Using Triggers

This manual is essentially intended for the mission designers.

SUMMARY

Introduction

Triggers allow to set the activation of events that could happen during a flight.

Three kinds of triggers have been introduced in the game. When the activation conditions are gathered :

1 –the "**Apparition**" Trigger allows to activate one to four planes that will follow a flight plan predefined by the mission designer;

2 –the "**Takeoff**" Trigger allows to spawn one to four planes that will take off from an airfield chosen by the mission designer;

3 –The "**Apparition Related to Altitude**" Trigger uses the same principle as the "**Apparition**" Trigger, along with the possibility to insert a variation of altitude (positive or negative) compared to the Trigger-activating plane altitude.

A lot of effort has been made so that the Triggers can be used easily by the mission designers. Thus, all settings can be done in the FMB.

The Triggers are gathered in the FMB under a "Trigger" menu, which contains the 3 categories :
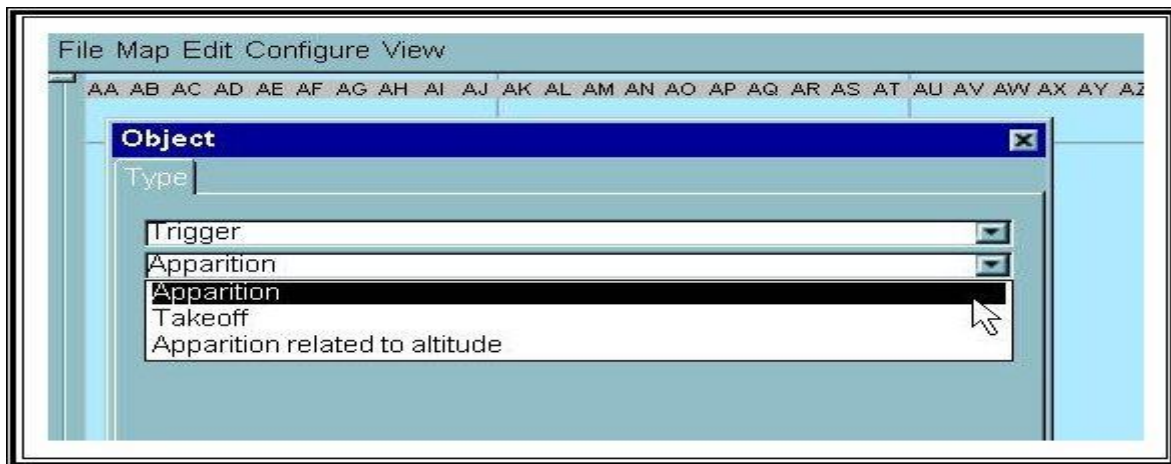
NB : the Triggers default parameters already allow a good basic use of them. Moreover, there is no limit to the quantity of Triggers per mission.

The way these Triggers work is developed below.

**Important : please note that a Trigger can be activated only once.**

1.   The "Apparition" Trigger

The "Apparition" Trigger allows to activate one to four planes that will follow a flight plan predefined by the mission designer.

The interest is obvious : the mission designer does not need to make fastidious AI flights timings any more…
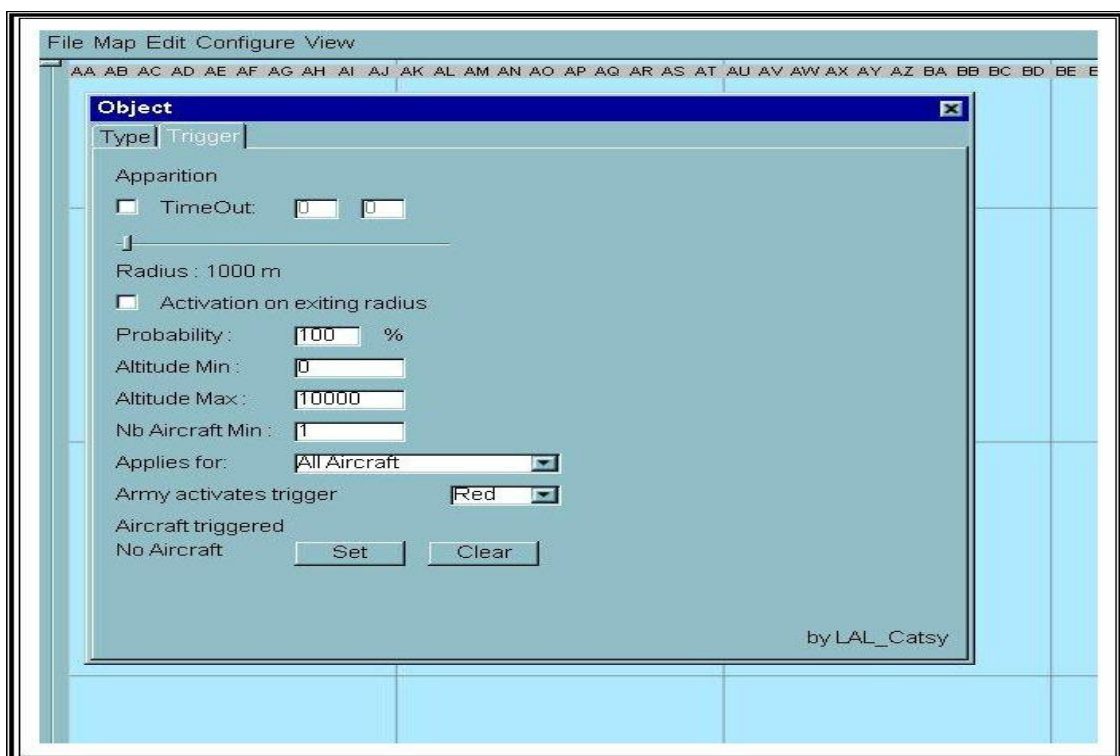
Examples of use and parameters of this trigger will be given at the end of this chapter.

When placed on the map, this trigger looks like a circular area (that is called "**Radius**"), as shown on the screen below :
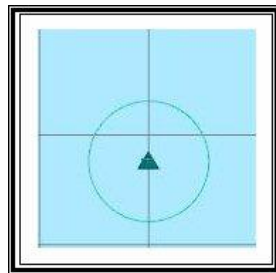
1.1.   Detail of Parameters

In the Full Mission Builder, when the "Apparition" Trigger is selected, the following screen is displayed :

PARAMETERS	EXPLANATIONS
Time Out	This is the time when the Trigger is inactive. Thus, a **Time Out** set to 00.15 means that during 15 minutes, planes flying through the radius won't activate the Trigger.
Radius	This is the size of the activation area of the Trigger. It ranges from 2 meters to 49.5 kilometres.
Activation on exiting radius	The basic principle is that the Trigger is activated when entering the activation zone. "**Activation on exiting radius**" works the other way : it is when the planes exit the radius, under some conditions, that the Trigger activates.
Probability	Activation percentage of the Trigger.
Altitude Min	This is the minimal altitude required to activate the Trigger.
Altitude Max	This is the maximum altitude required to activate the Trigger.
Nb Aircraft Min	This is the minimum number of planes required to activate the Trigger.
Applies for	Allows to choose between AI and human, or both, that can activate the Trigger.
Army activates Trigger	Colour of the army that activates the Trigger.
Aircraft triggered / n° Aircraft	Allows to associate a plane / group of planes to a trigger.

