SD: Super-Dome

Last update: v1.5.1

What is this script?

Super-Dome (SD) is an *Arma 3* script that's smart protection for players, vehicles, and AI units (when at pre-defined zones) against damage. The script offers many different types of settings customization, and full support for missions with respawns.

Creation concept: turn specific game zones into safe places, areas proof against their enemies and themselves.

Works for multiplayer

Yes, *SD* was mainly built for multiplayer missions such as PvP, Coop/PvE, and TvT.

Arma Vehicle Respawn Module

SD is fully compatible with the *Arma Vehicle Respawn Module*, which is found on Eden Editor modules.

Works on Hosted and Dedicated servers

Yes, the script was built for both server types.

Works for single-player

Yes.

Compatible with ACE, RHS, or CUP

Yes! You can use SD with any mod.

If you need an SQF editor

Sure, I'm using *Visual Studio Code* with this customs specific for *Arma 3*:

https://forums.bohemia.net/forums/topic/239960-vs-code-tutorial-how-to-config-vs-code-for-arma-3-2023/

If you need something simpler:

https://notepad-plus-plus.org/, install it and, when you open some script file, go to Notepad++ main menu, "Language" and select "C" as file language. That's it.

How to just run the script for a first look

If you want SD for missions **without** respawn points:

    A) Go to: https://steamcommunity.com/sharedfiles/filedetails/?id=3068011817

If you want SD for missions **with** respawn points:

    B) Go to: https://steamcommunity.com/sharedfiles/filedetails/?id=3078633743

After that:

1. Subscribe and wait for Steam to download it;
2. Open *Arma 3*, go to Multiplayer > Server browser > Host server > click Host Server button;
3. Select "Virtual Reality" map and, after that, select "SUPER-DOME";
4. Play.

Important: if you want to apply this script in your own missions, check this out.

Install the script in my own mission ★★★

1. Go to: https://github.com/aldolammel/Arma-3-Super-Dome-Script
2. Download the zip and open it;
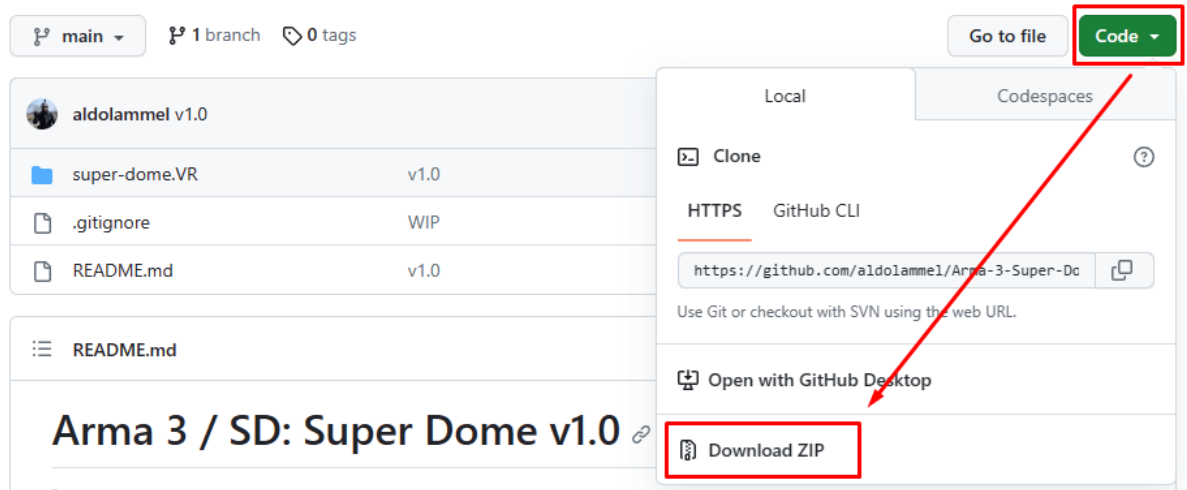
3. In zip, find the folder "superDome" and copy it to your mission folder root:
   DRIVE:\Users\you\Documents\Arma 3\your_profile\missions\your_mission_folder\

For mission **WITHOUT** respawn point system by Bohemia:

1. Return to the zip, and find the "*description.ext*" file. In the mission folder root, if you don't have it, create the file and add the code down below:

```
class CfgFunctions {

        // SUPER DOME:
        #include "superDome\THY_SD_functions.hpp"
};
```

   DRIVE:\Users\you\Documents\Arma 3\your_profile\missions\your_mission_folder\description.ext

2. Again in zip, and find the "*initPlayerLocal.sqf*" file. In the mission folder root, if you don't have it too, create the file and add the code down below:

```
// SUPER DOME:
[player] execVM "superDome\fn_SD_clientSide.sqf";
```

   DRIVE:\Users\you\Documents\Arma 3\your_profile\missions\your_mission_folder\initPlayerLocal.sqf

3. In Eden Editor, create a marker (Assets menu = F6), name it, for example, "*superdome_1*" and set the range of the protection in the "*fn_SD_management.sqf*" file.

