|ZUTI| Moving Dogfight Server

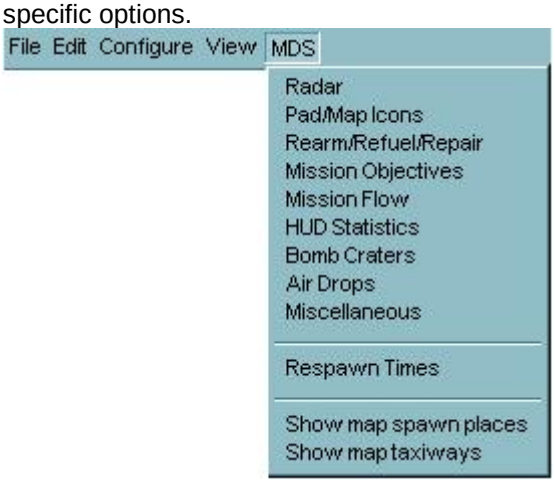
(MDS)

For IL2 Sturmovik 1946 v4.10.1m

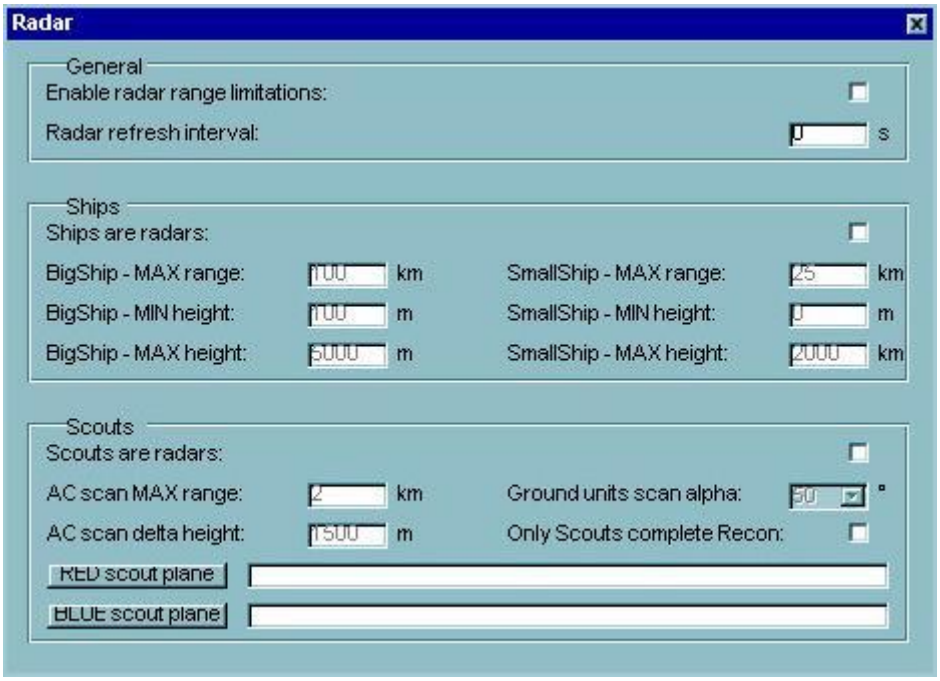
Table of content

1. MDS through FMB

When you start FMB you should see an entry called **MDS**. Press it and you will see a list of MDS specific options.



1.1. Radar



This screen contains settings related to radar objects. These objects are:

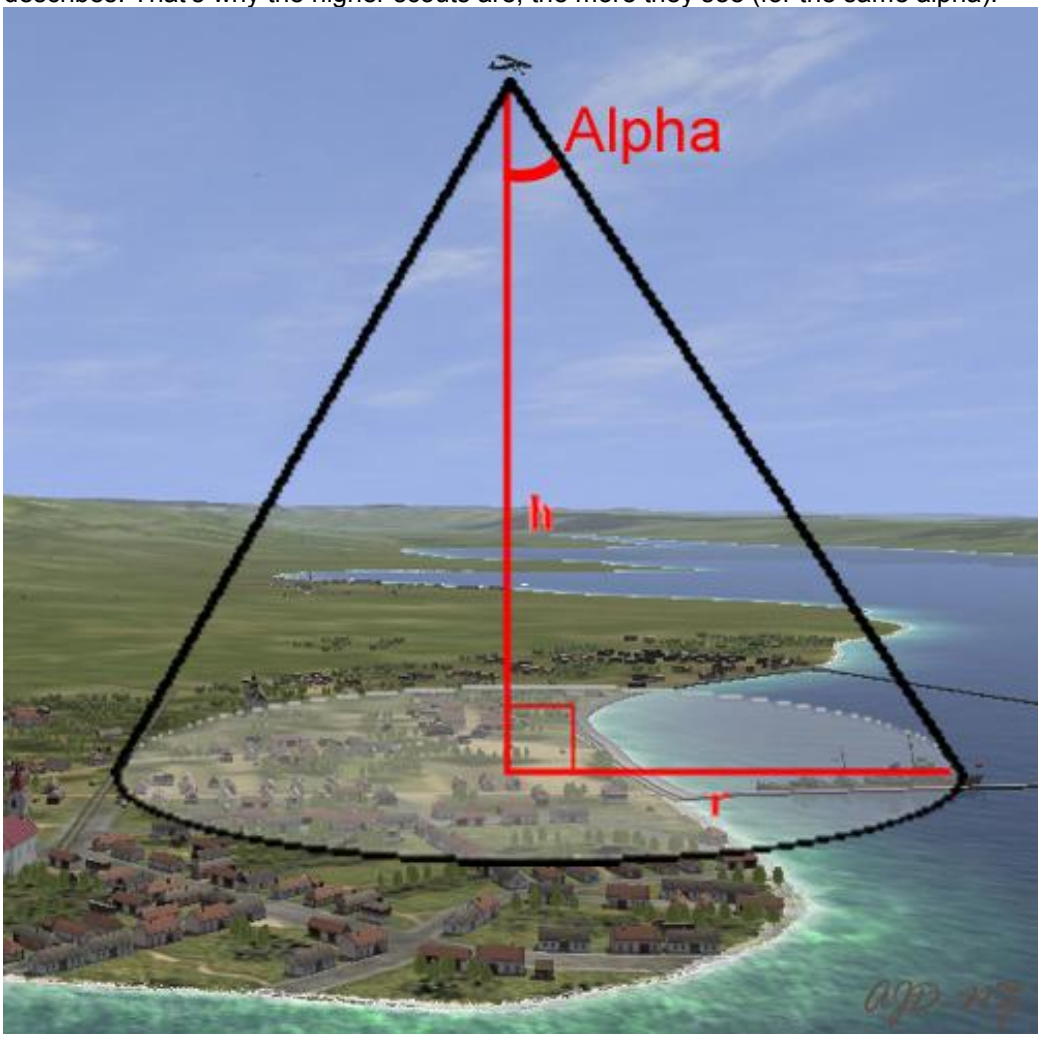
- Objects with the string **Radar** in their name (objects under Objects in FMB, **caps are important**). Object 76 is one of them (in the modded game, it can also be object number 82 or another number).
- Ships can also be radars (see below for more details) and
- Custom planes can also act as radars, if the *Scouts are radars* option is selected.

Descriptions of the available options on the Radar screen in FMB:

- *Enable radar range limitations*: if this option is enabled, ALL the radars on the map will only show objects that are inside a radars assigned range. Range parameters are set for each home base object under the home base Spawn & Radar tab. If this option is not selected, your side will see units as long as it has at least one live radar,
- *Radar refresh interval*: how fast radars refresh positions of detected objects,
- *Ships are radars*: makes ships act as radars. You have two sets of parameters, one for ships that hold powerful, long range radars and another for ships that hold less powerful, short range radars. If you want only big ships to act as radars, set ***ALL*** small ship settings to ***0***. Or vice versa.

- *Scouts are radars*: this will enable mission makers to use scout airplanes as spotters. **Scouts are able to identify *GOs*** (Ground Objects) and that option is only available if you enable scouts in your mission. The first set of parameters determines the range in which scouts can identify other aircraft. *AC scan delta height* is the altitude of the scout +- what you input for it. *Ground units scan alpha* parameter determines the range for which scouts can identify *GO* objects. The formula behind this is: ***range = scout height * tan (alpha)***. So, **the higher the scouts are, the more area they cover**.

Ground units scan alpha parameter in detail:
Pay attention to the **ALPHA** angle in the picture below. This is the angle that the alpha parameter describes. That's why the higher scouts are, the more they see (for the same alpha).



WARNING: the more scout planes you assign, the slower your game MIGHT run!!!

Ships with powerful, long range radar:
All CVs (aircraft carriers), all battleships and all cruisers.

Ships with less powerful, short range radar:
All destroyers.

Important
MDS radar functions are **only available if you have NoMapIcons difficulty enabled in your difficulty screen.** If not, the game behaves as it does without MDS and all the radar objects are ignored.

Exceptions
Targets of a stationary nature (*destroy/defence ground, destroy/defence bridge, inspect/recon that are not linked to a moving object*) are *always* drawn on your map, regardless of your radar settings. If you don't want them to be seen, disable *Enable rendering of target icons* under the Pad/Map Icons tab.

1.2. Pad/Map Icons

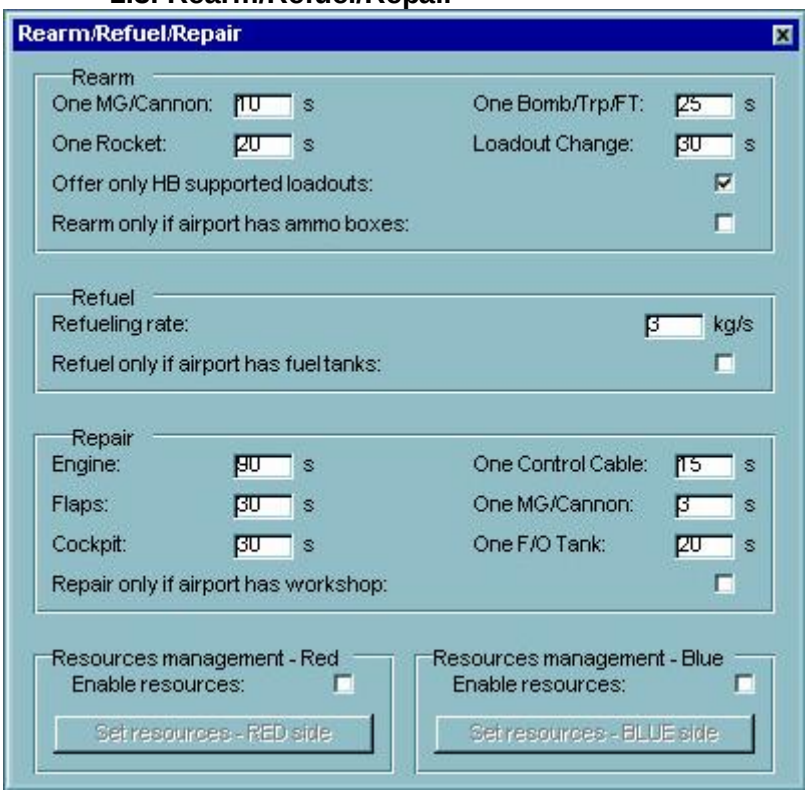
The general parameters for icons are:

- *Pad: Show AC icons*: displays aircraft icons on the mini-map,
- *Pad*: Show Rocket icons: displays rockets on the mini-map (V1 rocket…),
- *Pad: Show GO icons*: displays ground units on the mini-map that move or can shoot at you (artillery, AAA, tanks, cars, trains, ships, static aircraft),
- *Pad*: Show Neutral HB: show neutral/white home base icons on the mini-map,
- *Render all icons white*: all non-target icons are rendered in white,
- *Show player icon*: enables/disables rendering of players aircraft on the mini-map,
- *Briefing/ Pad icons size*: sets the preferred size of all the mini-map icons,
- *Hide unpopulated/enemy airfields*: hides those airfields from the map.

The targets specific parameters are:

- *Render target icons*: enables/disables target icons on the briefing/map screen,
- *Target icons move on pad screen*: If your side has radars and the target object is inside radar range, the icon for that target will change position,
- *Target icons remain stationary if there is no radar*: this makes mini-map/briefing target icons stay at their last known location once it gets outside of radar range (or if radars were destroyed). **Caution:** if you join the game after the mission has started and your side has lost radars, you will see the target icons at their default position if this option is enabled. Also, with this option enabled all of the target icons are always visible, unless the target is eliminated. The reason being that there is always one known location for the target. Be that its default/spawn position or the last known position before it went out of radar range, it does not matter.

1.3. Rearm/Refuel/Repair



Here you can set up the parameters for Rearm/Refuel/Repair (or R/R/R) functions. They are separated into three sections, each covering a specific task:

- Rearm,
- Refuel and
- Repair.

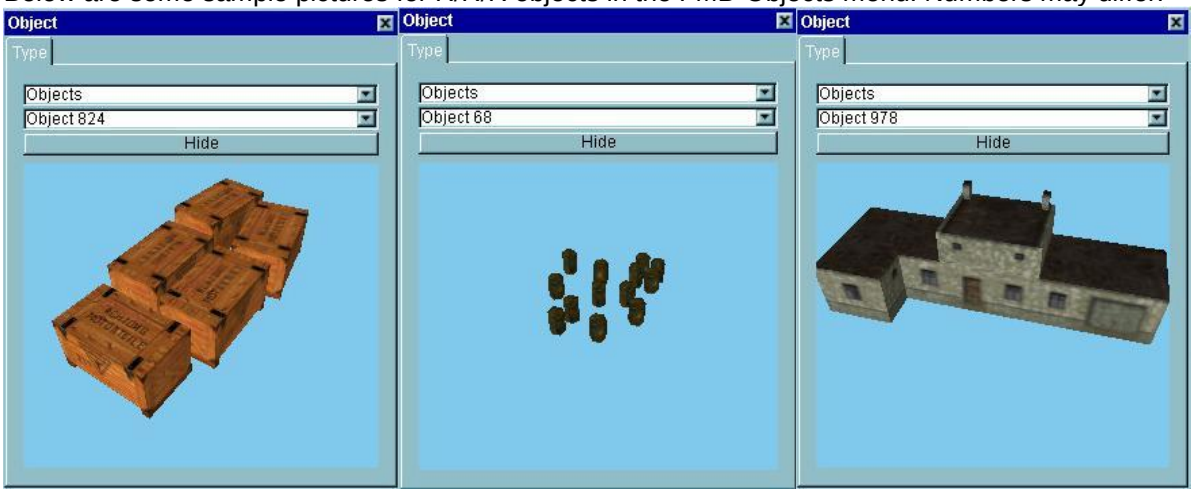
Sections have an option that enables them to function only if specific objects are present on the airfield that a player has landed/spawned on. Additionally, the *Rearm* option has ***Offer only HB supported load-outs*** option. With this option enabled, a player that lands on such an airfield can only select the load-outs for his plane that this airfield supports. It can happen that this airfield does not support the player aircraft type. In this case, all he can do is execute the rearm option that will restore his original weapons load-out.