1.2. Examples

NB: These examples also apply to the Trigger "**Apparition related to altitude**"; see point 3.
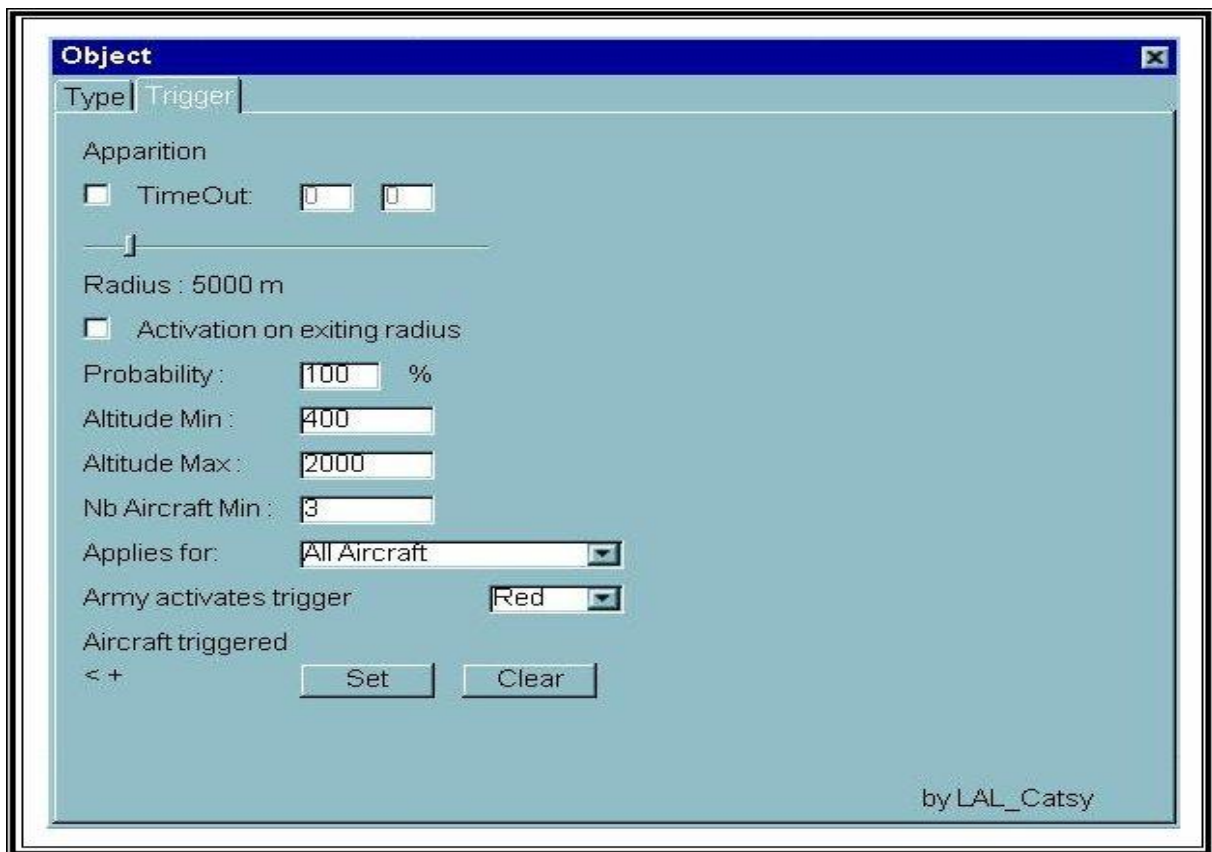
1.2.1. 1st Example – Basic Parameters

This example is materialized in the mission "**Trig_01.mis**" which can be found in the **Missions\Examples_Triggers** folder.
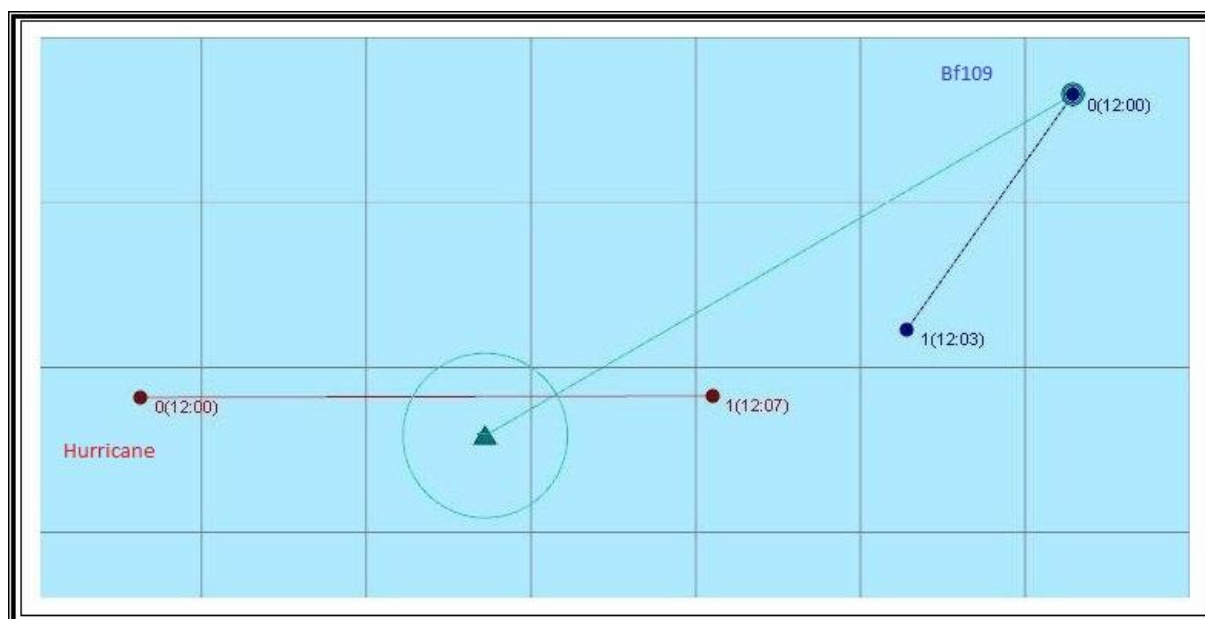
In this example, the Trigger is set so that at least 3 **red** Hurricanes (human and AI) flying at an altitude between 400m and 2 000m and entering the Trigger radius (set to 5 000m), activate a group of 4 **blue** Bf109-E4 to appear.

In the mission builder, the altitude of the Hurricanes has been set to 1 000m, and the altitude of the appearing Bf109 to 2 500m.

The activation probability of the Bf109 is 100%.

In this specific case, the **blue** Bf109 will appear when the Hurricanes enter the radius.

- If the **red** planes enter the activation area (radius) at an altitude inferior to 400m or superior to 2 000m, the **blue** planes won't appear.

- If there are only 2 **red** Hurricanes, the Bf109 won't appear.

As soon as the **red** planes enter the radius once, the Trigger is activated, whenever the **blue** planes appear or not, and all subsequent passages through the radius won't have any effect.