4. Play!

For mission **WITH RESPAWN** point system by Bohemia:

1. Return to the zip, and find the "*description.ext*" file. In the mission folder root, if you don't have it, copy the entire file and edit it with your mission info. If you already have, make sure you are calling SD script in there:
   DRIVE:\Users\you\Documents\Arma 3\your_profile\missions\your_mission_folder\description.ext

2. Again in zip, and find the "*onPlayerRespawn.sqf*" file. In the mission folder root, if you don't have it too, create the file and add the code down below:

   ```
   // BOHEMIA ON-PLAYER-RESPAWN SYSTEM:
   params ["_newUnit", "_oldUnit", "_respawn", "_respawnDelay"];

   //      When applicable, drop here all your respawn codes, etc...

   // SUPER DOME:
   [_newUnit] execVM "superDome\fn_SD_clientSide.sqf";
   ```

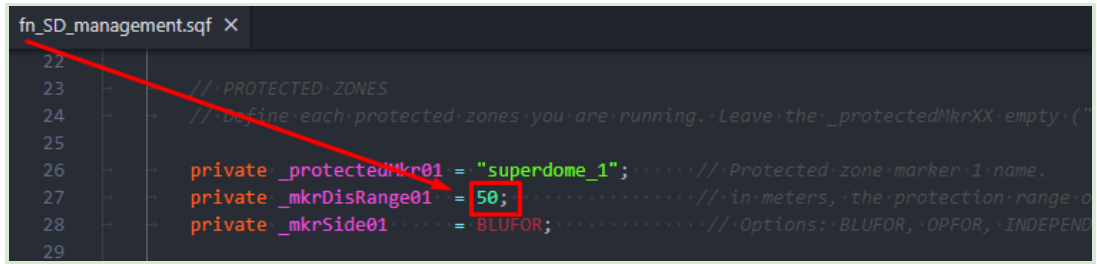   DRIVE:\Users\you\Documents\Arma 3\your_profile\missions\your_mission_folder\onPlayerRespawn.sqf
   Critical: very careful not to add the parameters twice! If you already got *onPlayerRespawn.sqf* in your mission, probably we will find out the parameters declaration already there. In this case, make sure the parameters are in the file head and not in the footer with the SD code.

   ```
   4
   5    // BOHEMIA ON-PLAYER-RESPAWN SYSTEM:
   6    params [ "_newUnit", "_oldUnit", "_respawn", "_respawnDelay" ];   // Do not change
   7
   ```

