

# Smart Material Changer 'Amber

Version: 2.1 PBR

[PDF Document](#)

## Introduction

- It's based on script configuration instead of notecard. Faster loading/transfer speed, edits freely.
- Kernel and product functions are separated. Can support menu, HUD form, local and remote control.
- Easy to extend and no bound.
- Intelligent matching rules.

Ps: Notecard is not used for configuration because it loads too slow, so fucking slow, so fucking fucking ... slow.

## Script list

Sender (KERNEL)

Script	description
SMC.KERNEL	Kernel, Material Manager, Memory.
.SMC	Configuration for KERNEL.

Client (loader)

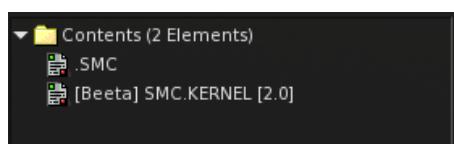
Script	description
SMC.Client	Material matching applicator. Place it into the object which material needs to be replaced. Get messages from Kernel
.SMC.Client	Configuration for SMC.Client

Others

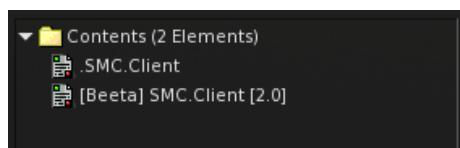
Script	description
SMC.HUD.TRIGGER	For HUD, Replace Linkset material in PART.SET format with description of the Prim
SMC.Menu	Replace material by clicking on the pop-up menu and selecting PART and SET.
.SMC.Menu	Configuration for SMC.Menu

## Scripting relationships

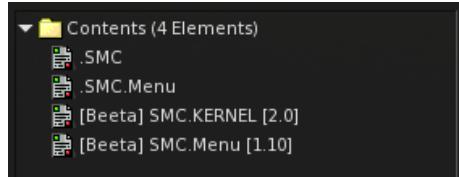
**Put ".SMC" and "SMC.KERNEL" together.**



**Put ".SMC.Client" and "SMC.Client" together.**



**Put ".SMC.Menu" and "SMC.Menu" together, and they must be accompanied by KERNEL.**



## Configuration files

All parts in the red box can be edited.

### .SMC

```

6 // version: 2.0
1 string DS="";string PART="P";string SET="S";integer FULL=0;integer PREFIX=1;integer DSUFFIX=12;integer DSMART=13;
2 integer D=0;integer DP=1;integer N=2;integer NP=3;integer S=4;integer SP=5;integer GR=13;integer GB=14;integer GBC=15;integer GBA=16;integer GBM=17;integer GMR = 24;integer GMP=25;integer GE=26;integer GET=27;integer GEP=28;
3
4 integer DEBUG = 0;
5 integer LOCAL = 0;
6 integer REMOTE = 0;
7 integer CACHE = 0;
8 integer RANGE = 0;
9
10 list LINES = [];
11
12 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //
13 default {
14     state_entry(){llSleep(0.5);llMessageLinked(LINK_THIS,-643323340,llList2Json
 ,RANGE),"");llSleep(0.5);llMessageLinked(LINK_THIS,-643323350,"","","");llSleep(0
 (i<l){unit=llList2String(LINES,i);if((unit==PART||unit==SET)&&llGetListLength(c
 (cache,DS,"");cache=[];cache+=[unit];i++;}if(llGetListLength(cache)>0)llMessage
 llMessageLinked(LINK_THIS,-643323352,"","","");}
15     changed(integer change){if(change&&CHANGED_INVENTORY){llResetScript();}}
16 }
17 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //

```

### .SMC.Client

```

6 // version: 2.0
1 integer DEBUG = 0;
2 integer LOCAL = 0;
3 integer REMOTE = 0;
4 float DEBOUNCE = 0.0;
5 integer CACHE = 0;
6
7 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //
8 default {
9     state_entry(){llSleep(0.5);string _=llList2Json(JSON_OBJECT, ["DEBUG",DE
 llOwnerSay("SMC Client >> Submit configuration: "+_);llMessageLinked(LINK_TH
10     changed(integer change){if(change&&CHANGED_INVENTORY){llResetScript();}}
11 }
12 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //

```

### .SMC.Menu

```

0 integer DEBUG          = 0;
1 integer TOUCH          = 0;
2 integer OWNER_ONLY      = 0;
3 integer SETS            = 0;
4 integer SETS_ON_TOP     = 0;
5 integer PARTS           = 0;
6 integer MENU_OPEN_LOCAL_NUM = 0;
7 integer MENU_BACK_LOCAL_NUM = 0;
8 string  MENU_BACK_OVERWRITE = "";
9 string  MENU_PREV_OVERWRITE = "";
10 string MENU_NEXT_OVERWRITE = "";
11
12 list SETS_LIST = [];
13
14 string DIALOG_SETS = "";
15 string DIALOG_SET  = "";
16 string DIALOG_PART = "";
17
18 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //
19 default {state_entry(){string _;
20 llSleep(0.5);_=llList2Json(JSON_OBJECT, ["SETS", DIALOG_SETS, "SET", DIALOG_SET, "PART", DIALOG_PART]);if(DEBUG)llO
+_)llMessageLinked(LINK_THIS,-643393341,_,_);
21 llSleep(0.1);_=llList2Json(JSON_OBJECT,[DEBUG,DEBUG,"TOUCH",TOUCH,"OWNER_ONLY",OWNER_ONLY,"SETS",SETS,"SETS_LIST"
"SETS_ON_TOP",SETS_ON_TOP,"MENU_OPEN_LOCAL_NUM",MENU_OPEN_LOCAL_NUM,"MENU_BACK_LOCAL_NUM",MENU_BACK_LOCAL_NUM,"PART
,MENU_BACK_OVERWRITE,"MENU_PREV_OVERWRITE",MENU_PREV_OVERWRITE,"MENU_NEXT_OVERWRITE",MENU_NEXT_OVERWRITE]);if(DEBUG
+_)llMessageLinked(LINK_THIS,-643393340,_,_);
22 }changed(integer change){if(change&CHANGED_INVENTORY){llResetScript();}}
23 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //

```

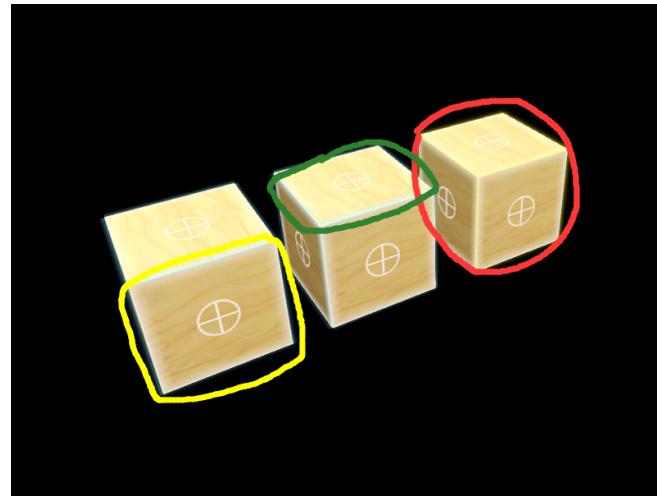
## Quick Start

### Menu application

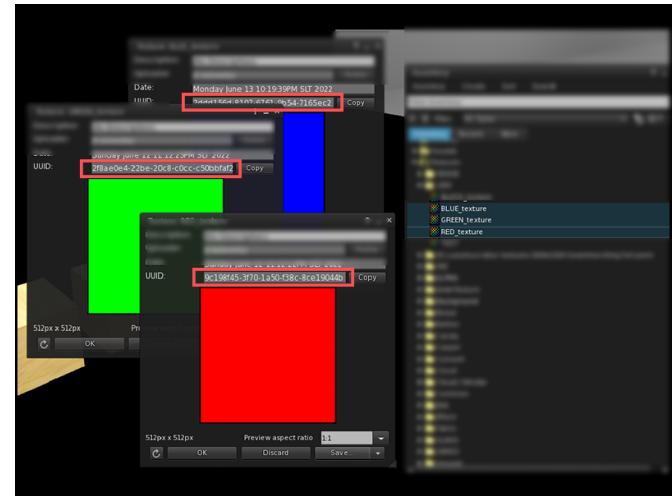
Implement material replacement directly on the object through a menu.

#### Perpare

Prepare a linkset containing three 6-sided boxes.



Prepare three textures to be used for changing the diffuse.



Planning to replace all faces of the box within the red outline, the faces of the box within the green outline, and the faces of the box within the yellow outline. Let them to switch between **red**, **green**, and **blue** diffuse textures.

**In edit mode, use the face selector to view the face numbers.**

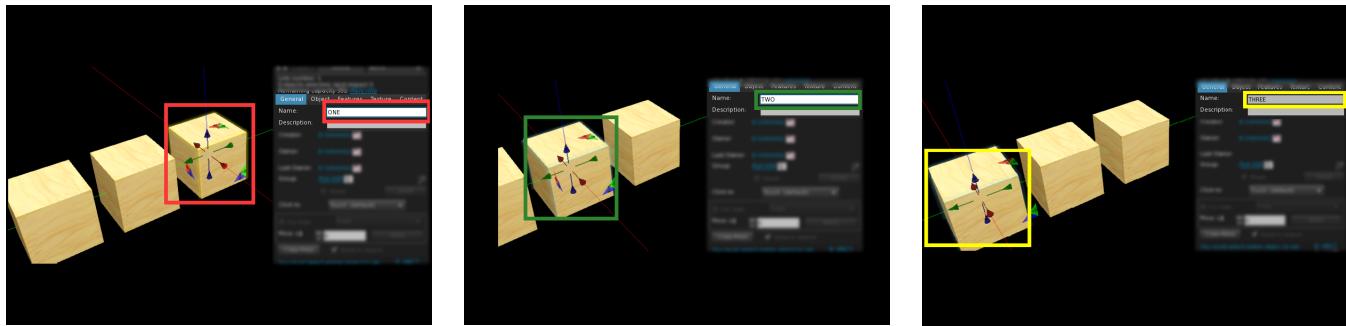
#### Rename prims

Rename the prim to "ONE"

Rename the prim to "TWO"

Rename the prim to "THREE"

