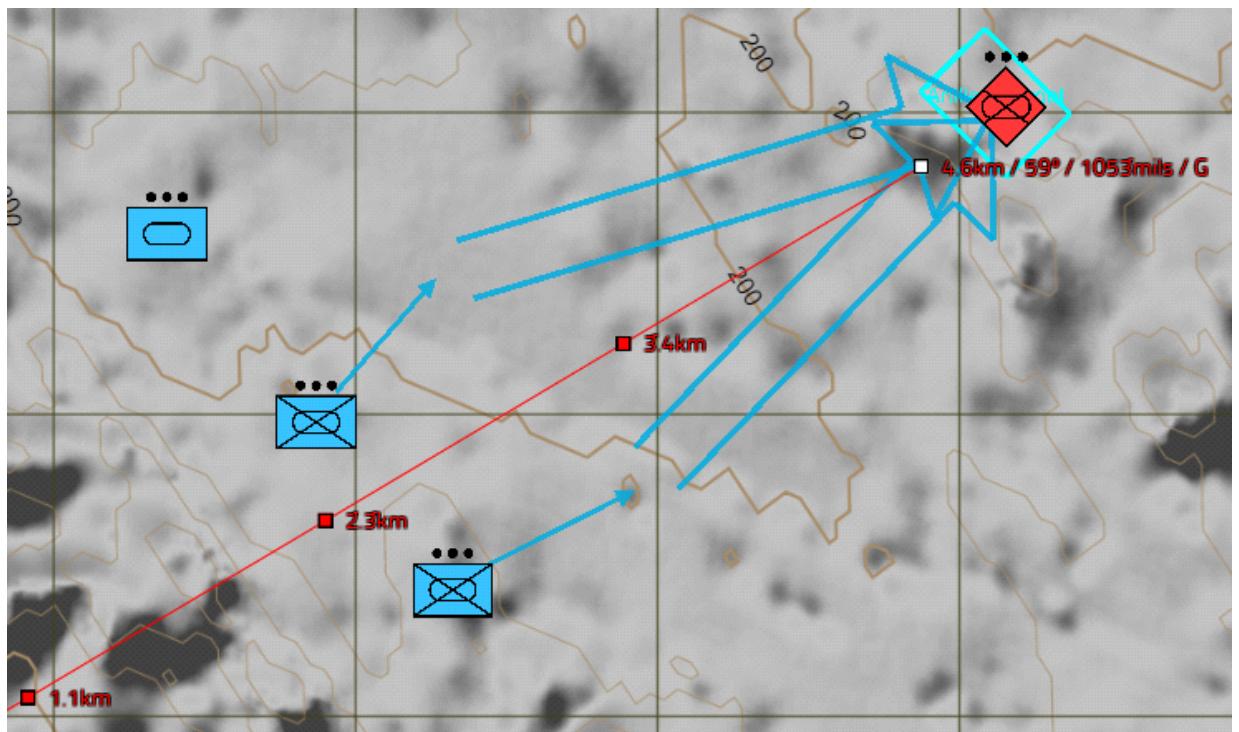
12. Add a BLUFOR **Artillery Battery (M777)** Fire Mission Order:

- Right-click **Artillery Battery (M777)** and select **Add Fire Mission Order**.
- Set the following Specific Properties for the Fire Mission Order:

Specific Property	Value
Available Targets	Artillery Target (should already be set if no other Targets are created)
Rounds per Minute	3
Ammo Type	HE
Time on Target	00:04
End Time	00:09

13. Add BLUFOR Platoon (M113A4) Move and Assault Orders:

- a. Right-click a **Platoon (M113A4)** and select **Add Advance Order**.
 - b. Move the mouse to a position between **Platoon (M113A4)** and **Platoon (BMP-2)**, and double-click it.
- A Advance Order is created.
- c. Right-click the Advance Order and select **Add Assault Order**.
 - d. Move the mouse to a position next to **Platoon (BMP-2)** and double-click it.
 - e. Repeat for the other **Platoon (M113A4)**.
 - f. Drag the Advance Orders so that the positioning is as follows:

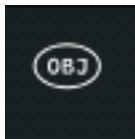


14. Add a BLUFOR Objective:

- a. In the Tools Panel, select the **Tactical** tab.
- b. Expand **Control Measures** (expanded by default).



- c. Click the **Objective Tool**.

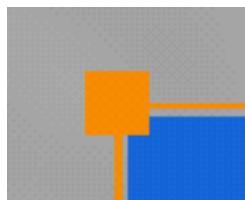


- d. Set the following Specific Properties:

Specific Property	Value
Name	OPFOR BMP
Font	Arial
Font Size	50m
Render Text on Surface	Selected

- e. Place the Objective:

- i. Click near the position of **Platoon (BMP-2)** and hold the **LMB**.
- ii. Drag the mouse and release the **LMB** to set the initial size.
- iii. Drag any of the bounding-box points to change the Objective size, so that the Objective name fits in the Objective shape.



15. Add BLUFOR Troop (M1A1) Suppress Orders:

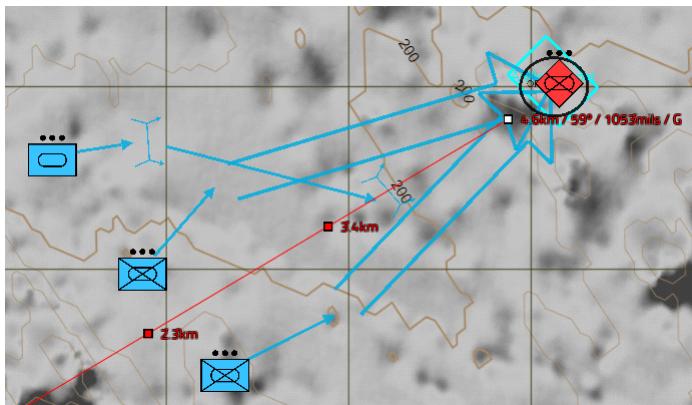
- Right-click **Troop (M1A1)** and select **Add Suppress Order**.
- Move the mouse to a position east of **Troop (M1A1)** and click it.
- Move the mouse to rotate the Suppress Order, so that it faces in the direction of **Platoon (BMP-2)**. Click to confirm.
- Click the Suppress Order and in **Orders > Selected Order Properties** set the following Specific Properties:

Specific Property	Value
Objective	OPFOR BMP (should already be set, if no other Objectives are created)
Start Time	00:09
End Time	00:11

- Right-click the Suppress Order and select **Add Suppress Order**.
- Move the mouse to a position east of the Suppress Order and click it.
- Another Support by Order is created.
- Rotate the Support by Order to face **Platoon (BMP-2)**, click to confirm, and in **Orders > Selected Order Properties** set the following Specific Properties:

Specific Property	Value
Objective	OPFOR BMP (should already be set, if no other Objectives are created)
Start Time	00:16
End Time	00:17

The Suppress Orders should look like this:



16. Add an OPFOR Platoon (BMP-2) Defend Order:

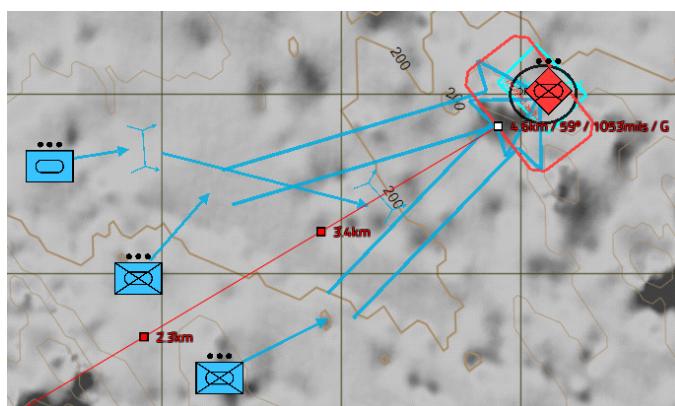
- Right-click **Platoon (BMP-2)** and select **Add Defend Order**.

The Defend Order symbol is attached to the cursor.

- Move the mouse to a position near and southwest of **Platoon (BMP-2)**, and click it.
- Move the mouse to rotate the Defend Order, so that it faces in the direction of the non-artillery BLUFOR Tactical Units. Double-click to confirm.
- In **Orders > Selected Order Properties**, set the following Specific Properties for the Defend Order:

Specific Property	Value
Text	OPFOR Defend
Start Time	00:01
End Time	00:06

The created Defend Order should look like this:



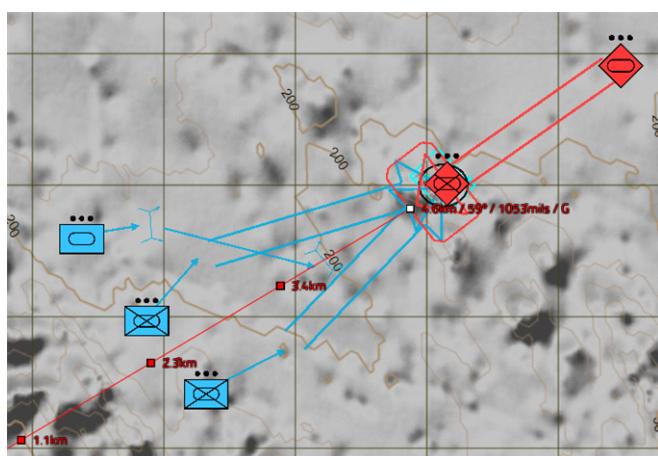
17. Add an OPFOR Platoon (T-80) Assault Order for a counterattack:

- Right-click a **Platoon (T-80)** and select **Add Assault Order**.
- Set the following Specific Properties for the Assault Order:

Specific Property	Value
Start Time	00:20
Lane Width	200

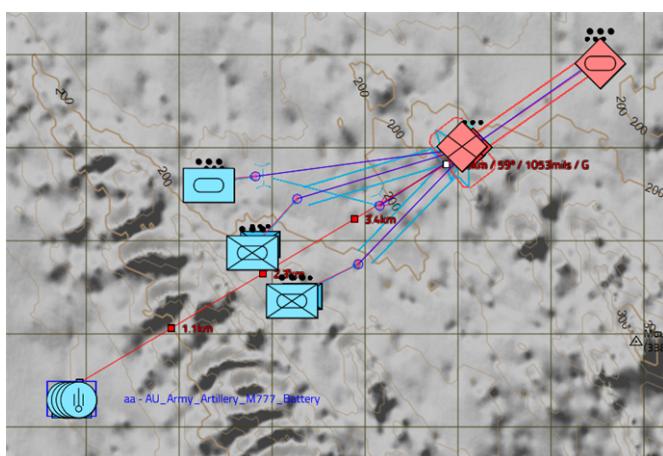
- Double-click a position in the Defend Order rectangle.

The Assault Order should look like this:



18. Click **Build Mission**.

The Plan symbols are converted into mission entities and VBS Call for Fire fire missions and gunlines:



For more information, see [Build Missions \(on page 69\)](#).

19. Add Australian ambient wildlife (kangaroos):

- a. In the VBS4 Toolbar, select **Editor**.
- b. In the Editor Objects List, select **(F1) Unit**.
- c. Double-click a location where you want to place a kangaroo.
- d. In the Object Properties dialog, type **Kangaroo** in **Filters** or select **Animals > Kangaroo**.
- e. Right-click the kangaroo and select **Orders > Assign New Waypoint**.
- f. Click a location where you want the kangaroo to move.

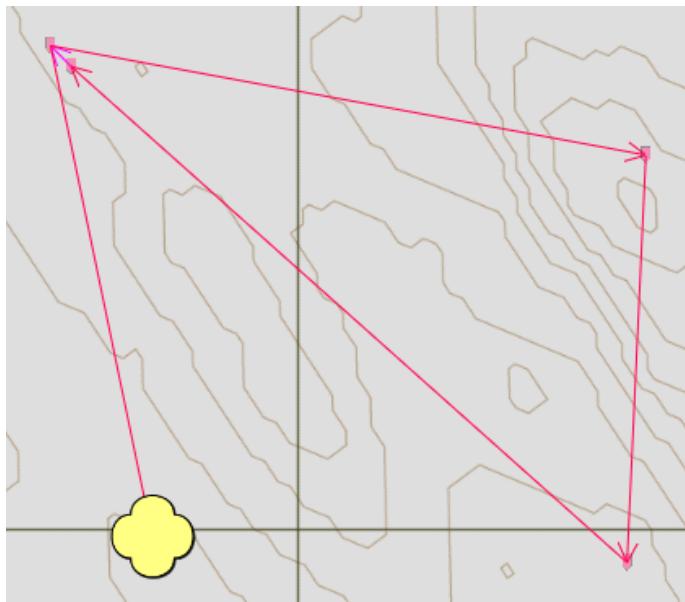
The Waypoint Object Properties dialog opens.

- g. In the **Behavior** list, select **Animal Herd Movement**, and click **OK**.
- h. Right-click the kangaroo and select **Add New Waypoint**.
- i. Add more waypoints as described in the previous step, and set the final waypoint to be next to the first waypoint.
- j. Right-click the final waypoint, select **Create Cycle**, then click the first Waypoint.

A Waypoint loop is created.

- k. Repeat for more kangaroos, as required.