3. In Eden Editor, create a marker (Assets menu = F6), name it, for example, "*superdome_1*" and set the range of the protection in the "*fn_SD_management.sqf*" file.
   DRIVE:\Users\you\Documents\Arma 3\yourProfile\missions\missionFolder\superDome\fn_SD_management.sqf
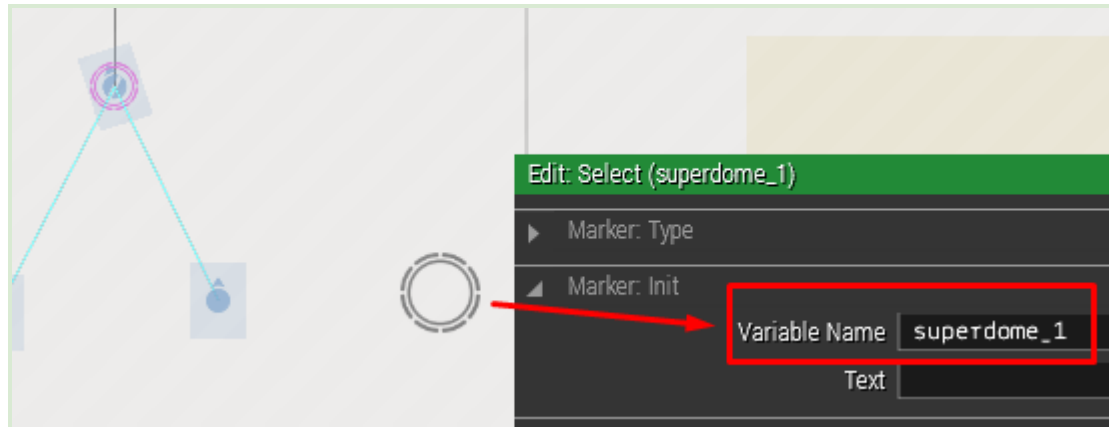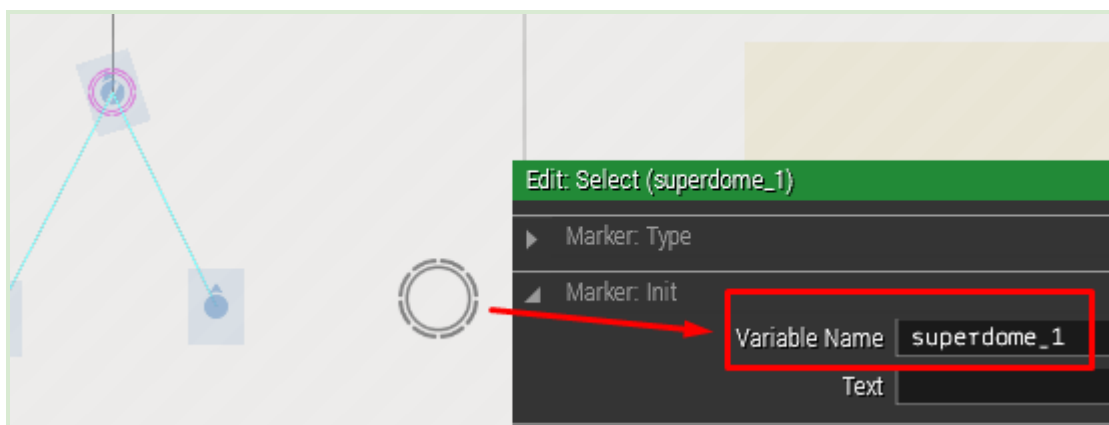
```
fn_SD_management.sqf ×
22
23        // PROTECTED ZONES
24        // Define each protected zones you are running. Leave the _protectedMkrXX empty ("
25
26        private _protectedMkr01 = "superdome_1";      // Protected zone marker 1 name.
27        private _mkrDisRange01   = 50;                 // in meters, the protection range o
28        private _mkrSide01       = BLUFOR;             // Options: BLUFOR, OPFOR, INDEPEND
29
```

5. Play!

Important: check how to configure the *Eden Vehicle Respawn* module with Super-Dome to avoid headaches.

How Super-Dome logic works

SD has smart behaviors for different situations. Basically, it will protect a specific zone (or zones) making players, vehicles, static weapons, or AI units, or all of them, immortal while inside the pre-defined zone range. All protected zones are linked with some side. One side can have one or more protected zones while another side can have no even one. It's up to the mission editor.

For players and AI units

Players and AI units will be protected by all protected zones of their side, regardless of whether the player and AI spawned in-game inside a protected zone or not.

For vehicles and static weapons

Speaking about empty vehicles and empty static weapons, their side will be linked with the side of the protected zone where they spawned in-game. If a vehicle or static weapon was spawned out of any protected zone, this equipment would never be protected by any side. On the other hand, if any vehicle or static weapon (it doesn't matter what faction the equipment belongs to originally) spawned inside a protected zone, the equipment will be protected inside of each protected zone from the same side of its original start point in the game.

When the protection doesn't work for the player:

- When *SD_isProtectedPlayer* is false in *fn_SD_management.sqf*;
- When they are not in a zone from their side;

When the protection is canceled for a player:

- When they exceed the speed limit in the zone;
- When they are not able to breathe (underwater) in the zone;
- When they leave the protected zone range;
- When they are incapacitated (WIP).

