



IL-2 BATTLE OF STALINGRAD MISSION BUILDING GUIDE

Prangster's quick start guide to Sunday campaign missions



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INTRODUCTION

This guide was written as an introduction to the IL-2 Sturmovik: Battle of Stalingrad Mission Editor for the mission builders in my squadron, the Tangmere Pilots. The Tangmere Pilots run a Sunday night co-op campaign that's flown with the players against AI opponents. The main tutorials in this guide are intended to help them and concentrate on creating AI opponents and friendly units for multiplayer co-op style missions. I've also included some supplementary tutorials on setting up a new maps, dogfight maps and single player missions.

For the tutorials there's a template mission file that you will need to download from [here](#). The template mission has all the buildings, frontline markers already included. Also included is a mission file with all the tutorials completed to use as a reference.

Hopefully I can help demystify the Mission Editor and show you some of the amazing things you can do with it.

Ian "Prangster" Jeremiah

PART ONE – MISSION FILES

1.1 Mission Files

When you save a mission from the Mission Editor (ME) the game creates 7 files, these are:

Name	Date modified	Type	Size
 Velikiye Luki-07.eng	19/07/2015 16:38	ENG File	4 KB
 Velikiye Luki-07.ger	19/07/2015 16:38	GER File	1 KB
 Velikiye Luki-07.list	19/07/2015 16:38	LIST File	1 KB
 Velikiye Luki-07.Mission	19/07/2015 16:38	MISSION File	2,336 KB
 Velikiye Luki-07.msnbin	19/07/2015 16:38	MSNBIN File	376 KB
 Velikiye Luki-07.pol	19/07/2015 16:38	POL File	1 KB
 Velikiye Luki-07.rus	19/07/2015 16:38	RUS File	1 KB

Mission File.**eng** – Mission briefing and other in game text localized for English. This functions like the .properties file in IL-2 1946.

Mission File.**ger** – Mission briefing and other in game text localized for German.

Mission File.**pol** – Mission briefing and other in game text localized for Polish.

Mission File.**rus** – Mission briefing and other in game text localized for Russian.

Mission File.**list** – Links to external files and localisation files.

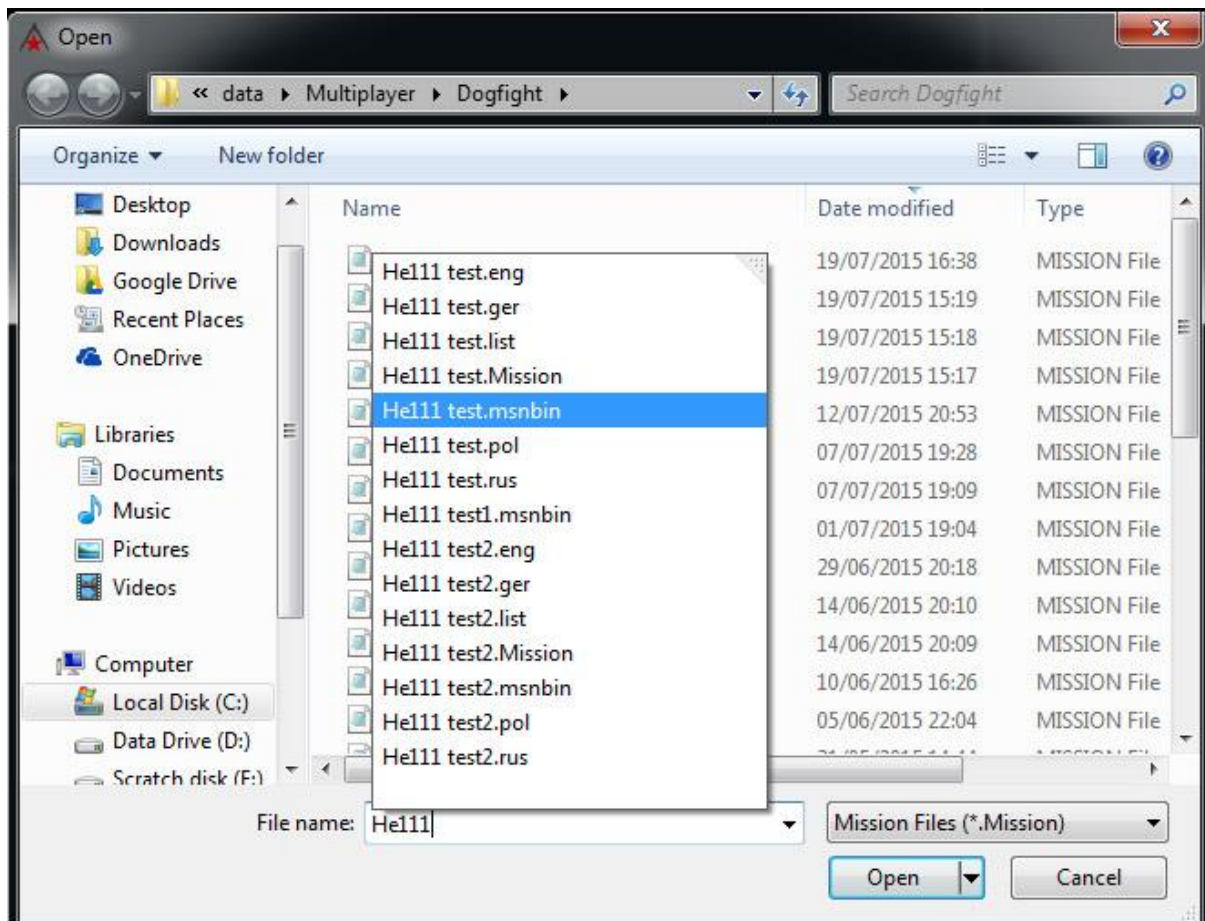
Mission File.**Mission** – This file contains the mission in a plain text and uncompressed format. This is like the .mis file in IL-2 1946.

Mission File.**msnbin** – This is the .Mission file.

When a player connects to a server all these files bar the .Mission file are downloaded to their *data/Multiplayer/Dogfight* folder.

1.2 Opening missions in the Mission Editor

If you have a .Mission file you can open it and edit the mission normally but you can also open a .msnbin file. The .msnbin files aren't visible but if you start typing the name of the mission you'll be able to select it from the popup list.



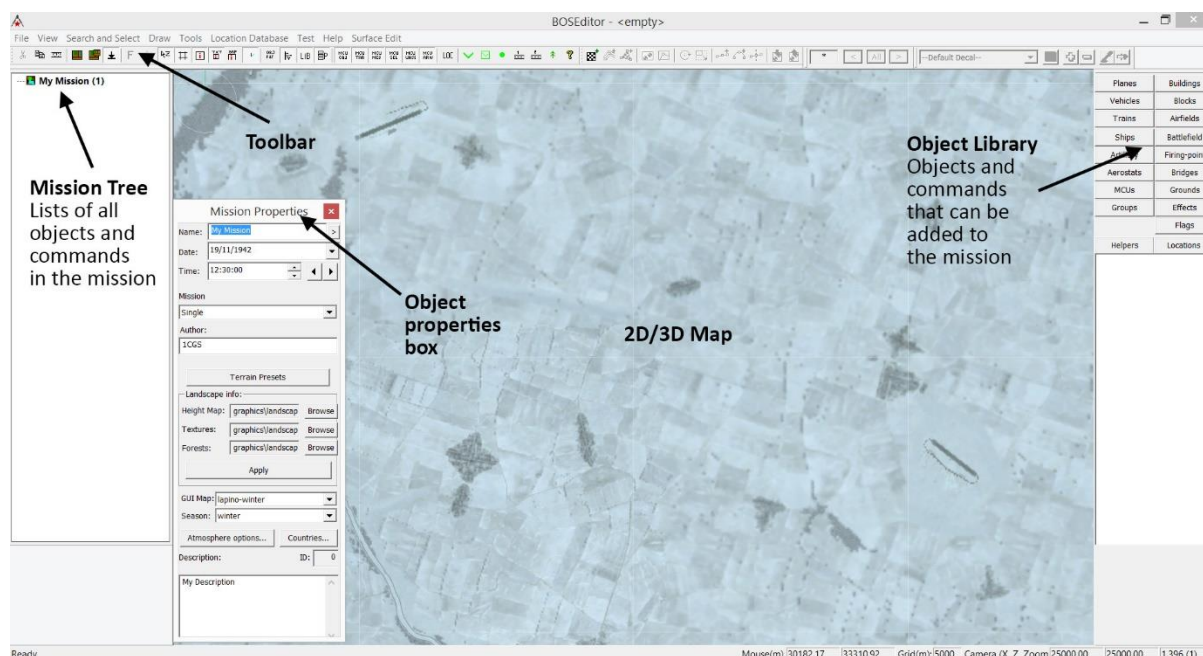
PART TWO – MISSION EDITOR BASICS.

2.1 How the ME works

With the IL-2 BOS Mission Editor (ME) you can create and edit single and multiplayer missions. The ME is a separate program but uses the same resources as the IL-2 BoS game and you can't run the game and ME at the same time. The ME can be found in *bin/editor/STEditor.exe*.

Missions in the ME consist of Objects and Commands. Objects are things such as buildings, tanks, aircraft and smoke. Commands, or MCUs as they are called, tell the objects what to do. To create a mission you link commands to objects and objects to commands.

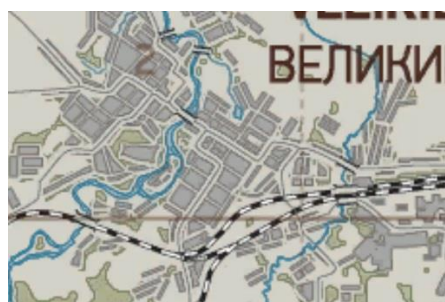
2.2 ME tour



2D/3D Map – this is where you create the mission, adding objects and linking them to commands. There are four viewing modes that can be accessed from the Toolbar.



2D navigation map mode.





3D toggle between top down...



... and free camera modes.



Adds a scrollable mini map to the current map mode.

To navigate in the 2d and top down modes hold down the right mouse button to pan the map and zoom in and out using the scroll wheel/middle button.

In 3D mode hold down the left mouse button to look around, right mouse button to move forward, backwards, left and right and use the scroll wheel/middle button to move up and down.

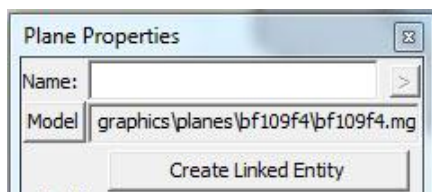
Object Library – These are all the objects and commands that you can add to a mission. Selecting one of the buttons will show a list of the objects in the panel below. To add an object or command to the mission select it and left click on the map.

Mission Tree – Lists all the objects in the mission.

Properties box – This floating dialogue box displays the properties of the currently selected object. It can be closed, to open it simply right click on the map or an object and choose Properties. To the right of the Name input at the top of the Properties box is a > button that will open the advanced properties. Advanced properties are also available by right clicking on an object.

2.3 Objects

All objects in the game are either Linked Entities or Unlinked. All objects start off unlinked and need to be linked using the Create Linked Entity button in the Properties box.



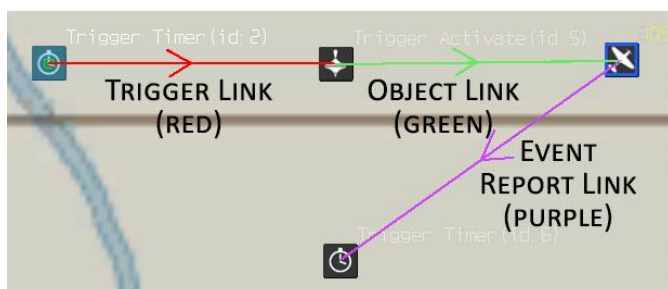
Linked Entities can receive commands and send reports to commands. Linked Entities include aircraft, vehicles, artillery etc. All these objects start as unlinked and won't appear in the game until they are linked.

Unlinked objects are mostly buildings and other static objects. These are generally not linked and will still appear in game. Because they are unlinked they don't use as many system resources as linked objects and so the game can handle many more of them.

2.4 Commands

Mission Command Units or MCUs control what objects do and when they do them.

Commands need to be linked to objects to function. There are three types of links, Target Links, Object Links and Event/Report Links.



(Red) Target Links – Target Links are used to start commands. *In the example above a trigger timer set to 10 seconds counts down then sends a trigger to an Activate command.*

(Green) Object Link – Associates a command with an object. *In the example above an Activate command is object linked to the 109. When it is activated by the trigger it tells the 109 to become active.*

(Purple) Event & Report Links – These are sent out by objects when a selected event happens. *In the example above when the 109 is killed it sends an Event link to the timer.*

2.5 Groups

Objects and commands can all be combined into groups. Groups are created by selecting multiple objects by Ctrl-left-clicking or by left dragging a box around them then right clicking and choosing Group Objects. Groups are often self-contained units such as an AAA battery or an aircraft flight. Groups can be copied and pasted, as well as being saved to a folder and imported into a new mission. Creating groups is good practice because it declutters the map, avoiding a lot of confusion in complex missions. To edit objects within a group right click the group and choose Set Group as Working. To exit the group right click and choose Reset Working Group. Groups can include other groups.

PART THREE – TUTORIALS

These tutorials should to be completed in order, each one builds on things you've learnt in the previous tutorial. They're intended to teach you the basics of creating a co-op style multiplayer mission.

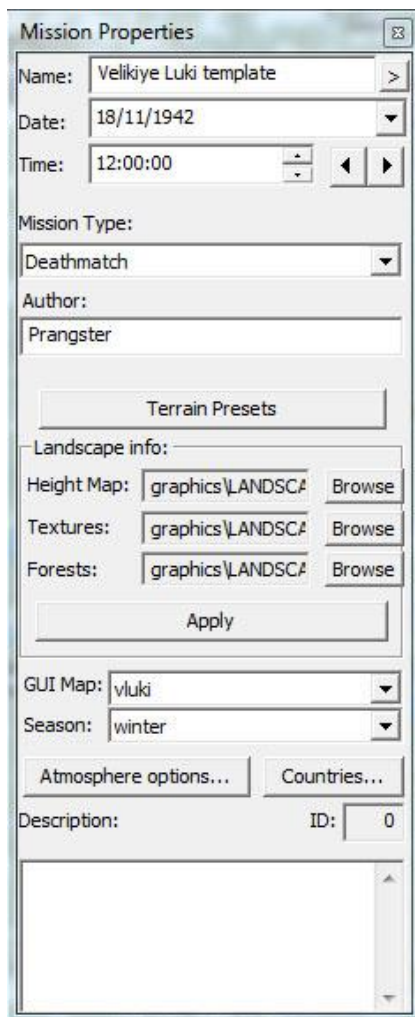
You'll need to download the *Velikiye Luki template.zip* and unzip the files in your *data/Multiplayer/Dogfight* folder.

The *Velikiye Luki template.Mission* contains three existing groups. A frontline group that displays a frontline for the in-game GUI map. A Scene group that contains all the buildings and a German airfield group containing static aircraft and some light AAA.

3.1 Setting the Mission Properties

The Mission Properties is where you can set the date, time, and weather conditions, name the mission and add the briefing. In the Mission Editor (ME) open the *Velikiye Luki template.Mission* in *data/Multiplayer/Dogfight*.

Your Properties floating dialog box should say Mission Properties. If you can't see the Properties box or it doesn't say Mission Properties then right mouse click on the Map and choose Properties.

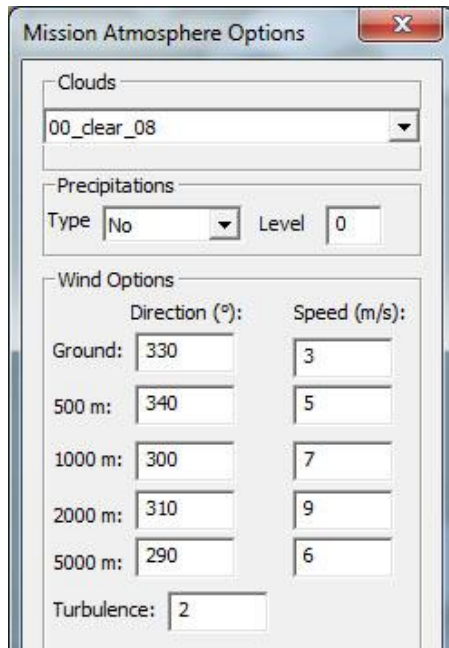


Change the mission Name: to Velikiye Luki tutorial, change the Date: to the 19th November 1942 and change the Time: to 09:30:00.

The Mission Type: is set to Deathmatch which is the correct type for Multiplayer missions.

Change the Author: Change this to your name.

The rest can be left as they are. Next select the Atmosphere options... button and you'll see the Mission Atmosphere options dialog box.



Change the Clouds to 00_clear_08.

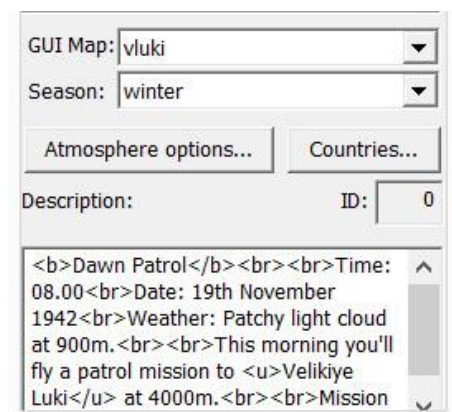
Precipitation only works with Overcast clouds in which case you could choose Rain or Snow and the level.

Wind Options give you the ability to set the direction the winds is blowing from and the wind speed in metres/second for a range of altitudes.

Turbulence sets the level of turbulence in the mission. 0 is none, 2-3 is light 4-6 is heavy.

Press OK to apply the changes.

The mission briefing can now be added to the Description: box at the bottom of Mission Properties.



You can type directly into the Description: box or alternatively paste plain text into it from a text editor such as Notepad. The text can't include any hard returns or any non-plain text characters such as fancy quotes " " and apostrophes '. Use only the following syntax.

 - line break.

text - bold **text**.

<u>text</u> - underlines text.

<i>text</i> - italic *text*.

So if we wanted to write a mission briefing to look like this in the in game description.

Dawn Patrol

Time: 08.00

Date: 19th November 1942

Weather: Patchy light cloud at 900m.

This morning you'll fly a patrol mission to Velikiye Luki at 4000m.

Mission by: *Prangster*

We would need to format it like this.

```
<b>Dawn Patrol</b><br><br>Time: 08.00<br>Date: 19th November 1942<br>Weather: Patchy light
cloud at 900m.<br><br>This morning you'll fly a patrol mission to <u>Velikiye Luki</u> at
4000m.<br><br>Mission by: <i>Prangster</i>
```

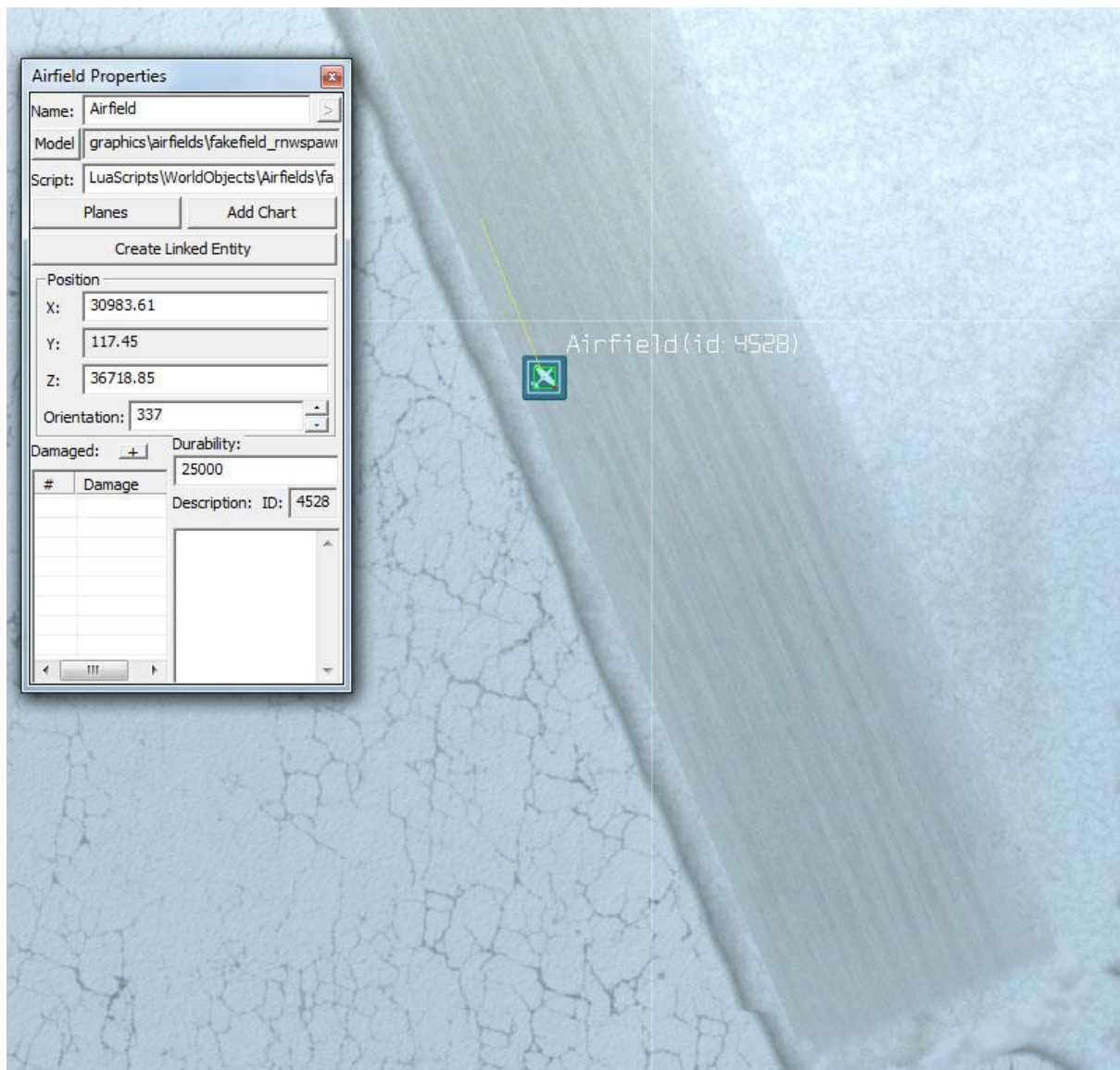
Now save the mission as *Velikiye Luki tutorial.Mission* to *data/Multiplayer/Dogfight*.

3.2 Spawn points and Waypoint icons

A spawn point is an airfield object that provides a location for players to spawn in a multiplayer game. Each spawn point belongs to one side only and allows the player to select one or more aircraft types.

Open *Velikiye Luki tutorial.Mission*. Locate the German airfield in GRID 123 and switch to the top down 3D view. Zoom in on the airfield until you can clearly see the southern end of the runway. In the Object Library select Airfields/fakefield_rnwspawn and left click to place this on the Map near the southern end of the runway.

Left click and hold on the fakefield_rnwspawn to move it over to the left side of the runway. Now adjust its orientation so that the yellow direction marker points up the runway. You can do this two way either use the Airfield Properties/Orientation and input a value of 337 degrees and press enter or left click and hold on the small red square in the bottom right corner of the spawn point's green bounding box and rotate it to the correct angle.



The spawn point needs to be on the left side of the runway because the player's aircraft will spawn in wingtip to wingtip from the left in rows of five.

Now in the Airfield Properties re-name the spawn point 109G2 because that is the type of aircraft we'll be adding. Before the spawn point will work in game you'll need to turn it into a linked entity. Press the Create Linked Entity button to change it to a linked entity.

In the Airfield Properties select the > button beside the Name: to go to the spawn points Advanced Properties.

Airfield Advanced (1 object(s))

Linked translator ID: 4529

Country: Germany

☐ Return Planes

☐ Repair Friendlies Time (s): 0

☐ Rearm Friendlies Time (s): 0

☐ Refuel Friendlies Time (s): 0

Maintenance Radius (m): 1000

On Events Table: Add Event...

Event Type	Target ID

☐ Hydrodrome

☒ Damage: (Threshold)

Damage report: 50

☒ Delete After Death

Call sign: Acacia # 0

Name:

Target ID: -1 Clear Add by Dialog

On Reports Table: Add Report...

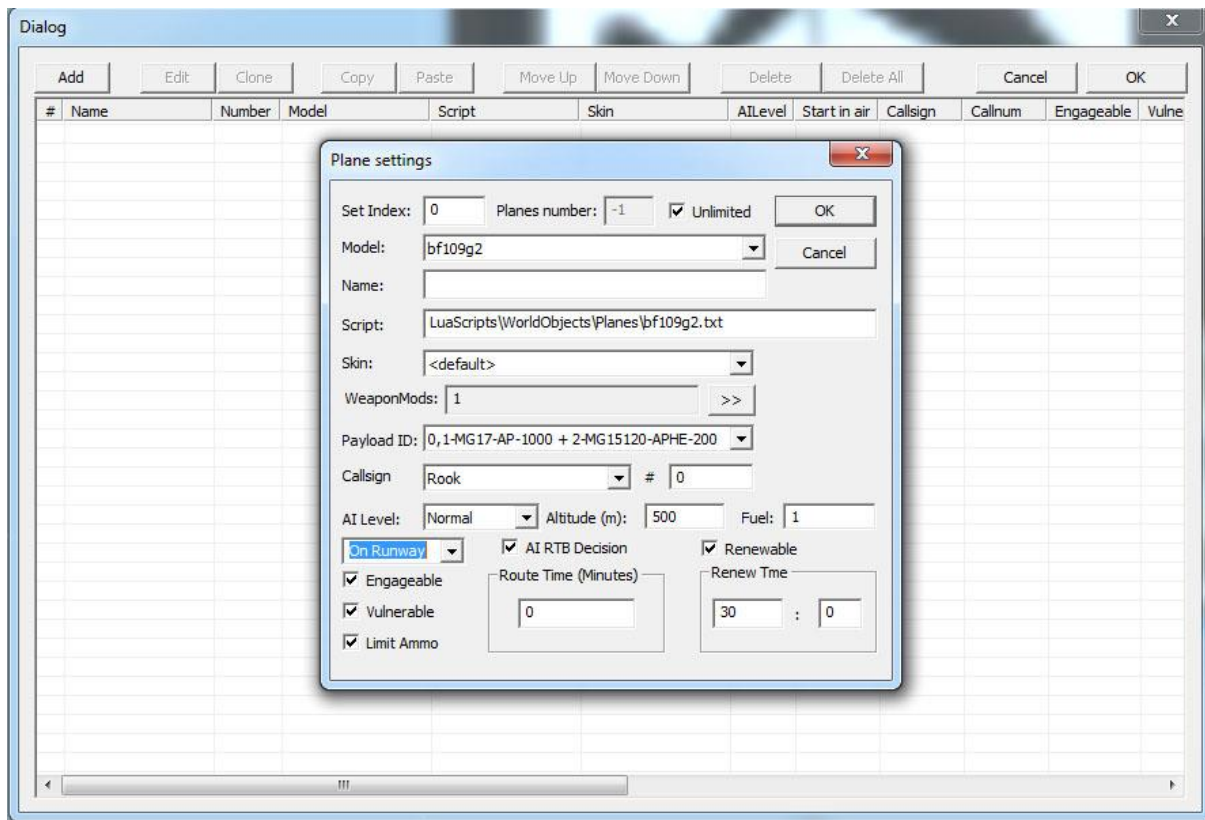
Report Type	Command ID	Target

Description:

Cancel OK

These are the settings for the airfield including which side it belongs to and what its radio call sign is. Set the Country: to Germany and the Call sign: to Acacia and close the Advanced Properties.

In Properties select the Planes button.



In Planes Dialog select the Add button.

In Plane settings, Model: dropdown menu select the bf109g2.

Tick Unlimited for the number of aircraft allowed.

Change the Callsign to Rook. This will be the callsign of the 109s.

The starting positions options consist on In Air, On Runway and On Parking. In Air starts the aircraft above the spawn point at the height selected in the Altitude (m): input. On Runway and On Parking have no effect on the starting point of the aircraft, instead On Runway spawns the aircraft with their engines running and On Parking spawns it with their engines turned off. For our mission select On Runway.

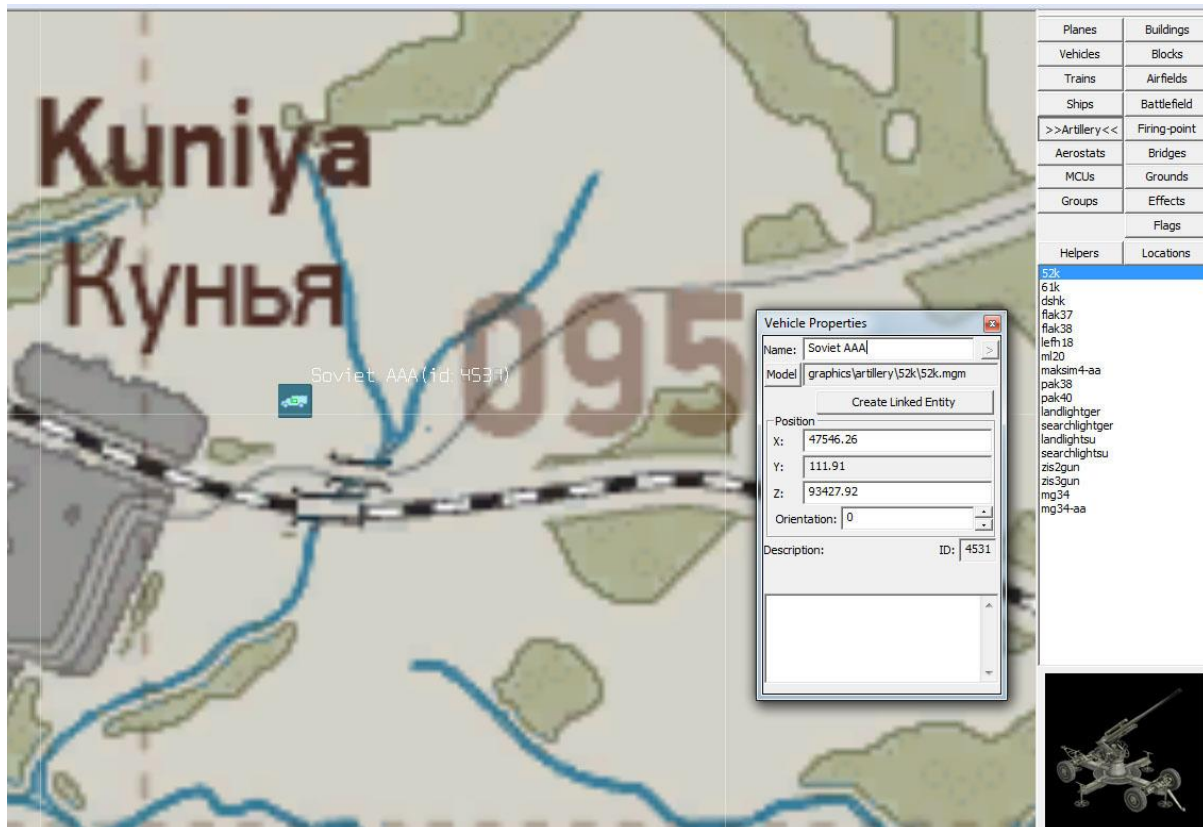
Select OK to close the Plane settings and OK to close the Planes Dialog.