The kangaroo waypoints should look like this:



20. Add a player unit for the scenario administrator:

- a. In the Editor Objects List, select **(F1) Unit**.
- b. Double-click a location in the vicinity of the kangaroos.
- c. In the Object Properties dialog, select **VBS Objects > Invisible spectator (RTE)**.
- d. Click **OK**.

The scenario is prepared for execution.

To run the scenario in Preview mode, press **Scenario Preview (H)**.

NOTE

The Artillery and Defense Scenario is also available as a sample Battlespace 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.

1.1.2 Artillery Support Example Execution

The Execution phase is related to phase 4 of the Scenario Execution Workflow (on page 8), where the scenario administrator switches to VBS Call for Fire from VBS Plan to assign a fire mission to **1 Artillery Battery (M777)** on **1 Platoon (T-80)** in real-time.

Follow these steps:

1. Wait for phases 1 - 3 of the [Scenario Execution Workflow \(on page 8\)](#) to finish, taking 20 minutes from the start of the scenario.
2. Press **Pause (Esc)** and in the VBS4 Toolbar, select **Editor**.
3. Click the Fire Direction Center (FDC) tab to open the FDC UI.



4. In the Main FDC Panel, select the **BLUFOR** tab and click **New Mission**.
5. Set the fire mission settings (leave the other settings with their default values):

Setting	Value
Mission Type	Set to Immediate Suppression .
Time on Target	Set to 00:20:00 .
Gunlines	Check AU_Army_Artillery M777 Battery .
Location	Click the locator icon, and then click anywhere near 1 Platoon (T-80) . 
Trajectory	Set to High .
Control Type	Set to Continuous Fire .

6. Click **Process**, and then click **Start Mission**.

1 Artillery Battery (M777) executes a fire mission on **1 Platoon (T-80)**.

1.2 Artillery Support Preparation

As an administrator, use VBS Plan in Prepare mode to prepare an artillery and defense scenario.

Follow these steps:

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

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

2. Create BLUFOR artillery Units. See [Create a Tactical Unit Object \(on page 25\)](#).

Examples of available artillery Tactical Units include:

- **AU Army > Ground Unit > Artillery > Mortar Section (M252)**
- **AU Army > Ground Unit > Artillery > Mortar Platoon (M252)**
- **AU Army > Ground Unit > Artillery > Artillery Battery (M777)**
- **AU Army > Ground Unit > Artillery > Artillery Section (M777)**
- **US Army > Infantry Brigade > Rifle Company > Mortar Section**

3. Add Fire Mission Orders to the Units. See [Create a Fire Mission Order \(on page 31\)](#).

4. Add additional non-artillery BLUFOR and OPFOR Tactical Units.

5. Set up the non-artillery BLUFOR Tactical Units to attack the non-artillery OPFOR Tactical Units (for example, using the Move, Assault, or Suppress Orders - see [Create an Advance Order \(on page 40\)](#), [Create an Assault Order \(on page 44\)](#), or [Create a Suppress Order \(on page 48\)](#)). Set up the non-artillery OPFOR Tactical Units to defend themselves from the non-artillery BLUFOR Tactical Units attack, as in [Create a Defend Order \(on page 58\)](#).

6. Build a mission to convert the Tactical Plan symbols to mission entities and VBS Call for Fire fire missions and gunlines. See [Build Missions \(on page 69\)](#).

7. Preview and save the mission.

For more information, see Scenario Preparation and Scenario Execution in the Introduction to VBS4 Guide.

1.3 Artillery Support Execution

Once the artillery and defense scenario is prepared by the administrator, it can be executed.

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.

In Preview or Execute mode, switch to VBS Call for Fire and modify the fire missions built in step 7 of [Artillery Support Preparation \(on the previous page\)](#) in real-time.

For more information, see [Active Fire Missions \(on page 84\)](#).

2. Units Tool

Create tactical units on the map with the Tactical Unit Object, and give them Tactical Orders to execute.



TIP

You can create a custom tactical ORBAT. For more information, see [Create Custom ORBATS in the VBS Plan Manual](#).

NOTE

It is also possible to use the ORBAT Editor (see [ORBAT Editor in the VBS4 Editor Manual](#)) to create generic tactical ORBATS, with the exception of civilian, artillery (used by VBS Call for Fire), and air (used by VBS Close Air Support) ORBATS.

Do any of the following:

- [Create a Tactical Unit Object \(on the next page\)](#)
- [Modify a Tactical Unit Object \(on page 27\)](#)

NOTE

When the mission is built (see [Build Missions \(on page 69\)](#)), Unit Objects are converted to VBS4 Control AI personnel and vehicle entities.

When the mission runs, the built VBS4 AI personnel and vehicle entities execute Orders (see [Advance Order Tool \(on page 40\)](#), [Assault Order Tool \(on page 44\)](#), [Suppress Order Tool \(on page 48\)](#), [Defend Order Tool \(on page 57\)](#)), converted to Waypoints (see the [VBS4 Editor Manual](#)), and take Control Measures (see [Phase Line Tool](#), [Objective Tool](#), [Target Tool \(on page 36\)](#)) into account.

WARNING

Control AI entities do not take Boundary Lines (see [Boundary Line Tool](#)) into account.

Rebuilding a mission resets the VBS4 entities based on their Tactical Objects representations.

WARNING

If you build a mission, go back to the VBS Plan, and delete the Tactical Objects representing mission entities. The latter are not removed and have to be deleted manually in the Editor. Also, if you make changes to mission entities represented by Tactical Objects in the Editor, rebuilding a mission in VBS Plan resets any of those changes.

2.1 Create a Tactical Unit Object

You can create a Tactical Unit object based on the MIL-STD-2525C doctrine, visible in 2D / 3D.

NOTE

In a group command structure, only the highest echelon symbology is displayed.

Follow these steps:

1. In the Tools Panel (see VBS Plan UI Overview in the VBS Plan Manual), select the **Tactical** tab.

NOTE

If you have previously closed the panel, select **Show All Panels** from the **View** menu (see View Menu Options in the VBS Plan Manual) to show all the VBS Plan UI panels.

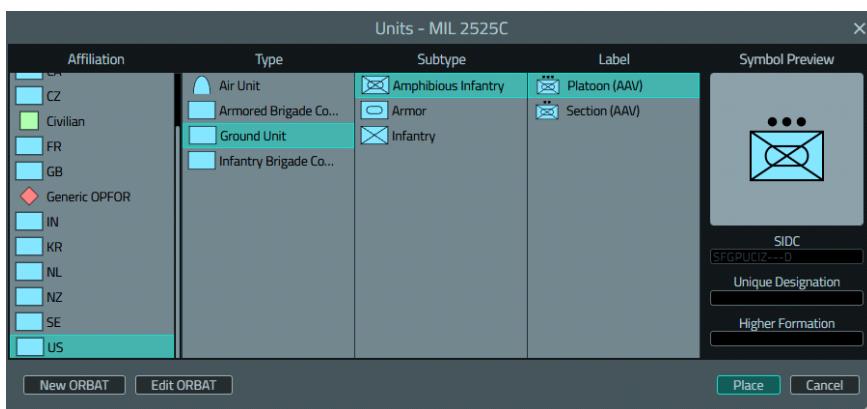
2. Click the **Units Tool**.



NOTE

To stop drawing the object, press **Esc**. This removes the object from the map.

The Tactical Units table appears (you can drag the bottom-right corner to resize the table).



Affiliation	Type	Subtype	Label	Symbol Preview
CZ	Air Unit	Amphibious Infantry		
Civilian	Armored Brigade Co...	Platoon (AAV)		
FR	Armor			
GB	Ground Unit	Section (AAV)		
Generic OPFOR	Infantry	Infantry		
IN				
KR				
NL				
NZ				
SE				
US				

3. Select the Tactical Unit **Affiliation**, **Type**, **Subtype**, **Label**, using the values in each column.

 **NOTE**

The **Civilian** affiliation cannot be given Tactical Orders to execute. This affiliation matches a civilian pattern of life simulation that consists of 50 civilian pedestrians, which can also be created using the **Control AI - Civilian Editor Object** (the Editor Object provides additional settings that cannot be set in the **Civilian** affiliation). For more information, see Civilian AI and Population Editor Object in the VBS Control AI Manual.

 **TIP**

To create a new ORBAT or edit the ORBAT of the currently selected Tactical Unit in the ORBAT Editor (see the VBS4 Editor Manual), click **New ORBAT** or **Edit ORBAT**, respectively.

 **NOTE**

Not all the ORBATS can be edited.

4. Enter the **Unique Designation** and **Higher Formation**.

5. Click **Place**.

The Tactical Units table disappears.

6. Click a position on the map to place the Tactical Unit.

The Tactical Unit object is created on the map.

7. To be able to preview your mission, as described in the VBS Plan Workflow (see VBS Plan Overview in the VBS Plan Manual), you need to have at least one playable unit in the mission, and build the mission:

 **WARNING**

A mission that does not have at least one playable unit, and is not built, cannot be previewed.

To add a playable unit in VBS Editor, see [Adding Units in the VBS4 Editor Manual](#).

To make a Tactical Unit playable in VBS Plan:

- a. Open **Unit Properties**.
- b. In **Name**, check the **Playable Unit** option.

 **NOTE**

Artillery Tactical Units that execute Fire Mission Orders (see [Fire Mission Order Tool \(on page 30\)](#)) are not playable.

For how to build a mission, see [Build Missions \(on page 69\)](#).

8. To give Tactical Orders to the Tactical Unit, see [Advance Order Tool \(on page 40\)](#), [Assault Order Tool \(on page 44\)](#), and [Suppress Order Tool \(on page 48\)](#).

To modify the Tactical Unit object, see [Modify a Tactical Unit Object \(below\)](#).

2.2 Modify a Tactical Unit Object

You can modify an existing Tactical Unit object.

Click the **Select Tool**.

 **NOTE**

The Select Tool has the following considerations:

- The cursor always selects the top object across all the available overlays.
- 3D objects are always placed above 2D objects, regardless of the overlay order.
- Objects that are part of a hidden / locked overlay are not selectable.

For more information, see [Managing Overlays in the VBS Plan Manual](#).

Select the object by clicking it.

A bounding box appears around the Tactical Unit object.

NOTE

The bounding-box points are disabled, as it is not possible to use them to resize a Tactical Unit object.

You can do any of the following:

- Drag the object to relocate it to a different position on the map.
- Modify the [Specific Properties \(below\)](#).
- To give Tactical Orders to the Tactical Unit, see [Advance Order Tool \(on page 40\)](#), [Assault Order Tool \(on page 44\)](#), and [Suppress Order Tool \(on page 48\)](#).
- Delete the object by pressing **Delete**.

The Tactical Unit object is modified.

2.3 Tactical Unit Properties

Set the following Tactical Unit properties.

2.3.1 Specific Properties

Properties before placement:

Specific Property	Description
Name	Tactical / CAS Unit name. NOTE The Playable Unit checkbox controls whether the Tactical Unit is playable in Execute Mode.

Additional properties after placement:

Specific Property	Description
Unique Designation	Text modifier for units, equipment, and installations, which uniquely identifies a particular symbol or track number.
Higher Formation	Text modifier for units that indicates a number or a title of higher-echelon command.

Location Description	Description of the location.
Altitude Description	Altitude information.
Reinf./Red.	Text modifier for a unit symbol, indicating whether the unit is reinforced.
Staff Comments	Custom text modifier for units, equipment, and installations.
SIDC	Unit symbol SIDC.
Location	Location based on the Coordinates Type (see Plan Toolbar in the VBS Plan Manual).

3. Fire Mission Order Tool

Apply a Fire Mission Order with a designated target (see [Target Tool \(on page 36\)](#)) to an artillery Tactical Unit (see [Units Tool \(on page 24\)](#)) that executes when the mission runs.



Do any of the following:

- [Create a Fire Mission Order \(on the next page\)](#)
- [Modify a Fire Mission Order \(on page 32\)](#)

NOTE

When the mission is built (see [Build Missions \(on page 69\)](#)), Fire Mission Order Objects are converted to VBS Call for Fire fire missions and gunlines (see [Fire Mission Order Tool \(above\)](#) and VBS Call for Fire Overview in the VBS Call for Fire Manual).

When the mission runs, the built VBS4 AI personnel and vehicle entities (see [Units Tool \(on page 24\)](#)) execute the built Fire Mission Orders, using the built Target Control Measures (see [Target Tool \(on page 36\)](#)).

Rebuilding a mission resets the VBS4 entities based on their Tactical Objects representations.

WARNING

If you build a mission, go back to the VBS Plan, and delete the Tactical Objects representing mission entities. The latter are not removed and have to be deleted manually in the Editor. Also, if you make changes to mission entities represented by Tactical Objects in the Editor, rebuilding a mission in VBS Plan resets any of those changes.

3.1 Create a Fire Mission Order

You can create a Fire Mission Order, visible in the Timeline (see VBS Plan UI Overview in the VBS Plan Manual).

Follow these steps:

1. To apply a Fire Mission Order, select or create a Tactical Unit.

 **WARNING**

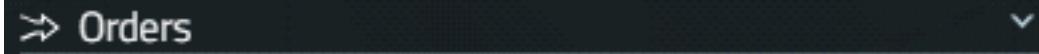
The tool is disabled if no artillery Tactical Unit object is selected. For information on how to create a Tactical Unit object, see the [Units Tool \(on page 24\)](#).