When the protection doesn't work for the equipment:

- When *SD_isProtectedVehicle* is false in *fn_SD_management.sqf*;
- In the first few seconds of the mission (SD will be loading yet);
- When it doesn't start the mission inside a zone;
- When it doesn't in a zone from its side;
- When it's a simple object;

When the protection is canceled for the equipment:

- When it exceeds the speed limit in the zone;
- When it leaves the protected zone range;
- When it's completely under the water (WIP)

Super-Dome self-precaution:

The protected zone integrity is the priority, followed by its players' integrity, and, after that, the vehicles and AI units spawned inside it. That said:

- If a protected equipment (vehicle or static weapon/turrets) rollover in its protected zone, it will be destroyed only after a countdown, ejecting all units from inside it before;
- If *SD_isOnAdditionalProtection* is true: if an unknown equipment rollover in a protected zone, it will be destroyed and deleted as fast as the next zone checking is reached;
- If the protected equipment blows up in its protected zones, its wreck is deleted. The same occurs with unknown equipment if *SD_isOnAdditionalProtection* is true.

Setting your Super Dome

You decide! With these parameters, you can make some easy changes to the script to fit better your ideas. Check the "*fn_SD_management.sqf*" file in your superDome folder.

Important: SD is supported by 10 protected zones. More than that nowadays is not possible.

Visible Protection Zones on the map

Super-Dome protection is an invisible sphere around each marker placed by the mission editor. That said, sometimes the editor wants to flag on the player's map where is each protected zone, sometimes they don't. So, let's check each option brought by SD nowadays:
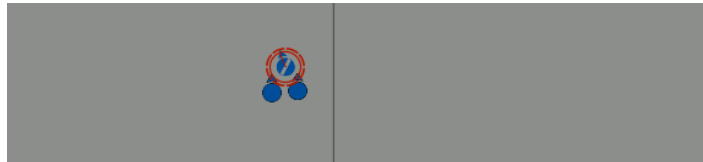
Above, when *SD_isOnDebugGlobal* is false and *SD_isOnShowMarkers* is false, no one will see any marker of the Super-Dome script.
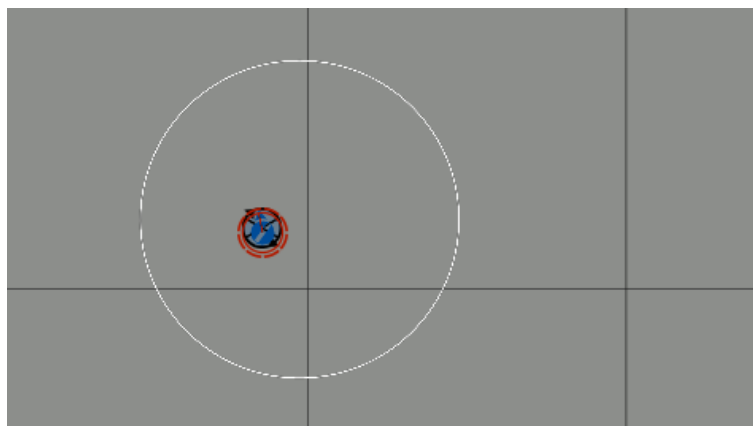

Above, when *SD_isOnDebugGlobal* is false and *SD_isOnShowMarkers* is true, only units/players that belong to the marker side will see the protection zone position and its protection area range (white border always in a circle shape).
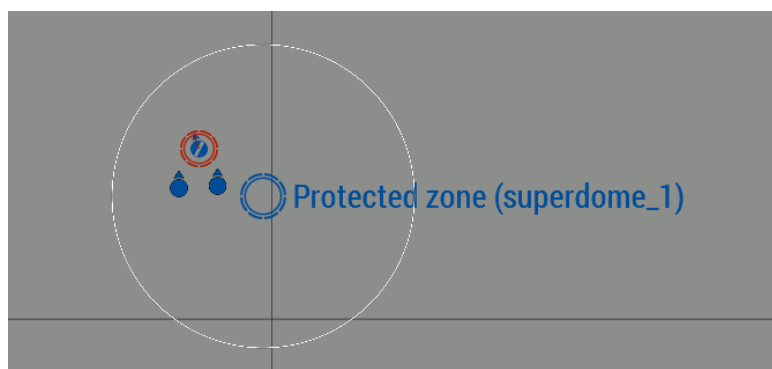
Above, when *SD_isOnDebugGlobal* is true, all players (regardless of the side) will see at least the protection zone position on their maps. Of course, it's not recommended at all to play for real your mission running the debug mode.