## Rename prims

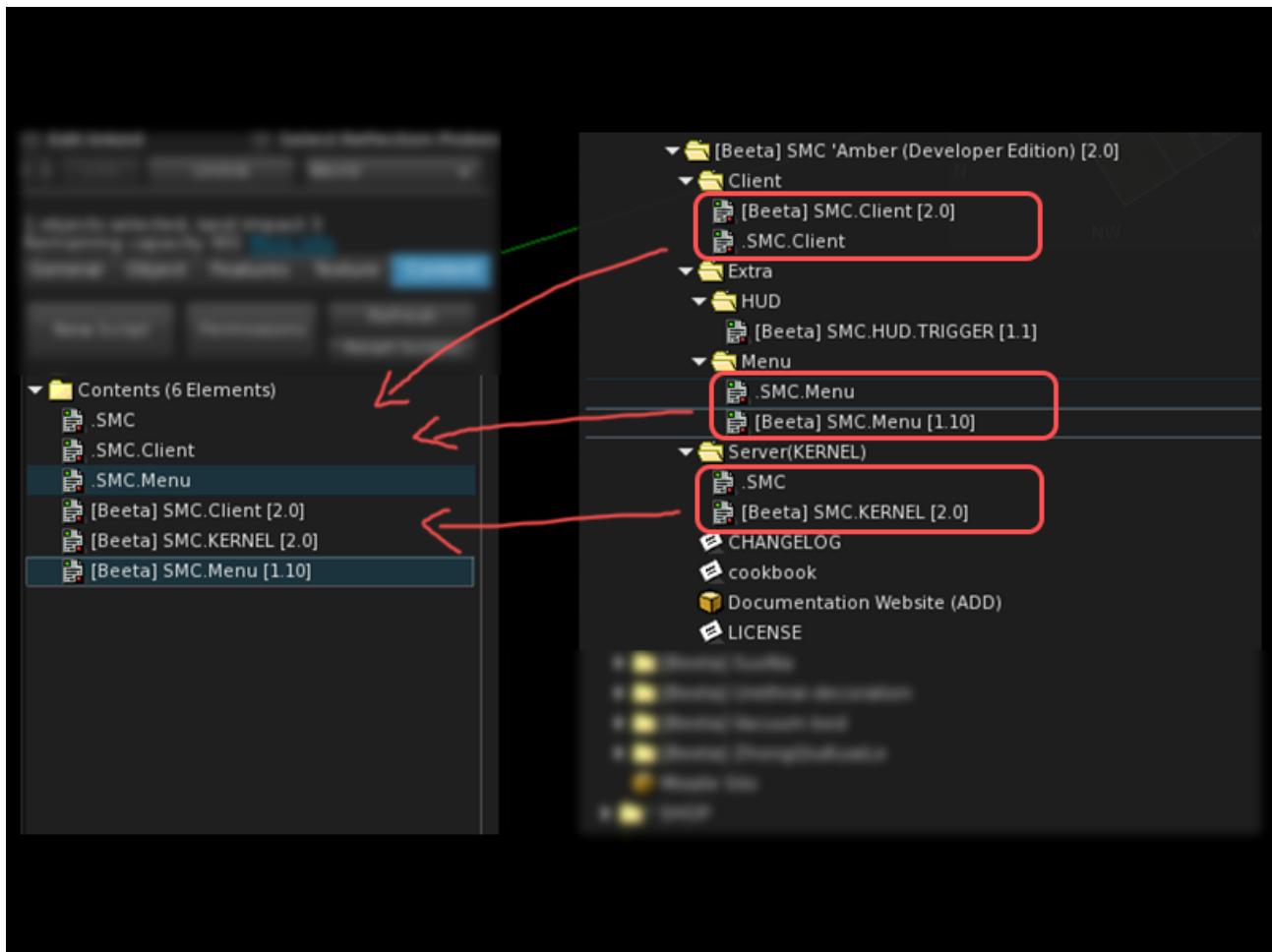


Now, there are faces that can be precisely located:

- **All faces** of the prim named "ONE"
- Face **0** of the prim named "TWO"
- Face **4** of the prim named "THREE"

## Place the script

Drag and drop the required script. Due to using the menu mode, KERNEL, Client, Menu, and their configuration files will all be placed into the "Contents" of the object.

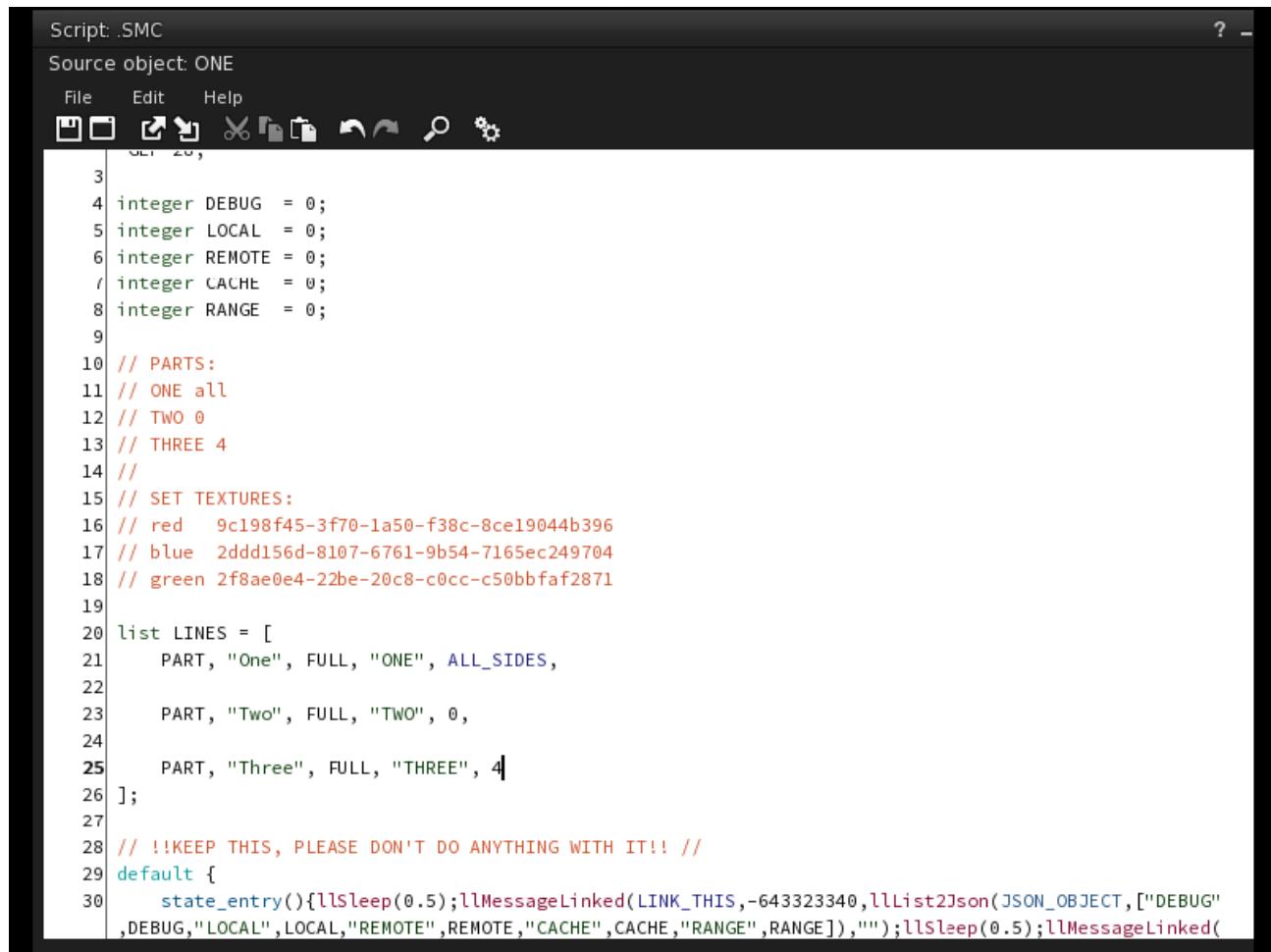


## Edit .SMC

Define all parts with **unique** names, specify matching patterns and content, and faces.

**PART**'s definition resembles that of a **selector** or **locator**, detailing how to find the target face.

## Edit .SMC



```
Script: .SMC
Source object: ONE

File Edit Help
? - 3
4 integer DEBUG = 0;
5 integer LOCAL = 0;
6 integer REMOTE = 0;
7 integer CACHE = 0;
8 integer RANGE = 0;
9
10 // PARTS:
11 // ONE all
12 // TWO 0
13 // THREE 4
14 //
15 // SET TEXTURES:
16 // red 9c198f45-3f70-1a50-f38c-8ce19044b396
17 // blue 2ddd156d-8107-6761-9b54-7165ec249704
18 // green 2f8ae0e4-22be-20c8-c0cc-c50bbfaf2871
19
20 list LINES = [
21     PART, "One", FULL, "ONE", ALL_SIDES,
22
23     PART, "Two", FULL, "TWO", 0,
24
25     PART, "Three", FULL, "THREE", 4
26 ];
27
28 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //
29 default {
30     state_entry(){llSleep(0.5);llMessageLinked(LINK_THIS,-643323340,llList2Json(JSON_OBJECT,[{"DEBUG"
,DEBUG,"LOCAL",LOCAL,"REMOTE",REMOTE,"CACHE",CACHE,"RANGE",RANGE}],""));llSleep(0.5);llMessageLinked(
```

Define three textures for different colors and give them names.

Each PART will switch between three styles, so all three variations need to be fully specified.

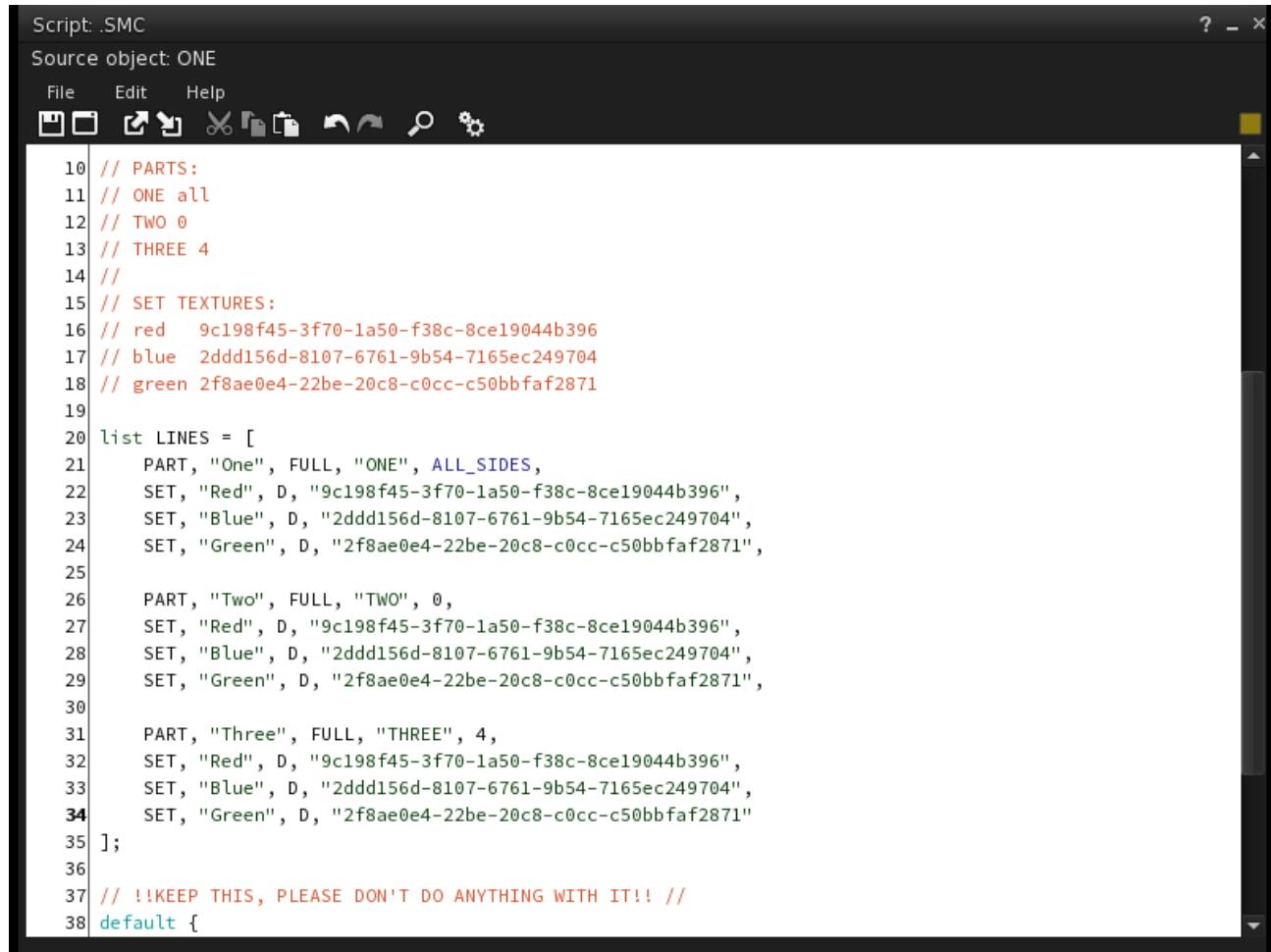
**Note: The name of SET must be unique within one PART.**

