Document For MER Usage

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If you're completely new at this, try this: MER: Beginners guide
It would be more helpful and readable than this. This is for some middle expert or one who wants to study MER. This is more like a textbook.

Table of content

0. Declaring/Notions/Enums

DECLARING:

MER: MapEditorReborn, the plugin itself.
Unity: SL-CustomObjects project that runs with unity to allow users to create schematic more comfortably. & The thing that you must do inside the unity.
In-game: The thing that you must do inside the game.

File: The thing that you can only meet as a file.
Schematic: Something more like a prob. However, it can also contain items and objects, e.t.c.s.
External-plugin: Plugins built to work with MER.

[Unity]
Root Object/Root: The main part of schematic. This object always has to be an empty object and have a ‘Schematic’ component to be compiled.
Component: The objects’ specific components that can be compiled. (ex: Light, Primitive Component, e.t.c.)
Dummy: it’s another name of Empty object.

[In-game]
Map: The group of objects, schematics, items and e.t.c.s.
Out-boundary: out of normal room. In this place, doors become invisible.

[File]
yml: The format of map.
json: The format of schematic. Both are TEXT files.

NOTIONS:

MER does not support textures and custom mesh and pro builder.
Do not use basic unity objects. MER compiler only compile objects that are empty objects or have a MapEditorObject component. (ex: Light, Primitive Component, e.t.c.)
You cannot make doors in unity.
There’s no Gate.
There’s no various SCP item pedestal lockers. (Name tag)
RagdollSpawner and CustomSpawnPoint won't work now.
You’ll use C# when coding.

ENUMS:

Enums are config stuff.

1. BlockType 0 = Empty Object 1 = Primitive 2 = Light 3 = Pickup 4 = Workstation 5 = Schematic 6 = Teleporter 7 = Locker	2. DoorDamageType 1 = None 2 = ServerCommand 4 = Grenade 8 = Weapon 16 = Scp096	3. TeleportFlag 0 = None 1 = Player 2 = Pickup 4 = ActiveGrenade	4. LockerType 0 = Pedestal 1 = LargeGun 2 = RifleRack 3 = MicsLocker 4 = MedkitLocker 5 = AdrenalineLocker	5. LockOnEvent 0 = None 1 = LightDecontamination 2 = WarheadDetonation
6. DoorNameTag 330 330_CHAMBER 914	7. KeycardPermissions (requires all registered permissions to interact.) 0 = None	8. General Color name 1. Blue 2. Red 3. Black	9. SpawnableTeam None Scp049 Scp0492	10. RoleType (Actually it’s just bunch of name) "Scp0492", "Scp049",

GR18 GR18_INNER 173_BOTTOM 173_CONNECTOR 173_ARMORY 173_GATE LCZ_WC LCZ_ARMORY LCZ_CAFE CHECKPOINT_LCZ_A CHECKPOINT_LCZ_B HID HID_RIGHT HID_LEFT NUKE_ARMORY SERVERS_BOTTOM 079_FIRST 079_SECOND 079_ARMORY 049_GATE 049_ARMORY 106_PRIMARY 106_SECONDARY 939_CRYO CHECKPOINT_EZ_HCZ_A CHECKPOINT_EZ_HCZ_B INTERCOM GATE_A GATE_B SURFACE_NUKE ESCAPE_PRIMARY ESCAPE_SECONDARY	1 = CheckPoint 2 = ExitGates 4 = Intercom 8 = AlphaWarhead 16 = ContainmentLevel1 32 = ContainmentLevel2 64 = ContainmentLevel3 128 = ArmoryLevel1 256 = ArmoryLevel2 512 = ArmoryLevel3 1024 = ScpOverrides (SCP access, ignore other permissions when SCP tries to interact with)	4. Cyan 5. Magenta 6. Gray (=Grey) 7. Green 8. Yellow 9. Clear (A value is 0) 10. White	Scp079 Scp096 Scp106 Scp173 Scp939 ClassD Scientist FacilityGuard MTF Chaos Tutorial	"Scp096", "Scp106", "Scp173", "Scp939", "ClassD", "Scientist", "FacilityGuard", "NtfPrivate", "NtfSergeant", "NtfSpecialist", "NtfCaptain", "ChaosConscript", "ChaosRifleman", "ChaosRepressor", "ChaosMarauder", "Tutorial"
	11. RoomType (This may contain out-dated-content) Unknown, Pocket, Surface LczArmory, LczCurve, LczStraight, LczCrossing, LczTCross, Lcz330, Lcz914, LczCafe (=PC15), LczPlants, LczToilets, LczAirlock, Lcz173, LczClassDSpawn, LczChkpB, LczChkpA, LczGlassBox (= GR18) HczArmory, HczCurve, HczStraight, HczCrossing, HczTCross, Hcz096, Hcz079, Hcz939, Hcz106, Hcz049, HczNuke, HczElevatorA, HczElevatorB, HczHid, HczServers, HczTesla, HczEzCheckpoint, HczTestroom EzCurve, EzStraight, EzCrossing, EzTCross, EzVent, EzIntercom, EzPcs, EzDownstarisPcs, EzConference, EzCafeteria, EzUpstarisPcs, EzShelter, EzGateA, EzGateB, EzCheckpointHallway, EzCollapsedTunnel		12. Attachments ({Code} = {Name}) 0 = None, 1 = IronSights, 2 = DotSight, 3 = HoloSight, 4 = NightVisionSight, 5 = AmmoSight, 6 = ScopeSight, 7 = StandardStock, 8 = ExtendedStock, 9 = RetractedStock, 10 = LightweightStock, 11 = HeavyStock, 12 = RecoilReducingStock, 13 = Foregrip, 14 = Laser, 15 = Flashlight, 16 = AmmoCounter, 17 = StandardBarrel, 18 = ExtendedBarrel, 19 = SoundSuppressor, 20 = FlashHider,	21 = MuzzleBrake, 22 = MuzzleBooster, 23 = StandardMagFMJ, 24 = StandardMagAP, 25 = StandardMagJHP, 26 = ExtendedMagFMJ, 27 = ExtendedMagAP, 28 = ExtendedMagJHP, 29 = DrumMagFMJ, 30 = DrumMagAP, 31 = DrumMagJHP, 32 = LowcapMagFMJ, 33 = LowcapMagAP, 34 = LowcapMagJHP, 35 = CylinderMag4, 36 = CylinderMag6, 37 = CylinderMag8, 38 = CarbineBody, 39 = RifleBody, 40 = ShortBarrel, 41 = ShotgunChoke, 42 = ShotgunExtendedBarrel, 43 = NoRifleStock, 44 = ShotgunSingleShot, 45 = ShotgunDoubleShot

1. What is MER?

MER: MapEditorReborn is a plugin of SCP: Secret Laboratory that runs under the EXILED framework made by Michal78900. MER helps users to build their own structures, maps and identities to their server. You would already have seen it.
Discord: https://discord.gg/rwbZAGx4
Github: https://github.com/Michal78900/MapEditorReborn
Github (SL-CustomObjects): https://github.com/Michal78900/SL-CustomObjects

MER supporting objects:

1. Primitive Object
    1. Cube
    2. Sphere
    3. Cylinder
    4. Capsule
    5. Plane (have many vertices.)
    6. Quad (Same with Plane but only 4 vertices)
2. Lockers
    1. Cabinet (Medkit)
    2. Cabinet (Adrenaline, color: green)
    3. SCP pedestal case. (Label is only SCP-500)
    4. Large Gun Locker (Have 10 slots)
    5. Mics Locker (The locker itself)
    6. Rifle Rack (EP-11)
    7. *079 Generator (Not supported. Maybe in the future.)*
3. WorkStation
4. Teleporter
5. LightSource
6. ItemPickup
7. Shooting Target
    a. D-Boy
    b. Binary
    c. Sport

    [In-game]
8. Doors (LCZ, HCZ, EZ)
9. Schematics
10. RoomLight (Similar to light source but it controls the light color of a specific room. Not light itself)
11. Vanilla Door
12. Vanilla Teslagate

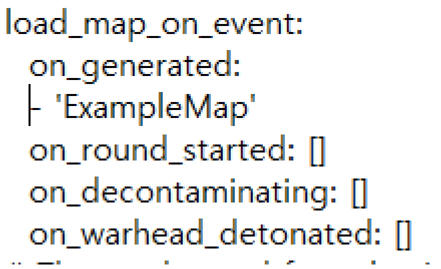
    [Unity]
13. Empty Object (Scaling is not supported.)

    [Broken]
14. RagdollSpawn

15. PlayerSpawn
16. DummySpawn

MER also support various configs (It’s already explained well, so only put something that you may confuse)

1. schematic_block_spawn_delay: This config can make lightsource and animation slow to be activated. So, if you’re trying to make a big map. Set it to -1.
2. load_map_on_event: This can automatically spawn **maps**.

   ```
   load_map_on_event:
     on_generated:
     - 'ExampleMap'
     on_round_started: []
     on_decontaminating: []
     on_warhead_detonated: []
   ```

   You must set it like this.
   - {map name here}
   on_generated = after map creator finishes creating vanilla map.
   Caution: when the map is loaded the previous map will be removed.

3. load_map_on_event_mode: This is a setting of load_map_on_event.
   1. random: it will load a random map from the list.
   2. merge: it will load every map, and it will be considered as **one map**.
   Caution: Option ‘merge’ can unload map even if the auto load lists are empty due to code problems.

2. MP Commands

The main part of MER. You can run them in the RA panel (Remote Admin).
The executor must have permission: “mpr.{command_name}” or you can easily just set: “mpr.*”

Command List:

1. MapEditor
2. **CreateObject**
3. DeleteObject
4. CopyObject
5. SelectObject
6. **ToolGun**
7. GravityGun
8. **Save**
9. **Load**
10. UnLoad
11. ShowIndicators
12. List
13. OpenDirectory
14. FixMaps

15. Merge
16. Properties
17. **Modify**
18. SetRoomType
19. **Position**
20. **Rotation**
21. **Scale**
22. TPS

MapEditor

Aliases: mapeditor, mp
Format:
1. mp {sub_command}
   Execute {sub_command}, or log {sub_command}'s format.
2. mp
   Display every sub commands and brief explanation.

This is the parent command that separates other commands and MER commands.

TPS

Aliases: tps
Format: tps
It will log tps / tickrate.

CreateObject

Aliases: create, cr, spawn
Format:
1. mp create
   Create a copied object the point you're facing at.
2. mp create {object/schematic name}
   Create {object/schematic name} the point you're facing at
3. mp create {object/schematic name} {x_pos} {y_pos} {z_pos}
   Create {object/schematic name} in the exact position.

This command will be used to spawn schematics rather than objects.

DeleteObject

Aliases: delete, del, remove, rm
Format:
1. mp delete
   Delete object/schematic you're facing at.

CopyObject

Aliases: copy, cp
Format:
1. mp copy
   Copy object/schematic you're facing at. (**Including properties**)

SelectObject

Selected object is displayed as a hint.

{Object type}
{Position}|{Rotation}|{Scale}
{Room Type}
({Properties})

Aliases: select, sel, choose
Format:
1. mp select
   Select the object/schematic you're facing at.
   Or external-plugin can define what object to be selected.

ToolGun

Aliases: toolgun, tg
Format:
1. mp toolgun
   Give the executor a tool gun, if the executor already has one, it will remove it instead.

GravityGun

Aliases: gravitygun, gg, gravgun
Format:
1. mp gravitygun
   Give the executor a gravity gun, if the executor already has one, it will remove it instead.

Modify

Aliases: modify, mod
Format:
1. mp modify
   Log properties of the selected object.
2. mp modify {property_name} {value}
   [Teleporters]
3. mp modify {Target_teleporter_id} chance {value}
4. mp modify add {Target_teleporter_id} {Chance}

Properties

Aliases: properties, prop
Format:
1. mp properties
   Log current map's name and properties.
   1. Whether to remove default spawn points.
   2. Ragdoll name per role.
2. mp properties name {name}
   Rename current map.

		5. mp modify (remove/delete) {Target_teleporter_id} Notion: Target_teleporter_id is object id (not indexing 0, 1…)	3. mp properties removedefaultspawnpoints {true/false} 4. mp properties ragdollrolenames {role} {name}
Position Notion: you can't move roomlight. Aliases: position, pos Format: 1. mp position Log the selected object's position value. 2. mp position set {x value} {y value} {z value} Move the selected object to the exact position. (Local position of room) 3. mp position add {x value} {y value} {z value} = current position + vector(x value, y value, z value) 4. mp position bring Bring the selected object to your current position. 5. mp position grab Constantly move the grabbed object related to your camera facing and position. If you type again, it will stop grabbing and determine position.	**Rotation** Notion: you can't rotate room light, lightsource, player spawn point, indicator object Aliases: rotation, rot Format: 1. mp rotation Log the selected object's rotation value. 2. mp rotation set {x value} {y value} {z value} Rotate the selected object to the exact rotation value. 3. mp rotation add {x value} {y value} {z value} = current rotation + angle(x value, y value, z value) 4. mp rotation rotate Similar to grab but it will rotate with the executer's movement. If you type again, it will stop rotating and determine rotation.	**Scale** Notion: you can't scale roomlight, lightsource, playerspawnpoint, indicatorobject, ragdollspawn Aliases: scale, scl Format: 1. mp scale Log the selected object's scale value. 2. mp scale set {x value} {y value} {z value} Scale the selected object to the exact scale value. 3. mp scale add {x value} {y value} {z value} = current scale + vector(x value, y value, z value)	**SetRoomType** Notion: this command makes objects to be considered as **part** of a specific room. If you try to assign more than 1 RoomLight per room, it will refuse. Aliases: setroomtype, setroom, resetroom, rr Format: 1. mp setroomtype Assign roomtype to your current room. 2. mp setroomtype {room_type}
Save Aliases: save, s Format: 1. mp save {map_name} Save **all objects** that are currently spawned by MER as a map file.	**Load** Aliases: load, l Format: 1. mp load {map_name} Load map, and also **remove** previous map.	**UnLoad** Aliases: unload, unl Format: 1. mp unload Unload current map.	**List** Aliases: list, li Format: 1. mp list Show a list of maps and schematics.
ShowIndicators Aliases: showindicators, si Format: 1. mp showindicators Visualize specific objects' properties. *ItemPickup = spawn rotating current item above its exact position.* *PlayerSpawn = spawn dummy that indicates a spawnable role.* *RagdollSpawnPoint = spawn dummy that indicates a spawning ragdoll type.* *Teleporter = Visualize trigger area.*	**OpenDirectory** Aliases: opendirectory, od, openfile Format: 1. mp opendirectory Open MER's config folder.	**FixMaps** Aliases: fixmaps Format: 1. mp fixmaps *This command is for out-dated-version maps to be updated. It doesn't do anything now.*	**Merge** Aliases: merge Format: 1. mp merge {map 1} {map 2} (optional: {map 3}...) Combine the listed map and save as the first map name.