Important 1: don't worry if you are not seeing to range of the protected zone right after the mission gets started. In the Respawn version of the script, this is a normal behavior. When the mission starts for real, you will be able to see that range.
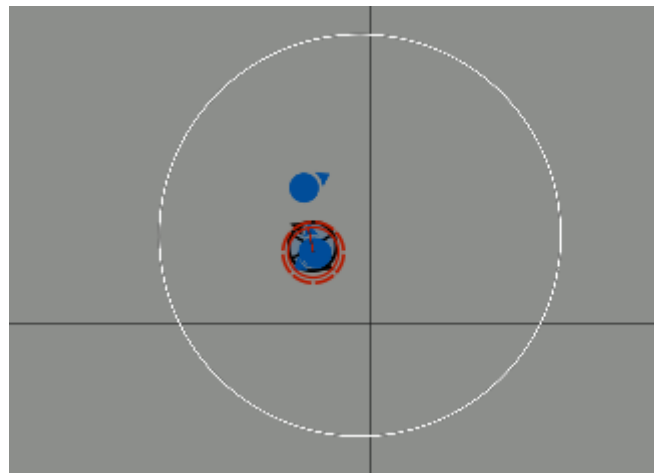

Important 2: if you don't see the player and AI unit's positions it's because your server is configured to not show those markers on the map. It's not a behavior or configuration from this script.

How to set the Eden Vehicle Respawn module

Below, the recommended settings to use the module for respawn vehicles by Bohemia in its Eden Editor. To find out the module:

1. On Eden Editor, press F5;
2. Select *Modules* (Gear icon);
3. Go to *Multiplayer* and then drag and drop the *Vehicle Respawn* module to the map.
4. Click over the module on the map:
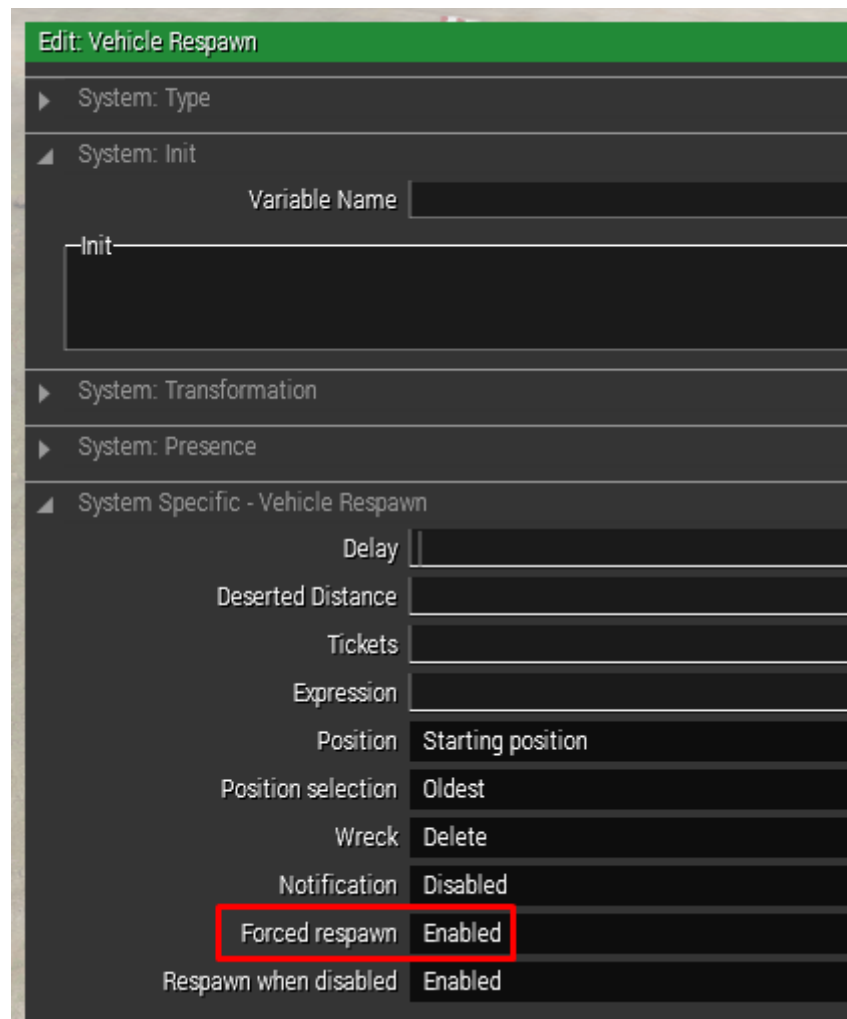
Above, in red is a CRUCIAL detail for SD to work fine with the *Eden Vehicle Respawn* module.

Don't forget to connect all side vehicles and static weapons you want to respawn at the module.

