

ArmA
Coop Essential Pack
ver. 1.0

User manual

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A-CEP 1.0 key features:

Dynamic Group Creator:

- *Create random amount of groups*
- *Groups are of random size*
- *All types of vehicles (except air) supported*
- *All 4 sides supported*
- *Breaks the ArmA limit of 144 groups*
- *Complete randomized patrol patterns*
- *Add custom waypoints for infantry, vehicles or both*

Dynamic ambush/reinforcement System:

- *Add ambush or reinforcement for every side*
- *All sorts of vehicles supported (also air)*
- *Vehicles will carry Infantry if enough cargo seats available*
- *Units will randomly search patrol areas*
- *Choppers can be set to let paradrop or land and disembark infantry*

Dynamic Body & Object removal System

- *No "remove after X seconds" but when max allowed limit is reached (customizable)*
- *Smooth sink-into-ground effect for bodies*
- *Saves CPU resources*
- *By default active for all units/vehicles created by the CEP*
- *Can easily set to be used with own placed units/vehicles*

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Arma Coop Essential Pack

Initializing the A-CEP

Before you can use the A-CEP, you'll need to initialize it. This can be done in several ways but i recommend to do it in your init.sqs/sqf. I'll use .sqf syntax during this manual.

To initialize it, add the following line to your init.sqs/sqf:

```
nul =[WEST, [EAST], [Resistance, Civilian], [20, 10], true/false] exec  
"coop_essential\cep_init.sqf"
```

Ok, let's get through the parameters and see what they mean.

WEST

- This first parameter defines the side on which the playable units will be, in this example they'll be on **WEST** side. Only one side can be defined here. Accepted values are: **WEST EAST Resistance** or **Civilian**.

[EAST]

- This array will define which sides are set as enemy sides. Every side in this array will attack units on the above set players side. As you guess, more than one side is supported here. Accepted values are: **WEST EAST Resistance** or **Civilian**.

[Resistance, Civilian]

- This array defines sides which will be considered friendly to players side. Like the enemy array, more than one side can be set here. Accepted values are: **WEST EAST Resistance** or **Civilian**.

[20, 10]

- This array is part of the Dynamic Body & Object remover System. It sets at which stage the removal will start. In the above setting, it will start deleting when 20 units are dead and 10 vehicles are destroyed. It deletes the units/vehicles in the order they died, so the last victims will stay at place until other are killed.

true/false

- And finally, this boolean will enable/disable the editor mode of the A-CEP. While editor mode is enabled, the system will throw out hints at some stages to inform you that everything goes well (or not). It will also let you see what has been done on the map, showing you the size of a zone, it's trigger size, the waypoints generated and the patrols moving. When your mission is done, don't forget to disable the editor mode.

IMPORTANT NOTE:

Even when you don't want to use the DGC part of the A-CEP, this initialization has to be made since the others system also use the same parameters made in the cep_init.sqf.

Dynamic Group Creator

Setting up a Zone

To set up a zone we need an object which will act as a center. In the included demo mission you see that i used a road cone as a center. You can use any editor placed object as center but for sure you can also use a trigger. This object will be deleted after the zone is completely set, so don't take anything that might be important. In the initialization line (or, if you use a trigger, in the on activation line) we write the scriptcall for the zone:

```
nul=[objectname, zonesize, treshold distance, [[SIDE,
[armored],[light],[armed],[unarmed],[standard],[specops], [Behave_array]]]] execVM
"coop_essential\cep_zone.sqf"
```

A scary long line, let me rip it apart for better reading:

```
nul = [objectname, zonesize, treshold distance,
[
[SIDE,
[armored],
[light],
[armed],
[unarmed],
[standard],
[specops],
[Behave_array]
]
]
] execVM "coop_essential\cep_zone.sqf"
```

Better, isn't it? Now let's get through this bunch of parameters.

objectname

- This simply refers to the object which acts as center. You should name it and enter it's given name here. Remember that names have to be unique.