2. In the Tools Panel (see VBS Plan UI Overview in the VBS Plan Manual), select the **Tactical** tab.

 **NOTE**

If you have previously closed the panel, select **Show All Panels** from the **View** menu (see View Menu Options in the VBS Plan Manual) to show all the VBS Plan UI panels.

3. Expand **Orders** (expanded by default).



4. To designate where the units need to fire, verify you have at least one target created (see [Target Tool \(on page 36\)](#)). For more information, see step 3 of [Modify a Fire Mission Order \(on the next page\)](#).

 **WARNING**

If no target is created, the Fire Mission Order does not work.

5. Either click the **Fire Mission Order Tool**, or right-click the **Tactical Unit object** and select **Add Fire Mission Order**.



6. Set the [Specific Properties \(on page 35\)](#).

The Fire Mission Order appears in the Timeline (see VBS Plan UI Overview in the VBS Plan Manual).

NOTE

Fire Mission Orders are not Waypoints and can neither be chained to any other Control AI Waypoint Order, such as Advance, Assault, Suppress, or Defend Order (see [Advance Order Tool \(on page 40\)](#), [Assault Order Tool \(on page 44\)](#), [Suppress Order Tool \(on page 48\)](#), and [Defend Order Tool \(on page 57\)](#)) nor can it be chained to other Fire Mission Orders.

The Fire Mission creation / may have several error indicators. See [Fire Mission Order Errors \(on page 34\)](#).

To modify the Fire Mission Order object, see [Modify a Fire Mission Order \(below\)](#).

3.2 Modify a Fire Mission Order

You can modify an existing Fire Mission Order.

**WARNING**

You can only modify an existing Fire Mission Order through VBS Plan in Prepare Mode, but not at runtime.

Canceling a Fire Mission Order that starts executing after it is built (see [Build Missions \(on page 69\)](#)) is possible in VBS Plan, but not recommended, as it may have unpredictable results.

Click the **Select Tool**.

NOTE

The Select Tool has the following considerations:

- The cursor always selects the top object across all the available overlays.
- 3D objects are always placed above 2D objects, regardless of the overlay order.
- Objects that are part of a hidden / locked overlay are not selectable.

For more information, see [Managing Overlays in the VBS Plan Manual](#).

Select the Fire Mission Order by clicking in the Timeline (see [VBS Plan UI Overview in the VBS Plan Manual](#)) or under **Orders**.

You can do any of the following:

- Drag the Order time period in the Timeline (see VBS Plan UI Overview in the VBS Plan Manual), to change the start and end Order time.

Use the start and end arrows in the Timeline to shorten / lengthen the Order time.

NOTE

When dragging the start and end arrows, the modified time period is rounded to minutes.

- Modify the [Specific Properties \(on page 35\)](#).
- Delete the Order by pressing **Delete**.

The Fire Mission Order is modified.

3.3 Fire Mission Order Errors

Fire Mission Order placement has the following VBS Call for Fire error feedback:

NOTE

The same error feedback is available in VBS Call for Fire.

Error	Resolution
Gunline has insufficient ammunition.	Decrease the Fire Mission Order duration, using Time on Target and End Time , or the fire rate, using Rounds per Minute , in Modify a Fire Mission Order (on page 32) .
Unattainable fire rate.	Adjust Rounds per Minute in the Modify a Fire Mission Order (on page 32) .
Mission would have to start before scenario.	Adjust Time on Target in the Modify a Fire Mission Order (on page 32) .
Target is farther than maximum range for supporting gun.	Move the Target (see Target Tool (on page 36)) closer to the Fire Mission Order (see Fire Mission Order Tool (on page 30)).
Target is closer than minimum range for supporting gun.	Move the Target (see Target Tool (on page 36)) farther from the Fire Mission Order (see Fire Mission Order Tool (on page 30)).
Firing solution for this target cannot be attained with supporting gun.	Change the Fire Mission Order (see Fire Mission Order Tool (on page 30)) terrain elevation by moving it, based on the minimum and maximum elevations indicated in the error for the given gun type.
Call for Fire is not compatible with Advanced Ballistics.	Disable the Advanced Ballistics option in Simulation Settings (see the VBS4 Administrator Manual).

3.4 Fire Mission Order Properties

Set the following Fire Mission Order properties.

3.4.1 Specific Properties

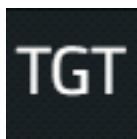
NOTE

Times are set in relation to the Elapsed / Mission Time, whichever is used. For more information, see [Synchronize Time](#) in the VBS4 Editor Manual.

Specific Property	Description
Location	Location based on the Coordinates Type (see Plan Toolbar in the VBS Plan Manual).
Available Targets	Artillery Tactical Unit target based on the values available in the drop-down. The drop-down is populated with the available Target objects. For information on creating artillery targets, see Target Tool (on the next page) .
Rounds per Minute	Artillery rounds per minute based on the values available in the drop-down.
Ammo Type	Artillery ammunition type based on the values available in the drop-down: <ul style="list-style-type: none">• HE• Smoke
Time on Target	Time when the first artillery projectile hits the target (in the format hh:mm).
End Time	Time after which no projectile hits the target (in the format hh:mm).

4. Target Tool

Use the Target Tool to specify targets for artillery Tactical Units that execute a Fire Mission Order (see [Fire Mission Order Tool \(on page 30\)](#)).



Do any of the following:

- [Create a Target Object \(below\)](#)
- [Modify a Target Object \(on the next page\)](#)

NOTE

When the mission is built (see [Build Missions \(on page 69\)](#)), Target Objects are converted to VBS4 mission entities.

When the mission runs, the built VBS4 AI artillery entities, executing a Fire Mission Order (see [Units Tool \(on page 24\)](#) and [Fire Mission Order Tool \(on page 30\)](#)), use the built Target Control Measures to fire at the enemy.

Rebuilding a mission resets the VBS4 entities based on their Tactical Objects representations.

WARNING

If you build a mission, go back to the VBS Plan, and delete the Tactical Objects representing mission entities. The latter are not removed and have to be deleted manually in the Editor. Also, if you make changes to mission entities represented by Tactical Objects in the Editor, rebuilding a mission in VBS Plan resets any of those changes.

4.1 Create a Target Object

You can create an Target object, visible in 2D / 3D.

Follow these steps:

1. In the Tools Panel (see VBS Plan UI Overview in the VBS Plan Manual), select the **Tactical** tab.

NOTE

If you have previously closed the panel, select **Show All Panels** from the **View** menu (see View Menu Options in the VBS Plan Manual) to show all the VBS Plan UI panels.

2. Expand **Control Measures** (expanded by default).



3. Click the **Target Tool**.



NOTE

To stop drawing the object, press **Esc**. This removes the object from the map.

4. Click a position on the map where you want to place the Target object.

The New Target dialog opens.

5. Set the [Specific Properties \(on the next page\)](#) in the New Target dialog.

6. Click **Create New Target**.

The Target object appears on the map and is selected.

7. Click outside the object.

The Target object is created on the map.

To modify the Target object, see [Modify a Target Object \(below\)](#).

4.2 Modify a Target Object

You can modify an existing Target object.

Click the **Select Tool** and select the Target object.

NOTE

The Select Tool has the following considerations:

- The cursor always selects the top object across all the available overlays.
- 3D objects are always placed above 2D objects, regardless of the overlay order.
- Objects that are part of a hidden / locked overlay are not selectable.

For more information, see [Managing Overlays](#) in the VBS Plan Manual.

You can do any of the following:

- Click and hold the rotation point, and move the mouse to rotate the object.

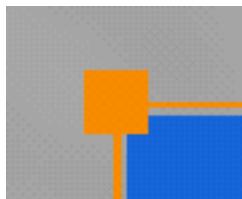


Alternatively, hold **Shift + RMB** and move the mouse to rotate the object.

i **NOTE**

Only Target objects with **Target Type** set to **Linear** or **Rectangle** can be rotated. For **Linear**, click the object twice to display the rotation point.

- Drag any of the bounding-box points to change the object size.



- Drag the object to relocate it to a different position on the map.
- Modify the [Specific Properties \(below\)](#).
- Delete the object by pressing **Delete**.

The Target object is modified.

4.3 Target Properties

Set the following Target properties.

4.3.1 Specific Properties

Properties before placement:

Specific Property	Description
Target Type	Target shape. Can be: <ul style="list-style-type: none">PointLinearRectangular
Name	Target name.

For **Target Type** set to **Linear**:

Specific Property	Description
Azimuth	Target azimuth (in mils).
Width	Target width (in meters).

For **Target Type** set to **Rectangular**:

Specific Property	Description
Azimuth	Target azimuth (in mils).
Width	Target width (in meters).
Length	Target length (in meters).

Additional properties after placement:

Specific Property	Description
Location	Location based on the Coordinates Type (see Plan Toolbar in the VBS Plan Manual).
Width / Length	Object width / length (in meters).

 **NOTE**

Width / Length only apply to **Linear** and **Rectangular** targets.

5. Advance Order Tool

Apply an Advance Order to a Tactical Unit (see [Units Tool \(on page 24\)](#)) that executes when the mission runs.



Do any of the following:

- [Create an Advance Order \(below\)](#)
- [Modify an Advance Order \(on page 42\)](#)

NOTE

When the mission is built (see [Build Missions \(on page 69\)](#)), Advance Order Objects are converted to VBS4 mission entities.

When the mission runs, the built VBS4 AI personnel and vehicle entities (see [Units Tool \(on page 24\)](#)) execute the built Advance Orders, converted to Waypoints (see the VBS4 Editor Manual).

Rebuilding a mission resets the VBS4 entities based on their Tactical Objects representations.

WARNING

If you build a mission, go back to the VBS Plan, and delete the Tactical Objects representing mission entities. The latter are not removed and have to be deleted manually in the Editor. Also, if you make changes to mission entities represented by Tactical Objects in the Editor, rebuilding a mission in VBS Plan resets any of those changes.

5.1 Create an Advance Order

You can create an Advance Order (represented by an Advance Order object), visible in 2D / 3D.

Follow these steps:

1. To apply an Advance Order, select or create a Tactical Unit.

WARNING

The tool is disabled if no Tactical Unit object is selected. For information on how to create a Tactical Unit object, see the [Units Tool \(on page 24\)](#).

2. In the Tools Panel (see VBS Plan UI Overview in the VBS Plan Manual), select the **Tactical** tab.

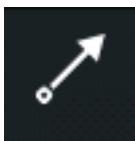
NOTE

If you have previously closed the panel, select **Show All Panels** from the **View** menu (see View Menu Options in the VBS Plan Manual) to show all the VBS Plan UI panels.

3. Expand **Orders** (expanded by default).



4. Either click the **Advance Order Tool**, or right-click the **Tactical Unit object** and select **Add Advance Order**.



NOTE

To stop drawing the object, press **Esc**. This removes the object from the map.

5. Click a position on the map to start an Advance Order line.
6. Click a position on the map to extend the line. Repeat as many times as required.
7. Double-click to finish drawing the line.

The Advance Order appears on the map, showing the control points.

8. Click outside the Advance Order object.

The Advance Order object is created on the map.

NOTE

If the Order is the first Order that the Tactical Units execute, then the Tactical Units face the Order direction when the mission runs.

To modify an Advance Order object, see [Modify an Advance Order \(on the next page\)](#).

5.2 Modify an Advance Order

You can modify an existing Advance Order object.

Click the **Select Tool**.

NOTE

The Select Tool has the following considerations:

- The cursor always selects the top object across all the available overlays.
- 3D objects are always placed above 2D objects, regardless of the overlay order.
- Objects that are part of a hidden / locked overlay are not selectable.

For more information, see [Managing Overlays](#) in the VBS Plan Manual.

Select the Advance Order by clicking it.

The Advance Order control points become visible.

You can do any of the following:

- To change the object shape, do any of the following:
 - Drag any of the control points, and click outside the object to confirm.

 - Delete any of the control points.
The object updates itself automatically by creating a line, using the shortest path possible, between the control points on either side of the deleted one.
 - Use **LCtrl + Y / LCtrl + Z (Undo / Redo)** to undo / redo either of the aforementioned control points actions (see also [Share Overlays - Considerations](#) in the VBS Plan Manual).
- Drag the object to relocate it to a different position on the map.
- Drag the Order time period in the Timeline (see [VBS Plan UI Overview](#) in the VBS Plan Manual), to change the start and end Order time.
- Modify the [Global Properties \(on the next page\)](#).
- Modify the [Specific Properties \(on the next page\)](#).

- To chain the Advance Order with a new Order, either click an **Order Tool** icon, or right-click the **Advance Order** and select **Add Name Order**, where **Name** is the order type.

Depending on the Order type, see the Order object placement instructions in [Create an Advance Order \(on page 40\)](#), [Create an Assault Order \(on the next page\)](#), [Create a Suppress Order \(on page 48\)](#), and [Create a Defend Order \(on page 58\)](#).

- Delete the object by pressing **Delete**.

The Advance Order object is modified.

5.3 Advance Order Properties

Set the following Advance Order properties.

