Documentation

Controlled Spawn & Waypoint Randomizr Script (CSWR)

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Is it compatible with content mods like RHS or CUP?

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What is this script?

Controlled Spawn and Waypoint Randomizr (CSWR) is a simple and limited spawn and waypoints solution where groups of units and ground vehicles will be randomized through marks in your mission, moving among them forever in life.

Can I use it for multiplayer missions?

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

Can I use it on Hosted and Dedicated servers?

Yes, the script was built for both server types, mainly dedicated ones.

Can I use it for single-player missions?

Yes.

Can I spawn only civilians to populate my missions?

Yes and easily. You could spawn just a faction, or two, or all of them. As you wish.

Is it compatible with ACE?

Yes.

Is it compatible with content mods like RHS or CUP?

Yes! You can call whatever classnames of units and vehicles in *fn CSWR population.sqf* file.

Can I spawn through CSWR air or nautical vehicles too?

Not tested with nautical vehicles, but for sure it won't work properly if you spawn helicopters or planes through CSWR script.

Loadout of the spawned faction units are customized?

Yes. CSWR brings as easy as a possible way to do this by code.

How to just run the script for a first look?

- 1. Go to https://steamcommunity.com/sharedfiles/filedetails/?id=2740912514
- 2. Subscribe and wait for Steam to download it;
- 3. Open Arma 3, go to Multiplayer > Server browser > Host server > click Host Server button;
- 4. Select "Stratis" map and, after that, select "CONTROLLED SPAWN AND WAYPOINTS RANDOMIZR";
- 5. Play.

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

How to install the script in my own mission? \star \star \star

- 1. Go to:
 - $\underline{https://github.com/aldolammel/Arma-3-Controlled-Spawn-And-Waypoints-Randomizr-Script}$
- 2. Download the zip and open it;
- 3. In zip, find the folder "CSWRandomizr" and copy it to your mission folder root:

 DRIVE:\Users\yourName\Documents\Arma 3\yourProfile\missions\yourMission\
- 4. In the mission folder root, if you don't have a "description.ext" file, create one and there add the code down below:

5. Still in your mission folder, open fn_CSWR_population.sqf file and perform all customs you need.

How do I create a faction team?

In Arma 3, factions are built by groups that are built by units (soldiers/people). In CSWR is the same logic, but we will create all of it through two files that we will see down below:

1) Defining the factions to spawn:

Path: \Your_Mission_Folder\CSWRandomizr\fn_CSWR_spawnsAndWaypoints.sqf
At first, define what faction(s) you wanna spawn in your mission:

```
CSWR_debug = false;
CSWR_spawnBlu = true;
CSWR_spawnOp = true;
CSWR_spawnInd = false;
CSWR_spawnCiv = false;
CSWR_unlimitedFumel = false;
CSWR_unlimitedFumel = false;
```

2) Defining the group's size and specialties:

Path: \Your_Mission_Folder\CSWRandomizr\fn_CSWR_population.sqf

After that, the next step is to define with soldier classes and vehicles that must be part of the faction:

```
// DEFINING GROUPS: BLUFOR
// Define the number of soldiers and who is who in each type of group.

// Vehicles
private _bluVehLight = ["B_G Offroad_01_armed_F"];
private _bluVehRegular = ["B_MRAP_01_hmg_="];
private _bluVehHeavy = ["B_MBT_01_TUSK_F"];

// Soldiers
private _bluSquadLight = ["B_Soldier_TL_F", "B_Soldier_F"];
private _bluSquadRegular = ["B_Soldier_TL_F", "B_Soldier_F", "B_Soldier_AR_F"];
private _bluSquadRegular = ["B_Soldier_TL_F", "B_Soldier_F", "B_Soldier_RR_F", "B_Soldier_M_F", "B_Soldier_AT_F"];
```

Use only classnames to build each group of the faction:

```
THIS IS A CLASSNAME

// Soldiers

private _bluSquadLight = "B_Soldier_TL_F" "B_Soldier_F"];

private _bluSquadRegular = ["B_Soldier_TL_F", "B_Soldier_F", 'private _bluSquadHeavy = ["B_Soldier_TL_F", "B_Soldier_F", '
```

In Eden Editor, here is how you figure out what soldier classename or vehicle classname you want to, just putting your mouse arrow over the unit/vehicle:



Important 1: you can use whatever loaded mod's units by the server. For example, if you wanna use RHS or CUP units in blufor, add the unit's classnames over there.

Important 2: You can do the same with vehicles, although is NOT recommended to create a "vehicle group" (with more than one vehicle) because Arma Al doesn't work well with vehicle groups when moving through the map.