You now have a working German Airfield spawn point. Save the mission.

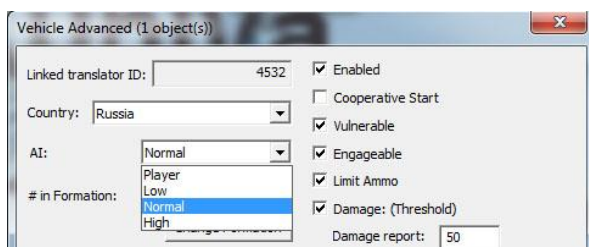
3.3 Creating a Soviet AAA Battery

In this tutorial you'll create a Soviet anti-aircraft battery.

Open *Velikiye Luki tutorial.Mission*. In the 2D map mode find the town of Kuniya in grid 095. From the Object Library select Artillery/52K and left click on the open ground near the bridges to add a 85mm air defence gun to the map. In Properties name the gun and select Create Linked Entity.



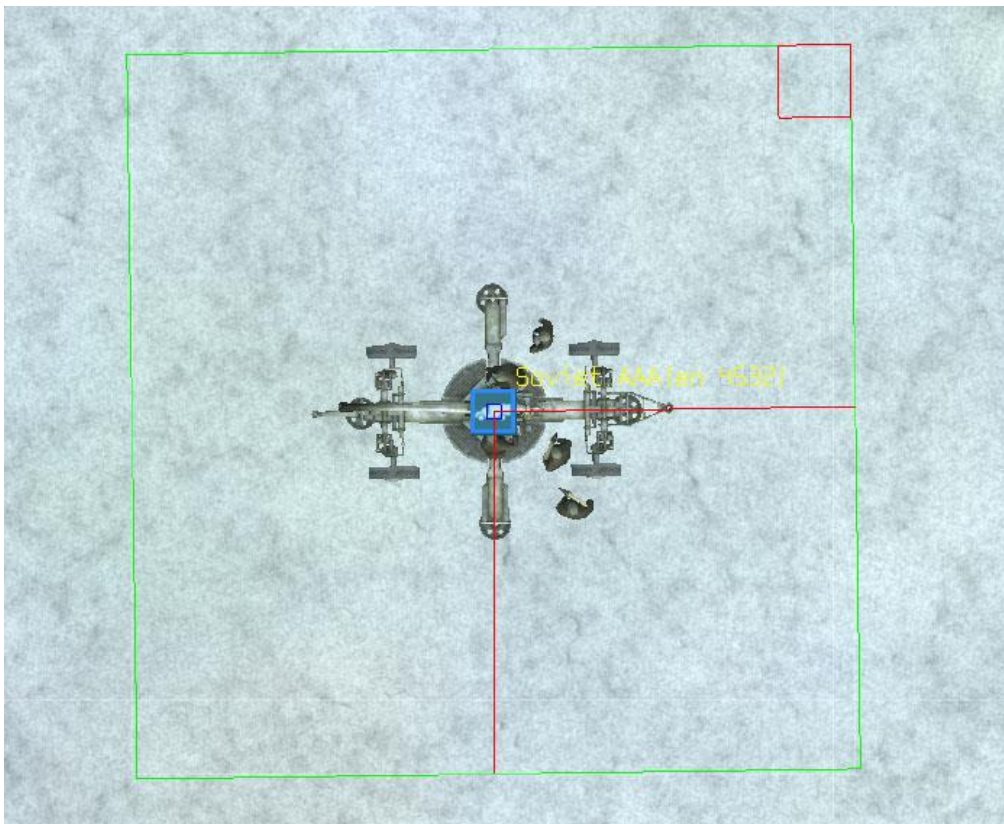
Now go to the Advanced Properties and change the Country to Russia and leave the AI at Normal. The AI can be set to Low, Normal or High and determine how accurately the gun fires. Select OK to close the Advanced dialog box.



Now switch to the top-down 3D view  and zoom (mouse scroll wheel) in on the gun. Left click on the gun to select it and, holding the left mouse button, drag it to the centre of the field so that it's in a nice open area and has a clear field of fire.



Zoom in some more until you can clearly see the gun 3D model. Next rotate the gun to point west by left clicking and dragging the red rotation square on the lower right of the green object bounding box.

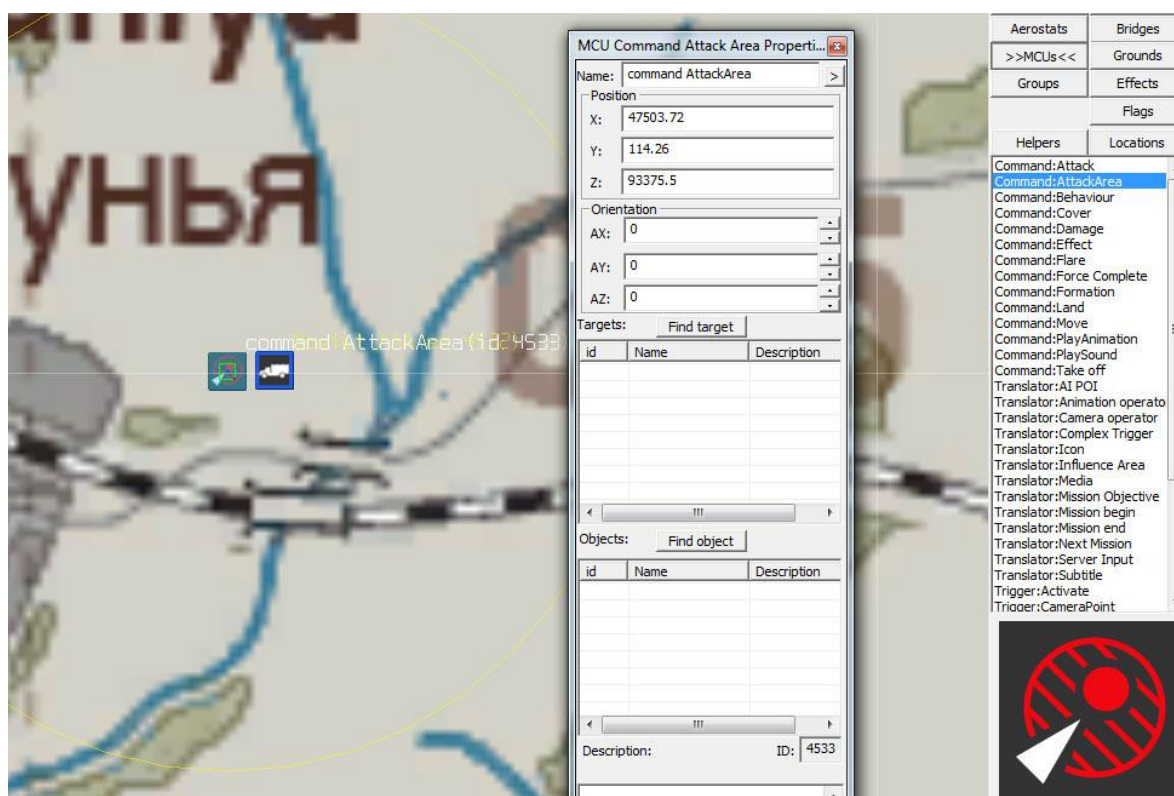


Toggle the to the 3D view  and centre your view on the gun using left mouse button to look around, right mouse button to move and the scroll wheel to move up and down.



At this stage the AAA gun is fully functional and will fire at any enemy unit that comes into range, both aircraft and ground units.

Now you can add some commands to give more control over the guns behaviour. First you'll add an Attack Area command to restrict the gun to only engaging air targets. Switch back to the 2D map. From the Object Library select MCU/**Command: Attack Area** and place it on the map next to the gun.



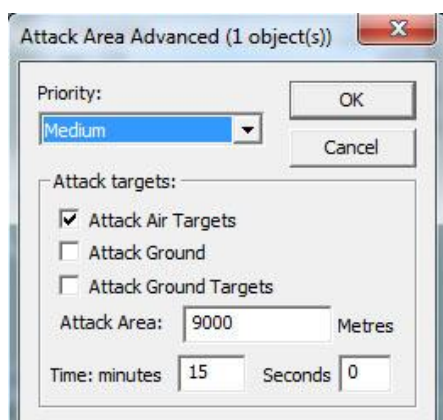
Go to the Attack Area Advanced properties.

The Priority can be set at Low, Medium and High. Low priority lets the gun's AI ignore the Attack Area command if another target gets closer. Medium means the gun will carry out the command and engage Air Targets within the set range. High means the gun will only carry out the command no matter what. Leave it set at Medium.

Tick Attack Air Targets so that the gun only fires at enemy aircraft.

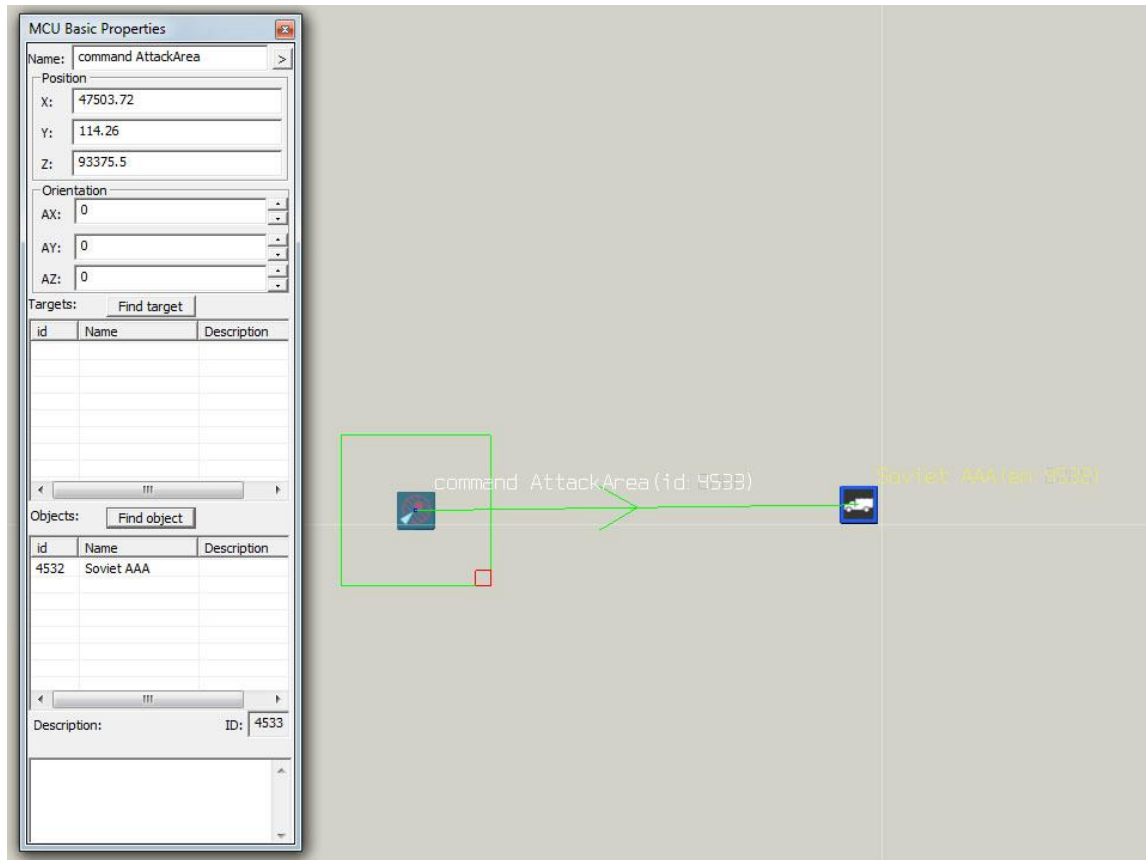
Set the attack area to 9000 Metres. The gun will now shoot at any enemy aircraft within a 9000m radius and up to the gun's maximum engagement altitude.

Time: is the amount of time the Attack Area command applies after it's activated. For our purposes 15 minutes is plenty.



Select OK to close the Advanced properties. If you zoom out on the map you'll see a yellow circle that shows the Attack Areas radius.

The Attack Area command needs to be told which object (or objects) it applies to. You'll do this with a green Object Link. From the Area Attacks Properties select the **Find object** button and left click on the **gun**. The gun's name and ID number appear in the list below and a green link with an arrow appears on the map.



If you want to unlink the gun from the Area Attack just select the name in the list and press your keyboard delete key.

There are three additional ways of creating the Object Link. You can double clicking in the list and selecting from MCU objects or right clicking on the Area Attack icon and choosing Select Object Menu/ Add Object or use the keyboard shortcut Ctrl-O.

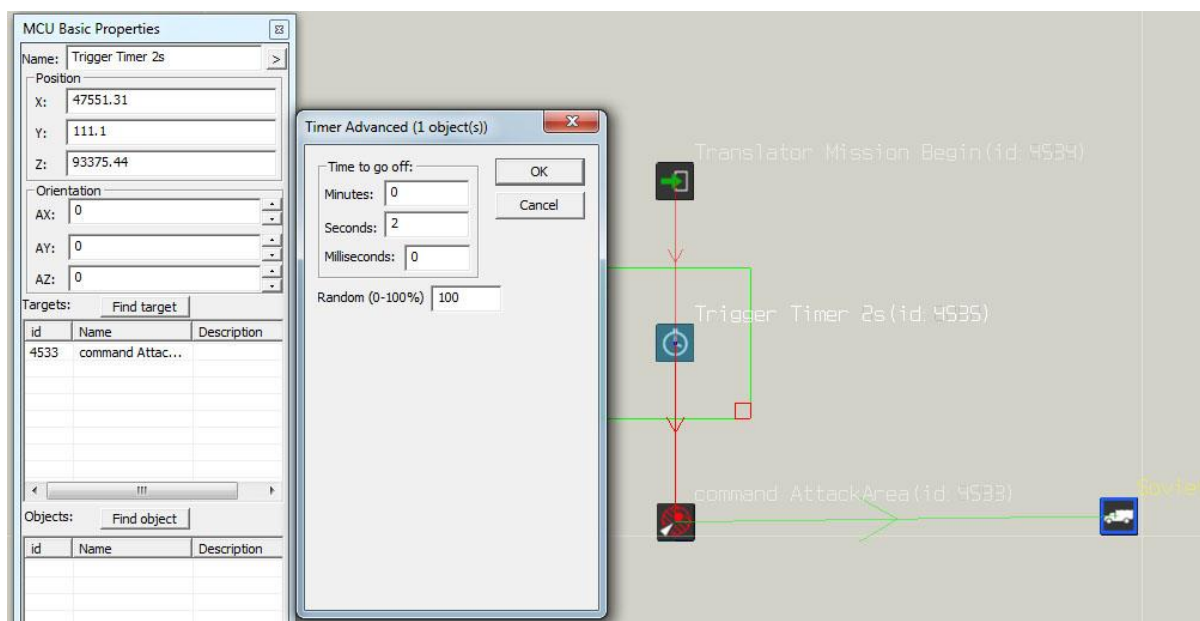
The Attack are command still needs to be told to start working and you'll do this with a Target Link.

First you'll need a Translator: Mission begin, this activates at the start of the mission and sends out a trigger to start other commands. From the Object Library select a MCU/**Trigger:Timer** and add it to the map. Now place a **Translator:Mission begin** next to it.

In the Mission begin Properties select the **Find target** button and click on the **Trigger Timer** to create a red **Target Link**.

Double click on the Trigger Timer to bring up its Advanced properties and set the Time to go off: to **2 seconds**. Select OK to close.

Target Link the **Trigger Timer** to the **Attack Area**. You can do this in a same way as you did for the Object Link, from Properties, from the list, by right clicking and choosing Select Object Menu/ Add Target or using Ctrl-T.



Congratulations you've now created your first ME script! Now when the mission starts the Mission begin command will send a trigger to the timer which will wait 2sec before sending as a trigger to the Attack Area to start it. The reason for the 2sec delay after Mission begin is that the player's computer will be loading the mission and you don't want the command lost because it's too busy.

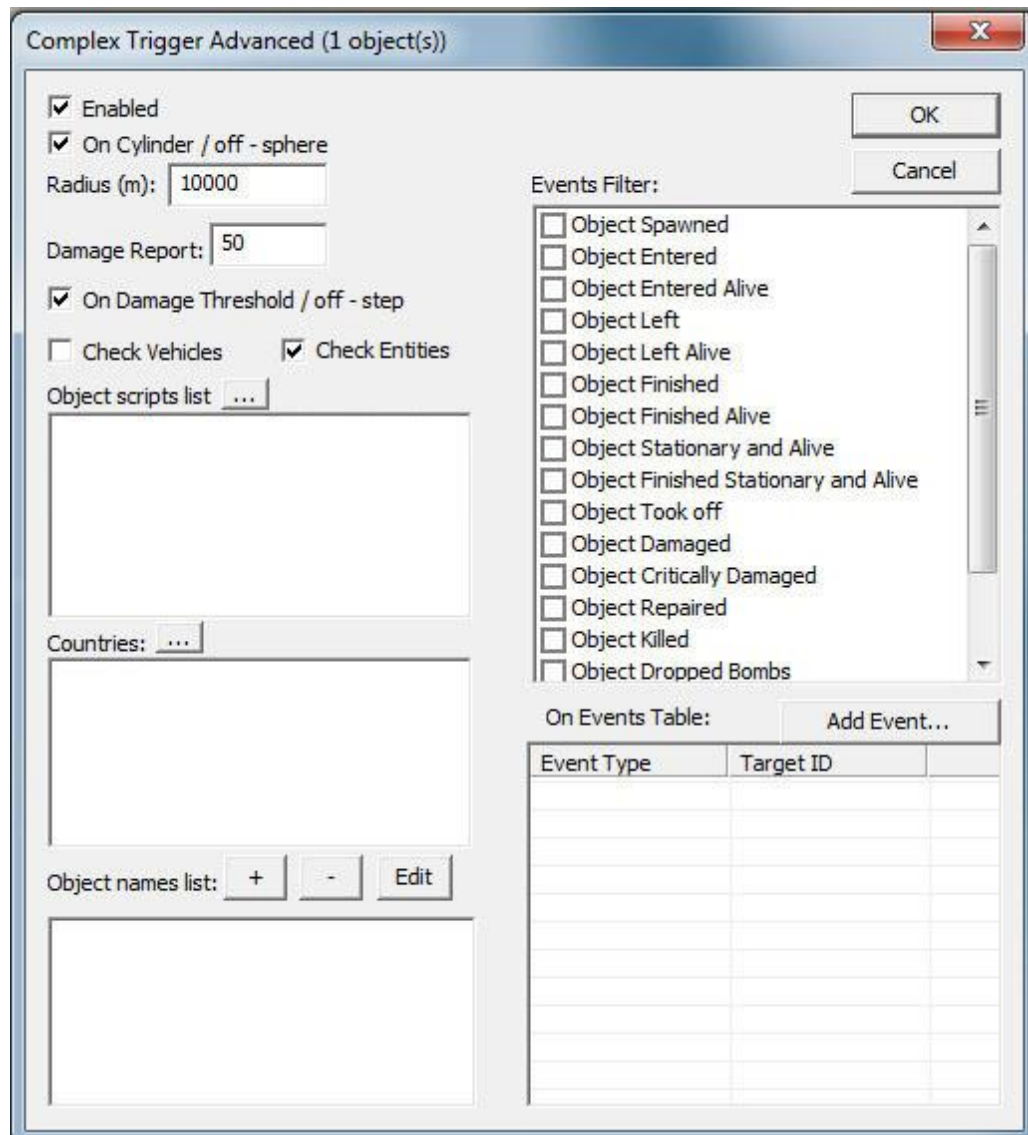
When the gun and Attack Area command are running they take up computer resources so it would be a good idea to only enable them when they're actually needed. This way you can have more gun in the mission but only those near the player's aircraft need to be active.

Double click on the gun to open its Advanced properties and untick Enabled. Now the gun won't appear in the game until it's activated.



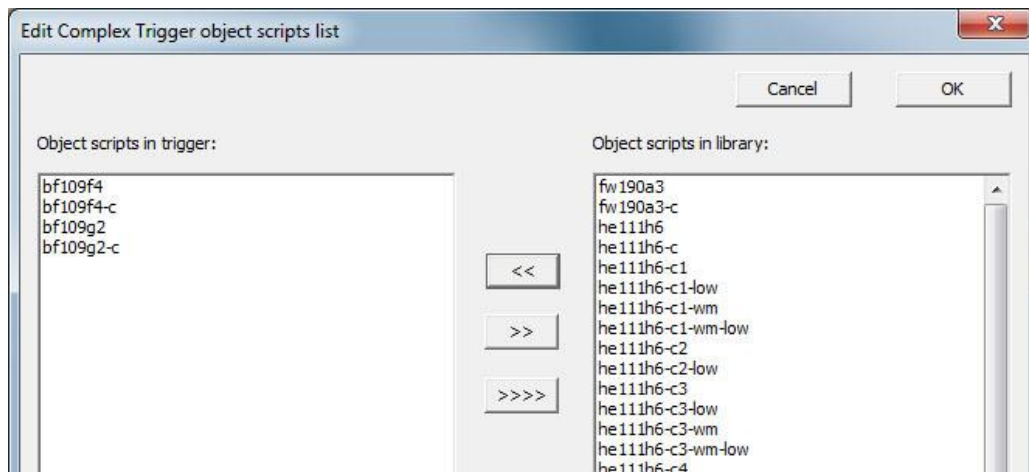
Place a **Translator:Complex Trigger** command near the gun and open its Advanced properties. Set the Radius to **10000 metres**. The Complex Trigger looks for units that cross its boundary, which can be either a cylinder or a sphere of the set radius. Leave it ticked as On Cylinder.

Tick **Check Entities** if you want it to trigger when it detects aircraft and **Check Vehicles** to detect Vehicles.



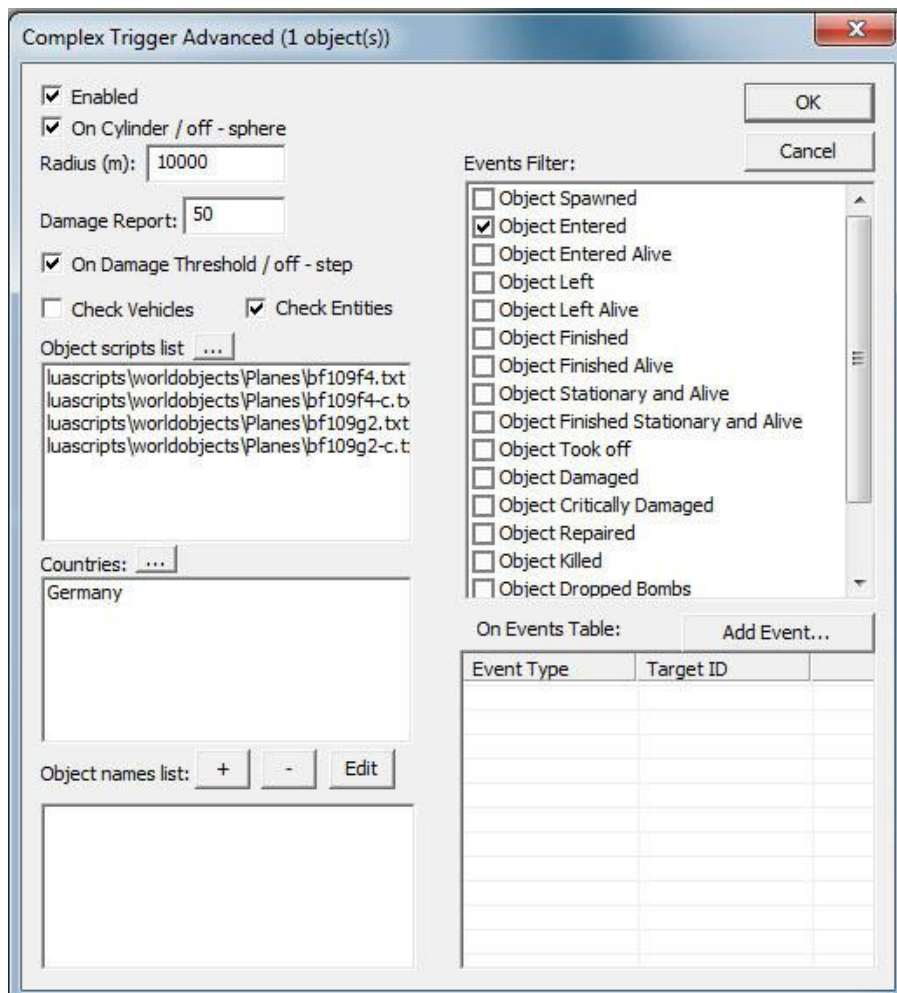
Now you'll set which types of units the Complex Trigger is looking out for. Because in this mission the players are all in German 109s and we're triggering a Soviet AAA gun the trigger needs to function when a German 109 enters it. Select the **Object script list** button and bring up the Edit Complex Trigger object scripts list.

Select the bf109s on the right panel and move them over to the left panel with the << button. Select OK close.



In Countries: select **Germany**.

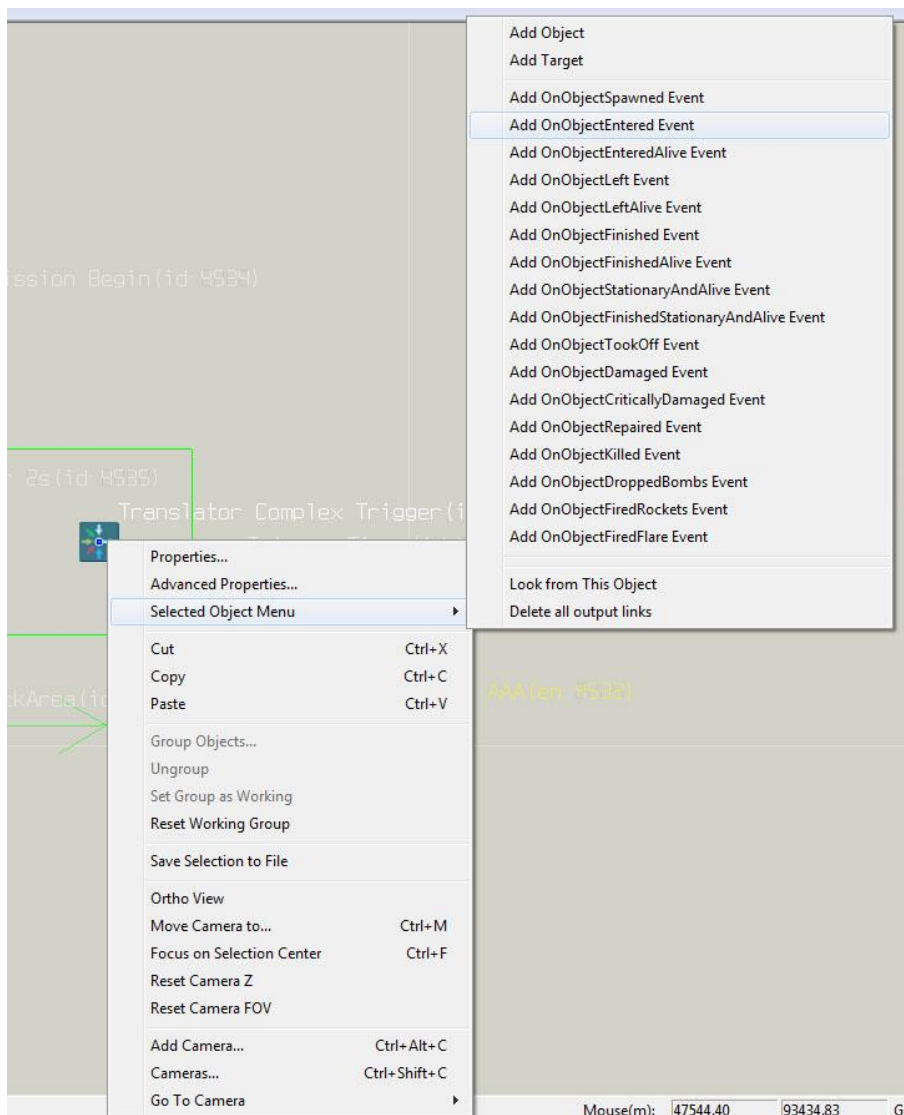
Now you'll assign the type of event the Complex Trigger is looking out for. You'll want it to trigger when the selected object type (German 109s) enter. So tick **Object Entered** in the Events Filter, you can tick more than one event but we only need this one. OK to close



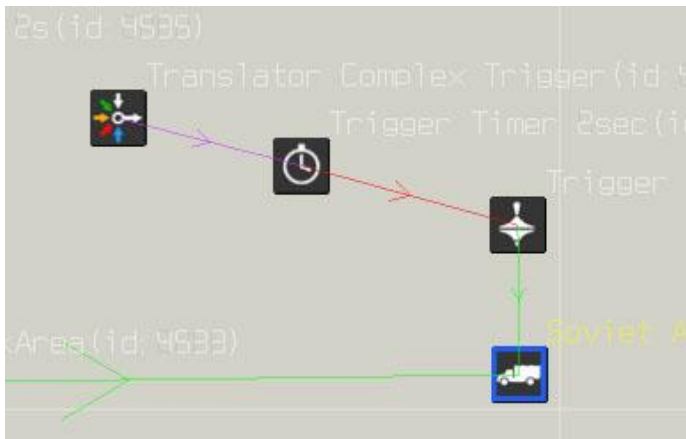
Now you'll use the complex trigger to activate the gun. Add a **Trigger Timer** and a **Trigger Activate** commands.



Right click the **Complex Trigger** and Select Object Menu/**Add OnObject Entered Event**, the menu will disappear and you can left click on the **Trigger Timer**. A purple **Event Link** will appear from the Complex trigger to the timer.