Remember : **a Trigger activates only once…**

### 1.2.2.   2nd example – Advanced Parameters

This example is materialized in the mission "**Trig_02.mis**" which can be found in the **Missions\Examples_Triggers** folder.
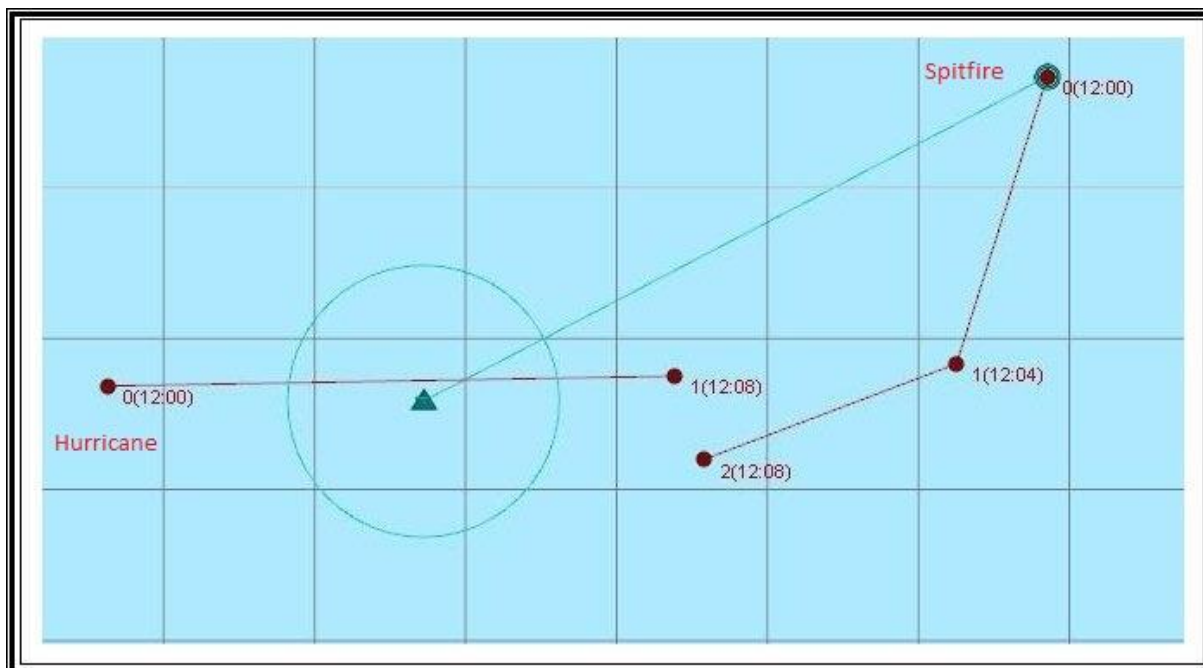
In this example, the Trigger is set so that at least 1 **human red** Hurricane flying at an altitude between 800m and 6 000m, and entering the Trigger Radius (set to 9 000m), activates the appearance of a group of 3 **red** Spitfire MkI.

The activation probability of the Spitfires has been set to 70%.

In the Mission Builder, the altitude of 4 Hurricanes has been set to 1 400m, and the altitude of the appearing Spitfires to 5 500m. One player takes control of one of the 4 Hurricanes.
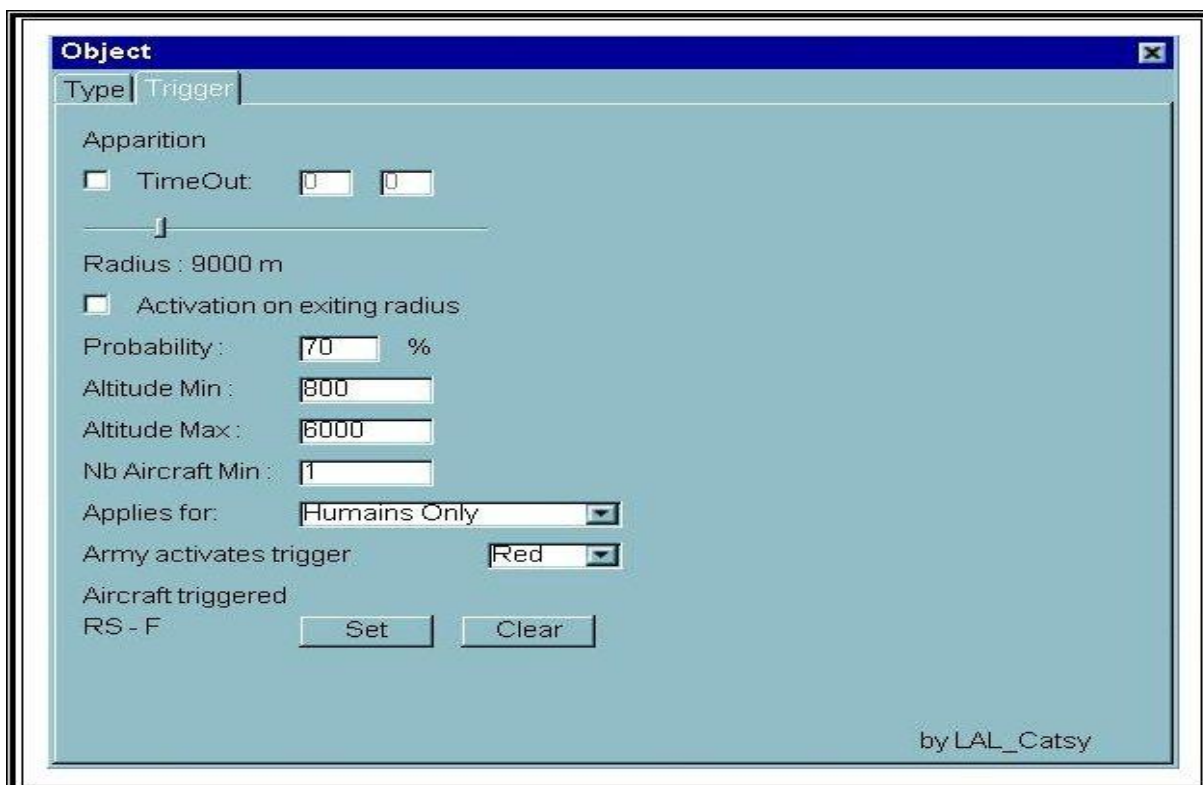
If the Hurricanes abide to the conditions set in the Trigger (human player, altitude, minimum number of planes to activate the Trigger, **red** planes activating the Trigger), then the Spitfires have a 70% probability to appear.

- If IA Hurricanes only enter the radius, then the Spitfires won't appear.

- If the Hurricanes enter the activation area (radius) at an altitude inferior to 800m or superior to 6 000m, the Spitfires won't appear.

Here too, remember: **a Trigger only activates once…**

1.2.3. 3rd example – Use of the Option "Activation on Exiting Radius"

This option is rather particular… The basic principle is that when entering activation zone, the Trigger activates.

However, "**Activation on exiting radius**" works reversely: it is when the planes exit the radius, under some conditions, that the Trigger activates.

This Triggers works in two steps :

1 – In order to "**wake up**" the Trigger, the minimum number of planes set by the mission designer ("**Nb Aircraft Min**") must be present at least once in the radius, at the same moment.

2- Then, to **activate the Trigger**, the number of planes in the radius must be strictly inferior to the "**Nb Aircraft Min**".

Complicated? A little bit… Let's see the examples below :

1.2.3.1. « Nb Aircraft Min » = 1

Let us say we have 4 planes outside the radius.

- When 1 plane enters the radius, then the Trigger will activate when it exits.
- When 2 planes enter the radius, and when at least 1 plane exits, then the Trigger won't activate.
- When 2 planes enter the radius, then the Trigger will activate as soon as these 2 planes exit the radius.
- When the 4 planes enter the radius, then the Trigger won't activate if 2 of them exit the radius.
- When the 4 planes enter the radius, then the Trigger won't activate if 3 of them exit the radius.

- Finally, when the 4 planes enter the radius, then the Trigger will activate when they all exit the radius.

To sum up : in this case, as long as there is at least 1 plane in the radius, the Trigger won't activate : [("**Nb Aircraft Min**" = 1) -1]. **There must be no plane left in the radius in order to activate the Trigger.**

1.2.3.2. « Nb Aircraft Min » = 2

Let's say we have 4 planes outside the radius.

- When 1 plane enters the radius, then the Trigger won't activate when it exits.
- When 2 planes enter the radius, then the Trigger will activate as soon as one of them exits.
- When 4 planes enter the radius, the Trigger won't activate if 2 of them exit the radius.
- When 4 planes enter the radius, the Trigger will activate as soon as 3 planes exit the radius.