How do I define how big must be a faction on the map?

Now, let's request CSWR to spawn the faction groups already configured. In fn_CSWR_population.sqf file, search the section "SPAWNING GROUPS" of the faction you want to populate in your mission:

1) Each line is a group that will spawn:

Each line represents a group that you wanna spawn right after the match starts. You will see the vehicle groups separated from the soldier's groups just to make it easier.

```
[BLUFOR, CSWR bluSpawnPoints, bluSquadLight, "CHAOS", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [bLUFOR, CSWR bluSpawnPoints, bluSquadLight, "CHAOS", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [bLUFOR, CSWR bluSpawnPoints, bluSquadLight, "COMBAT", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadLight, "COMBAT", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadLight, "COMBAT", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadLight, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadLight, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadLight, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadLight, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadLight, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadLight, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadRegular, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadRegular, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadRegular, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadRegular, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadRegular, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadRegular, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadRegular, "SAFE", THY fnc CSWR wpGoToAnywhere] call THY fnc CSWR people; [BLUFOR, CSWR bluSpawnPoints, bluSquadRegular, "SAFE", THY fnc CSWR wpGoToAnywhe
```

Don't forget to change (or not) with a specific group you want in each line:

```
[BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "SA [BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "SA [BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "SA [BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "SA [BLUFOR, CSWR_bluSpawnPoints, _bluSquadRegular, "BLUFOR, CSWR_bluSpawnPoints, _bluSquadRegular, "
```

2) Increase or decrease the faction size:

Super easy: just add or remove one or more lines in "Spawning Groups" section in the same file.

How do I manipulate the initial behavior of groups?

CSWR is limited to defining only the initial behavior of each faction's group. As the match unfolds, the original Arma 3 Al will make its own decisions. Let's take a look through the possible customizations. Let's check the *fn_CSWR_population.sqf* file.

1) Define the group personality:

For example, go to "Spawning Groups: Blufor" section and check it out:

```
// SPANNING GROUPS: BLUFOR
// Define each group and their features and destination.

// Vehicles Groups
// [ faction, faction's spawnpoints, faction's vehicle size, initial crew behaviour ("SAFE", "AWARE", "COMBAT"

[BLUFOR, CSWR_bluSpawnPoints, _bluVehLight, "SAFE"] THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_vehicle;
[BLUFOR, CSWR_bluSpawnPoints, _bluVehLight, "SAFE", THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_vehicle;
[BLUFOR, CSWR_bluSpawnPoints, _bluVehRegular, "SAFE", THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_vehicle;
[BLUFOR, CSWR_bluSpawnPoints, _bluVehReavy, "SAFE", THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_vehicle;
```

Above, each line represents a group that will spawn, and each group has its initial personality configured. Below, the options you can use for one or more groups, up to you:

For people:

"SAFE"	Group starts walking with the guns low, looking around and feeling safe. (More natural, highly recommended for the most)
"AWARE"	Group starts walking but with guns ready, looking around and concerned.
"COMBAT"	Group starts running, ready to fight and keep the formation.
"STEALTH"	Group starts like combat mode, but much more in a cautious manner, moving always along cover.
"CHAOS"	Group starts running, ready to fight and loose the formation.

For vehicle:

"SAFE"	Vehicle goes slow, crew feel safe, try to ride only on streets/roads.
	(More natural, recommended)

"AWARE"	Vehicle goes slow, crew aware, try to ride only on streets/roads.
"COMBAT"	Vehicle gets speed, rides everywhere, keeping the formation.
"STEALTH"	Vehicle as in combat mode, but much more in a cautious manner, where wheeled vehicles will still follow roads if available, but no longer convoy. Tanks will avoid knocking down trees.
"CHAOS"	Vehicle gets speed, rides everywhere, losing the formation.

2) Define the group destination on the map:

Another behavior point to set for each group is its destination (waypoints) through the map: <u>let's check how the waypoints work here</u>.

How do Waypoints work?

In CSWR, there is no end-point, which that means after the group spawns, it will move through the map directly to the predefined waypoints, randomly, and can take a break just for a while before to the next waypoint.

Each faction's group configured to spawn can have a different destination (group of waypoints predefined).