If you allow R/R/R functions only when dedicated objects are present, you are also dealing with time penalties. The closer you park to those objects, the faster a selected R/R/R operation is completed. Exceptions are carriers with a fixed time penalty multiplier of 1.1 and test runways with multiplier of 1.5.

Distance to R/R/R object	Time penalty multiplier
up to 200m	R/R/R function * 1.0
up to 400m	R/R/R function * 1.2
up to 600m	R/R/R function * 1.4
up to 800m	R/R/R function * 1.6
up to 1000m	R/R/R function * 1.8
greater than 1000m	R/R/R function * 2.0

So, if you park your plane 150m away from the closest the ammo box and you set the rearming of one MG/cannon to 20s then your cannon will be rearmed in 20s. But, if you parked 800m away from an ammo box, your operation will take 20s * 1.6 = 32s. Just so you have a clear picture of how this works. You can see how your R/R/R time was calculated if you press ***shift + tab***. You'll see the console window and it will contain all the data behind the calculations.

Below are some sample pictures for R/R/R objects in the FMB-Objects menu. Numbers may differ!



Rearm *Refuel* *Repair*

Rearm, refuel and repair objects in IL2
Rearming objects must contain this string in their name: “Box”.
Refueling objects must contain this string in their name: “Barrel”, “Tank” or “tank”.
Repairing objects must contain this string in their name: “Workshop” or “HQ”.
Make note of the CAPS, they are important! Sample: ammoBox -> OK, ammobox -> not OK.
You can read more about this topic in chapter RRR related units.

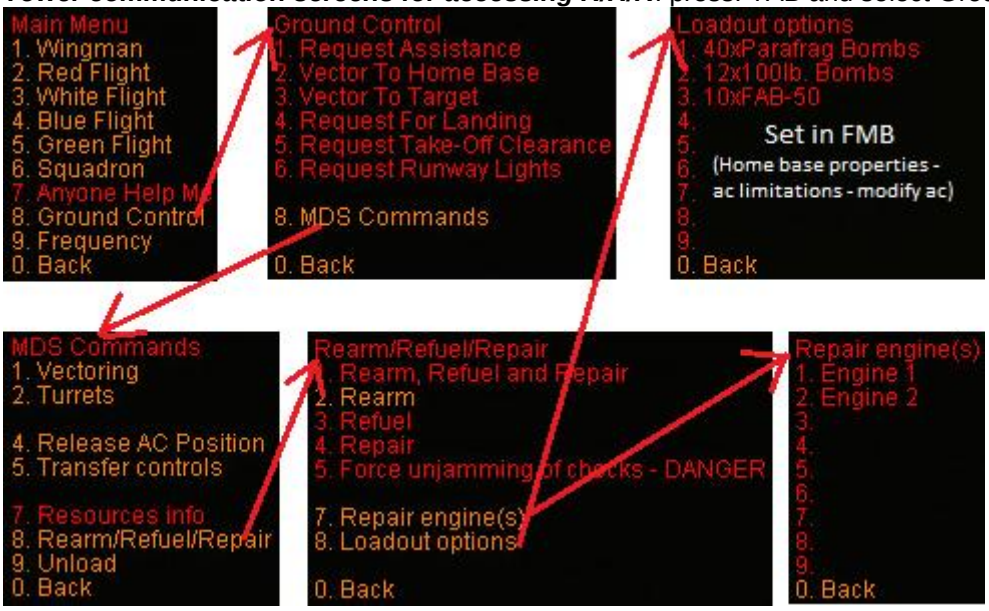
For R/R/R to work, you must be parked on a predefined friction area and have your chocks in (except for float planes, for them you just have to be still and on a friction area).

You can set friction areas in two ways:

- Via mission/map specific entries by using the friction tool that I have created for you or
- Via Home Base properties window.

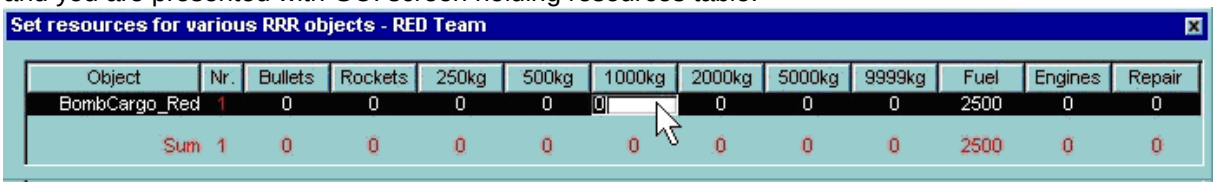
*For more details on how to set up the friction areas, please see the **ZUTI_Friction.pdf** document. Everything that you need to know about this topic can be found there. You can find it under your MDS folder in the Tools subfolder.*

Tower communication screens for accessing R/R/R: press: TAB and select Ground Control.



Important
*If you select option 1 in the R/R/R screen, refueling will be done **only to the default fuel value** of your airplane (10%, 20%, 30% … 100%) but if you select option **three** (Refuel), your plane will be refueled to its **max** capacity. Remember, you can always **stop** any R/R/R process if you disengage the chocks. This combined with the aforementioned refuel method gives you total control of your planes fuel state. Option 5 can be dangerous if you were firing your guns while the chocks were set (and naturally they jammed) because the recoil energy is saved. When you release the chocks, you can find yourself going backwards across the airfield.*
Engine repairs can be done by selecting damaged engine. If you are already repairing one, you can still start repairing another (on multi-engine aircrafts).

The last thing worth mentioning is the *Resources Management* section. It is separated in two areas, one for red team and one for blue team. When enabled, you can click on the *Set resources…* button and you are presented with GUI screen holding resources table.



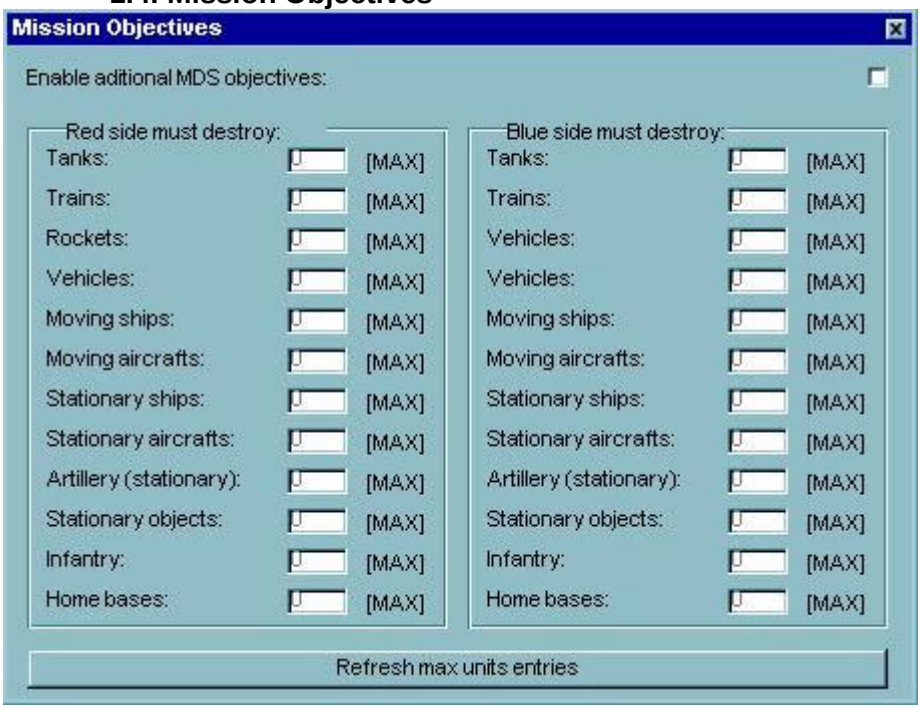
Most fields are editable (numeric values only). You get similar window if you select home base related resources but there are differences. Side related resources show you those units that have common resources across entire side. In short, side related resources window will hold all moving RRR related objects, cargo (cargo objects must have common resources no matter where they are deployed and are composed from various resources) and those stationary RRR resources objects that are **not inside home base that has resources management enabled**. Home base related resources window holds only stationary RRR resources objects such as crates, fuel tanks etc are **inside home base** radius. In general Resources management means that you can perform RRR operations only with resources that are available to you on your parked site. It can happen, for instance, that you will only rearm half of the guns, get only a couple of bombs/rockets and/or receive only few kilos of fuel.

M*oving RRR related objects* such as car convoys, trains or ships are exceptions in a way because they don't contribute to home base/side resources at the mission start. These units do not use resources and their resources are not available to players until they ***unload***. Unloading happens when such a unit reaches its ***final destination***. So, a very, ***VERY*** important thing for mission makers here is: **WHEN PLACING THESE UNITS ON YOUR MAP, SET THEIR LAST LEG AS SHORT AS POSSIBLE**. Checking for a unit's final destination will start once a unit enters its last leg. And if the leg is too long, calculations ***might*** slow down your game (this is just friendly advice). It is also possible for a player to unload his resources on a parked site and thus supply his own side or home base.

Tower communication screens for accessing unloading: press: TAB and select Ground Control

More about RRR units (static or moving) can be found in chapter RRR related units.

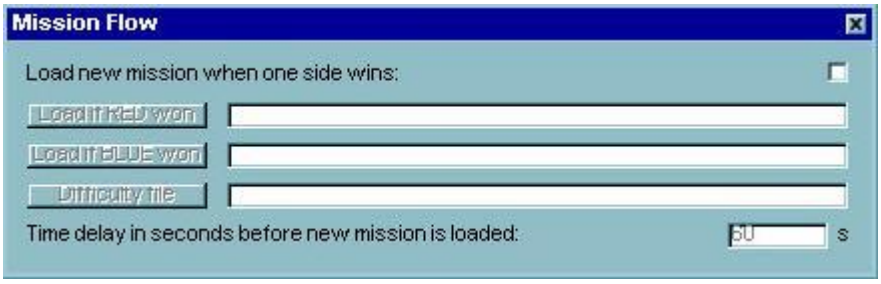
1.4. Mission Objectives



On this screen you can set the number of objectives that each side must fulfill in order to win. Once you click the *Refresh max units entries* button, the [MAX] text will be replaced with the numbers of the other sides units because red must destroy blue units and blue must destroy red units. If you placed some targets on your mission, those must also be completed if you want your side to win.

An important thing to note is the *Home bases* line. Here we are not talking about *destroying* but about ***capturing***. The number near it indicates the number of enemy home bases that can be captured. It is calculated based on each home base setting in their Capturing tab. If they can be captured, they are counted.

1.5. Mission Flow

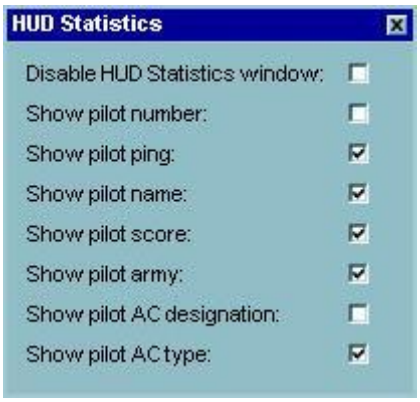


This screen allows you to set which mission will load if the red or blue side wins. If you press the buttons next to the text boxes, a file selection window will appear. Browse to your desired mission files and confirm your selection. Pay **special attention** to the mission location if you are moving missions to different servers the file location path **must not change**. If it does, the new mission will not load.

- *Load new mission when one side wins*: if this is enabled, *Mission Flow* parameters are taken into account when one side wins,
- *Load if RED won*: mission that will be loaded if the red team wins,
- *Load if BLUE won*: mission that will be loaded if the blue team wins,
- *Difficulty File*: difficulty file that will be applied to a newly loaded mission,
- *Wait for*: delay (in seconds) before a new mission will be loaded when a team wins.

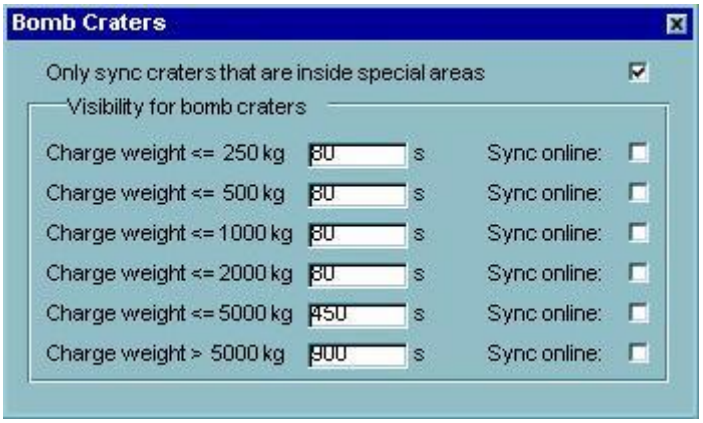
Mission files **MUST NOT** contain the full path. They must start with the *Missions*\ string (all missions must be places inside the IL2 root\Missions folder). But for difficulty, the FULL, ABSOLUTE path must be provided (c:\....\medium.difficulty, for instance). So, edit them accordingly. And remember, these paths have to be as they are on the SERVER side, not the client. ***The Mission flow feature will work only if your server is administered by the ZUTI_MDSMonitor.***

1.6. HUD



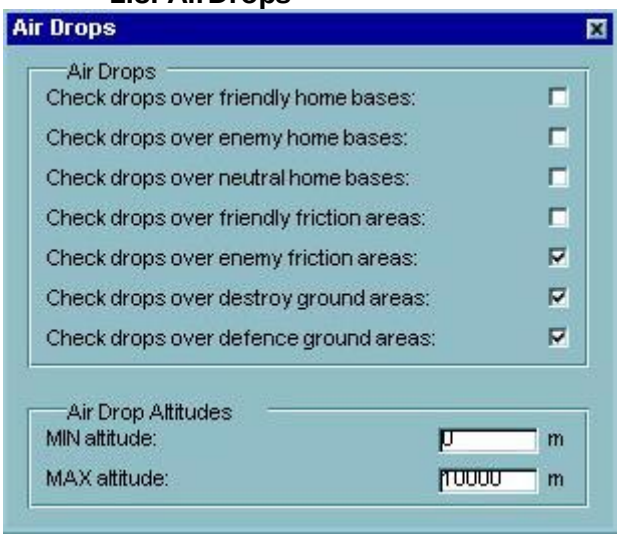
This window allows you to select which option will be displayed when a player presses the “S” button to view connected players and to check the scores. You can also disable these statistics completely.