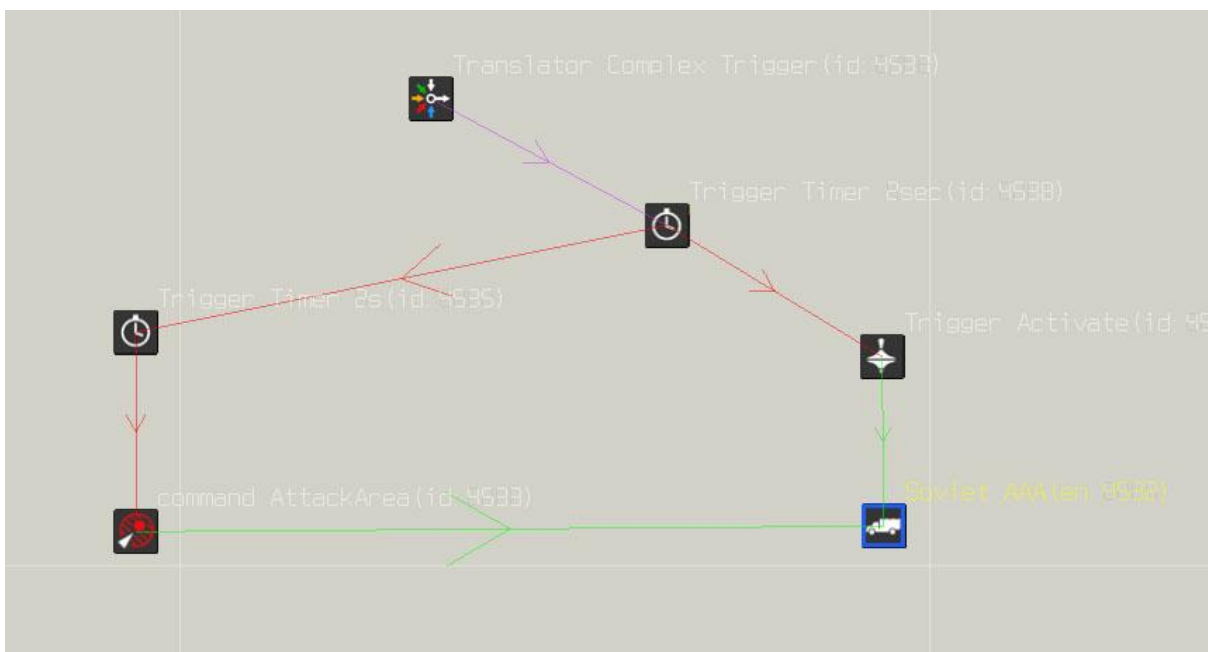
Double click on the **Trigger Timer** and change its delay to **2sec**. **Target Link** the **Trigger Timer** to the **Activate** command and **Object Link** the **Activate** command to the **gun**.



When a 109 enters the Complex Trigger it will now send an Event Link to the Trigger Timer. The trigger Timer, after a 2sec delay, will send that Target Link to the Activate command that will activate the Gun so that it appears in game.

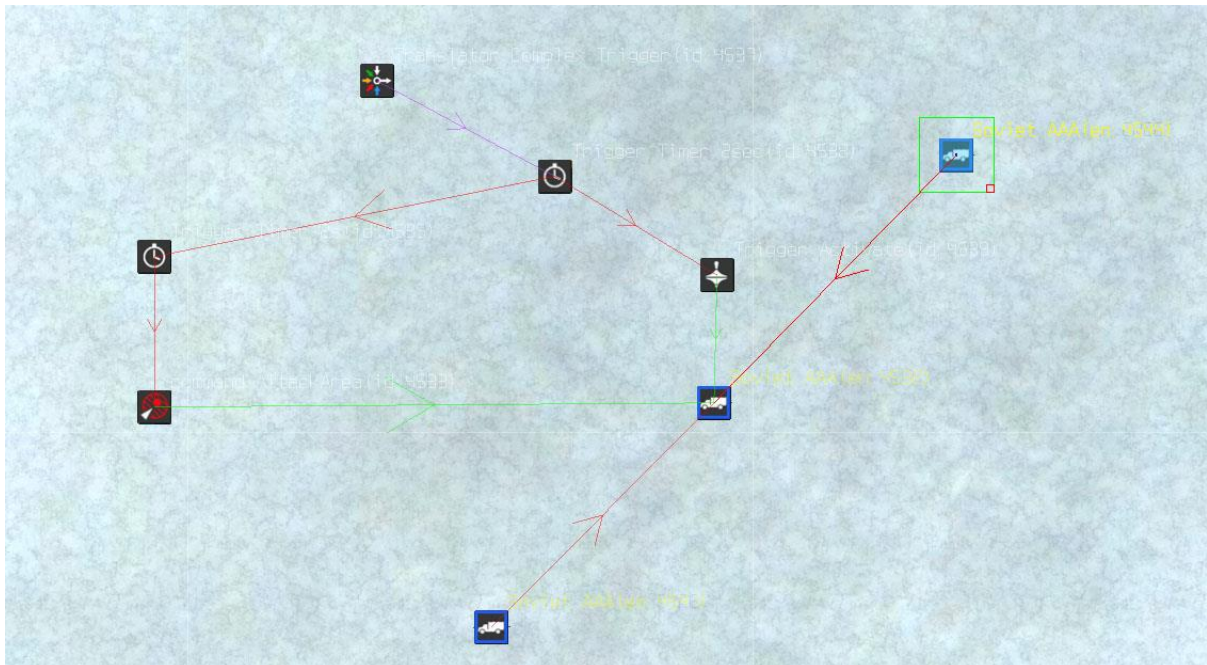
Now delete the Mission begin command by selecting it and press delete on your keyboard. Instead you can use the Complex Trigger to start the Area Attack at the same time as the gun becomes active. *Note that Complex Triggers don't need a Mission begin and start automatically when the mission has loaded.*

Target Link the **Trigger Timer** (id 4538) connected to the Complex Trigger to the **Trigger Timer** (id 4536) connected to the Area Attack. *Note that each object in the mission has its own unique id number to identify.*



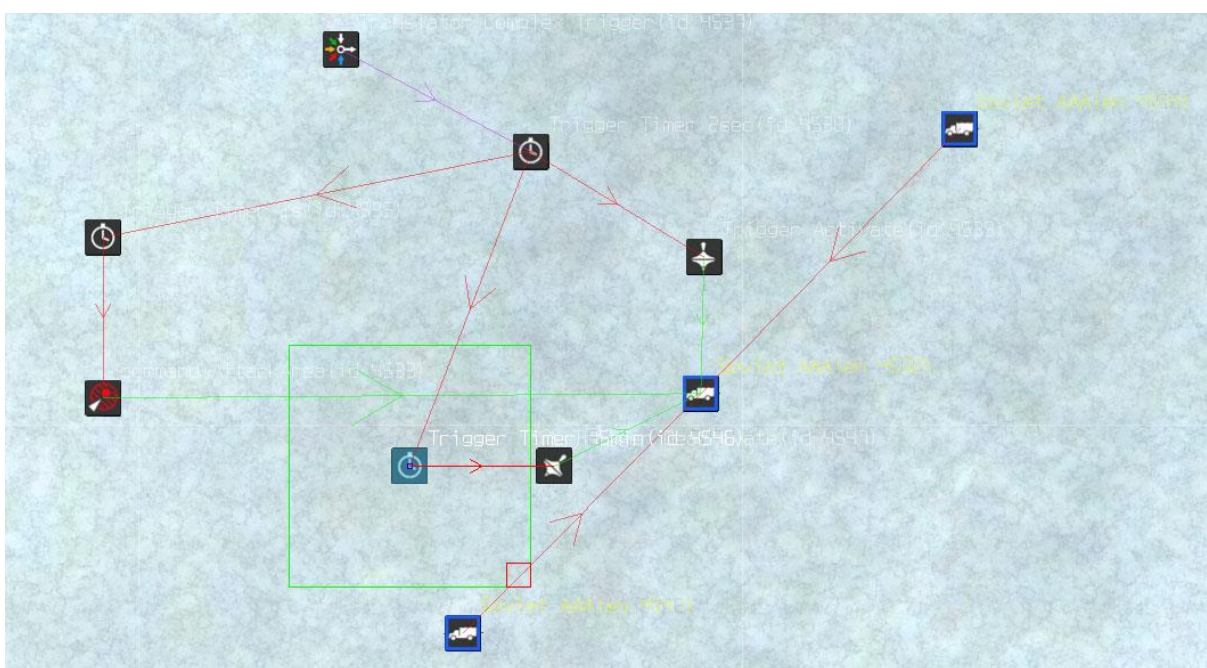
Because of the 2 sec delay in the Trigger Timer linked to the Area Attack, there's a delay between the gun activating and the Area Attack starting. Without this delay the Area Attack could begin before the gun activates and prevent it from working. You need to give at least a few seconds between each command that links to the same object so that they don't start simultaneously.

Since you're creating a AAA battery you'll need more than one gun. This is very easy, all you need to do is right click on the gun and copy it, then right click on the map where you want to place another gun and paste. Add two additional guns and **Target Link** them to the original gun. Target Linking them creates a formation where the new guns receive the same commands as the leader. Even if the formation leader is killed the next gun in line becomes the leader and all the commands continue to work.



The last thing you're going to add is a timer that will deactivate the guns 15 minutes after the last 109 has entered the Complex Trigger.

Add a **Trigger Timer** and set it to **15min** and **1sec** and add a **Trigger:Deactivate** command. **Object Link (OL)** the **Deactivate** command to the gun and **Target Link (TL)** the **Trigger Timer (id 4538)** to the 15min **Trigger Timer** and **TL** that to the **Deactivate** command.



From the Object Library select Artillery/**searchlightsu** and left click behind the guns to add a Soviet search light. **Name** it **Soviet searchlight** and **Create Linked Entity**. In Advanced properties untick **Enabled** and set the **Country** to **Russia**. **Object Link** the **Active** command to the **Soviet searchlight**.

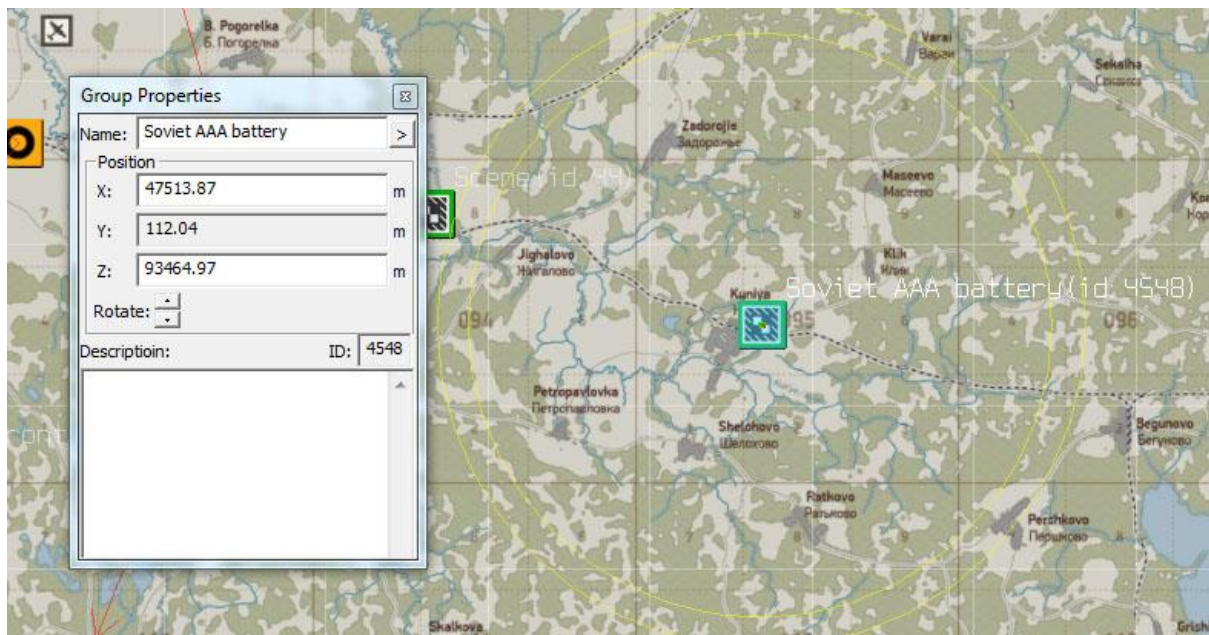
That's all you need to do, after dark the searchlight will turn on when it hears an approaching aircraft.

Now your AAA battery is finished but it took a lot of effort to complete. Thankfully you'll never have to do it again! All you need to do is group it into one unit then simply copy and paste it wherever you need an AAA battery. You can even save it to your game folder and re-use it in future missions.

Select the whole battery including all the commands by **left mouse clicking** and dragging a **selection box** around them. **Right click** and choose **Group Objects**. Name the group **Soviet AAA battery**.

To edit then group **right click** on it and select **Set Group as Working**. When you have finished with the group **right click** and choose **Reset Working Group**.

Save the group with File/**Save Selected to File**. Use **Import From File** to bring new groups into the mission.

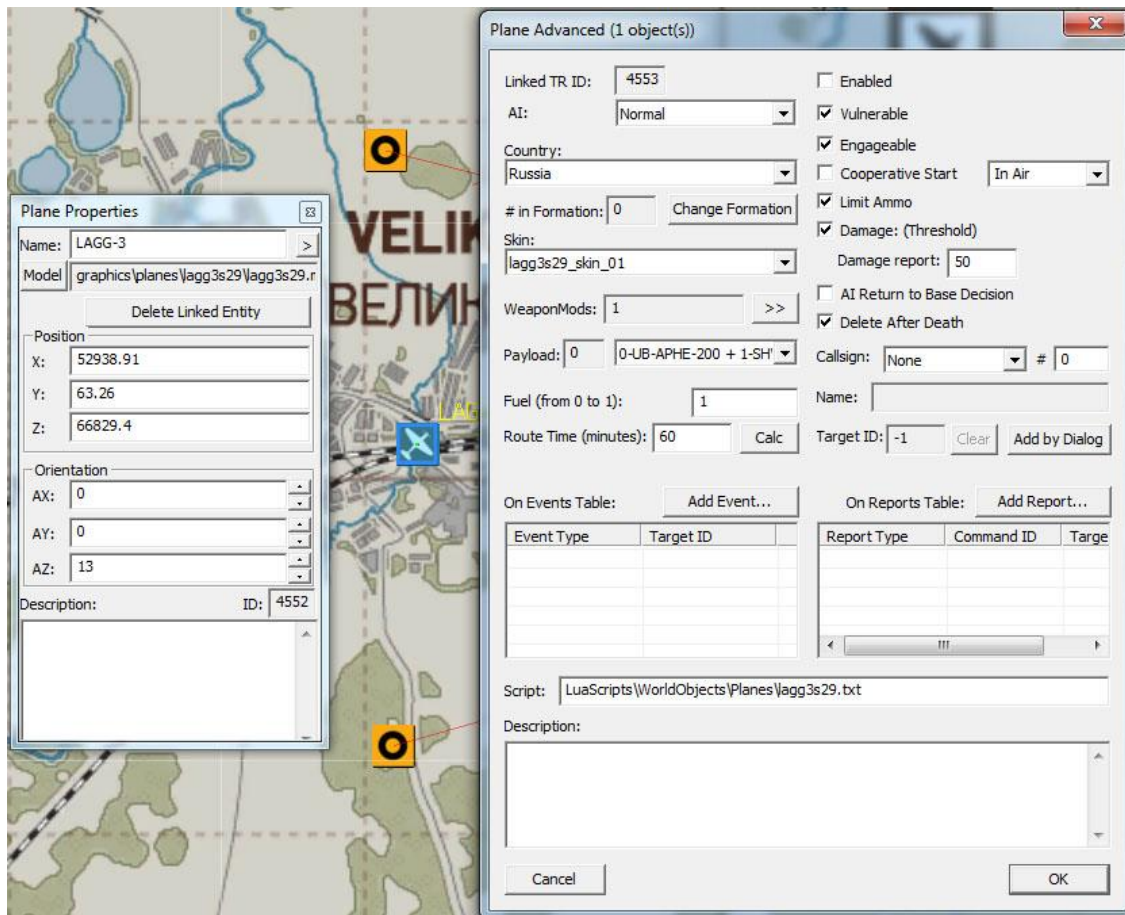


Save the mission.

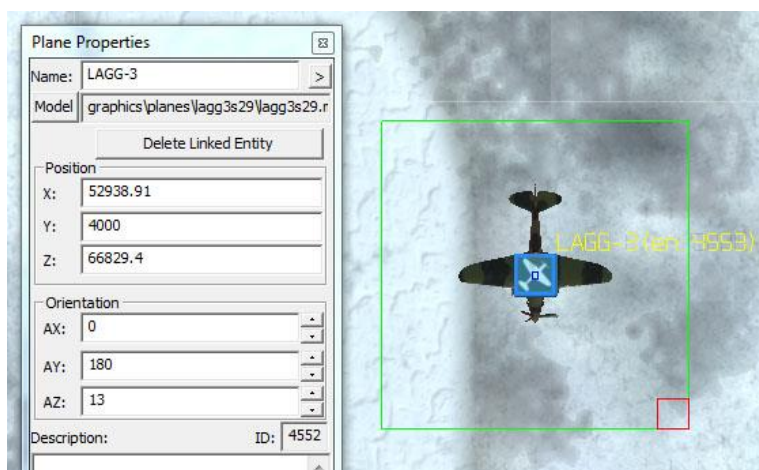
3.4 Creating an enemy fighter section

OK you've flying around in your 109 with your squadron mates, being shot at by Russian AAA and that's all very exciting but it'd be even more fun if you had some nice juicy LAGGs to shoot down.

Open *Velikiye Luki tutorial.Mission*. From the Object Library select Planes/lagg3s29 and place it on the map over Velikiye Luki. In the LAGGs Properties you can name the fighter **LAGG-3** and select **Create Linked Entity**. In Advanced Properties uncheck **Enable**, set the **Country** to **Russia**, the skin to **lagg3s29_skin_01** which is a winter camouflage. Finally set aircraft to start **In Air**. Select **OK** to close.



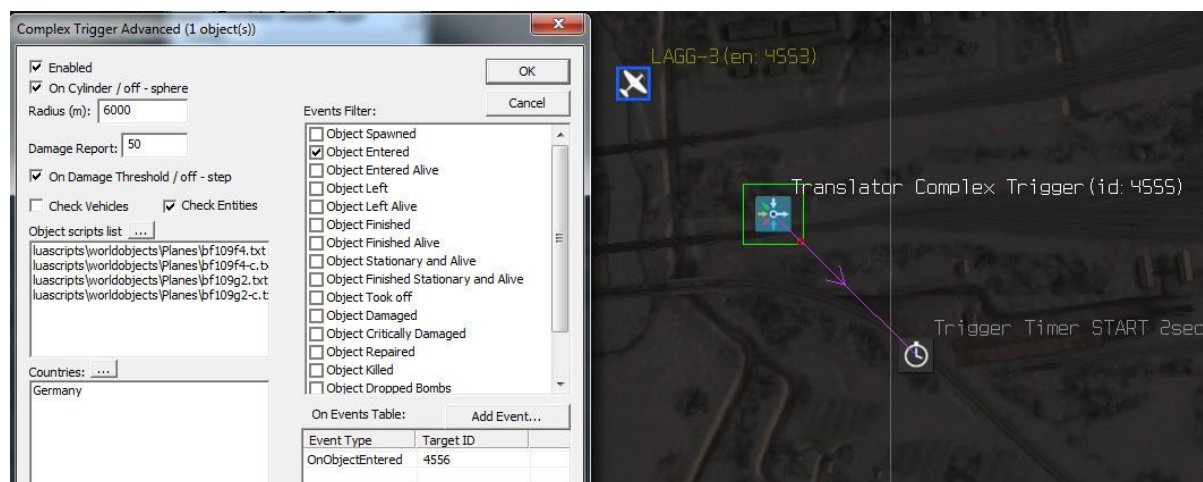
With the LAGG set to air start you can now change its starting height to **4000 metres** in the Plane Properties **Position Y**: axis. Also **rotate** the **LAGG** to face south, **Orientation AY**: **180**.



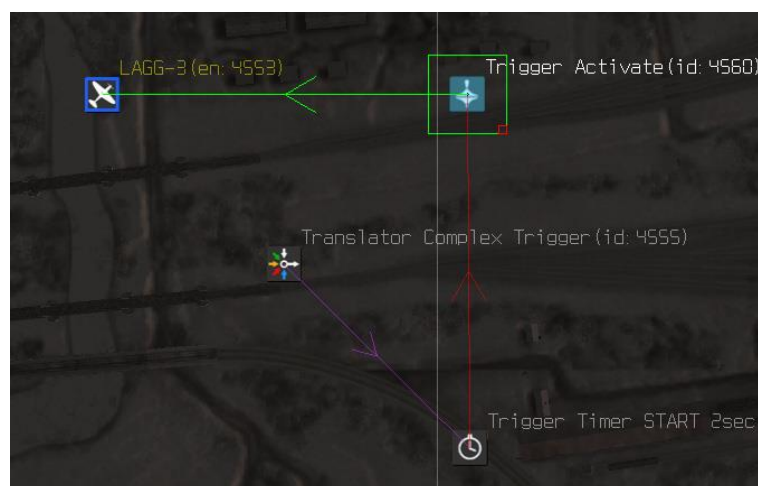
Add a **Complex Trigger**. Alternatively just copy and paste the one from the AAA battery you created in the previous tutorial.

In its Advanced properties set the radius (m) to **6000m**. Tick **Check Entitys**. In the **Object script list** set it to respond to all 109s and in **Countries**: set it to **Germany**. In the Events Filter tick **Object Entered**.

Add a **Trigger Timer**, Name it Trigger Timer **START 2Sec** and set it to **2 seconds**. Right click the Complex Trigger and Select Object Menu/Add OnObject Entered Event and left click on the **Trigger Timer** to create an **Event Link**.



Now add an **Activate** command and **Object Link** it to the **LAGG-3**. **Target Link** the **START** Trigger Timer to the **Activate** command.



Now when a 109 enters the 8000m radius of the Complex Trigger it will send an Event Trigger to the START 2sec Timer which will send a Target Link to the Activate command that is Object Linked to the LAGG-3 bringing it into the game as an air start at an altitude of 4000m.

Add a **Trigger:Waypoint** for about 1km south of the LAGG-3 and **Object Link** it to the **LAGG-3**. In the Waypoints Properties set its **Position Y:** axis to **4000**, this will put the Waypoint at the same altitude as the LAGG-3, 4000m.

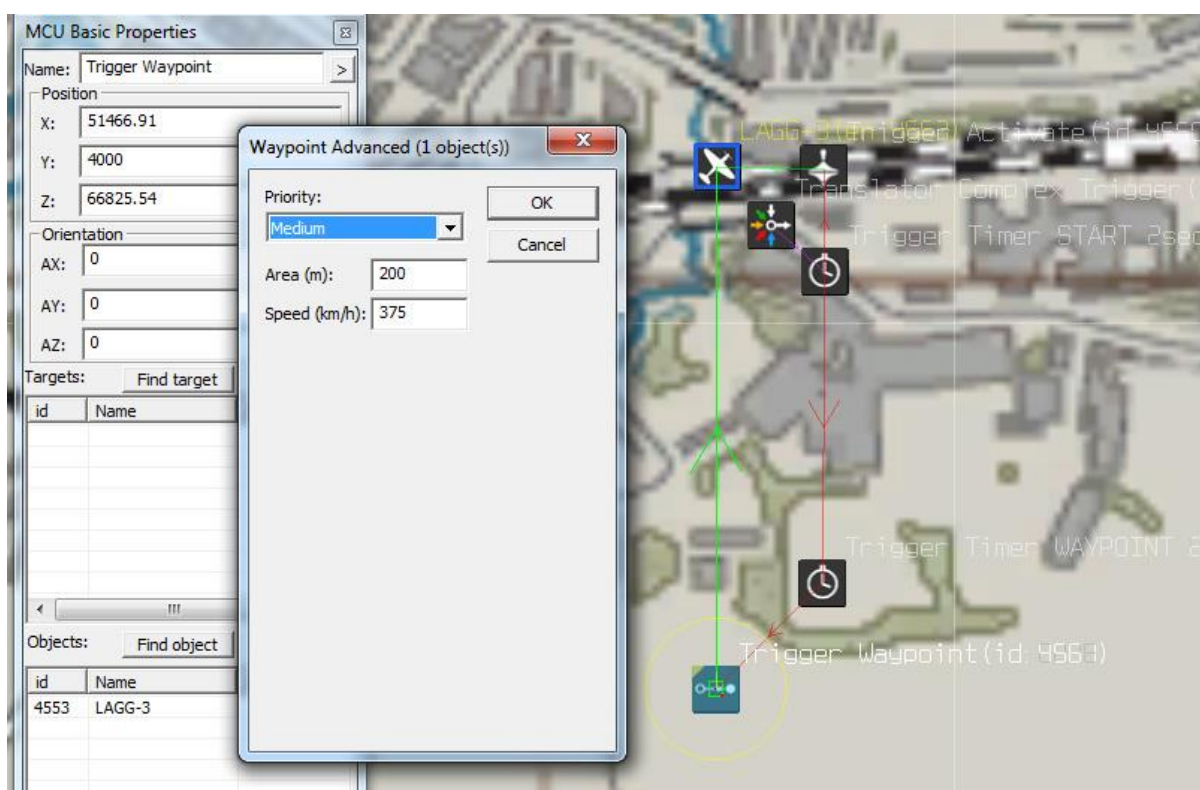
Add a **Trigger Timer** next to the Waypoint and name it **WAYPOINT 2Sec**, set it to **2 seconds**. **Target Link** the **WAYPOINT 2Sec Timer** to the **Waypoint**.

Double click the **Waypoint** to open its Advanced properties.

Priority: controls how much priority the AI pilot gives to reaching the waypoint. Low means it will attack any enemy it spots, Medium it tries to reach the waypoint unless it spots nearby enemy aircraft and High mean it will ignore all enemy's to reach the waypoint, even if it's being shot at. Leave this on **Medium**.

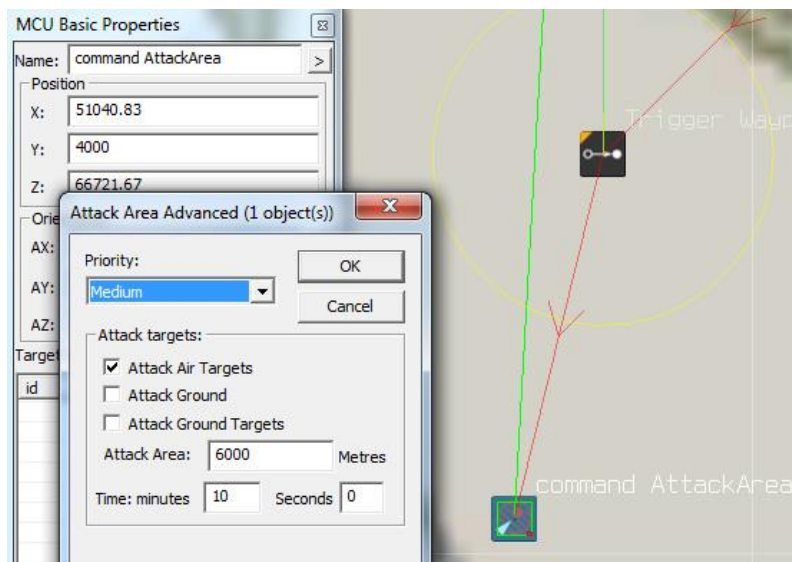
Area (m): set the radius around the waypoint the aircraft needs to enter to have reached the waypoint. Set this to **200** metres.

Speed (km/h): sets the speed the aircraft will fly to reach the waypoint. Set this to **375** km/h.

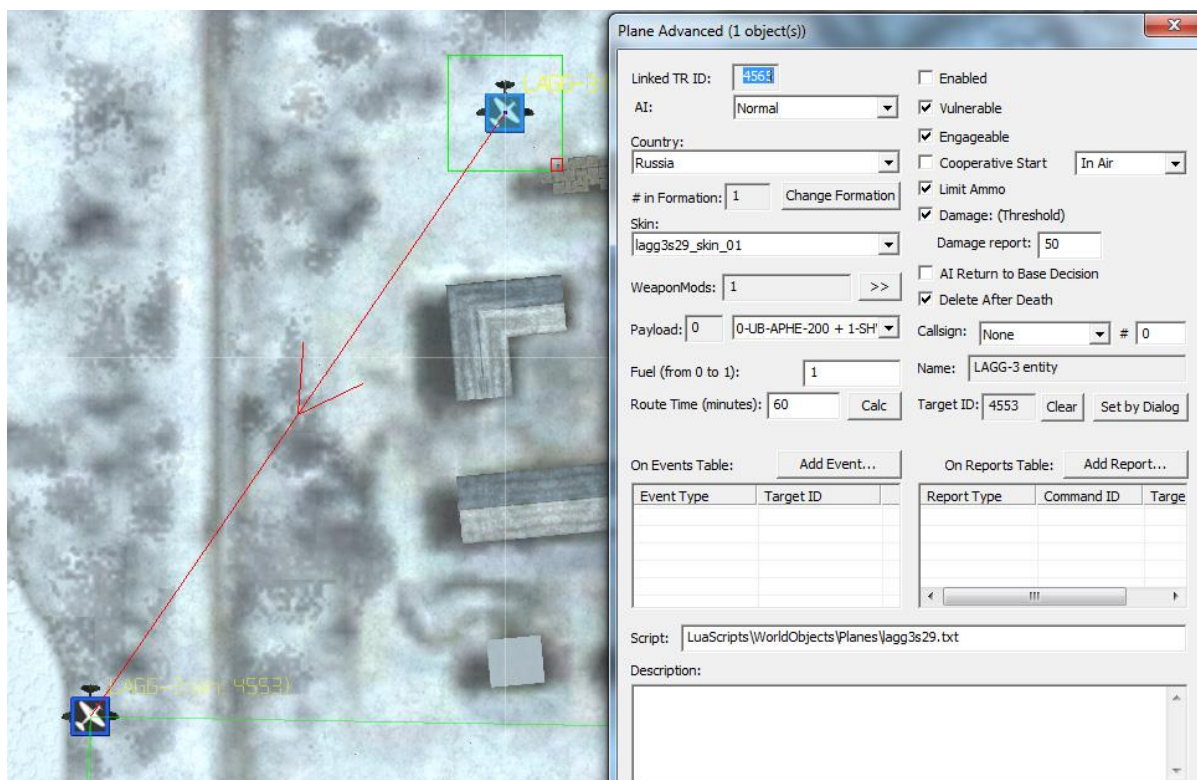


Now 2 seconds after it's activated the LAGG-3 will start to fly towards the waypoint at 375 km/h and 4000 metres altitude.

Add an **Area Attack** command just below the waypoint and **Object Link** it to the **LAGG-3**. Set it to an altitude of **4000** metres and in Advanced properties leave the **Priority** as **Medium**, tick **Attack Air Targets** and set the **Attack Area** to **6000** metres. The **Time** sets the duration of the area attack command, this is the amount of time the LAGG-3 will spend searching around within the Attack Area radius looking for enemy aircraft, leave it at **10 minutes**.