**Edit .SMC**

Script: .SMC

Source object: ONE

File Edit Help

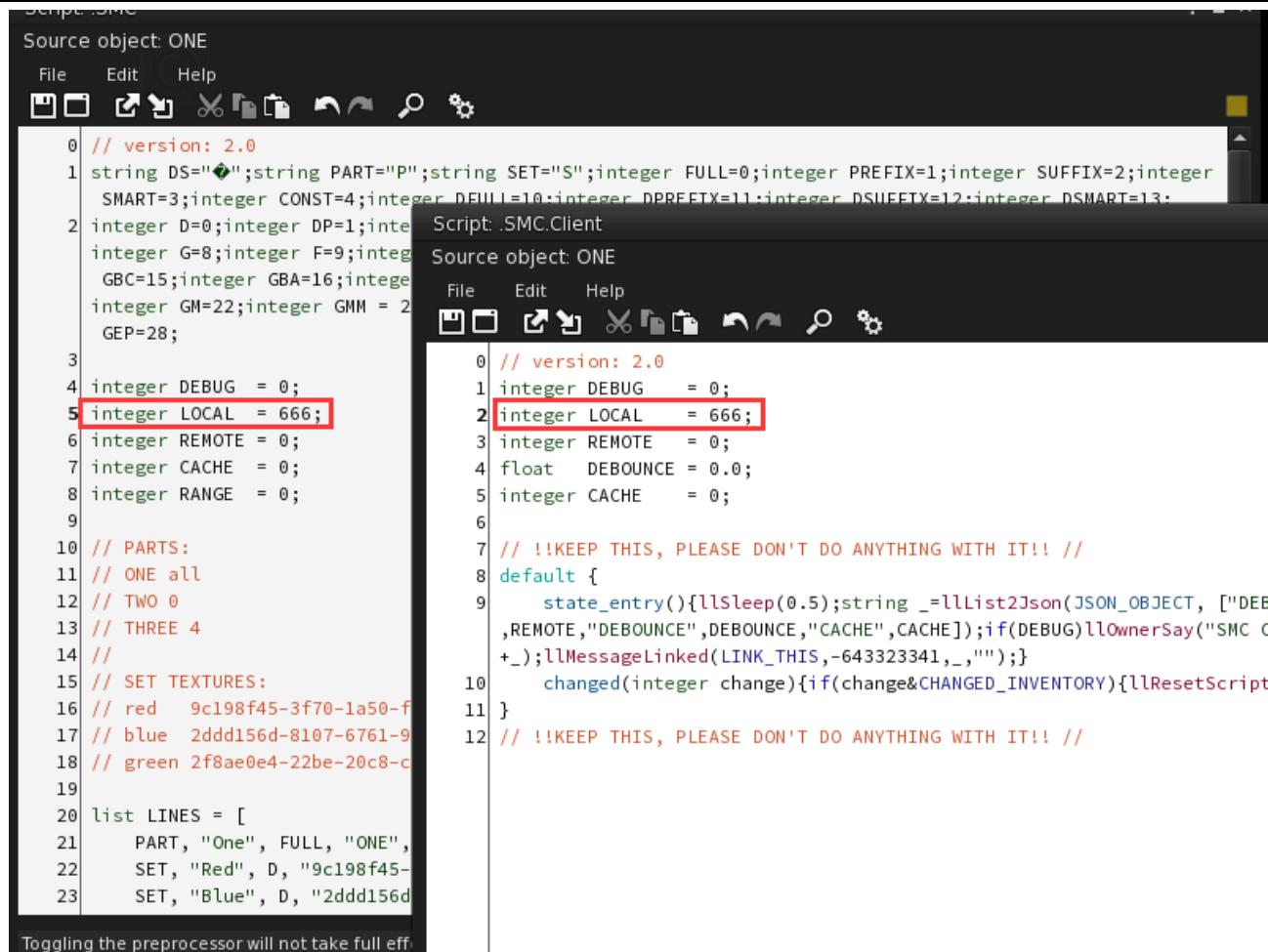


```
10 // PARTS:
11 // ONE 0
12 // TWO 0
13 // THREE 4
14 //
15 // SET TEXTURES:
16 // red 9c198f45-3f70-1a50-f38c-8ce19044b396
17 // blue 2ddd156d-8107-6761-9b54-7165ec249704
18 // green 2f8ae0e4-22be-20c8-c0cc-c50bbfaf2871
19
20 list LINES = [
21     PART, "One", FULL, "ONE", ALL_SIDES,
22     SET, "Red", D, "9c198f45-3f70-1a50-f38c-8ce19044b396",
23     SET, "Blue", D, "2ddd156d-8107-6761-9b54-7165ec249704",
24     SET, "Green", D, "2f8ae0e4-22be-20c8-c0cc-c50bbfaf2871",
25
26     PART, "Two", FULL, "TWO", 0,
27     SET, "Red", D, "9c198f45-3f70-1a50-f38c-8ce19044b396",
28     SET, "Blue", D, "2ddd156d-8107-6761-9b54-7165ec249704",
29     SET, "Green", D, "2f8ae0e4-22be-20c8-c0cc-c50bbfaf2871",
30
31     PART, "Three", FULL, "THREE", 4,
32     SET, "Red", D, "9c198f45-3f70-1a50-f38c-8ce19044b396",
33     SET, "Blue", D, "2ddd156d-8107-6761-9b54-7165ec249704",
34     SET, "Green", D, "2f8ae0e4-22be-20c8-c0cc-c50bbfaf2871"
35 ];
36
37 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //
38 default {
```

**Edit .SMC and .SMC.Client**

Adjust LOCAL to the same non-zero value.

## Edit .SMC and .SMC.Client



```

Script: .SMC
Source object: ONE
File Edit Help
0 // version: 2.0
1 string DS="P";string PART="P";string SET="S";integer FULL=0;integer PREFIX=1;integer SUFFIX=2;integer
  SMART=3;integer CONST=4;integer DFULL=10;integer DPREFIX=11;integer DSUFFIX=12;integer DSMART=13;
2 integer D=0;integer DP=1;integer G=8;integer F=9;integer GBC=15;integer GBA=16;integer GM=22;integer GMM = 2
  GEP=28;
3
4 integer DEBUG = 0;
5 integer LOCAL = 666;
6 integer REMOTE = 0;
7 integer CACHE = 0;
8 integer RANGE = 0;
9
10 // PARTS:
11 // ONE all
12 // TWO 0
13 // THREE 4
14 //
15 // SET TEXTURES:
16 // red 9c198f45-3f70-1a50-f
17 // blue 2ddd156d-8107-6761-9
18 // green 2f8ae0e4-22be-20c8-c
19
20 list LINES = [
21   PART, "One", FULL, "ONE",
22   SET, "Red", D, "9c198f45-
23   SET, "Blue", D, "2ddd156d

Toggling the preprocessor will not take full eff.

```

```

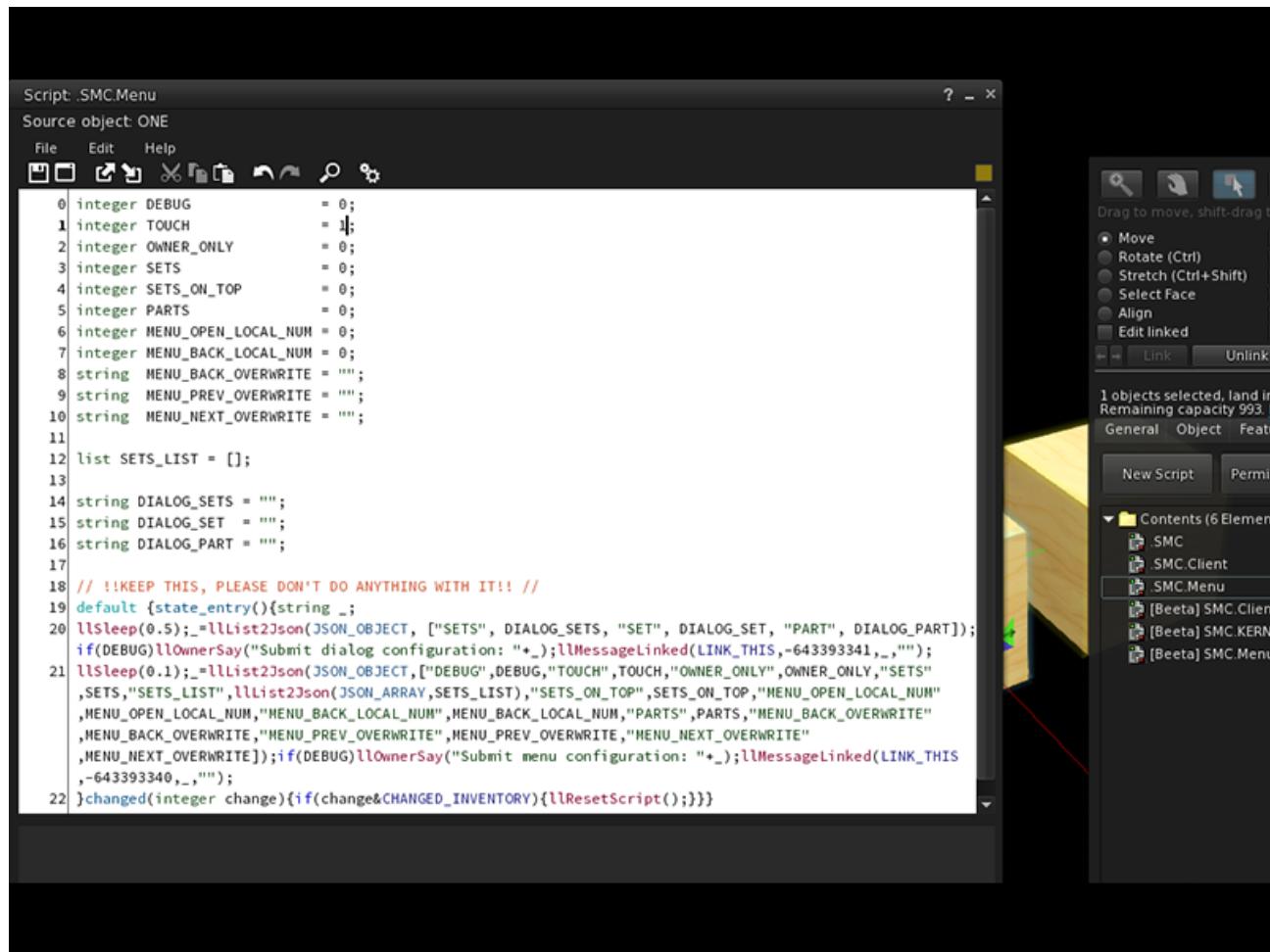
Script: .SMC.Client
Source object: ONE
File Edit Help
0 // version: 2.0
1 integer DEBUG = 0;
2 integer LOCAL = 666;
3 integer REMOTE = 0;
4 float DEBOUNCE = 0.0;
5 integer CACHE = 0;
6
7 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //
8 default {
9   state_entry(){llSleep(0.5);string _=llList2Json(JSON_OBJECT, ["DEB
  ,REMOTE,"DEBOUNCE",DEBOUNCE,"CACHE",CACHE]);if(DEBUG)llOwnerSay("SMC C
 +_);llMessageLinked(LINK_THIS,-643323341,_,"");}
10   changed(integer change){if(change&CHANGED_INVENTORY){llResetScript
11 }
12 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //

```

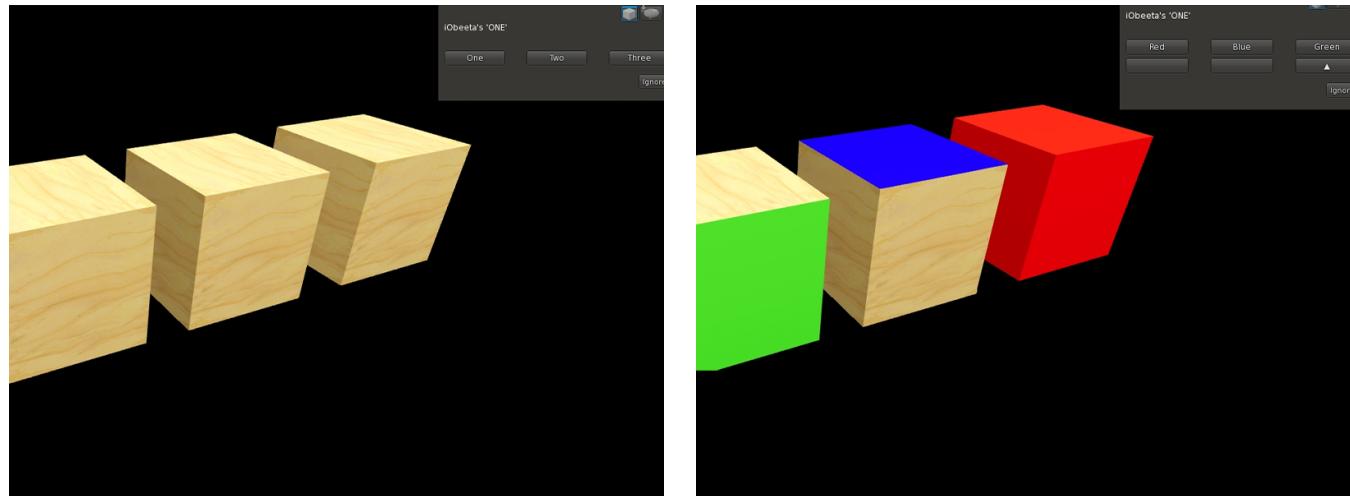
## Edit .SMC.Menu

Set TOUCH = 1, Enable touch.