1.7. Craters



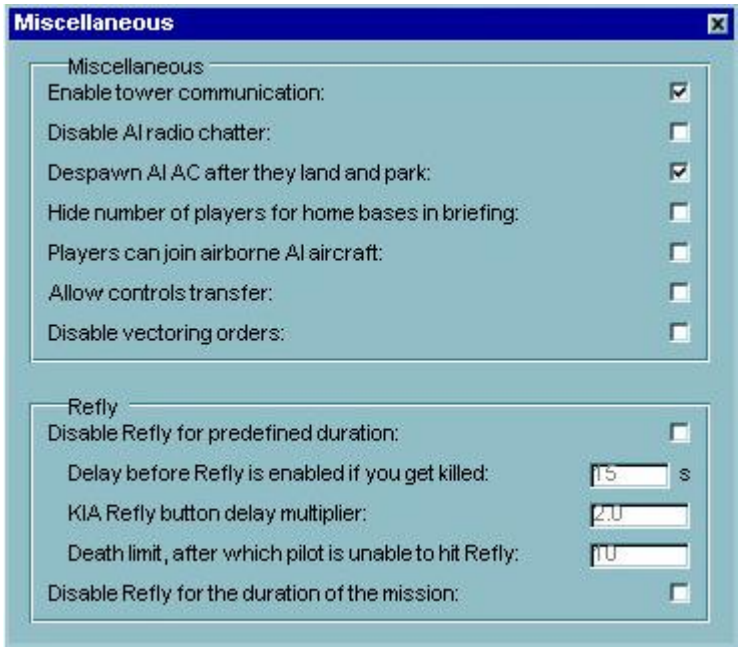
This screen lets you set various things for bomb craters. You have to pay attention here that weights are not for bombs but for bomb charges. You can see bombs charge weights in Bombs powers and masses. Also, as you can see you can also make them sync online. But pay special attention here. There may be a lot of these craters and it takes some resources to sync them online. So, think twice before deciding which craters you want to sync online and which you don’t care about too much. Syncing is for any new players that connect to your game after someone has already dropped some bombs. And the first option, *Only sync craters that are inside special areas*, will only save information about craters that impact home base areas, friction areas or airfields on your map. For airfields the area of impact is inside a 1km radius from the airfield center point.

1.8. AirDrops



All cargo and paratrooper drops are rewarded with points. On this screen you can decide over which areas these drops will be recorded and rewarded. Another thing that must be specified is the drop altitude. You can set the min and max altitude. This prevents pilots from executing drops too low, which will kill the paratroopers, or, executing drops too high, which in real life would also kill the paratroopers from the lack of oxygen and/or the freezing temperatures. But more importantly in the game, it can take them a long time to reach the ground descending at a rate of 20km/h (10000m = 30 minutes!).

1.9. Misc



Miscellaneous options:

- *Enable tower communication*: enables the TAB key for live players,
- *Disable AI radio chatter*: disables messages sent from AI planes,
- *De-spawn AI AC after they land and park*: when AI aircraft land and park, they will vanish from the map and release game resources. They will also not be problematic for live players,
- *Hide unpopulated/enemy airfields*: enemy and unused airfields are not drawn on the mini-map,
- *Hide number of players for home bases in briefing*: this option, if enabled, will hide the number of players that is displayed beside each home base object on your briefing screen,

- *Players can join airborne AI aircraft*: if a mission maker wishes to enable the joining of live players as gunners on AI controlled AC, this option should be enabled and the ***AI only*** option in the **plane setting screen** should be disabled,
- *Allow controls transfer*: this option must be enabled it you want to allow pilots to transfer AC controls to their crew members and
- *Disable vectoring orders*: player is unable to receive any vectoring help from the tower.

Refly options:

- *Disable Refly for predefined duration*: this option enables the mission maker to disable the refly button for a specified duration. It is also dependent on the number of KIA for a player. If this option is selected, mission makers can specify what the refly button penalty is (in seconds). The calculation behind this is as follows:

refly penalty = Delay before Refly is enabled + (KIA count * KIA Refly button multiplier).

Example: pilot died 4 times. With the above settings, his time penalty would be:
refly penalty = 15 + (4 * 2.0) -> refly penalty = 23s.

- *Death limit, after which pilot is unable to hit refly*: this option sets the upper death limit for a pilot. After the pilot dies more times than this option allows, he/she is unable to refly,
- *Disable Refly for the duration of the mission*: with this option you disable the refly button until the mission is reloaded.

For pilots with damaged airplanes: if you land your plane on a valid airport surface (friction area) and your plane is damaged, you can bail out and change it without losing any points. On the other hand, if you bail from a perfectly fine airplane, you will be penalized for bailing out.

Player *penalties* are also stored on the server side. If a player gets a time penalty and leaves the server, this penalty will still be valid for a predetermined period of time. So, when a player tries to reconnect, the server will check to see if a player has any time penalties and act accordingly. If there are such penalties, the player will be unable to join and he will get this message:

After his time penalties are cleared, the player will be able to join again.

1.10. Respawn time (stationary units only)

This screen enables you to control how soon **static** objects will respawn. This is default IL2 stuff that you had to put in .mis file by yourself and was not saved if you altered your mission afterwards. It relates only to stationary objects such as stationary ships.

1.11. Show map spawn places

Please see chapter Spawn place indicators.

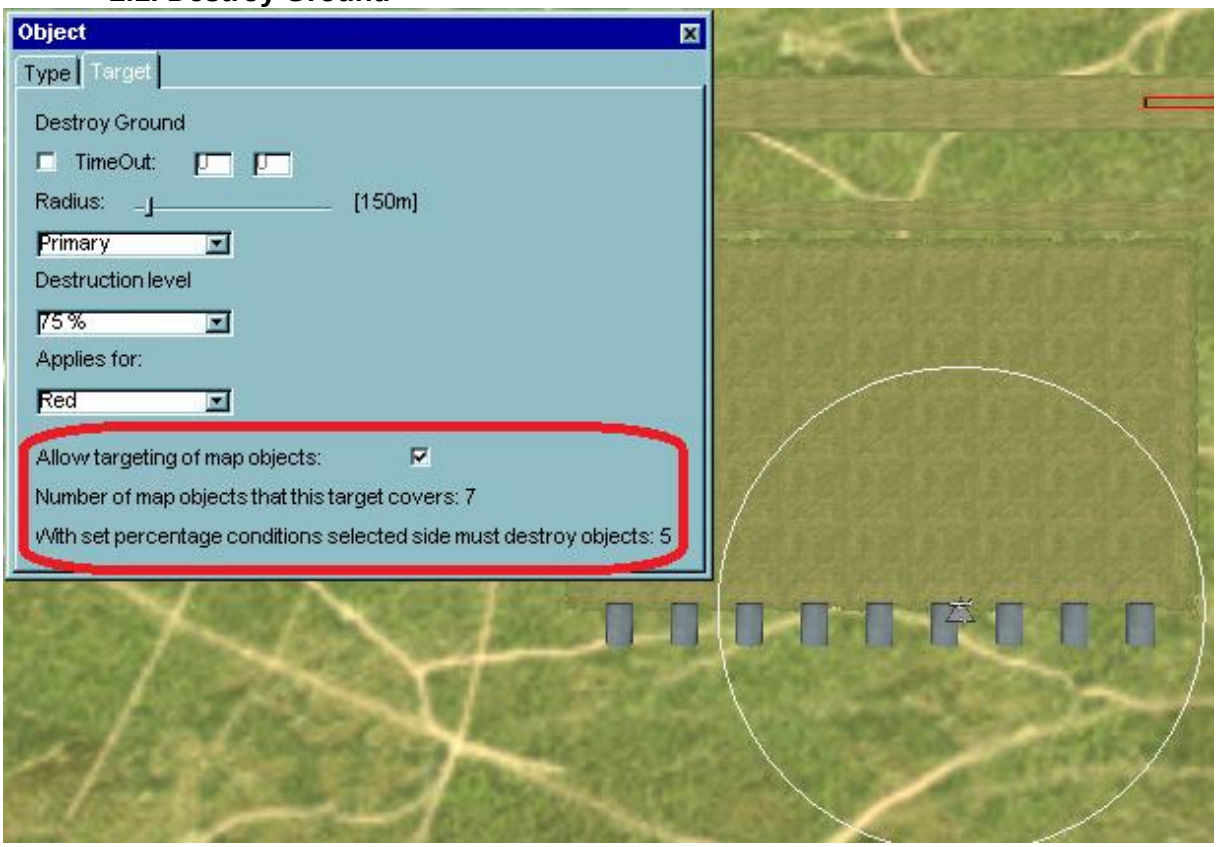
1.12. Show airdromes infrastructure

Please see chapter Airdrome infrastructure.

2. Targets

Two target objects have a new function.

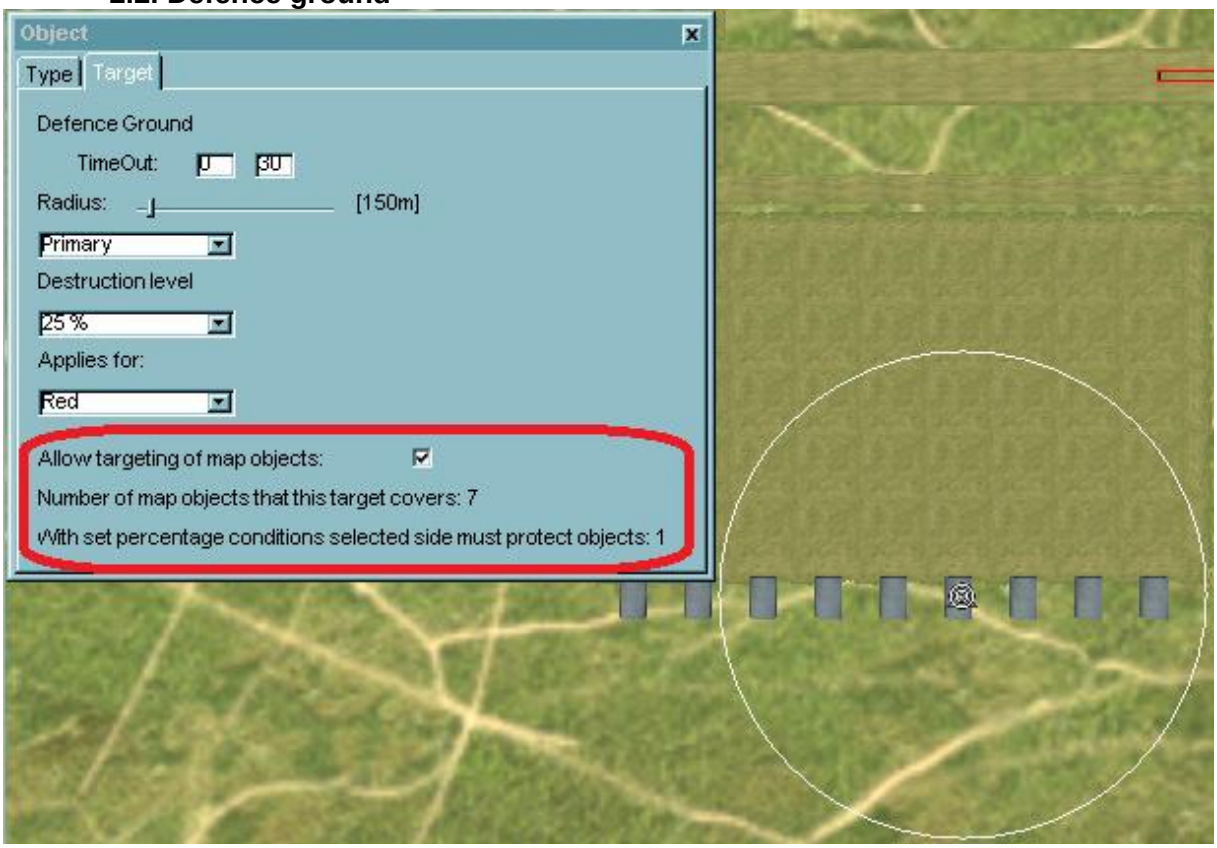
2.1. Destroy Ground



Destroy ground has the ability to cover those buildings/objects that were placed on your map by the map maker. This means that if you place this target object on an airport, you can now tell it to cover the map placed objects and you are done with it. If you bomb this airport and destroy enough objects, the target is completed. You can also see a text telling you how many objects the target actually covers and how many of them you have to destroy based on the selected destruction level.

Important
There are some differences between FMB counting and actual in-game counting. It can happen that the in-game counter shows ***less*** objects than you see in FMB. Why that happens I do not know and was not able to fix, but the number is always the same or smaller than in FMB, so you can always complete your target objective. You can check to see how many objects the target covers by pressing the **shift-tab** keys when in the game, and you will see all the relevant data there.

2.2. Defence ground



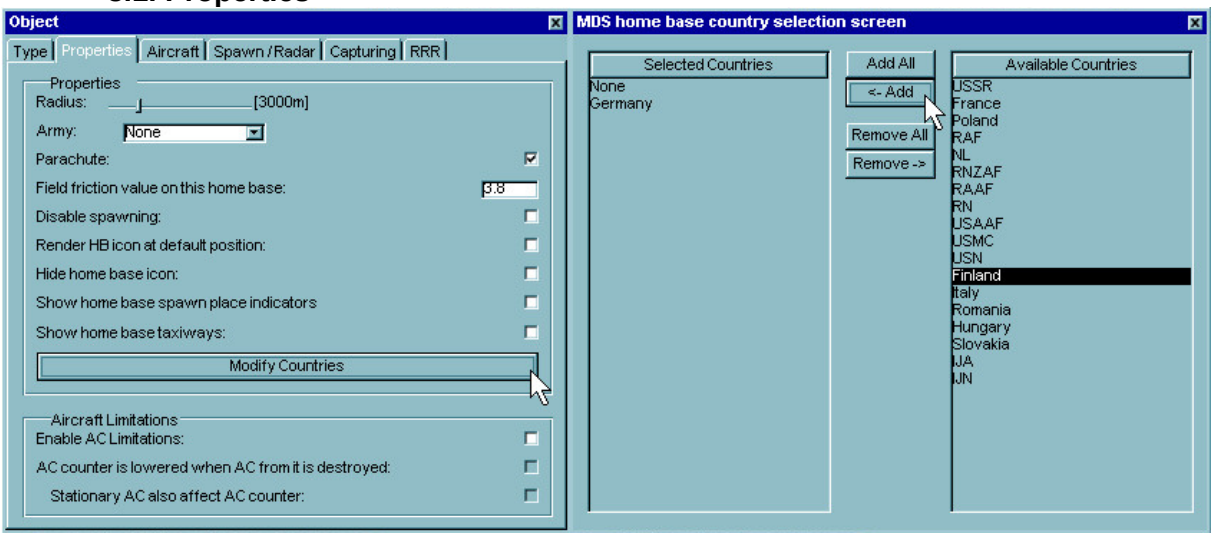
Defence ground has the ability to cover those buildings/objects that were placed on your map by the map maker. This means that if you place this target object on an airport, you can now tell it to cover the map placed objects and you are done with it. If an enemy bombs this airport and destroys enough objects, the target objective fails and you lose. You can also see a text telling you how many objects the target actually covers and how many of them you have to protect based on the selected destruction level.

Important
There are some differences between FMB counting and actual in-game counting. It can happen that the in-game counter shows ***less*** objects than you see in FMB. Why that happens I do not know and was not able to fix, but the number is always the same or smaller than in FMB, so you can always complete your target objective. You can check to see how many objects the target covers by pressing the **shift-tab** keys when in the game and you will see all the relevant data there.

3. Home base

This section will cover new features for home base objects that you place on your map in FMB. I've also enhanced basic properties settings with additional text.