Now you'll give the LAGG-3 a wingman. Right click on the **LAGG-3** to **copy** then **paste** the wingman nearby. **Target Link** the **LAGG-3 wingman** to the **leader**. Open the wingman's Advanced properties, you'll see that he's been assigned position **1** in the **# in Formation** and the leader is position **0**. The fighter AI performs best with formations of two aircraft, but you can have six or more at the cost of some slightly stupid AI behaviour and the risk of collisions.



The Complex trigger will send out an Event Link every time a 109 enters its radius. When one of the LAGGs is killed this could re-activate it. To prevent this you'll deactivate the Complex Trigger as soon as the LAGGs have activated.

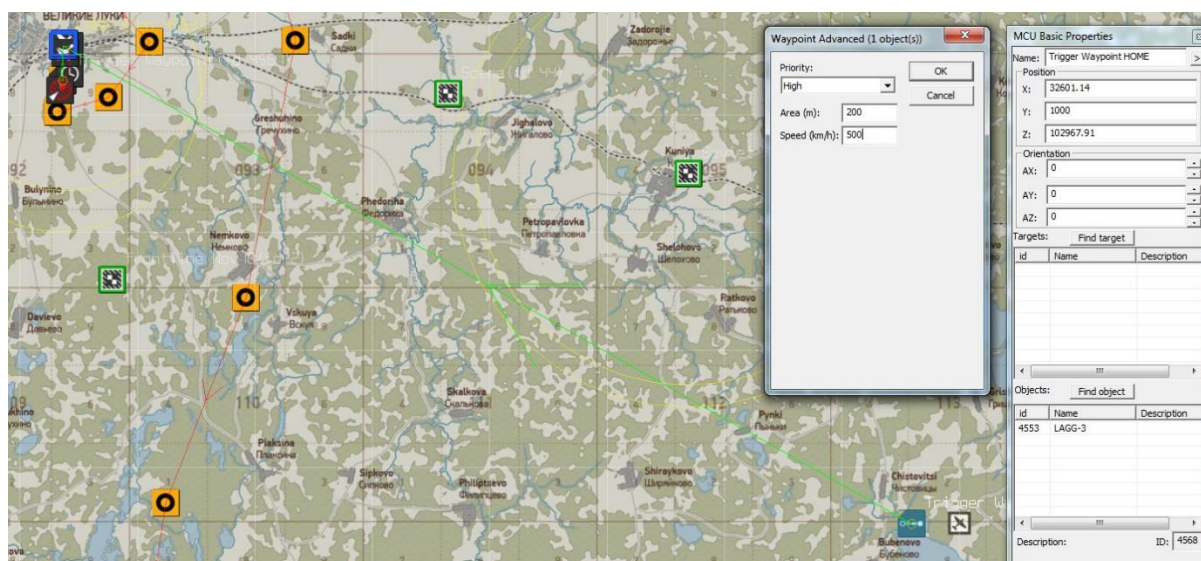
Add a **Trigger:Deactivate** command and **Object Link** it to the **Complex Trigger**. **Target Link** the **START Timer** to the **Deactivate** command.

Now the Complex Trigger sends an Event Link to the START Timer that, after 2 seconds, sends a Target Link to the Deactivate command that deactivates the Complex Trigger. By the way you can also Activate a Complex Trigger.



You could stop at this stage, combine the LAGG-3 and the commands into a group and leave it at that. You have a fully functional pair of fighters that active as the players come near and search for them. The trouble is they'll tend to fight to the death because they have nowhere else to go. Next you'll add a landing airfield and a command that sends them home when they're losing.

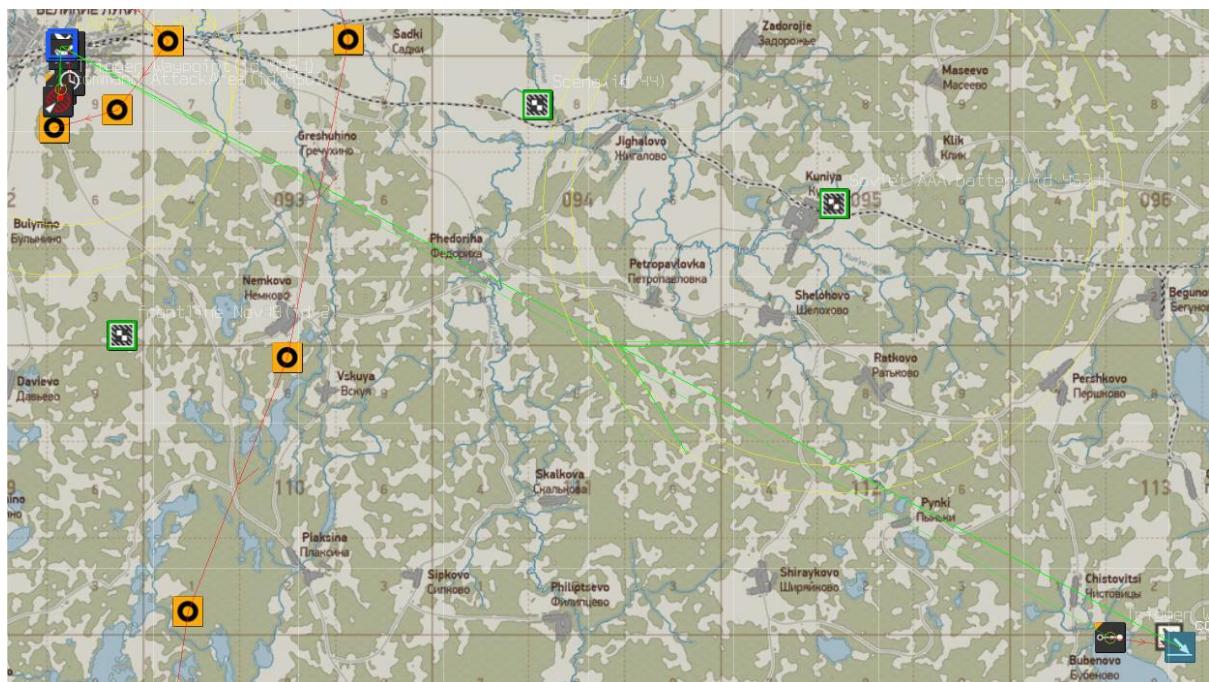
Add a **Waypoint** near a Soviet airfield not too close to the fight, **Name** it **HOME** and **Object Link** it to the lead **LAGG-3**. In Properties set the altitude to **1000m**. In Advanced properties change **Priority** the **High** and the **Area** to **200m** and the **Speed** to **450km/h**.



Place a **Command:Land** on the runway. The LAGG-3s will land where the Land command is placed in the direction of the yellow line. So you need to move it to one end on the runway with and **rotate** it so that the yellow line points up the runway centreline.



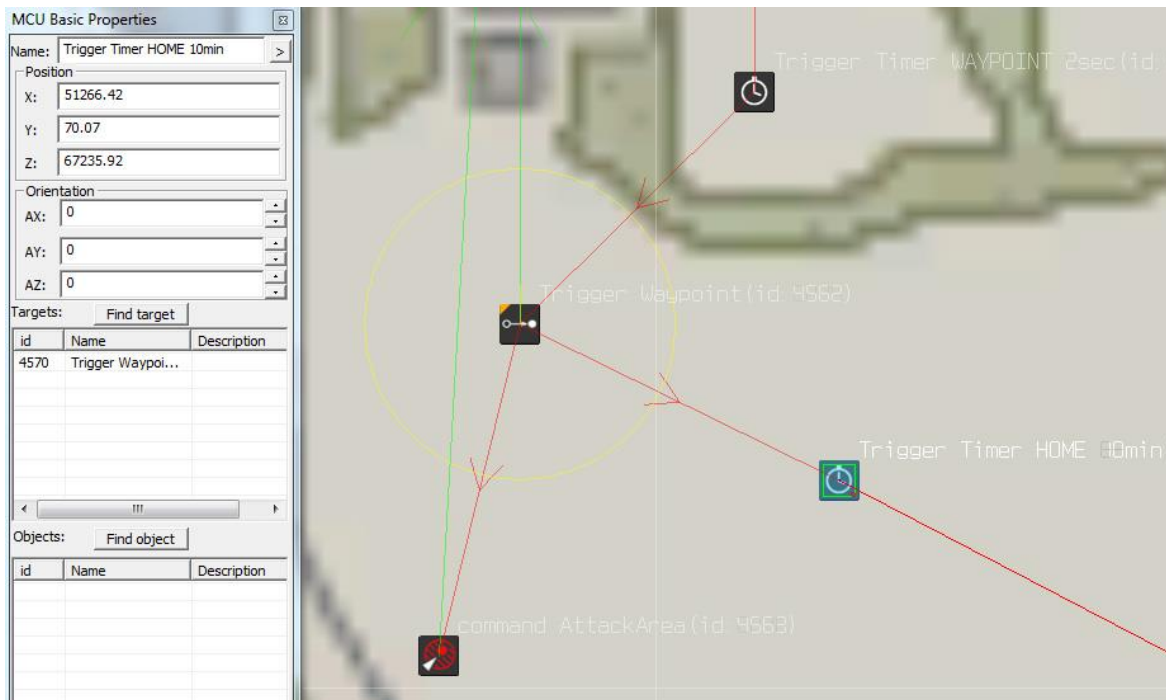
Object link the **Land** command to the lead **LAGG-3** and **Target Link** the **Waypoint HOME** to the **Land** command.



When the LAGG-3s get within 200m of the HOME Waypoint the Target Link will activate the Land command and the LAGG-3s will turn on their navigation lights and start to land from the southeast.

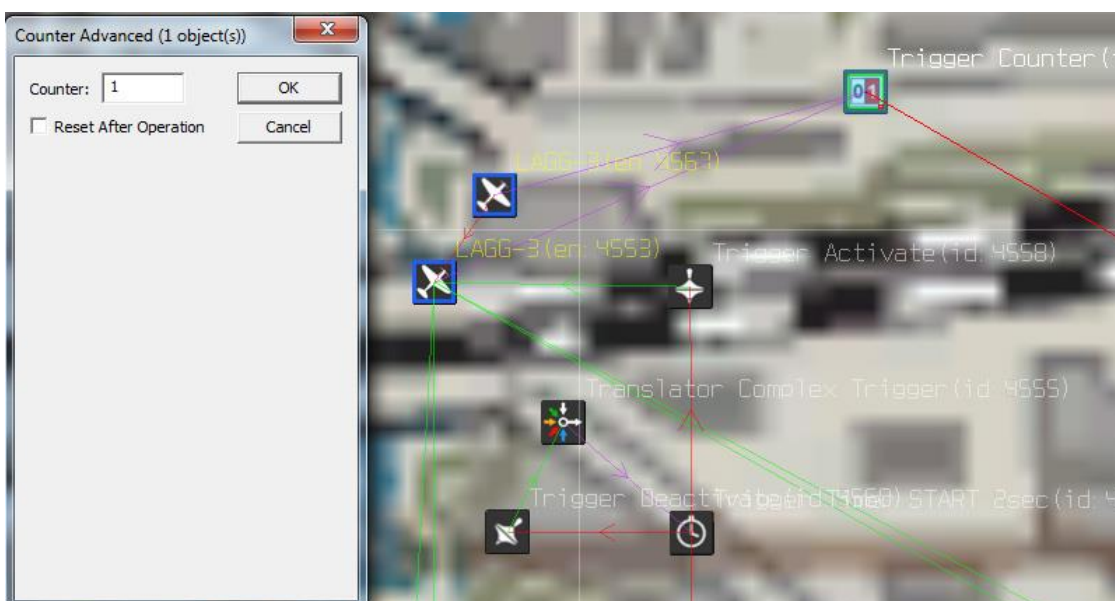
Go back to the first Waypoint and add a **Trigger Timer** next to it. Name the Timer **HOME** and set it to **10 min 2sec**. **Target Link** the **Timer HOME** to the **Waypoint HOME**.

Now the Area Attack and the Timer are started at the same time. After 10 minutes the Area Attack ends and 2 seconds later the Timer starts the Home Waypoint.



Add a **Trigger:Counter** and in its Advanced properties set the count to **1**. Target link the Counter to the **HOME Waypoint**. Right click on each **LAGG-3** and chose **Select Object Menu/Add On Damaged Event** and **Event Link** it to the **Counter**.

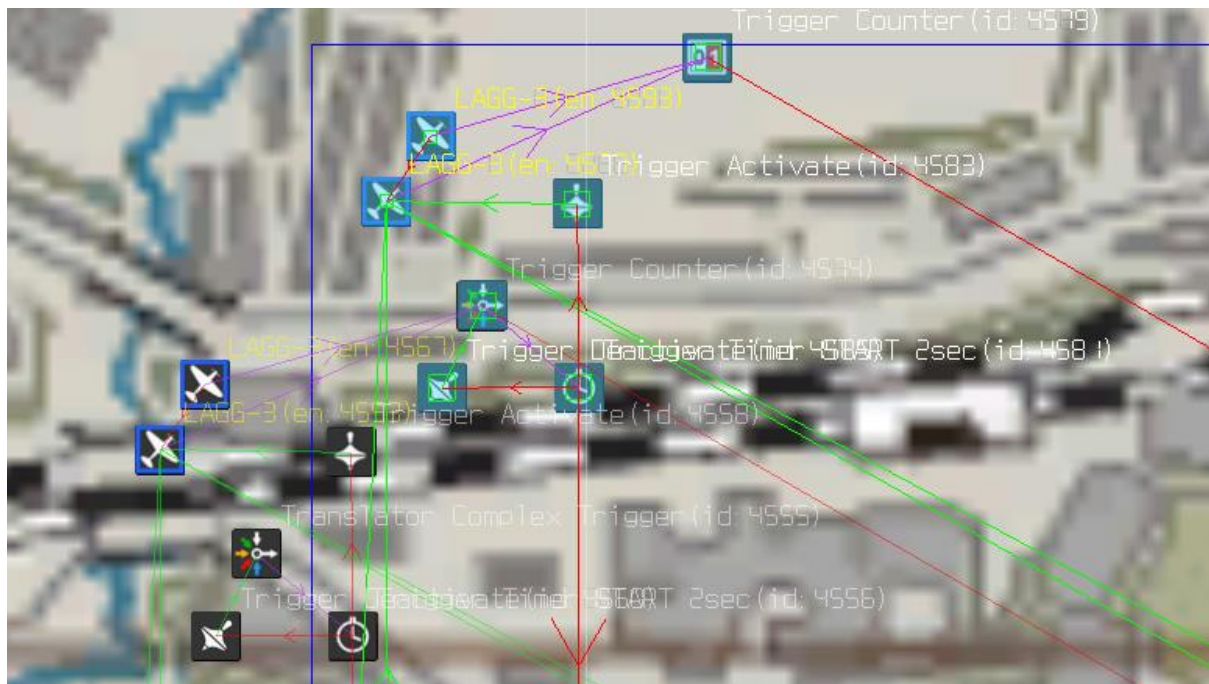
Now when one of the LAGGs is heavily damaged they will both turn and head home. If you want to keep them a little more aggressive you can set the HOME Waypoints Priority to Medium instead of High



Suppose you want a flight of four LAGG-3s rather than a pair.

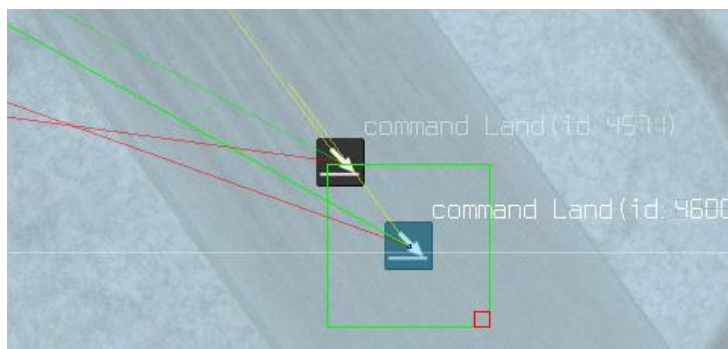
Select the two LAGG-3s you have already created, and all of their commands, by dragging a selection box around them or select an object then Ctrl-left-click to select additional objects. Make sure you've included the HOME Waypoint and Land command.

Right click to **copy** the selection and then **paste** a copy back on the map. With the recently pasted objects still selected left click and drag the mouse within the blue bounding box to move the new LAGG-3s with all their commands to a position just behind and to one side of the original LAGG-3s.



Set the new **LAGG-3s** starting altitude to **4020**, 20 metres above the existing LAGG-3s. Set the new first **Waypoint** to the same **4020** altitude and the same with the **Area Attack**. This will help prevent collisions between the pairs and it will also look better.

Move the new **Land** command onto the runway.



If you want you can set the LAGG-3 AI to different ability levels in their Advanced properties. You could even change the Aircraft type using the Planes Properties/**Model** button.

Select both pairs of LAGG-3s and all the commands and right click to **Group Objects**. Name the Group something descriptive like **4xLAGG-3 group 4000m**.

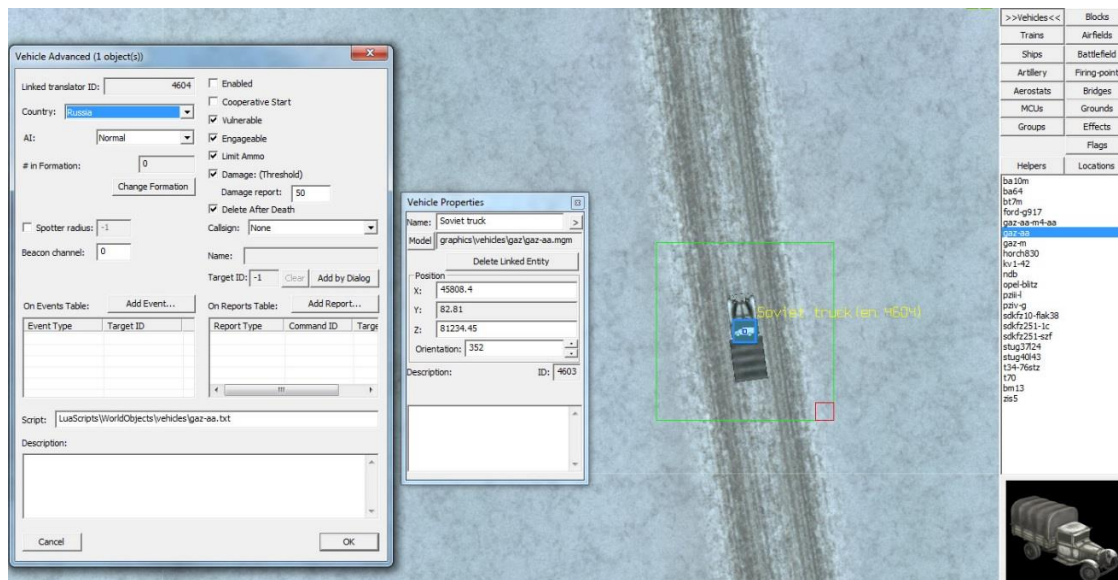
This group can now be saved and reused as needed. Save the mission

3.5 Creating a vehicle convoy

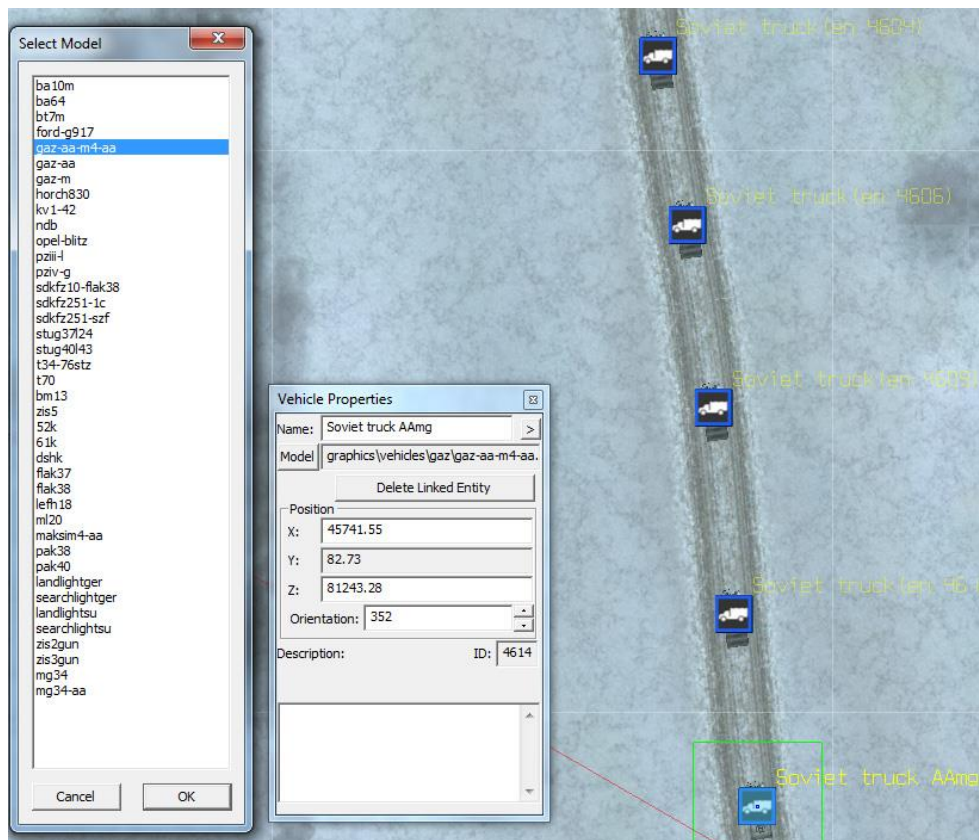
You'll create a convoy of Soviet trucks that will travel along down road then across country.

Open *Velikiye Luki tutorial.Mission*. Locate the town of Phedoriha in grid 094-4.

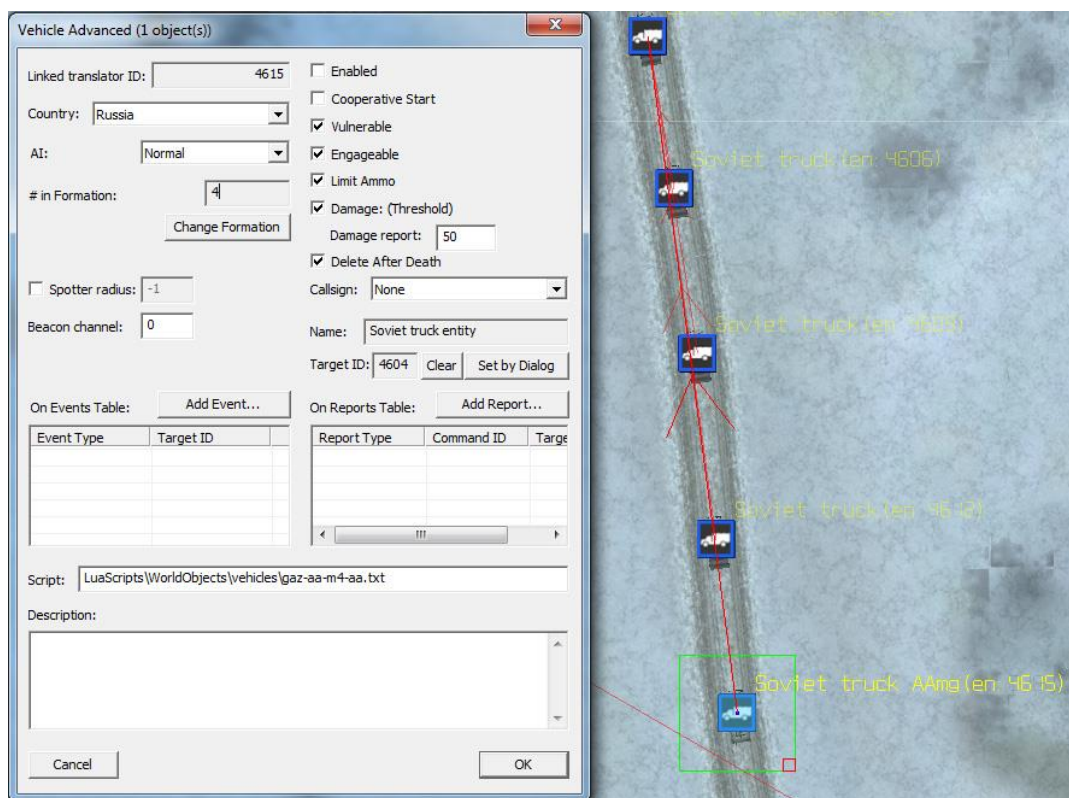
On the road next to the town place a Vehicle/**gaz-aa** truck. **Rotate** the **truck** to face along the road and in Properties **Name** it **Soviet truck** and **Create Linked Entity**. In the trucks Advanced properties set the **Country**: to **Russian** and untick **Enabled**.



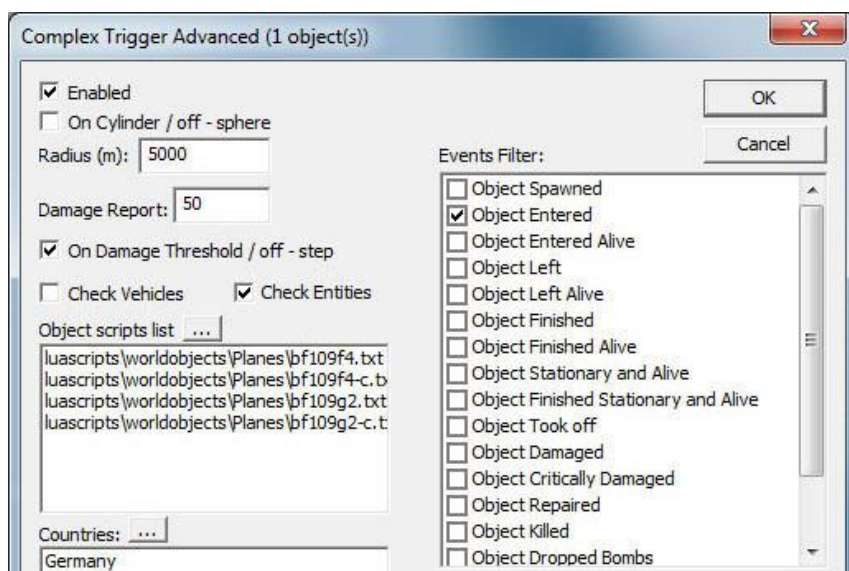
Copy the **truck** and **paste** 4 more of them on the road behind the first. **Select** the **fifth truck** and in Properties/**Model** change it to a **gaz-aa-M4-aa** AA machine gun truck. **Name** it **Soviet truck AAmg**.



Target Link the **pasted trucks** to the **lead truck**. Do this in order from the front to the back of the convoy. The order in which the Target Links are created determines the trucks place in the Formation.



Add a **Complex:Trigger** set to **5000m** radius and unticked for **off – sphere**. With the complex trigger at ground level this forms a 5000m radius hemispherical trigger zone. Tick **Check Entities**. Set the **Object script list** to all **109s** and the **Countries** to **Germany**. In Event Filter tick **Object Entered**.



Add a **Trigger Timer** set it to 2 seconds and **Name** it **Trigger Timer START 2sec**. Right click on the **Complex Trigger** and Select Object Menu/Add OnObjectEntered Event and click on the **START Timer** to create an **Event Link**.

Add an **Activate** command and **Object Link** it to the **lead truck**. **Target Link** the **START Timer** to the **Activate** command.

Add a **Trigger Timer** above the START Timer set to **2 seconds** and **Name** it **Trigger Timer WAYPOINT1 2sec**. **Target Link** the **START Timer** to the **WAYPOINT1 Timer**.

Add a **Trigger Timer** to the left of the convoy set to **6 seconds** and Name it **Trigger Timer FORMATION 6sec**. **Target Link** the **START Timer** to the **FORMATION Timer**.

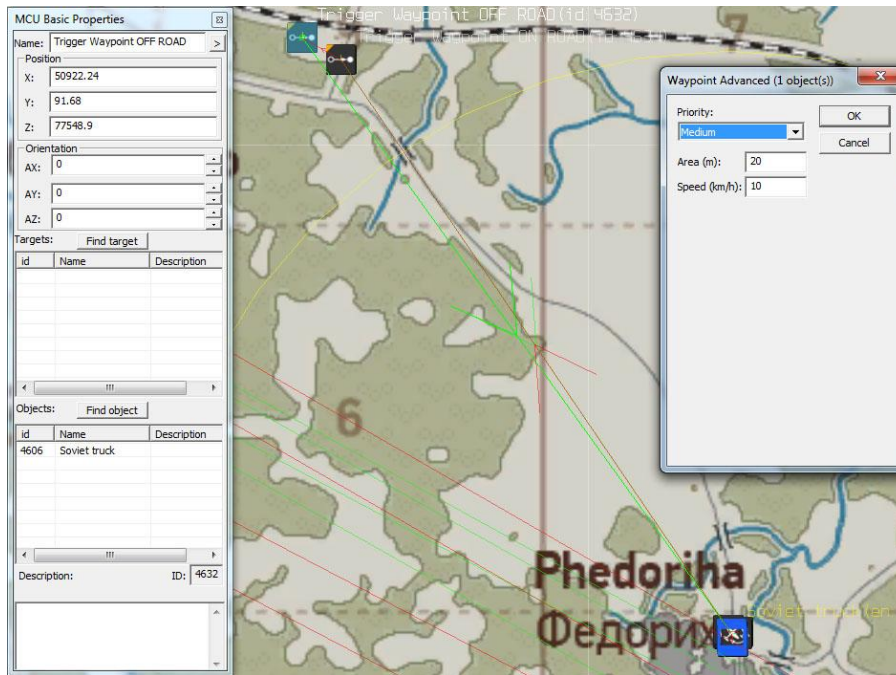
Add a **Command:Formation** and in its Advanced properties set it to Formation Type: **Vehicle: On Road Column** and Formation Density: **Safe**. **Object Link** the **Formation** command to the **lead truck**.



Add a **Trigger:Waypoint** further up the road and **Name** it **Trigger Waypoint ON ROAD**. Double click the **ON ROAD Waypoint** and set the **Speed** to 20kp/h.

Add another **Trigger:Waypoint** in the field next to the road and **Name** it **Trigger Waypoint OFF ROAD**. Double click the **OFF ROAD Waypoint** and set the **Speed** to 10kp/h.