To make SD even lighter

Super-Dome script is light itself, but there are ways to make it even more light. So open your *fn_SD_management.sqf* file and let's do it:

Checking time cycles

You can customize the SD cycle time to check its functions. By default, *SD_checkDelay* is configured to work every 3 seconds on server-side and client-side. For any reason you think it's okay to increase that number to, for example, 5 seconds, you can grab a good performance saving for clients and server, but more than that you are taking a risk to compromise the reliability of the script, making it lose agility to protect players, vehicles and AI units in their protected zone edges.
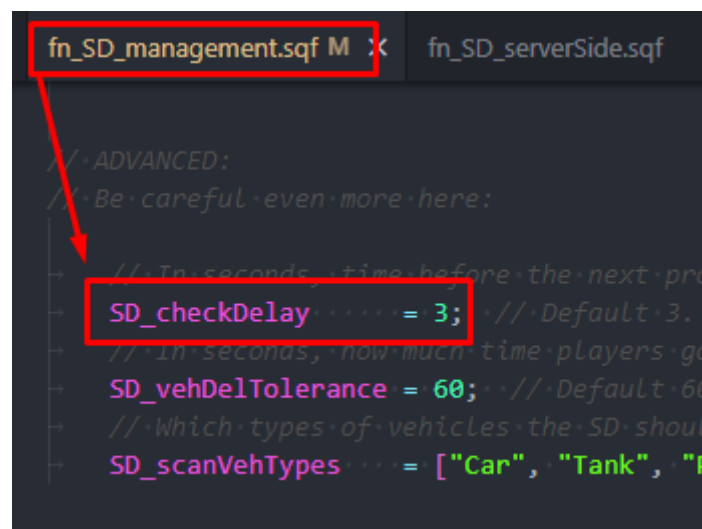
> Important: don't set *SD_checkDelay* less than 2 to not force the server CPU in complex missions with a lot of actions, mods, and other scripts running at the same time.

Maybe you don't need secondary checking

Think: if something will be all the mission timeframe inside the protected zone, you don't need to spend server CPU to ask SD to take care of that if you could easily make that thing just immortal, disabling their capability to get damage through *Eden Editor*.
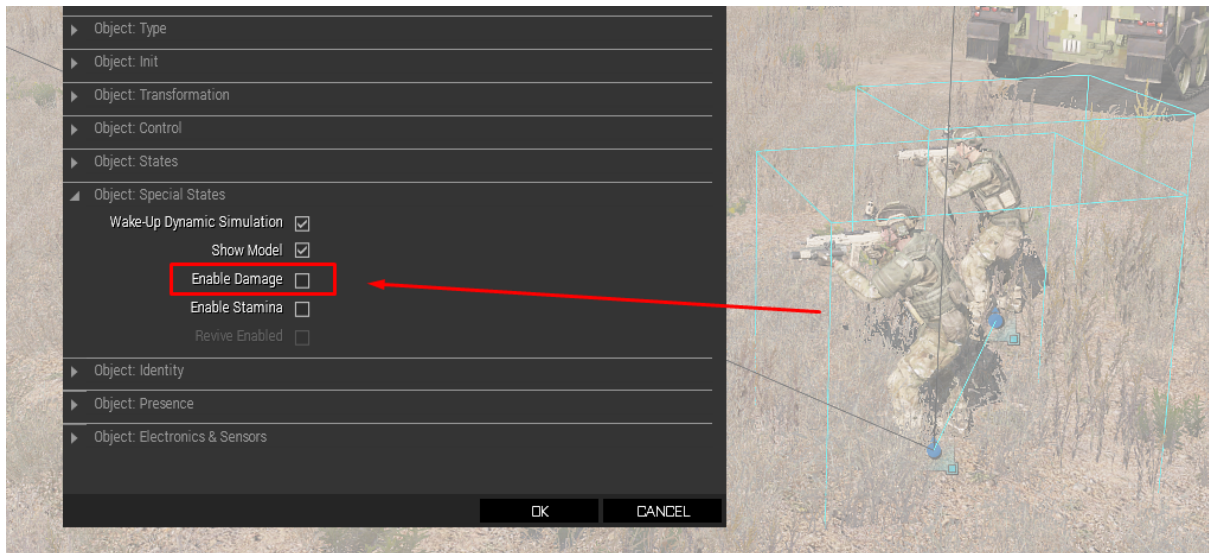
Above, an example of immortal AI units on *Eden Editor*.