To sum up : in this case, as long as there are at least 2 planes in the radius, the Trigger won't activate : [("**Nb Aircraft Min**" = 2) -1]. **There must be only one plane left (or none) in the radius in order to activate the Trigger.**

1.2.3.3. « Nb Aircraft Min » = 4

Let's say we have 4 planes outside the radius.

- When 1 plane enters the radius, the Trigger won't activate when it exits.
- When 4 planes enter the radius, the Trigger will activate when one of them exits.

To sum up : in this case, as long as there is at least 4 planes in the radius, then the Trigger won't activate : [("**Nb Aircraft Min**" = 4) -1]. **There must not be more than 3 planes (at least) in the radius in order to activate the Trigger.**

1.2.3.4. Example : « Nb Aircraft Min » = 2

This example is materialized in the mission "**Trig_03.mis**" in the **Missions\Examples_Triggers** folder.

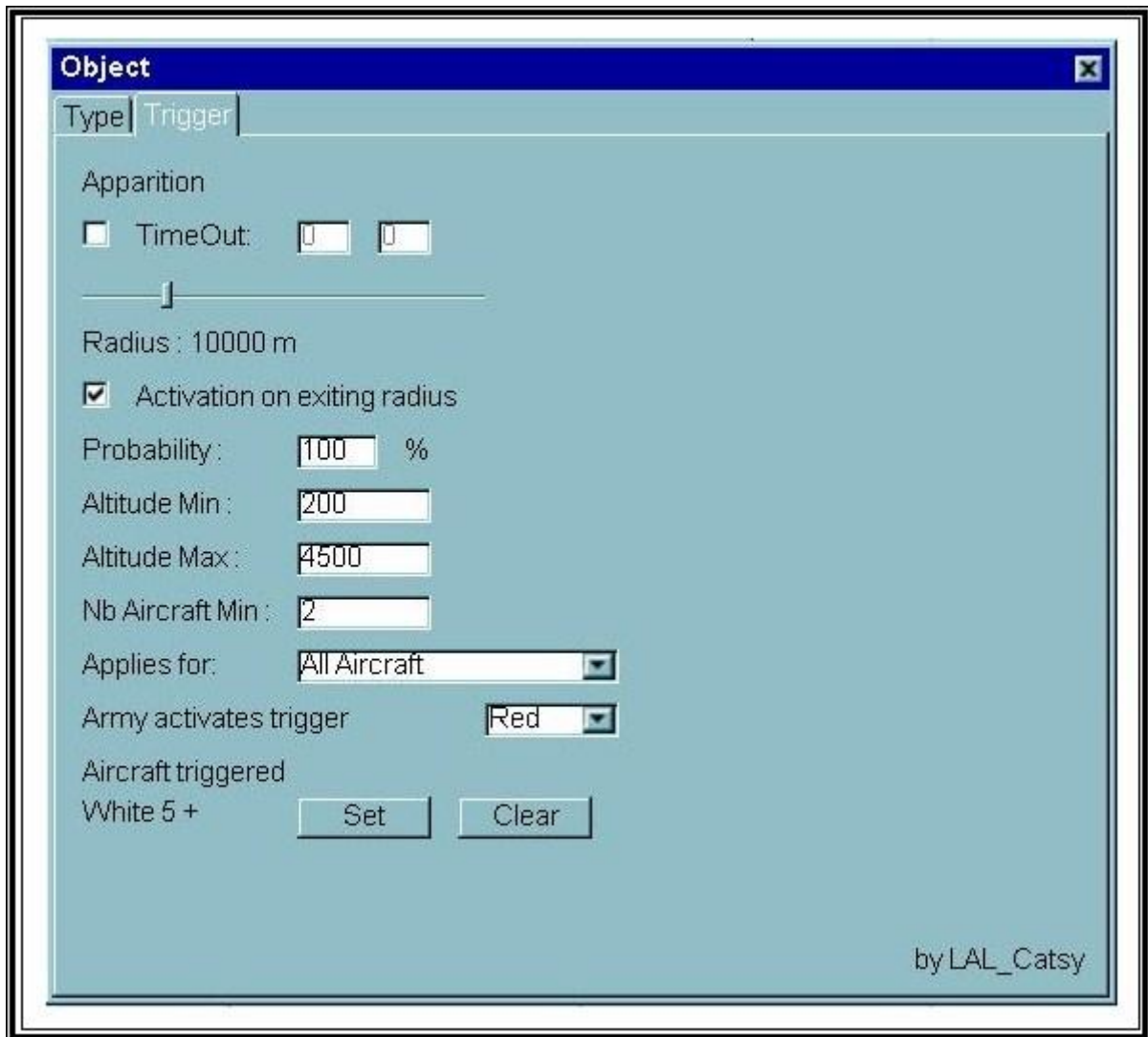In this example we have 4 **red** planes outside the radius :

- 1 flight of 3 AI Hurricanes
- 1 "human" Hurricane.

If the Trigger activates, then 4 **blue** Bf109 will appear.

The parameters of the Trigger are set as follows :

- Radius 10 000m,
- 100% probability for the Trigger to activate if the conditions are met,
- The "activating" planes won't activate the Trigger if they fly below 200m or above 4 500m,
- AI as well as human can activate the Trigger,
- Only the "red" side activates the Trigger,
- At last, "**Nb Aircraft Min**" = 2.

The Hurricanes enter the radius. As Long as there are at least 2 **red** planes in the radius, the Trigger won't activate.

To activate the Trigger, there must be 1 (or none) **red** plane, as indicated above.

[(**Nb "Aircraft Min"** = 2) -1].

1.2.3.5.   Example : "Nb Aircraft Min" = 4

This example is materialized in the mission "**Trig_04.mis**" in the **Missions\Examples_Triggers** folder.

We have in this example 7 **red** planes outside the radius:

- 1 flight of 3 Hurricanes (AI or human)
- 1 flight of 4 Hurricanes (AI or human).

If the Trigger activates, then 4 **blue** Bf109 will appear.

The parameter of the Triggers are set as follows :