3.1. Properties



The properties tab has been separated into two sections.

Properties:
The default options from the original IL2 have been updated a bit (*Radius* will now show you actual r).

- *Field friction value on this home base*: as already mentioned, R/R/R functionality is linked to predefined friction areas and this option enables you to convert selected home base circled areas to a friction area with a specified *Friction* value that needs to be **different from defaults 3.8.**
- *Disable spawning on this home base*: this option can come in handy if you want to set a number of pit-stop bases on your map where pilots can land, do R/R/R and continue on their mission.
- *Render HB icon at default position*: this option allows you to "hide" the position of those home bases that are placed on the carriers. If you don't want players to see where some home bases are (surprise attacks), enable this option.
- *Hide home base icon*: the home base icon is not rendered on the pad screen.
- *Show home base spawn place indicators*: please see chapter Spawn place indicators.
- *Show home base taxiways*: please see chapter Airdrome infrastructure.
- *Modify Countries*: pressing this button will open a new window (the one that you see on the right side). There you can specify which country marking will be available to connecting pilots. This prevents marking cheats and stops axis pilots from flying with allied markings or vice versa. Specified countries are then reflected in the *Arming* screen.

Aircraft Limitations

- *Enable AC Limitations*: enabling this option will enable the *Modify* button in the *Aircraft* tab of a home base object, where the rest is done.
- The *AC counter is lowered when AC from it is destroyed*: when enabling this option, you instruct the game that a value that is set when modifying different planes, the available planes are in the *Aircraft* tab. When an aircraft gets destroyed, the home base counter for it gets reduced. So, if you are reckless, you can quickly be without popular plane types. But if this option is not selected, the aircraft counter acts as the max number of specific planes in use at the same time.
- *Stationary AC also affects the AC counter*: with this option enabled the aircraft counter is also affected by stationary aircraft parked on a home base area.

For instance: you set your lovely La-7 plane number to 10.

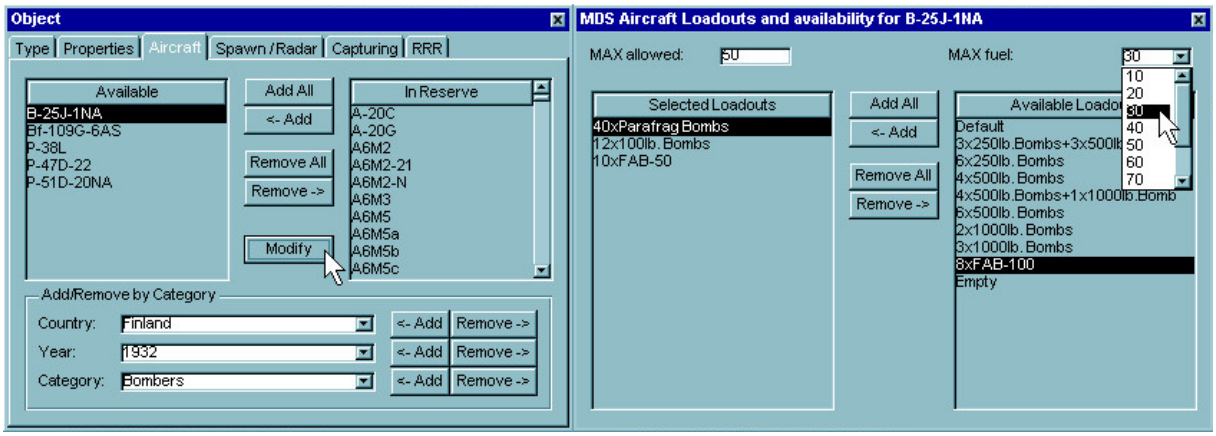
1) *The AC counter is lowered when the AC from it is destroyed option* ***is enabled***

When any pilot of this home base selects an La-7 and destroys it, this aircraft number will decrease. So, if you wreck this plane 6 times, your base will only have 4 La-7's left. Once you destroy those 4, you will be unable to fly an La-7 from this base and will have to select a new plane.

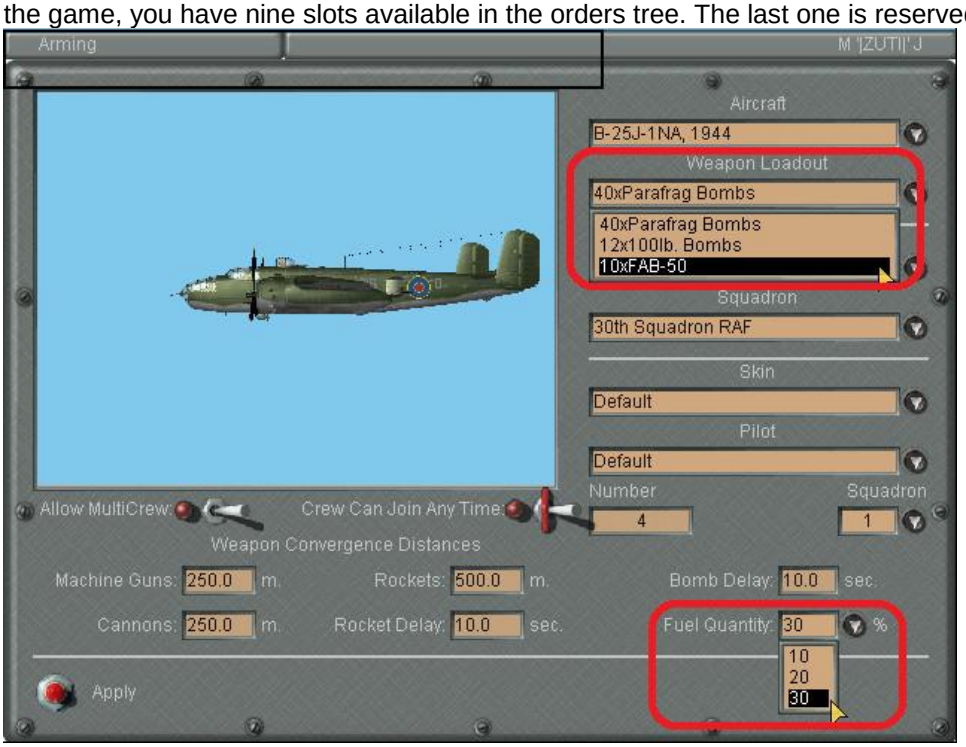
2) *Home base loses planes as they get destroyed option* ***is disabled***

In this case, if 6 pilots for this home base select an La-7, you will still have 4 free planes. If another 4 join and select La-7's, no more La-7 aircraft will be available, so the next player that joins the game will have to select a different plane. But as soon as one of the players that are using La-7's leaves the game, crashes the plane or takes a different aircraft, one La-7 is released and is available for a new player.

3.2. Aircraft



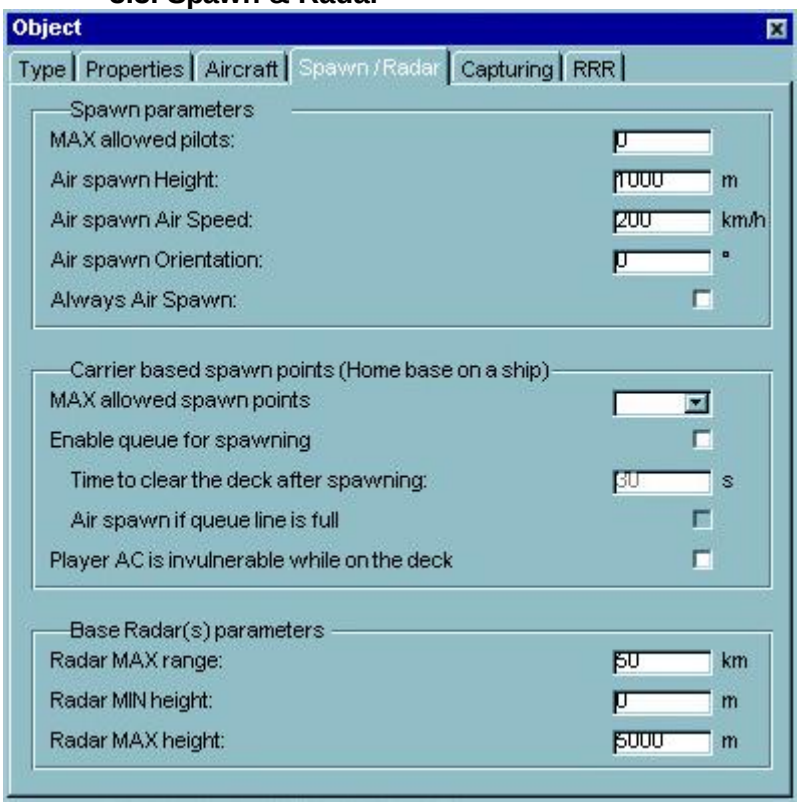
This screen is a typical IL2 screen with the addition of a *Modify* button. And this is where the fun begins. By selecting a plane in the left list and pressing the *Modify* button a window on the right will open for you. Here you can specify the number of aircraft of a selected type and its load-outs. Load-outs entered here are reflected on the *Arming* screen when you join an online game and try to change your plane setup. **The selection of loadouts is limited to 9 selections**. The reason is that once in the game, you have nine slots available in the orders tree. The last one is reserved for back action.



As you can see in the picture above, you have three different weapon loadouts, as specified in FMB and also you can only choose from three different fuel percentage options: 10%, 20% or 30%.

You can also see the result of these settings on page 7 in the Rearm/Refuel/Repair chapter.

3.3. Spawn & Radar

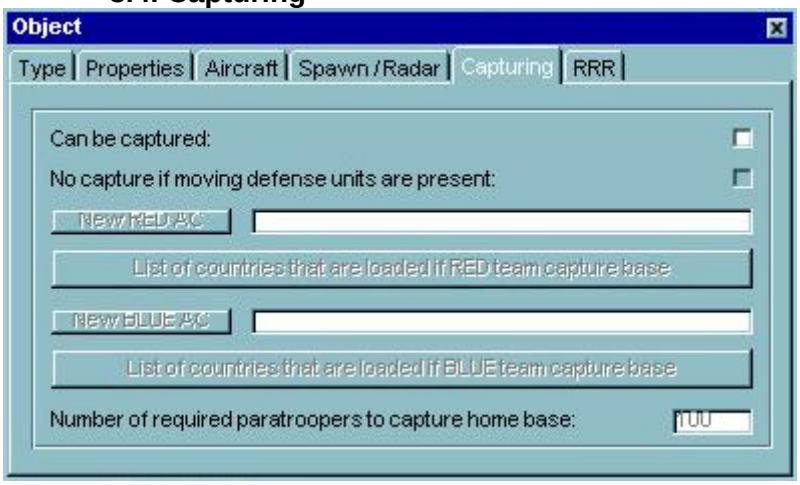


Here mission makers can set the altitude, speed, orientation, max players and AirSpawning for each home base object placed on the map. This screen also allows users to set range parameters for all radar objects that are placed inside a selected home base object. And, if a home base is placed on top of a moving aircraft carrier, the mission maker can limit the spawn places on it. Different carrier types have different numbers of spawn places. **Supported carriers** are: *Lexington, Saratoga, USS Generic, Casablanca, Kitkun Bay, Shamrock Bay, Essex, Intrepid, Illustrious, Akagi, Shokaku, Zuikaku, IJN Generic, ship pack 2 (Graf Zeppelin, Ameer, BelleauWood, Princeton, SanJacinto), Chaps CVs (Formidable, Indomitable, Hiryu, Kaga, Soryu, IJNCVLGeneric)*.

Also, carrier section has the ability to enable spawning queue. What that means is that players can spawn on the deck only behind each other. This can prevent spawn incidents when a player spawns in front of another player that is rolling down the deck. With this option enabled you can also specify the time that a player has on the deck. When this time elapses the player is removed. Not from the game but from the carrier deck. Default is 30s. And the last option here is air spawning in case queue is full. That means that if no spawn places can be assigned to new player on a carrier player is air spawned. But this is true only if this option is enabled. If not, player will receive a message box window that informs him about the problem. *Player AC is invulnerable while on the deck* option enables you to make players invulnerable for the time they spent on the deck. This option is an alternative to deck queue. It will make players run over other players and won't die/explode. It only applies to carrier deck operations.

Note: if ***MAX allowed pilots*** is set to ***0*** the number of allowed pilots is ***limited by the actual home base spawn points***! If you want to spawn more pilots on aircraft carrier than it can have, set this number to something greater than zero and also greater than *MAX allowed spawn points*.

3.4. Capturing



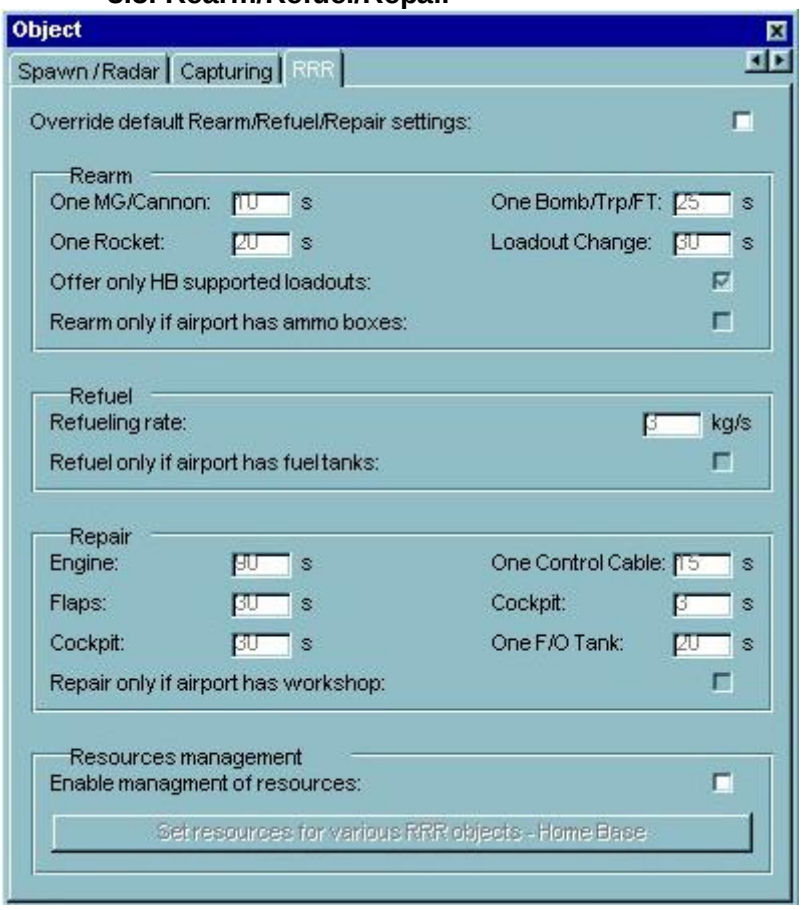
This screen gives you the option to enable or disable capturing of a selected home base and populate it with specified planes. The options are:

- *Can be captured*: applies only to a selected home base,
- *No capture if moving defense units are present*: with this option enabled, home base will only get captured if front line moves over the center of the home base and defender does not have his units inside it,
- *New RED planes*: if you click this button you will see a new window where you can select planes that will be loaded to a home base after it is captured by the RED army,
- *List of countries that are loaded if RED team capture base:* specifies which countries are loaded when RED capture this base,
- *New BLUE planes*: same as for RED but it applies when BLUE capture a home base.
- *List of countries that are loaded if BLUE team capture base*: specifies which countries are loaded if BLUE capture this base.
- *Number of required paratroopers to capture home base*: this option is used to set how many paratroopers need to be dropped inside a home base radius in order to capture it. A *valid* paratrooper landing is when a paratrooper jumps, lands, runs and then finally dives onto the ground. This is as close as it is possible to simulate a successful landing. Once enough paratroopers are inside a home base, this is what happens: all unset (unset = not attached to an actor) front markers inside the current home base army are removed and one new front marker is placed in the center of the home base with the paratrooper army color. Also, aircraft that are of type glider add their own number of paratroopers inside home base if they land successfully.