You could desire AI unit and/or vehicle protection if you (as Mission Editor) accept that they could leave the zone, get some combat around, and then return to the safety of the protected zone. So, in this case, yes, maybe it's a good idea to make AI units/vehicles spawned in that zone, protected by the zone.

Disabling secondary checkings

On missions with lots of things happening like Antistasi or some like that, you're probably hunting things to turn off. Try these ones that impact only server performance:
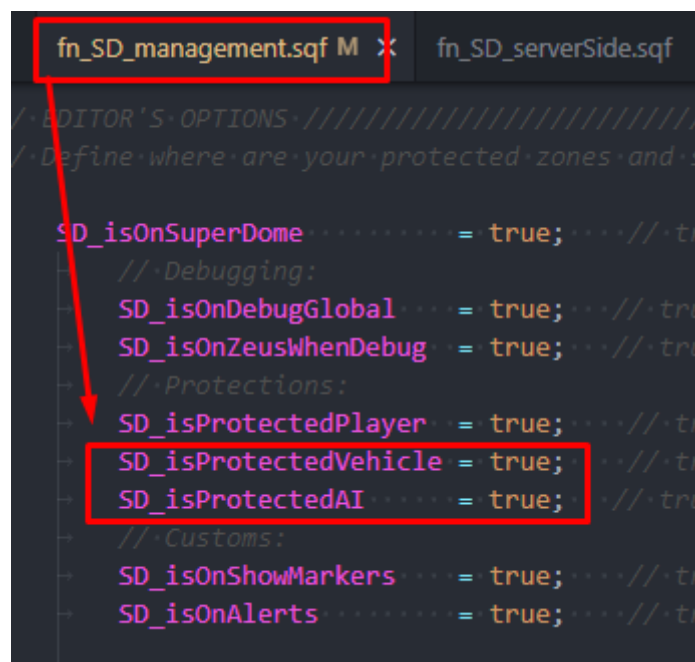
Also, the explained "Additional Protection" can be turned off, or the gap among each check can take a little longer to save server performance:

Debugging: SD is not running

Check some messages that you can face using the Super-Dome script:

Message: Super-Dome was shut down

SD DEBUG > Super-Dome was shut down by the mission editor!

It's because you turn to false all protection functions of Super-Dome, making the script unuseful:


```
fn_SD_management.sqf M ×
14
15         SD_isOnSuperDome              = true;
16           // Debugging:
17             SD_isOnDebugGlobal     = true;
18             SD_isOnZeusWhenDebug   = true;
19           // Protections:
20             SD_isProtectedPlayer   = false;
21             SD_isProtectedVehicle  = false;
22             SD_isProtectedAI       = false;
23           // Customs:
24             SD_isOnShowMarkers     = true;
25             SD_isOnAlerts          = true;
26
```



```
// ADVANCED:
// Be careful even more here:

    // In seconds, time before the next prot
    SD_checkDelay = 3; // Default: 3.
    // In seconds, how much time players got
    SD_vehDelTolerance = 30; // Default: 30
    // Which types of vehicles the SD shoul
    SD_scanVehTypes = ["Car", "Tank", "Helic
    // It deletes after a while all potenti
    SD_isOnAdditionalProtection = false; //
    // In seconds, the time of each new SD
    SD_AdditionalProtectTimer = 10; // Def
    // It needs SD_isOnDebugGlobal as true t
    SD_isDebugDeeper = false; // Default: f
```

Or literally, turn the script off (below):

Message: Server-side status is OFF

It's because you turn to false all protections managed by the server. It's ok this if you don't want to protect vehicles and AI units, for example:
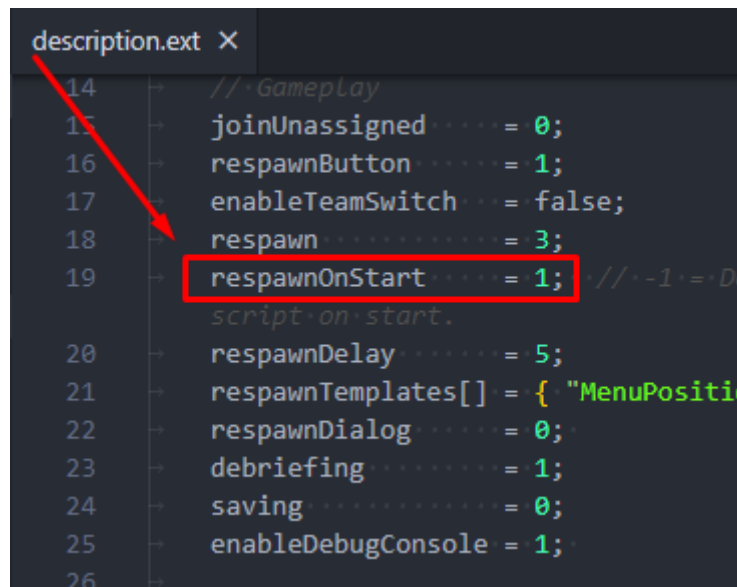
Debugging: Vehicles and AI units are vulnerable

This will happen right after the mission gets started, depending on how many things (except players) the protected zones must protect. The script needs a few seconds to cover all the things.