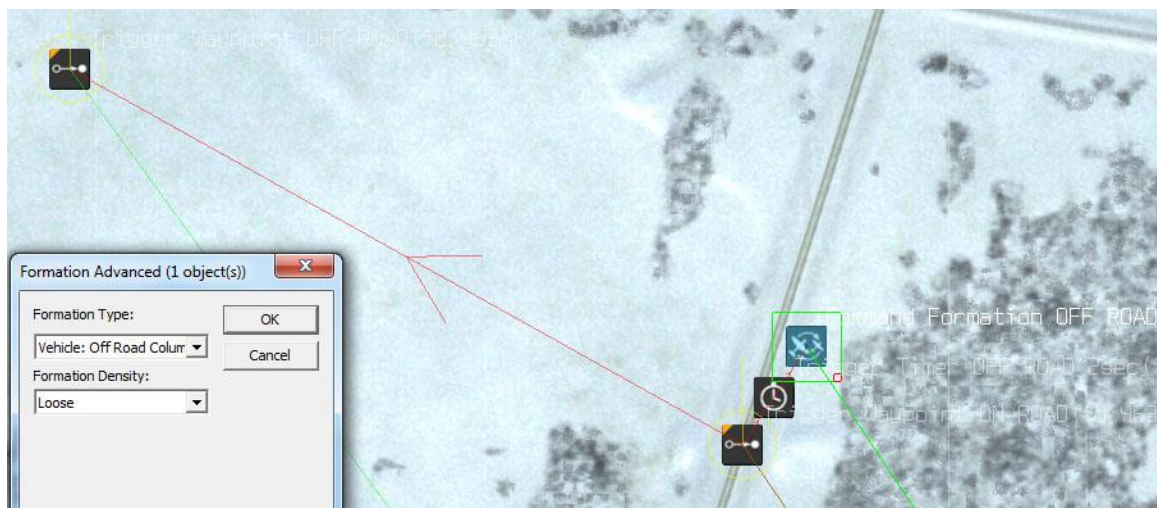
Object Link both **Waypoints** to the **lead truck**. **Target Link** the **WAYPOINT1 Timer** to the **ON ROAD Waypoint**. **Target Link** the **ON ROAD Waypoint** to the **OFF ROAD Waypoint**.



Add a **Trigger:Timer** and set it to **2 seconds** and name it **OFF ROAD 2sec**. **Target Link** the **ON ROAD Waypoint** to the **OFF ROAD Timer**.

Add a **Command:Formation** and **Name** it **Command Formation OFF ROAD**. **Object link** it to the lead **truck**. In Advanced properties change the **Formation Type:** to **Off Road Column** and **Formation Density:** to **Loose**.

Target Link the **OFF ROAD 2sec Timer** to the **OFF ROAD Formation** command.



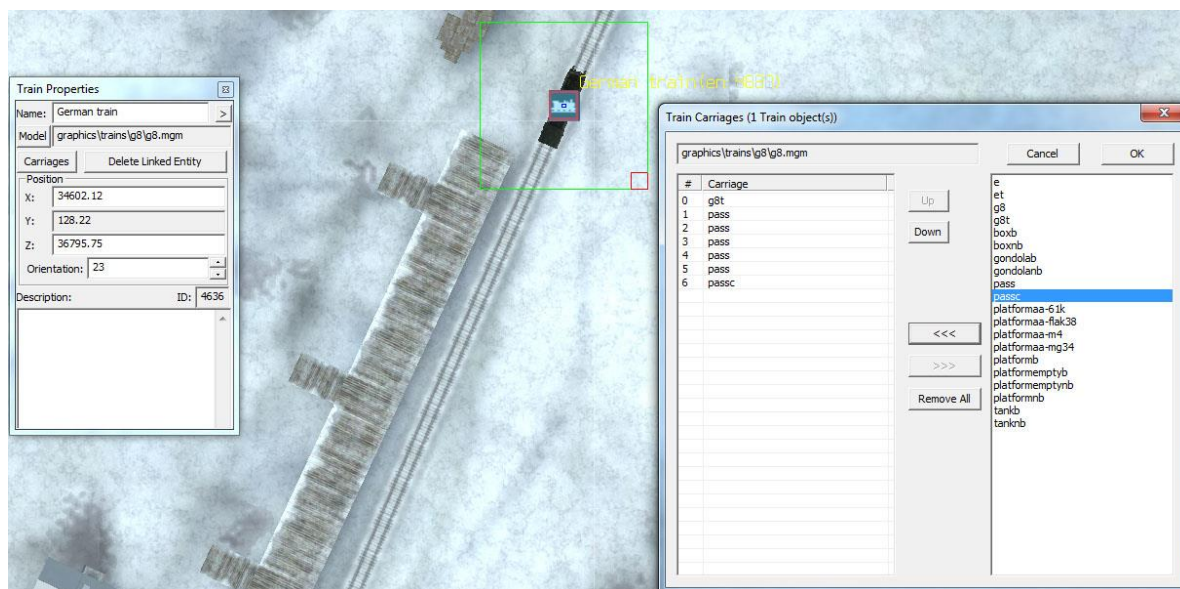
You now have a column of trucks that, when activated, move along the road. When they reach the first waypoint they turn off the road and carry on across country. **Group** them as **Soviet truck column**. Save the mission.

3.6 Creating a train

You'll create a German train to populate the player's side of the frontline.

Open *Velikiye Luki tutorial.Mission*. Locate the town of Izitsa in grid 106-3.

Add a Train/g8 to the railway line next to the platform in Izitsa **Create Linked Entity** and **Name** it **German train**. Select the Properties/**Carriages** button and add a **g8t** tender, **5 pass** passenger carriages and a **Passc** guard's carriage. These carriages won't appear in the Mission Editor but will appear in game. In Advanced properties set the **Country** to **Germany** and leave **Enabled** ticked.



Add a **Translator:Complex Trigger** and set its **Radius** to **3000** metres. Set the **Object** script list to **all 109s** and the **Countries** to **Germany**. In Event Filter tick **Object Entered**.

Add a **Trigger:Timer**, set it to **2 seconds** and **Name** it **START Timer 2sec**. **Event Link Add OnObjectEntered** Event from the **Complex Trigger** to the **START Timer**.

Add a **Trigger:Timer**, set it to **5 seconds** and **Name** it **START FORMATION Timer 5sec**.

Add a **Command:Formation** and **Name** it **Command Formation START**. In Advanced properties set the **Formation Type**: to **Vehicle: Forward**, leave the **Formation Density**: as is. **Object Link** it to the **German train**.

Target Link the **START Timer 2sec** to the **START FORMATION Timer 5sec** and **Target Link** that to the **START Formation** command.

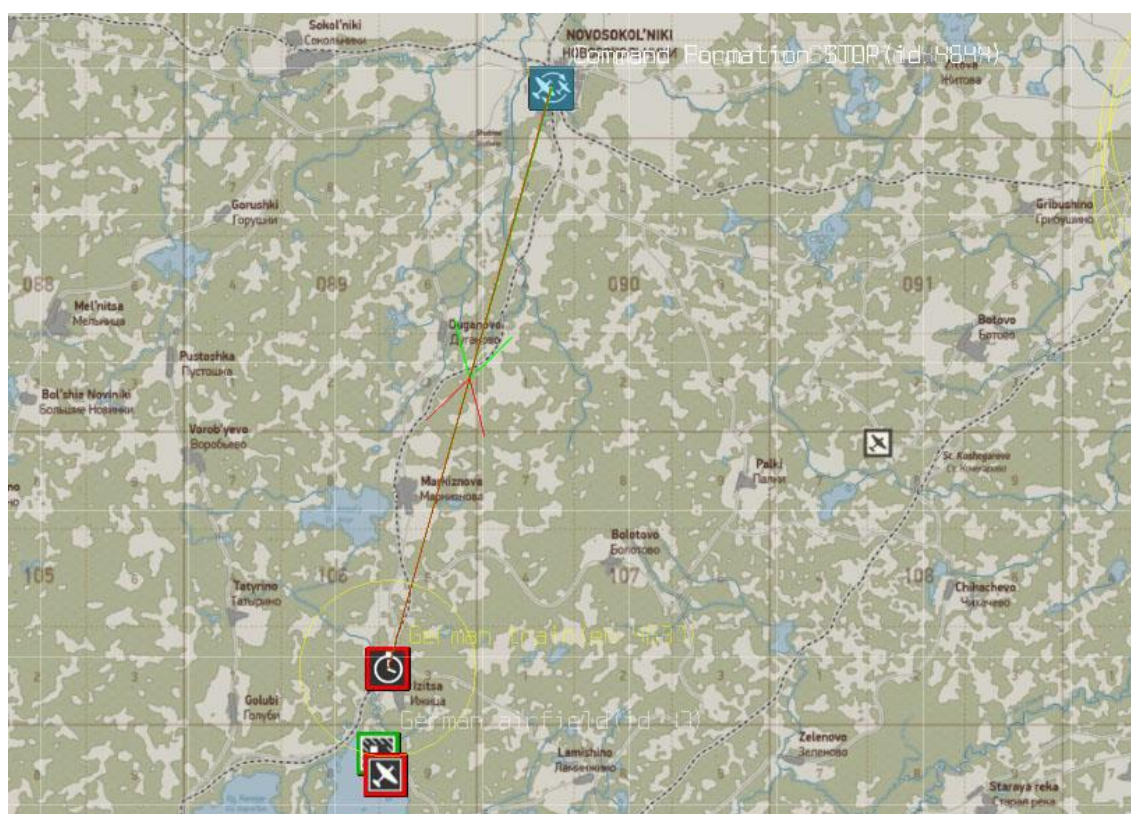
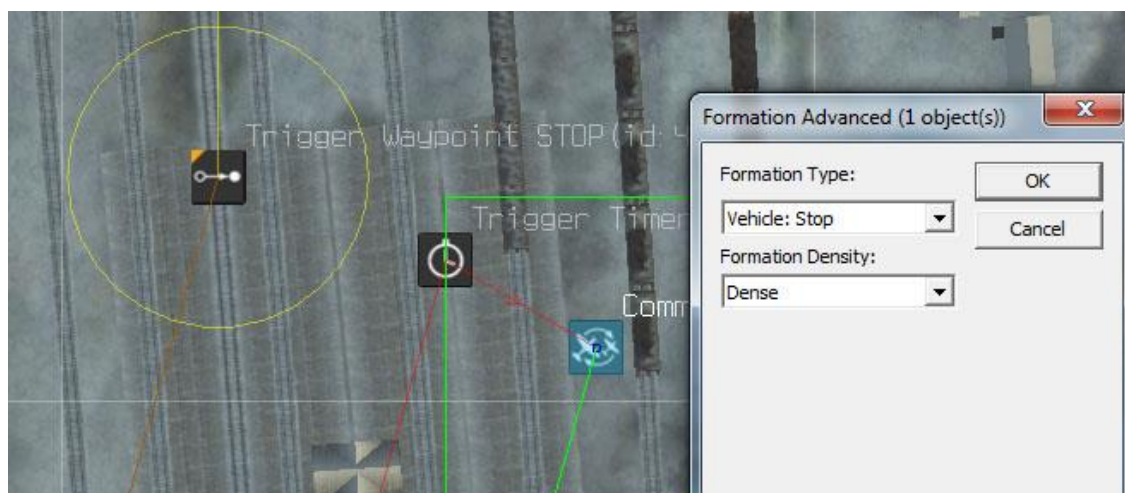


At the train station in Novosokol'Niki grid 073-1 add a **Trigger:Waypoint** and **Name** it **Trigger Waypoint STOP**. In the Advanced properties set the **Speed** as **50km/h**. **Object Link** it to the **German train**.

Add a **Trigger:Timer**, set it for **3 seconds** and **Name** it **Trigger Timer STOP 3sec**. **Target Link** the **Trigger Timer START 2sec** to the **Trigger Timer STOP 3sec**.

Add a **Command:Formation** and **Name** it **Command Formation STOP**. In Advanced properties set the **Formation Type**: to **Vehicle: Stop**, leave the Formation Density: as is. **Object Link** it to the **German train**.

Target Link **Trigger Timer STOP 3sec** to the **Command Formation STOP**. And the train is complete. **Group** it as **German Train** and Save the mission.

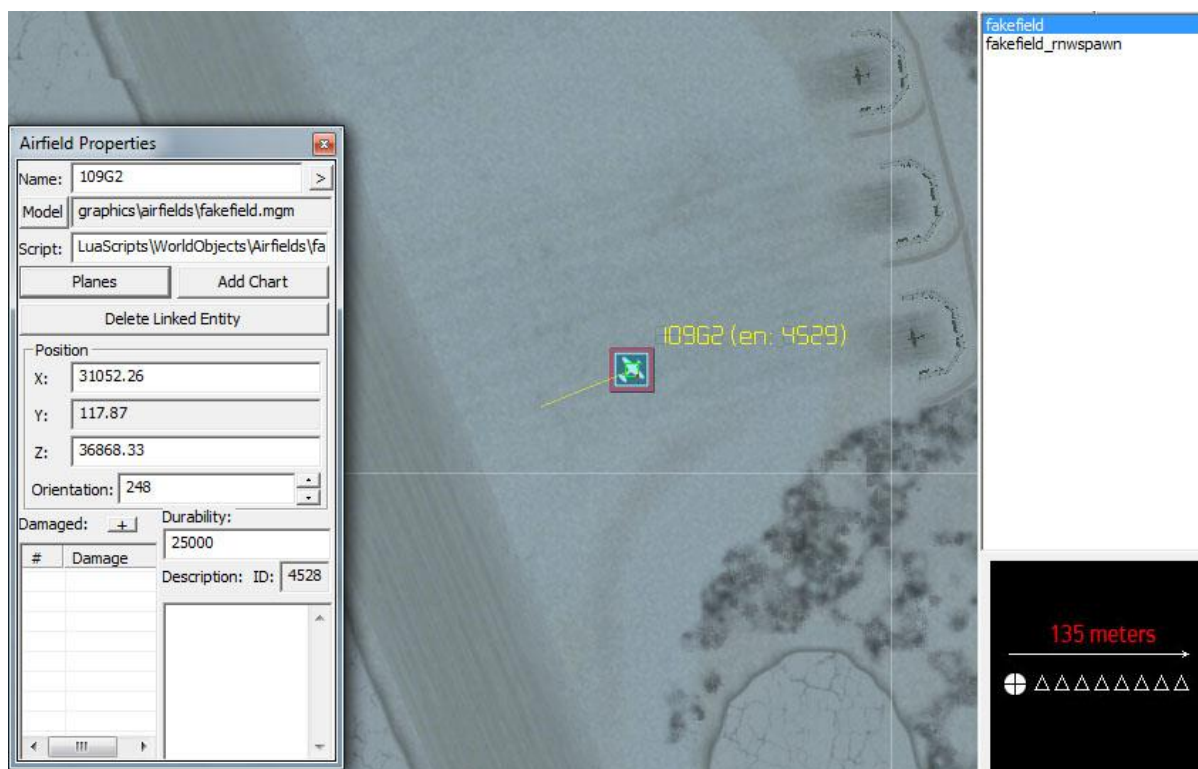


3.7 Creating friendly bomber group and escort

In this tutorial you'll create a flight of friendly bomber plus their escort. The mission already You'll start by moving the 109 spawn point to ramp and changing it to start to 109s in line abreast.

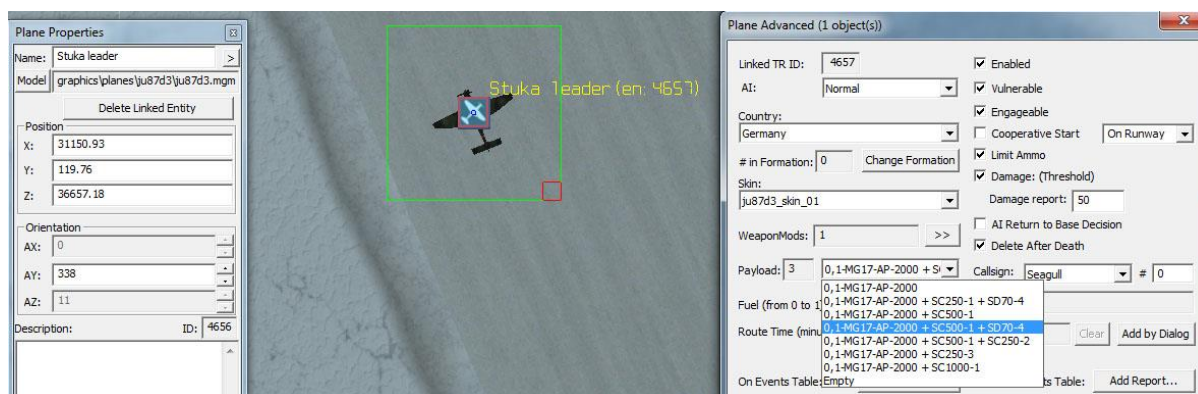
Open *Velikiye Luki tutorial.Mission*. Go to the German airfield, grid 123-9.

Locate the 109G2 spawn point and move it to the hard standing on the right, rotate it to face the runway. Select the Properties/**Model** button to change the **fakefield_rnwspawn** to a **fakefield**. Select the Properties/**Planes** button and then select the **bf109g2** and change the start to **On Parking**, which will spawn the player 109 with its engine off.



Add a **Planes/ju87d3** to the runway and **rotate** it to face up the runway. **Name** it **Stuka leader** and **Create Linked Entity**. In Advanced properties set the **Country** to **Germany**, the **Skin** to **ju87d3_skin_01**, the **Payload** to **SC500+1 + 4SD70+4** and the **Callsign** to **Seagull**. **Enabled** is ticked and change the start to **On Runway**, OK to close.

The Stukas will start on the runway with their engines on.



Copy the **Stuka leader** and **paste 2** more copies behind it on the runway, **Rename** these to **Stuka**. When you paste them they can appear to be partly sunk into the ground, this won't happen in game but if you want to correct it now using the **Set on Ground** button. 

Target Link both new **Stukas** to the **Stuka Leader** to make them part of the Stuka Leaders formation.

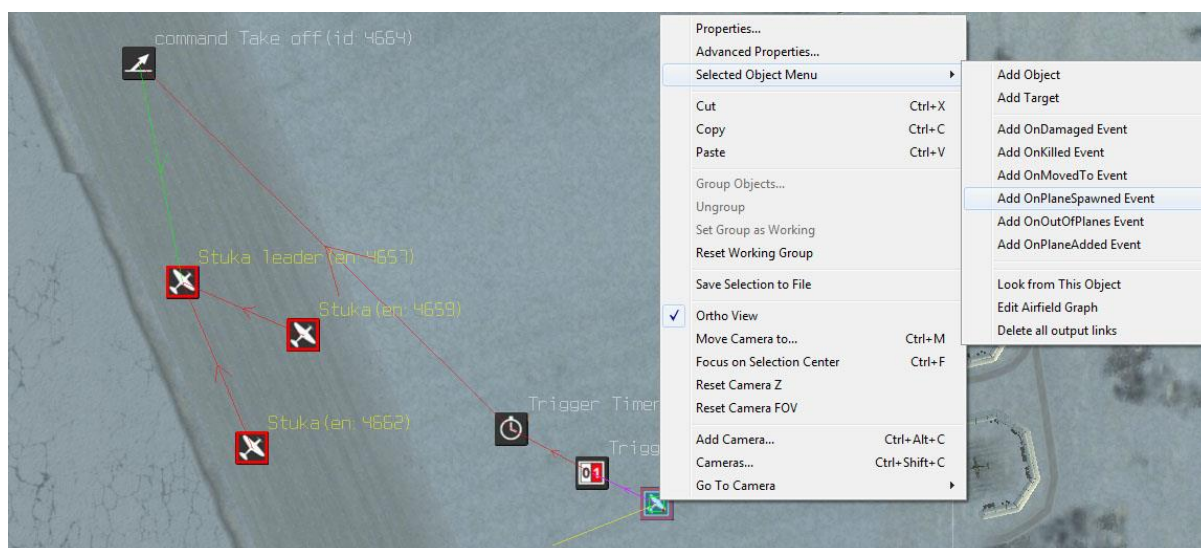
Add a **Command:Take off** and **Object Link** it to the **Stuka leader**.

Add a **Trigger:Timer**, set it to **30 seconds** and **Name** it **Trigger Timer TAKEOFF 30sec**. **Target Link** it to the **Take off** command.

Add a **Trigger:Counter**, in Advanced properties set it to **4** and **Name** it **Trigger Counter 4**.

Right click the **109G2** spawn point and use Select Object Menu/**Add OnPlaneSpawn Event** to **Event link** it to **Trigger Counter 4**.

Each time a player spawns into a 109 the spawns point sends an Event Link to the Counter. When the Counter reaches four it triggers the 30 second TAKEOFF Timer. The Timer will trigger the Take off command that tells the Stuka leader to power up take off, with the rest of the Stukas following their leader.



On the right hand side of the runway just above the Stukas add a Flags/**Windsock**, **Name** it **Windsock** and **Create Linked Entity**. In Advanced properties set the **Country** to **Germany**.

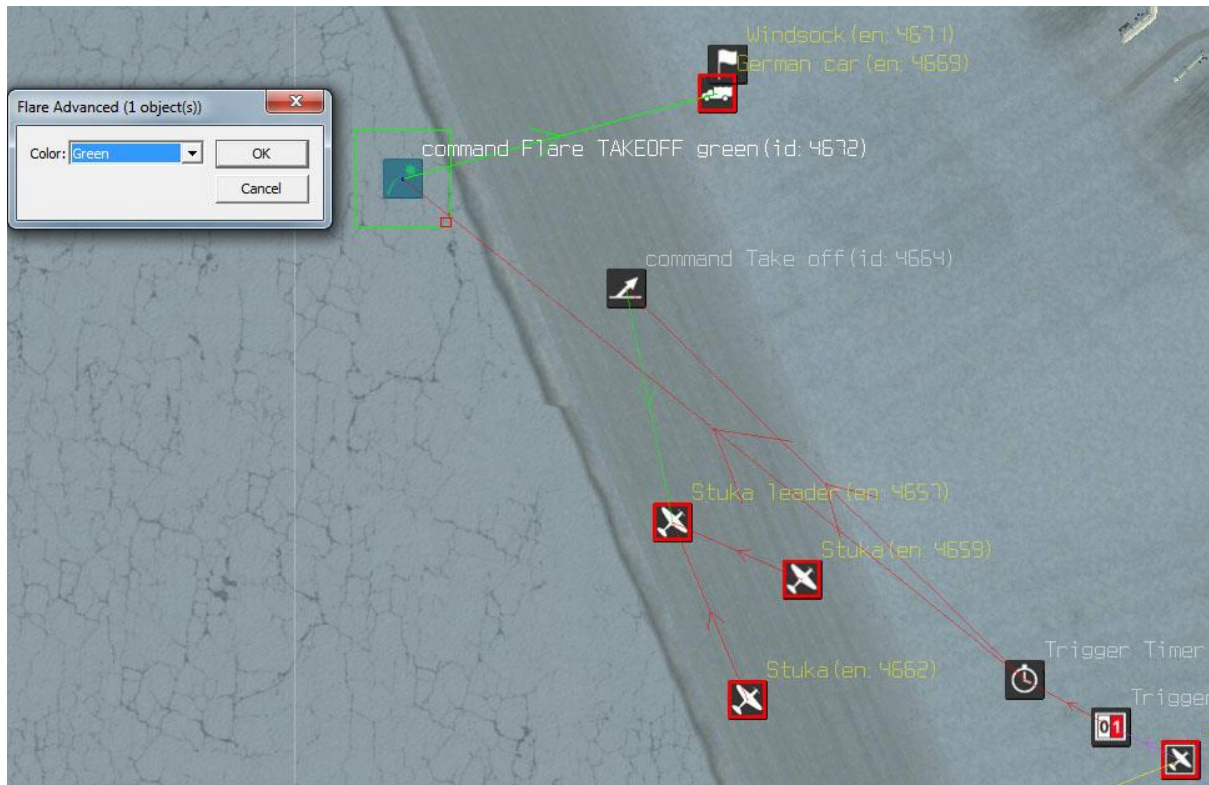
Next to the Windsock add a Vehicle/**horch830** car, **Name** it **German car** and **Create Linked Entity**. In Advanced properties set the **Country** to **Germany**.



Add a **Command:Flare** across the other side of the runway from the **German car** and **Name** it **Command Flare TAKEOFF green**. **Object Link** it to the **German car**.

Target Link the **Trigger Timer TAKEOFF 30sec** to the **Command Flare TAKEOFF green**.

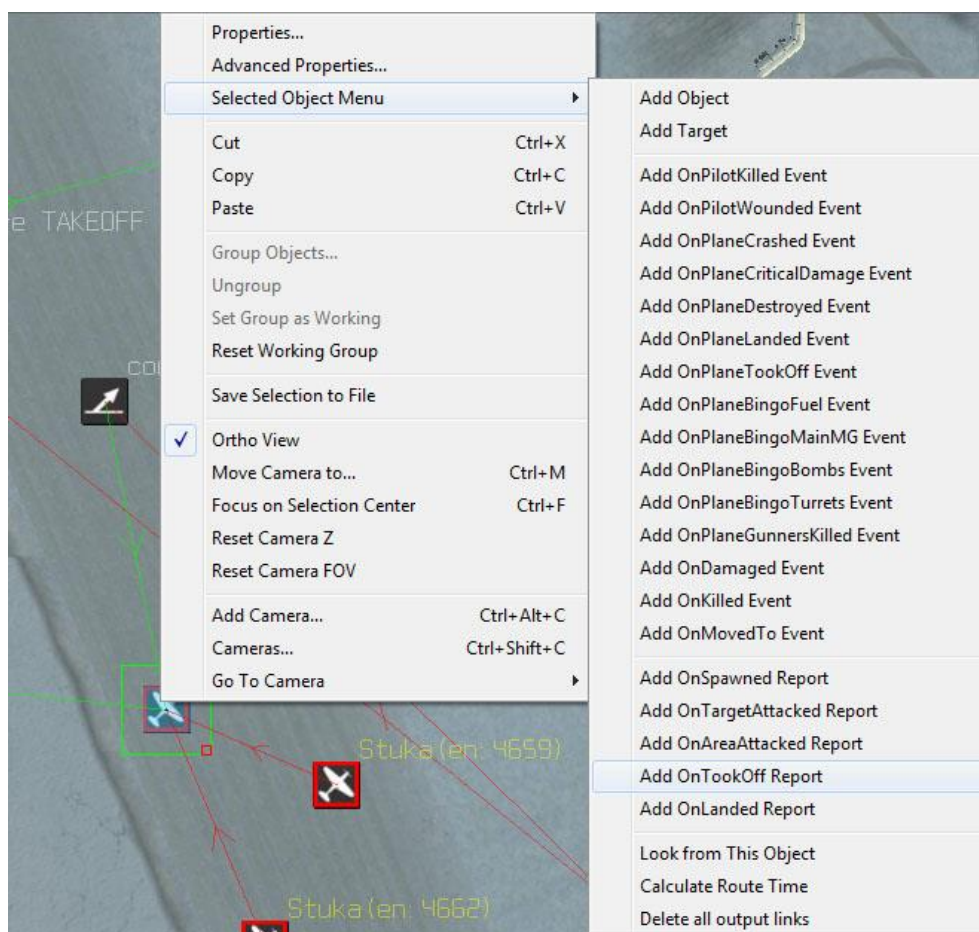
Now when the Take off command is activated a green flare will be fired from the car up and across the runway.



Add a **Trigger:Waypoint** near to the Take off command (you'll move it later). In Properties **Name** it **Trigger Waypoint 1** and set its altitude Position **Y**: to **500** metres. In Advanced properties set the **Area (m)**: to **200** and the **Speed (km/h)**: to **220**. **Object Link** it to the **Stuka leader**.



Right click on the **Stuka leader** and use Select Object Menu/**Add OnTookOff Report**. The mouse cursor will change to a **CMD** symbol, click on the **Command Take off**, when you've done that move your mouse over to the **Trigger Waypoint 1** and the cursor will change to say **Target**, click on the **Trigger Waypoint 1**.



A blue **Report Link** is now shown between the **Stuka leader** and the **Waypoint 1** and underneath it is the **Object link** from the waypoint to the aircraft. There is also a blue **Report Link** between the **Take off** command and the **Stuka leader**.

This is how you setup a link between the take off command and the first waypoint. It seems a little complicated but it's like this for a reason. When the take off command is activated the aircraft will start its engine (if they're not already running) and begin rolling down the runway. Only after the aircraft has taken off and brought its undercarriage and flaps up is it ready to execute a new command. When the aircraft has completed the take off command it will send a **OnTookOff Report** to activate the first waypoint.

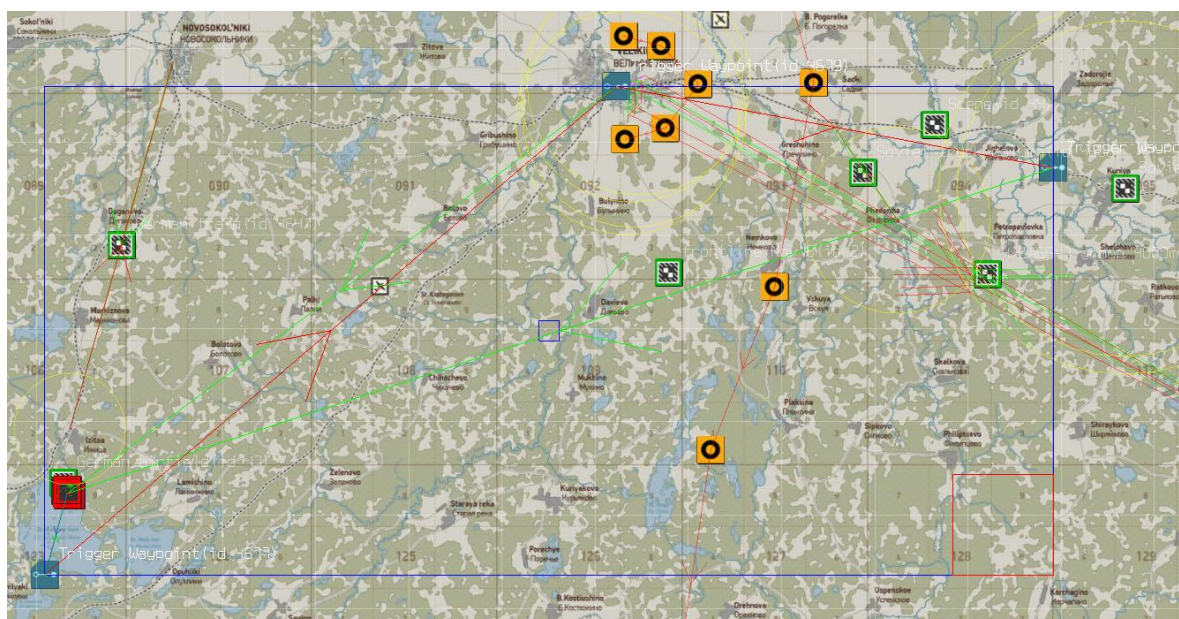


Move **Waypoint 1** down to the southern end of the lake. After taking off to the north the Stukas will now circle around to the first waypoint.