- Radius 10 000m,
- 100% probability for the Trigger to activate if the conditions are met,
- The "activating" planes won't activate the Trigger if they fly below 200m or above 4 500m,
- AI as well as humans can activate the Trigger,
- Only the "red" side activates the Trigger,
- At last, "**Nb Aircraft Min**" = 4.
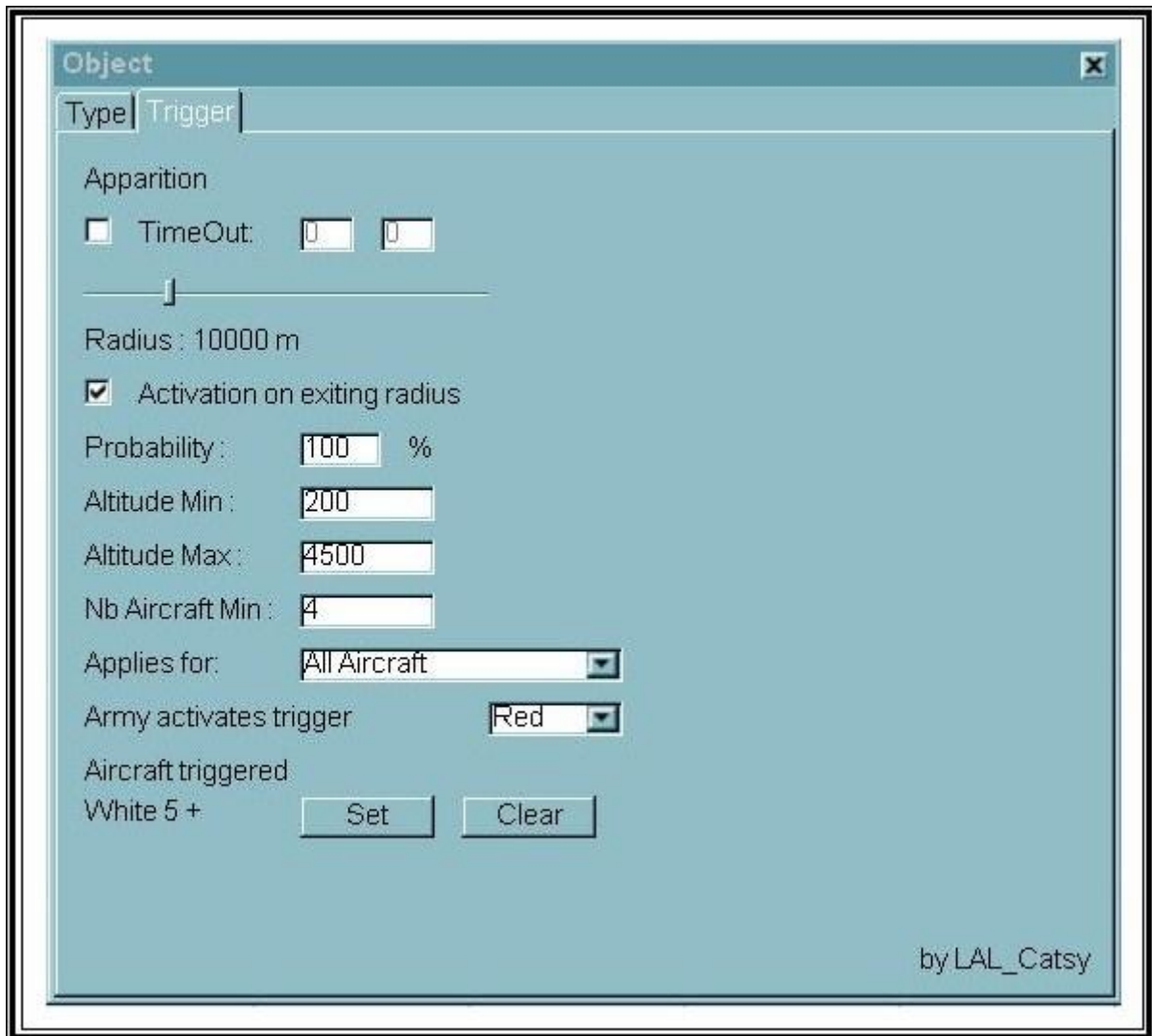
As long as there are at least 4 **red** planes in the radius, the Trigger does not activate.

To activate the Trigger, there must be 3 (or less) **red** planes, as indicated above.

[("**Nb Aircraft Min**" = 4) -1].

2. The "Takeoff" Trigger

This Trigger allows to activate one to four planes (per Trigger) that will taxi/take off from an airfield chosen by the mission designer.

These planes, visible on the runway or on their dispersal, won't take off as long as the Trigger is not activated.

2.1. Details of Parameters

In the Full Mission Builder, when selecting the "Takeoff" Trigger, the following screen appears:
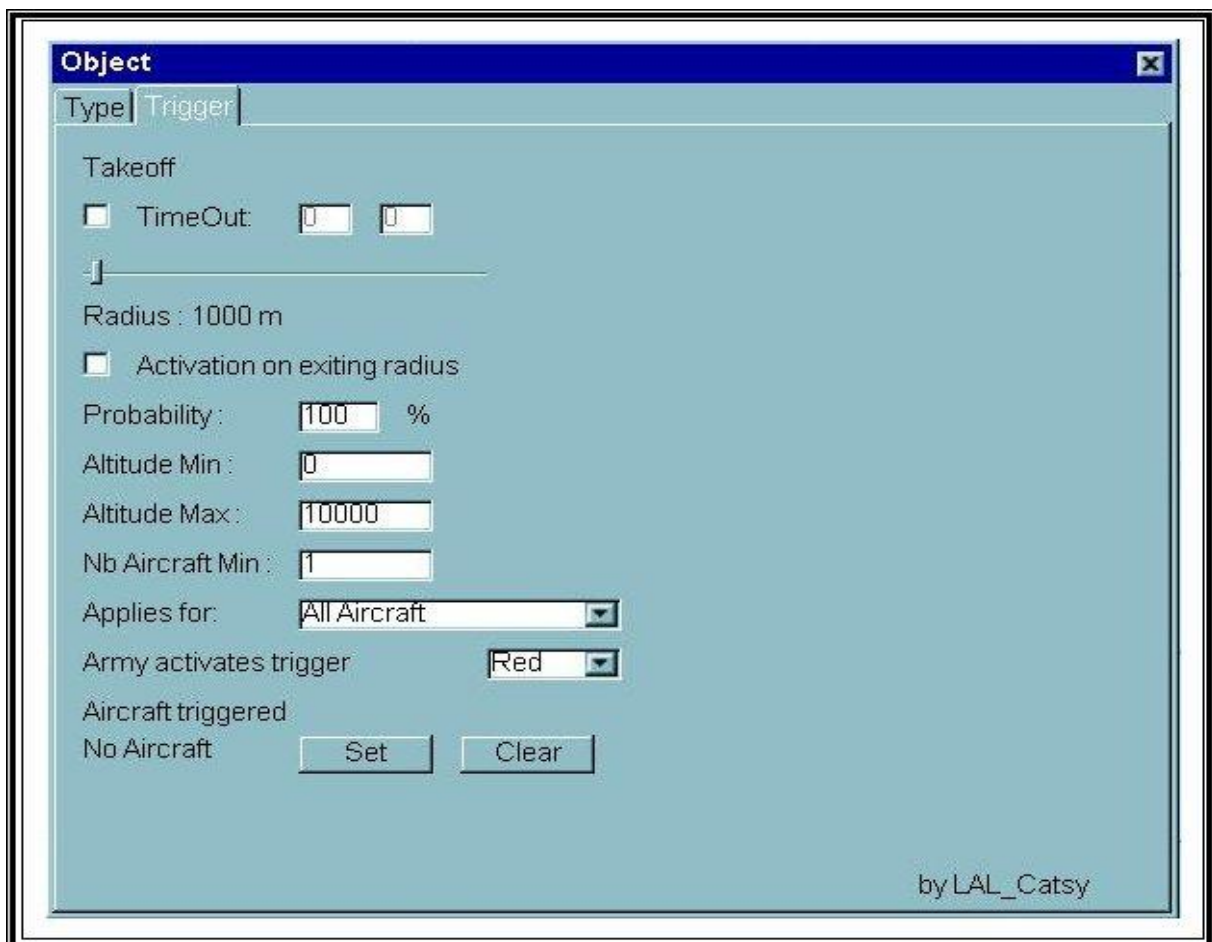
The available functionalities are the same as the ones available for the "Apparition" Trigger. See Chapter 1. While the Trigger is set the same way, the generated effect will be the taxiing/take-off of the activated **AI** planes.
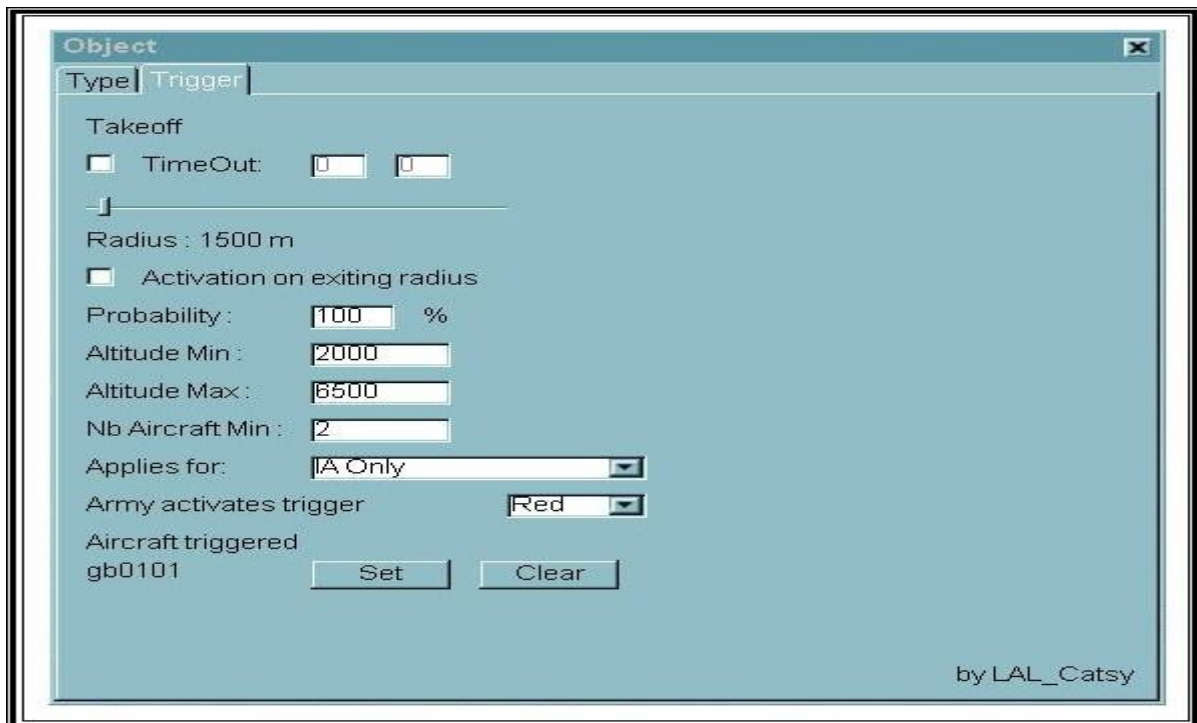
2.2. Parameters Examples