Glider aircraft and their paratroopers count:

- G-11: 11 paratroopers
- Me-321: 130 paratroopers

3.5. Rearm/Refuel/Repair

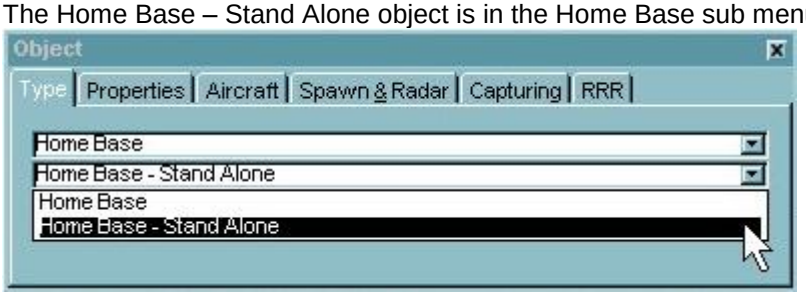


R/R/R options in the home base properties screen let's you override default Rearm/Refuel/Repair settings that are otherwise valid for ***all friction areas***. If this option is enabled, the entered values are true only for a given home base. You enable this by checking the *Override default Rearm/Refuel/Repair settings* box. The same goes for *Resources management*. If you specify the options for a selected home base, its resources are valid only for that home base and are ***not*** in any way tied/linked with resources for the home base side. If a home base side has resources but the home base does not, it will not be able to serve pilots that land on it. Someone will have to transfer the resources back and make it serviceable once again.

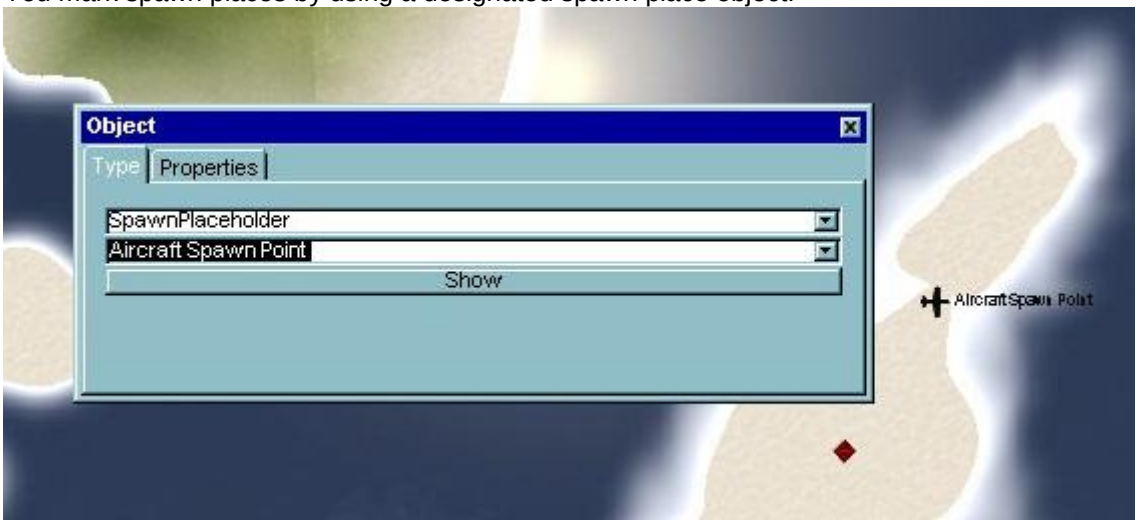
4. Home Base – Stand Alone

This is a brand new type of home base that allows mission makers even more freedom when they are creating their missions. In essence it is the same as a default Home Base and all the options and rules apply. BUT what a default home base lacks and this Stand Alone base has, is the ability to place spawn places yourself. So, you can place this home base anywhere you want, place spawn place holders at your desired positions and save your mission. When your mission is loaded players that select this home base will spawn on the specified spawn places.

The Home Base – Stand Alone object is in the Home Base sub menu in your FMB:



You mark spawn places by using a designated spawn place object:



You have to use this object to mark spawn places or it will not work. Orientation of this object is also saved and when players spawn they will be oriented as such.

CAUTION
This home base type DELETES ALL MAP SPECIFIC SPAWN PLACES inside its radius. All of them. So make sure that you have set some spawn place holders inside its radius or players will receive a message saying that they have to *wait for home base confirmation*! And, DO NOT use this type of home base on carriers!

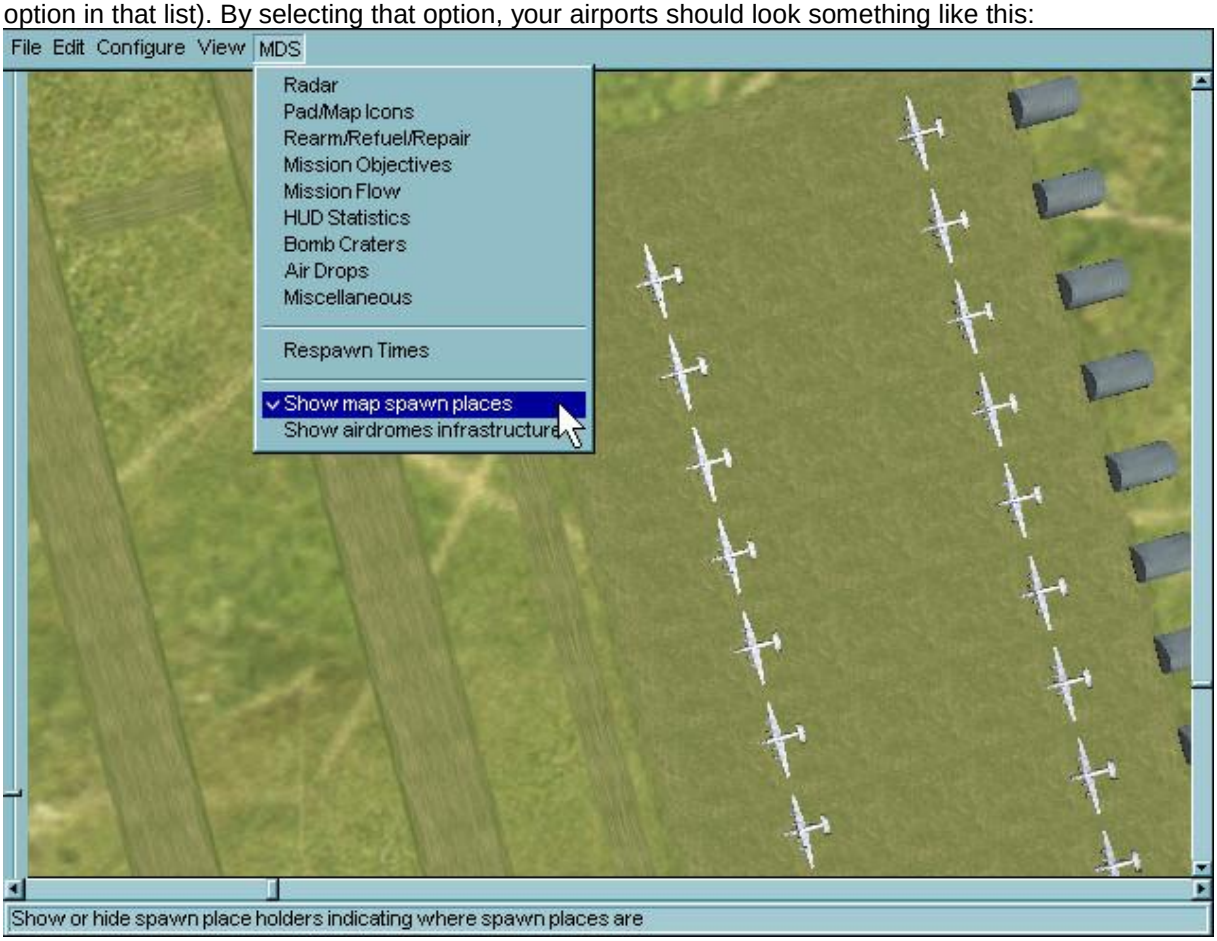
5. Spawn place indicators

This function might come in handy for mission makers. Since the beginning mission makers needed to pay special attention to placing objects on airfield area because they were unaware of the spawn positions where players spawn on online maps. With spawn place indicators mission makers are now aware of those places. If enabled, spawn place indicator is pointing in the direction that player will be looking when spawned.

You have two options to toggle this option.

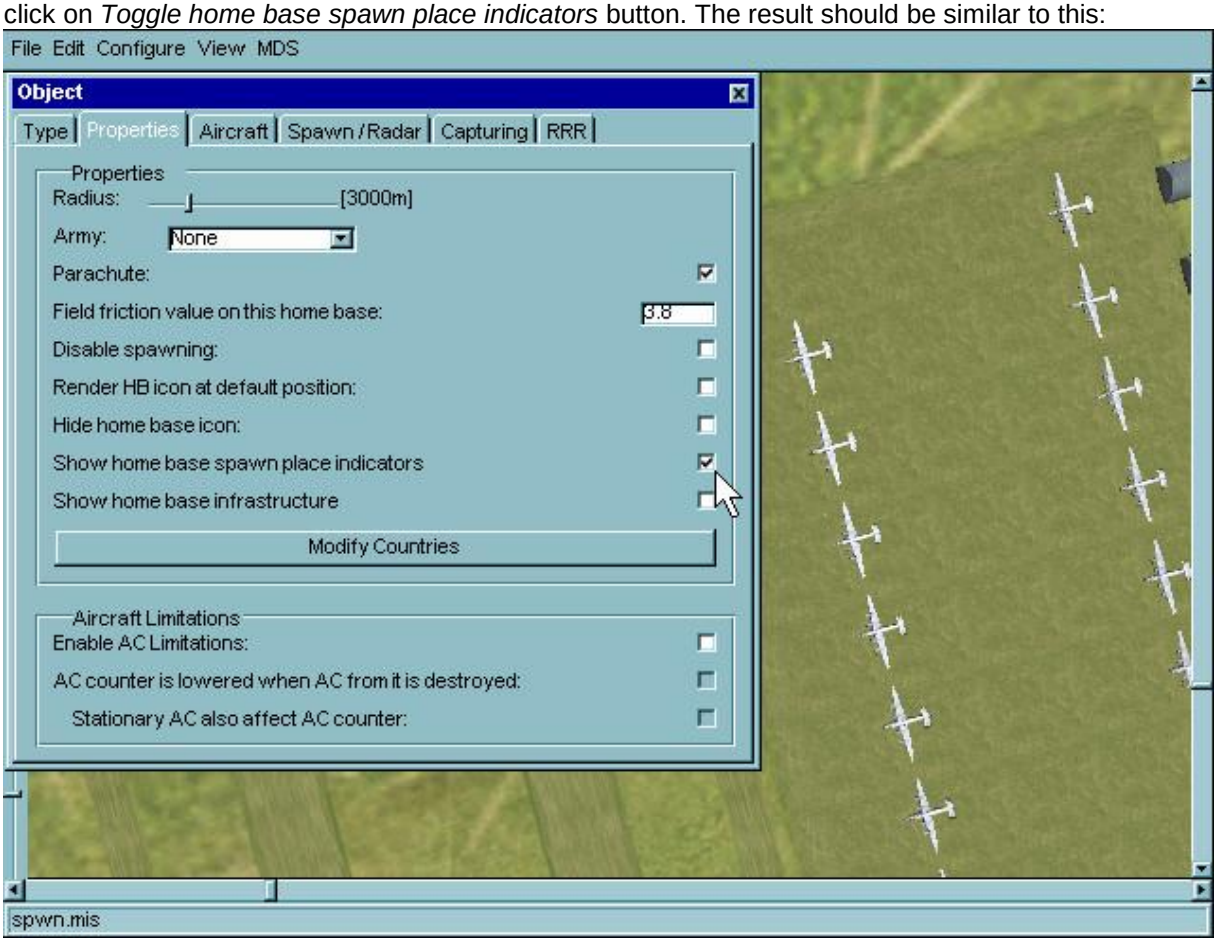
5.1. Show map spawn places

This option is available through default MDS FMB menu and will toggle spawn places on the entire map. Might not be the best option if your map is a big one (Slovenia map for example, where there are a lot of spawn places). For more info about MDS options, check chapter MDS through FMB (last option in that list). By selecting that option, your airports should look something like this:



5.2. Home base spawn place indicators toggle

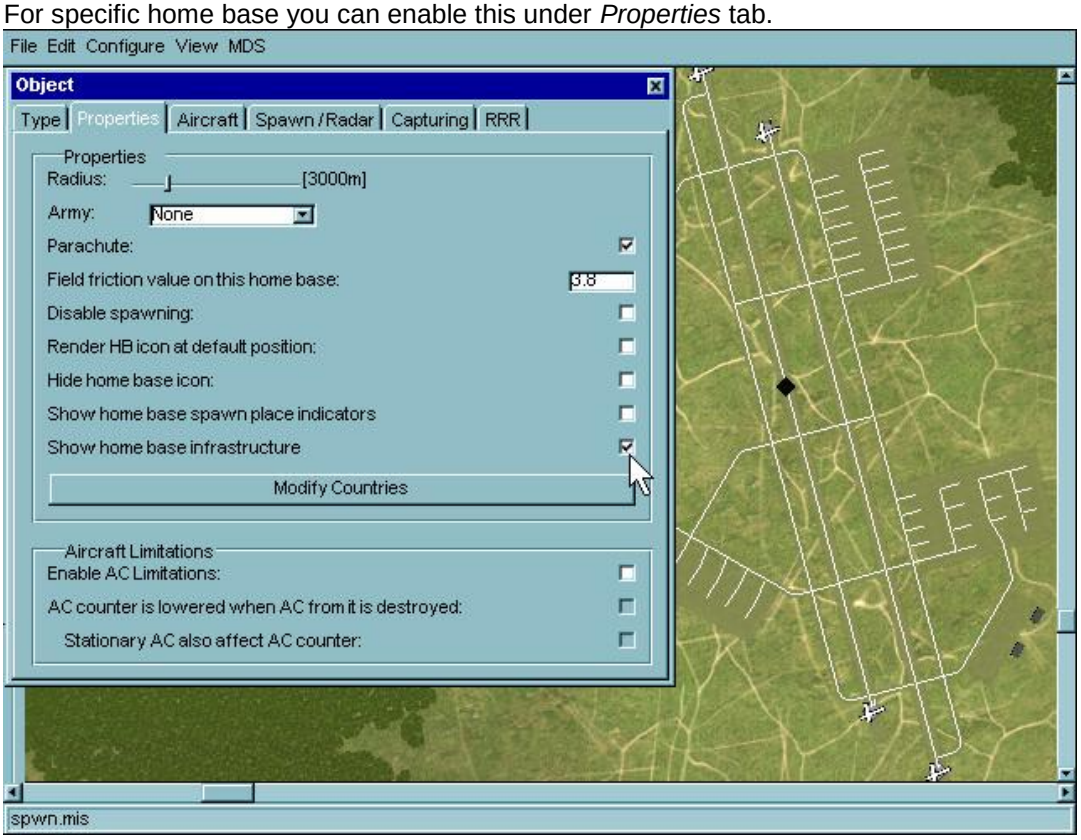
This option might be more appropriate for larger maps as it will show/hide spawn place indicators for selected home base only. To enable that you have to select your home base, go to *properties* tab and click on *Toggle home base spawn place indicators* button. The result should be similar to this:



6. Airdrome infrastructure

This function is similar to Spawn place indicators functions. You also have this function available for selected home base or for global map, whatever you want. But unlike spawn place indicators, this function will draw all infrastructure objects placed on the airdrome by map maker, including all taxi ways.