## Edit .SMC.Menu



## Try



**OWNER\_ONLY = 1** restricts menu to owner-only trigger.

## About SETS

SETS allows you to conveniently batch execute replacements for multiple PARTS.

You can enable the "SETS" functionality in the .SMC.Menu settings. Here are the details below.

## CODE

SETS = 1

## PREVIEW

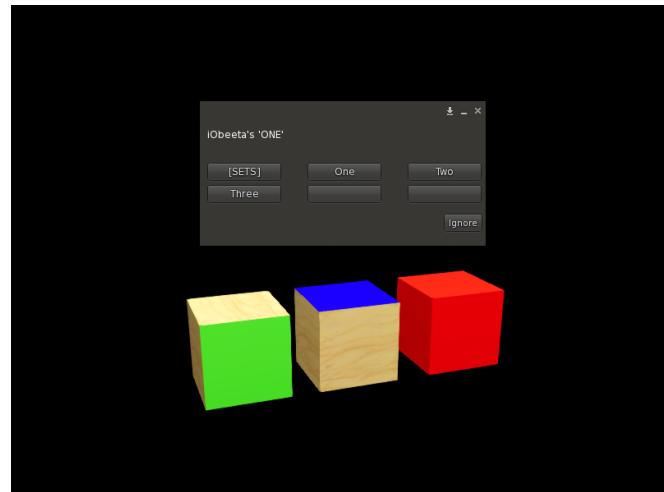
The menu will include an option labeled **[SETS]**.

## CODE

```
Script.SMC.Menu
?
Source object: ONE
File Edit Help
integer DEBUG = 0;
integer TOUCH = 1;
integer OWNER_ONLY = 0;
integer SETS = 1;
integer SETS_ON_TOP = 0;
integer PARTS = 0;
integer MENU_OPEN_LOCAL_NUM = 0;
integer MENU_BACK_LOCAL_NUM = 0;
string MENU_BACK_OVERWRITE = "";
string MENU_PREV_OVERWRITE = "";
string MENU_NEXT_OVERWRITE = "";
list SETS_LIST = [];

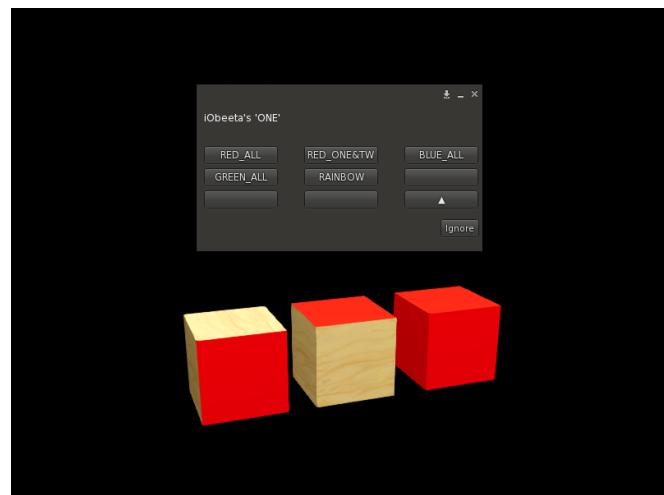
14 string DIALOG_SETS = "";
15 string DIALOG_SET = "";
16 string DIALOG_PART = "";
17

// !KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //
19 default (state_entry1)(string _;
20 llSleep(0.5);=llList2JSON(JSON_OBJECT, ["SETS", DIALOG_SETS, "SET", DIALOG_SET, "PART", DIALOG_PART]);if DEBUG@llOwnerSay("Submit dialog configuration: "+_);llMessageLinked(LINK_THIS, "d43393341");
21 llSleep(0.1);=llList2JSON(JSON_OBJECT, ["DEBUG", "DEBUG", "TOUCH", "OWNER_ONLY", "OWNER_ONLY", "SETS", "SETS_LIST"]);llList2JSON(JSON_ARRAY, SETS_LIST, "SETS_ON_TOP", "SETS_ON_TOP", "MENU_OPEN_LOCAL_NUM");
,"MENU_OPEN_LOCAL_NUM", "MENU_BACK_LOCAL_NUM", "MENU_BACK_LOCAL_NUM", "PARTS", "MENU_BACK_OVERWRITE";
"MENU_BACK_OVERWRITE", "MENU_PREV_OVERWRITE", "MENU_PREV_OVERWRITE", "MENU_NEXT_OVERWRITE";
"MENU_NEXT_OVERWRITE");if DEBUG@llOwnerSay("Submit menu configuration: "+_);llMessageLinked(LINK_THIS
,"d43393340...");
```



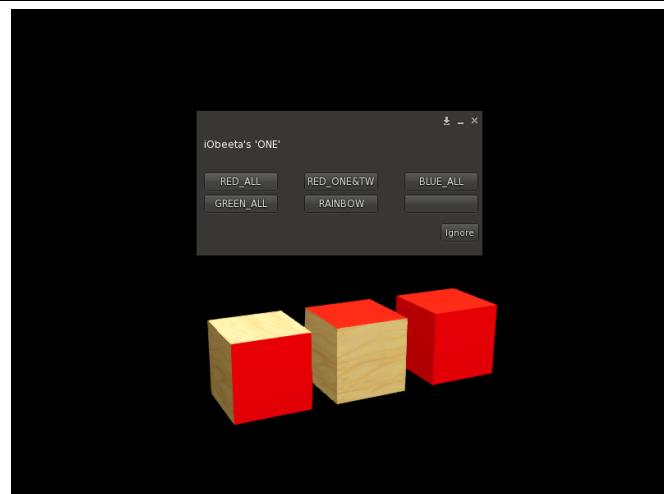
## Write SETS LIST

Click **[SETS]** to display all sets.



SETS\_ON\_TOP = 1

Display the set list in the top-level menu (partial change not available).



PARTS = 1

Add the option **[PARTS]** to the set list to enable and perform partial actions.

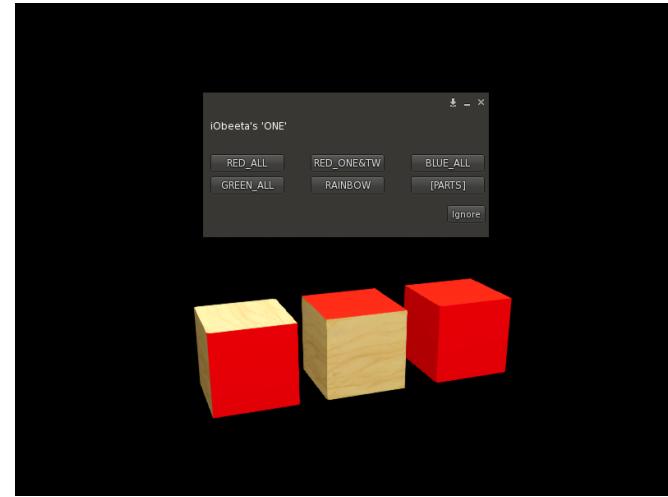
## CODE

```
Script: CSMenu
Source object: ONE

File Edit Help
File Edit Help
New Open Save Save As Print Find Search Exit

0 integer DEBUG = 0;
1 integer TOUCH = 1;
2 integer OWNER_ONLY = 0;
3 integer SETS = 1;
4 integer SETS_ON_TOP = 1;
5 integer PARTS = 1;
6 integer MENU_OPEN_LOCAL_NUM = 0;
7 integer MENU_BACK_LOCAL_NUM = 0;
8 string MENU_BACK_OVERWRITE = "";
9 string MENU_PREV_OVERWRITE = "";
10 string MENU_NEXT_OVERWRITE = "";
11
12 list SETS_LIST = [
13     "RED_ALL", ".Red",
14     "RED_ONE&TWO", ".One.Red.Two.Red",
15     "BLUE_ALL", ".Blue",
16     "GREEN_ALL", ".One.Green.Two.Green.Three.Green",
17     "RAINBOW", ".One.Red.Two.Blue.Three.Green"
18 ];
19
20 string DIALOG_SETS = "";
21 string DIALOG_SET = "";
22 string DIALOG_PART = "";
23
24 // !KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //
25 default (state_entry){string _;
26     llSleep(0.5); llList2Json(JSON_OBJECT, ["SETS"], DIALOG_SETS, "SET", DIALOG_SET, "PART", DIALOG_PART); if(_);
27     llOwnerSay("Submit dialog configuration: "+_); llMessageLinked(LINK_THIS, -643393341, "");
28     llOwnerSay("CSMenu object successfully created. It contains: DEBUG = "+DEBUG+", TOUCH = "+TOUCH+", OWNER_ONLY = "+OWNER_ONLY+", SETS = "+SETS+", SETS_ON_TOP = "+SETS_ON_TOP+", PARTS = "+PARTS+", MENU_OPEN_LOCAL_NUM = "+MENU_OPEN_LOCAL_NUM+", MENU_BACK_LOCAL_NUM = "+MENU_BACK_LOCAL_NUM+", MENU_BACK_OVERWRITE = "+MENU_BACK_OVERWRITE+", MENU_PREV_OVERWRITE = "+MENU_PREV_OVERWRITE+", MENU_NEXT_OVERWRITE = "+MENU_NEXT_OVERWRITE+", SETS_LIST = "+SETS_LIST);
29 }
```

## PREVIEW

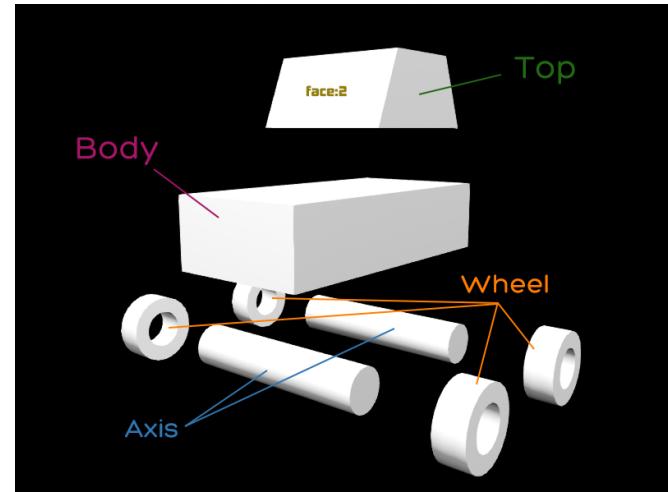
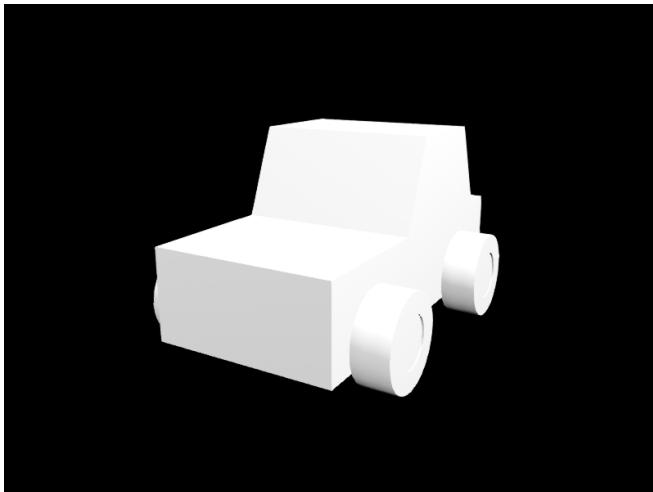


## HUD application

## Product

## Prepare the product

Plan and name the sub-prims it contains.