2.2.1. 1st example – Basic Parameters

This example is materialized in the mission "**Trig_05.mis**" in the **Missions\Examples_Triggers** folder.

In this example, the Trigger is set so that at least 2 **red** **AI** Hurricanes flying at an altitude between 2 000m and 6 500m and entering the Trigger radius (set to 1 500m) activate the taxiing and/or the take-off of 4 **red** Spitfires.

The probability for the 4 Spitfires to appear is 100%.
The three Hurricanes fly at 6 000m.

In this specific example, the Spitfires must take off when the Hurricanes enter the radius.

- If the 2 **red** Hurricanes enter the activation zone (radius) at an altitude **inferior to 2 000m or superior to 6 500m**, the Spitfires won't take off.

- If only 1 **red** AI Hurricane and 1 **red** human Hurricane enter the radius, the Spitfires won't take off.

Here too, remember : **a Trigger only activates once…**

2.2.2. 2nd example – Advanced Parameters

This example is materialized in the mission "**Trig_06.mis**" in the **Missions\Examples_Triggers** folder.


In this example, the Trigger is set so that at least 1 **human or AI red** Hurricane, flying at an altitude between 800m and 6 000m, and entering the Trigger radius (set to 3 000m), activates the taxiing and the take-off of 4 **blue** Bf109-E4.

The probability for the take-off of the 4 Bf109 has been set to 30%.

The Trigger is inactive during 5 minutes (use of "**Timeout**").

In the Full Mission Builder, the altitude of the 2 Hurricanes has been set to 900m. One player takes control of one of the 2 Hurricanes.
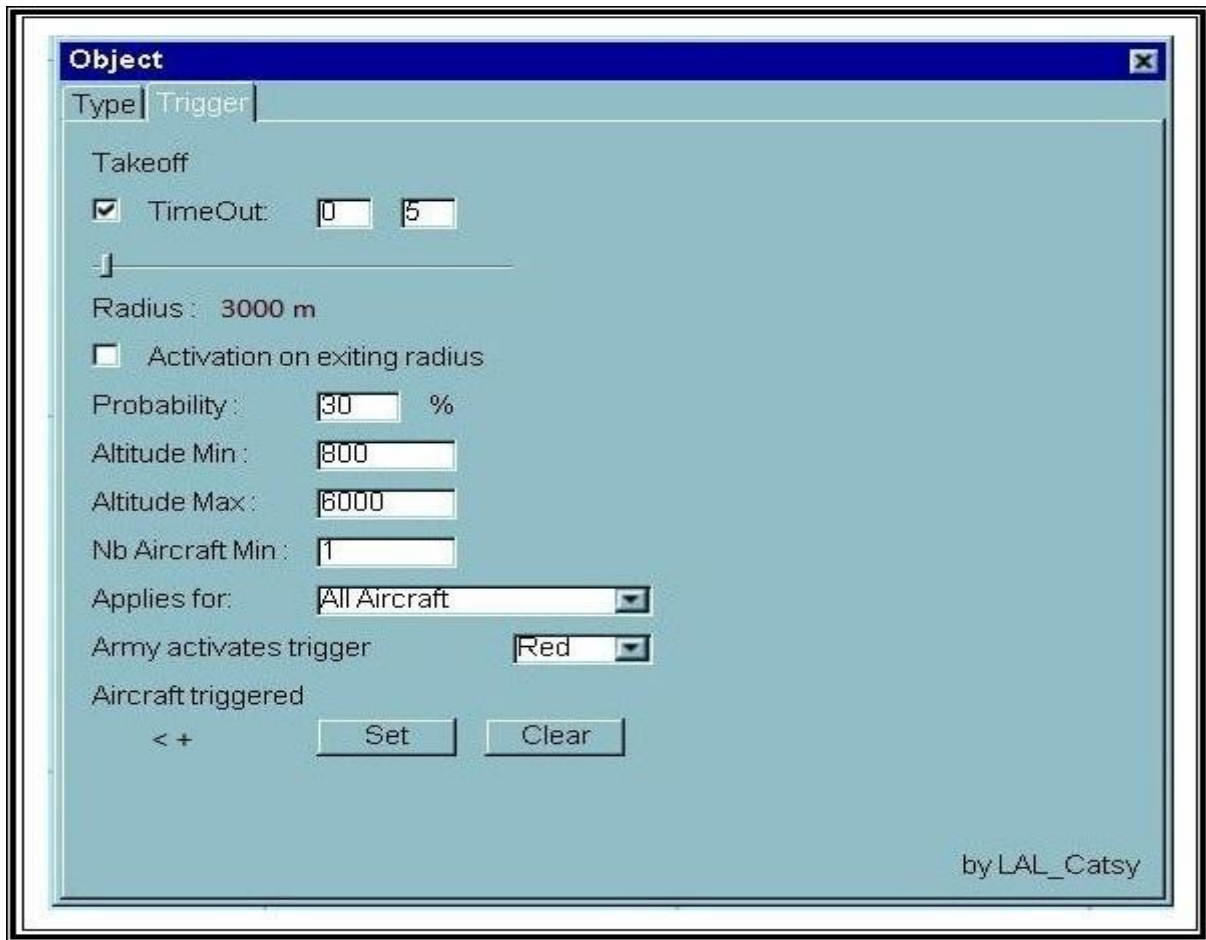
If the Hurricanes abide to the conditions set in the Trigger, which are :

- the altitude within the limits of the Trigger (min = 800m / max = 6 000m),
- the minimum number of planes needed to activate the Trigger (only one),
- the type of activating plane (human or AI, any of them in the present case),
- activation by the **red** side,
- the delay set to 00:05 min,

Then the Bf109 will have a chance to take off.