For specific home base you can enable this under *Properties* tab.

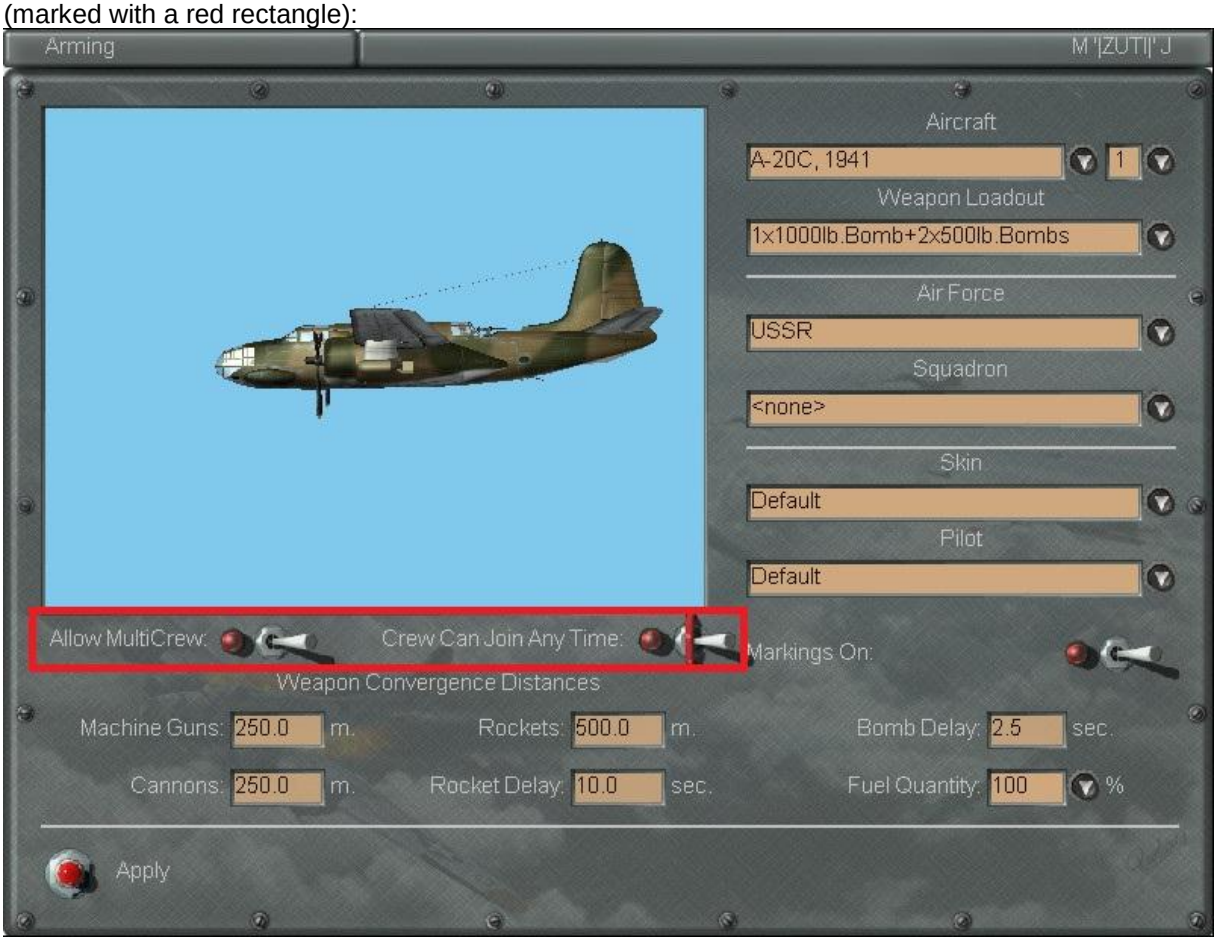


7. Multi Crew

If you have ever played a coop style game in IL2 then you should be familiar with this. You joined a game, selected your aircraft, selected a position on the aircraft that you wanted (pilot or gunner) and waited until the host started it(pressed Fly). Now this feature is available for dogfight missions. It is one of the last pieces that coops had and dogfight players lacked. But this has one important advantage – you can join at any time and be a gunner, bombardier or a pilot. There are some limitations and restrictions, to prevent abuses. Players that are pilots can choose if they want to enable their aircraft to host live crew or not and they can also choose when crew can join them. Either when they are still on the ground (in this case, the plane must not be moving and must have its engines off and chocks set) or at any time (=when flying). The pilot also has the ability to *eject* his crew in case they are fooling around, shooting at friendly or, god forbid, at their own aircraft. You have to be careful as scores are shared across the whole crew.

Note
When you try to change cockpit's things are done differently now because the game has to ensure that only one player is in a specific cockpit. So, if you try to change your cockpit via *next cockpit* or *jump to cockpit* key sequences, the result will be ***next free cockpit***. This means that you might not find yourself in a cockpit that you thought you'd be in.

Let's see how this looks in the game for a **pilot**. Once you are in the briefing screen, select a home base and click the *arming* button, as usual. The arming screen will pop up with some differences (marked with a red rectangle):

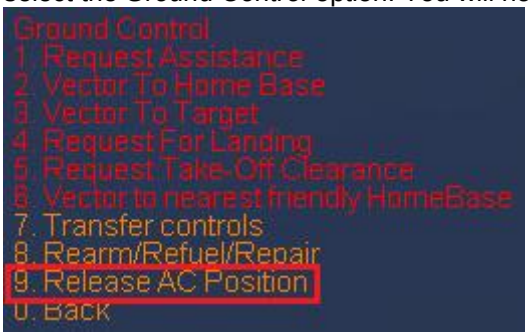


As you can see, there are two new switch buttons. They perform the following functions:

- *Allow multi crew*: enabling this one will allow other player to join your aircraft.
- *Crew can join any time*: this option is only available if the first one is enabled. It will allow other players to join your aircraft as crew at any time during your flight.

Once you're done just click the *Apply* button followed by the *Fly* button on the briefing screen.

In case your crew is not what you expected you can kick them. To do that, press your *TAB* key and select the *Ground Control* option. You will notice a new option there:



If you select this option, a new screen will be displayed with a list of your crew members.

The numbers near them are their aircraft positions, so you can decide to kick them by their place or by their name. The end result will be the same in either case – they will be bailed from their position and put on the briefing screen.

Let's take a look how to join a game and be a **crew member**. Crew members can choose between live controlled or AI controlled aircraft. To join an AI aircraft, mission makers must follow some rules that are mentioned here: Misc - Enable joining of AI planes when they are airborne. After you join a game you are faced with a briefing screen. There you will notice one new option:

Yes, the *Crew* button. If you click it, you will be presented with a list of aircraft that accept live crew members.

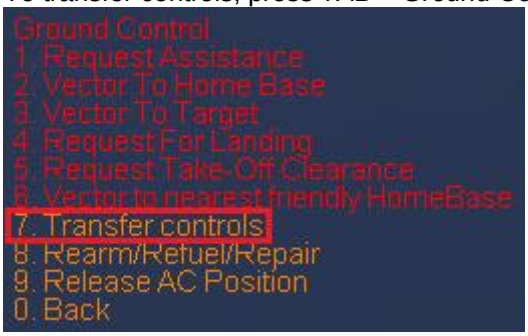
IMPORTANT
If you have some of your controls set to your joystick buttons (like bomb release), make sure you know their keyboard alternatives, for crew members the joystick is DISABLED!

Pick your aircraft and position then click the *Fly* button. You'll spawn in the selected crew position. Additionally, if you are fed up with being a crew member, you can always bail out. This is another thing that coops do not allow. Simply execute your bail key sequence and you'll be floating in a parachute, avoiding bullets that are flying around you.

7.1. Transfer controls - Instructor

The multi crew feature brings another option to your table. You can decide to transfer all the pilot controls to one of your crew members. This means that you can now have a real-time instructor teaching you how to fly your aircraft. Or fly your plane in case you must "leave". However, you must not leave the plane or the game, as in that case all the crew members are ejected from it.

To transfer controls, press *TAB – Ground Control*. You'll notice a new option under number 7:



A new window will appear, similar to that for releasing AC positions (kicking crew members) showing you your crew. You can then decide to which one you want to transfer your controls by simply pressing the number that is to the left of his name:

Once you do that you will see that your controls are ignored until you re-take them by selecting option 9 on *Transfer controls* screen. Due to limitations there can only be ONE person controlling a plane at any given moment. If there were more than one, their control inputs would interfere. It will not happen if they are flying with a keyboard but honestly, who flies IL2 with a keyboard?

IMPORTANT

This feature is demanding on the network traffic so use it accordingly. For that reason it is linked to a dedicated variable (*Enable control transfer*) under Misc tab of the MDS FMB section.

8. Other features/notes

Remaining functions of MDS.

8.1. Static Unit's Conversion

With the original IL2, all the units inside a home base circle are converted to the army of that home base. This produced issues with moving objects that were set to attack a home base. Because they were converted to that home base army… they were not attacking. MDS alters this behavior in such a way that all the static units inside a home base circle are subjected to conversion but all the moving units are ignored.

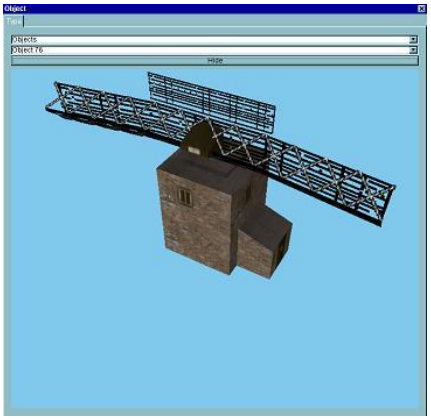
8.2. Artillery, Tanks and Ships as Front Marker Carriers

Tanks are self explanatory. You have a dedicated *Tank* section in the FMB objects list and all of those tanks can carry a front marker. With artillery, things are different. **MDS DOES NOT** support objects listed under the *Artillery* category as those are static objects. You have to select an appropriate object under the *Vehicles* category. Such vehicles are: *ZIS-5 AA, GAZ 4x7.62mm AA, M16, Opel Blitz Maultiler AA…* Once one of these marker carriers is destroyed, MDS will first search for the same type of object. If none can be found, it will search for another type. If none of those can be found, the marker is removed. So, if a tank is carrying a front marker and it gets destroyed, MDS will first search for new free tank objects. If none of those are available, it will search for free artillery objects and if that search produces no results, the marker gets removed. The same story applies to ships. Only ships of type BigShip are capable of carrying a front marker. You can find some additional info in the chapter Moving Front Lines.

8.3. Controlling MDS

MDS can work with one of two server commanders: FBDj and/or MDS Monitor.

8.4. Moving Targets



The target descriptions change depending on the player army. So for one it will read defend and for another it will read destroy. Targets can also move on the map. In order for icons to really move around, each side has to have at least one LIVE radar object inside one (or more) of its home bases. As soon as the radar has gone (either destroyed or the home base was captured by an opposing army) target icons go to their default position and stop moving. The radar object that I'm talking about is under the *Objects* list in FMB (object 76). It can be any other object, as long as its name has ***Radar*** string in its name (**watch for caps, they matter**!).

More about settings for MDS radar functions can be found in the *Radar* and *Icons* tabs in the MDS menu in FMB (chapters Radar and Pad/Map Icons).

8.5. Moving Front Lines

Moving front lines can be set up by placing a front marker object in FMB on top of a tank, artillery or ship that is of the type BigShip. You can check which ship is classified as *Bigship* in the chapter Ships classification. Front markers in FMB will lock on to such objects but there are limitations. FMB does not distinguish between BigShips or ordinary ships or between vehicles and artillery (both are in the same FMB submenu – Vehicles). So, even if a front marker in FMB locks onto an object it does not mean that the object will actually move it. If an object is destroyed, the code will search for the nearest friendly unit, capable of carrying a flag (if tank/artillery is destroyed, tanks/artillery are searched, if BigShip then ships are searched). If no units that would meet the required criteria are found, the front marker is removed and front lines move accordingly. The radius for locking/searching tanks/artillery objects is 100m, for ships it is 120m.

Note: moving front lines apply for ***non-static*** units i.e. for units that move!

8.6. Home Base Capturing

Once a front line moves over a home base that is owned by an opposing army, it is converted to the advancing army. All the objects in that home base radius are converted to the new army. Once that home base is captured, new planes are loaded into its list. If you don't specify which planes to load the default planes are loaded (for the red side a Hurricane MkIIb, for the blue side a Bf109-E4). You can see an example of this in a mission if you run the *MDS_Capturing_RedBlue.mis* mission that comes with MDS as a template mission.

Another way to capture a home base is by moving your flag carrier inside a home base circle. This, however, is only true for ***non red/blue*** home bases! Also, these home bases need to have front markers stationed inside their circles too because once you get your marker in the home base its markers are removed and the front is refreshed. You can see an example of this in a mission if you run the *MDS_Capturing_RedBlueGreen.mis* mission that comes with MDS as a template mission.

The third way is capturing with paratroopers. If enough paratroopers land inside a home base circle, they will capture it. Settings for this are explained in the chapter Capturing.

This feature might seem complex, so I implore to you once more, look at the sample missions that come with MDS and I assure you, you will get it in no time.

8.7. Recon Target Icon

When a player joins the game, he receives a recon targets status update. The problem is that originally, recon targets were not refreshed because they do not require to be attached to any objects. MDS syncs them and it also assigns 250 points to the first player that completes the recon. This could be useful in air races, for instance.