5.3.1 Global Properties

Global Property	Description
Stroke	Stroke size (line width). Do any of the following: <ul style="list-style-type: none">Enter the stroke number.Use the up / down arrows to increase / decrease the stroke.Use the drop-down to select one of the preset values.

5.3.2 Specific Properties

NOTE

Times are set in relation to the Elapsed / Mission Time, whichever is used. For more information, see [Synchronize Time](#) in the VBS4 Editor Manual.

Specific Property	Description
Location	Location based on the Coordinates Type (see Plan Toolbar in the VBS Plan Manual).
Start Time	Order start time (in the format hh:mm).

6. Assault Order Tool

Apply an Assault Order to a Tactical Unit (see [Units Tool \(on page 24\)](#)) that executes when the mission runs.



Do any of the following:

- [Create an Assault Order \(below\)](#)
- [Modify an Assault Order \(on page 46\)](#)

NOTE

When the mission is built (see [Build Missions \(on page 69\)](#)), Assault Order Objects are converted to VBS4 mission entities.

When the mission runs, the built VBS4 AI personnel and vehicle entities (see [Units Tool \(on page 24\)](#)) execute the built Assault Orders, converted to Waypoints (see the VBS4 Editor Manual).

Rebuilding a mission resets the VBS4 entities based on their Tactical Objects representations.

WARNING

If you build a mission, go back to the VBS Plan, and delete the Tactical Objects representing mission entities. The latter are not removed and have to be deleted manually in the Editor. Also, if you make changes to mission entities represented by Tactical Objects in the Editor, rebuilding a mission in VBS Plan resets any of those changes.

6.1 Create an Assault Order

You can create an Assault Order (represented by an Assault Order object), visible in 2D / 3D.

Follow these steps:

1. To apply an Assault Order, select or create a Tactical Unit.

WARNING

The tool is disabled if no Tactical Unit object is selected. For information on how to create a Tactical Unit object, see the [Units Tool \(on page 24\)](#).

2. In the Tools Panel (see VBS Plan UI Overview in the VBS Plan Manual), select the **Tactical** tab.

NOTE

If you have previously closed the panel, select **Show All Panels** from the **View** menu (see View Menu Options in the VBS Plan Manual) to show all the VBS Plan UI panels.

3. Expand **Orders** (expanded by default).



4. Either click the **Assault Order Tool**, or right-click the **Tactical Unit object** and select **Add Assault Order**.



NOTE

To stop drawing the object, press **Esc**. This removes the object from the map.

5. Set the [Specific Properties \(on page 47\)](#).

6. Click a position on the map to start an Assault Order line.

7. Click a position on the map to extend the line. Repeat as many times as required.

8. Double-click to finish drawing the line.

The Assault Order appears on the map, showing the control points.

9. Click outside the Assault Order object.

The Assault Order object is created on the map.

NOTE

If the Order is the first Order that the Tactical Units execute, then the Tactical Units face the Order direction when the mission runs.

To modify the Assault Order object, see [Modify an Assault Order \(on the next page\)](#).

6.2 Modify an Assault Order

You can modify an existing Assault Order.

Click the **Select Tool**.

NOTE

The Select Tool has the following considerations:

- The cursor always selects the top object across all the available overlays.
- 3D objects are always placed above 2D objects, regardless of the overlay order.
- Objects that are part of a hidden / locked overlay are not selectable.

For more information, see [Managing Overlays](#) in the VBS Plan Manual.

Select the Assault Order by clicking it.

The Assault Order control points become visible.

You can do any of the following:

- To change the object shape, do any of the following:
 - Drag any of the control points, and click outside the object to confirm.

 - Delete any of the control points.
The object updates itself automatically by creating a line, using the shortest path possible, between the control points on either side of the deleted one.
 - Use **LCtrl + Y / LCtrl + Z (Undo / Redo)** to undo / redo either of the aforementioned control points actions (see also [Share Overlays - Considerations](#) in the VBS Plan Manual).
- Drag the object to relocate it to a different position on the map.
- Drag the Order time period in the Timeline (see [VBS Plan UI Overview](#) in the VBS Plan Manual), to change the start and end Order time.
- Modify the [Global Properties \(on the next page\)](#).
- Modify the [Specific Properties \(on the next page\)](#).

- To chain the Assault Order with a new Order, either click an **Order Tool** icon, or right-click the **Assault Order** and select **Add Name Order**, where **Name** is the order type.

Depending on the Order type, see the Order object placement instructions in [Create an Advance Order \(on page 40\)](#), [Create an Assault Order \(on page 44\)](#), [Create a Suppress Order \(on the next page\)](#), and [Create a Defend Order \(on page 58\)](#).

- Delete the object by pressing **Delete**.

The Assault Order object is modified.

6.3 Assault Order Properties

Set the following Assault Order properties.

6.3.1 Global Properties

Global Property	Description
Stroke	Stroke size (line width). Do any of the following: <ul style="list-style-type: none">Enter the stroke number.Use the up / down arrows to increase / decrease the stroke.Use the drop-down to select one of the preset values.

6.3.2 Specific Properties

NOTE

Times are set in relation to the Elapsed / Mission Time, whichever is used. For more information, see [Synchronize Time](#) in the VBS4 Editor Manual.

Properties before placement:

Specific Property	Description
Start Time	Order start time (in the format hh:mm).
Lane Width	Order movement lane width (in meters).

Additional properties after placement:

Specific Property	Description
Location	Location based on the Coordinates Type (see Plan Toolbar in the VBS Plan Manual).

7. Suppress Order Tool

Apply a Suppress Order to a Tactical Unit (see [Units Tool \(on page 24\)](#)) that executes when the mission runs, and uses objectives (see [Objective Tool \(on page 52\)](#)) to fire at the enemy.



Do any of the following:

- [Create a Suppress Order \(below\)](#)
- [Modify a Suppress Order \(on page 50\)](#)

i NOTE

When the mission is built (see [Build Missions \(on page 69\)](#)), Suppress Order Objects are converted to VBS4 mission entities.

When the mission runs, the built VBS4 AI personnel and vehicle entities (see [Units Tool \(on page 24\)](#)) execute the built Suppress Orders, converted to Waypoints (see the VBS4 Editor Manual), using the built Objective Control Measures (see [Objective Tool \(on page 52\)](#)).

Rebuilding a mission resets the VBS4 entities based on their Tactical Objects representations.



WARNING

If you build a mission, go back to the VBS Plan, and delete the Tactical Objects representing mission entities. The latter are not removed and have to be deleted manually in the Editor. Also, if you make changes to mission entities represented by Tactical Objects in the Editor, rebuilding a mission in VBS Plan resets any of those changes.

7.1 Create a Suppress Order

You can create a Suppress Order (represented by a Suppress Order object), visible in 2D / 3D.

Follow these steps:

1. To apply a Suppress Order, select or create a Tactical Unit.



WARNING

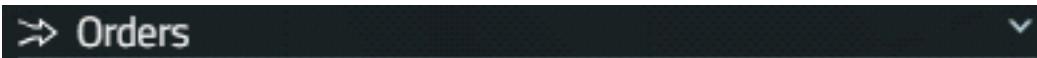
The tool is disabled if no Tactical Unit object is selected. For information on how to create a Tactical Unit object, see the [Units Tool \(on page 24\)](#).

2. In the Tools Panel (see VBS Plan UI Overview in the VBS Plan Manual), select the **Tactical** tab.

NOTE

If you have previously closed the panel, select **Show All Panels** from the **View** menu (see View Menu Options in the VBS Plan Manual) to show all the VBS Plan UI panels.

3. Expand **Orders** (expanded by default).



4. To designate where the units need to fire, verify you have at least one objective created (see [Objective Tool \(on page 52\)](#)). To set an objective, see [Modify a Suppress Order \(on the next page\)](#).

WARNING

If no objective is created, the Suppress Order does not work.

5. Either click the **Suppress Order Tool**, or right-click the **Tactical Unit object** and select **Add Suppress Order**.



NOTE

To stop drawing the object, press **Esc**. This removes the object from the map.

6. Click a position on the map, where you want the support by fire to take place.

The Suppress Order object appears on the map.

7. Move the mouse to rotate the Suppress Order object to set the direction in which the support by fire should take place. Click to confirm the direction.

The Suppress Order object is created on the map.

Since the Tactical Units first have to move to the Suppress Order position, a preceding Advance Order (see Advance Order Tool) is created as well, which is linked to the Suppress Order.

NOTE

If the Order is the first Order that the Tactical Units execute, then the Tactical Units face the Order direction when the mission runs.

To modify the Suppress Order object, see [Modify a Suppress Order \(on the next page\)](#).

7.2 Modify a Suppress Order

You can modify an existing Suppress Order.

Click the **Select Tool**.

NOTE

The Select Tool has the following considerations:

- The cursor always selects the top object across all the available overlays.
- 3D objects are always placed above 2D objects, regardless of the overlay order.
- Objects that are part of a hidden / locked overlay are not selectable.

For more information, see [Managing Overlays](#) in the VBS Plan Manual.

Select the Suppress Order by clicking it.

A bounding box appears around the Suppress Order.

You can do any of the following:

- Click and hold the rotation point, and move the mouse to rotate the object.



Alternatively, hold **Shift + RMB** and move the mouse to rotate the object.

- Drag the object to relocate it to a different position on the map.
- Drag the Order time period in the Timeline (see [VBS Plan UI Overview](#) in the VBS Plan Manual), to change the start and end Order time.

Use the start and end arrows in the Timeline to shorten / lengthen the Order time.

NOTE

When dragging the start and end arrows, the modified time period is rounded to minutes.

- Modify the [Global Properties](#) (on the next page).
- Modify the [Specific Properties](#) (on the next page).

- To chain the Suppress Order with a new Order, either click an **Order Tool** icon, or right-click the **Suppress Order** and select **Add Name Order**, where **Name** is the order type.

Depending on the Order type, see the Order object placement instructions in [Create an Advance Order \(on page 40\)](#), [Create an Assault Order \(on page 44\)](#), [Create a Suppress Order \(on page 48\)](#), and [Create a Defend Order \(on page 58\)](#).

- Delete the object by pressing **Delete**.

The Suppress Order object is modified.

7.3 Suppress Order Properties

Set the following Suppress Order properties.

7.3.1 Global Properties

Global Property	Description
Stroke	Stroke size (line width). Do any of the following: <ul style="list-style-type: none">Enter the stroke number.Use the up / down arrows to increase / decrease the stroke.Use the drop-down to select one of the preset values.

7.3.2 Specific Properties

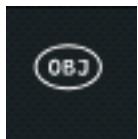
NOTE

Times are set in relation to the Elapsed / Mission Time, whichever is used. For more information, see [Synchronize Time](#) in the VBS4 Editor Manual.

Specific Property	Description
Location	Location based on the Coordinates Type (see Plan Toolbar in the VBS Plan Manual).
Width / Length	Object width / length (in meters).
Rotation	Rotation angle (in degrees) to rotate the object.
Objective	Objective associated with the order based on the values in the drop-down. The drop-down is populated with the available Objective objects.
Start Time	Order start time (in the format hh:mm).
End Time	Order end time (in the format hh:mm).

8. Objective Tool

Use the Objective Tool to specify areas where units need to move, or as points for attack-by-fire missions.



Do any of the following:

- [Create an Objective Object \(below\)](#)
- [Modify an Objective Object \(on the next page\)](#)

NOTE

When the mission is built (see [Build Missions \(on page 69\)](#)), Objective Objects are converted to VBS4 mission entities.

When the mission runs, the built VBS4 AI personnel and vehicle entities that execute a Suppress Order (see [Units Tool \(on page 24\)](#) and [Suppress Order Tool \(on page 48\)](#)) use the Objective Control Measures to fire at the enemy.

Rebuilding a mission resets the VBS4 entities based on their Tactical Objects representations.

WARNING

If you build a mission, go back to the VBS Plan, and delete the Tactical Objects representing mission entities. The latter are not removed and have to be deleted manually in the Editor. Also, if you make changes to mission entities represented by Tactical Objects in the Editor, rebuilding a mission in VBS Plan resets any of those changes.

8.1 Create an Objective Object

You can create an Objective object, visible in 2D / 3D.

Follow these steps:

1. In the Tools Panel (see VBS Plan UI Overview in the VBS Plan Manual), select the **Tactical** tab.

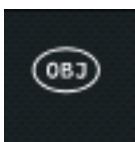
NOTE

If you have previously closed the panel, select **Show All Panels** from the **View** menu (see View Menu Options in the VBS Plan Manual) to show all the VBS Plan UI panels.

2. Expand **Control Measures** (expanded by default).



3. Click the **Objective Tool**.



NOTE

To stop drawing the object, press **Esc**. This removes the object from the map.

4. Set the [Global Properties](#) (on the next page).
5. Set the [Specific Properties](#) (on page 56).
6. Click a position on the map and hold the **LMB**, drag to set the Objective oval shape and size. Release the **LMB** to confirm.

The Objective object appears on the map and is selected.

7. Click outside the object.

The Objective object is created on the map.

To modify the Objective object, see [Modify an Objective Object \(below\)](#).

8.2 Modify an Objective Object

You can modify an existing Objective object.

Click the **Select Tool** and select the Objective object.

NOTE

The Select Tool has the following considerations:

- The cursor always selects the top object across all the available overlays.
- 3D objects are always placed above 2D objects, regardless of the overlay order.
- Objects that are part of a hidden / locked overlay are not selectable.