Furthermore, face **2** on the top will be made of glass. The plan for the PARTs are as follows:

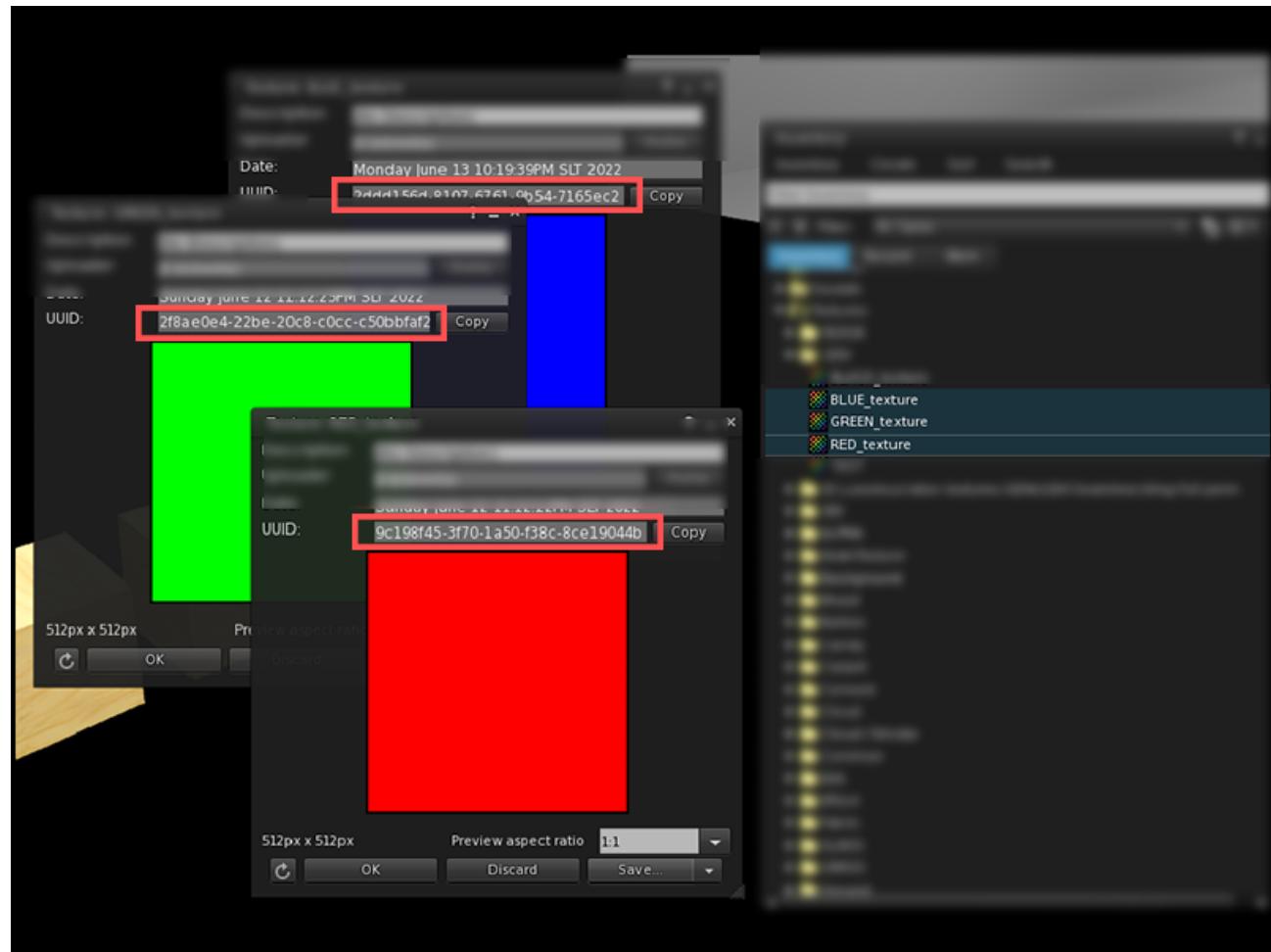
- PART Top: Top, 01345
- PART Body: Body, ALL\_SIDES
- PART Axis: Axis, ALL\_SIDES
- PART Wheel: Wheel, ALL\_SIDES
- PART Glass: Top, 2

## Textures

## Using 3 textures

## Textures

---



**Body, Top, Axis, Wheel** each have **Red, Green, Blue**. The plan for **Glass** in development involves using **TEXTURE\_BLANK** for simultaneous coloring. Let it have 2 styles, **Cool** and **Warm**.

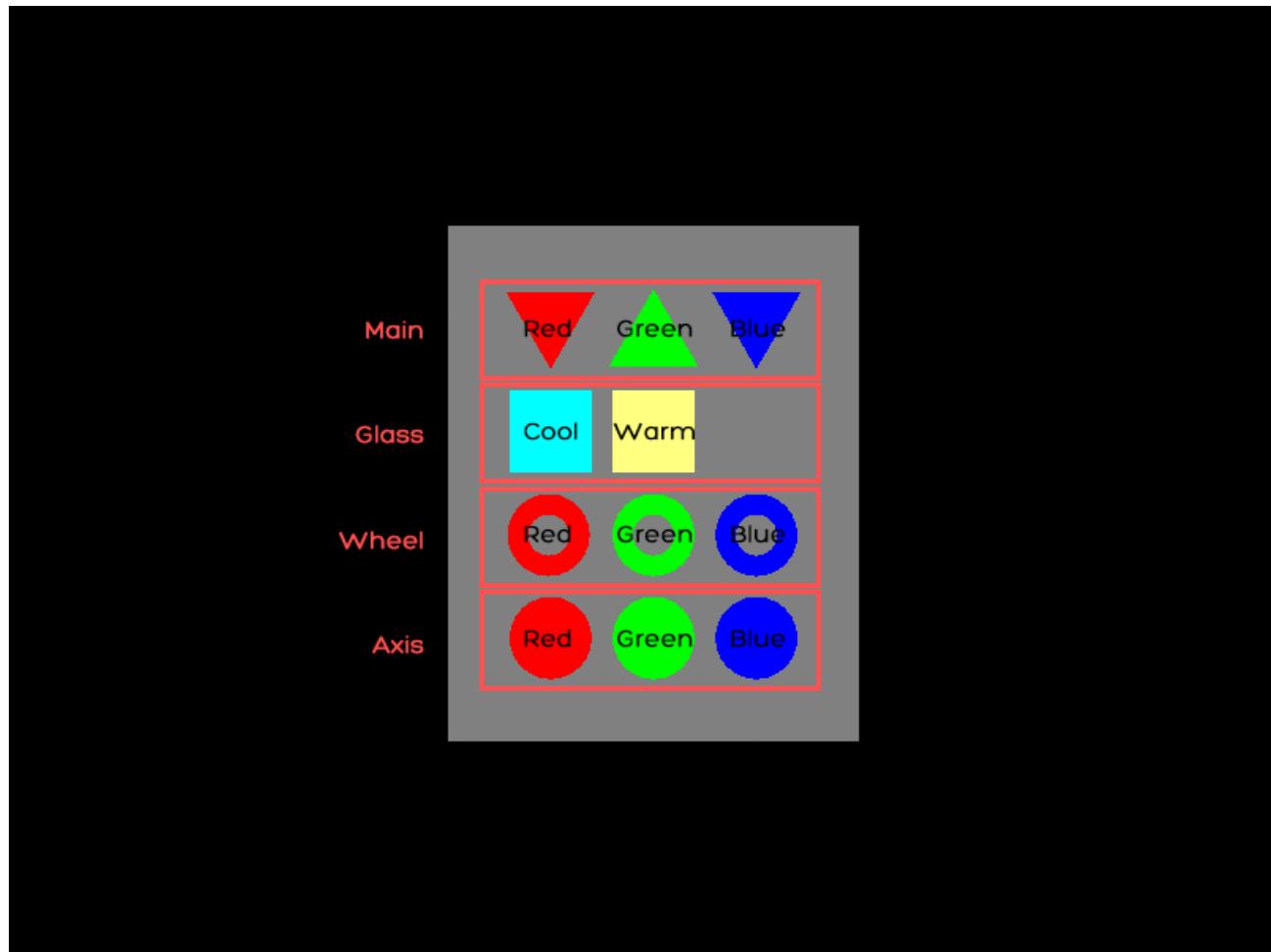
## Prepare HUD

---

Create a HUD, add the required buttons, and link them.

---

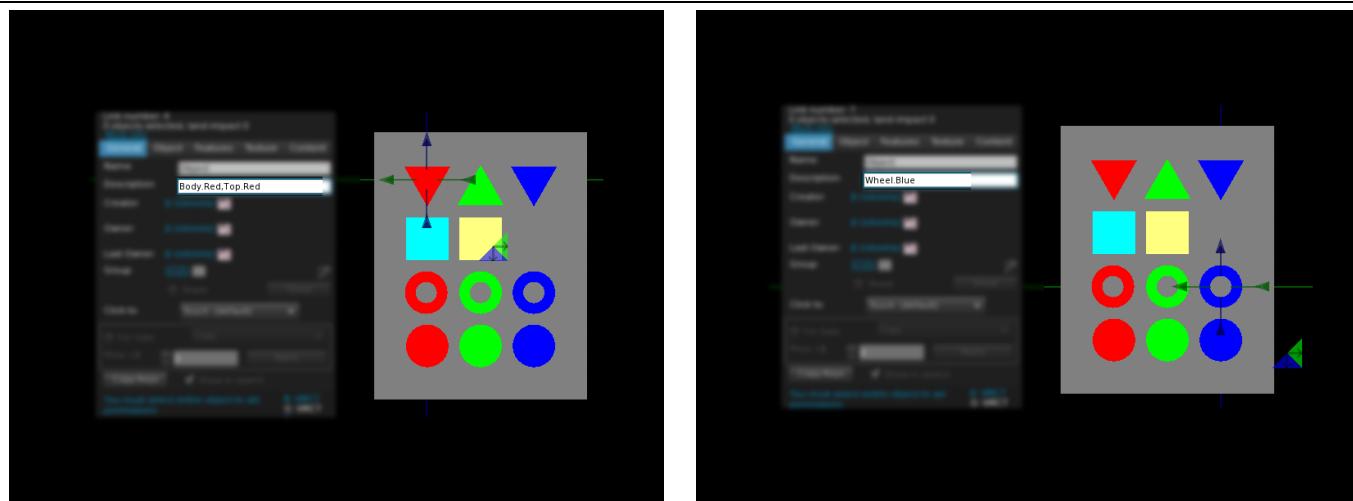
## Prepare HUD



### Edit the descriptions for the sub-prims.

The **Main** set of buttons will control the **Top** and **Body** sections.  
 Main in **Red** includes **Top.Red** and **Body.Red**.