With the waypoint selected hold down **SHIFT** and **left mouse click** on Velikiye Luki in grid 175-2 to add a new waypoint, click again in grid 094-6 to add a second waypoint just before the town of Kuniya which is the Stuka target. Release the SHIFT key and click again to unselect.

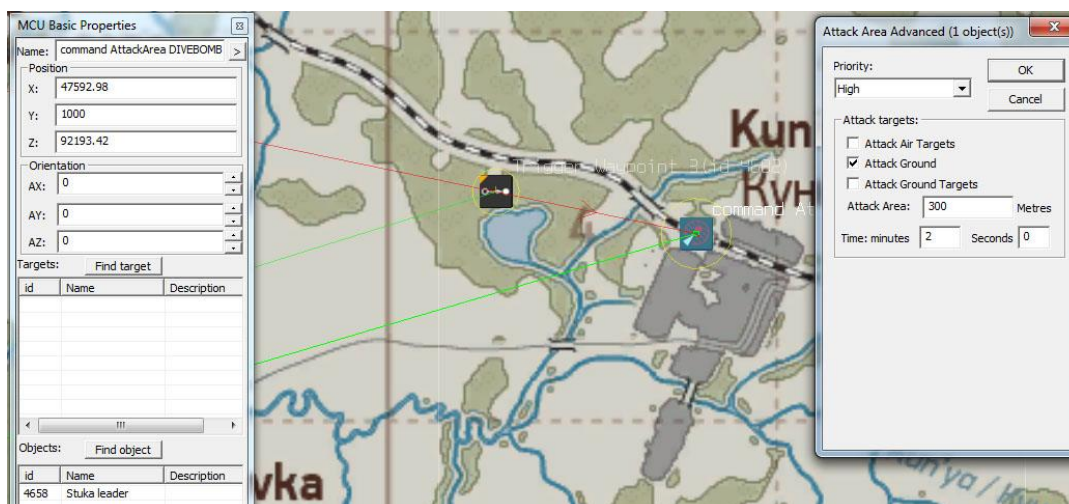
You'll notice that both of the new waypoints inherited the green Object Link to the Stuka leader and each waypoint is automatically Target Linked to the next.

In Properties **Name** the waypoints **Trigger Waypoint 2** and **3**. Set **Waypoint 2** to **3000m** altitude and **Waypoint 3** to **4000m**. In Advanced properties set the **Speeds** to **230km/h** for **Waypoint 2** and **250km/h** for **Waypoint 3**.



Add a **Command:Attack Area** over Kuniya train station. In Properties **Name** it **Command Attack Area DIVEBOMB** and set its altitude to **1000m**. **Object Link** it to the **Stuka leader**. In Advanced properties set **Priority: High**, tick **Attack Ground**, set the **Attack Area:** to **300** metres and the **Time** to **2** minutes.

Move **Waypoint 3** a little closer so that it's about 2Km from the target and **Target Link** it to the **Attack Area DIVEBOMB** command. Now as the Stuka get over the target they'll dive bomb.

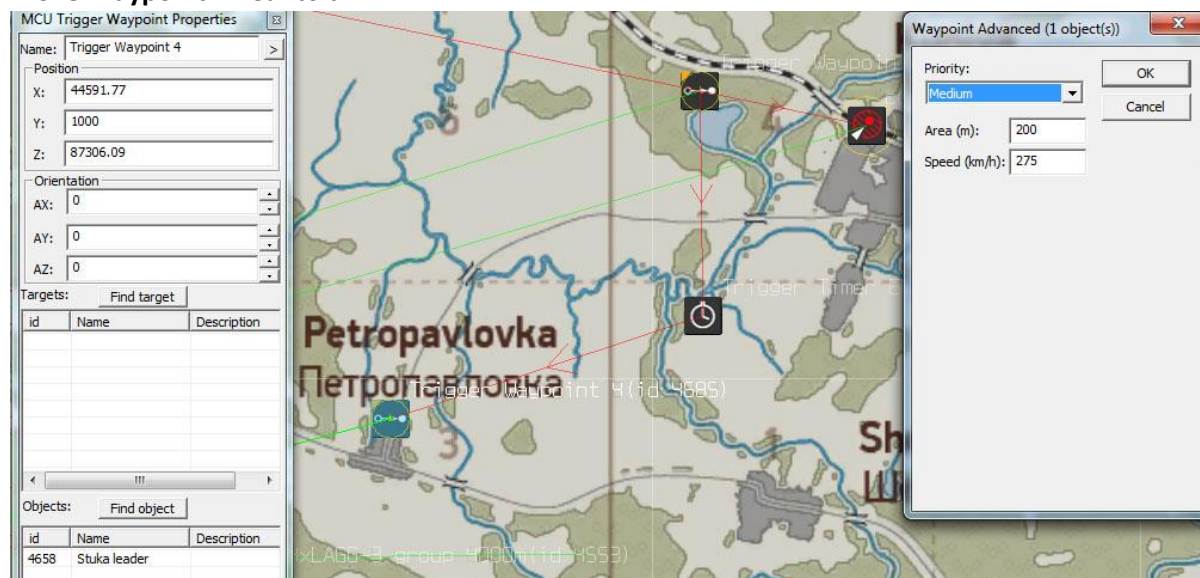


Add a **Trigger:Timer**, set it to **2 minutes 2 seconds** and Name it **Trigger Timer ATTACK ENDS**.

Add a **Trigger:Waypoint**, set the altitude to **1000m** and **Name** it **Trigger Waypoint 4**. In Advanced properties set the **Area** to **200** and the **Speed** to **275**. **Object Link** it to the **Stuka leader**.

Target Link the **ATTACK ENDS** Timer to **Waypoint 4**.

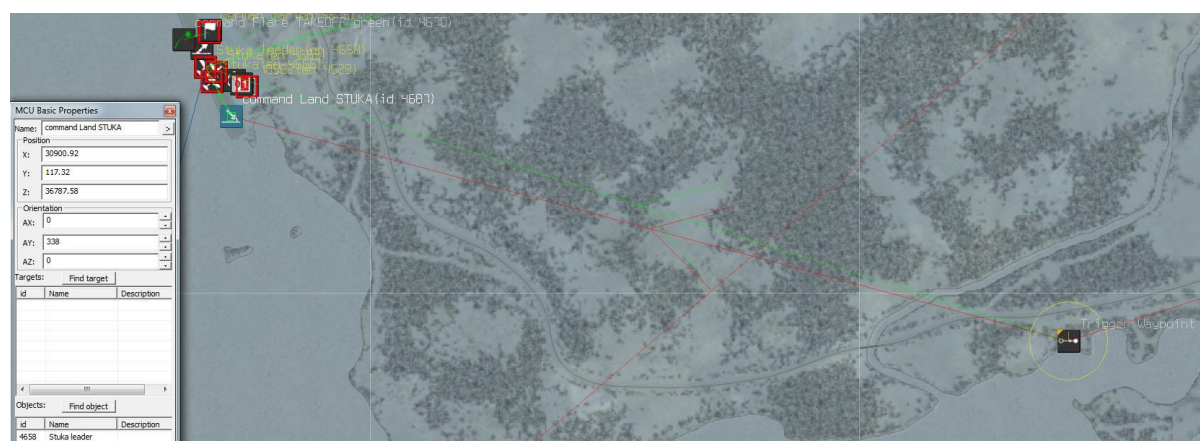
Move Waypoint 4 near to th



e German airfield in grid

Add a **Command:Land** on to the end of the runway and rotate so that the yellow orientation indicator points up the runway centre line. **Name** it **Command Land STUKA**. **Object Link** it to the **Stuka Leader**.

Target Link **Waypoint 4** to the **Command Land STUKA**.



Now the Stukas will fly a complete dive bombing mission from take off to landing. Next you'll add an FW190 escort.

Behind the Stuka on the runway add a Planes/**fw190a3** and **Name** it **FW190 leader**. In Advanced Properties set the **AI:** to **High**, the **Country:** to **Germany**, the **Skin:** to **fw190a3_skin_01**, the start to **On Runway** and the **Callsign:** to **Eagle**.

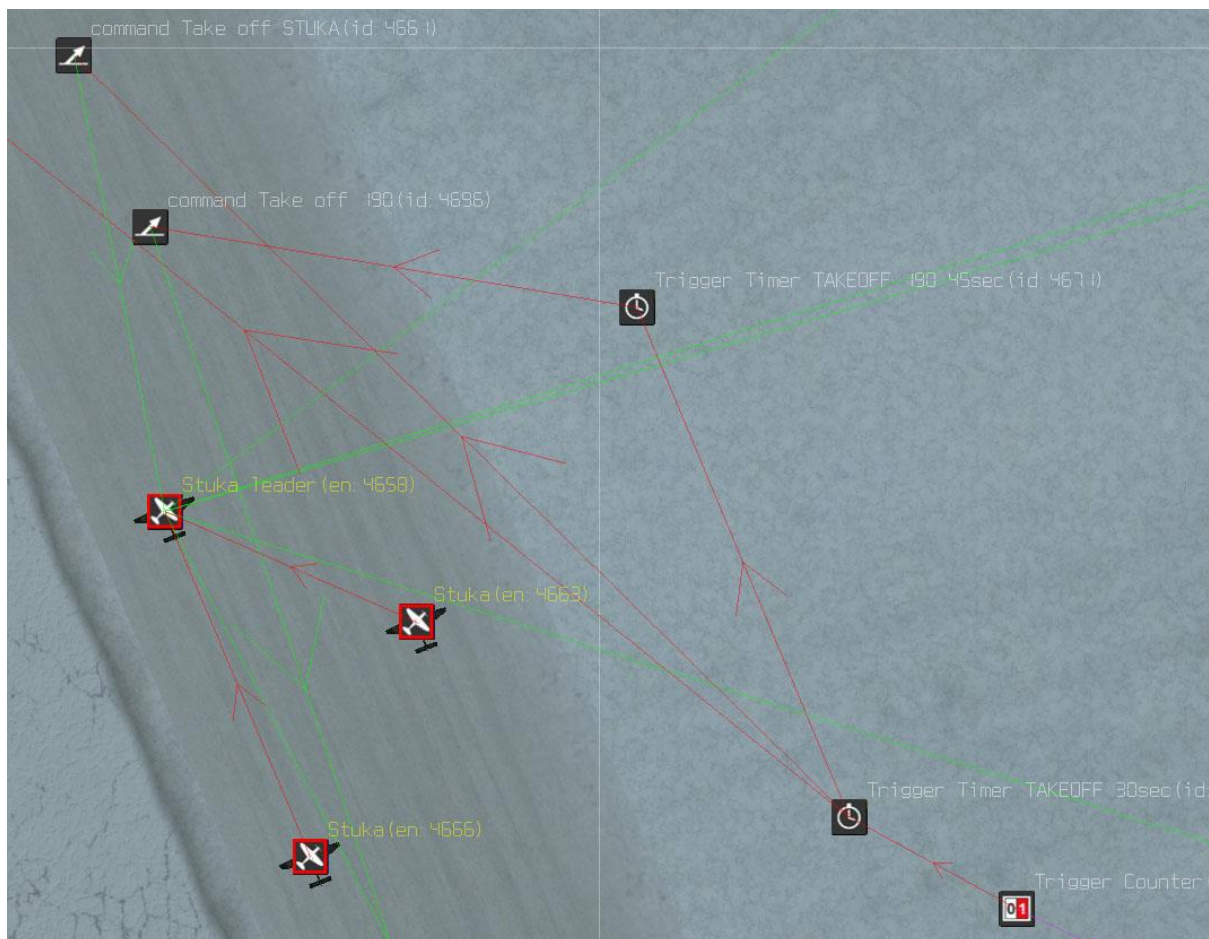
Copy and **Paste** the **FW190 leader** and rename it **FW190**. **Target Link** the **FW190** to **Fw190 leader**.

Add a **Command:Take off** and **Name** it **Command Take off 190**. **Object Link** it to the **FW190 leader**.

Add a **Trigger:Timer**, set it to **45 seconds** and **Name** it **Tigger Timer TAKEOFF 190 45sec**. **Target Link** it to the **Command Take Off 190**.

Target Link **Trigger Timer TAKEOFF 30sec** to **Tigger Timer TAKEOFF 190 45sec**.

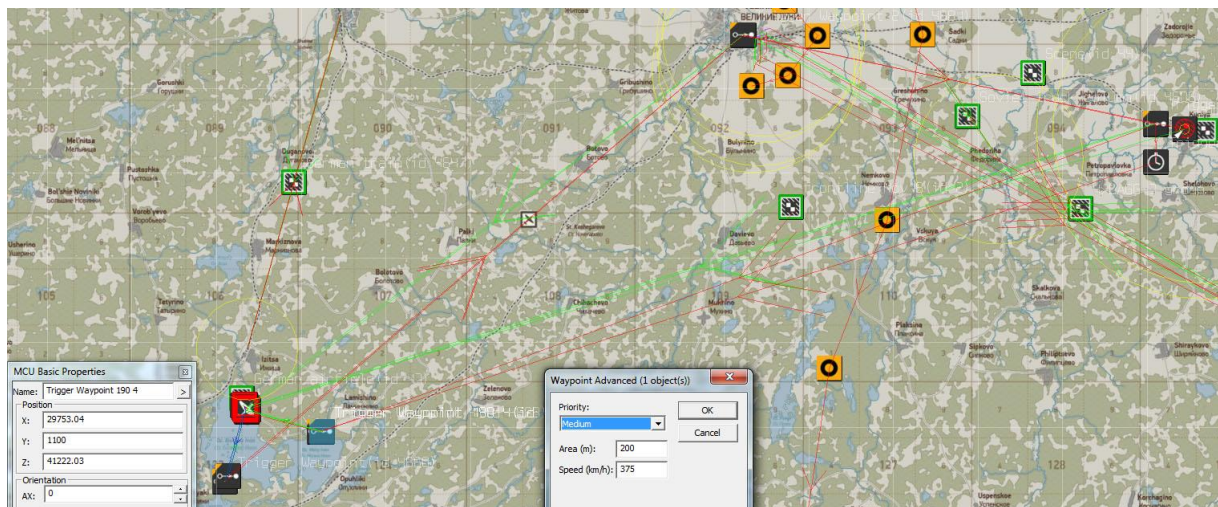
Now 45 seconds after the Stukas have started to take off the 190s will start to roll.



Add a **Trigger: Waypoint**, set it to an altitude of **600** metres and **Name** it **Trigger Waypoint 190 1**. In Advanced properties set the **Area** to **200** and the **Speed** to **250**. **Object Link** it to the **FW190 leader**.

Right click on the **FW190 leader** and use Select Object Menu/**Add OnTookOff Report**, click on the **Command Take off 190** then click on the **Trigger Waypoint 190 1**.

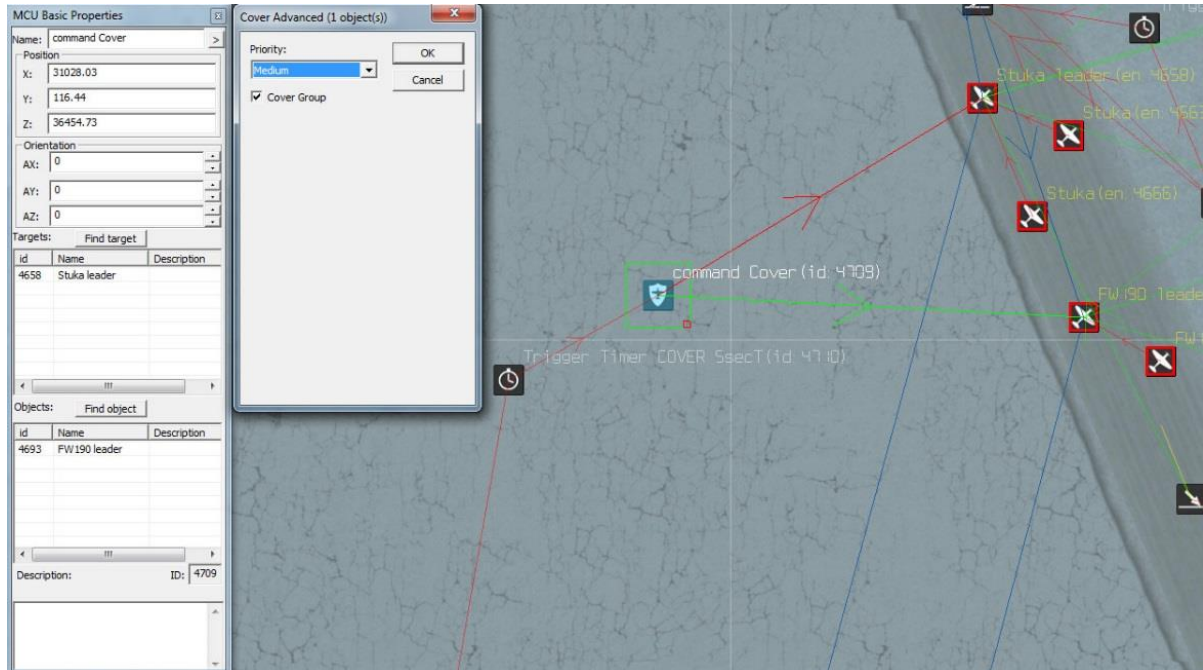
Move **Waypoint 190 1** to position near the Stuka first waypoint. **SHIFT** click to create three more waypoints on the Stukas waypoints. Name them **Trigger Waypoint 190 2** to **4** and set each one **100** metres above the corresponding Stuka waypoint. Set **Waypoint 190 2** to **330km/h** **Waypoint 190 3** to **350km/h** and **Waypoint 190 4** to **375km/h**.



Add a **Command:Cover** and **Object Link** it to the FW190 leader and **Target Link** it to the **Stuka leader**.

Add a **Trigger:Timer**, set it to **5 seconds** and Name it **Trigger Timer COVER 5sec**. **Target Link** it to the **Command Cover**.

Target Link the **Waypoint 190 1** to **Timer Cover**.



Now when the 190s reach their first waypoint it will trigger the timer which starts the Cover command. The Cover command tells the 190s to remain with the Stukas. They'll start weaving at their set speed a 100 metres above the dive bombers.

You can now select all the Stukas and 190 and all their commands into a group and **Name** it **Stukas and 190 escorts group**.

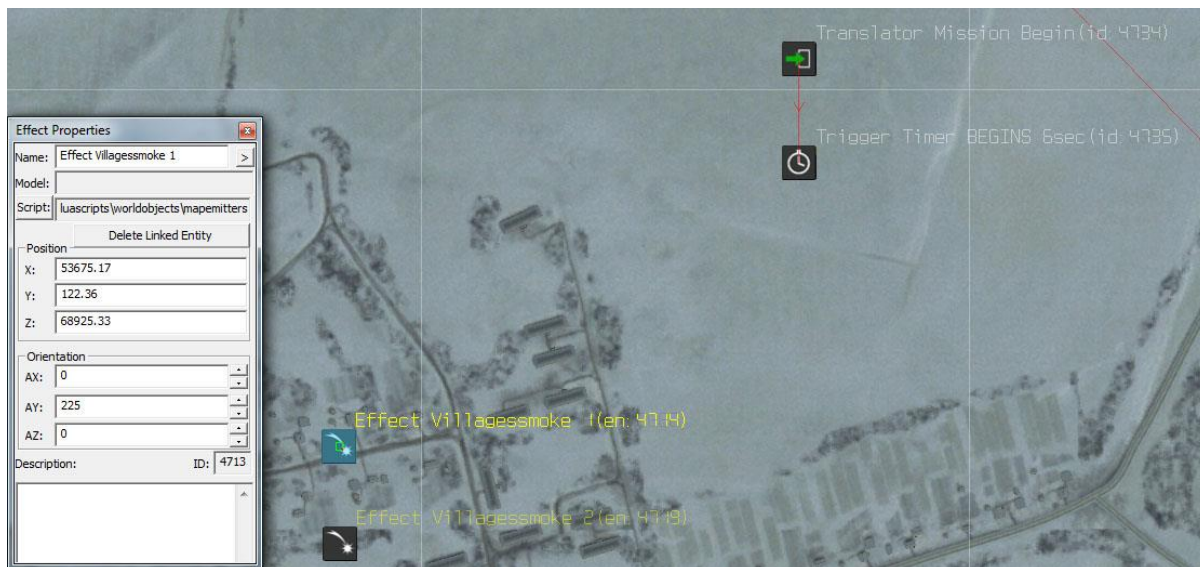
3.8 Smoke and Artillery fire

Open *Velikiye Luki tutorial.Mission*.

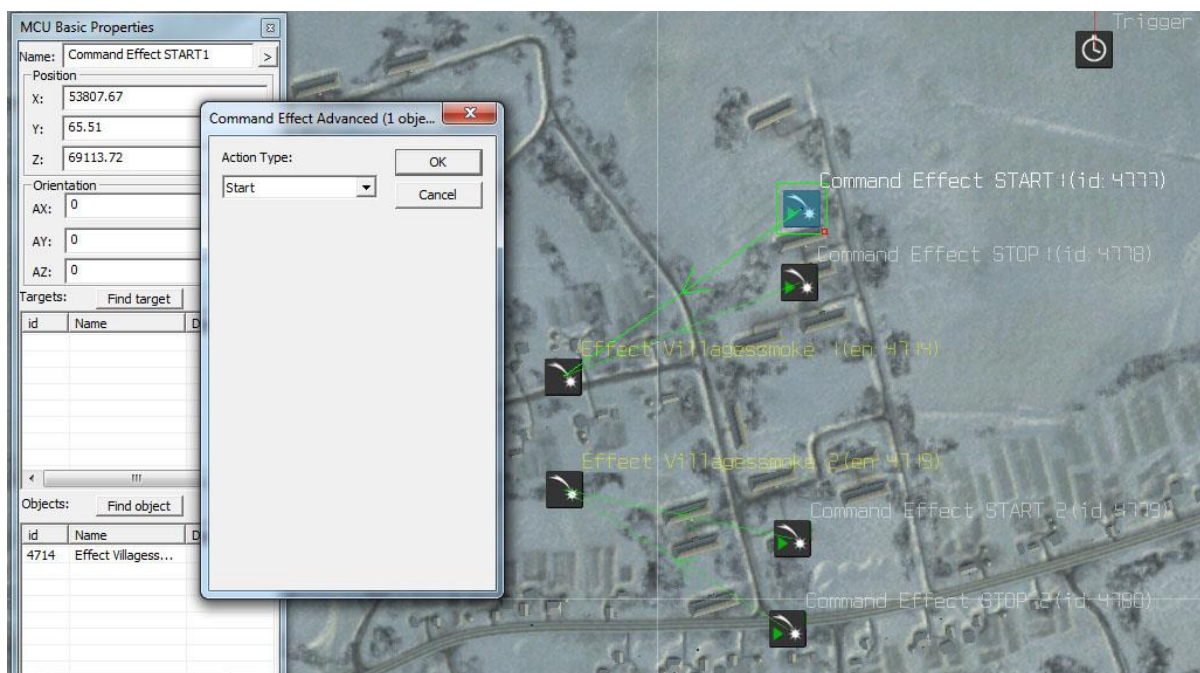
You might want to show the effects of battle by adding smoke and flames. On the eastern edge of Velikiye Luki grid 075-3 add an Effect/**villagesmoke** and below it add a second one, **Name** them **Effect Villagesmoke 1** and **2**.

Add a **Trigger Timer**, set it to **5 seconds** and **Name** it **Trigger Timer BEGINS**.

Add a **Translator:Mission begin** and **Target Link** it to the **Trigger Timer BEGINS 5sec**.



Add **4 Command:Effect** and **Name** them **Command Effect START 1, STOP 1, START 2, STOP 2**. In Advanced properties set them to **Start, Stop, Start** and **Stop**. **Object Link Start 1** and **Stop 1** to **Effect Villagesmoke 1**. **Object Link Start 2** and **Stop 2** to **Effect Villagesmoke 2**.



Add 6 new **Trigger:Timers**, Name them from top to bottom **START 1 0sec**, **STOP1 16sec**, **EFFECT2 12sec**, **EFFECT1 12sec**, **START2 0sec**, **STOP2 16sec**. Set each of the Timers to the time given in their name.

Target Link Timer **START 1 0sec** to **Effect START 1** and **Timer EFFECT 2 12sec**.

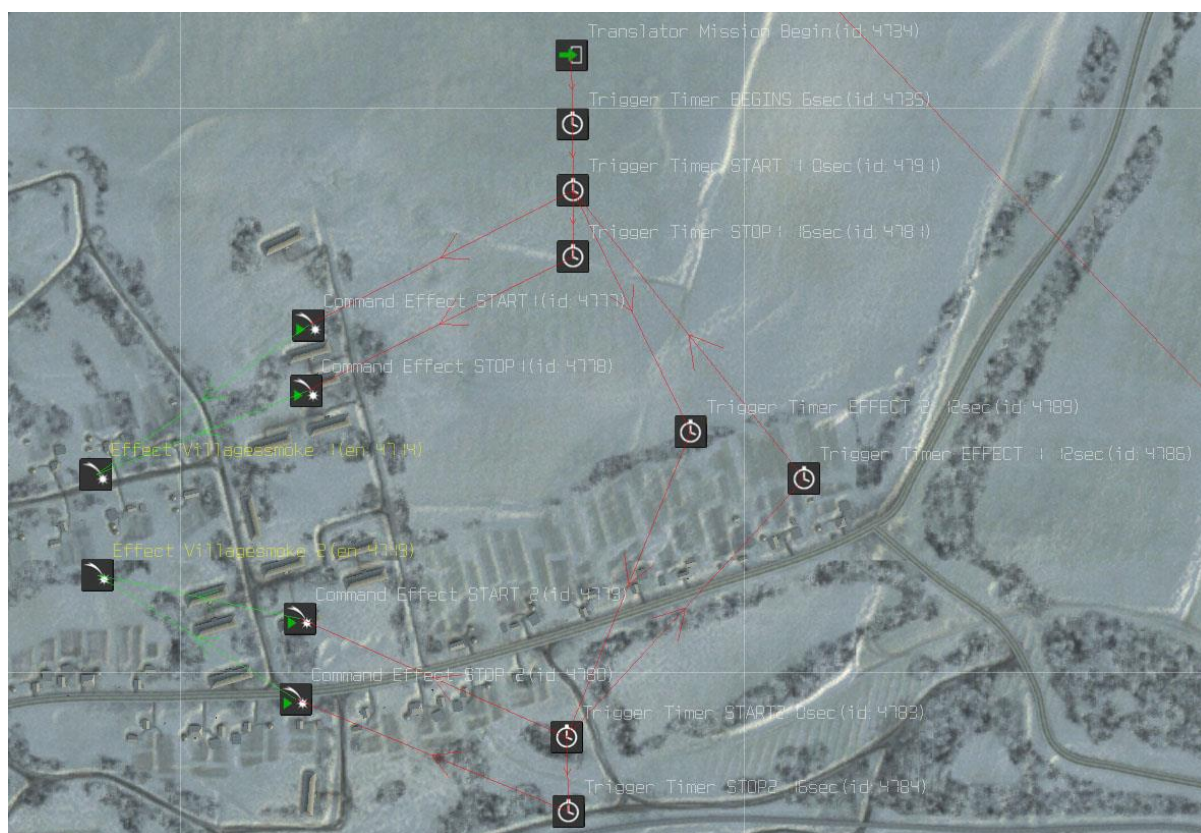
Target Link Timer **STOP 1 16sec** to **Effect STOP 1**.

Target Link Timer **EFFECT 2 12sec** to **Timer START 2 0sec**.

Target Link Timer **EFFECT 1 12sec** to **Timer START 1 0sec**.

Target Link Timer **START 2 0sec** to **Effect START 2** and **Timer EFFECT 1 12sec**.

Target Link Timer **STOP 2 16sec** to **Effect STOP 2**.



To complete the smoke effect move **Effect Villagesmoke 2** on top of **Effect Villagesmoke 1**.

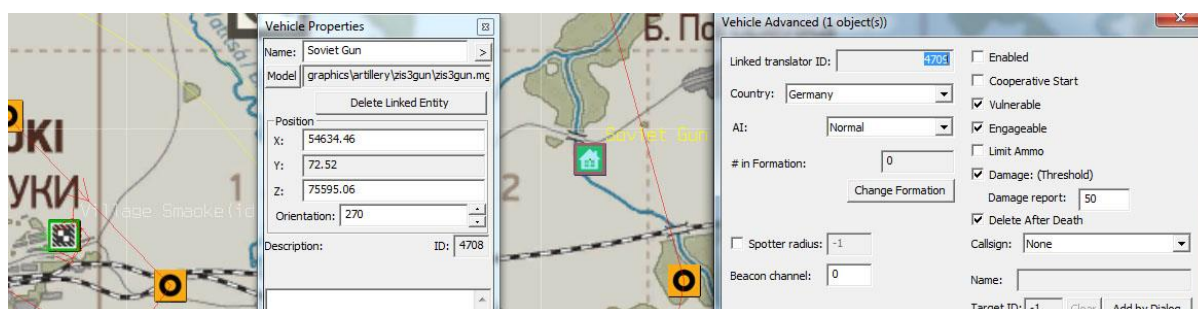
Group the all the effects and commands as **Village Smoke**.

The Effect Village smoke emits an animation of rising smoke that last for 16 seconds and then fades out. To hide the fade out and back in we can overlap two smoke emitters starting 12 seconds apart. After 16 seconds each emitter ends and 12 seconds later it's restarted.

Group the fires and commands as **Village smoke**. Save the mission.

Now you'll create a Soviet artillery battery to fire towards the city.

Add an Artillery/zis3gun, **Create linked Entity**, rotate it to face **west (270deg)** and **Name** it **Soviet Gun**. In Advanced properties set **Country** to **Germany**, untick **Enabled** and untick **Limit Ammo**.



Add a Blocks/art_position_big, rotate it to **270 deg** and **Name** it **art position big**. Because it's a Block it doesn't need to be a Linked Entity or have a country assigned. Also because it's a Block it set on the ground so use the **Set on Ground** button from the Toolbar.



Add **Trigger:Timer**, set it to **2 seconds** and **Name** it **Trigger Timer START 2ec**.

Add a **Translator:Complex Trigger** and set its **Radius** to **3000 metres**. Tick **Check Entities**. Set the **Object script list** to all 109s and the **Countries** to **Germany**. In Event Filter tick **Object Entered**. **Event Link** it to the **START Timer**.

Add **Trigger:Timer**, set to **10 seconds** and **Name** it **Trigger Timer ATTACKAREA 10sec**.