1) Define how many waypoints will be available:

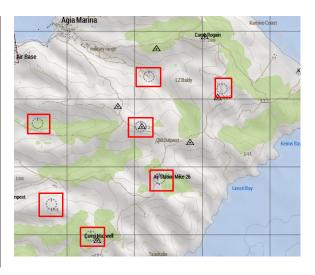
Let's open this file again:

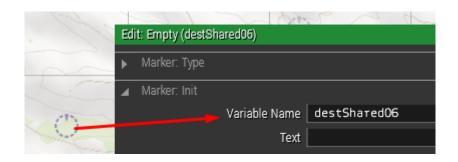
Path: \Your Mission Folder\CSWRandomizr\fn CSWR spawnsAndWaypoints.sqf

The waypoints are already defined in that file above. The only thing you must do is define them in your mission, so in Eden Editor, drop "Empty" markers on the map and rename each of them:

```
// WAYPOINTS: SHARED
// Define where anyone (including civilian)
// For new destination, add a new "empty man

CSWR_destinationShared =
[
    "destShared01",
    "destShared02",
    "destShared03",
    "destShared04",
    "destShared06",
    "destShared06",
    "destShared06",
    "destShared07",
    "destShared08",
    "destShared09",
    "destShared10"
];
```





To find in Eden Editor "Empty" marker, in the Assets menu, click on "Markers" (F6) and, after that, "System" on the category list. There, you will find out "Empty" marker.

Back to the .sqf file, by default, you have 10 waypoints "destShared" to drop and to name in your mission. Of course, you might add or remove waypoints "destShared" as much as you want, since you don't forget to sync them between Eden Editor and fn_CSWR_spawnsAndWaypoints.sqf file.

2) Define where each spawned group will move:

Back to the file: fn_CSWR_population.sqf

```
// Soldiers Groups
// [ faction, faction's spawnpoints, faction's squad size, initial squad behaviour ("SAFE", "AWARE", "COMBAT", "

[BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "CHAOS", THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_people;

[BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "COMBAT", THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_people;

[BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "COMBAT", THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_people;

[BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "COMBAT", THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_people;

[BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "SAFE", THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_people;

[BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "SAFE", THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_people;

[BLUFOR, CSWR_bluSpawnPoints, _bluSquadLight, "SAFE", THY_fnc_CSWR_wpGoToAnywhere] call THY_fnc_CSWR_people;
```

Particularly, I like to use the same configuration for all combat factions, changing it just for the civilian faction. Let's check what options you have to change in fn_CSWR_population.sqf:

THY_fnc_CSWR_wpGoToAnywhere	Group goes to any waypoint. (Highly recommended to be used by armed factions)
THY_fnc_CSWR_wpGoToDestShared	Group goes to where anyone may go, including civilian waypoints. (Highly recommended to be used for civilian faction)
THY_fnc_CSWR_wpGoToDestBlu	Group goes to Blufor special waypoints. (Recommended to be used only by Blufor)
THY_fnc_CSWR_wpGoToDestOp	Group goes to Opfor special waypoints. (Recommended to be used only by Opfor)

THY_fnc_CSWR_wpGoToDestInd	Group goes to Independent special	
	waypoints.	
	(Recommended to be used only by	
	Independent)	

Important: NEVER set a waypoint out of the map limits. Arma 3 no recognize positions beyond the map edges.

Can the groups move free, with no waypoints?

No. In CSWR, the idea is the Editor has total control of the areas where the troops should visit.

How do Spawnpoints work?

In CSWR, the AI will use some predefined points as Spawnpoints, where they will use them randomly only once right before the mission gets started. It can take a while like 1 or 2 minutes, depends how many units CSWR will create for you. Each faction should have its own spawnpoints, never sharing them.

Define how many spawns will be available:

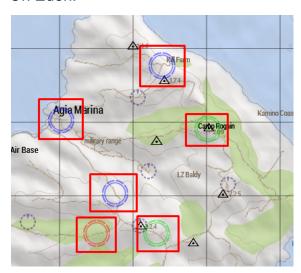
Let's open the file:

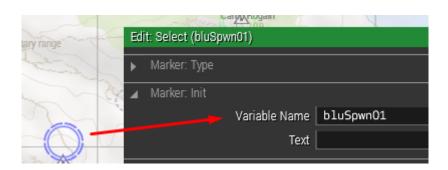
Path: \Your_Mission_Folder\CSWRandomizr\fn_CSWR spawnsAndWaypoints.sqf

The spawns are already defined in that file above. The only thing you must do is define them in your mission, so in Eden Editor, drop "Select" markers on the map and rename each of them:

On file:

On Eden:





To find in Eden Editor "Select" marker, in the Assets menu, click on "Markers" (F6) and, after that, "System" on the category list. There, you will find out "Select" marker.