**Wheel.Blue**. The other buttons similarly.



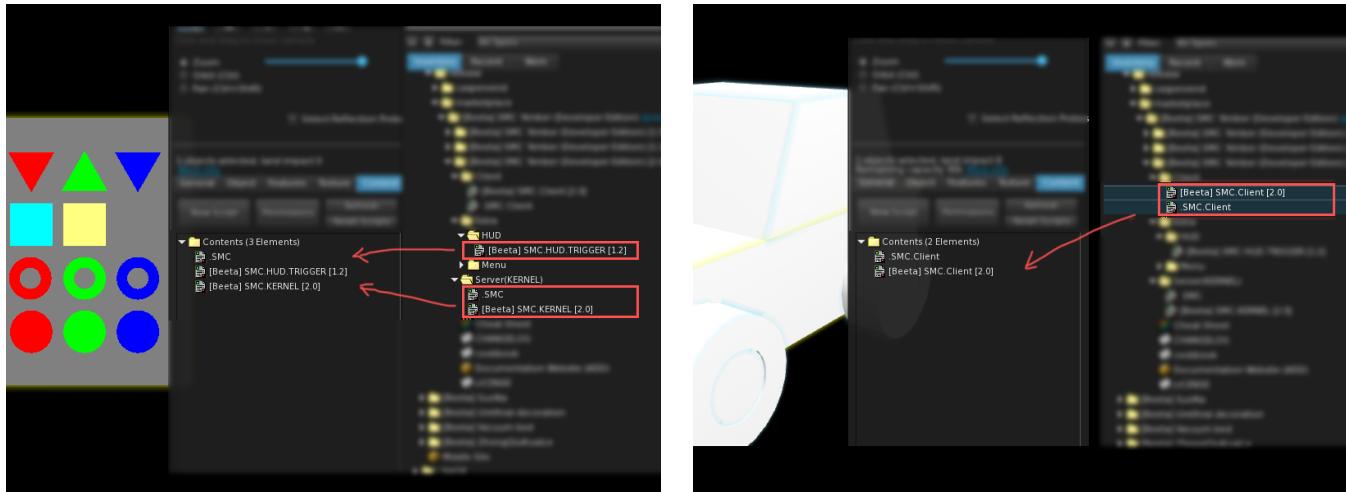
A single button can perform batch operations, similar to **SETS** in Menu mode. You can also omit the **PART** section and simply write **.SET** to achieve full replacement.

## Place scripts

Placing scripts for HUD.

Placing scripts for product.

## Place scripts



## Edit .SMC in the HUD

Script: .SMC  
Source object: Example.Car.HUD

File Edit Help

integer RANGE = 0;

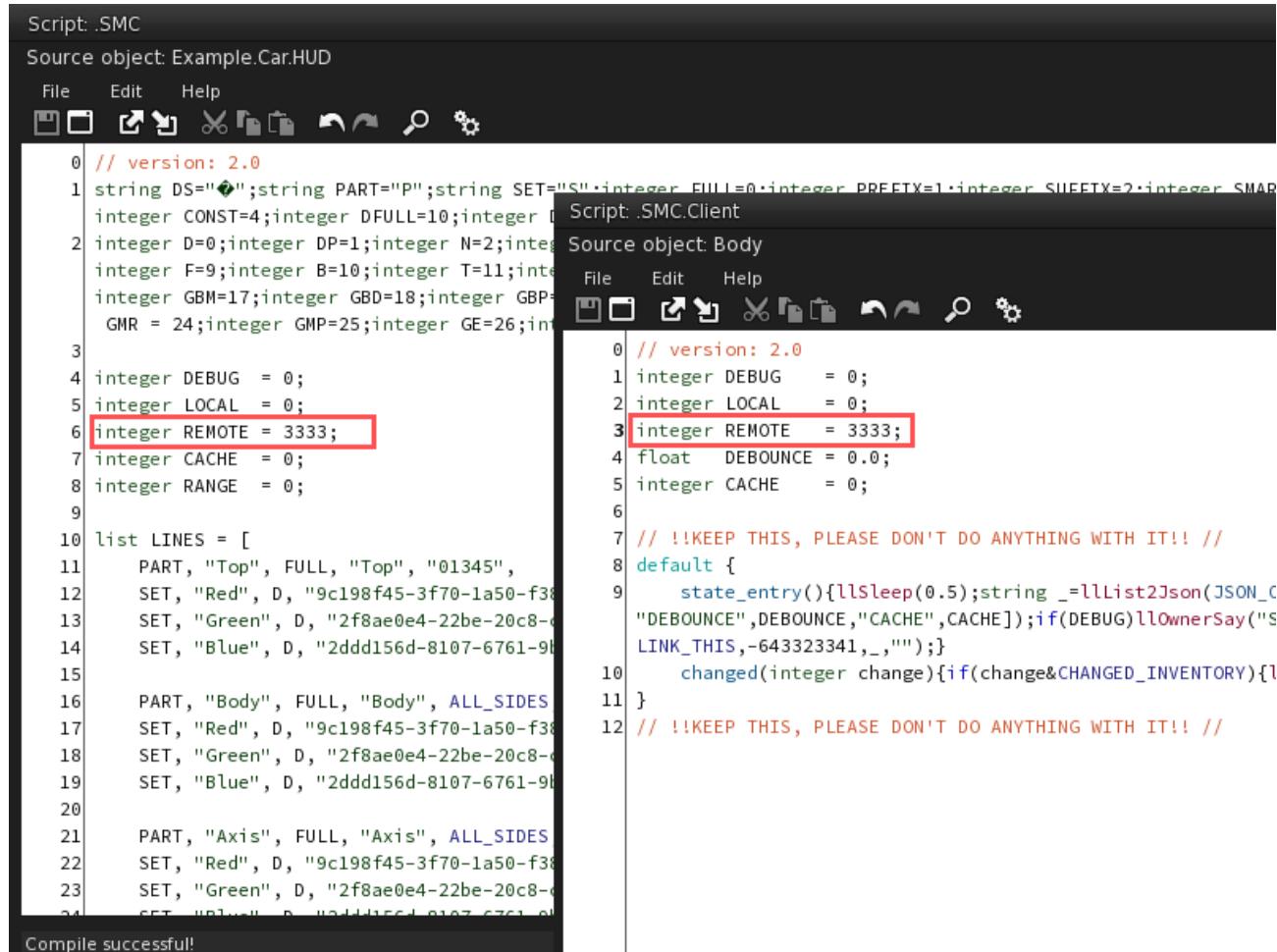
```

9
10 list LINES = [
11     PART, "Top", FULL, "Top", "01345",
12     SET, "Red", D, "9c198f45-3f70-1a50-f38c-8ce19044b396",
13     SET, "Green", D, "2f8ae0e4-22be-20c8-c0cc-c50bbfaf2871",
14     SET, "Blue", D, "2ddd156d-8107-6761-9b54-7165ec249704",
15
16     PART, "Body", FULL, "Body", ALL_SIDES,
17     SET, "Red", D, "9c198f45-3f70-1a50-f38c-8ce19044b396",
18     SET, "Green", D, "2f8ae0e4-22be-20c8-c0cc-c50bbfaf2871",
19     SET, "Blue", D, "2ddd156d-8107-6761-9b54-7165ec249704",
20
21     PART, "Axis", FULL, "Axis", ALL_SIDES,
22     SET, "Red", D, "9c198f45-3f70-1a50-f38c-8ce19044b396",
23     SET, "Green", D, "2f8ae0e4-22be-20c8-c0cc-c50bbfaf2871",
24     SET, "Blue", D, "2ddd156d-8107-6761-9b54-7165ec249704",
25
26     PART, "Wheel", FULL, "Wheel", ALL_SIDES,
27     SET, "Red", D, "9c198f45-3f70-1a50-f38c-8ce19044b396",
28     SET, "Green", D, "2f8ae0e4-22be-20c8-c0cc-c50bbfaf2871",
29     SET, "Blue", D, "2ddd156d-8107-6761-9b54-7165ec249704",
30
31     PART, "Glass", FULL, "Top", 2,
32     SET, "Cool", D, TEXTURE_BLANK, C, <0.5, 1.0, 1.0>,
33     SET, "Warm", D, TEXTURE_BLANK, C, <1.0, 1.0, 0.7>
34
35 ];
36

```

Compile successful!

## Edit .SMC in the HUD and .SMC.Client in the product

**Edit .SMC in the HUD and .SMC.Client in the product**

Script: .SMC  
Source object: Example.Car.HUD

File Edit Help

0 // version: 2.0  
1 string DS="";string PART="P";string SET="S";integer FULL=0;integer PREFTX=1;integer SUFFTX=2;integer SMART  
2 integer CONST=4;integer DFULL=10;integer D=0;integer DP=1;integer N=2;integer F=9;integer B=10;integer T=11;integer GBM=17;integer GBD=18;integer GBP=25;integer GMR=24;integer GMP=25;integer GE=26;integer DEBUG=0;integer LOCAL=0;integer REMOTE=3333;integer CACHE=0;integer RANGE=0;  
3  
4  
5  
6  
7  
8  
9  
10 list LINES = [  
11 PART, "Top", FULL, "Top", "01345",  
12 SET, "Red", D, "9c198f45-3f70-1a50-f38",  
13 SET, "Green", D, "2f8ae0e4-22be-20c8-0",  
14 SET, "Blue", D, "2ddd156d-8107-6761-9b",  
15  
16 PART, "Body", FULL, "Body", ALL\_SIDES,  
17 SET, "Red", D, "9c198f45-3f70-1a50-f38",  
18 SET, "Green", D, "2f8ae0e4-22be-20c8-0",  
19 SET, "Blue", D, "2ddd156d-8107-6761-9b",  
20  
21 PART, "Axis", FULL, "Axis", ALL\_SIDES,  
22 SET, "Red", D, "9c198f45-3f70-1a50-f38",  
23 SET, "Green", D, "2f8ae0e4-22be-20c8-0",  
24 SET, "Blue", D, "2ddd156d-8107-6761-9b"]

Compile successful!