zonesize

- Here you define what size the zone will have. In example, 200 will make a zone of 200 meters of radius. If you use a trigger as zone center, it's size settings will have no effect on the size of the zone, only this value defines it. All units and vehicles will be created within this area and they'll also patrol in this area (except if you have set some custom waypoints, but more on this later).

treshold distance

- This defines how far a player must close up to the zones border. After this condition is met, the units and vehicles are created. So with setting 500, the players must approach closer than 500 meters to the border before anything is created. Always border is referred to, not center. I would like to give you a „perfect value“ but this doesn't exist. If your zone is on a wide open area and your mission is set on a clear, fogfree day, you might set a high value of 1000 or even more (especially when the players have choppers which allows a fast approach). Counterwise, if the zone is well covered with forrests, it's dark and foggy, even 200 could be enough. You have to play with this value.

SIDE

- Here you define which side will be created. Valid values are: **WEST** **EAST** **Resistance** and **Civilian**.

[armored]

- Now we go in defining how many groups will be created. This first array defines groupnumbers of type „Heavy armour“ like the M1Abrams or the T72. Enter min and max group numbers here, like:
[2,5]
This will create at least 2 groups of heavy armour but not more than 5. Inbetween, every size is possible and randomly generated each time.

[light]

- Second array defines group numbers for light armoured vehicles like a M113 or a BRDM2. All stated at [armored] is also valid for light armoured vehicles.

[armed]

- This third array defines group numbers for armed vehicles like UAZ-AGS30 or Humvee with M2. All said above also valid here.

[unarmed]

- The fourth array will define group numbers for unarmed vehicles like Ural, 5tTruck or UAZ. For the rest, see above.

[standard]

- Now we go into defining group numbers for infantry. This one here will create standard groups, randomly put together. As above, first number will define min group numbers and second number defines max group numbers.

[specops]

- Second type of infantry, Special Forces or the side equivalent of it. Same rules as all above.

[behave_array]

- Here you can setup custom behaviour for the groups in a zone. If not set, default values will be used (read more about in the customizing chapter). The behave array takes 6 values:
Behaviour "SAFE"
Speedmode "LIMITED"
Combatmode "GREEN"
Formation "LINE"
Skill level between 0 and 1 (0 = min skill, 1 = max skill)
Allow fleeing between 0 and 1 (0 = min courage, 1 = max courage)
For more information about these settings, head over to the customizing chapter.

Some examples for zone calls

Minimal

```
[my_object, 250, 1000, [[EAST, [1,2],[],[],[4,7],[]]]]
```

As you see, this zone will create 1 or 2 groups of heavy tanks and between 4 and 7 groups of standard infantry. Note the complete absence of the behave array! I left the execVM part away as this will not change at all. Next example.