8.8. Tower Communication

MDS enables tower communication for live players on DF servers. Beside R/R/R and unloading options there is one other thing that perhaps needs special mentioning. That is ***Request for Target vector***. It is hidden under the *Vectoring* submenu. It will show you the vector to your **DESTROY** target objectives. It ignores DEFENCE targets for players.

8.9. Version Checking

If your MDS installation version is not the same as the server MDS version you will not be able to connect to it. This also applies if the server has no MDS installed and you do, or vice versa.

8.10. Arming screen

With the addition of reflecting FMB plane limitations and country limitations for a selected home base, the fuel selection list was reworked and is now showing 10% incremental options. Before that it had 25% incremental options.

8.11. Updated Join Server screens

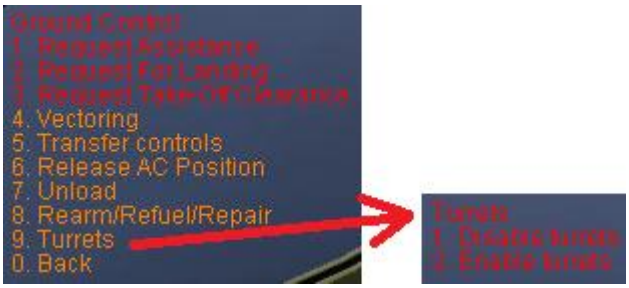
MDS also updates the screens that enable users to enter server addresses and connect to them. In addition to remembering old server addresses MDS also has the ability to delete selected addresses from the list and therefore make the list more transparent.

8.12. Bomb damage after a player releases them and then dies

This was an old IL2 “issue”. If you dropped your bombs and then died, those bombs had no effect when they detonated. This issue is now resolved and bombs will have an effect no matter what the droppers state is. But you won’t be getting points, naturally. You are dead.

8.13. Toggle aircraft turrets

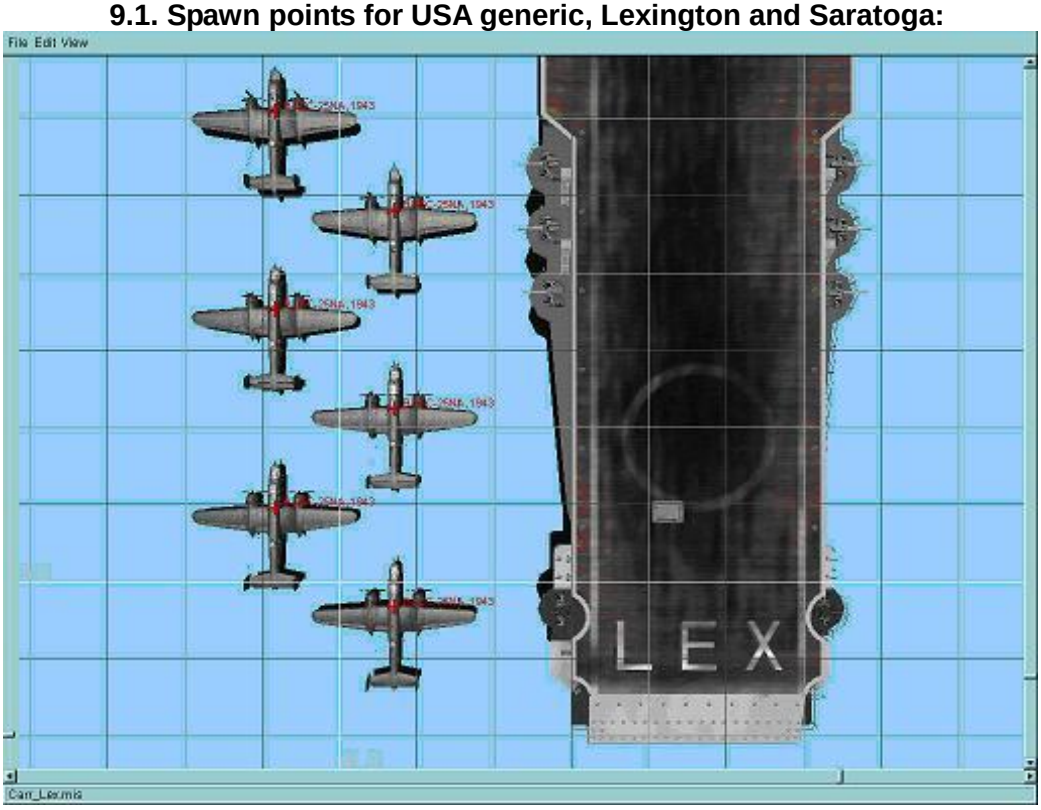
Since AI can use all ammo for gunners, you can now disable AI in turrets. By doing this the AI will NOT fire on any enemy units. You will have to do it yourself or live gunners on your aircraft will have to it for you. But if you move to a gunner position AI will be re-enabled and you’ll have to disable them again. To access this commands, press TAB and then do as it is shown on the picture below.



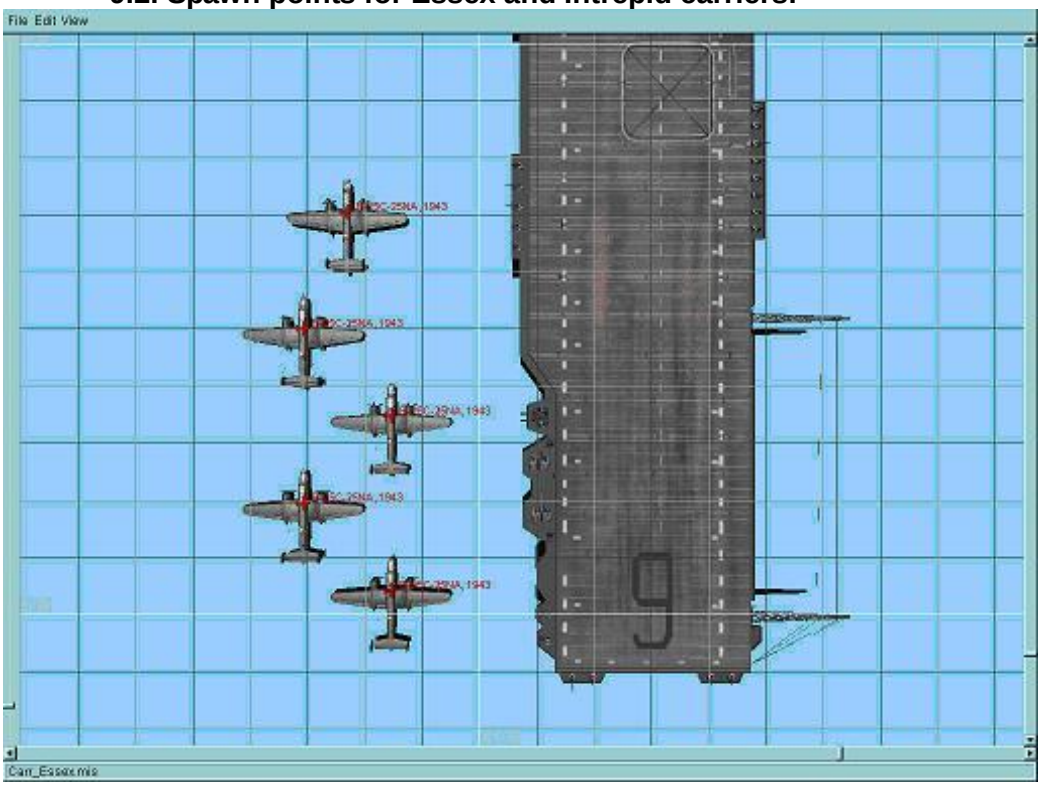
9. Carrier Spawn Points

The default number of spawn places and their placements for each aircraft carrier type can be seen in the following pictures:

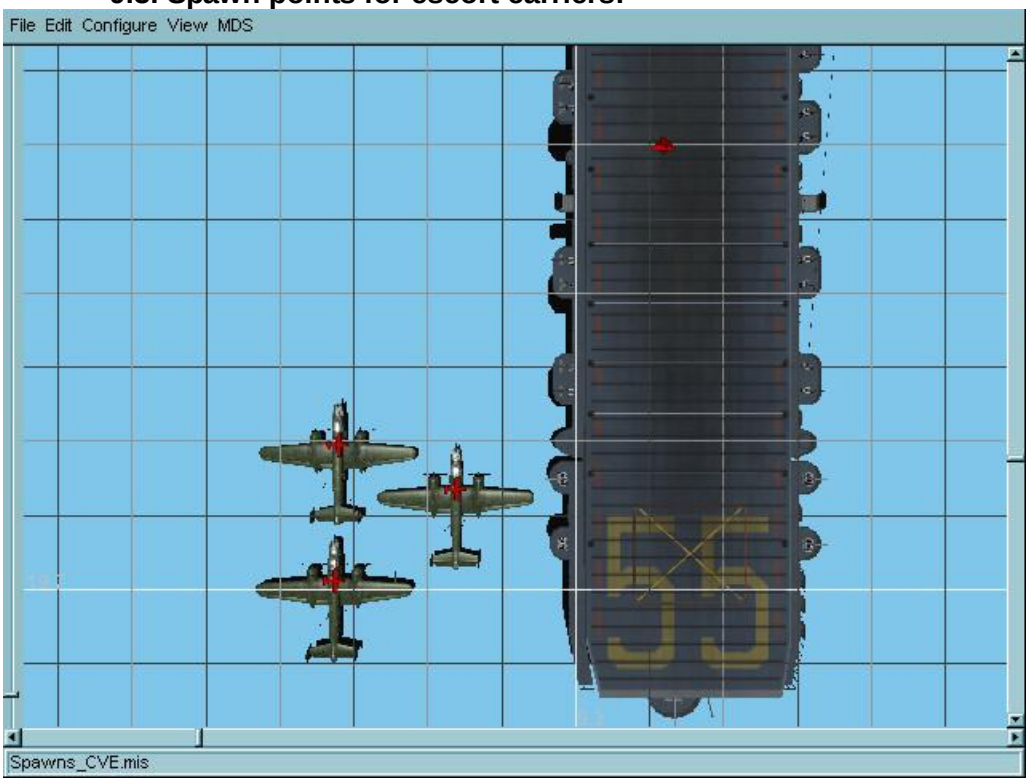
9.1. Spawn points for USA generic, Lexington and Saratoga:



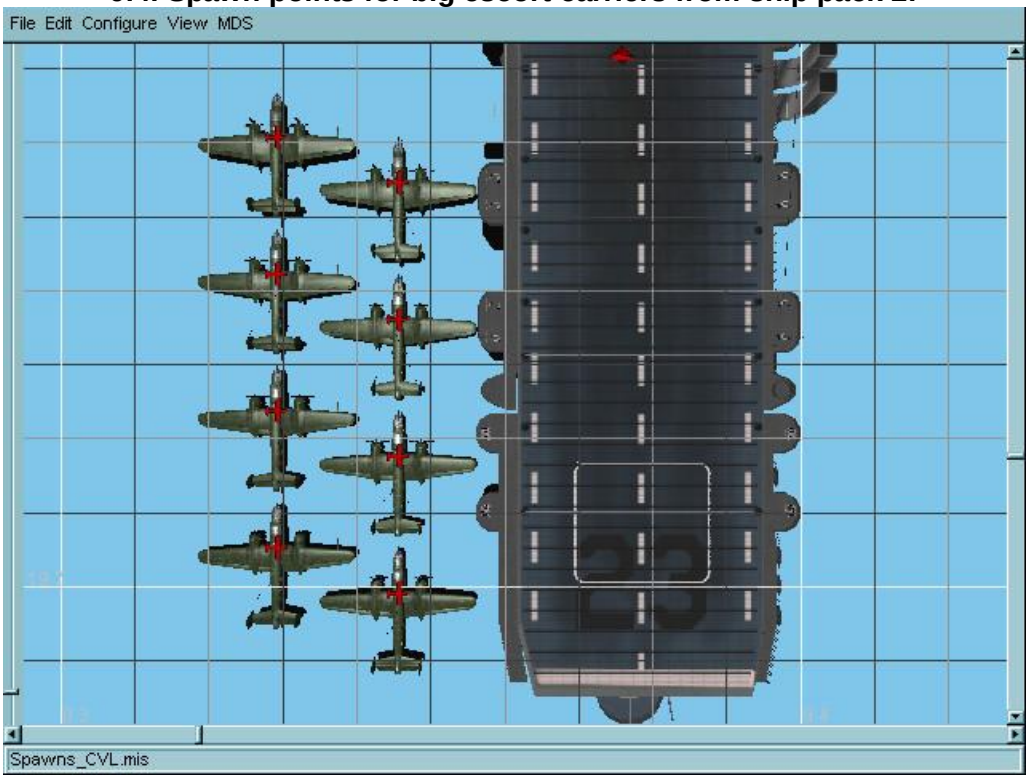
9.2. Spawn points for Essex and Intrepid carriers:



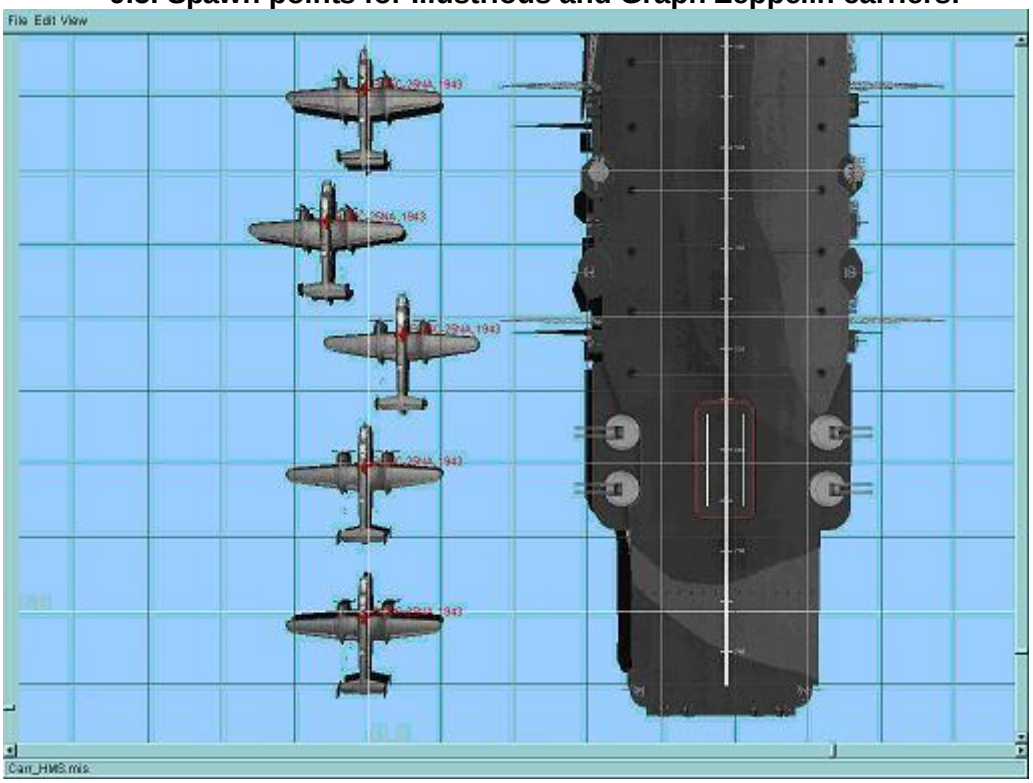
9.3. Spawn points for escort carriers:



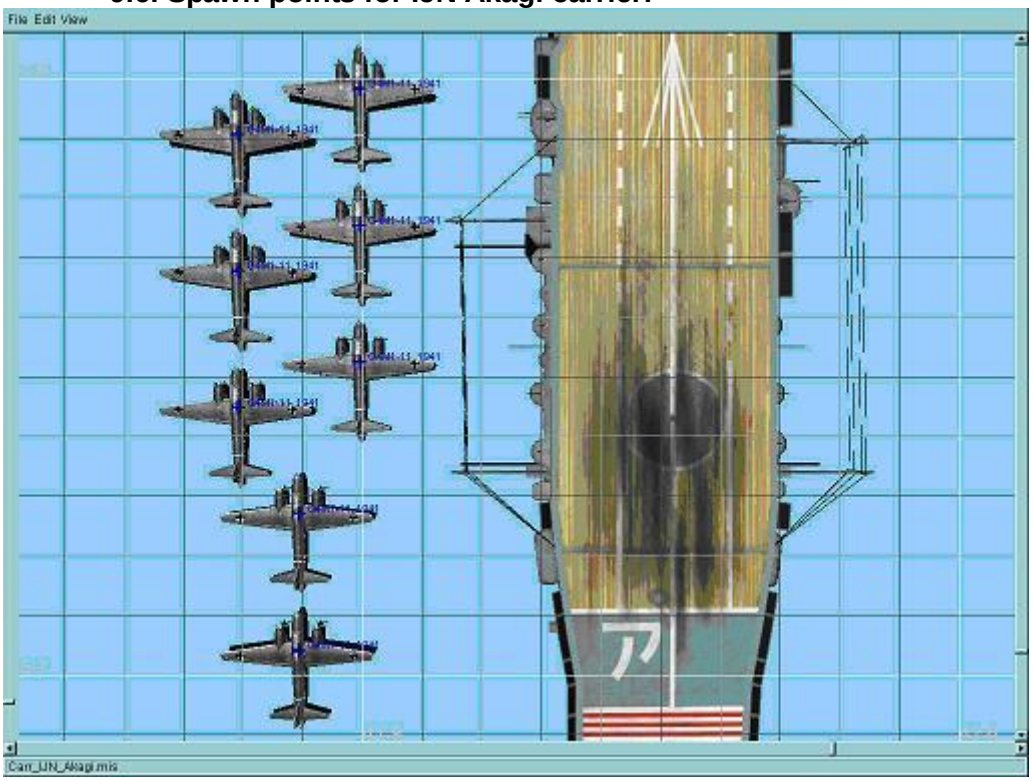
9.4. Spawn points for big escort carriers from ship pack 2:



9.5. Spawn points for Illustrious and Graph Zeppelin carriers:



9.6. Spawn points for IJN Akagi carrier:



9.7. Spawn points for remaining IJN carriers:

10. Included Mods

10.1. Fireballs Carrier Take-Off Mod

Fireballs CTO mod enables catapults on carriers. You have to set dedicated variables in your mission file. The version that is included in MDS is **v5.3.3**.

10.2. Pablos Minimap Mod

Currently MDS contains Pablos minimap mod **v2.3**. You can see more information about it here: http://www.sas1946.com/main/index.php/topic,8327.0.html

A few things that were changed or modified are:

- Added option to revert zoom axis (scroll wheel direction) when zooming,
- Added support for default IL2 zooming mode (mouse right click, if you select this one and want to again enable Pablos mouse wheel zoom option, press the left and right mouse buttons on your minimap simultaneously.
- Radar modes (radial and frontal) are only available if advanced MDS features are disabled i.e. you have enabled map icons. If that difficulty setting is disabled those radar modes are also disabled as it would neglect, to a degree, MDS radar implementation.

10.3. Gerds Rudder Toe Brake and Multi Throttle Mod

Separate throttle control for each engine and separate brake controls. You can find the original mod here: http://www.sas1946.com/main/index.php/topic,8282.0.html

11. Ships classification

Lists contain ships from IL2 4.09 and Ship pack 2.

"*Bigship*" classificated ships (in alphabetical order)

Aurora, Carrier0, Carrier1, Destroyer0, Destroyer1, Destroyer2, DestroyerDmg, DestroyerWreck, HMSDukeOfYorkBB, HMSFiji, HMSFormidableCV, HMSIllustriousCV, HMSIndomitableCV, HMSKingGeorgeVBB, HMSPoWBB, HMSTribal, HospitalShip, IJNAkagiCV, IJNAkizukiDD42, IJNAmatsukazeDD41, IJNAmatsukazeDD43, IJNAmatsukazeDD45, IJNArashiDD41, IJNBBGeneric, IJNCVGeneric, IJNCVLGeneric, IJNFishJunk, IJNFishJunkA, IJNHiryuCV, IJNKagaCV, IJNKageroDD41, IJNNowakiDD41, IJNNowakiDD43, IJNShokakuCV, IJNSoryuCV, IJNYukikazeDD41, IJNYukikazeDD43, IJNYukikazeDD45, IJNZuikakuCV, Illmarinen, Italia0, Italia1, Kirov, Littorio, Marat, Niobe, PAM, RwyCon, RwySteel, RwySteelLow, RwyTransp, Ship0, Ship1, Ship2, Ship3, Ship4, Soldati, SubTypeVIIC_Srf, Tanker, Tanker0, Tanker1, Tanker2, TankerDmg, Tashkent, Tirpitz, Tramp, TransDmg, TransWreck, Transport1, Transport2, Transport3, Transport4, Transport5, Transport6, Transport7, TroopTrans0, TroopTrans1, TroopTrans2, TroopTrans3, USSBBGeneric, USSBelleauWoodCVL24, USSCVGeneric, USSCasablancaCVE55, USSDentDD116, USSEssexCV9, USSFletcherDD445, USSGatoSS212_Srf, USSGreenlingSS213_Srf, USSIndianapolisCA35, USSIntrepidCV11, USSKiddDD661, USSKitkunBayCVE71, USSLexingtonCV2, USSMcKean, USSOBannonDD450, USSPrincetonCVL23, USSSanJacintoCVL30, USSSaratogaCV3, USSShamrockBayCVE84, USSWardDD139 and Vainamoinen.

"*Ship*" classificated ships (in alphabetical order)

BBK1124_1943, BBK_1942, Barge0, Barge1, Boat, Boat1, DLCWreck, DUKW_WAT, DaihatsuLC, DestroyerKM, DestroyerRN, Destroyer_USSR_Type7, Destroyer_USSR_Type7_44, Fisherman, Fisherman1, Fisherman2, G5, LCVP, LCVPWreck, LVT_2WAT, MAS501, MAS501JP, MAS501RN, MAS501UNE, MAS501UNP, MBoat, MFP, MFP2, MFPIT, MFPT, MO4, Murgesku, PilotBoatWater_US, PilotWater_JA, PilotWater_US, S80, Shuka, ShukaP, SmallWreck, SubTypeVIIC_Sub, Submarine, SubmarineP, Tral, USSGatoSS212_Sub and USSGreenlingSS213_Sub.

12. RRR related units

List of stationary RRR units

Fuel objects

- House$AirdromeBarrelBlock1
- House$AirdromeBarrelBlock2
- House$IndustrialFactoryTank1
- House$AirdromeTank1
- House$AirdromeFuelTank
- House$FTankS_01
- House$FTankS_02
- House$46FTankDEW
- House$46FtankRU
- House$46FtankDE
- House$46FTankCIV
- House$TrainOilTank
- House$AirdromeFuelTankW
- House$AirdromeTank1W
- House$AirdromeBarrelBlock1W
- House$AirdromeBarrelBlock2W
- House$IndustrialFactoryTank1W

Fuel related objects must have “Tank”, “tank” or “Barrel” in their name.

Ammo objects

- House$46Palette
- House$46TRBoxes
- House$46LWBoxes
- House$46JuBoxes
- House$46GRBoxes

Ammo related objects must have “Palette” or “Box” in their name.

Repair objects

- House$3Duby_Workshop
- House$3Duby_HQ

Repair related objects must have “Workshop” or “HQ” in their name.

All of these objects can be used to store any kind of resource. You set them up as described in the chapter Rearm/Refuel/Repair.

List of moving RRR units

Moving RRR related units must contain one of following string in their name:

- Tank,
- Tramp,
- Fuel,
- fuel,
- Cargo,
- Column,
- Equipment or
- Train.

And once again, caps ARE important in objects names, regardless of their type.

Sample mission with stationary RRR objects for easier recognition

```
[MAIN]
  MAP Empty1a_Winter/load.ini
  TIME 12.0
  CloudType 0
  CloudHeight 1000.0
  army 1
  playerNum 0
[NStationary]
[Buildings]
  0_bld House$AirdromeBarrelBlock1 1 18825.97 16000.00 360.00
  1_bld House$AirdromeBarrelBlock2 1 19407.79 16207.79 360.00
  2_bld House$IndustrialFactoryTank1 1 18618.18 15459.74 360.00
  6_bld House$AirdromeTank1 1 19283.12 15584.42 360.00
  7_bld House$AirdromeFuelTank 1 19823.38 15792.21 360.00
  8_bld House$3Duby_Workshop 1 18784.42 14212.99 360.00
  9_bld House$3Duby_HQ 1 19574.03 14212.99 360.00
  10_bld House$FTankS_02 1 18784.42 13090.91 360.00
  11_bld House$FTankS_01 1 19200.00 13174.03 360.00
  12_bld House$46FTankDEW 1 19657.14 13132.47 360.00
  14_bld House$46Palette 1 19283.12 11677.92 360.00
  15_bld House$46TRBoxes 1 19823.38 11636.36 360.00
  16_bld House$46LWBoxes 1 18867.53 11303.90 360.00
  17_bld House$46JuBoxes 1 19366.23 11262.34 360.00
  18_bld House$46GRBoxes 1 19864.94 11137.66 360.00
  19_bld House$46FTankRU 1 18825.97 10888.31 360.00
  20_bld House$46FTankDE 1 19158.44 10680.52 360.00
  21_bld House$46FTankCIV 1 19698.70 10680.52 360.00
  22_bld House$TrainOilTank 1 18784.42 10098.70 360.00
  23_bld House$AirdromeFuelTankW 1 19283.12 9974.03 360.00
  24_bld House$AirdromeTank1W 1 19698.70 9974.03 360.00
  25_bld House$AirdromeBarrelBlock2W 1 18992.21 9683.12 360.00
  26_bld House$AirdromeBarrelBlock1W 1 19449.35 9350.65 360.00
  27_bld House$IndustrialFactoryTank1W 1 19906.49 9433.77 360.00
[Bridge]
[House]
```

13. Bombs powers and masses

The table below shows values as set in the 4.09 version of the game + nukes.

Name	Range	Charge	Mass
Ampoule	1m	**1kg**	1kg
B22EZ	1m	**1kg**	2kg
TorpLTF5Practice	0m	**1kg**	725kg
AO10	25m	**1kg**	10kg
PuW125	25m	**1kg**	13kg
SD2A	25m	**1kg**	2kg
PTAB25	0m	**2kg**	3kg
Parafrag8	75m	**4kg**	8kg
10kgCZ	20m	**5kg**	10kg
Cargo70	1m	**6kg**	70kg
CargoA	1m	**6kg**	500kg
15kgJ	30m	**8kg**	15kg
Ti	30m	**8kg**	15kg
20kgCZ	25m	**10kg**	20kg
PhBall	6m	**10kg**	1kg
25kg	20m	**15kg**	25kg
30kgJ	30m	**15kg**	30kg
IT_50_M	40m	**18kg**	59kg
FAB50	25m	**24kg**	50kg
SC50	25m	**24kg**	56kg
50kg	75m	**25kg**	50kg
50kgCZ	75m	**25kg**	50kg
50kgIncJ	20m	**25kg**	50kg
50kgJ	50m	**25kg**	50kg
IT_100_T	45m	**28kg**	131kg
60kgJ	60m	**30kg**	60kg
SC70	25m	**32kg**	70kg
FAB100	50m	**45kg**	100kg
IT_100_M	110m	**50kg**	139kg
100kg	125m	**50kg**	100kg
100kgCZ	125m	**50kg**	100kg
100kgJ	100m	**50kg**	100kg
250lbs	50m	**64kg**	125kg
250lbsE	50m	**64kg**	125kg
75GalNapalm	77m	**75kg**	340kg
75Napalm	77m	**75kg**	340kg
300lbs	75m	**78kg**	150kg
Mk53Charge	90m	**90kg**	148kg
Bomb4512	20m	**100kg**	802kg
IT_250_T	90m	**107kg**	259kg

110GalNapalm	113m	**110kg**	500kg
FAB250	50m	**120kg**	250kg
250kg	125m	**125kg**	250kg
250kgJ	250m	**125kg**	250kg
500lbs	50m	**125kg**	250kg
500lbsE	50m	**125kg**	250kg
SC250	77m	**130kg**	248kg
154Napalm	77m	**154kg**	562kg
TorpMk34	91m	**160kg**	874kg
LTF5b	20m	**161kg**	766kg
175Napalm	79m	**175kg**	526kg
TorpMk13	91m	**182kg**	874kg
TorpMk13a	91m	**182kg**	874kg
TorpMk13Late	91m	**182kg**	874kg
TorpMk13_1	91m	**182kg**	874kg
TorpType91	91m	**182kg**	874kg
TorpType91Late	91m	**182kg**	874kg
TorpF5B	95m	**193kg**	725kg
SD500	75m	**200kg**	535kg
TorpFiume	110m	**214kg**	905kg
IT_500_T	170m	**216kg**	508kg
SC500	82m	**220kg**	500kg
PC1600	32m	**230kg**	1600kg
1000lbs	100m	**250kg**	500kg
500kgJ	500m	**250kg**	500kg
Bomb5327	20m	**265kg**	1600kg
TorpF5Bheavy	120m	**268kg**	812kg
FAB500	250m	**275kg**	500kg
600kgJ	600m	**300kg**	600kg
Bomb5339	20m	**317kg**	1750kg
1600lbs	250m	**400kg**	800kg
800kgJ	400m	**400kg**	800kg
2000lbs	250m	**500kg**	1000kg
FAB1000	500m	**555kg**	1000kg
SB1000	389m	**600kg**	1000kg
SC1000	168m	**630kg**	1090kg
SC1800	230m	**720kg**	1780kg
SC2000	276m	**975kg**	1950kg
FAB2000	1100m	**1025kg**	2000kg
SC2500	325m	**1200kg**	2400kg
HC4000	610m	**1660kg**	1786kg
FAB5000	2500m	**3260kg**	5000kg
LittleBoy	3200m	**8000000kg**	4000kg
FatMan	3200m	**13000000kg**	4630kg