Script: .SMC.Client  
Source object: Body

File Edit Help

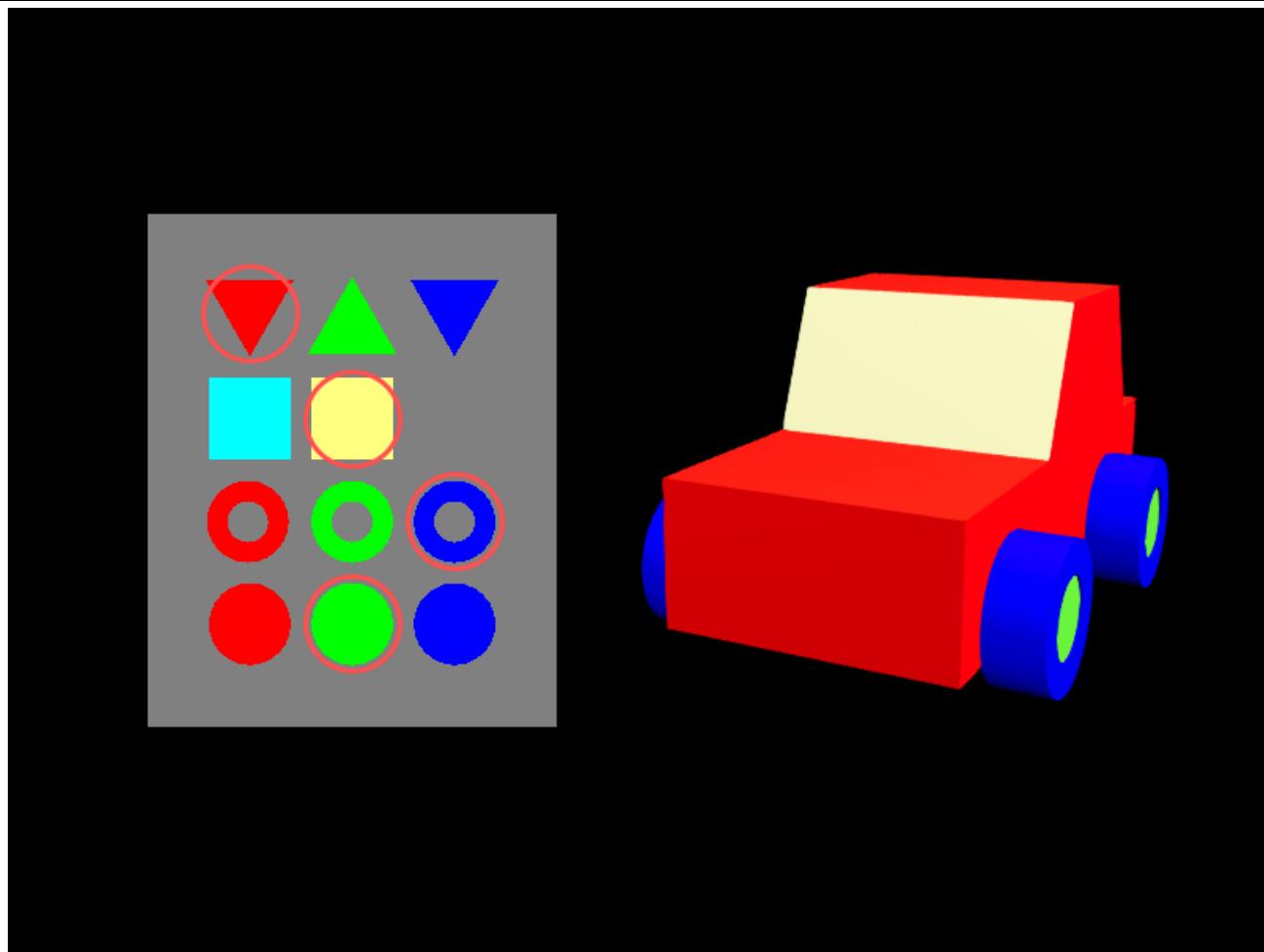
0 // version: 2.0  
1 integer DEBUG = 0;  
2 integer LOCAL = 0;  
3 integer REMOTE = 3333;  
4 float DEBOUNCE = 0.0;  
5 integer CACHE = 0;  
6  
7 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //  
8 default {  
9 state\_entry(){llSleep(0.5);string \_=llList2Json([JSON\_C  
"DEBOUNCE",DEBOUNCE,"CACHE",CACHE]);if(DEBUG)llOwnerSay("S  
LINK\_THIS,-643323341,\_,"");}  
10 changed(integer change){if(change&CHANGED\_INVENTORY){l  
11 }  
12 // !!KEEP THIS, PLEASE DON'T DO ANYTHING WITH IT!! //

**Try**

Touch buttons

Try

---



## Scenario example

### A suit with HUD

- Put SMC.KERNEL into the HUD.
  - SMC.HUD.TRIGGER is optional. And it's flexible to write if you know about LSL script.
- Put SMC.Client into the suit.
- Make sure the same REMOTE in both SMC.KERNEL and SMC.Client.

### A suit, with menu pops up when click on the collar

- Put SMC.KERNEL, SMC.Client, SMC.Menu into the suit.
  - You can put these scripts in ROOT or collar. That depends on where you want the menu pops up by click.
- Make sure the same LOCAL in both SMC.KERNEL and SMC.Client.

### A house, with control pad. And the house and pad is linked. Menu pops up when click on.

- Put SMC.KERNEL, SMC.Client into any PRIM of the house. Set the same LOCAL for both.
- Put the SMC.Menu into the control pad, and turn on the TOUCH.

### A house, with control pad. And the house and pad isn't linked. Menu pops up when click on.

- Put SMC.Client into any PRIM of the house.
- Put SMC.KERNEL, SMC.Menu into the control pad and turn on the TOUCH.
- Make sure the same REMOTE in both SMC.KERNEL and SMC.Client.

### A house with 2 control pads. One is linked to the house. Another one is in your inventory, works as HUD.

- Put SMC.Client, SMC.KERNEL, SMC.Menu into any PRIM of the house, and turn on the TOUCH.
- Put SMC.KERNEL, SMC.Menu into the linked control pad, and turn on the TOUCH.
- Put SMC.KERNEL, SMC.Menu into the portable control pad HUD.

- Make sure the same LOCAL in both SMC.Client and SMC.KERNEL.
- Make sure the same REMOTE in all the SMC.KERNEL and SMC.Client.

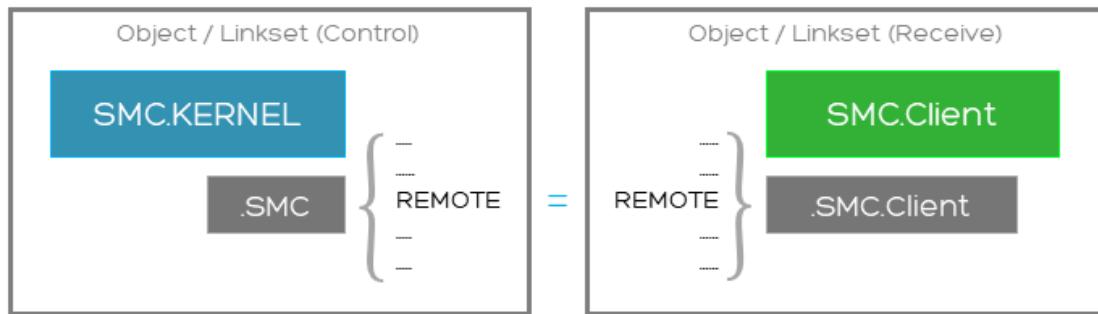
*Attention! **SMC.HUD.TRIGGER** only works with independent **PRIM** buttons **HUD**. It depends on different name and description. It will not work with only one **PRIM**, since it **can not** recognize the touch position (**ST/UV**). If need such function, you could write your own script.*

## Deployment

Smart Material Changer (SMC) operates by pairing through REMOTE or LOCAL, matching values are sufficient, with "0" considered invalid.

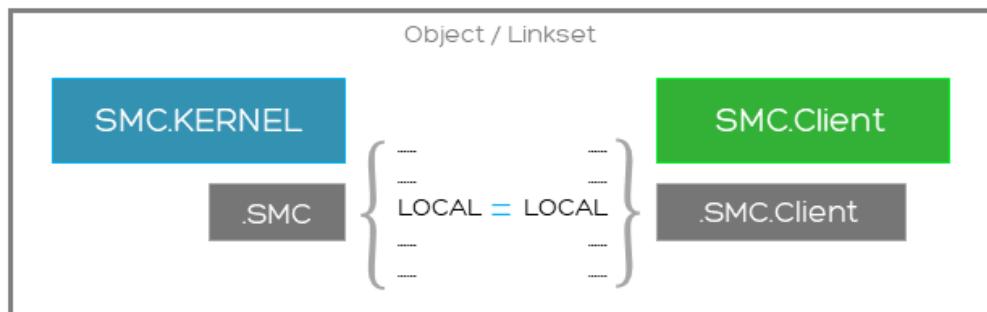
### Remote control

Remote material change refers to one object(linkset) controlling another object(linkset), requiring that the **REMOTE** in the controlling(kernel) **.SMC** file matches the **REMOTE** in the controlled(client) **.SMC.Client** file.



### Local control

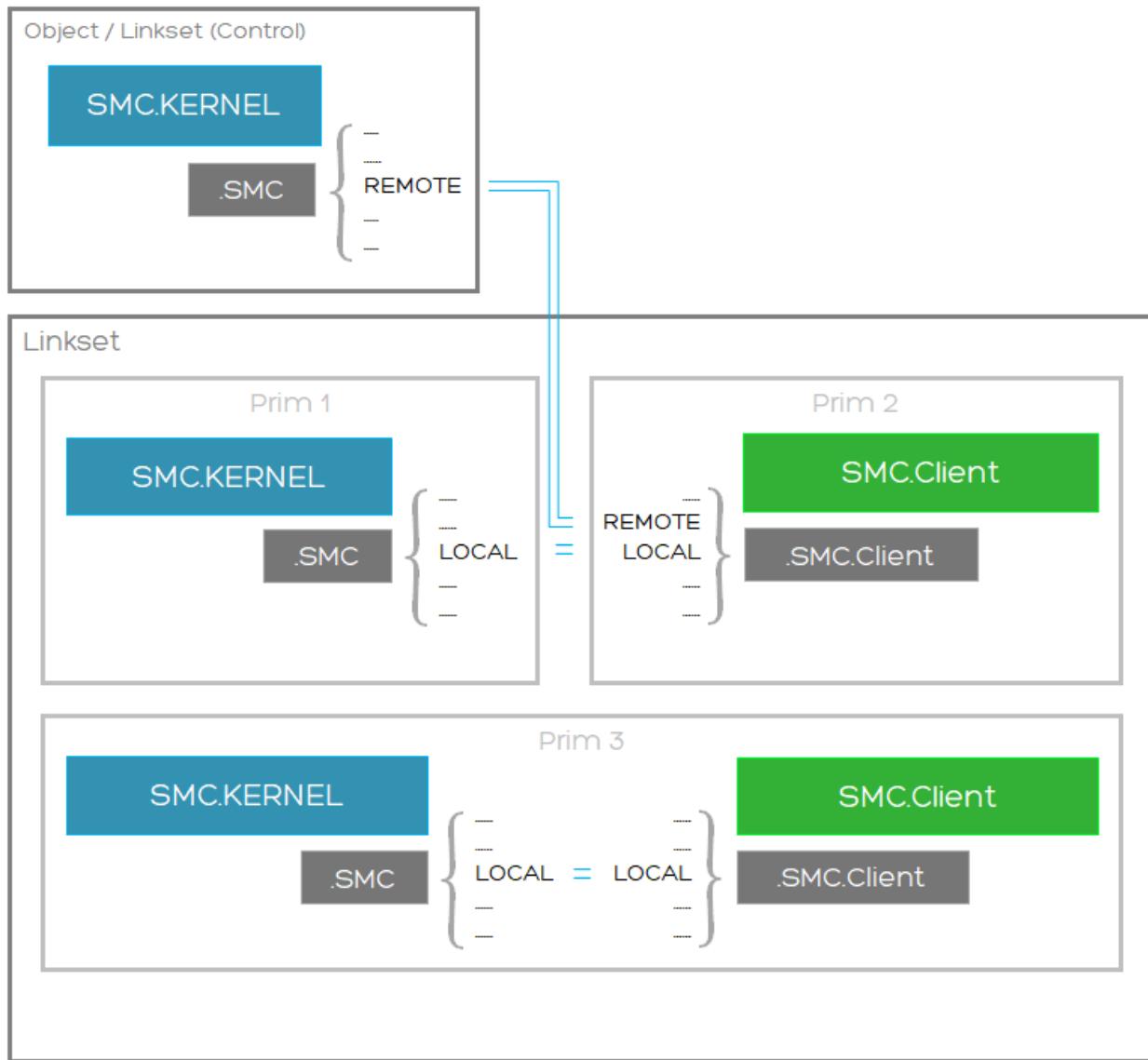
Local material change refers to a single object(linkset), placing the controlling(kernel) and controlled(client) together, requiring that the **LOCAL** in the **.SMC** file matches the **LOCAL** in the **.SMC.Client** file.



### Multiple

In the same linkset, they can function as long as their LOCAL is the same, regardless of which prim they are placed in. Of course, each prim can have at most one kernel and one client.

Kernel and Client can be 1v1, 1vN, Nv1, or NvN.



## Configure

### .SMC

Configuration	Type	Value	Default	description
DEBUG	integer	0 / 1	0	Debug mode, when enabled, outputs more information
LOCAL	integer	-2147483648 ~ 2147483647 (0 invalid)	0	Local communication channels, mostly used in menu format
REMOTE	integer	-10000 ~ 10000	0	Remote Communication Channel Offset (Note: This is private channel offset, not the exact channel) , mostly used in HUD format
CACHE	integer	0/1	0	Resource buffer(UUID).If there are a lot of reused images in the configuration, we recommend turning this. It could save much RAM
RANGE	integer	0/1/2/3	0	Control distance, 0:10m, 1:20m, 2:100m, 3:all region
LINES	list			Detailed writing rules will be described below

### LINES

The writing rules for LINES are more complicated. You can use the constants provided in the table, or write the numbers directly.