3. ToolGun

ToolGun is an in-game tool that is the most useful tool in the game. You can get it by typing "mp tg".

You’ll get Com-15.

By firing, you can do 4 actions with 2 factor (flashlight, ads)

ADS Flashlight	On	Off
On	**Select** the object you’re facing at	**Create** target object
Off	**Copy** the object you’re facing at	**Delete** the object you’re facing at

By pressing the throw key, you can switch what object to create. (Default is LCZ door)

3-1. GravityGun

GravityGun(gg) is an in-game tool that is the most useless tool in the game. You can get it by typing “mp gg”. You’ll get a revolver

Mode:
1 = Movement
2 = Rotate
4 = Gravity

If you reload gg, it toggles gravity mode. And if you try to drop it, it will follow the table below.

Movement Rotate	On	Off
On	Disable Rotate	Enable Movement Disable Rotate
Off	Disable Movement Enable Rotate	X

If you reload gg, it switches Gravity mode.

When you shoot the **schematic,** you start/stop grabbing the shot schematic. And add a rigidbody if the shot schematic doesn’t have one. And follow the following rules.

1. Enable IsKinematic.
2. If gravity is off, disable its gravity and make its mass to 0, and set constraint to 48 (Freeze rotation X, Y), if on, enable its gravity and make its mass to 1, and set constraint to 0 (Unfreeze).
3. If movement is off, set constraint to 14 (Freeze Position)
4. If rotate is off, set constraint to 112 (Freeze Rotation)
5. **While** the player is holding the gravity gun, move **smoothly** schematic to {Eye position} + 2 × {Facing Direction Vector} if movement is on, and set its angle as the same value of the player if rotate is on.
6. Disable IsKinematic and freeze rotation.

4. Objects

Map Editor Object(=general)

Indicator: X
Indicator means if tg created object or someone typed “mp showindicators”, it will appear to indicate the exact position or property.

Properties:

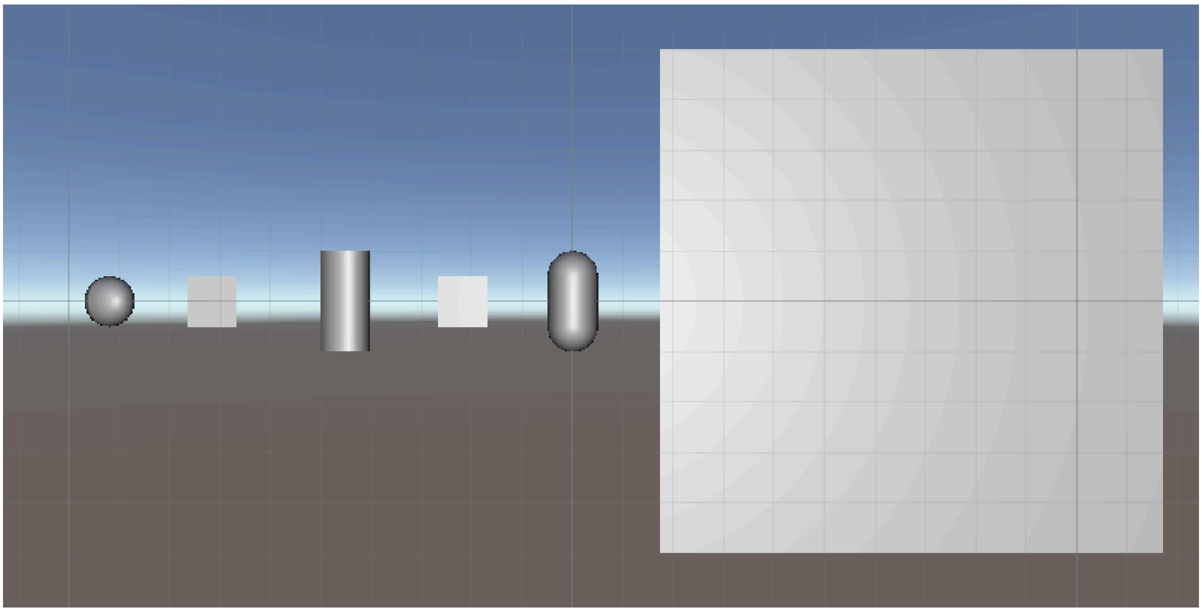
1. Name
2. Parent Id (File)
   The parent object’s object id.
3. Object Id (File)
4. Position
5. Rotation
6. Scale
7. BlockType
8. Properties
   The significant property of block defined by blocktype.

Empty Object [Unity/File]

Hidden MVP. Only this object can have a ‘schematic’ component and become a root object. Empty objects can also be a center of a specific group. Just select all primitives you want to make as a group, and drag them to an empty object. Then, the empty object will be an anchor of the group.

CAUTIONS: NEVER EVER EVER SCALE EMPTY OBJECT.

Primitive Object



Sphere, Quad, Cylinder, Cube, Capsule, Plane. **THIS IS ALL YOU CAN USE TO MAKE SOMETHING. NO CUSTOM MESH, NO CUSTOM TEXTURE. ALSO Plane and Quad are buggy. I don't recommend using them.**

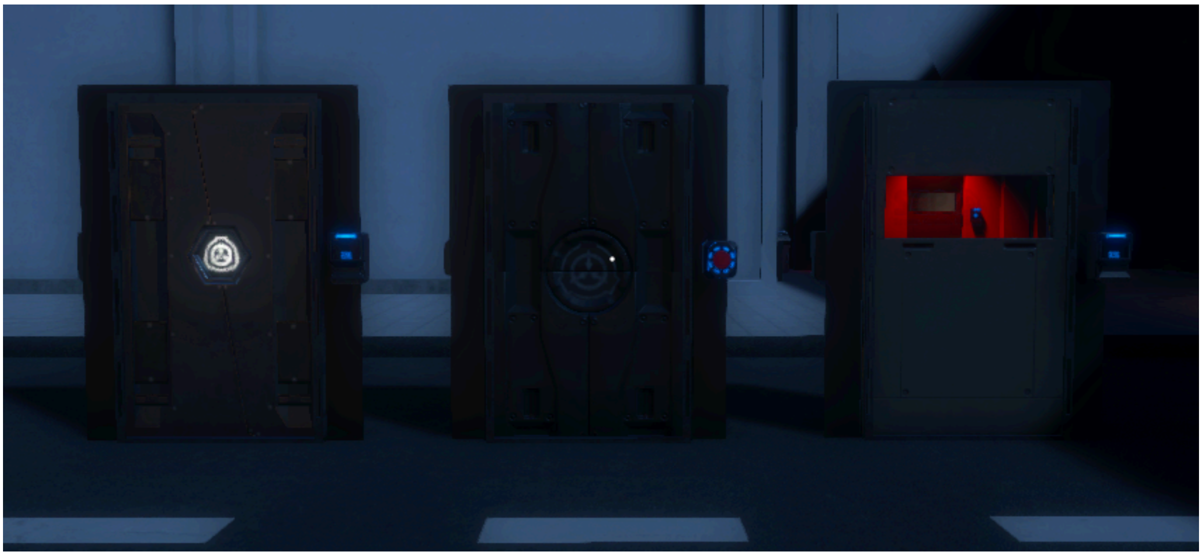
The essence of MER.

Indicator: X

Properties:

1. Color
   Using RGBA, and if A value is lower than 1, it will turn into a transparency shader (which is something like glass).
   "mp mod color {general color name/HEX/}"
   "mp mod color {R}:{G}:{B}"
   "mp mod color {R}:{G}:{B}:{A}" (A value is 0~1, RGB value is 0~255~∞ we'll talk about this later.)
2. PrimitiveType
   "mp mod primitivetype {type (= shape)}"
3. Collidable [Unity/File]
   Whether to ignore every collision or not.
   "mp scl set {-x value} {-y value} {-z value}"
   Notion: collidable property is for unity, you must set scl to negative value to make it work in-game.

Doors [In game/File]



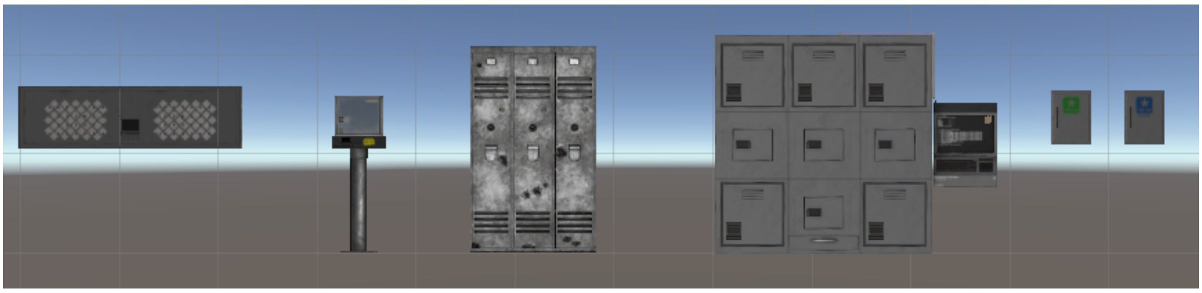
Also, they act as positioning points, which make moving/deleting doors cause players to be dropped into the void or get buggy positions.

Indicator: X

Properties:

1. DoorType
   LightContainmentDoor, HeavyContainmentDoor, EntranceDoor
2. IsOpen
   If on, it will spawn with the door opened.
3. IsLocked
   If on, it will be locked when it spawns.
4. KeycardPermissions
   “mp mod keycardpermissions {sum of permissions value}”
5. IgnoredDamageSources
   “mp mod ignoreddamagesources {sum of damage sources value}”
6. DoorHealth
7. LockOnEvent
   Only check decontamination and warhead.

Lockers



Rifle rack, Pedestal locker, Mics locker, Large gun locker, Medkit locker, Adrenaline locker.

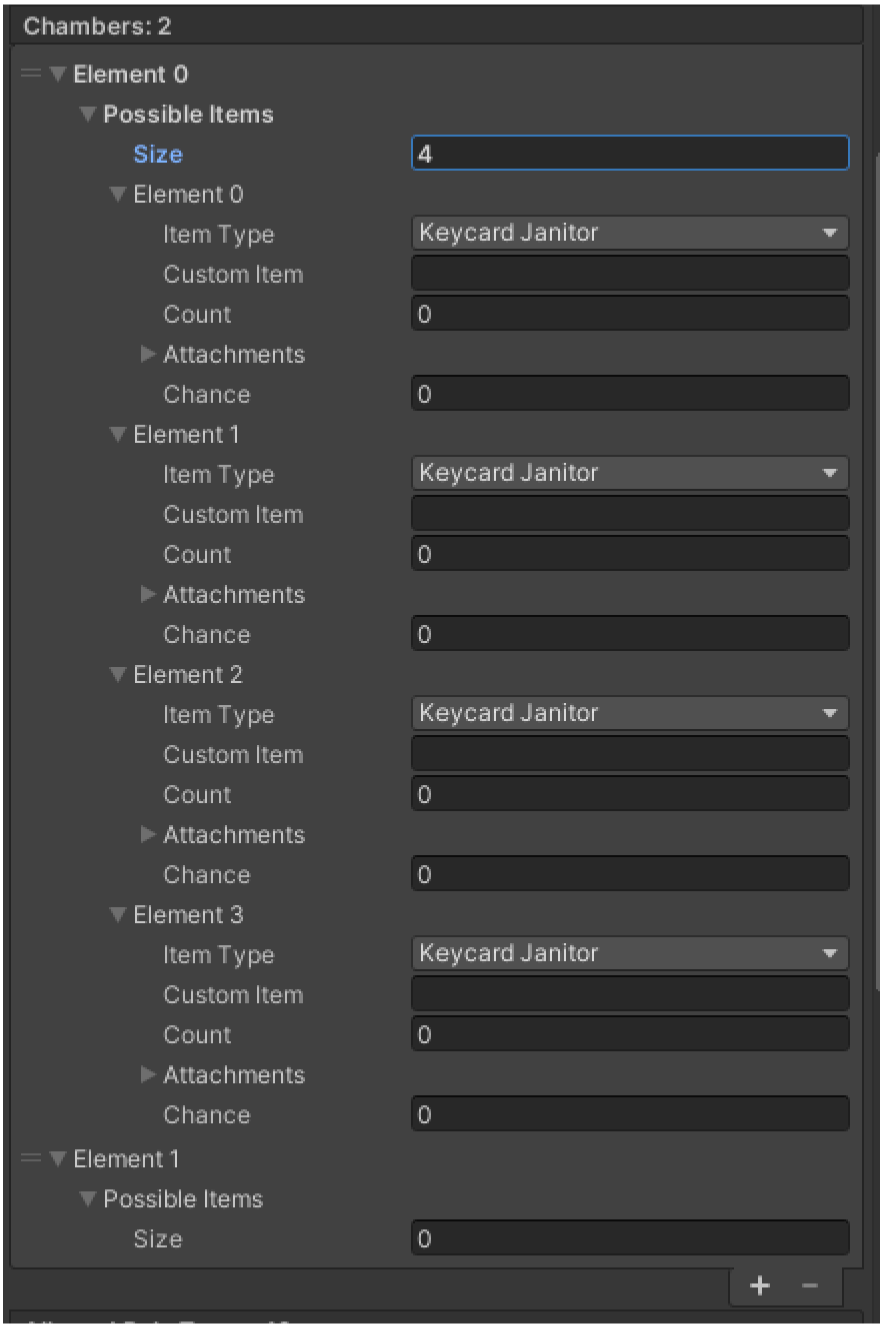
Caution: Item spawner of MER locker is unstable and item may spawn outside of locker.