For more information, see [Managing Overlays](#) in the VBS Plan Manual.

You can do any of the following:

- Click and hold the rotation point, and move the mouse to rotate the object.



Alternatively, hold **Shift + RMB** and move the mouse to rotate the object.

- Drag any of the bounding-box points to change the object size.



- Drag the object to relocate it to a different position on the map.
- Modify the [Global Properties \(below\)](#).
- Modify the [Specific Properties \(on page 56\)](#).
- Delete the object by pressing **Delete**.

The Objective object is modified.

8.3 Objective Properties

Set the following Objective properties.

8.3.1 Global Properties

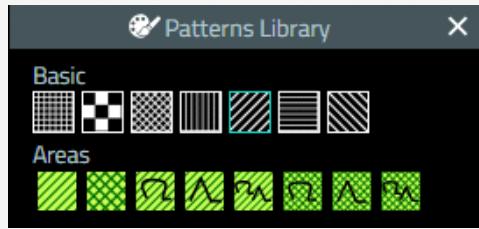
Global Property	Description
Stroke	Stroke size (line width). Do any of the following: <ul style="list-style-type: none">Enter the stroke number.Use the up / down arrows to increase / decrease the stroke.Use the drop-down to select one of the preset values.
Fill Color	 Check the Fill checkbox, then click the Fill icon, and use the Color Palette to select the shape fill color.
Border Color	 Check the Border checkbox, then click the Border icon, and use the Color Palette to select the shape border color.

Color Palette

You can set the color by clicking the color spectrum, or by typing in the RGBA values manually. Use the Plus icon and the Trash icon to add / remove the selected color to / from the **Saved Colors** list.



Select to apply the selected border or fill color.

**Patterns Library**

A library of patterns for filling shapes (designated by the Pattern icon).

The Basic fill patterns are:

- Grid Pattern
- Chessboard Pattern
- Grid Pattern 45°
- Line Pattern
- Line Pattern 45°
- Line Pattern 90°
- Line Pattern 315°

The Area fill patterns are:

- Bottom slow go
- Bottom no go
- Deciduous forest slow go
- Coniferous forest slow go
- Mixed forest slow go
- Deciduous forest no go
- Coniferous forest no go
- Mixed forest no go

Check the Pattern checkbox, then click the Pattern icon, and use the Patterns Library to select the pattern (basic or area).

**Pattern Scale**

Pattern scale. Do any of the following:

- Enter the scale number.
- Use the up / down arrows to increase / decrease the scale.
- Use the drop-down to select one of the preset values.

8.3.2 Specific Properties

Properties before placement:

Specific Property	Description
Text	Objective text.
Font	Font family / type.
Font Size	Font size.
Render Text on Surface	Select to snap the text to the same plane as the ground.

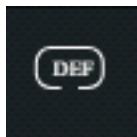
Additional properties after placement:

Specific Property	Description
Location	Location based on the Coordinates Type (see Plan Toolbar in the VBS Plan Manual).
Width / Length	Object width / length (in meters).
Rotation	Rotation angle (in degrees) to rotate the object.

9. Defend Order Tool

Apply a Defend Order to a Tactical Unit (see [Units Tool \(on page 24\)](#)) that executes when the mission runs.

The defense behavior interchanges between taking cover and engaging the enemy.



Do any of the following:

- [Create a Defend Order \(on the next page\)](#)
- [Modify a Defend Order \(on page 59\)](#)

NOTE

When the mission is built (see [Build Missions \(on page 69\)](#)), Defend Order Objects are converted to VBS4 mission entities.

When the mission runs, the built VBS4 AI personnel and vehicle entities (see [Units Tool \(on page 24\)](#)) execute the built Defend Orders, converted to Waypoints (see the VBS4 Editor Manual).

Rebuilding a mission resets the VBS4 entities based on their Tactical Objects representations.

WARNING

If you build a mission, go back to the VBS Plan, and delete the Tactical Objects representing mission entities. The latter are not removed and have to be deleted manually in the Editor. Also, if you make changes to mission entities represented by Tactical Objects in the Editor, rebuilding a mission in VBS Plan resets any of those changes.

9.1 Create a Defend Order

You can create a Defend Order (represented by a Defend Order object), visible in 2D / 3D.

Follow these steps:

1. To apply a Defend Order, select or create a Tactical Unit.

 **WARNING**

The tool is disabled if no Tactical Unit object is selected. For information on how to create a Tactical Unit object, see the [Units Tool \(on page 24\)](#).

2. In the Tools Panel (see VBS Plan UI Overview in the VBS Plan Manual), select the **Tactical** tab.

 **NOTE**

If you have previously closed the panel, select **Show All Panels** from the **View** menu (see View Menu Options in the VBS Plan Manual) to show all the VBS Plan UI panels.

3. Expand **Orders** (expanded by default).



4. Either click the **Defend Order Tool**, or right-click the **Tactical Unit object** and select **Add Defend Order**.



 **NOTE**

To stop drawing the object, press **Esc**. This removes the object from the map.

5. Set the [Specific Properties \(on page 62\)](#).
6. Click a position on the map, where you want the defense to take place.
The Defend Order object appears on the map.
7. Move the mouse to rotate the Defend Order object to set the direction in which the defense should take place. Click to confirm the direction.

The Defend Order object is created on the map.

Since the Tactical Units first have to move to the Defend Order position, a preceding Advance Order (see [Advance Order Tool \(on page 40\)](#)) is created as well, which is linked to the Defend Order.

The Defend Order has debug visualizations. See [Defend Order Debug Visualizations \(on page 60\)](#).

NOTE

If the Order is the first Order that the Tactical Units execute, then the Tactical Units face the Order direction when the mission runs.

NOTE

If no further Order is given after the Defend Order, the Tactical Units stay in their defensive positions indefinitely, regardless of the Defend Order duration (defined by the start and end Order time).

9.2 Modify a Defend Order

You can modify an existing Defend Order.

Click the **Select Tool**.

NOTE

The Select Tool has the following considerations:

- The cursor always selects the top object across all the available overlays.
- 3D objects are always placed above 2D objects, regardless of the overlay order.
- Objects that are part of a hidden / locked overlay are not selectable.

For more information, see Managing Overlays in the VBS Plan Manual.

Select the Defend Order by clicking it.

A bounding box appears around the Defend Order.

You can do any of the following:

- Click and hold the rotation point, and move the mouse to rotate the object.



Alternatively, hold **Shift + RMB** and move the mouse to rotate the object.

- Drag the object to relocate it to a different position on the map.

- Drag the Order time period in the Timeline (see VBS Plan UI Overview in the VBS Plan Manual), to change the start and end Order time.

Use the start and end arrows in the Timeline to shorten / lengthen the Order time.

 **NOTE**

When dragging the start and end arrows, the modified time period is rounded to minutes.

- Modify the [Global Properties \(on page 62\)](#).
- Modify the [Specific Properties \(on page 62\)](#).
- To chain the Defend Order with a new Order, either click an **Order Tool** icon, or right-click the **Defend Order** and select **Add Name Order**, where **Name** is the order type.

Depending on the Order type, see the Order object placement instructions in [Create an Advance Order \(on page 40\)](#), [Create an Assault Order \(on page 44\)](#), [Create a Suppress Order \(on page 48\)](#), and [Create a Defend Order \(on page 58\)](#).

- Delete the object by pressing **Delete**.

The Defend Order is modified.

9.3 Defend Order Debug Visualizations

The Defend Order provides debug visualizations that show how effective the defense is.

 **NOTE**

The debug visualizations can only be enabled after the tactical mission is built (see [Build Missions \(on page 69\)](#)) and are only visible when the scenario executes.

 **FEATURE NOTICE**

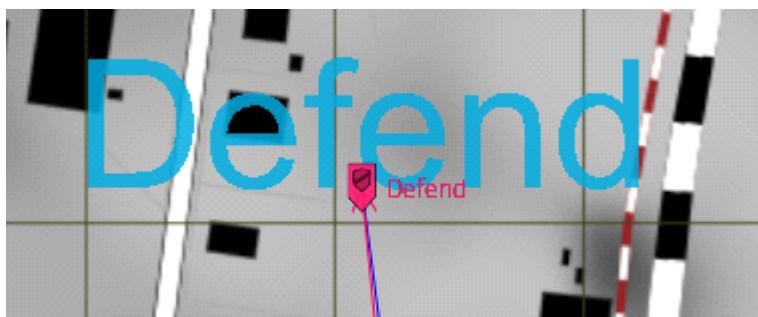
The debug visualizations vary, depending on the Tactical Unit type, and may change in future releases of VBS4.

Follow these steps:

1. Build the mission.

The Defend Order tactical symbol is converted to a Defend Order waypoint.

2. Double-click the Defend Order waypoint.



The waypoint Object Properties dialog opens.

3. Click **Advanced**, and set `debugEnabled` to `true`.
4. Click **OK** twice.
5. Run the scenario and observe the Defend Order waypoint visualizations.



EXAMPLE

For the squad Tactical Unit type, the green and red positions indicate good and bad defense spots, respectively.

Image-1: Squad Defend Order positions at nighttime



9.4 Defend Order Properties

Set the following Defend Order properties.

9.4.1 Global Properties

Global Property	Description
Stroke	Stroke size (line width). Do any of the following: <ul style="list-style-type: none">Enter the stroke number.Use the up / down arrows to increase / decrease the stroke.Use the drop-down to select one of the preset values.

9.4.2 Specific Properties

NOTE

Times are set in relation to the Elapsed / Mission Time, whichever is used. For more information, see Synchronize Time in the VBS4 Editor Manual.

Properties before placement:

Specific Property	Description
Text	Defended location marker text.
Font	Font family / type.
Font Size	Font size.
Render Text on Surface	Select to snap the text to the same plane as the ground.

Additional properties after placement:

Specific Property	Description
Location	Location based on the Coordinates Type (see Plan Toolbar in the VBS Plan Manual).
Width / Length	Object width / length (in meters).
Rotation	Rotation angle (in degrees) to rotate the object.
Start Time	Order start time (in the format hh:mm).
End Time	Order end time (in the format hh:mm).

10. Measure Distance Tool

This tool enables you to measure distances between points placed on the 2D / 3D map. Distances are displayed as lines, with scalable text, and numbers in configurable units.

The following features are discussed:

- [Accessing the Measure Distance Tool \(below\)](#)
- [Measure Distance Tool Dialog \(on page 65\)](#)
- [Multiple End Points and Chains \(on page 66\)](#)
- [Linking Points to Units and Vehicles \(on page 68\)](#)

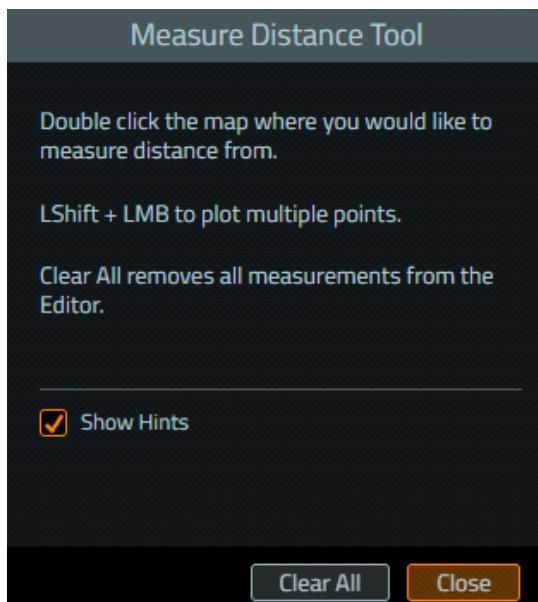
10.1 Accessing the Measure Distance Tool

Access the Measure Distance Tool using the Editor Menu or the Editor Objects List.

Editor Menu

1. Go to **Tools > Measure Distance**.

The first time you do this, the Measure Distance Tool dialog opens with a list of hints.



2. Uncheck **Show Hints**, if you do not want hints to appear.

The [Measure Distance Tool dialog \(on page 65\)](#) with editable properties opens.

3. Double-click the map where you want to measure the distance from (start point).

The Measure Distance Editor Object appears on the map as a white box, with a black arrow attached to it and your cursor.

Editor Objects List

1. Select **Measure Distance** in the Editor Objects List.
2. Double-click the map where you want to measure the distance from (start point).

The Measure Distance Editor Object appears on the map as a white box, with a black arrow attached to it and your cursor, and the [Measure Distance Tool dialog \(on the next page\)](#) opens.

Click on the map where you want to measure the distance to (end point).

There is a line between the start point and the end point, with the measured distance displayed.

NOTE

A **green** line means that a line of sight exists between the two points. If the line is **red**, there is no line of sight. Also, in the 2D Map View, start / end points appear on the map as small white boxes, in the 3D Camera View, they appear as white arrows.