In this case, only one of the 2 Hurricanes entering the radius can make the Bf109 roll and take off.

However, because of the inactivity ("**TimeOut**") set to 5 minutes, even if the activation conditions are met during this fraction of time, the Trigger won't activate: no Bf109 will take off.

On the contrary, after 5 minutes, if the conditions are met again (that is to say one Hurricane enters the radius again, with the proper parameters of altitude etc.) the Trigger will make the Bf109 roll and take off.

- If a **blue** plane enters the radius, then the Bf109 won't take off.

- If the Hurricanes enter the activation zone (radius) at an altitude **inferior to 800m** or **superior to 6 000m**, the Bf109 won't take off.

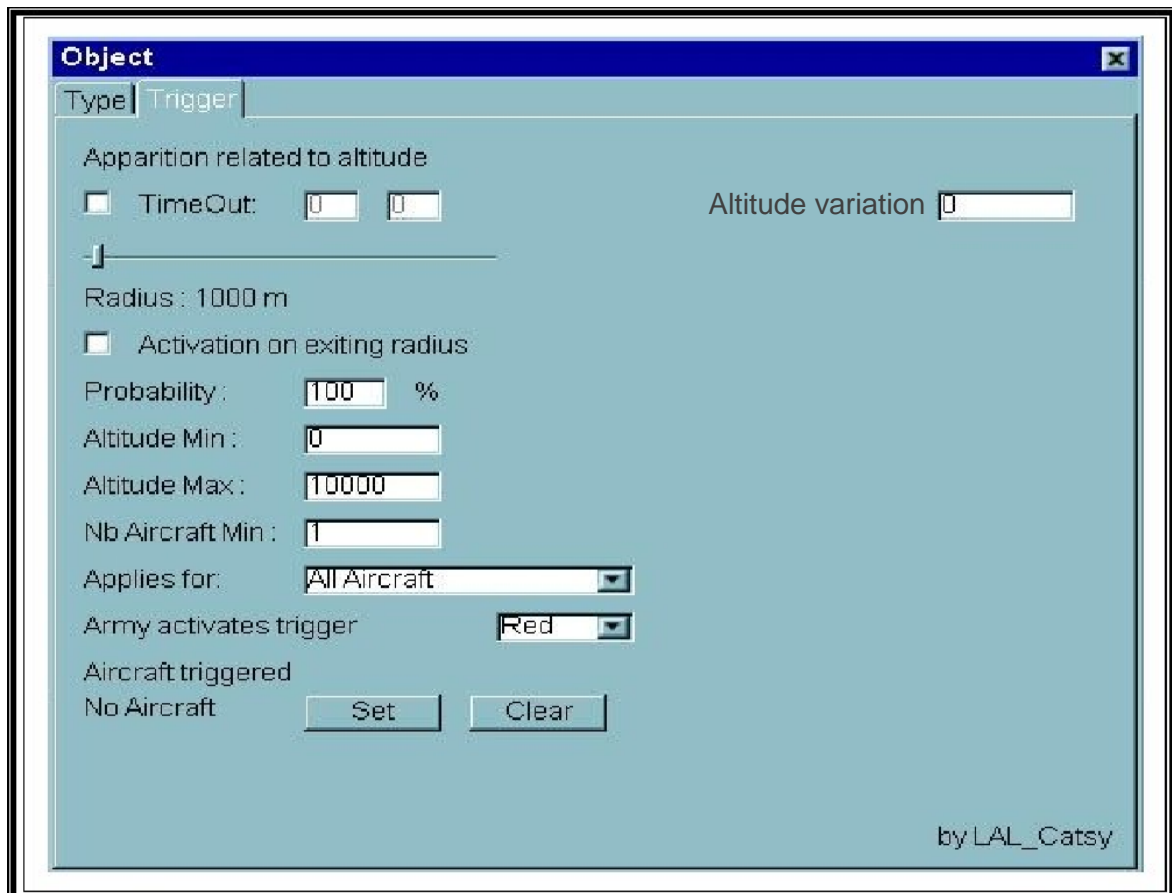At the risk of repeating myself : **a Trigger only activates once…**

3.   The "Apparition related to altitude" Trigger

This Trigger retakes the principle of the "Apparition" Trigger, along with the possibility to introduce a variation of altitude inferior or superior to the altitude of the Trigger activating plane.

Example : the Trigger activating plane flies at 1 000m. The "**Altitude variation**" is set to 300m. When the activated plane appears, it will fly at 1 300m (that is to say 1 000m + 300m). The parameter can also be set negatively (-100m, etc.).

3.1.   Detail of Parameters

In the Full Mission Builder, when the "Apparition related to Altitude" Trigger is selected, the following screen appears :

3.2. Example

This example is materialized in the mission "**Trig_07.mis**" in the **Missions\Examples_Triggers** folder.


In this example, the Trigger is set so that at least 2 **blue** Bf109E-4 (human and AI), flying at an altitude between 100m and 3 000 and entering the Trigger radius (set to 8 000m), activate a flight of 4 **red** Spitfires.

The parameter "**Altitude variation**" is set to **-400m**.

In the Full Mission Builder, the flight altitude of the Bf109 has been set to **1 500m**.

The probability of appearance of the Spitfire is 60%.
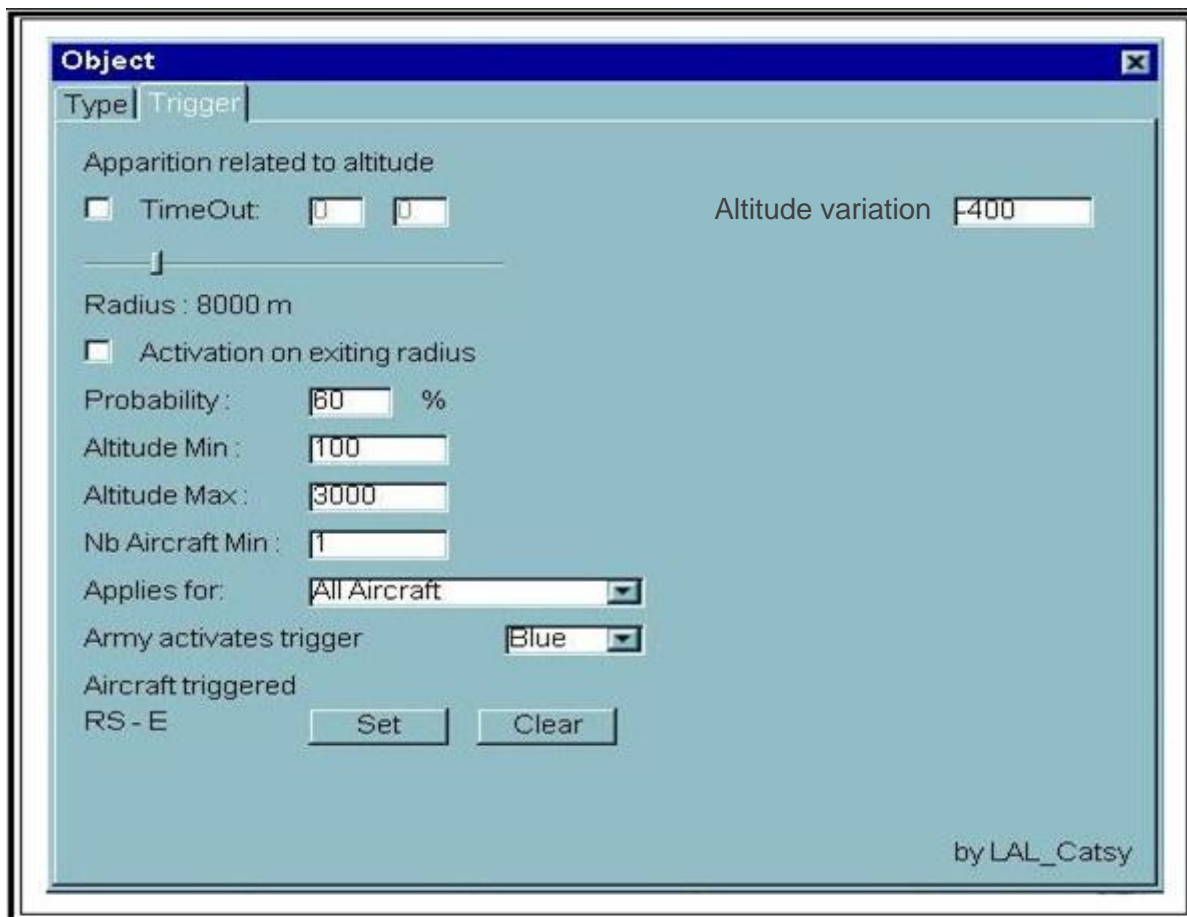
In this specific case, once activated and with the probability factor, the red Spitfire must appear at an altitude equal to 1 100m (1500 – 400m).