Indicators: X

Properties:

1. LockerType
   “mp mod lockertype {locker type}”
2. ShuffleChamber
   “mp mod shufflechamber {true/false}”
3. KeycardPermissions
   “mp mod keycardpermissions {sum of keycard permissions enum}”
   372 = ArmoryLevel2(256) + ContainmentLevel3(64) + ContainmentLevel2(32) + ContainmentLevel1(16) + Intercom(4).
4. OpenedChambers
   Opened Chambers count when it spawns. 1, 2, 4, 8, 16…
   “mp mod openedchambers {sum of chamber indexes}”
   37 = First(1), Third(4), Sixth(32) opened.
5. InteractionLock
   “mp mod interactionlock {true/false}”
6. Chance
   The percentage of locker appearance when its map is loaded.
   “mp mod chance {0~100}”

   [Unity/File]
7. Chambers



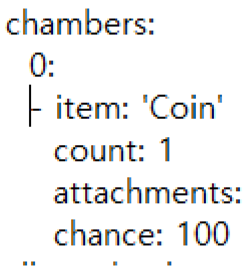
Chambers: 2

- Element 0
  - Possible Items
    - Size: 4
    - Element 0
      - Item Type: Keycard Janitor
      - Custom Item:
      - Count: 0
      - Attachments
      - Chance: 0
    - Element 1
      - Item Type: Keycard Janitor
      - Custom Item:
      - Count: 0
      - Attachments
      - Chance: 0
    - Element 2
      - Item Type: Keycard Janitor
      - Custom Item:
      - Count: 0
      - Attachments
      - Chance: 0
    - Element 3
      - Item Type: Keycard Janitor
      - Custom Item:
      - Count: 0
      - Attachments
      - Chance: 0
- Element 1
  - Possible Items
    - Size: 0

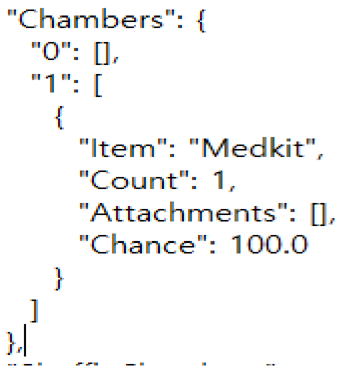
In unity, each element means chamber n. Size means the possibilities of item spawning variations.

1. Item Type
2. Custom Item: The id of a custom item. If you bind this, the compiler compiles id instead of item type.
3. Attachments: list. You'll get how to use it.
4. Chance: Weight of spawning.
   {chance} / {sum of chances} is a real chance(%).
   If 1, 5, 3 are chances, 1/9, 5/9, 3/9 are the real chances.
   If 35, 35, 30 are chances, 35/100, 35/100, 30/100 are the real chances.

In File, I don't recommend doing it this way.



```
chambers:
  0:
  - item: 'Coin'
    count: 1
    attachments:
    chance: 100
```



```
"Chambers": {
  "0": [],
  "1": [
    {
      "Item": "Medkit",
      "Count": 1,
      "Attachments": [],
      "Chance": 100.0
    }
  ]
},
```

yml json

You can just copy paste them and modify values well.

Yml:

list of attachment names.

```
attachments:
- {name 1}
- {name 2}
```

Json:

list of attachment index.

```
"Attachments": [
  {index 1},
  {index 2}
]
```

8. AllowedRoleTypes (List of role names) [Unity/File]

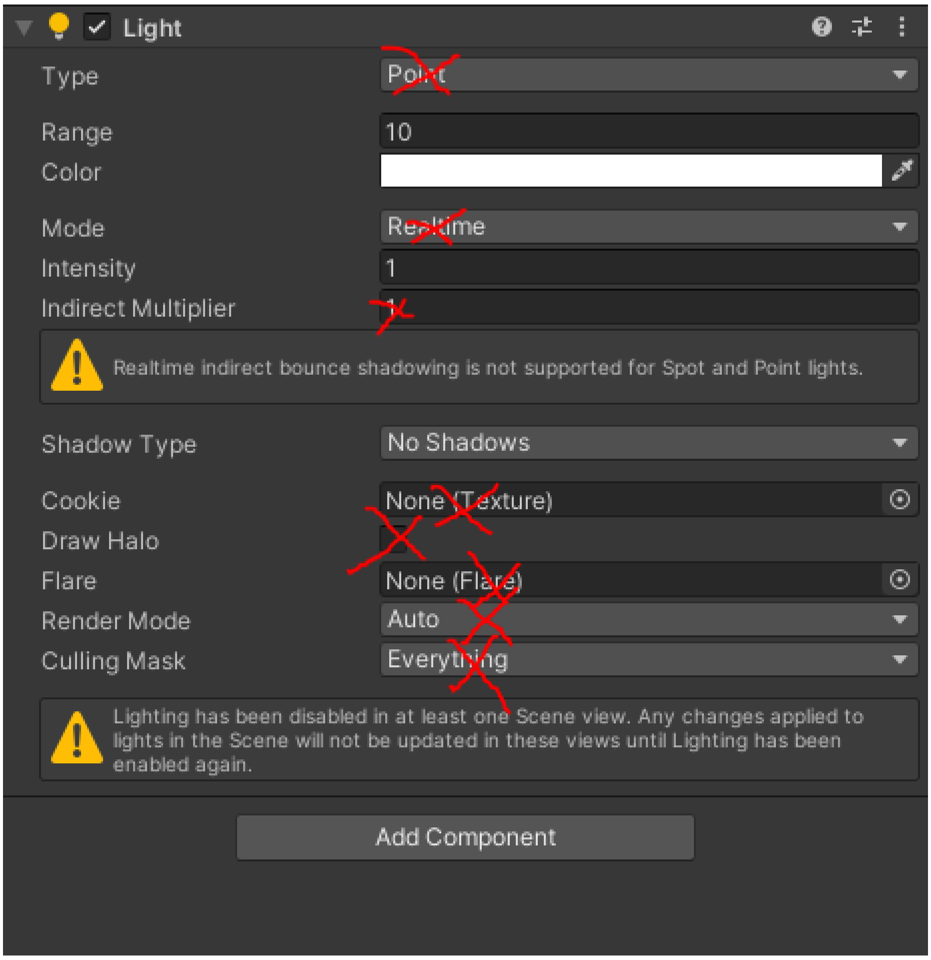
LightSource

The light itself.

Indicator: Hanged SCP-2176

Properties:

1. Range
   "mp mod range {0~}"
2. Color
   RGB(A) values.
   "mp mod color {general color name/HEX}"
   "mp mod color {R}:{G}:{B}"
   "mp mod color {R}:{G}:{B}:{A}" A value is 0~1, RGB values are 0~255.
3. Intensity
   "mp mod intensity {0~}"
4. Shadows
   Shadow means smooth shadow casting(True) or rough shadow casting(False) (Ignore primitive object). **Smooth shadow lags.**
   "mp mod shadows {true/false}"



☑ Light

Type ~~Point~~

Range 10

Color

Mode ~~Realtime~~

Intensity 1

Indirect Multiplier ~~1~~

Realtime indirect bounce shadowing is not supported for Spot and Point lights.

Shadow Type No Shadows

Cookie ~~None (Texture)~~

Draw Halo ~~□~~

Flare ~~None (Flare)~~

Render Mode ~~Auto~~

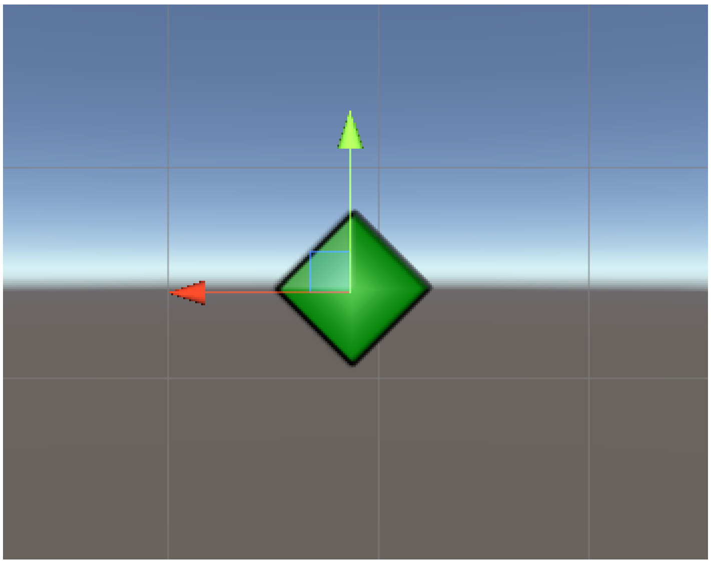
Culling Mask ~~Everything~~

Lighting has been disabled in at least one Scene view. Any changes applied to lights in the Scene will not be updated in these views until Lighting has been enabled again.

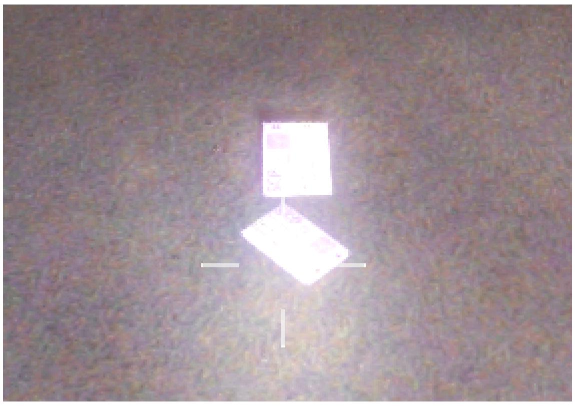
In unity, unmarked properties are editable.
Shadow Type’s **soft shadow** is true, others are false.

ItemPickup

(Actually it’s spawn point, not pickup itself lol)



Unity’s default gizmos.

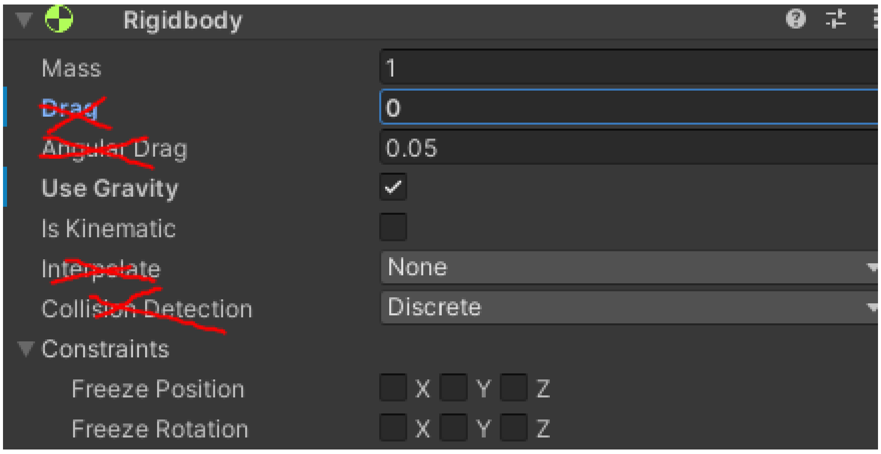


In game indicators (Above one).

Indicator: Floating rotating target pickup.