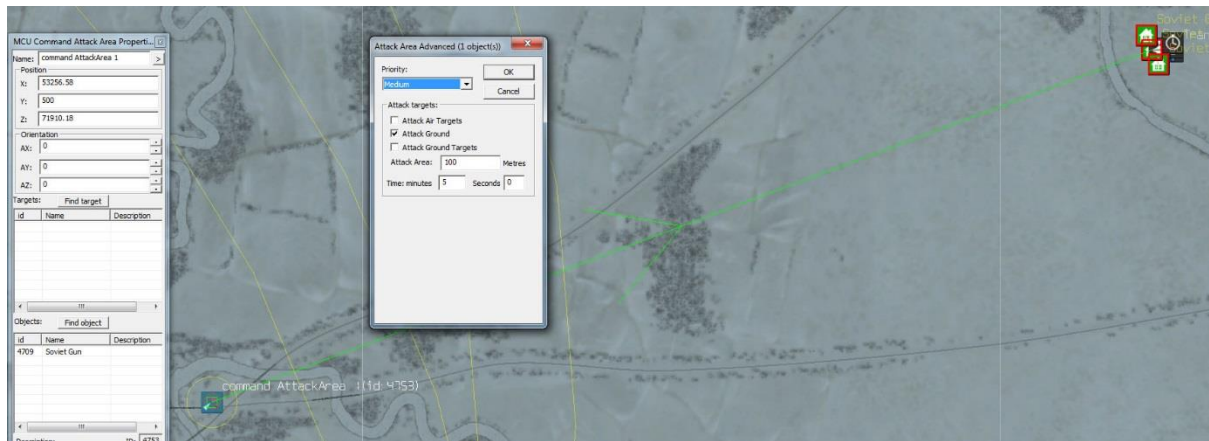
Add a **Trigger:Activate** and **Object Link** it to the **Soviet gun**

Target link **Trigger Timer START 10sec** to **Trigger Timer ATTACKAREA 10sec** and to the **Activate** command.



Select the **Soviet gun** and its **art position big**. **Copy** and **paste** them twice to create 2 more gun positions. **Target Link** the new guns to the **original gun**.

Add a **Command:AttackArea** at the railway intersection in grid 076-1 **Name** it **Command AttackArea 1** and **Object Link** it to the **Soviet gun**. Set it to a **Y: height** of **500** metres. In Advanced properties tick **Attack Ground**, set the **Attack Area** to **100** metres and set the **Time** to **5 minutes**.



Guns can only shoot at targets they have a line of sight to. By raising the Attack Area to 500 metres the guns can now see the area they need to fire in to.



Now you'll create another AttackAreas command and, just for fun, you'll randomize which one gets attacked.

Copy and **paste** the **Command AttackArea 1** and **Name** it **Command AttackArea 2**.

Add a **Trigger:Timer**, leave it at 0 seconds and **Name** it **Trigger Timer BOTH**. **Target Link** **Trigger Timer ATTACKAREA 10sec** near the guns to **Trigger Timer BOTH**.

Add a **Trigger:Timer**, set it to 5 minutes and 15 seconds and **Name** it **Trigger Timer RESTART 10min 15sec**. **Target Link** **Trigger Timer BOTH** to **Trigger Timer RESTART 10min 15sec** and then **Target Link** **Trigger Timer RESTART 10min 15sec** back to **Trigger Timer BOTH**.

Add a **Trigger:Timer**, leave it at 0 seconds but set the **Random (0-100%)** to **50** percent and **Name** it **Trigger Timer 50PERCENT**. **Target Link** it to **Command AttackArea 1**.

Add a **Trigger:Timer**, set this to **5 seconds** and leave the **Random (0-100%)** at the default 100 percent and **Name** it **Trigger Timer 100PERCENT**. **Target Link** it to **Command AttackArea 2**.

Add a **Trigger:Deactivate** and **Target Link** it to **Trigger Timer 100PERCENT**.

Target Link the **Trigger Timer 100PERCENT** to the **Deactivate** command.



This looks complicated at first but it's really simple.

The BOTH timer receives a trigger from the AreaAttack timer to start things off.

The Both timer sends a triggers to the 50PERCENT and the 100PERCENT timers. There are then two equally probable outcomes.

Half the time the 50PERCENT timer will activate the AttackArea 1 command. At the same time it will trigger the Deactivate command which will stop the 100PERCENT timer from working and prevent the AttackArea 2 command from activating.

If the 50PERCENT timer doesn't activate then after 15 seconds the 100PERCENT timer will activate the AttackArea 2 command.

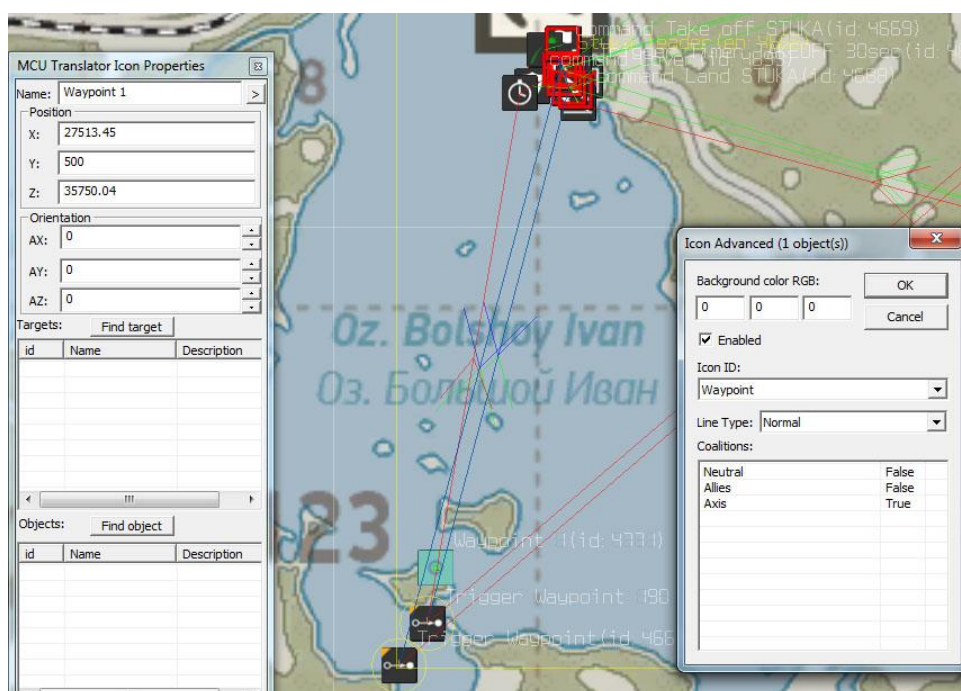
The RESTART timer simply begins the sequence again 15 seconds after the AttackArea command has finished.

Now **group** all these objects as **Soviet gun group**. Save the mission.

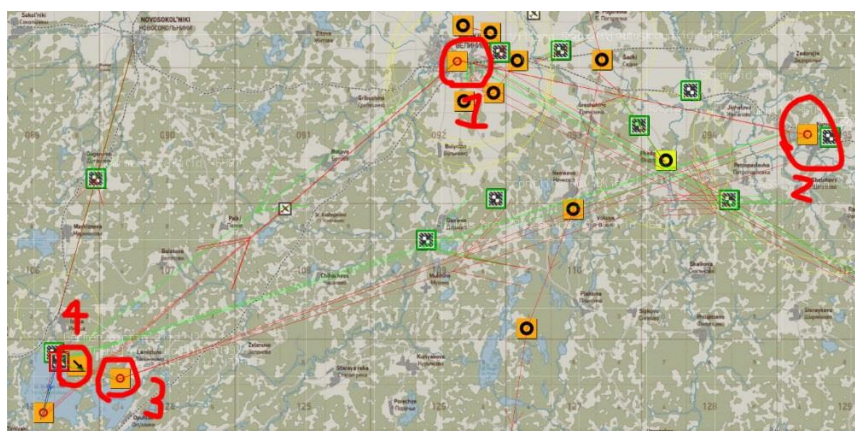
3.9 Map waypoints, Messages & Mission success

First you'll create a set of map waypoints for the player aircraft to follow on their in-game map. Open *Velikiye Luki tutorial.Mission* and find the **Stukas and 190 escorts group** and right click and **Set Working Group** to open it. There are two type of waypoints Trigger Waypoints that the AI follow and Icon Waypoints that appear on the map. You'll add the Icon Waypoints.

Add a **Translator:Icon** near the first 190 Waypoint and set it to **500** metres altitude and Name it **Waypoint 1**. The name will appear next to the waypoint icon on the in game map. In Advanced properties set the Colour to black **0, 0, 0**, RGB, this is the colour of the name text and the connecting line, the waypoint icon is always red. Change the **Icon ID** to **Waypoint** and set the Coalitions to **Axis True** and the rest False.



With the Waypoint 1 icon selected hold **SHIFT** and **left click** to add **4** more waypoints. The new waypoint icons are automatically **Target Linked** but you can also do this manually. The Target Link will show as a line connecting the waypoints on the in game map.



Name the new waypoints **Waypoint 2**, **Waypoint 3**, **Waypoint 4** and **Land**. For the **Land** waypoint go to its Advanced properties and change the Icon ID to **Land**. Set the waypoints to **3500**, **4500**, **1000** metres altitude and for the **land** waypoint **Set on Ground**.

Right click on the map and chose **Reset Working Group** too exit the Stuka and 190 group. Locate the **Soviet truck column** group and open it.

Add a **Trigger:Counter** and **Name** it **Trigger Counter 3**. In Advanced properties set it to **3**.

Right click on each of the **Soviet trucks** and chose Select Object Menu/Add **OnKilled Event** and **Event link** it to the counter.

Add a **Trigger:Timer**, set it to **2** seconds. **Target Link** the **Counter 3** command to the new **Trigger Timer**.

Add a **Translator:Subtitle** and **Name** it **Translator Subtitle CONVOY**. In Advance properties set the **Coalitions** to **Axis True** and the rest False, the **Duration** to **120** seconds, **Font Size** to **22**, **Horizontal Align** to **Center**, **Vertical Align** to **Top** and the **Text Color RGB** to a dark red **230, 0, 0**. In **Text** add the message you want to appear, the formatting rules are the same as for mission briefings.



Now when 3 trucks have been killed a message will pop up. Now you'll add a Mission Success to give the player points at the end of the mission.

Add a **Translator:Mission Objective** and **Name** it **Translator Mission Objective CONVOY**. In Advance properties **Task Type** select **Primary Task**, **Success/Failure** select **Success**, **Coalition** chose **Axis** and **Icon Type** leave on **None** because you don't want an icon for the Mission Success visible on the map.

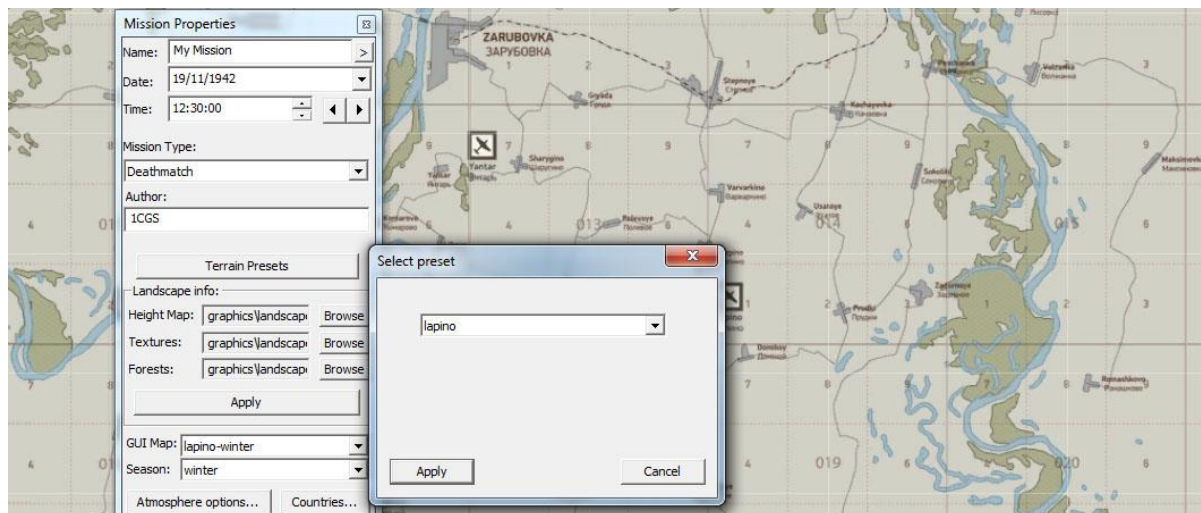


PART FOUR – SUPPLEMENTARY TUTORIALS

4.1 Starting a new Map

This covers importing buildings and adding a frontline. Chose File/**New** to reset to a new map.

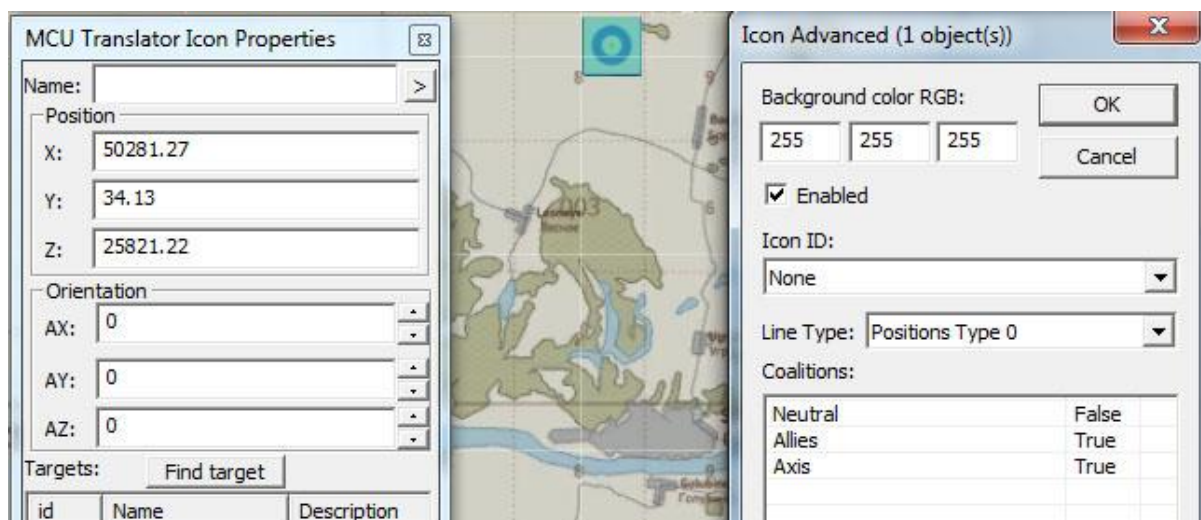
In Mission Properties you can change the **Terrain Presets** to select a map, leave it on **Lapino**.



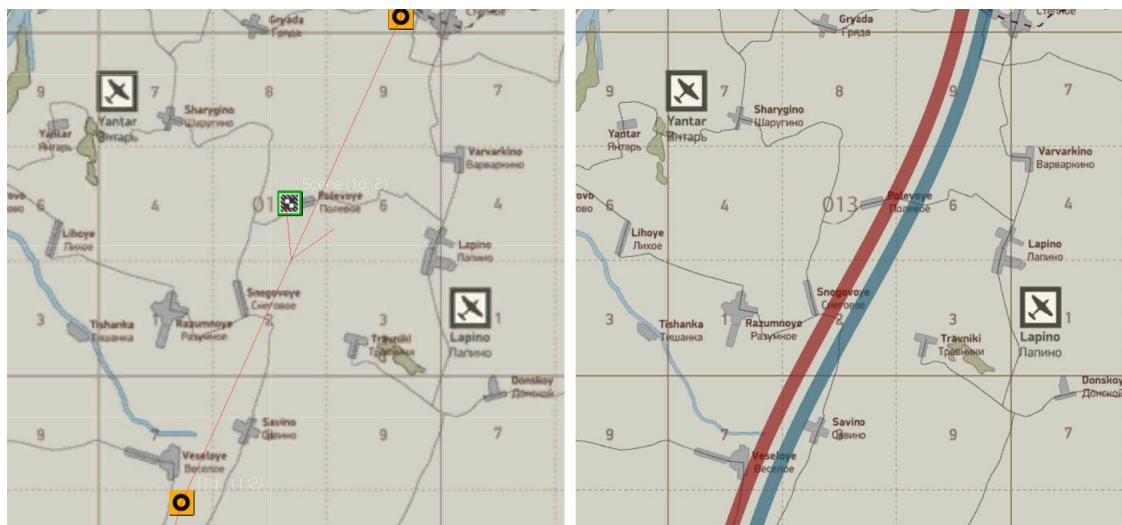
From File/**Import from file** and chose **Lapino_ALL.Group**. After the buildings finish importing select them using Search and Select/**Select All Objects**. Group them and **Name** it **Scene**.

It's good practice to delete any building or bridge objects outside the area of the mission, especially on the larger maps.

Now you'll need a frontline. Add a **Translator:Icon**, remove the **Name** to stop the text appearing on the map. In Advanced properties set the **Icon ID** to **None** and the **Line Type** to **Positions Type 0**.



Next you'll add influence areas to each side. Influence areas define which side controls an area of the map. With the frontline icon selected hold down the SHIFT key and left click to add more **Translator:Icons** and the **Target Link** between them. In game they appear as a red and blue frontline.



Add a **Translator:Influence Area** and **Name** it **Influence Area RUSSIA**. In Advanced properties change the **Country** to **Russia**.



Right click on **Influence Area RUSSIA** and Select Object Menu/**Edit Influence Area Boundary**. Click on a corner of the Blue triangle and a yellow selection circle appears. Drag the yellow circle out to expand the influence area. Click on the next corner and do the same. To add more points to the triangle Ctrl-left-click on the edge in a clockwise direction from the yellow circle. ESC to exit the editing mode.



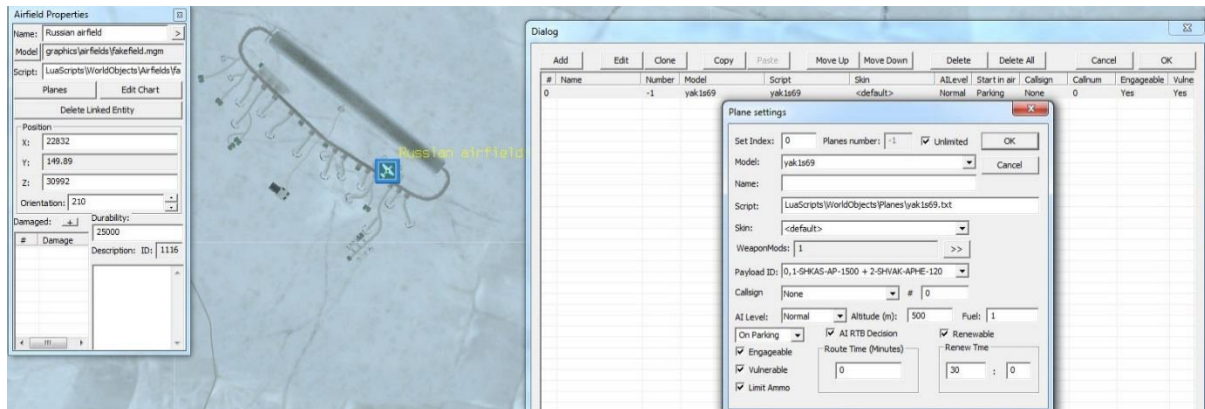
4.2 Creating a Dogfight map

This covers two topics, setting up an airfield's spawn points and spawning objects.

Dogfight maps are created in the same way as the co-op missions you've been creating but will have two opposing sides to select from with at least one airfield each.

File/Import from file and chose **Lapino_ALL_AF_TAXI_PATHS.Group**, this brings in the airfields.

Select the airfield in grid 014-1 and **Name** it **Russian airfield**. In Advanced properties set the **Country** to **Russia**. Select the **Planes** button and **Add**. In Plane settings chose **yak1s69** and **OnParking**.

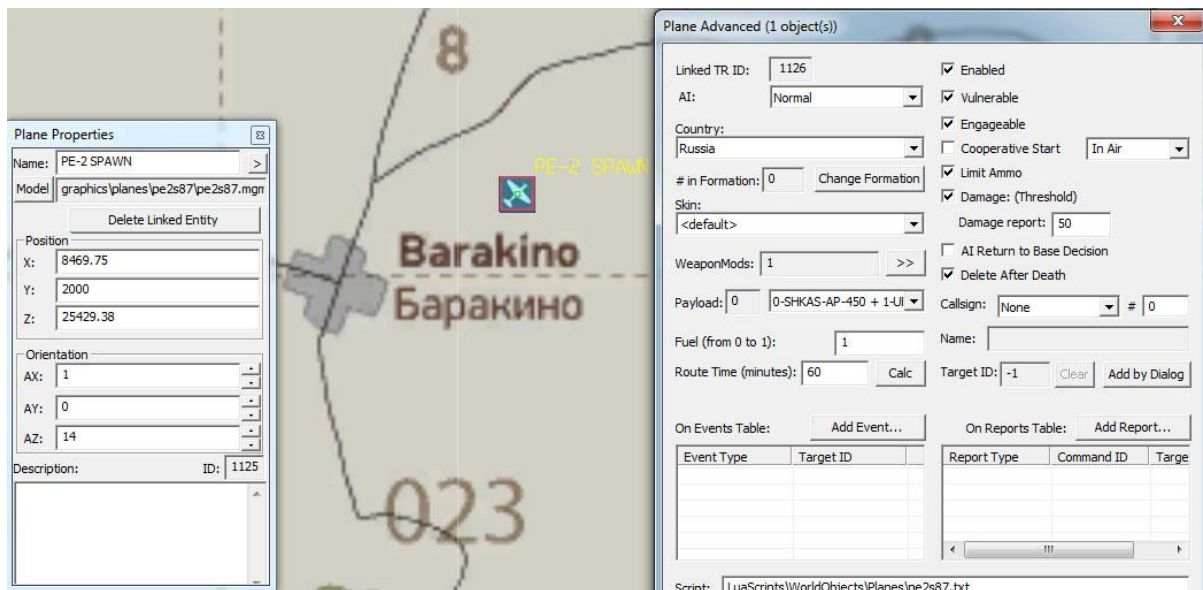


You've now got an airfield with built in spawn points and it also has taxi paths for AI to use. Select Edit Chart to view and edit the taxi paths.



Next you'll create an AI aircraft that re-spawns when destroyed.

Add a Planes/**pe2s87** and **Name** it **PE-2 SPAWN**. In Advance properties change the **Country** to **Russia** and the start to **In Air**. Go back to Properties and change the height (Y:) to **2000** metres.



Add an MCU/Trigger:Spawner and **Name** it **Trigger:Spawner PE-2**. **Object Link** it to the **PE-2**.

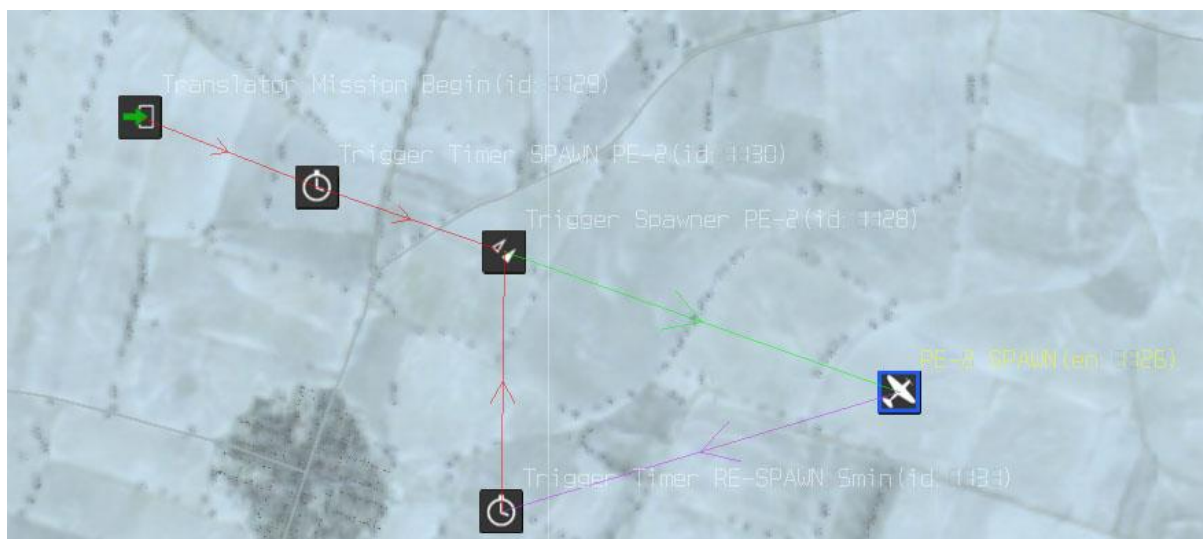
Add a **Trigger:Timer**, set it to **5 seconds** and **Name** it **Trigger Timer SPAWN PE-2**. **Target Link** it to the **Spawner PE-2**.

Add a **Translator:Mission Begin** and **Target Link** it to the **Trigger Timer SPAWN PE-2**.

Add a **Trigger:Timer**, set it to **5 minutes** and **Name** it **Trigger Timer SPAWN 5min**. **Target Link** it to the **Spawner PE-2**.

Right click the **PE-2** and Select Object Menu/**Add OnKilled Event** and **Event Link** it to the **Timer SPAWN 5min**.

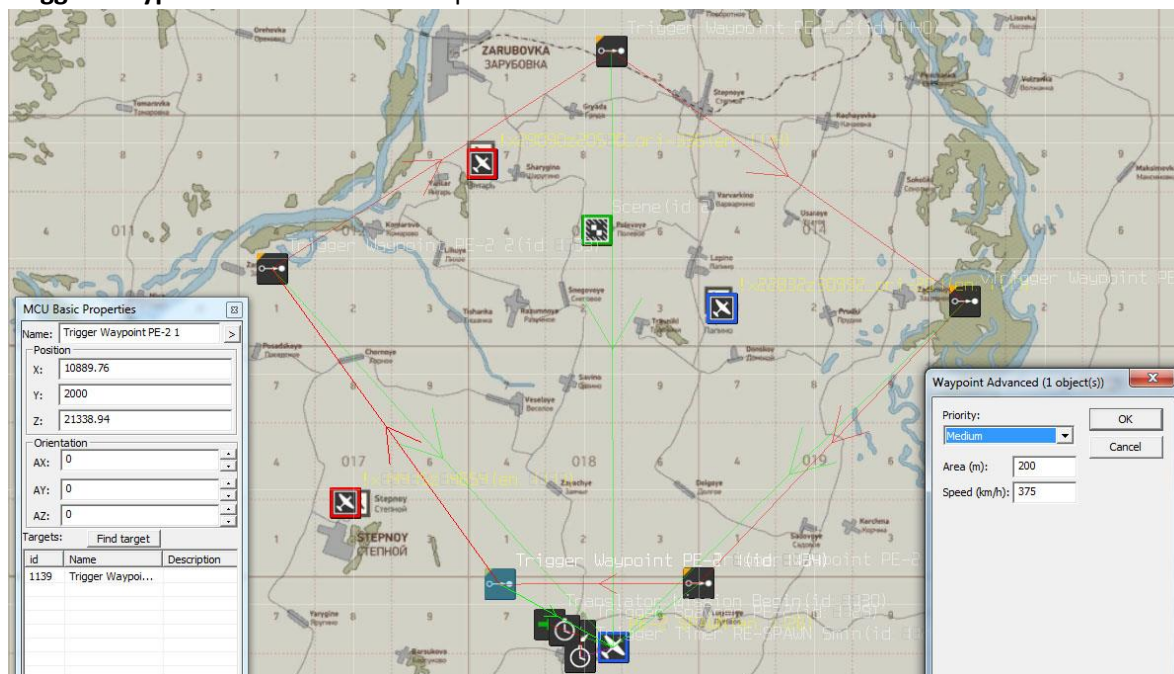
Now at the start of the mission a PE-2 is spawned in. When it's killed another PE-2 is spawned after a 5 minute delay.



Spawning can only create single units and not formations.

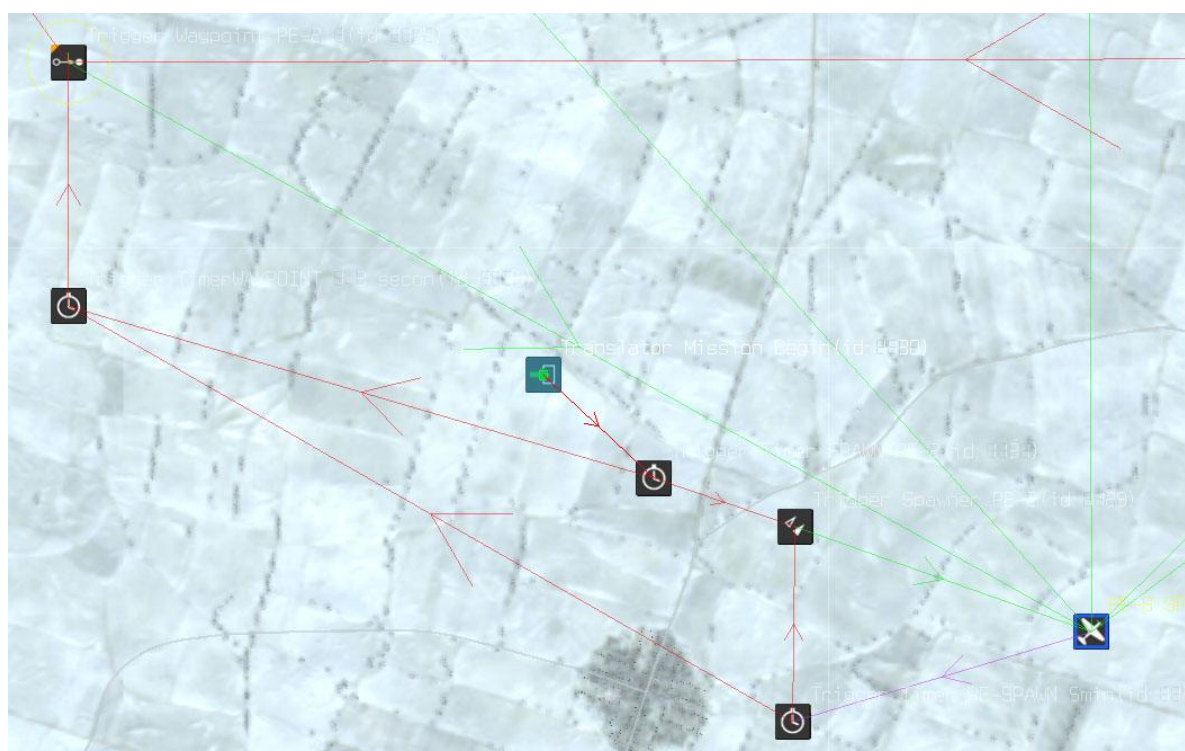
Add a **Trigger:Waypoint**, set it to a height of **2000** metres and **Name** it **Trigger Waypoint PE2 1**. In **Advances** properties set the **Area** to **200** and the **Speed** to **375**. **Object Link** the **waypoint** to the **PE2**.