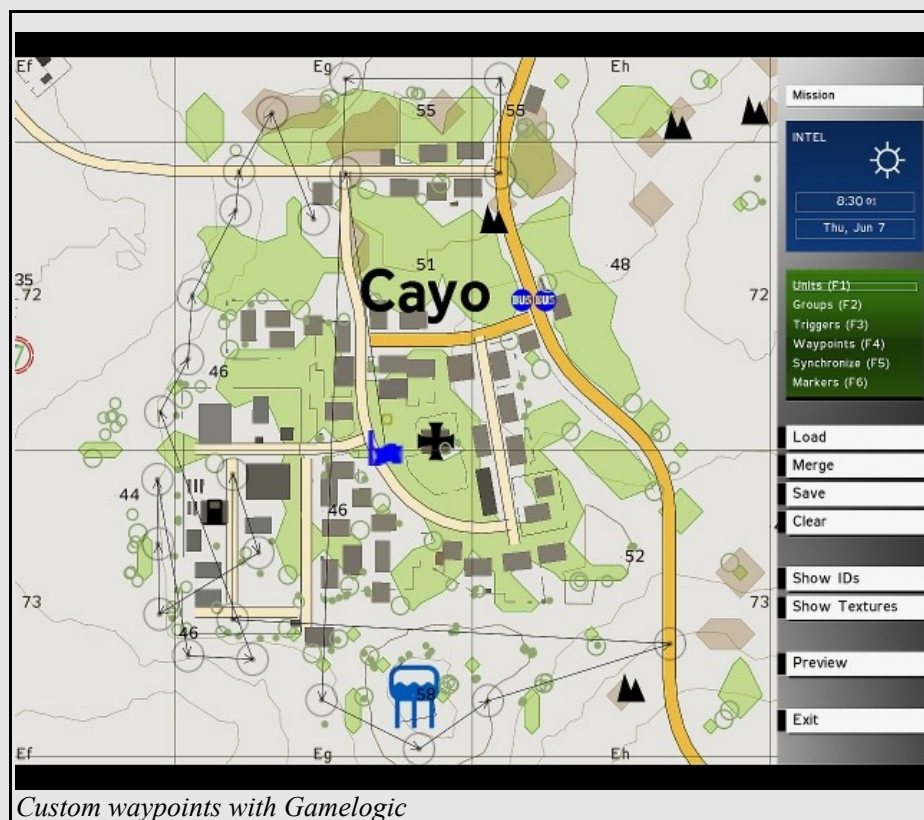
2 sides in one zone, second with custom behaviours

```
[other_object, 300, 200, [  
  [WEST, [], [2,4], [1,3], [], [4,7], []],  
  [Civilian, [], [], [], [5,8], [], [„SAFE“, „“, „“, „“, 0.5, 0.8]  
]]
```

This one will create between 2 and 4 light armoured vehicles, between 1 and 3 armed cars and between 4 and 7 groups of standard infantry on side WEST. It will also create between 5 and 8 groups of civilians with customized behaviours. You might note that not all behaviour values are set. If not set, default parameters are taken instead.

Add custom waypoints

As the waypoints are generated randomly, there will never be a guarantee that a certain spot will ever be visited by anyone. So you might want to add some „points of interest“ which should be added to the random waypoints and therefor also visited by patrols. Or you have a point outside the zone which you want to be checked by patrols time by time (like a radio tower or another object of strategic interest). Doing this is quite easy. Create a Gamelogic inside the zone and give it waypoints as you would do to a unit. You can add as many as you want, no matter if 1 or 100. All points can be used for creating groups and will also be used for patrolling.



You can choose if custom waypoints will be used for infantry only, vehicles only or both. You do this by just adjusting the heading of the gamelogic:

- between 0 and 120 degrees = add custom waypoints to infantry only
- between 120 and 240 degrees = add custom waypoints to infantry and vehicles
- between 240 and 360 degrees = add custom waypoints to vehicles only

NOTE:

Per zone only 1 logic can be used. Make sure there's no other in range (zone size) or a error will be thrown out.

Editor mode

When you have editor mode enabled, some messages from the system will be shown to inform you what happens.

Zone test status report:

Zone size: 100

Triggering distance: 900

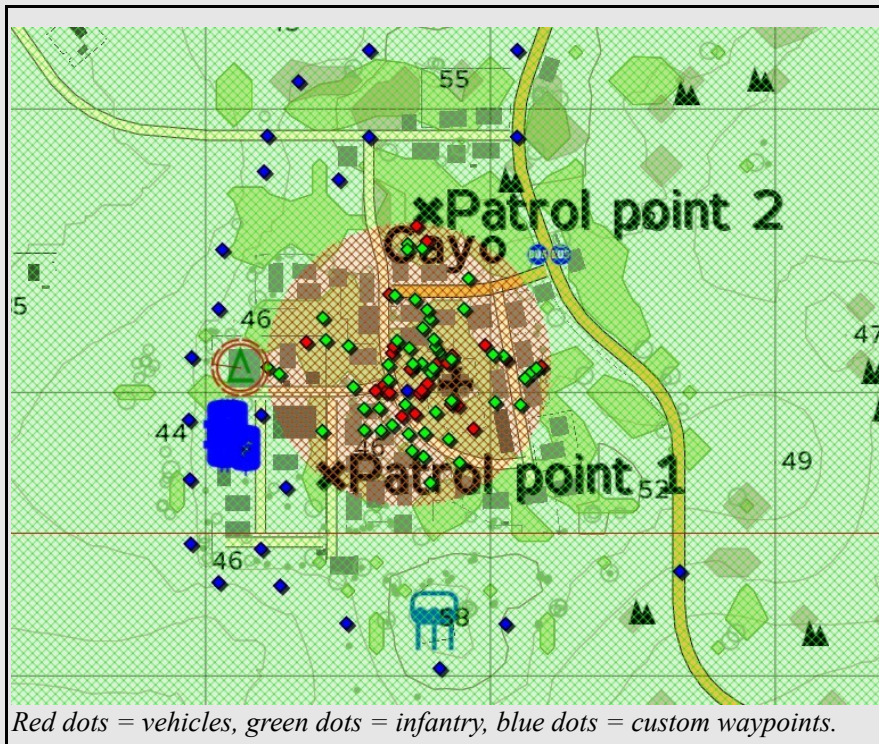
Vehicles waypoints: 74

Infantry waypoints: 75

Custom waypoints: 24

System messages showing name of the zone (test), size, triggering distance and waypoints generated. (Typo is known and fixed :p)

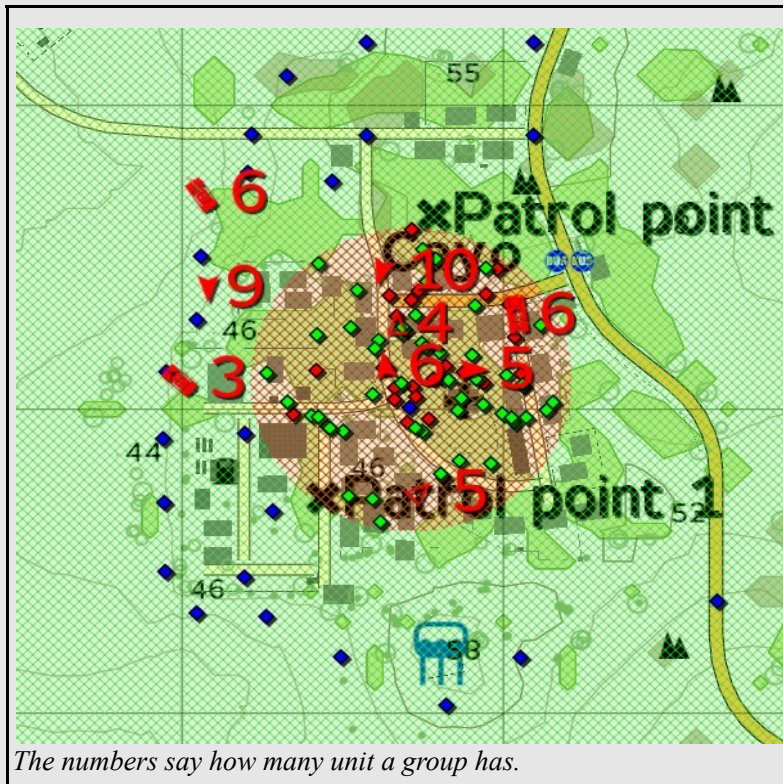
Switch to the map to see where the waypoints are.



Red dots = vehicles, green dots = infantry, blue dots = custom waypoints.

The red circle marks the zone itself. At the red dots, vehicles will be created and these will also be random waypoints while patrolling. The green dots are the same for infantry. And the blue dots indicates the custom waypoints we set with a Gamellogic.

As soon units on players side approaches to the zone and the vehicles/units are created, you can follow their path on the map.