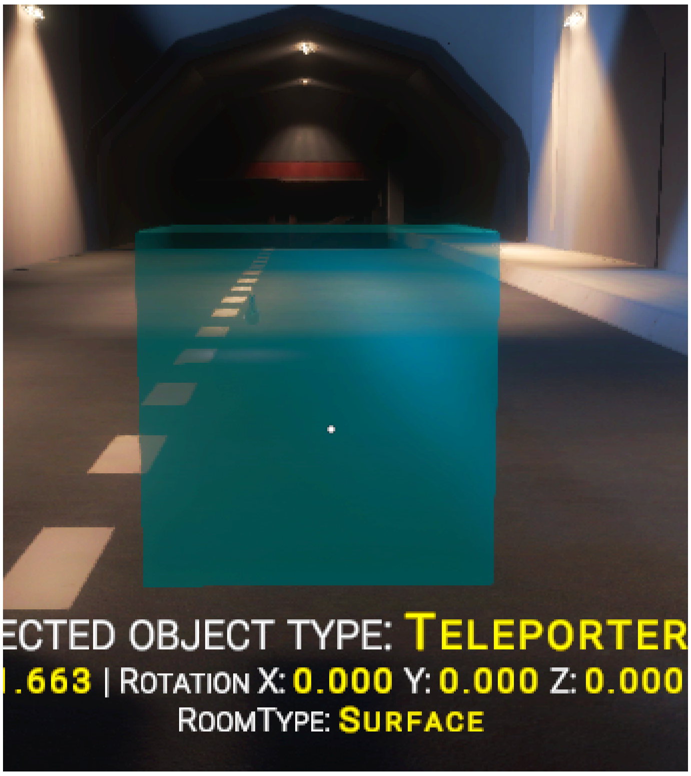
Properties:

1. Item
2. *AttachmentCode*
   (Broken)
3. SpawnChance
4. NumberOfItems
   If it spawned {value} items will be spawned.
5. *NumberOfuses*
   Players have to pick it up {value} times to get. (Broken)
6. UseGravity
   If false, its rigidbody’s ‘Is Kinematic’ becomes true. Which means it ignores every collision.
7. CanBePickedUp
   If false, it will refuse being picked up. (Used in modding)
8. Rigidbody [Unity/File]
   1. Mass
   2. UseGravity
   3. Constraints
   4. IsKinematic (If true, it won’t affected from all collisions)



Mass	1
~~Drag~~	0
~~Angular~~ Drag	0.05
Use Gravity	☑
Is Kinematic	□
~~Interpolate~~	None
~~Collision~~ Detection	Discrete
Constraints	
Freeze Position	□ X □ Y □ Z
Freeze Rotation	□ X □ Y □ Z

Teleporter



ECTED OBJECT TYPE: TELEPORTER
.663 | ROTATION X: 0.000 Y: 0.000 Z: 0.000
ROOMTYPE: SURFACE

(The most hard thing on vanilla & custom room connector)

Indicator: flickering cube

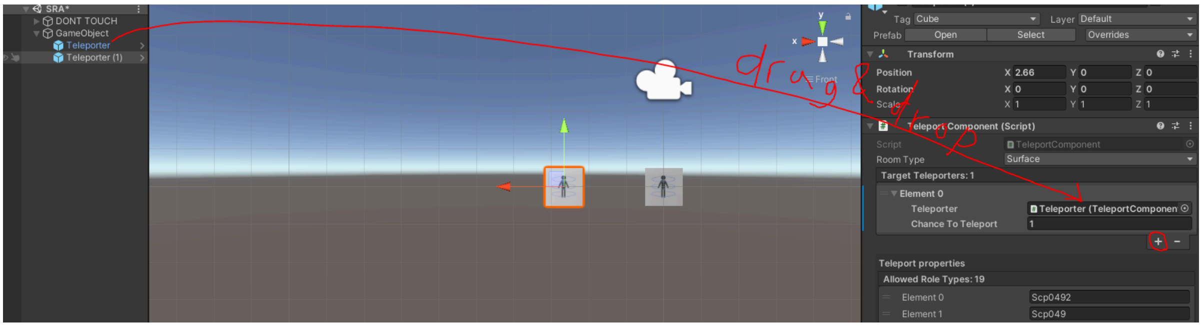
Properties:

1. Cooldown
   All players share cooltime.
2. TeleportFlags
   What things to teleport.
   “mp mod teleportflags {teleportflag name}” (It’s not adding, it’s set. Remove previous flags)
   “mp mod teleportflags {sum of teleportflag value}”
3. LockOnEvent
   Disabled on events occur. **Check only at entering.**
   “mp mod lockonevent {event name}”
   “mp mod lockonevent {sum of event values}”
4. TeleportSoundId
   It will play ambient sound when the player teleports. Id is integer value between 0 ~ 31
   https://www.youtube.com/watch?v=gnt9Vg1892w
5. PlayerRotationX
   Player camera facing ↔ Rotation value after teleports.
6. PlayerRotationY
   Player camera facing ↕ Rotation value after teleports.
7. ObjectId
   Used as a teleporter id.

8. Target Teleporters.
    a. Teleporter id
       Target teleporter's object id
    b. Chance
       Weight of chance.
       {chance} / {sum of chances} is a real chance(%).
       If 1, 5, 3 are chances, 1/9, 5/9, 3/9 are the real chances.
       If 35, 35, 30 are chances, 35/100, 35/100, 30/100 are the real chances.

   "mp modify {Target_teleporter_id} chance {value}"
   "mp modify add {Target_teleporter_id} {Chance}"
   "mp modify (remove/delete) {Target_teleporter_id}"
   Notion: Target_teleporter_id is object id (not indexing 0, 1…)
9. AllowedRoleTypes
   (Role name list)

[Unity]



Tag: Cube
Layer: Default
Prefab: Open | Select | Overrides

Transform
Position: X 2.66, Y 0, Z 0
Rotation: X 0, Y 0, Z 0
Scale: X 1, Y 1, Z 1

Teleport Component (Script)
Script: TeleportComponent
Room Type: Surface
Target Teleporters: 1
Element 0
Teleporter: Teleporter (TeleportComponen
Chance To Teleport: 1

Teleport properties
Allowed Role Types: 19
Element 0: Scp0492
Element 1: Scp049

10. RoomType
    Teleporters in unity are something individual. It's not connected with the parent object, instead they are connected with the room directly. So, if RoomType is surface then wherever you spawn them, teleporters will always go to fixed position. By this unique system, Teleporters are compiled in separated file.

Workstation

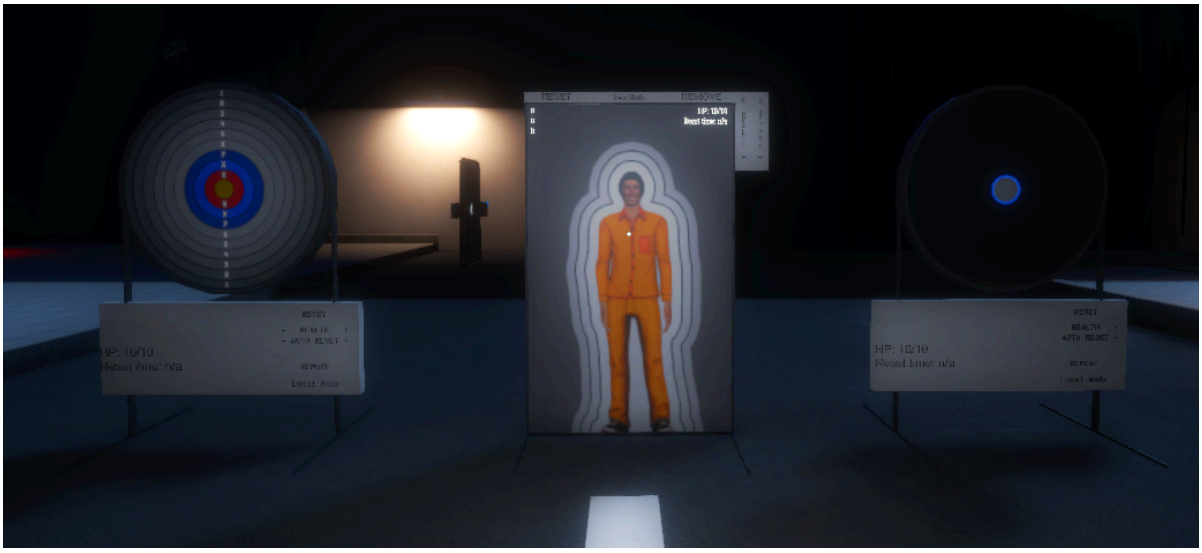
Remember it when you have to fill a room with something. (or when you want to place hubert ball)

Indicator: X

Properties:

1. IsInteractable
   If not, it will be turned off forever.

Shooting Targets [In-game/File]



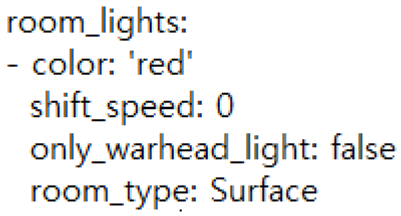
Sport, ClassD, Binary. **(Everyone likes D-boy target)**

Indicator: X

Properties:

1. TargetType
2. IsFunctional

Room Light [In-game (only spawn)/File(Map)]



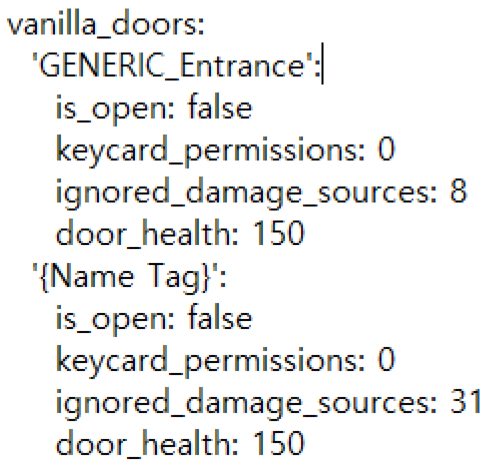
```
room_lights:
- color: 'red'
  shift_speed: 0
  only_warhead_light: false
  room_type: Surface
```

Indicator: X

Properties: (Only editable in File)

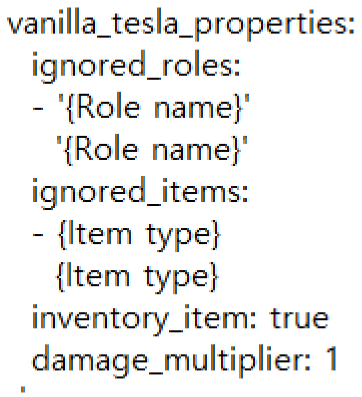
1. color
   {R}:{G}:{B}
   {R}:{G}:{B}:{A}
   {General color name/HEX}
2. shift_speed
   Make color keep more distinct.
3. only_warhead_light
   If true, it is only active when the warhead counts or explodes.
4. room_type

Vanilla Door/Tesla [File(Map)]



```
vanilla_doors:
  'GENERIC_Entrance':
    is_open: false
    keycard_permissions: 0
    ignored_damage_sources: 8
    door_health: 150
  '{Name Tag}':
    is_open: false
    keycard_permissions: 0
    ignored_damage_sources: 31
    door_health: 150
```

GENERIC_{door gameobject name}
{Name tag}
vanila_doors:
▌“:
▌▌ is_open



```
vanilla_tesla_properties:
  ignored_roles:
  - '{Role name}'
    '{Role name}'
  ignored_items:
  - {Item type}
    {Item type}
  inventory_item: true
  damage_multiplier: 1
```

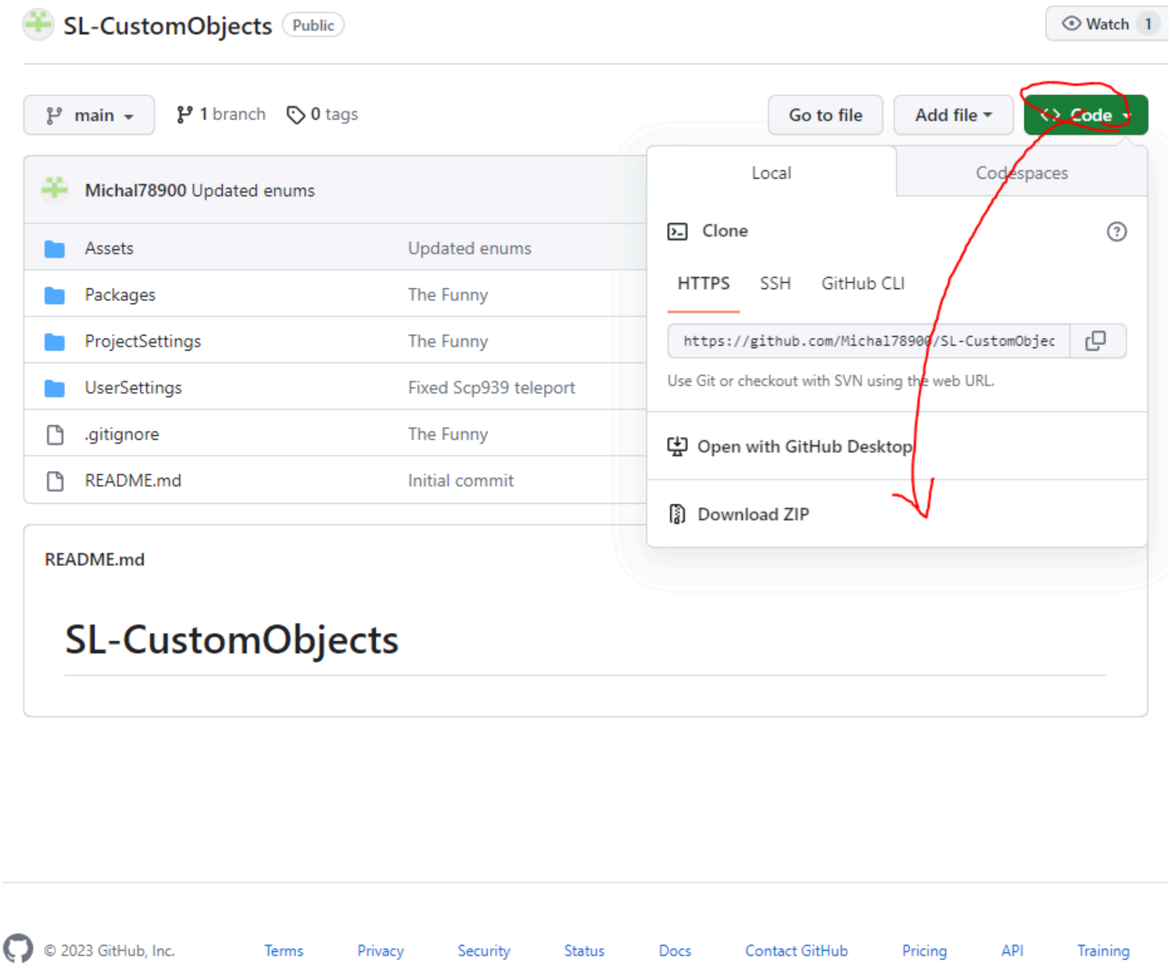
Ignored items mean if players are holding any of one on the list, it won’t activate. If inventory_item is on, even if players just have any of one on the list, it won’t activate. This setting is shared with all teslas.

Ragdoll/Dummy/Player Spawn(broken) [In-game/File]

Indicator: small floating dummy role.