With the waypoint selected **SHIFT** and **left click** to add more waypoints. **Name** the new waypoints **Trigger Waypoint PE2 2** to **Trigger Waypoint PE2 5**. **Target Link** the **Trigger Waypoint PE2 5** to **Trigger Waypoint PE2 1** to form a loop.



Add a **Trigger:Timer**, set it to **3 seconds** and **Name** it **Trigger Timer WAYPOINT 1 3sec**. **Target Link** it to **Trigger Waypoint PE2 1**. **Target Link** **Trigger Timer SPAWN PE-2** to **Trigger Timer WAYPOINT 1 3sec**. **Target Link** **Trigger Timer SPAWN 5min** to **Trigger Timer WAYPOINT 1 3sec**

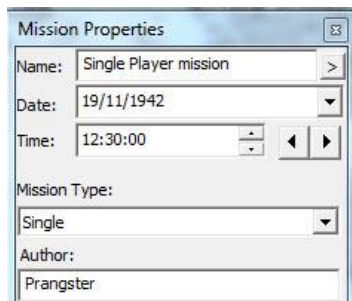
The PE2 will now fly around in a circle until it's killed, and then it will re-spawn.



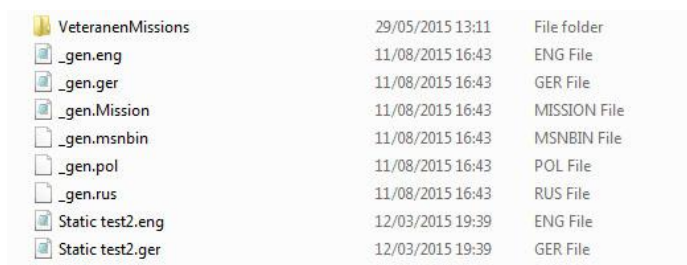
4.3 Creating a Single Player missions

This covers creating a player aircraft and Trigger Zones.

Single player missions are created in much the same way as Deathmatch multiplayer missions. You'll need to change the **Mission Type**: to **Single** in Mission properties.

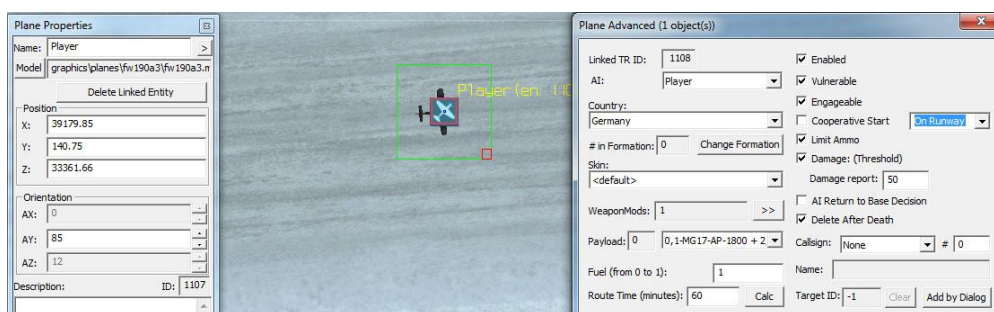


You need to **save** the mission to the **Data/Missions**, you can even add a sub folder such as VeteranenMissions.



For a Single Player mission you must always have a player controlled aircraft.

Add an **fw190a3** and **Name** it **Player**. In Advanced properties change the **AI**: to **Player** and you'll set the **Country**: to **Germany**. If you set a skin or weapons load that the player doesn't have then the mission will not load for them.



You can add a wingman in the normal way by **Target Linking** it to the **Player** aircraft. You can only have a single Player aircraft in the mission.



Next you'll use a Check Zone to active some AAA and deactivate them when the player moves out of the area.

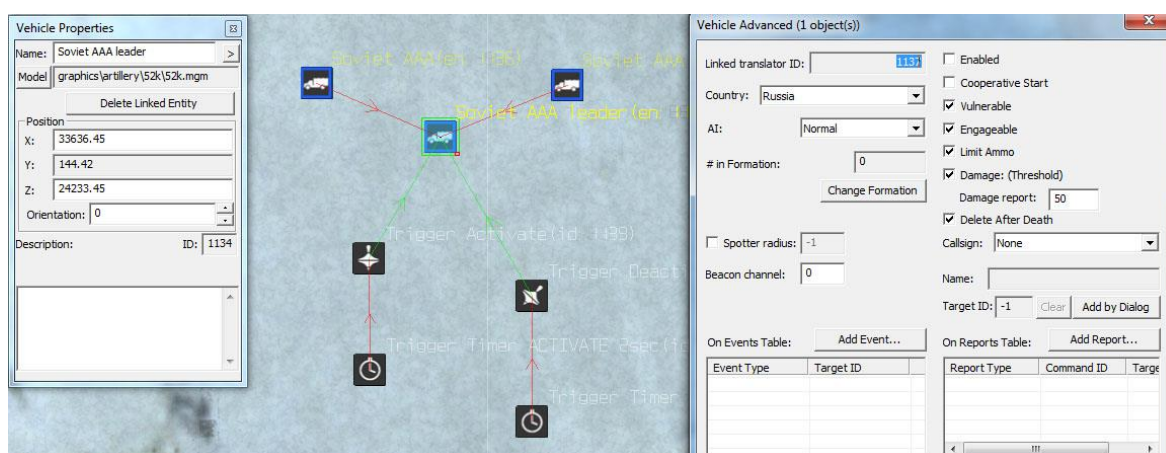
Add an Artillery/52k, Name it **Soviet AAA leader** and **Create Linked Entity**. In Advanced properties untick **Enabled** change the **Country** to **Germany**. Copy and paste it twice and **Name** them **Soviet AAA**.

Add a **Trigger:Activate** and **Object Link** it to the **Soviet AAA leader**.

Add a **Trigger:Deactivate** and **Object Link** it to the **Soviet AAA leader**.

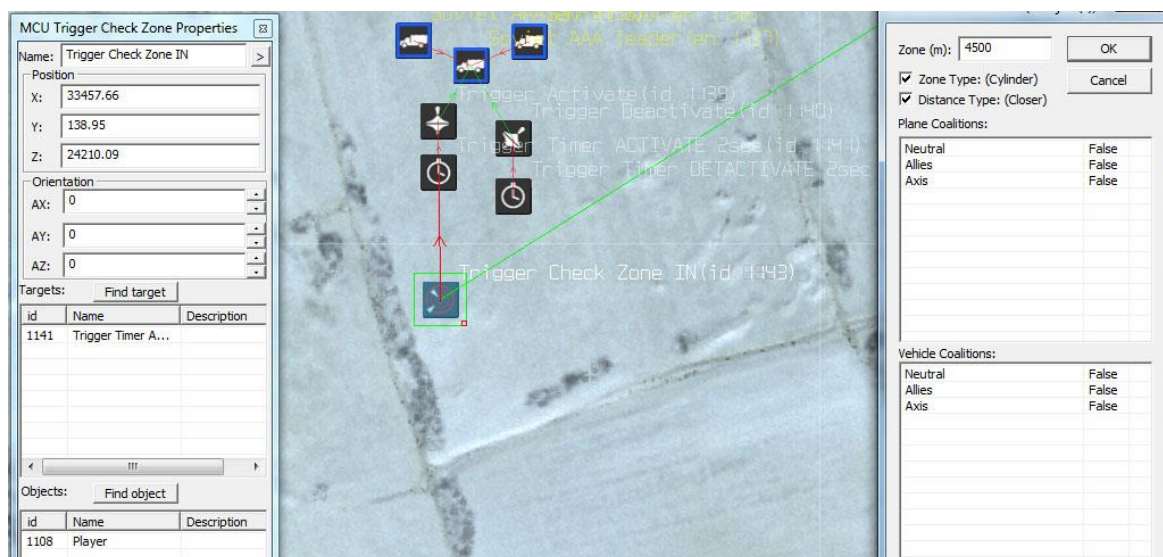
Add a **2 second Trigger:Timer**, Name it **Trigger Timer ACTIVATE 2sec** and **Target Link** it to the **Trigger Activate**.

Add a **2 second Trigger:Timer**, Name it **Trigger Timer DEACTIVATE 2sec** and **Target Link** it to the **Trigger Deactivate**.



Check Zones are like Complex Triggers but only function in Single player missions. Complex Triggers only trigger when a unit crosses their boundary. Check Zones work continually whenever the selected unit is inside the zone or, if defined, outside the zone.

Add a **Trigger:Check Zone**, Name it **Trigger Check Zone IN**. In Advanced properties set the **Zone** to **4500** metres. Leave **Distance Type (closer)** checked. **Target link** it to the **ACTIVATE Timer** and **Object Link** it to the **Player FW190**.



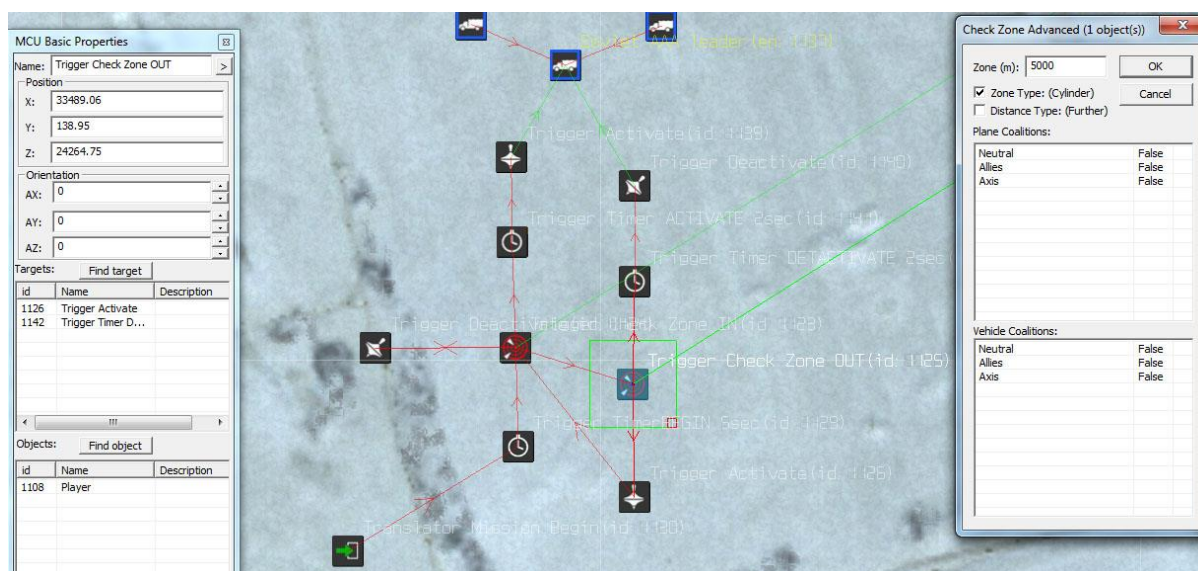
Add a **Trigger:Check Zone**, Name it **Trigger Check Zone OUT**. In Advanced properties set the **Zone** to **5000** metres. Select **Distance Type (further)** by unticking. **Target link** it to the **DEACTIVATE** Timer and **Object Link** it to the **Player FW190**.

Add a **Translator:Mission begin** and a **5 second Trigger Timer**. Name the Timer **Trigger Timer BEGIN 5sec**. **Target Link** the **Mission begin** to the **Trigger Timer BEGIN 5sec**. **Target Link** the **Trigger Timer BEGIN 5sec** to the **Check Zone IN**. This will start the check zone when the mission starts.

Add a **Trigger:Deactivate** and **Target Link** the **Check Zone IN** to it, then **Target Link** the **Deactivate** back to the **Check Zone IN**. Now when the check zone triggers it will activate the guns and at the same time deactivate itself.

Target Link the **Check Zone IN** to the **Check Zone OUT** to start it working.

Add a **Trigger:Activate** and **Target link** it to the **Check Zone IN**. **Target Link** the **Check Zone OUT** to the new **Activate** command.



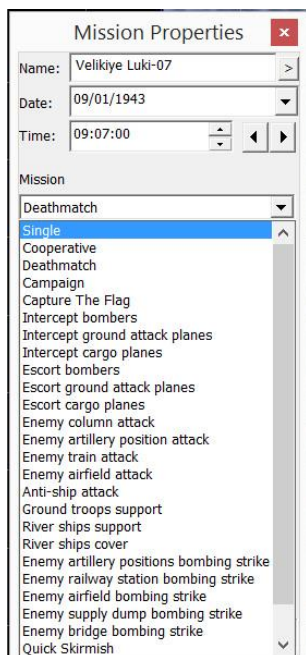
Now when the Players FW190 leave the OUT check zone the IN Check Zone is re-activated. So every time the Player enters the zone the guns appear and when he leaves they disappear.

PART FIVE – TESTING, HOSTING & SERVER SDS FILES

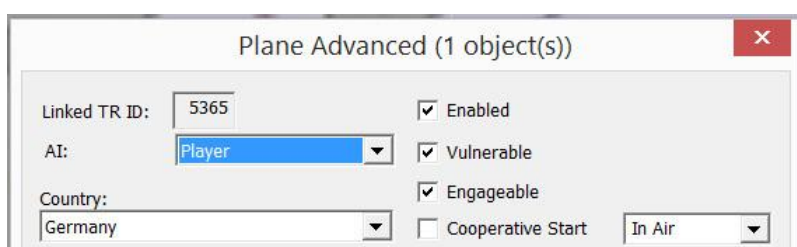
5.1 Mission testing

There are two ways to test a Multiplayer mission, you can either change it to a single player mission, re-save it to the Mission folder and run the game or you can keep it as is and run it through a dedicated server.

To change the mission to single player right click on the map and select Properties and in Mission choose Single.



You'll need to add a player aircraft to the map. From the Object Library/Planes select an aircraft and left click on the map to create it. In Properties Create Linked Entity and go to Advanced Properties.



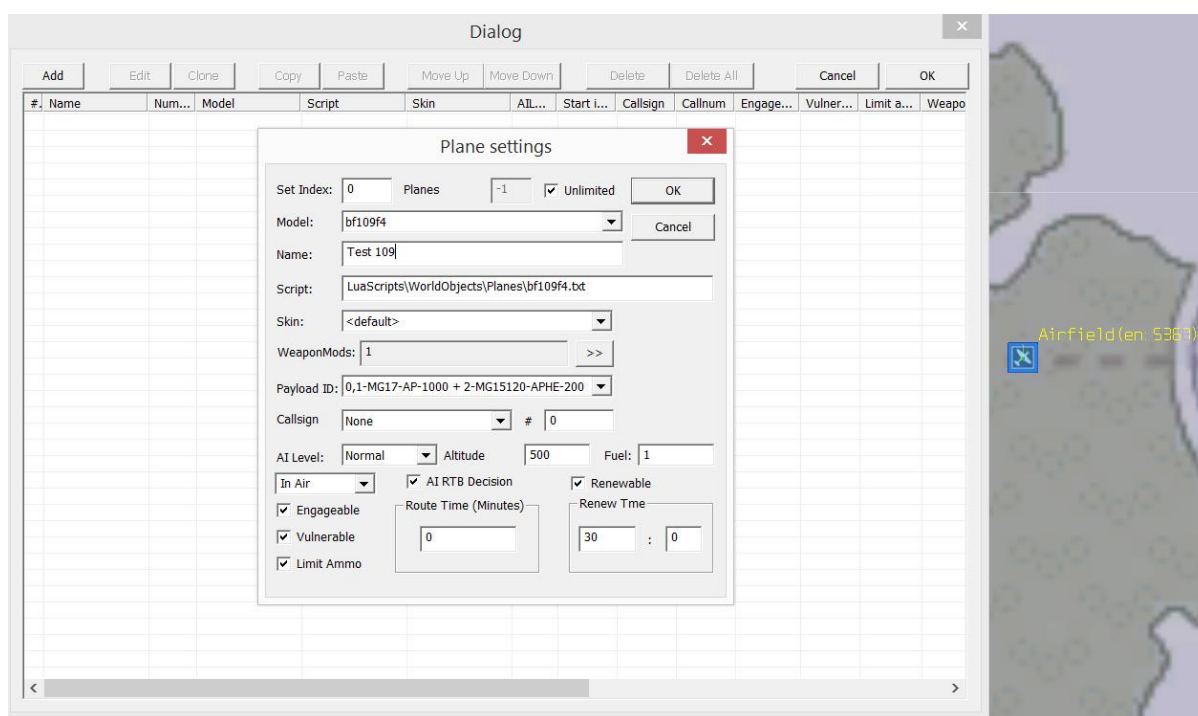
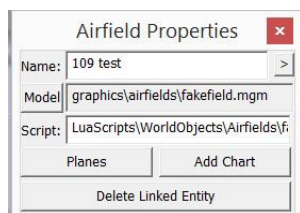
Set the AI: to Player, Country: and In Air. Now go back to Properties and set the Position Y to the altitude you want to start at, say 500 to airstart at 500 metres.

Now save the mission to data/Missions.

Testing as a single player mission allows you to use time acceleration and can be useful to check missions with long AI flight times.

When testing the mission on your DServer rather than fly the whole mission route from base you can create additional air spawning points nearer the action. From Object Library/Airfields select fakefield and add it to the map. Right click on the Fakefield and choose Properties. Name the Spawn.

point. Create Linked Entity and use the Planes button to go to the add planes Dialog. Click the Add button to go to Planes settings.



Set the aircraft to spawn In Air and the Altitude to 500. Press OK Then OK the Dialog window.

To test the mission in multiplayer you'll need to start the Dserver then find your server in the Multiplayer server list in game.

Note if you're a Track IR user and run the DServer and Game on the same computer. In this case you'll need to start the Game first so that the Track IR software registers to the game rather than the DServer. Then Alt TAB out of the game to start DServer then back in to select your mission from the Multiplayer server list.

Some Advice

When you start out mission building in BoS you'll find that some parts of your mission simply won't work. The connections between command and objects are often complex and it's very easy to miss an object link or target link. I've spent hours trying to trouble shoot these issues and blaming bugs in the Mission Editor. In the end these problems are always the result of human error and often the best advice is to scrap the section that isn't working and start again from scratch. With experience these things are easier to spot and trouble shoot. One trick to isolate a problem is to add subtitles to the commands in the sequence so you can see when each command activated. Remember you can always get some advice on the forums and don't give up!

5.2 Hosting

To host a server you'll need a second dedicated server account. You can get a server account for free from 1CGS.

From:

<http://forum.il2sturmovik.com/topic/12826-game-updates/#upd07>

To start a server you need to be authorized on the Master serve with a game account. And since it is not possible to play and host with the same account simultaneously, you might need an extra account. But of course you don't have to buy a new key for this purpose - you can use one of our specially prepared Dserver accounts. To get login and password to such account you need to submit a request at our Customer service helpdesk.

Attention!

To get your ticket processed please follow the following template precisely:

1. login to your account at <http://il2sturmovik.com/>
2. follow this link <https://il2sturmovik...upport/request/>
3. put this as the ticket title: **DSERVER please**
4. enter the text of the ticket as follows:

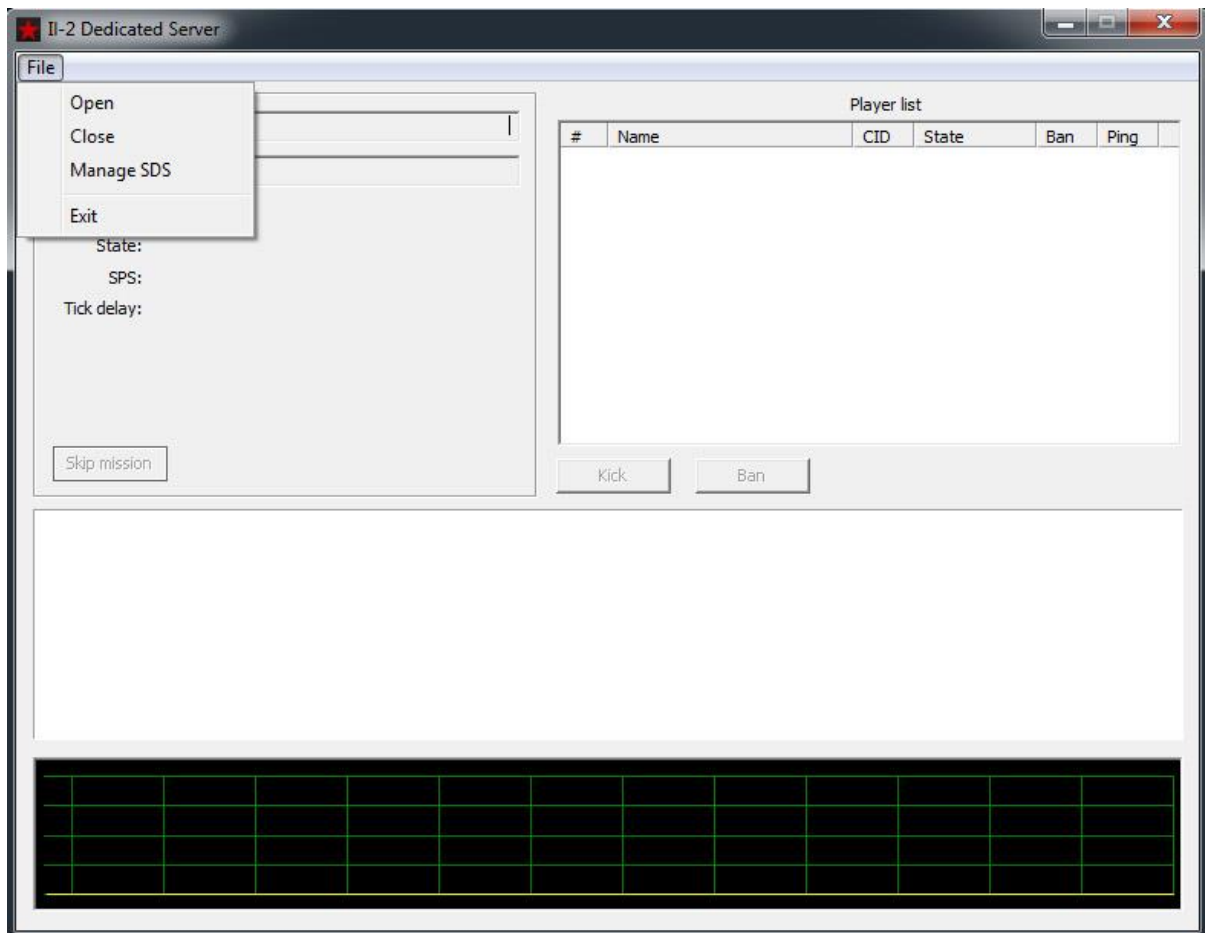
Hello!

Please, provide me with a special account that I would like to use to host a dedicated server. I know that such account would not let me play the game and that it doesn't have planes on it, and I acknowledge that such account is the property of 1C Game Studios.

5. send this request and wait for response;
6. receive the account credentials and put them into the .SDS server configuration file.

5.3 The SDS file

To host a mission you'll need an .sds file. The SDS file contains all your Server settings including the difficulty settings, the IP address of the server, a list of the mission files you want to run and the server name and password. The SDS file should be placed in your *data/Multiplayer/Dogfight* folder. You can modify an existing SDS file or create a new one in the IL-2 Dedicated Server program. Open the IL-2 Dedicated Server from *bin/game/DServer.exe*. In the File menu choose Manage SDS.



Dialog

Credentials
 Login: ian.jeremiah@blueyonder.co.uk
 Password: *****

Server Type
 custom
☐ ranked server Advanced settings

Server Info
 Server name: Tangmere Pilots - Prangster
 Server description:

Connection settings
 Protection: rgr
 Max clients: 33
 Max client ping: -1 ☒ Unlimited
 Shutdown Loads: -1 ☒ Unlimited
 Server IP: 192.168.0.2 ☒ External
 Server DL limit: 10000
 Server UL limit: 3000
 Downloader port: 28100 Remote console
 TCP port: 28000
 UDP port: 28000

Missions
☐ random rotation
 Dogfight\Velikiye Luki-03
Add Stock Missions Delete

☐ Reload server config now

Load Save and Close Close

You can create a new SDS file by imputing all your settings then saving and naming the SDS or you can LOAD an existing SDS and modify it.

Credentials

Your DServer account login details including email address and password.

Server Type

These are the difficulty setting, either normal, expert or custom. TP uses a custom difficulty as detailed below.

Server Info

This is the Server name as it will appear in the Multiplayer server list. Server description can contain addition info about the server.

Connection settings

Protection - Is the server password, leave blank for none.

Max clients - Is the maximum allowed players including the server itself.

Max ping - Will kick players with higher ping, tick unlimited to turn it off.

Shutdown Loads - I'm not sure what does but tick to turn it off.

Server IP - This is the server computers own IP address, not your routers external address. If the box for External is unchecked then only computers on your local network will see the server. If it's checked your server will be visible to everyone.

TIP – I use an SDS file called test.sds that has the External box unchecked so that I can check my missions without them appearing to other people on the server list.

Server DL limit – The maximum download bandwidth the server will use in Mb/s. Find out the speed of your internet connection and divide this number by 4. 20Mb/s would be 5000.

Server UL limit – The maximum upload bandwidth the server will use in Mb/s. The default is 1000 which is the maximum amount for a 1Mb/s connection. I have mine set to 3000 on a 6Mb/s connection. A 1Mb/s connection will be able to host up to 20 players but the AI use a lot of resources and you may experience lag with more than 6-12 AI. Bombers, especially the He111, can use up to three times the resources as fighters.

Downloader port – 28100 is the default TCP/UDP port and needs to be opened in your router/firewall settings. Remote console is only needed if the server is hosted on a remote computer.

TCP port – 28000 is the default TCP port and needs to be opened in your router/firewall settings.

UDP port – 28000 is the default TCP port and needs to be opened in your router/firewall settings.

Port Forwarding Rules

Name	Port Range	Protocol	IP Address	Enable	Delete
				☐	☐
BoS TCP	28000	TCP	192.168.0.26	☒	☐
BoS UDP	28000	UDP	192.168.0.26	☒	☐
BoS TCP/UDP	28100	TCP&UDP	192.168.0.26	☒	☐

Missions

The missions section is where you set which missions the server will run. I normally only have one mission per SDS. You can also add multiple missions and they will play one after another, in order or randomly.

You use the ADD button to browse and select an msnbin file. DELETE removes the selected mission.

Make sure to save your new SDS file after making changes.

TP settings

Advanced settings

Server

☒ Kill notification	Penalty timeout	0	
☐ Friendly fire return	Respawn timeout	0	
☐ Finish mission if landed	Coalition change timeout	0	
☒ Lock payloads	Finish mission timeout	0	
☐ Lock skins	Idle kick timeout	-1	☒ Unlimited
☒ Lock fuel loads	Team points per round	10000	
☐ Lock weapon mods	Max time for round	-1	☒ Unlimited
☐ Coalition balancer	Mission end timeout	0	

Missions

☐ Object icons	☐ Easy flight	☐ Simplified physics
☒ Navigation icons	☐ Auto rudder	☐ No wind
☐ Aiming help	☐ Auto throttle	☐ No misfire
☐ Course Weapons Aiming Help	☐ Auto pilot	☐ Safe collisions
☒ Padlock	☐ Auto RPM limit	☐ Invulnerability
☐ Simple gauges	☐ Auto mixture control	☐ Unlimited fuel
☒ Allow spectator	☐ Auto radiator	☐ Unlimited ammo
☐ Allow MouseJoy		☐ No engine overflow
		☒ Warmed up engine

OK Cancel

Server

Kill notification – Pop up message to all players when someone gets a kill on an air or ground unit.

Friendly fire return – If you hit a friendly the damage will be applied to your plane instead.

Finish mission if landed – When you come to a stop the game will automatically take you back to the mission briefing screen.

Lock payload – locks the armament selection to the type selected in the ME. This can also effect which weapons mods are available.

Lock skins – Locks the skin to the one selected in the ME. If a player doesn't have the correct skin the mission won't load for them.

Lock fuel load – Locks the fuel to the amount selected in the ME.

Lock weapons mods – Locks mods to only allow the type elected in the ME including none. If a player hasn't unlocked that specific mod the mission won't load for them.

Coalition balancer – Forces the sides to have balanced numbers by locking the airfields of the smaller side.

Penalty timeout – The number of seconds after a player dies before they can respawn.

Respawn timeout – The number of seconds after a player can respawn after exiting the mission.

Coalition change timeout – The number of seconds a player has to wait after switching side before they can spawn.

Idle kick timeout – the number of seconds between moment when player starts to stand still on the ground and moment when they'll be kicked.

Team points per mission – When one side gets to this number of points the mission will automatically end. Setting this to 0 is supposed to disable it but I've found it to be more reliable if you just set it very high.

Max time per round – The number of seconds the mission will last before automatically ending.

Mission end timeout – The number of seconds after a mission ends before a new mission will load.

Missions

Object icons – Shows icons above all aircraft and ground units in the game.

Navigation icons – Shows a player own aircraft on the map.

Aiming help – Enables an aiming helper for rockets and bombs in game.

Course Weapons Aiming help - Enables a reticule aiming helper for guns game.

Padlock – enables padlock. Padlock in BoS only works in cockpit view.

Simple gauges – Enables simple games helper.

Allow spectator – Allows external views. Turning this off lock players into cockpit view.

Allow MouseJoy – Allows a mouse to be used in a similar way to a joystick. Not yet implemented in the current game.

Easy flight – Simplified flight model.

Auto rudder – The AI will control the players rudder input.

Auto throttle - The AI will control the players throttle input. Can be turned off by the player.

Auto pilot – Allows players to use Auto pilot. Turing this off still allows the use of level stabiliser.

Auto RPM limit - The AI will control the engine RPM. Can be turned off by the player.

Auto mixture control - The AI will control the engine mixture and supercharger. Can be turned off by the player.

Auto radiator - The AI will control the radiator settings. Can be turned off by the player.

Simplified physics - Reduces the intensity and complexity of the physical forces acting on the aircraft and makes flying easier.

No wind – Eliminates wind from the mission.

No misfires – Prevents guns from jamming.

Safe collisions – Allows aircraft to fly through each other.

Invulnerability – Makes the player's aircraft invulnerable to weapons.

Unlimited fuel – Unlimited fuel.

Unlimited ammo – Unlimited guns ammunition, bombs and rockets. Guns will run out of ammunition but can be refilled with the reloading key.

No engine overflow – Turns off negative G engine cut-out.

Warmed up engines – Aircraft spawn with their engines at operational temperature.

END