- Heavy armoured
- Light armoured
- Armed vehicle
- Unarmed vehicle
- Standard Infantry
- Special Force
- Color code: WEST
- Color code: EAST
- Color code: Resistance
- Color code: Civilian

These markers represent the different grouptypes and the color shows which side they belong to.

Don't forget to disable the editor mode once your mission is finished. But even if you forget to do so, all editor related scripts are server side only and therefor on a dedicated server they shouldn't be visible for any players.

As system messages are only shown in editor mode, error messages are always active to let people know that something is goin wrong and the mission is probably not playable as planned.

Dynamic ambush/reinforcement System

Preparing the ambush/reinforcement

Sometimes during a mission, you might want to have some troops coming into a specific area and attack everything they see. May it be on your side, supporting you or on enemy side, fighting against you. The DGC part can't do that, as it is designed to defend a certain area and not to attack. For this purpose, you can use the Da/rS.

The Da/rS creates 1 or more vehicles, creates all personnel to operate the vehicle and, if enough cargo seats are available (more than 3), creates a group of infantry which will disembark at predefined zones. All sort of vehicle is supported, also air.

As initialization is already done with the cep_init.sqf no further preparing steps aren't necessarily. So let's go directly into creating an ambush.

Creating the ambush/reinforcement

```
nul = [{"UH60MG", "UH60MG"}, ["start1", "start2"], ["drop1", "drop2"], ["move1", "move2"], WEST, false] execVM "coop_essential\cep_ambush.sqf"
```

This scriptcall will create 2 Blackhawks and send them to unload a group each. Let's go through the parameters:

["UH60MG", "UH60MG"]

- Here you define what vehicles are created. At this point, no randomness is given. You name 2 vehicles, there will be 2 vehicles. Valid parameters are any vehicle classnames. If a vehicle has no cargo slots, it will attack itself. If it has more than 3 cargo seats and if it is a chopper, it will bring the loaded group to a drop point, let them disembark and fly back home. If it is a land vehicle (like a M113) it will unload the troops but stay with them and give fire support.

["start1", "start2"]

- This array contains markernames which will be used as creating/starting point for the above vehicles. The markers you have to set yourself because it's nearly impossible to determine if an area is clear and flat enough to create a chopper. So select these points carefully. You have to provide at least equal numbers of markers. If you provide more, then the script will pick randomly one of those, never using a marker twice (that's why marker numbers have to be equal). The more markernames you give here, the bigger the random factor.

["drop1", "drop2"]

- Also here it needs markernames and also here it needs at least same numbers as vehicles will be created. Also here you can set more markers to add randomness. These places will be used to unload troops from transporting vehicles. If no troops are transported (like with an M1Abrams), it will just be a waypoint.

["move1", "move2"]

- Final target markers. The unloaded troops will move to one of those markers and randomly patrol the area around of it. Here it is possible to have only 1 marker. If you add more, the troops will go from one markerarea to another from time to time.

WEST

- Here you define what side should be created. The vehicle itself has no meaning for this so you might create a Blackhawk and fill it with RACS troops. Accepted values are: **WEST EAST Resistance** or **Civilian**.

false

- And finally, with this boolean (true/false) you can set if troops should paradrop (true) or if the chopper should land (false) to let the troops disembark. This has no effect on land based vehicles.

Dynamic Body & Object removal System

How does it work?

Every unit and every vehicle will be added to an array when killed. But instead of deleting everything after predefined time, it keeps them where they are and only if the amount exceeds a (defined) limit, it will delete the oldest units/objects.

As the DBOrS will automatically be set for all units/vehicles created by the A-CEP, you may also use it for editorplaced units/vehicles.

Enabling DBOrS for self placed units & vehicles

Pretty easy. Create a trigger, covering the area you placed the units, make it activated by anybody/present/once. In the „On activation“ line, write the following code:

```
nul = [thislist] execVM "coop_essential\cep_DynBr_addEH.sqf"
```

That's it. Everything is done. Now also your own placed units/vehicles will be deleted by the DBOrS.