5. Unity Editor

Unity: Unity 2021.3.17
SL-CustomObjects: https://github.com/Michal78900/SL-CustomObjects



Michal78900 Updated enums

Assets	Updated enums
Packages	The Funny
ProjectSettings	The Funny
UserSettings	Fixed Scp939 teleport
.gitignore	The Funny
README.md	Initial commit

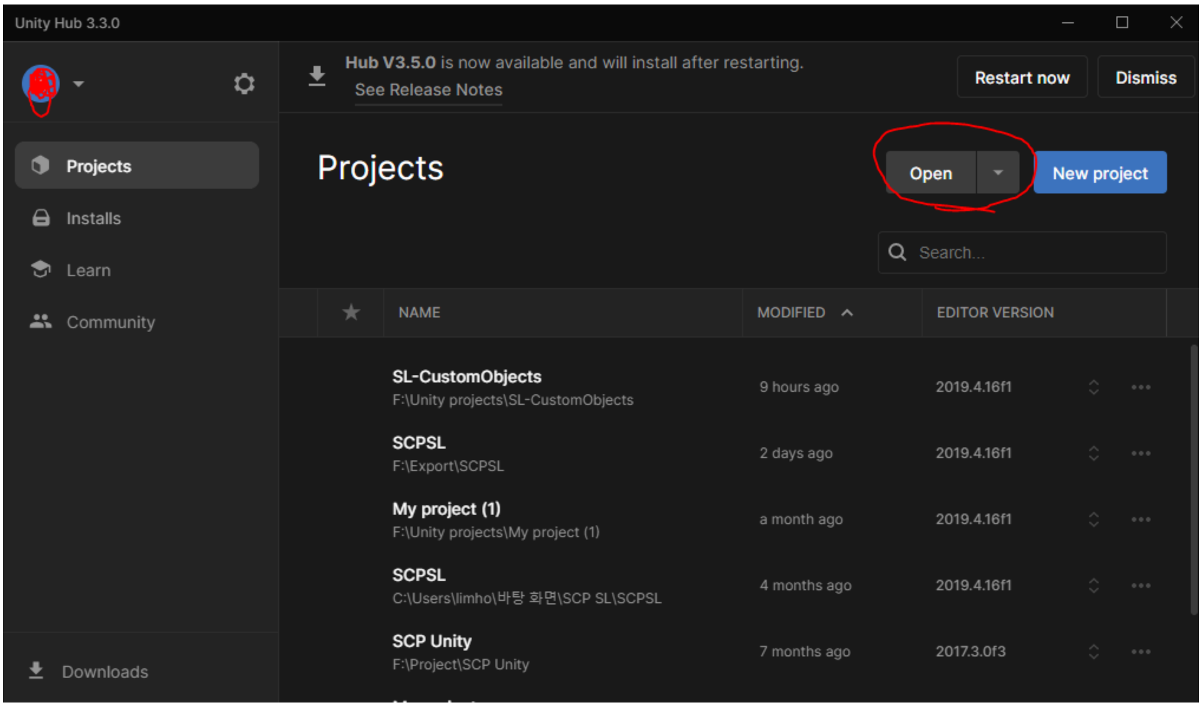
https://github.com/Michal78900/SL-CustomObjec

Use Git or checkout with SVN using the web URL.

README.md

SL-CustomObjects

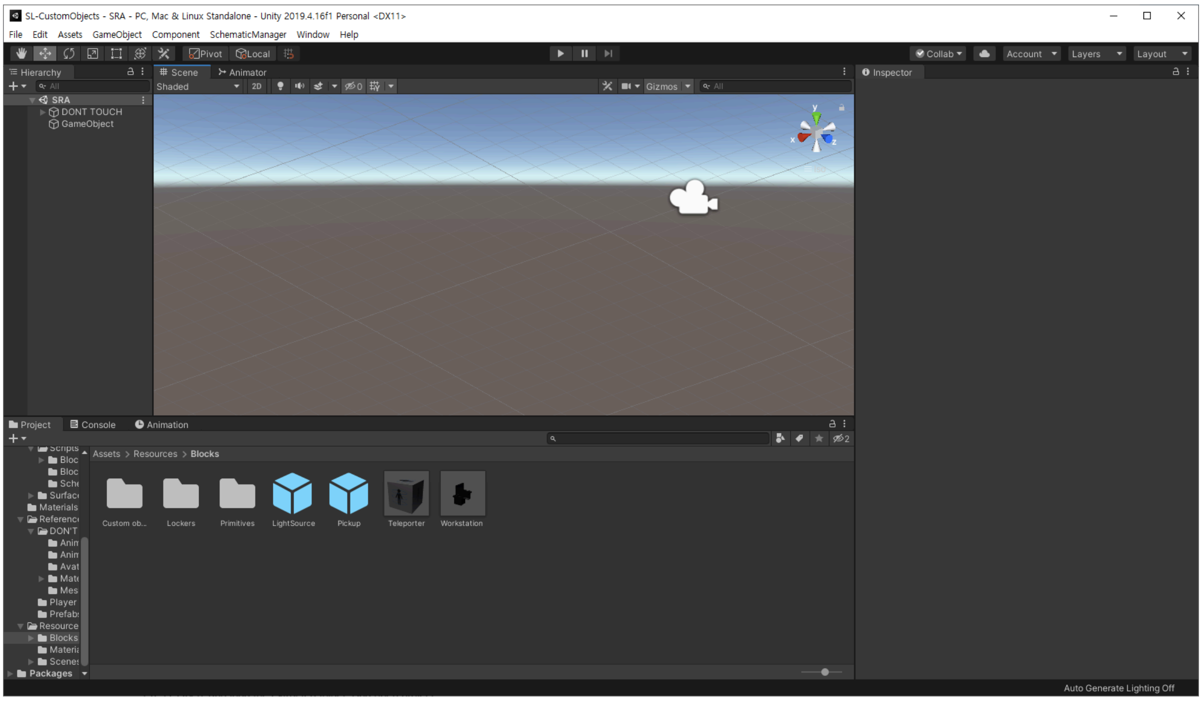
Download whole in the github. And install unity, open the unity hub.



Hub V3.5.0 is now available and will install after restarting.
See Release Notes

NAME	MODIFIED	EDITOR VERSION
SL-CustomObjects F:\Unity projects\SL-CustomObjects	9 hours ago	2019.4.16f1
SCPSL F:\Export\SCPSL	2 days ago	2019.4.16f1
My project (1) F:\Unity projects\My project (1)	a month ago	2019.4.16f1
SCPSL C:\Users\limho\바탕 화면\SCP SL\SCPSL	4 months ago	2019.4.16f1
SCP Unity F:\Project\SCP Unity	7 months ago	2017.3.0f3

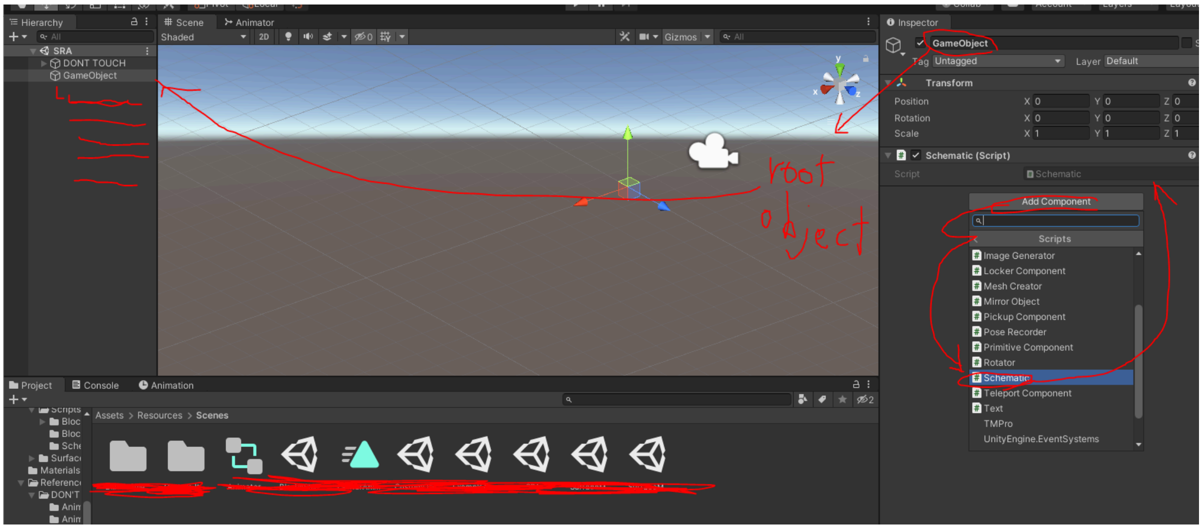
Press ‘Open’ and load the extracted folder. And open project.


SL-CustomObjects - SRA - PC, Mac & Linux Standalone - Unity 2019.4.16f1 Personal <DX11>
File Edit Assets GameObject Component SchematicManager Window Help
Hierarchy
SRA
DONT TOUCH
GameObject
Scene
Animator
Inspector
Project
Console
Animation
Assets > Resources > Blocks
Custom ob...
Lockers
Primitives
LightSource
Pickup
Teleporter
Workstation
Auto Generate Lighting Off

You can find Objects in Assets\Resources\Blocks(\Primitive)
(Notion: You won't have folder: Custom ob.., Letters in default)
You can drag the object you want. And you can spawn empty object by 'Right click(in hierarchy, scene) -> empty object'

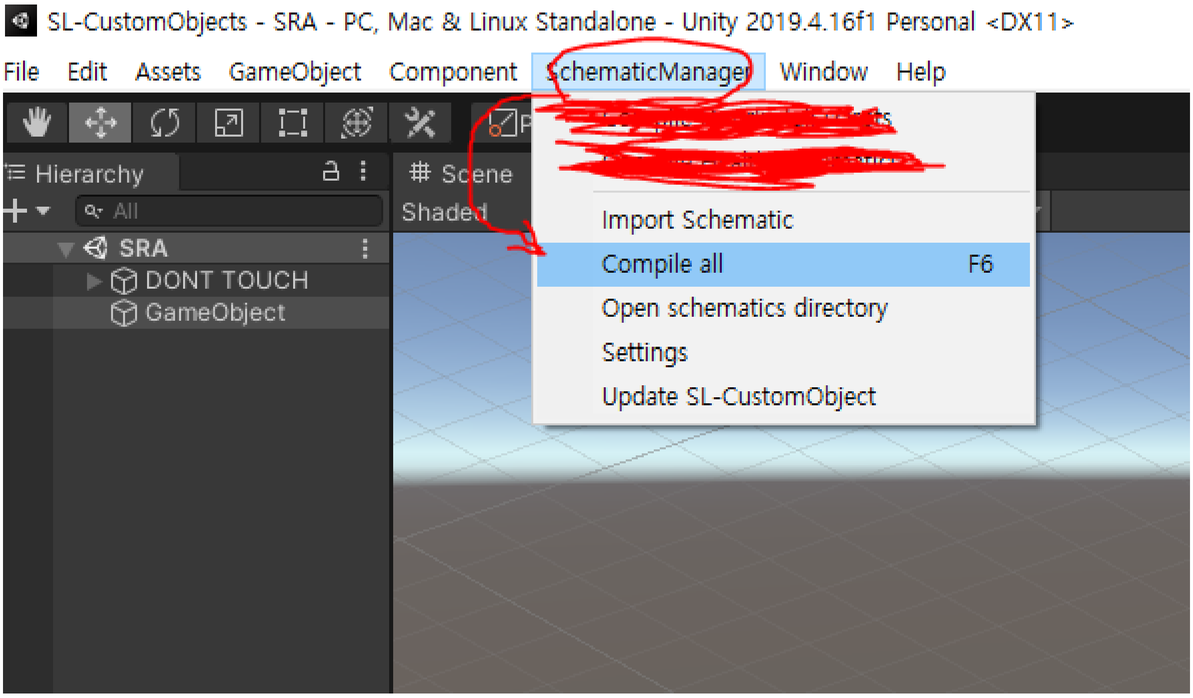
CAUTION: DO NOT SPAWN PRIMITIVE WITH UNITY'S BASIC OBJECTS. Also materials aren't supported. Use color property in primitive components of primitives.

If you use this program for a long time. I recommend making a scene and editing that one. In Assets/Resources/Scene, there's already several scenes. (Vanilla map is not implemented.)



To make a schematic, create an empty object and add a component 'schematic' to that. It's now a root object. And the root object's name is a schematic name.

Also, objects that you want to put as a part of schematic must be the child of the root object, directly or indirectly. You can drag and drop to set as a child.



Once you finished building, press F6 or click compile all. It will compile every root object.
CAUTION: THIS TASK WILL MAKE EVERY EMPTY OBJECTS' SCALE TO BE RESET TO 1 1 1.
(This is why you must not scale empty objects. Or at least turn them back to 1 1 1)
Notion: if you change the tag of objects to EditorOnly, it will ignore that while compiling. (It doesn't ignore the schematic component.)

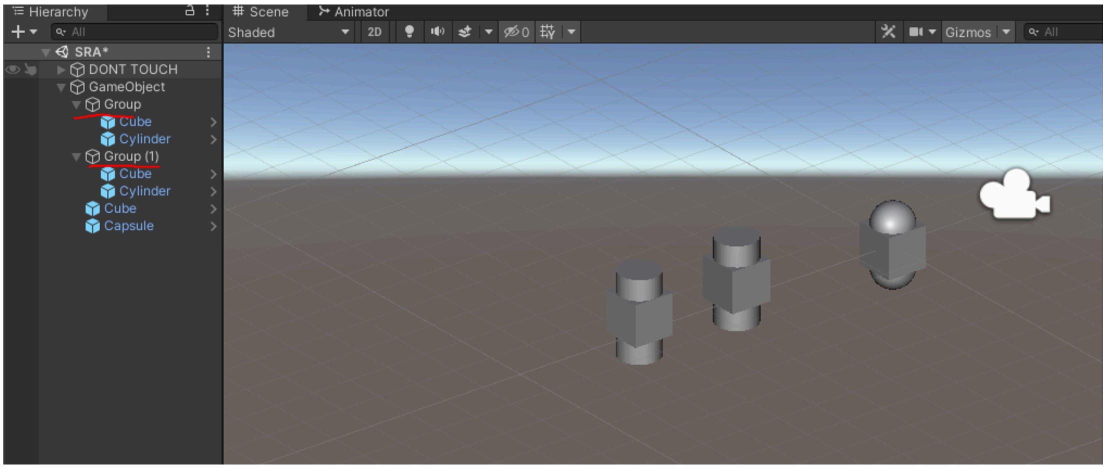
And if you click 'Open schematics directory' you can see your schematic is compiled as a folder.
Drag them to 'Roaming/Exiled/Configs/MapEditorReborn/Schematics'. You now applied the schematic.
You can set the compiled schematic output directory in settings.