Image-2: Distance line in 2D Map View

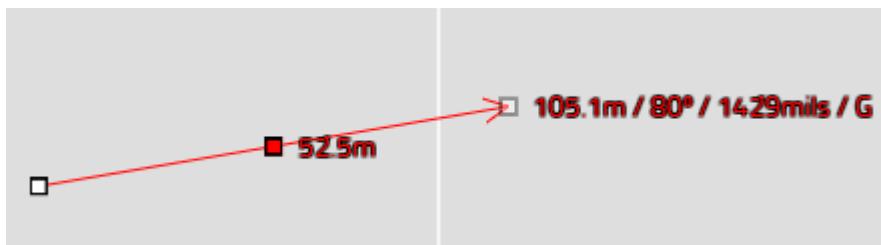


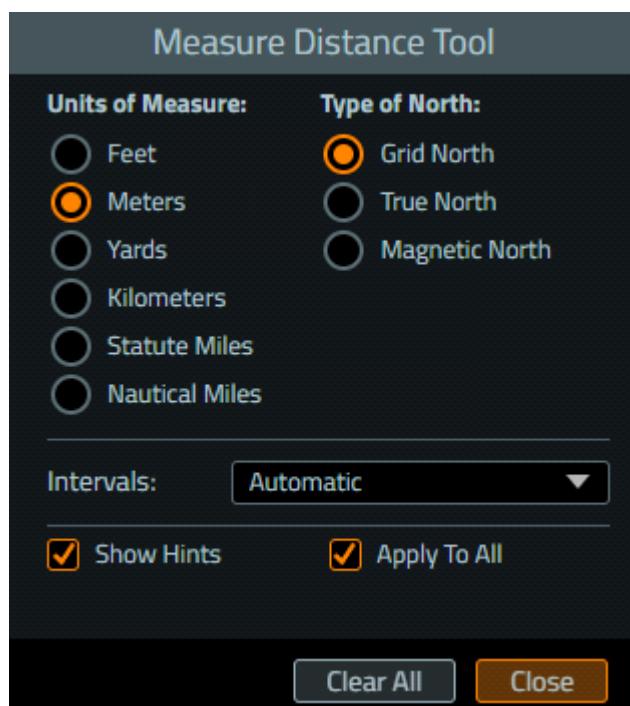
Image-3: Distance line in 3D Camera View



10.2 Measure Distance Tool Dialog

The Measure Distance Tool dialog allows you to set various parameters, that affect how measurements appear on the map. They can be adjusted at any time.

Image-4: Measure Distance Tool dialog



The dialog has the following controls:

Control	Description
Units of Measure	Select one of the options: Feet, Meters, Yards, Kilometers, Statute Miles, Nautical Miles.
Type of North	Select one of the options: Grid North, True North, Magnetic North.
Intervals	Select Automatic to automatically add measured intervals (divisions) between start / end points. Select 1 - 10 to use a specific number of intervals (divisions) to add at equal distances between the start / end points.
Show Hints	Select to show a list of Measure Distance Tool hints.
Apply to All	Selected - Updates all the points on the map to the settings currently configured in the dialog. Deselected - Applies the current settings in the dialog only to the points that you are currently configuring (see Measurement and North Settings (on the next page)).

Control	Description
Clear All	Click to remove all points and lines from the map.
Close	Click to close the dialog. To reopen the dialog at any time, double-click the Measure Distance Tool Editor Object, or go to Tools > Measure Distance Tool .

NOTE

Clicking **Close** in AAR or C2, also turns off the Measure Distance Tool.

NOTE

VBS4 remembers the dialog settings from the previous session.

10.2.1 Measurement and North Settings

Units of Measurement and North settings can be applied to one pair / group of linked points, leaving any other pairs / groups of points on the map with their original settings. For example, you have several groups of linked points on the map, all with measurements in Feet, but you want to change one group to use Meters.

Follow these steps:

1. Open the Measure Distance Tool dialog, and deselect **Apply to All**.
2. Select the **Start** or **End** point of the group you want to change, so that it flashes.
3. In the Measure Distance Tool dialog, select the **Meters** radio button.

All points and intervals in the group change to Meters, leaving the other groups as Feet.

10.3 Multiple End Points and Chains

One Measure Distance point can connect to several end points. Points can also be chained together (in which case, the accumulative distance is displayed at each point).

Follow these steps:

1. Press and hold **LShift**.
2. Click a **point**, that you want to connect to several end points, or create a chain from.

A black arrow is attached to your cursor.

3. Do one of the following:

- To place an end point, release **LShift**, and click the map where you want the end point to be.
- To create a chain, continue to hold **LShift**, and click the map repeatedly to place as many points as you require. Before placing the end point, release **LShift**, which detaches the arrow from your cursor when the end point is placed.

One point is connected to several end points, or you have a chain.

Image-5: Start point connected to several end points

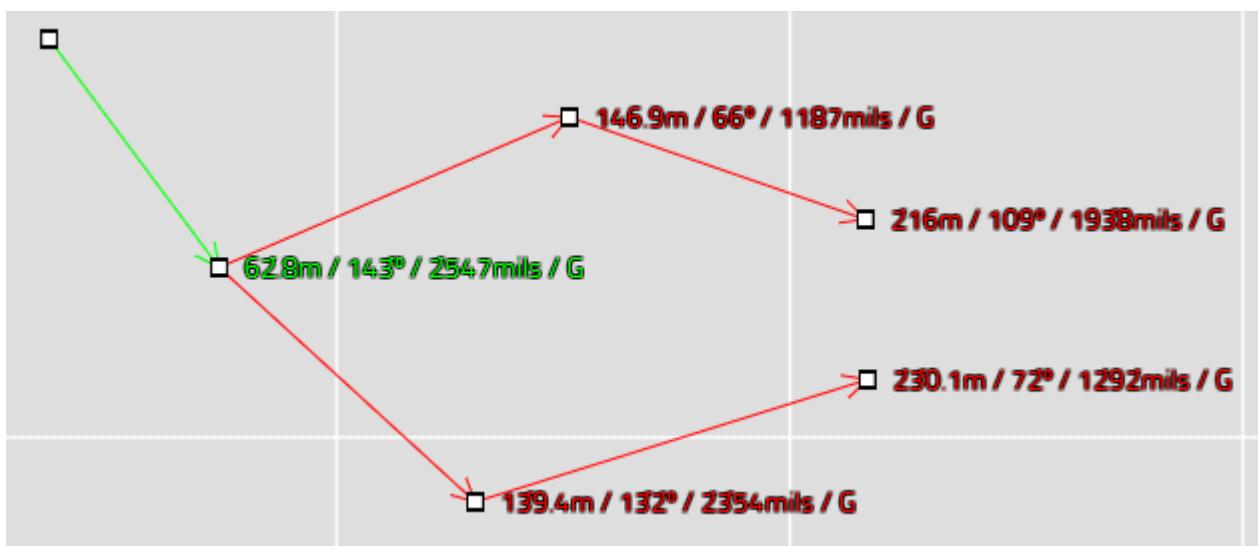
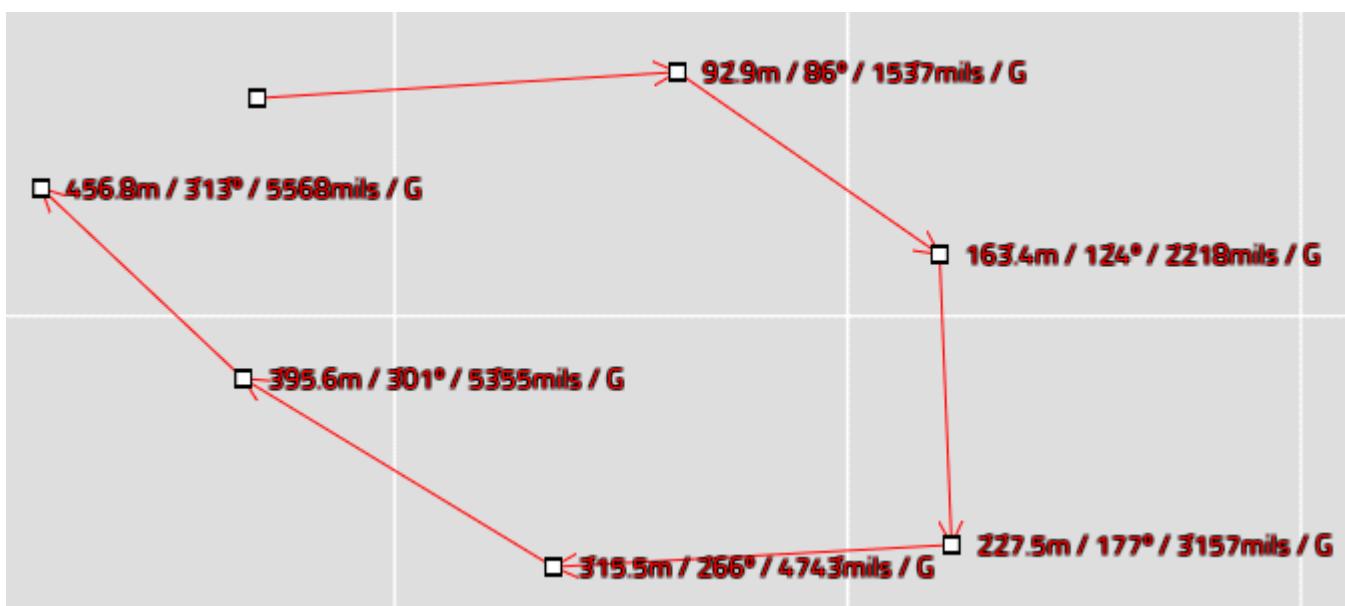


Image-6: Points linked as a chain



10.4 Linking Points to Units and Vehicles

You can measure the distance from a point to units, groups, or vehicles by linking the point to them.

Follow these steps:

1. Do one of the following:

- **Start / End Points**
 - a. Press and hold **LShift**.
 - b. Click a **Start / End Point**.

A black arrow is attached to the point and your cursor.

- c. Release **LShift**.
- **Intervals**
 - a. Double-click an **Interval**.

A black arrow is attached to the interval and your cursor.

2. Click a **Unit / Group / Vehicle**.

There is a line between the start / end point / interval, and the unit / group / vehicle, with the measured distance displayed.

Image-7: Points attached to a unit / vehicle



11. Build Missions

Once you finish designing your Tactical Plan, using Drawing Objects, Tactical Objects, and CAS Objects (see the VBS Plan Manual), and reviewing it (see Review Plans in the VBS Plan Manual), you can prepare it further for mission execution by building it.

NOTE

You can only build a mission in **Prepare Mode**.

To build the Tactical Plan into a mission, click **Build Mission** or select **File > Build Mission**.

NOTE

Built Tactical Objects (see the VBS Plan Manual) have the following aspects:

- When the mission is built, Tactical Objects are converted to VBS4 Control AI personnel and vehicle entities, Waypoints (see Waypoints in the VBS4 Editor Manual), and VBS Call for Fire fire missions and gunlines.
- When the mission runs, the built VBS4 AI personnel and vehicle entities execute Orders, converted to Waypoints, and take Control Measures (apart from Boundary Lines) into account.

Built CAS Objects (see the VBS Plan Manual) have the following aspects:

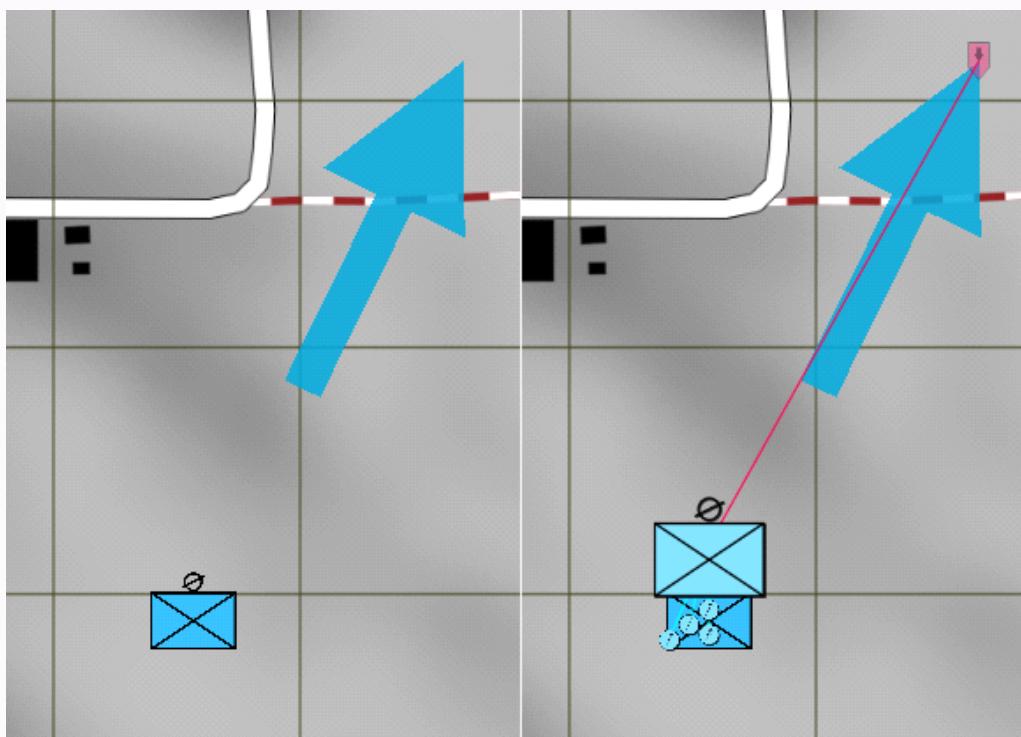
- When the mission is built, CAS Unit Objects are converted to VBS4 personnel and aircraft entities (see CAS Units Tool in the VBS Plan Manual).
- When the mission runs, the built VBS4 entities execute the CAS Orders (see CAS Mission Order Tool in the VBS Plan Manual), using Control Measures (see CAS Initial Point (IP) Tool, CAS Control Point (CP) Tool, CAS Holding Area (HA) Tool, CAS Battle Position (BP) Tool, CAS No Fly Zone (NFZ) Tool, CAS No Fire Area (NFA) Tool in the VBS Plan Manual).