Back to the .sqf file, by default, you have 3 spawnpoints by default for each faction (including Civilian) to drop and to name in your mission. If you don't wanna spawn civilians and independents through CSWR script, for example, make sure you set those factions as "FALSE" in the file:

```
// PARAMETERS OF EDITOR'S OPTIONS:

CSWR_debug = false;
CSWR_spawnBlu = true;
CSWR_spawnOp = true;
CSWR_spawnInd = false;
CSWR_spawnCiv = false;
CSWR_unlimitedFuer = ralse;
CSWR_unlimitedAmmo = false;
```

Of course, you might add or remove spawnpoints as much as you want, since you don't forget to sync them between Eden Editor and fn_CSWR_spawnsAndWaypoints.sqf file.

How do I define who the enemy of whom is?

CSWR works with what you have defined through Eden Editor:

- 1. On Eden main menu, go to Attributes > General;
- 2. In the "General" window, look for "Misc":



3. As BluFor and OpFor always are enemies of each other, you only need to define who is the Independent enemy, clicking over the side flag.

How do I customize the faction army loadout?

Usually, scripts that generate units dynamically can't manage simple loadout customization such as removing Night Visions Goggles or GPS devices from each spawned unit. Imagine you want to spawn an insurgence faction and suddenly when the night falls you realize those penniless soldiers got Night Visions Goggles. Yeap, Arma 3 adds NVGs automatically to the units at night, but with CSWR you're allowed to remove at once all unwanted items from them.

fn CSWR globalFunctions.sqf file:

```
case INDEPENDENT: {
    //_unit unlinkItem "NVGoggles_INDEP";
    _unit unlinkItem "FirstAidKit";
    _unit unlinkItem "ItemWatch";
    _unit unlinkItem "ItemCompass";
    _unit unlinkItem "ItemRadio";
    _unit unlinkItem "ItemGPS";
    _unit unlinkItem "ItemMap";
    _unit removeWeapon "Binocular";
};
```

By default, all armed units you spawn with CSWR will get NVGs if the unit class got one by default as well. If you wanna force the CSWR to remove the NVGs from one or more armed factions, uncomment the line about it as exemplified above.

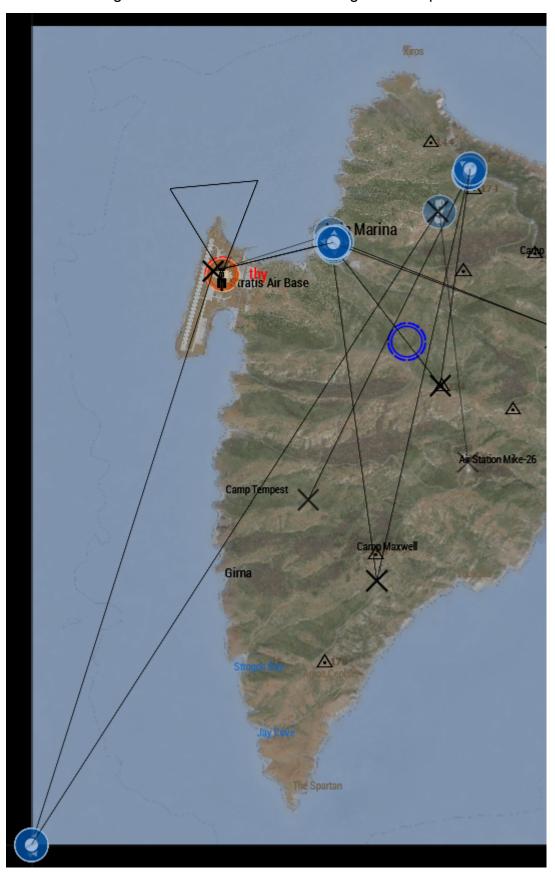
Can I remove or add things to each unit as much as I want to?

Yes, until you reach the limit weight that a soldier can carry. If there's no more space in their inventory, items start to disappear. Use loadout editing wisely, remembering that anything you add or remove will impact ALL units in that faction.

Important: try DO NOT change the weaponry of CSWR spawned units. Keep in mind if you do that, you will remove specialized weapons from specific soldier classes as machine-gunners, marksmen, and crewmen, adding the same gun for everyone in the faction.

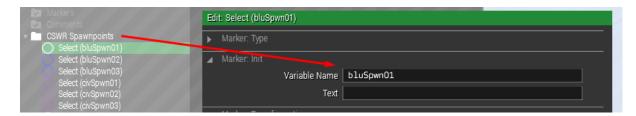
Fixing: units spawning out of map

Look to the image below and notice the unit falling in the map lower-corner:



If you are facing the same problem, it's because some spawnpoint is missing on map. Make sure all spawnpoints are declared in the

fn CSWR spawnsAndWaypoints.sqf file also are correctly dropped and named on your mission map.