That said, if you need a little more agility around the protection (for some reason your mission gets started in the middle of the chaos and you want to protect stuff) make sure you are working with the minimal value for the *SD_wait* variable in the advanced session at the "fn_SD_management.sqf" file.

Debugging: SD Respawn version is not running

Make sure you have installed this script correctly, stepping again this. Pay special attention to description.ext and onPlayerRespawn.sqf files. Those are *Arma 3* files and require specific configures and line codes to run a mission with respawn points and scripts.

- **-1** = Don't respawn on start and don't run respawn script on start. Never!
- **0** = Don't respawn on start but run respawn script on start.
- **1** = Respawn on start. Run respawn script on start. Recommended

Important: "Don't respawn" means that *Arma 3* will not run the "onPlayerRespawn.sqf" file.

Debugging: SD Respawn > Equipment is not respawning

Like always for debugging, turn *SD_isOnDebugGlobal* true and run your mission.

Get in the issued equipment (vehicle or static weapon) and check what the monitor's saying:

Probably it's because you didn't sync the object to the *Arma Vehicle Respawn Module* on Eden.
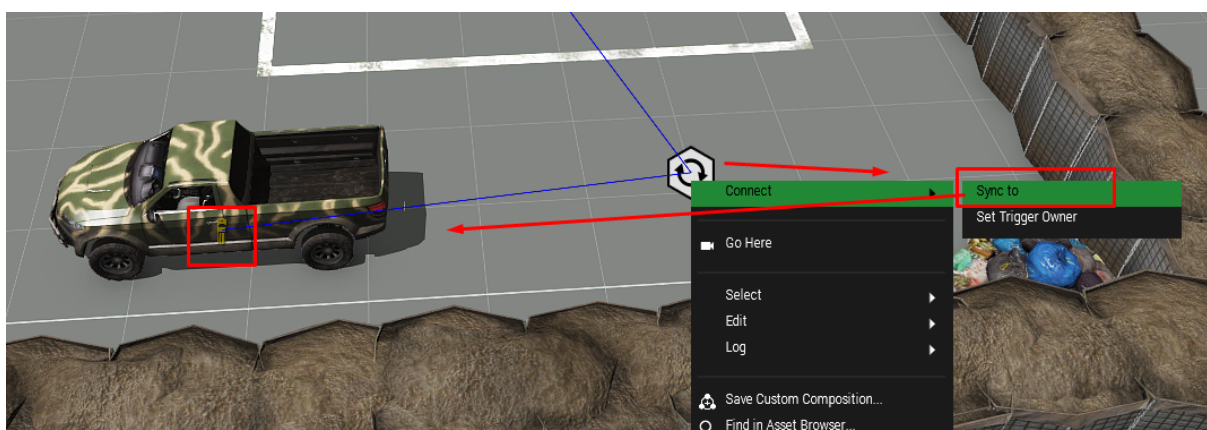
Important: don't forget to give a few seconds for the script to be fully loaded by the server.

Contribute to SD script

Discussion on Bohemia Forums:

https://forums.bohemia.net/forums/topic/244082-release-sd-super-dome-script-protecting-bases-and-zones/

Changelog on GitHub:

https://github.com/aldolammel/Arma-3-Super-Dome-Script#changelog

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thy @aldolammel

If you care

Paypal:

https://www.paypal.com/donate/?business=ZMHJNZMZEWKLQ&no_recurring=1&item_name=Creating+free+content+on+the+internet+just+for+love+to+create+and+make+people+happy+through+simple+things.&currency_code=USD

PIX (Brazil):

aldolammel@gmail.com

Or just gimme a like on Workshop:

Non-respawn: https://steamcommunity.com/sharedfiles/filedetails/?id=3068011817

With-respawn: https://steamcommunity.com/sharedfiles/filedetails/?id=3078633743