Rebuilding a mission resets the VBS4 entities based on their Tactical / CAS Objects representations.



EXAMPLE

Image-8: Before (left) and after (right) Build Mission



As can be seen in the right image, a BLUFOR group and waypoints are added after the mission is built.

Once the mission is built, you can make additional changes.

Follow these steps:

1. Add additional Editor Objects, or update the ones created by VBS Plan. For more information, see Scenario Preparation in the Introduction to VBS4 Guide.



WARNING

If you build a mission, go back to the VBS Plan, and delete the Tactical Objects representing mission entities. The latter are not removed and have to be deleted manually in the Editor. Also, if you make changes to mission entities represented by Tactical Objects in the Editor, rebuilding a mission in VBS Plan resets any of those changes.

2. Preview the mission in single-player.

Select **Preview** in the VBS4 Toolbar (see VBS4 UI Overview in the Introduction to VBS4 Guide).

WARNING

A mission that has no playable units cannot be previewed.

The Scenario starts as a playable mission with you controlling the first playable character placed in the Scenario.

TIP

To select a specific playable character, edit the wanted unit (from the list of units, created with **Build Mission**), using Edit Unit Options (see the VBS4 Editor Manual) in the Editor.

For more information, see Scenario Preparation in the Introduction to VBS4 Guide.

3. Save your Tactical Plan and built mission:

Click the **Main Menu** icon and select **Battlespaces > Save**.



For more information, see Save in the VBS Plan Manual.

4. Execute the Tactical Plan.

Instructors see Tactical Orders that Tactical Units execute at in the Scenario.



For more information, see Scenario Execution in the Introduction to VBS4 Guide.

12. VBS Call for Fire - FDC UI

Access the Fire Direction Center (FDC) UI for VBS Call for Fire from the VBS4 Editor, and use it to place gunlines and targets, process target coordinates, create fire missions, and collate fire mission data. It also stores previously configured fire missions, targets, and gunlines.

TIP

If you are an advanced user, it is possible to configure the ammunition, fuses, and guns available in the FDC UI to your specific requirements, see [VBS Call for Fire UI Configuration](#) in the VBS4 Administrator Manual for more information.

Click the **FDC** tab to open the FDC UI.



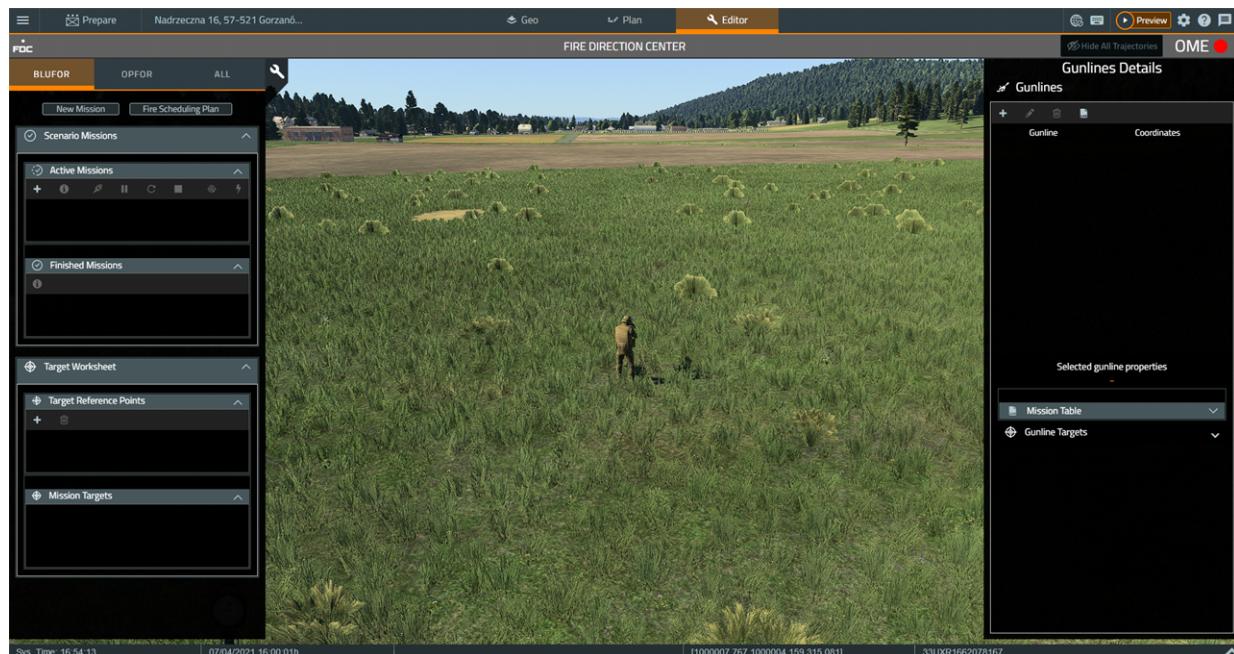
The following panels appear on either side of the screen:

- [Gunlines Details Panel \(on the next page\)](#) - This panel appears on the right, and includes the functions for adding, editing, and deleting gunlines.

NOTE

Adding gunlines is the first step in the Call for Fire workflow.

- [Main FDC Panel \(on page 74\)](#) - This panel appears on the left, and has functions for creating a new fire mission, and managing any pre-existing ones.



Above the Gunlines Details panel, there is a toolbar with a button at the top-right which you can use to **Hide All Trajectories**.



Click this button to clear all trajectories from the scenario. This is useful since showing a very large number of trajectories in the UI may impact performance.

To exit the FDC UI, click the **Spanner** tab.



NOTE

You must exit the FDC UI in order to access the VBS Editor Main Menu options.

12.1 Gunlines Details Panel

Use this panel to create and manage gunlines, including loadouts, that are available in the scenario. These functions are described in Gunline Management in the VBS Call for Fire Manual.

NOTE

Gunlines should be added before a new fire mission is created.

The screenshot shows the 'Gunlines Details' panel. At the top, there's a toolbar with icons for adding (+), editing (pencil), deleting (trash), and saving (disk). Below the toolbar is a table titled 'Gunlines' with columns 'Gunline' and 'Coordinates'. A single row is selected, showing 'Gunline 1 (AA)' with coordinates '33TWI 39465 69494'. Below the table is a section titled 'Selected gunline properties' containing 'Gunline 1'. Further down are two expandable sections: 'Mission Table' (showing columns ID, Target Coordinates, End Time) and 'Gunline Targets' (showing column ID and Coordinates).

At the top of the Gunlines Details panel are the following controls:

Button	Description
	Use to create a gunline, see Create Gunlines in the VBS Call for Fire Manual.
	Use to edit a gunline, see Edit Existing Guns and Gunlines in the VBS Call for Fire Manual.
	Use to delete a gunline, see Delete Existing Guns and Gunlines in the VBS Call for Fire Manual.
	Click to open the Mission Table.

12.2 Main FDC Panel

At the top of the **Main FDC** panel are the following tabs:

- **BLUFOR** - Allows you to create and see all fire missions for BLUFOR scenario participants only.
- **OPFOR** - Allows you to create and see all fire missions for OPFOR scenario participants only.
- **ALL** - Allows you to see all fire missions for BLUFOR and OPFOR sides in the scenario.

The BLUFOR and OPFOR tabs have the following buttons at the top:

New Mission

Click to Create a Fire Mission.

Fire Scheduling Plan

Click to open the Fire Scheduling Plan dialog, which contains a list of planned fire mission entries. These are configured during fire mission creation, see Create a Fire Mission.

Fire Scheduling Plan							X
+		Elapsed Time 00:04:02					
ID	Gunline	Location	Mission Start	Time on Target	Mission End	Errors	
AB0002	Gunline 2	33TWJ 39621 69885	00:05:37	00:06:00	00:05:55	-	
AA0002	Gunline 1	33TWJ 39412 69887	00:04:37	00:05:00	00:04:55	-	

The dialog has the following features:

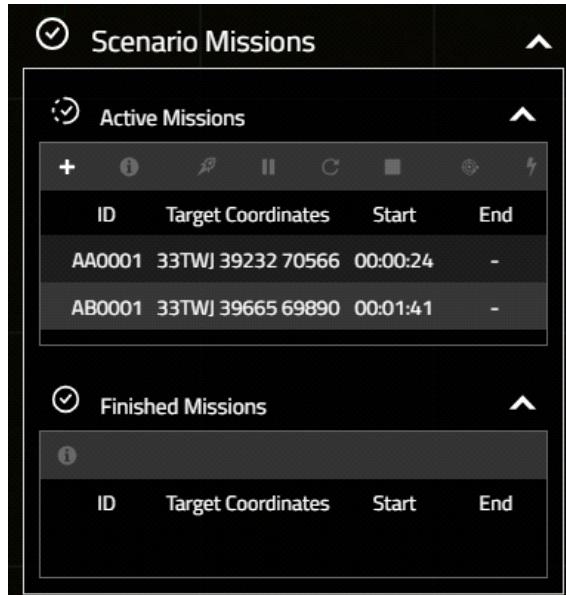
Feature	Description
	Click to open the Fire Mission panel, and create a new fire mission.

Feature	Description
	Click an entry in the list, so that it is highlighted, and click this button to delete it. The planned fire mission is deleted from the list and the scenario, and can never become Active or Finished .
Elapsed / Mission Time	Clock that shows the current time as the Elapsed Time or Mission Time, depending on the time format set. For more information, see Synchronize Time in the VBS4 Editor Manual.
ID	Mission ID.
Gunline	Gunline name / number.
Location	TRP and Target location coordinates.
Mission Start	Scheduled fire mission start time.
Time on Target	The time at which the first round should impact the target, see Time on Target.
Mission End	Scheduled fire mission end time.
Errors	An error warning icon is shown if the mission fails. Hover over the icon to read the list of errors.

The rest of the main FDC panel is divided into the following sections:

Scenario Missions

This section lists the currently **Active** and **Finished** fire missions.



ID	Target Coordinates	Start	End
AA0001	33TWJ 39232 70566	00:00:24	-
AB0001	33TWJ 39665 69890	00:01:41	-

Active Missions

Select a **fire mission** entry in this list, so that it is highlighted, and use the following buttons to edit and control an existing fire mission. Creation of new fire missions is also possible here:

Control	Description
	Create Click to open the Fire Mission panel, and create a fire mission (duplicates the New Mission button function).
	Mission Report Click to open the Mission Report Panel (see the VBS Call for Fire Manual).
	Fire Guns Click to instruct the guns to fire when they are ready. Active if At My Command is selected during mission creation (see Create a Fire Mission).
	Check Fire Click to pause the mission.
	Repeat Mission Repeats the last mission instruction given.
	End Mission Click to end the mission.
	Adjust Fire Click to open the Adjust Fire dialog. Not available for Fire for Effect type missions.
	Fire for Effect Click to open the Fire Mission panel.

Finished Missions

Select a **fire mission** entry in this list, so that it is highlighted, click the **Mission Report** button to access the Mission Report Panel, and view data about the selected fire mission.

NOTE

Finished fire missions cannot be edited or repeated. They are purely for the purpose of VBS Call for Fire in AAR (in the VBS Call for Fire Manual).

Target Worksheet

Use the functions in this section to create, edit, and adjust targets. For more information, see Target Management (see the VBS Call for Fire Manual).

The screenshot shows the 'Target Worksheet' window. It has two main sections: 'Target Reference Points' and 'Mission Targets'. The 'Target Reference Points' section contains a '+' button and a trash can icon. The 'Mission Targets' section is a table with two rows:

ID	Target Coordinates
AA0001	33TWJ 39232 70566
AB0001	33TWJ 39665 69890

Volleys

Each time you click **Repeat Mission / Adjust Mission > OK**, a new chronological "instruction" entry is added to the Ballistic Information (Volleys) list in the Mission Report Panel, below the previous instruction.

When using Adjust Fire mission types, the FDC Operator typically fires multiple volleys to test the accuracy of the target information, and makes any necessary adjustments. Once they are confident that they can destroy the target, the FDC Operator switches to Fire for Effect for the final bombardment.

13. VBS Call for Fire Mission Management

Fire missions are managed by the FDC Operator, using various controls found in the main Fire Direction Center and Gunlines Details panels. These controls enable the FDC Operator to create, edit, and control fire missions, and monitor gunline activity.

Follow this process:

1. Set up a fire mission, see [Create a Fire Mission \(below\)](#).
2. Edit / adjust a fire mission, see [Active Fire Missions \(on page 84\)](#).
3. Monitor gunline activity, see [Gunline Data \(on page 85\)](#).

WARNING

Fire mission and gunline data created in VBS Call for Fire may be backward incompatible with older versions of VBS Call for Fire in older VBS4 releases.