- If the **blue** planes enter the activation area (radius) at an altitude **inferior to 100m** or **superior to 3 000m**, the **red** planes won't appear.

- If there is only 1 **blue** Bf109, the Spitfires won't appear.

- Finally, even if the mission designer has set a specific altitude for the Spitfire in the Mission Planner (in this example, 2 500m), **they will only appear with the altitude linked to the Trigger** (that is to say, conditioned by the altitude of the Bf109).

4. FAQ

Q : How to make more than four planes appear at the same time?

A : You just have to put several Triggers almost at the same place, and to link them to the group of planes you wish to make appear. See mission "**FAQ_01.mis**" as an example in the file **Missions\Examples_Triggers**.
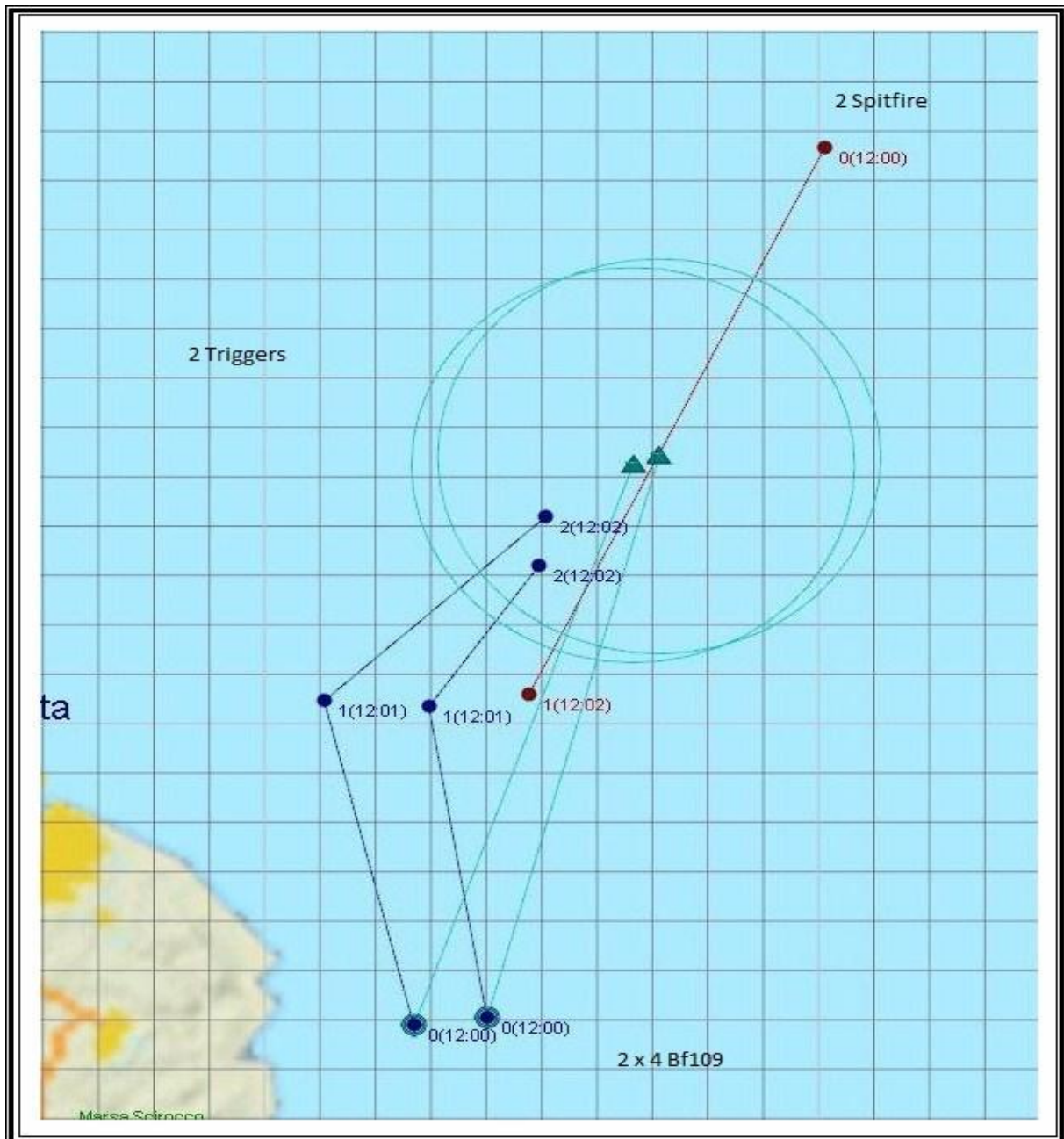
Q : Can a "red" plane make appear another "red" plane?

A : Yes. You just have to set "**Army Activates Trigger**" on "**red**". See example n° 2 in the chapter dealing with the "**Apparition**" Trigger.

It is the same with "**blue**" planes.

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Q : On Multiplayer mode, as well as on solo mode, I can see some lags whenever planes appear from "Apparition" and "Apparition Related to Altitude" Triggers. Is it possible to avoid them?

A : Yes, more or less… here is how to proceed :

Suppose a flight of 7./JG26 Bf109 that must appear after the activation of a Trigger. Set the parameters of the Trigger according to the results you wish to obtain.

Once this task done, put in one corner of the map, where you will be certain that the players won't go, 1 identical plane to the ones that will appear. Give them 2 waypoints, and make them appear **as soon as the mission starts**.

You will see that when the Trigger activates, the lag will have disappeared (at the best) or (at the worst) it will be barely noticeable…

NB : this lag does not appear with the use of the "**Takeoff**" Trigger.

Q : Can I use the "Apparition" Trigger to make AI take off ?

A : Yes, but be careful… the difference between the "Apparition" Trigger and the "Takeoff" Trigger lays in the apparition of the **AI**.

⇨ With the "Apparition" Trigger, the planes of the Trigger appear on the runway then take off once the Trigger has been activated.

⇨
 With the "Takeoff" Trigger, the planes of the Trigger **already stand** on the runway (or the parking) as soon as the mission starts, and wait to be activated to roll and take off…

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Q : Can I make IA planes taxi with the "Takeoff" Trigger?

A : Yes.

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Q : Can a same plane activate several Triggers?

A : Yes.

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Q : Can one plane (or several plane flights) be linked to several Triggers?

A : Yes. In this case, only the first Trigger will make the plane (or the plane flights) appear. The other Triggers will then became inactive. It is logical…

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