Notion: By using import schematic you can load schematic from folder. (This function is half broken now)

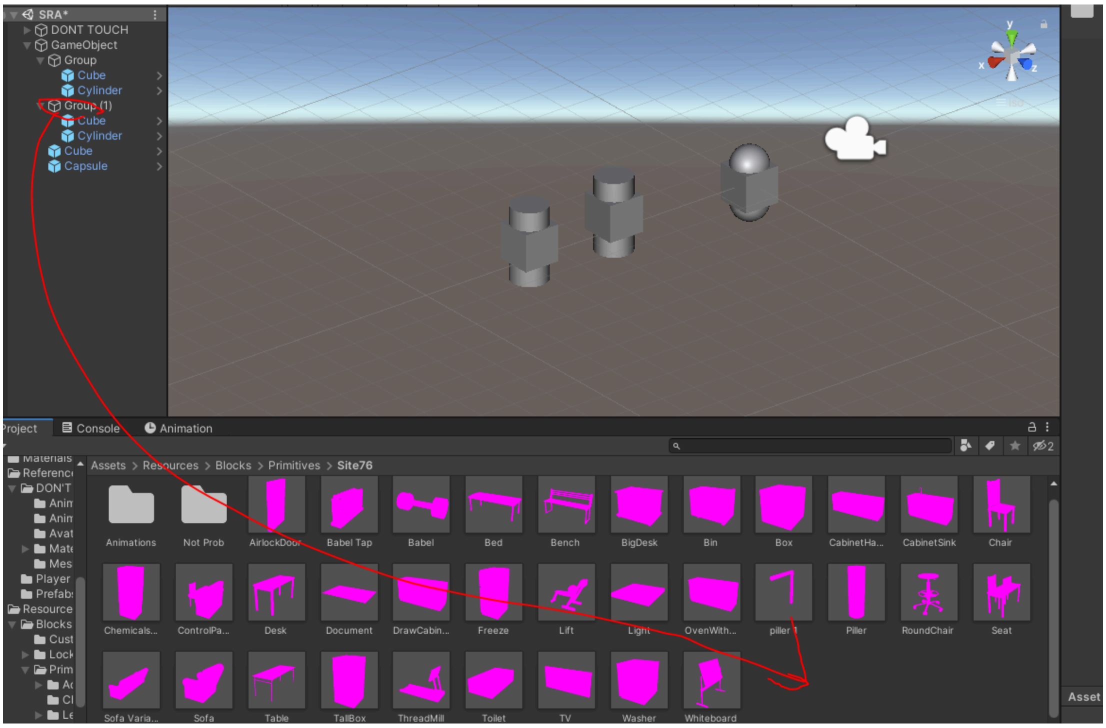
6. Advanced skill of unity editor

First of all, this is for time-saving.

1. Group object and copy & paste.
   Basically, you can group objects with empty objects.

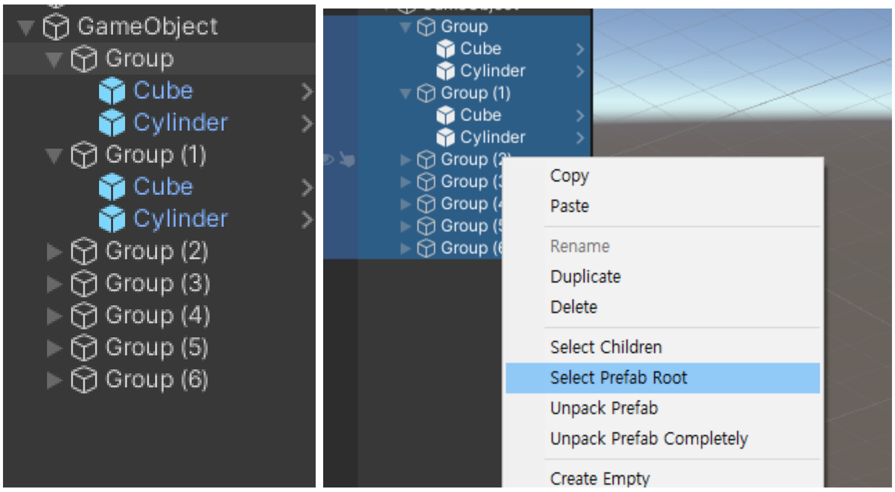


But, when you have to modify the group itself, it would be very inefficient.
So there's another option. (I don't actually recommend it since this may buggy)
By dragging a group to project tab you can make them into a prefab.



Pros: You can easily load probs to another scene.
Cons: Action you've done in prefab is un-undoable. It's hard to select primitive roots.
Notion: if you prefabilize object later, other copies that already existed won't be affected.
Prefab objects have '>', and if you click, you can modify the prefab itself. This modifying affects to all objects that use that prefab. (Even prefabs that use that prefab). Also you can select -> right click -> Unpack Prefab to unprefabilize it. (But its primitive's prefab status will also be removed.)

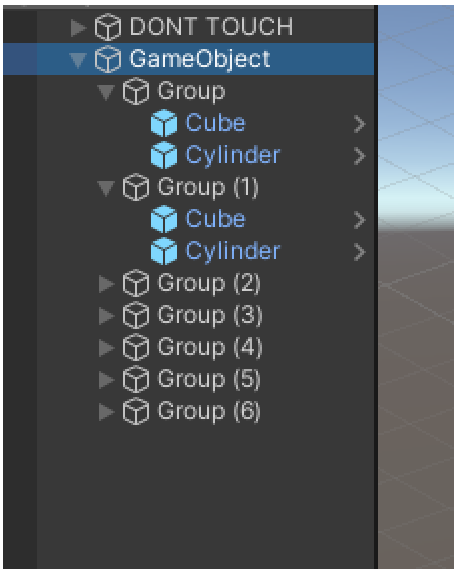
2. Selecting only objects that are not empty.



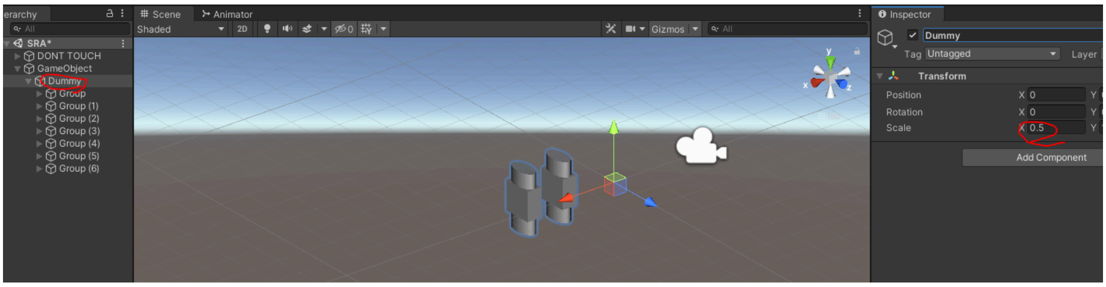
Let's assume that you want to select all primitives. Then, you can select the entire and right click -> select prefab root. It will select only prefabs. (Blue objects including primitive)

3. Rigidbody
   You can add a rigidbody component to an empty object or a primitive to make physics. But don't add it to the root object. It works the same with rigidbody settings in 4.Objects\ItemPickup. Adding rigidbody to group means group moves like one object. (Like real probs)

   Notion: Player cannot push rigidbody objects. (Can stop.)
4. Scaling by using a dummy object.

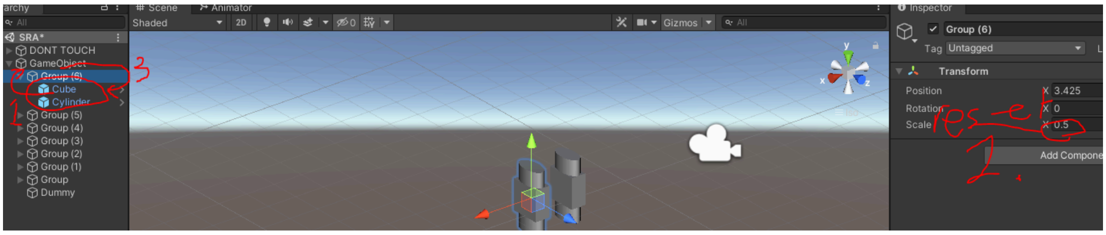


You may want to scale up or down the entire schematic. However, since it's impossible to scale the empty objects. So you can do it by this.



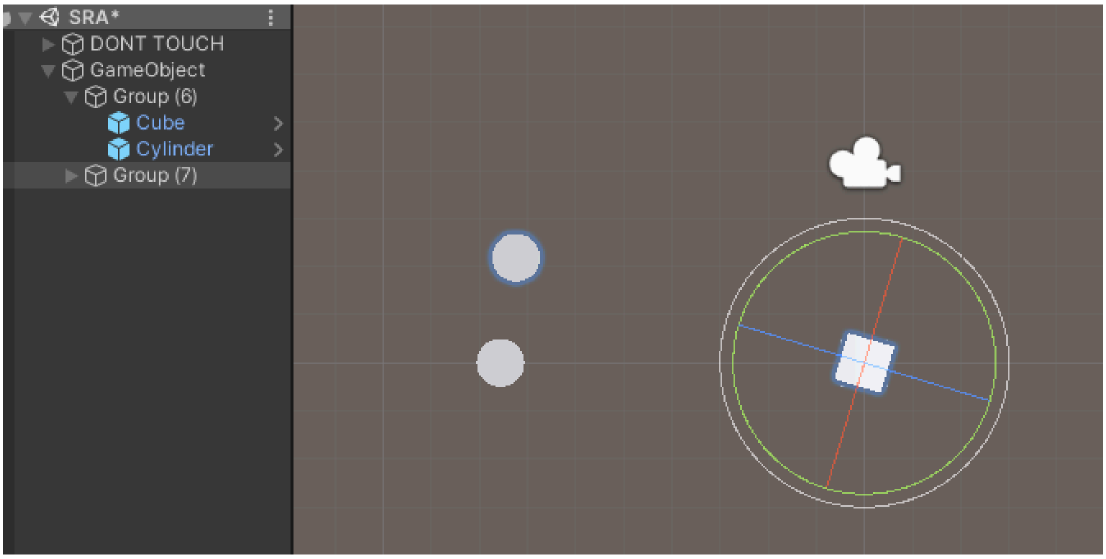
Make a dummy, drag all children to the dummy and scale down or up the dummy and drag every child to the root object again and delete the dummy.

Notion: If you have an empty object that scaled down, you have to do the next process. And also close every group when you are doing this process unless you want to get rid of all the hierarchy of your groups.

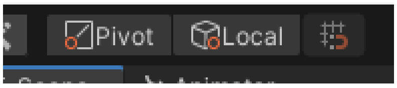


Pull out children and reset its scale and put children back again.

5. Rotating Easily



Grouping also can give you easy rotation. The cylinder is placed some far from the group's root's position so if the group rotates, it will turn like pic.

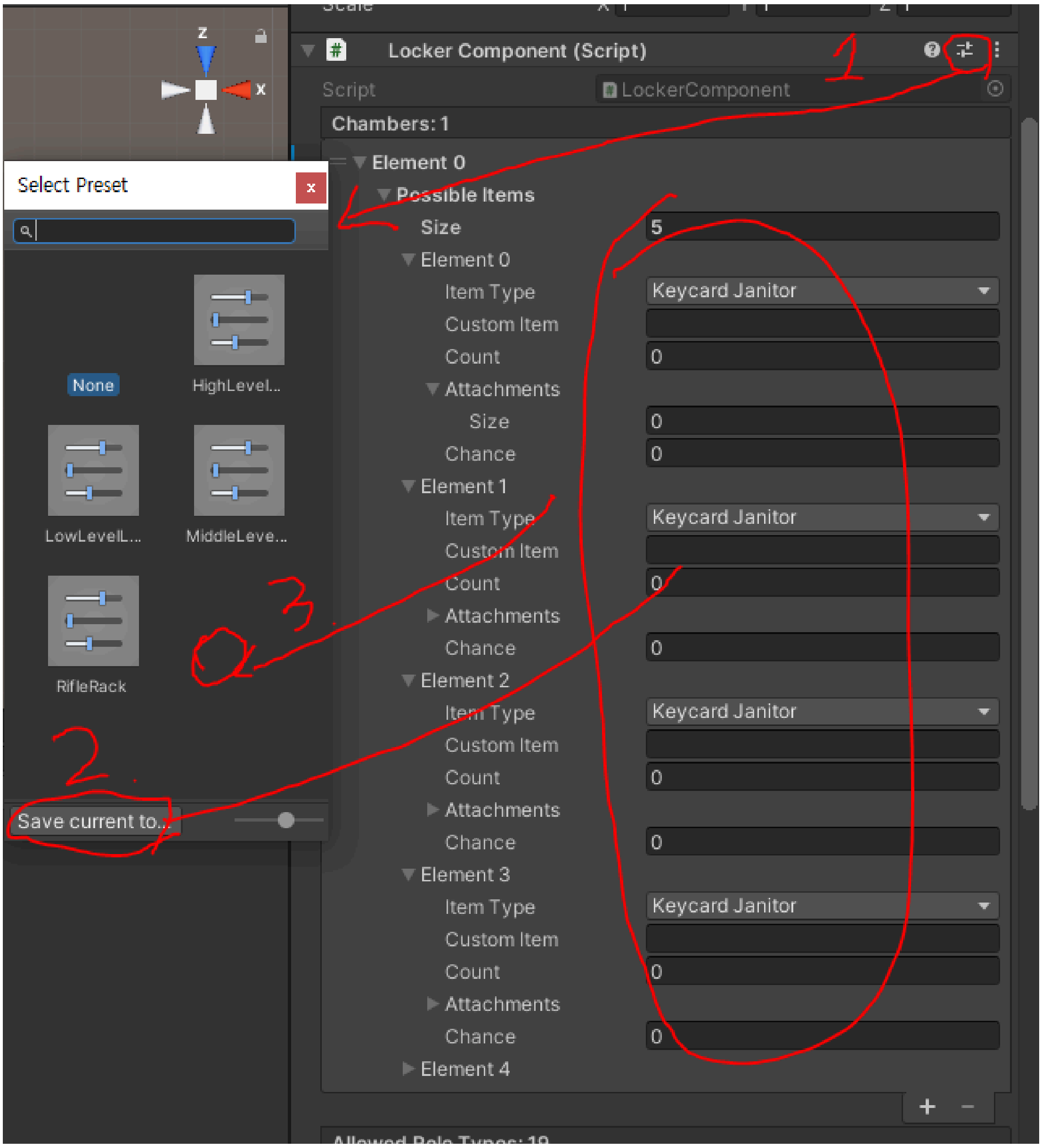


Pivot, Center = Gizmos(The angle editing in above pic)' position. Pivot is the last selected object's position, and center means center of masses.