13.1 Create a Fire Mission

Before creating a fire mission, create a gunline. Gunlines are created in the **Gunline Configuration** panel. For more information, see Gunline Management in the VBS Call for Fire Manual. From the Main FDC panel, you can access the Fire Mission panel, used to create fire missions.

Image-9: Fire Mission panel



Follow these steps:

1. In the Main FDC panel, click the **BLUFOR** tab to create a fire mission for the BLUFOR side, or click the **OPFOR** tab to create a fire mission for the OPFOR side.
2. Click the **New Mission** button or **+** in the Active Missions list to open the Fire Mission panel.
3. Select an **FO** and **Mission Type**, and make a fire mission **Scheduled**, if required.

Setting	Description
FO	Use the drop-down to select a Forward Observer (FO) from the list of URN Markings or select Enter FO Position Manually , to enter coordinates for the FO.
Mission Type	Use the drop-down to select a mission type. See Mission Types in the VBS Call for Fire Manual for detailed descriptions of each mission type option.
Scheduled	Select to open Time on Target (below) fields to schedule a fire mission.
<p>NOTE</p> <p>Scheduled fire missions are the only type of missions that end automatically, without intervention from the FDC Operator.</p>	
Time on Target	Enter a specific time when the first round should impact the target. The fire mission automatically starts at a calculated length of time before the time you enter, which is necessary for the rounds to arrive on target and on time (the gunline procedures of Preparing, Attention, Laying, and Loading, followed by the time-in-the-air of the projectile, are taken into account).
<p>NOTE</p> <p>The Time on Target set relates to the Elapsed / Mission Time (below).</p>	
<p>How a fire mission starts can vary, depending on the Method of Control:</p> <ul style="list-style-type: none"> • Fire When Ready - When the elapsed time is reached, the fire mission is added to Active Fire Missions (on page 84), and becomes active. The guns go through the configured procedures, and fire at the target. • At My Command - When the elapsed time is reached, the fire mission is added to Active Fire Missions (on page 84), and starts to play. However, the guns are only prepared for firing. They do not fire until the FDC Operator clicks Fire Mission. <p>On fire mission completion, the mission entry in Active Fire Missions (on page 84) moves to Finished Missions.</p>	
Elapsed / Mission Time	Clock that shows the current time, depending on the time format set. For more information, see Synchronize Time in the VBS4 Editor Manual.

4. In **Supporting Gunline**, do one of the following:

- Check the **box** next to a gunline name, to use all the guns in that gunline.
- Check the **box** under a specific gun number, to use that gun.

NOTE

The gunlines shown are specific to the side you selected (BLUFOR / OPFOR).

5. In **Target Location**, select one of the following settings.

Setting	Description
Recorded	Select to use TRP coordinates from the Target Worksheet (see Target Management in the VBS Call for Fire Manual).
Grid	Select to enter new target coordinates, see Target Management in the VBS Call for Fire Manual.
Shift	Select to select an existing target, and adjust the position of the gun barrels in relation to the target: <ul style="list-style-type: none"> • Known Position - Use the drop-down to select existing TRP coordinates. • Direction (mil) - Field available if no FO is assigned to the mission. Enter an angle in milliradians, to adjust the angle between North and the target. • Left / Right - Select the direction to move the target, and enter by how much in the field (meters). If using an FO, Left / Right is from their viewpoint. • Add / Drop - Move the target further away (Add) or closer (Drop) to the FO, and enter by how much in the field (meters). Add / Drop is from the viewpoint of the FO. • Up / Down - Move the target up / down (vertical adjustment), and enter by how much (meters). This setting adds meters above or below ground level. Guns normally aim at the target at ground level. Each additional shift is calculated from the last impact position, not the first target selected for the mission. An ^ / v arrow appears on the map with a number indicating meters relative to the ground.
Polar	Select to calculate the grid coordinates when a target is specified by reference to the FO position: <ul style="list-style-type: none"> • Direction - Enter the direction of the target (mils), relative to the angle between the FO and North. • Distance - Enter the distance from the FO to the target (meters). • Up / Down - Select to move the target point up / down, and enter by how much (meters).
<p>WARNING</p> <p>An FO (on the previous page) must be selected for this option to be available.</p>	

6. In **Target Description**, use the drop-downs to enter specific information about the target, provided by the FO:

Setting	Description
Type	Troops, Armor, Equipment, Supply Dump, Trucks.
Size	Fire Team, Squad, Platoon, Company.
Disposition	Moving, Digging in, In an assembly area.
Degree of Protection	In open, In foxholes, In bunkers with overhead protection.

i **NOTE**

The settings in this section have no simulation effect. They are included so that the FO can role-play reporting information about the target. The FDC Operator records information here, received from the FO, for later review. See also Role-Play in the VBS Call for Fire Manual for more information.

7. In **Distribution**, use the drop-down to select the Distribution Patterns (see the VBS Call for Fire Manual) you want.
8. In **Ammunition**, select from the following options:

Option	Description
Default	All guns fire the same ammunition.
Fire With	Enables you to use two types of ammunition (Ammunition A and Ammunition B), divided between the guns in Supporting Guns at the bottom of the Ammunition section.
Follow By	Enables you to use two types of ammunition. All guns fire Ammunition A , then there is a delay (defined using the Delay countdown timer), then all guns fire Ammunition B .

i **NOTE**

Fire With and **Follow By** allow you optionally specify a secondary target by checking **Secondary Target** and specifying the target settings, as described in step 5.

9. Use the drop-downs to select specific ammunition and fuse types:

Setting	Description
Ammunition	Select from the list of available ammunition for the gun type.
Fuse	Select from the available fuse types for the ammunition: <ul style="list-style-type: none"> • PD - Impact fuse which triggers upon contact with a hard object. • Timed - Triggers after a timed interval. The time is automatically calculated depending on the Height of Burst (m), set by the FDC Operator. The Height of Burst setting is only shown when this fuse type is chosen. • Near Surface - Proximity fuse. Triggers approximately 1 meter from the ground. • Delay - Triggers a momentary time delay after impact. • Proximity - Triggers approximately 4 meters from the ground.
Rounds to be Fired	Select one of the following, and enter amounts in the corresponding fields: <ul style="list-style-type: none"> • Total - Total number of shells to be fired between all guns. • Per Gun - Total number of shells to be fired per gun. • Rounds per min. - Total number of rounds to be fired per minute. • Duration - Duration the guns should continue to fire, in minutes and seconds (maximum of 10 minutes).

10. In **Method of Engagement**, select the trajectory of projectiles:

Setting	Description
Trajectory	<ul style="list-style-type: none"> • High - Uses the maximum possible charge to hit the target using a high trajectory. • Low - Uses the minimum possible charge to hit the target using a low trajectory.
Charge Level	Leave as Automatic , or use the drop-down to select the amount of propellant for rounds. For example, a charge level of 1 applies a small amount of propellant producing a short range, a charge level of 5 applies a large amount of propellant producing a long range.

11. Optional: Use the **Adjustments** options for informational purposes.

- **Area / Precision** - Indicates if gunners should hastily cover an area, or take care to fire with precision. AI gunners always perform their tasks with ideal accuracy. To simulate inaccuracy, use the **Dispersion** setting when you create gunlines to adjust the accuracy of the gunline, or select the Circle pattern setting to cover a broad area in (see Create Gunlines in the VBS Call for Fire Manual).
- **Mark** - **For exercise recording only, there is no simulation effect.** If checked, the FO can confirm that illumination rounds are bursting at the desired height and location. This option is available so that the FO and FDC Operator can role-play this step by recording the volley in which the desired effect was obtained, for later review.
- **Danger Close** - **For exercise recording only, there is no simulation effect.** Indication given by the FO that friendly troops are near the target location. AI behavior does not change based on this parameter.

NOTE

These settings have no simulation effect. They are included so that the FO can role-play reporting information about the target. The FDC Operator selects options here based on information provided by the FO, which is used for later review. See Role-Play in the VBS Call for Fire Manual for more details.

12. In **Method of Control**, use the drop-down to select from the following settings:

- **Fire When Ready** - The guns fire shortly after the mission starts, depending on the timing configuration of gunline events.
- **At My Command** - The guns fire when the FDC Operator clicks **Fire Mission** during Fire Mission Verification (see the VBS Call for Fire Manual).

13. In **Control Type**, use the drop-down to select from the following settings:

- Continuous Fire
- Continuous Illum
- Coordinated Illum

NOTE

Control Type settings have no simulation effect on their own, see Role-Play in the VBS Call for Fire Manual for more details.

14. Click **Process**.

The CFF system checks the following and if all conditions are met, Fire Mission Verification occurs, which enables you to review the settings you configured:

- The selected guns are not being used by another fire mission.
- The target is in range.
- The guns have sufficient ammunition to complete the fire mission.
- The fire rate is achievable.
- For scheduled missions, that the required Start Time is not in the past / before mission start.

13.2 Active Fire Missions

You can edit and control currently active fire missions using the buttons located at the top of the Active Missions list. Click the entry of the fire mission you want to edit / control in the list, so that it is highlighted, and the buttons are activated.

13.3 Gunline Data

Existing gunlines are listed as entries in the Gunlines Details panel. Once a gunline is assigned to a fire mission and the mission is started, various data is made available. This data is also saved when the fire mission is ended for later review.

TIP

Before fire mission start, click the **entry** of the gunline assigned to the mission, so that it is highlighted and expands. Here you can see gunline data update in real-time.

Image-10: Expanded gunline entry



The screenshot shows the 'Gunlines Details' panel with the following data:

- Gunlines** table:

Gunline	Coordinates
Gunline 1 (AA)	30QVK 25265 11095
- Gun Status** table:

Gun	Status	ELV	DEF	Mission
1	Idle	0369	1165	AA0001
2	Idle	0267	1142	AA0001
3	Idle	0320	1109	AA0001
4	Idle	0225	1063	AA0001
- Mission Table** table:

ID	Target Coordinates	End Time
AA0001	30QVK 25390 11158	-
- Gunline Targets** table:

ID	Coordinates
AA0001	30QVK 25390 11158

Data is shown in the following columns:

Column	Description
Gun	Numbered list of guns in the gunline.
Status	Displays the process statuses in real-time: Idle, Preparing, Attention, Laying, Loading, Fired, Unloading, Stowing.
ELV	Elevation of each gun in relation to the ground (milliradians).
DEF	Deflection, the rotation of each gun (milliradians).
Mission	ID of the fire mission the gunline is currently undertaking.

Further data is available in the tables that follow.

Mission Table

All fire missions the gunline is assigned to are listed here. Click the **expander** or **log** to open the full version of the Mission Table.



Image-11: Mission Table (full version)

The screenshot shows the 'Mission Table' window. On the left, the 'Mission List' panel displays a single mission entry for 'Gunline 1' with ID AA0001, target coordinates 30QVK 25390 11158, and end time 11158. On the right, the 'Mission Details' panel shows the 'Type' as 'Fire for Effect' and 'Control' as 'Fire When Ready'. Below these, the 'Ballistic Information (Volleys)' panel is expanded, showing a 'Fire For Effect' section with one volley. The volley details are as follows:

Gun	Sub-Target Coord.	Ammo	Fuse	GTL (mils)
1	30QVK 25403 11165	HE	PD	1165
				M720
2	30QVK 25377 11151	HE	PD	1142
				M720
3	30QVK 25403 11165	HE	PD	1109
				M720
4	30QVK 25377 11151	HE	PD	1063
				M720

The table has the following controls:

Control	Description
Gunline	Use this drop-down to select a gunline.
Follow Current Volley	Select to show the trajectories of any volleys in the air. When the fire instruction ends, the last trajectory is still visible and CFF automatically hides trajectories of volleys that have landed, unless showing the final volley.

The rest of the table is divided into the following panels:

Mission List

Lists fire missions as one line entries, with the following data:

- **ID** - Mission ID number.
- **Target Coordinates** - Coordinates of the target.

NOTE

Displays the last set of coordinates that the FDC Operator directed the guns to fire at.

- **End Time** - Time the fire mission ended.
- Show / hide trajectories for the gunline.



Click an **entry** (so that it is highlighted) to populate the Mission Details column.

Mission Details

The following data is displayed for the fire mission selected in the Mission List column:

- **Type** - Displays the Mission Type, see Mission Types in the VBS Call for Fire Manual.
- **Control** - Displays gun behavior selected, see [Create a Fire Mission \(on page 78\)](#).
- **Ballistic Information (Volleys)** - Click the down arrows to display further data:
 - **Gun** - List of guns used for the volley.
 - **Sub-Target Coord** - Precise coordinates targeted.
 - **Ammo** - Ammunition used.
 - **Fuse** - Fuse type used.
 - **GTL (mil)** - Gun to Target Line direction in milliradians.
 - Show / hide trajectories for the individual volleys.



Click **X** to close the Mission Table.

NOTE

Sub-Target Coordinates are the precise coordinates a gun targeted when firing that round. They may differ from the main mission target co-ordinates, if target patterns are used, or if the rounds are from historical volleys.

Gunline Targets

This table lists the related target(s), including the mission **ID**, and the target **Coordinates**.

Gunline Targets	
ID	Coordinates
AA0001	30QVK 25390 11158