NOTE: As the DBOrS is part of the A-CEP, the initialization need to be done, even when you don't plan to use the Group or the Ambush creator.

Customization

Changing group sizes

If you're not happy with the predefined groupsize, you can change it to your needs. Open the script `cep_edit_me.sqf`. There you'll find all group types and its default values:

```
// First part: Heavy armored vehicles
_cep_armored_grpsize_min = 1;
_cep_armored_grpsize_max = 2;
_cep_armored_grpsize = [_cep_armored_grpsize_min, _cep_armored_grpsize_max];

// Second part: Light armored vehicles
_cep_light_grpsize_min = 1;
_cep_light_grpsize_max = 3;
_cep_light_grpsize = [_cep_light_grpsize_min, _cep_light_grpsize_max];

// Third part: Armed cars
_cep_armed_grpsize_min = 2;
_cep_armed_grpsize_max = 3;
_cep_armed_grpsize = [_cep_armed_grpsize_min, _cep_armed_grpsize_max];

// Fourth part: Unarmed Cars
_cep_unarmed_grpsize_min = 1;
_cep_unarmed_grpsize_max = 2;
_cep_unarmed_grpsize = [_cep_unarmed_grpsize_min, _cep_unarmed_grpsize_max];

// Fifth part: Standard Infantry patrols
_cep_standard_grpsize_min = 4;
_cep_standard_grpsize_max = 10;
_cep_standard_grpsize = [_cep_standard_grpsize_min, _cep_standard_grpsize_max];

// Sixth part: SpecOps Infantry patrols
_cep_specops_grpsize_min = 2;
_cep_specops_grpsize_max = 5;
_cep_specops_grpsize = [_cep_specops_grpsize_min, _cep_specops_grpsize_max];
```

Let's take the Standard infantry as example. Right now it is set to create at least 4 units but not more than 10. You can change these values to your needs. For vehicles it refers to created vehicles NOT units. So armored vehicles will create 1 or 2 tanks per group and fill up the seats with needed personnel.

Changing default behaviours

In the same script, you can change default behaviours for all groups. If in the zone no custom behaviour is set, these values will be used.

```
// Seventh part: Basic AI behaviours
// Set these Parameters as you need.
_cep_group_behaviour = "SAFE";
_cep_group_speed = "LIMITED";
_cep_group_combatmode = "RED";
_cep_group_formation = "FILE";
_cep_group_skill = 1;
_cep_group_fleeing = 0;
```

```
_cep_group_behaviour = "SAFE";
```

Here you define the basic behaviour of the created groups.

Accepted values:

1. - "CARELESS"
2. - "SAFE"
3. - "AWARE"
4. - "COMBAT"
5. - "STEALTH"

```
_cep_group_speed = "LIMITED";
```

Here you define the speedmode of the groups.

Accepted values:

- | | |
|----------------|---|
| 1. - "LIMITED" | Vehicles will travel with reduced speed, Infantry will walk |
| 2. - "NORMAL" | All travelling with full speed but obtain formation |
| 3. - "FULL" | Travel with full speed, ignore formation |

```
_cep_group_combatmode = "RED";
```

Defines the Combatmode of the groups.

Accepted values:

- | | |
|---------------|--------------------------------|
| 1. - "BLUE" | (Never fire) |
| 2. - "GREEN" | (Hold fire - defend only) |
| 3. - "WHITE" | (Hold fire, engage at will) |
| 4. - "YELLOW" | (Fire at will) |
| 5. - "RED" | (Fire at will, engage at will) |

```
_cep_group_formation = "FILE";
```

Sets the group default formation.