Local, Global = If Local, Gizmos will turn around depending on the object's rotation. (You'll know what magnet does, when you turn on and move objects)

6. Preset

If you edited locker, pickup and you want to duplicate them or load in different scenes. Try preset.



Locker Component (Script)

Script LockerComponent

Chambers: 1

Element 0

Possible Items

Size 5

Element 0
Item Type Keycard Janitor
Custom Item
Count 0
Attachments
Size 0
Chance 0

Element 1
Item Type Keycard Janitor
Custom Item
Count 0
Attachments
Chance 0

Element 2
Item Type Keycard Janitor
Custom Item
Count 0
Attachments
Chance 0

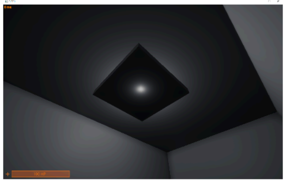
Element 3
Item Type Keycard Janitor
Custom Item
Count 0
Attachments
Chance 0

Element 4

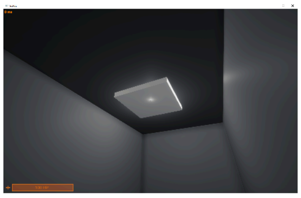
Allowed Role Types: 19

(You won’t have any preset in default)

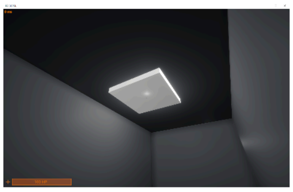
7. Glowing Primitives [File/In-game]
   Notion: you cannot do it in unity. Edit in file or in-game.
   By multiplying color’s RGB to 255×n and setting 0≤A(RGBA)<1, you can make glowing primitive when it casted light.



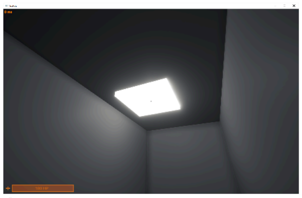
x1



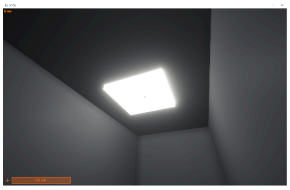
x5



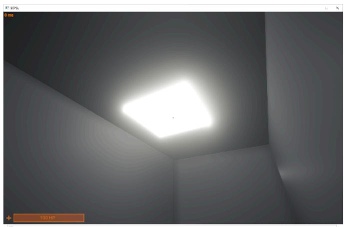
x10



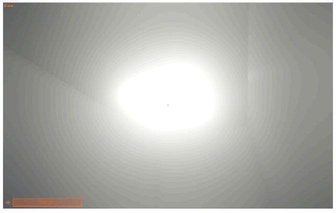
x25



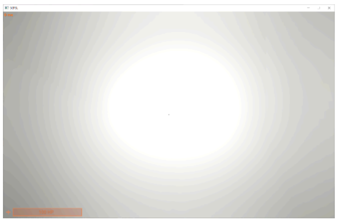
x50



x100

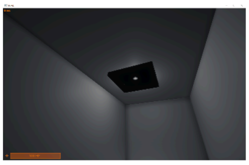


x250



x500

x1000



(but when camera moving) x-100x

mp mod color 255:255:255:0.1 (First ex)
mp mod color 2550:2550:2550:0.1 (Third ex)

In file, replace hex with: "{R}:{G}:{B}:{A}"

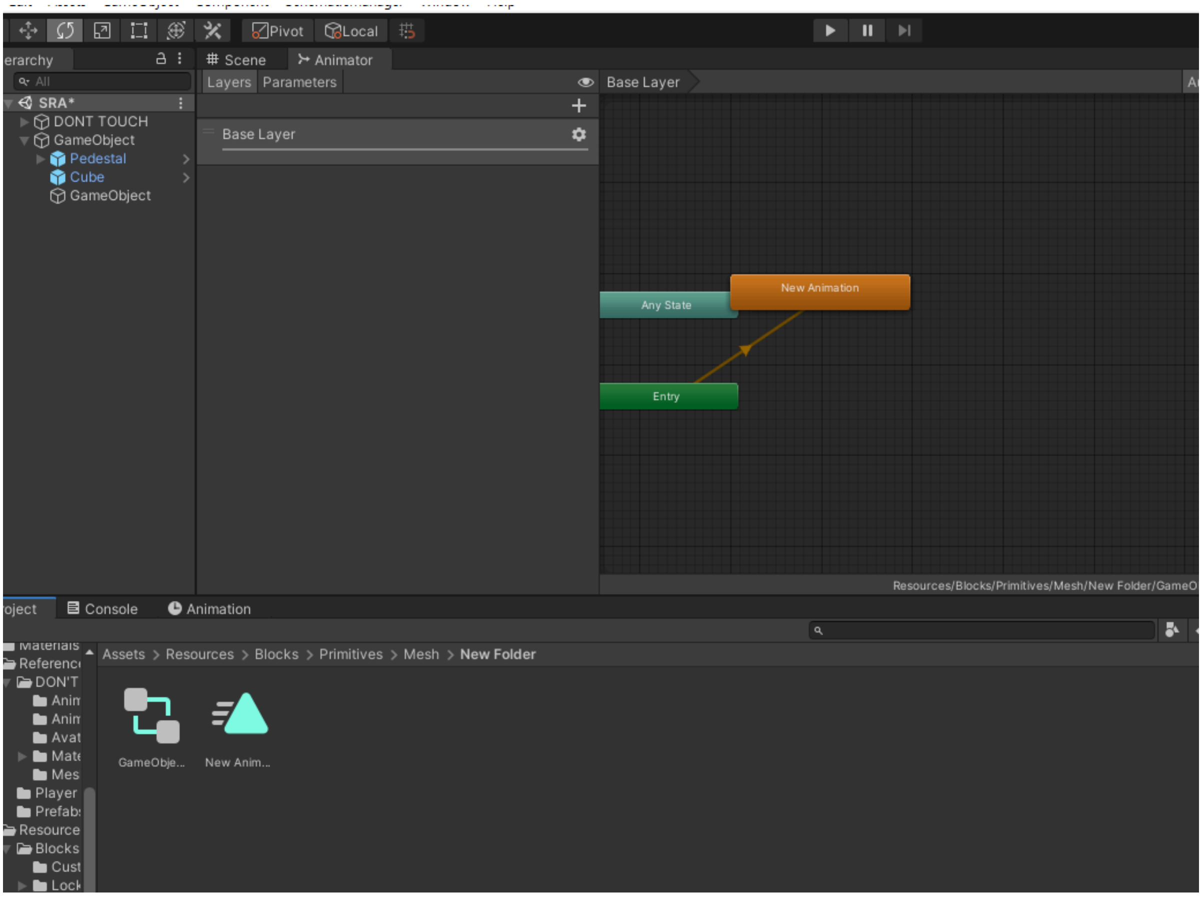
6-1. Animating

Basically you can animate objects in unity the same way we originally have done in unity. Compiler will compile animations.
MER community recommandation: https://www.youtube.com/watch?v=sgHicuJAu3g

CAUTION: DO NOT ANIMATE ROOT OBJECT, USE DUMMY INSTEAD

Notion: Primitive color and light's properties are un-animatorable. (Because the mirror's sync system doesn't always sync color.)

Animator



You should add the animator tab, window => Animation => Animator.
When you create a clip, you'll get 2 files. One with the object's name (= Animator). And clip name (= Animation). When you select the object or animator, you can see something like a pic in the animator tab.
Notion: You don't have many things to touch in the Animator tab unless you will be coding.

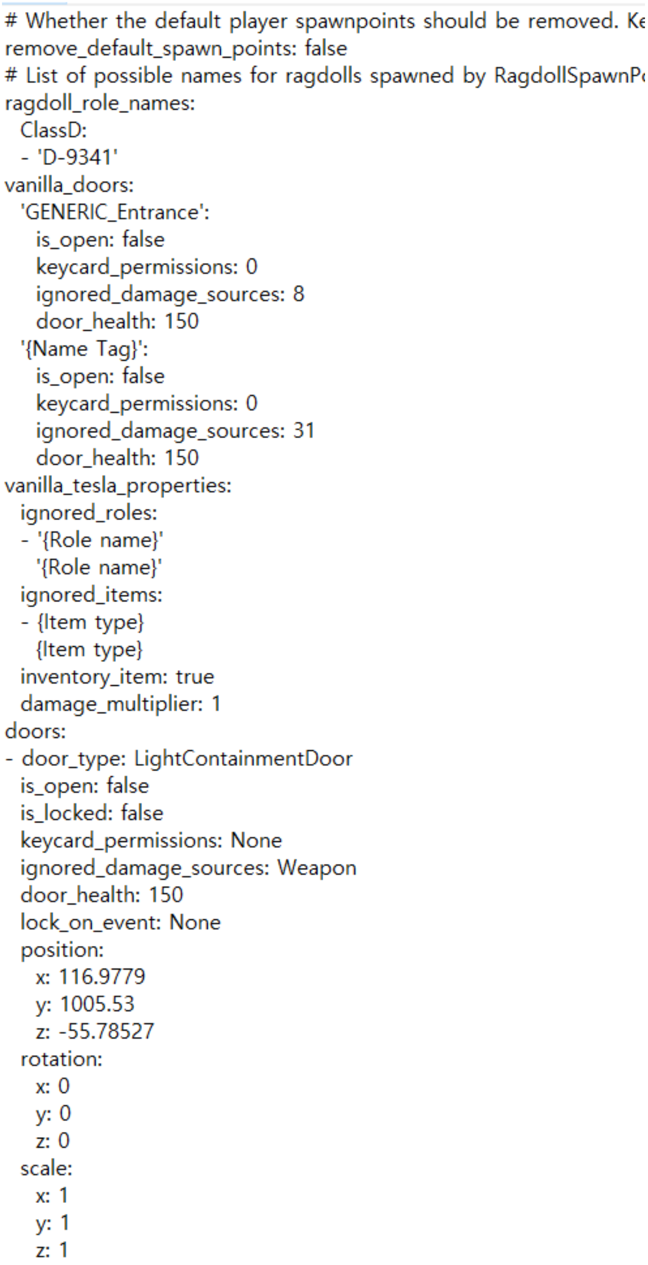
When you select an animation, there're options: **loop time**(loop animation, turn off if you want schematic to be played one time. However, its animation starts when it **loaded** so turning off when it spawns on_generated is meaningless), loop pose(whether to loop animation smoothly), loop offset(When it loops, the start point)

NOTION: Animations may be delayed when the map/schematic contains a lot of light or animations. (Can solve with config)

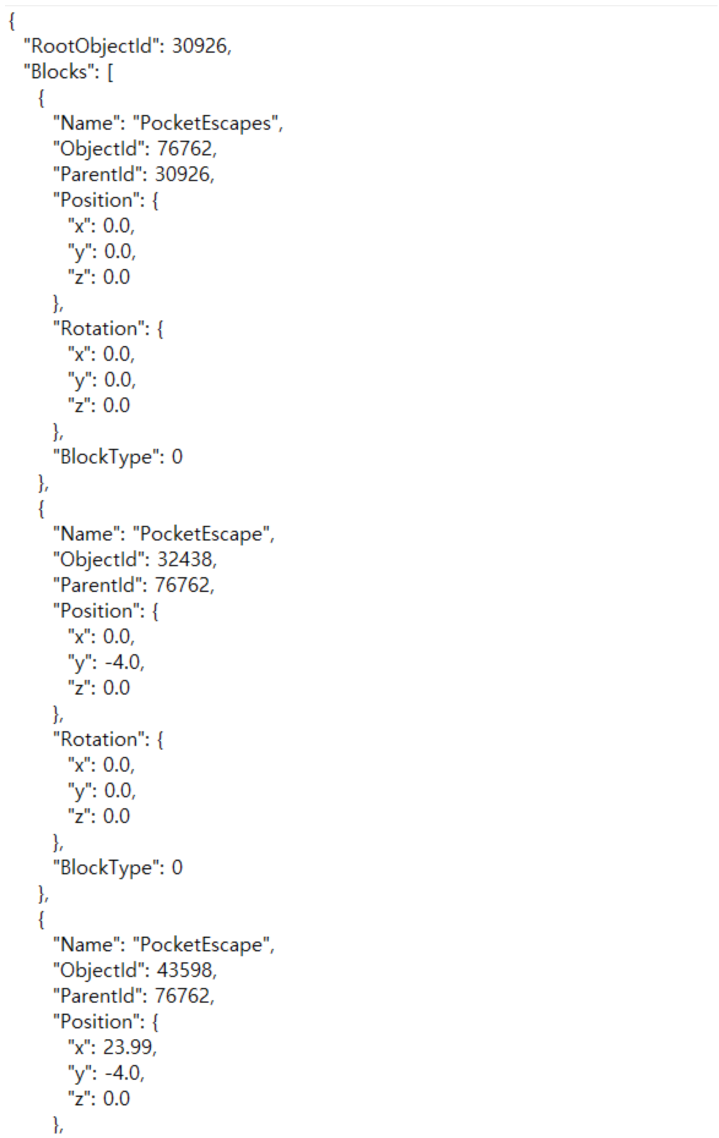
CAUTION: It's recommended to animate on a dummy since their keyframes save **ABSOLUTE RELATIVE POSITION** so when you want to move an animated object, it won't move animation keyframes.