See: if you want to use less than those spawnpoints declared, make sure to comment the spawnpoint line to avoid that weird line problem:

Before:

if (CSWR_spawnBlu) then { CSWR_bluSpawnPoints = "bluSpwn01", "bluSpwn02", "bluSpwn03" if (CSWR_spawnOp) then {

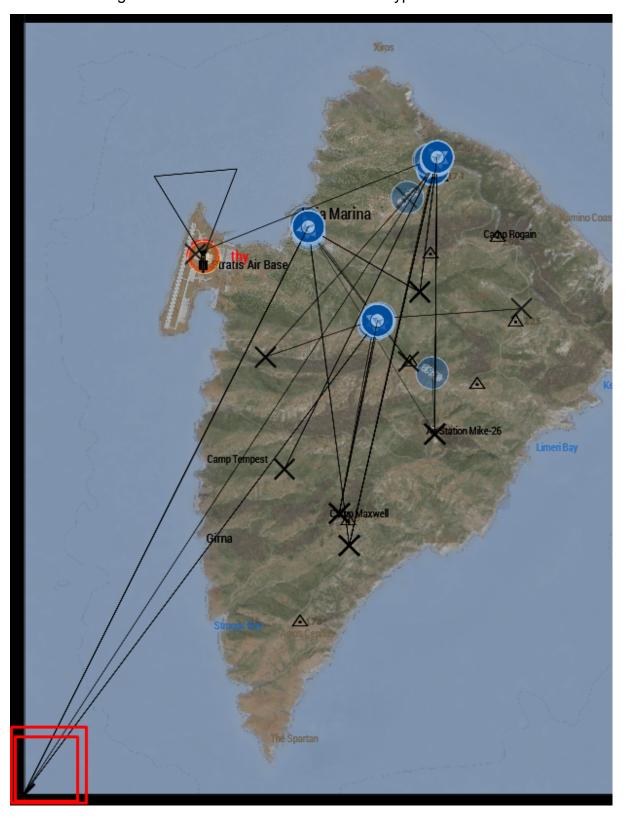
```
CSWR_opSpawnPoints =
        "opSpwn01",
        "opSpwn02",
        "opSpwn03"
if ( CSWR_spawnInd ) then {
    CSWR_indSpawnPoints =
        "indSpwn01",
        "indSpwn02",
        "indSpwn03"
```

After (solution):

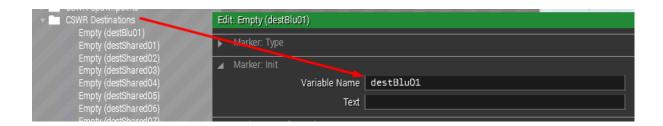
```
if ( CSWR_spawnBlu ) then {
    CSWR bluSpawnPoints =
        "bluSpwn01",
};
if ( CSWR_spawnOp ) then {
    CSWR_opSpawnPoints =
        "opSpwn01",
};
if ( CSWR_spawnInd ) then {
    CSWR_indSpawnPoints =
        "indSpwn01",
```

Fixing: weird waypoint out of map

Look to the image below and notice those nowhere waypoints on the lower-corner:



If you are facing the same problem, it's because some waypoint is missing on map. Make sure all waypoints are declared in the *fn_CSWR_spawnsAndWaypoints.sqf* file also are correctly dropped and named on your mission map.



See: exclusive faction waypoints sometimes are not used, so you should comment on them to avoid that weird line problem:

Before:

After (solution):

Fixing: vehicles blowing up at the match start

Different from soldiers, vehicles need a big empty space on the map to spawn safe, with no collisions. So, if it happens yet, make sure the faction spawnpoints are using them in clear and flat ground, for example, over a road or in an empty field. Urban streets can be a challenge for vehicles, resulting in explosions.

Important 1: the more spawnpoints available, the fewer accidents such as infantry being run over and vehicles colliding.

Important 2: NEVER set a spawnpoint out of the map limits. Arma 3 no recognize positions beyond the map edges.

How can I contribute to the CSWR script?

Discussion on Bohemia Forums

https://forums.bohemia.net/forums/topic/237504-release-controlled-spawn-and-waypoints-randomizr/

Changelog on Github

https://github.com/aldolammel/Arma-3-Controlled-Spawn-And-Waypoints-Randomizr -Script

Author

Based in Porto Alegre, Brazil

thy @aldolammel