Accepted values:

1. - "COLUMN"
2. - "STAG COLUMN"
3. - "WEDGE"
4. - "ECH LEFT"
5. - "ECH RIGHT"
6. - "VEE"
7. - "LINE"
8. - "FILE"
9. - "DIAMOND"

```
_cep_group_skill = 1;
```

Setting the skill for all units.

Accepted values:

- | | |
|--------------|---------------------|
| 1. - Novice | < 0.25 |
| 2. - Rookie | >= 0.25 and <= 0.45 |
| 3. - Recruit | > 0.45 and <= 0.65 |
| 4. - Veteran | > 0.65 and <= 0.85 |
| 5. - Expert | > 0.85 |

Add 3rd party addons

You can easily add 3rd party addons into the A-CEP by editing the `cep_group_config.sqf`. To add addons you have to know the correct classname. Invalid classnames may cause ArmA to CTD!

Open the `cep_group_config` with your text editor. As you see, each side has it's own chapter. Every chapter is build the same way.

```

• _cep_heavy_armored = ["M1Abrams"];
• _cep_light_armored = ["M113", "Vulcan", "Stryker_ICV_M2",
  "Stryker_ICV_MK19", "Stryker_TOW"];
• _cep_cars_armed = ["HMMWV50", "HMMWVTOW", "HMMWVMK", "Truck5tMG"];
• _cep_cars_unarmed = ["Truck5t", "Truck5tOpen", "HMMWV"];
• _cep_units_leader = ["SquadLeaderW", "TeamLeaderW"];
• _cep_units_armored = ["SoldierWCrew"];
• _cep_units_basic = ["SoldierWB", "SoldierWG", "SoldierW",
  "SoldierWMedic", "SoldierWNOG", "SoldierWAR", "SoldierWMG", "SoldierWAT",
  "SoldierWAA", "SoldierWSniper", "SoldierWMiner"];
• _cep_units_special = ["SoldierWSaboteur", "SoldierWSaboteurPipe",
  "SoldierWSaboteurPipe2", "SoldierWSaboteurRecon",
  "SoldierWSaboteurAssault", "SoldierWSaboteurMarksman"];
• _cep_units_air = ["SoldierWPilot"];
• cep_west_config = [_cep_heavy_armored, _cep_light_armored,
  _cep_cars_armed, _cep_cars_unarmed, _cep_units_leader,
  _cep_units_armored, _cep_units_basic, _cep_units_special,
  _cep_units_air];

```

Most should be self explanatory. Now, how do you add an addon? First, decide what type is it. Is it an heavy armoured tank? Or is it a armed car? Depending on that, you have to add it in the corresponding line. Let us assume we have a M60 MBT addon we like to add. This is obviously a heavy armored tank, so it goes into the first line, inside the `_cep_heavy_armored`.

```
_cep_heavy_armored = ["M1Abrams"];
```

Let us think, the M60 has the classname "MSA_M60_MBT". So we add it to the line:

```
_cep_heavy_armored = ["M1Abrams", "MSA_M60_MBT"];
```

Done. Now the A-CEP will create M1A1 or M60 by random, even inside the same group. Now let's say, you want only have M60 created, then just remove the M1:

```
_cep_heavy_armored = ["MSA_M60_MBT"];
```

Now you'll have only M60 as heavy armored tanks. You can also raise the chance for certain vehicles/units to be created by double the entry:

```
_cep_heavy_armored = ["M1Abrams", "MSA_M60_MBT", "MSA_M60_MBT"];
```

Now the chances are twices high that M60 will be created, but it's still random. The same works with all classes.

NOTE: It doesn't care about which side a vehicle usually belongs to. You might add a M1Abrams to the Civilians or a Mi17 to WEST.

Credits

There were a few people who helped me to write all this stuff and was standing beside me with advice when I was stuck.

- Mandoble
- mi2slow
- Foxhound
- NiGHTWoLF
- satexas69
- rocko
- RambOz
- El Mariachi

Also a big thanks to the people at www.armaholic.com and www.ofpec.com. If I missed someone here, please forgive me.