7. Map/Schematic

Map is a yml file. And Schematics are json files. The difference is the serializing style.



```
# Whether the default player spawnpoints should be removed. Ke
remove_default_spawn_points: false
# List of possible names for ragdolls spawned by RagdollSpawnP
ragdoll_role_names:
  ClassD:
  - 'D-9341'
vanilla_doors:
  'GENERIC_Entrance':
    is_open: false
    keycard_permissions: 0
    ignored_damage_sources: 8
    door_health: 150
  '{Name Tag}':
    is_open: false
    keycard_permissions: 0
    ignored_damage_sources: 31
    door_health: 150
vanilla_tesla_properties:
  ignored_roles:
  - '{Role name}'
    '{Role name}'
  ignored_items:
  - {Item type}
    {Item type}
  inventory_item: true
  damage_multiplier: 1
doors:
- door_type: LightContainmentDoor
  is_open: false
  is_locked: false
  keycard_permissions: None
  ignored_damage_sources: Weapon
  door_health: 150
  lock_on_event: None
  position:
    x: 116.9779
    y: 1005.53
    z: -55.78527
  rotation:
    x: 0
    y: 0
    z: 0
  scale:
    x: 1
    y: 1
    z: 1
```



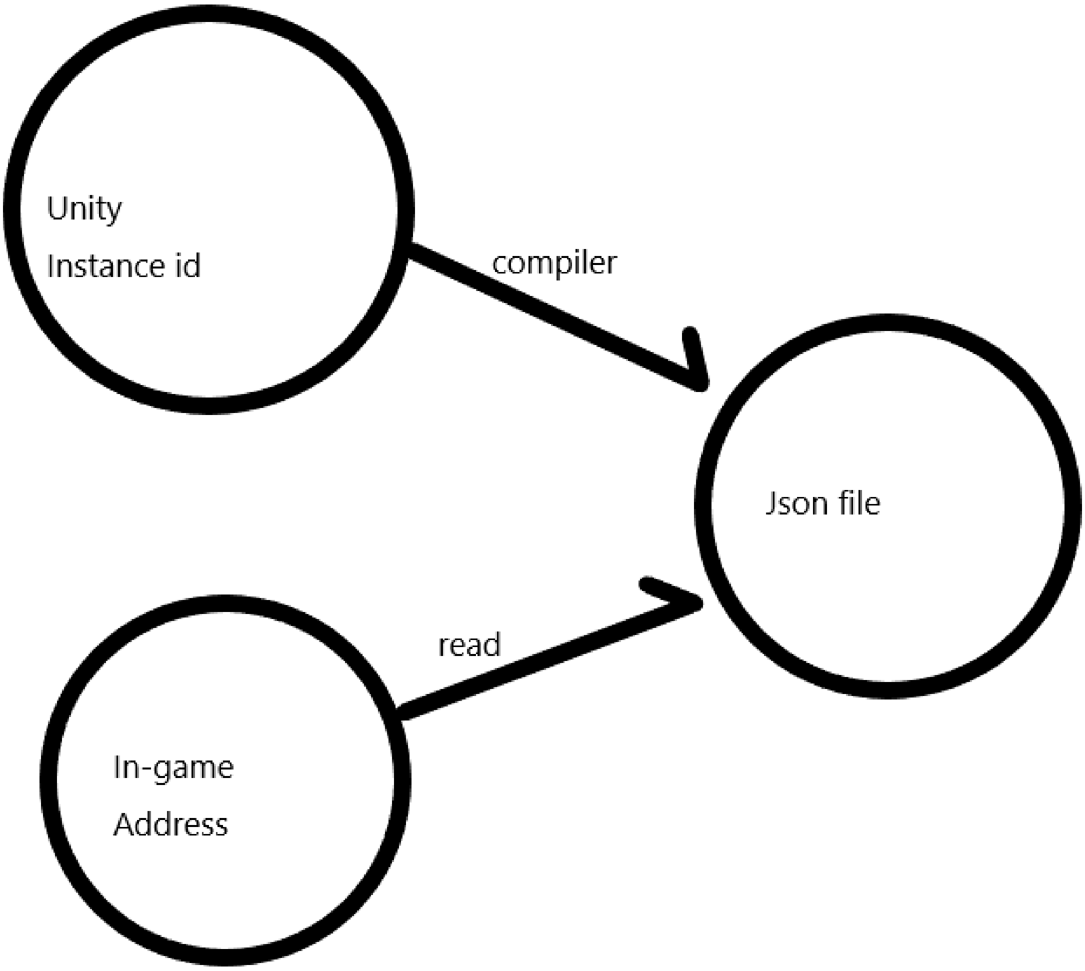
```
{
  "RootObjectId": 30926,
  "Blocks": [
    {
      "Name": "PocketEscapes",
      "ObjectId": 76762,
      "ParentId": 30926,
      "Position": {
        "x": 0.0,
        "y": 0.0,
        "z": 0.0
      },
      "Rotation": {
        "x": 0.0,
        "y": 0.0,
        "z": 0.0
      },
      "BlockType": 0
    },
    {
      "Name": "PocketEscape",
      "ObjectId": 32438,
      "ParentId": 76762,
      "Position": {
        "x": 0.0,
        "y": -4.0,
        "z": 0.0
      },
      "Rotation": {
        "x": 0.0,
        "y": 0.0,
        "z": 0.0
      },
      "BlockType": 0
    },
    {
      "Name": "PocketEscape",
      "ObjectId": 43598,
      "ParentId": 76762,
      "Position": {
        "x": 23.99,
        "y": -4.0,
        "z": 0.0
      },
```

Map Schematic

Map file contains: name, whether to remove default spawn points (broken), ragdoll roll name per role (broken), vanilla stuff, doors, etcs. (Actually you won’t edit this except vanilla stuff and roomlight, doors, locker)

Schematic

Schematic file contains: name(file and folder name), animations, rigidbodies(separated file), teleporters(separated file), Root object id, Objects.
You may confuse object id. Remember: object id is some sort of address. And you probably know your house address but don’t know why. And that’s exactly what this system implies.



Unity and in-game are not connected. And in-game doesn't care what object id is. You can choose what number to use. Also, Unity just compiles the assigned data of objects, not object's modeling or other stuff. So do noy try to modify modeling unless you are trying to see clearly. They won't be applied.

Notion: If you placed schematic in map and saved, in map file there will be option: IsPickable. Which means when the item that schematic has as children is being tried to be picked up, it will be canceled and call Event (Coding section).

9. Coding Adventure

First of all, we'll going to coding(programming) with C# language.
Visual Studio: https://visualstudio.microsoft.com/downloads/
Download any version of visual studio, this will be a tool of programming.

Notion: This is not tutorial about how to code in C#. So if you're new at programming, it's important to learn how to code in C#. Please watch C# course on youtube or something.

Also SCP: SL's Exiled based plugins are exactly made with a similar base.
This video is useful. https://www.youtube.com/watch?v=gx67ziYldvk
[SCP:SL EXILED 2.0 Plugin Tutorial](https://www.youtube.com/watch?v=gx67ziYldvk)

9-1. Making plugin for your schematic

By using the “MapEditorReborn.Events.Handlers.Schematic.SchematicSpawned” event, you can make a method that runs when the schematic is spawned. This schematic spawning detection also detects schematic spawned by maps.

Notion: If your method contains schematic creating code, be careful about looping.

SchematicSpawnedEventArgs:

1. Name: folder’s name.
2. schematic: root object’s schematic script.

```
if (ev.Name.Equals(“{required schematic name}”,
StringComparison.InvariantCultureIgnoreCase))
{
        ~~
}
```

StringComparison.InvariantCultureIgnoreCase means comparing tasks won’t distinguish ‘a’ and ‘A’.

Notion: ev.schematic.Name is “{folder name}-schematic”, so be careful.

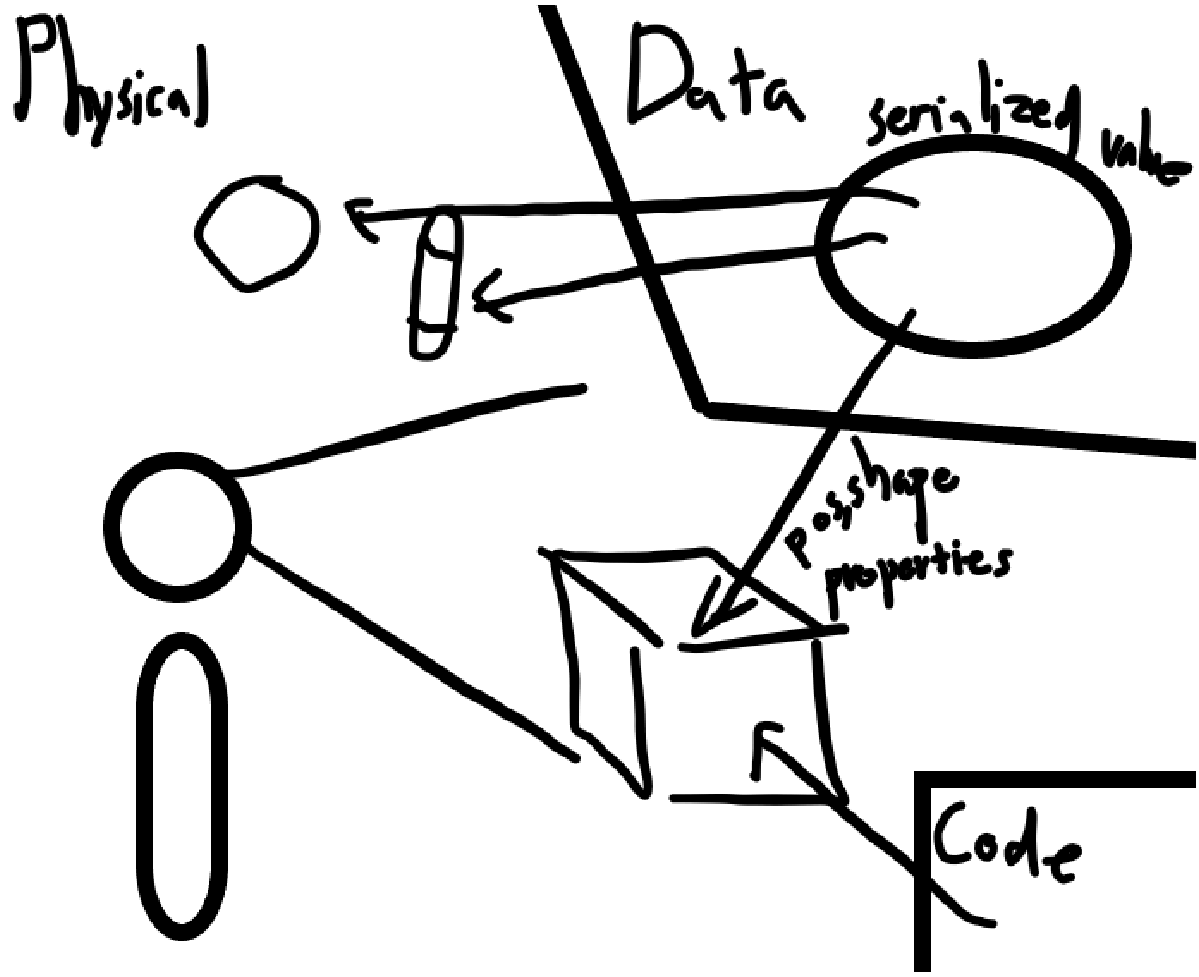
You can easily reference a schematic object with its part by using transform.root, it provides most parent object which is schematic object.

Usage: Make schematic hit or make raycast.
ev.raycasthit.collider.transform.root == schematic.transform

If the schematic is attached to a player, use
ev.raycasthit.collider.transform.TryGetComponentInParent<SchematicObject>() instead.

–

Every MER’s object script has a specific property: Base. It’s serialized value.



Working like this. Serialized value provides init state and code control after init.

Notion: Actually that’s all you can do in vanilla.

9-1-1. Make schematic follow player

By setting the schematic's root object’s transform’s parent to player transform, you can make the following player automatic.It's easy to understand if you think of a selfie stick.

```
ev.schematic.transform.parent = player.transform;
ev.schematic.transform.localPosition = Vector3.zero + {Relative position};
ev.schematic.transform.localRotation = {Relative Rotation};
```

Notion: In this phase, you must use localPosition and localRotation instead of position and rotation. Since the player must be a center point. Also it makes your code confusing since the schematic object is no longer the root object.

9-2. Button API

There’s actually no Button API itself. And you cannot detect whether the player tried to interact with the schematic without the vanilla thing that was originally set.

There’s mainly 2 options.

1. Using SchematicInteracted action.
   Pros: It only detects Schematic’s pickup that you set its IsPickable as true. So, there’s less possibilities of mis-detection.
   Cons: It automatically disables ‘IsAllowed’.
2. Using PickupInteracted action.’

Notion: You can use name as a tool of distinguisher. The GameObject's name that you set in unity remains on the pickup.

9-3. Advanced Animating

You can reference animator by using “gameobject.GetComponent<Animator>()”. You can play specific animations by using “animator.Play(“{Animation name}”)”. Notice that you cannot play animation that is already being played.

9-4. Your custom item that use MER