Also, pay attention to the number of parameters.

## PART

Part/Target/Picker

- PART is one or many targets (prim & face), which material could be changed. It's also like a picker.
- There must be **4 parameters** after the PART.

```
list LINES = [
  PART, "{name}", {matching type}, "{matching text}", {face(es)}
];
```

Parameters	Type	Value	description
name	string	any	In a set of LINES configurations, it's not repeatable. This is one of the keys to change material. It will also work as option in local menu format
matching type	integer	table below	Describe the type of match
matching text	string/integer	any	Name or description for matching, to define with parameter 2
face(es)	string/integer	-1~7/"01234567"/ALL_SIDES	Which face of the target PRIM. Then number of PRIM(0-7). It could transfer string such as "0267". It will match multiple face. And no need to follow the order, but can not be repetitive. You can also use ALL_SIDES(-1), and no more face then, since ALL_SIDES include every face

### Matching type

Constant	Value	Description
FULL	0	Match full text of the PRIM name
PREFIX	1	Match the prefix of the PRIM name
SUFFIX	2	Match the suffix of the PRIM name
SMART	3	(temporarily unavailable) Intelligent matching of PRIM names
CONST	4	In the manner of constants in SL. The matching text could be: LINK_SET, LINK_ALL_CHILDREN, LINK_ALL_OTHERS, LINK_ROOT, LINK_THIS
DFULL	10	Match full text of the PRIM description
DPREFIX	11	Match the prefix of the PRIM description
DSUFFIX	12	Match the suffix of the PRIM description
DSMART	13	(temporarily unavailable) Intelligent matching of PRIM description

### Examples

Match the **3,4** faces of PRIM with named "A".

```
list LINES = [
  PART, "Part A", FULL, "A", "34"
];
```

Match **ALL** faces of the PRIM with prefix named **Rect**.

```
list LINES = [
    PART, "All part starting with Rect", PREFIX, "Rect", ALL_SIDES
];
```

Match the **0** face of the PRIM with suffix named **3**.

```
list LINES = [
    PART, "All part ending with 3", SUFFIX, "3", 0
];
```

Match the **1, 2, 5** faces of the "**PRIMs other than the one where the script in**".

```
list LINES = [
    PART, "All others", CONST, LINK_ALL_OTHERS, "125"
];
```

Match **ALL** faces of the PRIM with **description suffix "top"**.

```
list LINES = [
    PART, "TOP", DSUFFIX, "top", ALL_SIDES
];
```

## SET

Color/Theme/Material scheme

- SET is a material scheme, and free to configure.
- The definition of SET cannot be independent. **It must be behind a part**.
- There are many properties in a SET. The amounts of properties parameters are different.

```
list LINES = [
    PART, ...,
    SET, "{name}", {property}, {values...}, {property}, {values...}
];
```

## Property

Refer to [PRIM\\_TEXTURE](#)

Property	Number	Corresponding Property	Description	Number of parameters	Value	Remark
D	0	<a href="#">PRIM_TEXTURE</a>	Diffuse texture	1	{texture}	Only change the texture, others are inherited
DP	1	<a href="#">PRIM_TEXTURE</a>	Diffuse(detail)	4	{texture}, {repeats}, {offsets}, {rotation_in_radians}	Set all properties related to diffuse reflection

Property	Number	Corresponding Property	Description	Number of parameters	Value	Remark
N	2	<a href="#">PRIM_NORMAL</a>	Normal texture	1	{texture}	Only change the texture, others are inherited
NP	3	<a href="#">PRIM_NORMAL</a>	Normal(detail)	4	{texture}, {repeats}, {offsets}, {rotation_in_radians}	Set all properties related to normal mapping
S	4	<a href="#">PRIM_SPECULAR</a>	Specular texture	1	{texture}	Only change the texture, others are inherited
SP	5	<a href="#">PRIM_SPECULAR</a>	Specular(detail)	7	{texture}, {repeats}, {offsets}, {rotation_in_radians}, {color}, {glossiness}, {environment}	Set all properties related to gloss
C	6	<a href="#">PRIM_COLOR</a>	Color	1	{color}	Color and alpha can be set separately
A	7	<a href="#">PRIM_COLOR</a>	Alpha	1	{alpha}	Color and alpha can be set separately
G	8	<a href="#">PRIM_GLOW</a>	Glow	1	{glow}	Light like a bulb
F	9	<a href="#">PRIM_FULLBRIGHT</a>	Full bright	1	{boolean}	Turn on or off
B	10	<a href="#">PRIM_BUMP_SHINY</a>	Normal and specular	2	{shiny}, {bump}	SL basic normal and specular
T	11	<a href="#">PRIM_TEXGEN</a>	Mapping mode	1	{mode}	Default/Plane
M	12	<a href="#">PRIM_ALPHA_MODE</a>	Alpha mode	2	{alpha_mode}, {mask_cutoff}	The 2nd parameter can not be omit, whether or not with the mask
GR	13	<a href="#">PRIM_RENDER_MATERIAL</a>	Material settings	1	{render_material}	A material in the inventory of the prim this script is in or a UUID of a material

Property	Number	Corresponding Property	Description	Number of parameters	Value	Remark
GB	14	PRIM_GLTF_BASE_COLOR	GLTF Base texture	1	{texture}	Only change the texture, others are inherited
GBC	15	PRIM_GLTF_BASE_COLOR	GLTF Base color	1	{color}	Only change the color, others are inherited
GBA	16	PRIM_GLTF_BASE_COLOR	GLTF Base alpha	1	{alpha}	Only change the alpha, others are inherited
GBM	17	PRIM_GLTF_BASE_COLOR	GLTF Base alpha mode	2	{gltf_alpha_mode}, {alpha_mask_cutoff}	Only change the alpha mode, others are inherited
GBD	18	PRIM_GLTF_BASE_COLOR	GLTF Base double sided	1	{double_sided}	Only change the double sided, others are inherited
GBP	19	PRIM_GLTF_BASE_COLOR	GLTF Base(detail)	9	{texture}, {repeats}, {offsets}, {rotation_in_radians}, {color}, {alpha}, {gltf_alpha_mode}, {alpha_mask_cutoff}, {double_sided}	Set all properties related to GLTF Base
GN	20	PRIM_GLTF_NORMAL	GLTF Normal texture	1	{texture}	Only change the texture, others are inherited
GNP	21	PRIM_GLTF_NORMAL	GLTF Normal(detail)	4	{texture}, {repeats}, {offsets}, {rotation_in_radians}	Set all properties related to GLTF Normal
GM	22	PRIM_GLTF_METALLIC_ROUGHNESS	GLTF Metallic & Roughness texture	1	{texture}	Only change the texture, others are inherited
GMM	23	PRIM_GLTF_METALLIC_ROUGHNESS	GLTF Metallic	1	{metallic_factor}	Only change the metallic, others are inherited
GMR	24	PRIM_GLTF_METALLIC_ROUGHNESS	GLTF Roughness	1	{roughness_factor}	Only change the roughness, others are inherited

Property	Number	Corresponding Property	Description	Number of parameters	Value	Remark
GMP	25	PRIM_GLTF_METALLIC_ROUGHNESS	GLTF Metallic & Roughness(detail)	6	{texture}, {repeats}, {offsets}, {rotation_in_radians}, {metallic_factor}, {roughness_factor}	Set all properties related to GLTF Metallic & Roughness
GE	26	PRIM_GLTF_EMISSIVE	GLTF Emissive texture	1	{texture}	Only change the texture, others are inherited
GET	27	PRIM_GLTF_EMISSIVE	GLTF Emissive tint	1	{color}	Only change the tint, others are inherited
GEP	28	PRIM_GLTF_EMISSIVE	GLTF Emissive(detail)	5	{texture}, {repeats}, {offsets}, {rotation_in_radians}, {emissive_tint}	Set all properties related to GLTF Emissive

If the value is given as an empty string, it means no replacement (use the current value)

### Examples

Change the diffuse reflection mapping, normal mapping with details, alpha and glow.

```
list LINES = [
    PART, ...,
    SET, "name_1", D, "{uuid}", NP, "{uuid}", <1.0, 1.0, 0.0>, <0.0, 0.0, 0.0>, 0.0, A, 0.6, G, 0.02
]
```

Change color, full bright mode, and clean the specular mapping.

```
list LINES = [
    PART, ...,
    SET, "name_2", C, <1.0, 0.0, 0.0>, F, TRUE, S, NULL_KEY
]
```

Change the positon and rotation of diffuse reflection mapping. And keep the map and repeats.

```
list LINES = [
    PART, ...,
    SET, "name_3", DP, "", "", <0.125, 0.4, 0.0>, 135.65
]
```

SMC.Client

Configurations	Type	Values	Default	Description
DEBUG	integer	0 / 1	0	Debug mode, when enabled, outputs more information

Configurations	Type	Values	Default	Description
LOCAL	integer	-2147483648 ~ 2147483647 (0 invalid)	0	Local communication channels, mostly used in menu format
REMOTE	integer	-10000 ~ 10000	0	Remote communication channel offset (Note: This is private channel offset, not the exact channel), mostly used in HUD format
DEBOUNCE	float	$\geq 0.0$	0.0	Anti-shake period, any changes in this period will be accumulated until there is no operation to change the material and start to work after this period, to avoid the efficiency bottleneck caused by frequent switching
CACHE	integer	0 / 1	0	Selector caching, use cache for more efficient matching speed. Note: when this option is turned on, you can't do link and unlink operation on the object, or it will be error

## SMC.Menu

Configuration Item	Type	Values	Default	Description
DEBUG	integer	0 / 1	0	Debug mode, when enabled, outputs more information
TOUCH	integer	0 / 1	0	Whether the menu can be triggered by touching
OWNER_ONLY	integer	0 / 1	0	Whether the toucher must be the owner
SETS	integer	0 / 1	0	"SETS" options, adds "[SETS]" option in the PART list, entering the SETS list menu
SETS_ON_TOP	integer	0 / 1	0	Top-level menu, replaces the PART list with the SETS list
PARTS	integer	0 / 1	0	If SETS_ON_TOP is enabled, adds "[PART]" in the SETS menu as an entry to the PART menu
MENU_OPEN_LOCAL_NUM	integer	-2147483648 ~ 2147483647 (0 invalid)	0	Local num triggering menu pop-up
MENU_BACK_LOCAL_NUM	integer	-2147483648 ~ 2147483647 (0 invalid)	0	Callback to return to the parent menu
MENU_BACK_OVERWRITE	string	Any	Empty string	Replace the return option text
MENU_PREV_OVERWRITE	string	Any	Empty string	Replace the previous page option text
MENU_NEXT_OVERWRITE	string	Any	Empty string	Replace the next page option text
DIALOG_SETS	string	Any	Empty string	Set the menu content of SETS. Please use "\n" for line breaks.
DIALOG_SET	string	Any	Empty string	Set the menu content of SET. Please use "\n" for line breaks.
DIALOG_PART	string	Any	Empty string	Set the menu content of PART. Please use "\n" for line breaks.
SETS_LIST	list	key/value pairs	Empty list	See below

## SETS\_LIST

### Formats

```
list SETS_LIST = [
  "{Set name}", "{PART}.{SET}",
  ...
];

list SETS_LIST = [
  "{Set name}", ".{SET}",
  ...
];

list SETS_LIST = [
  "{Set name}", ".{SET_A},.{SET_B},{PART1}.{SET_C},...",
  ...
];
```

## Examples

```
list SETS_LIST = [
  "BLACK", ".BLACK"
];
```

```
list SETS_LIST = [
  "BLACK&RED", ".BLACK,.RED"
];
```

```
list SETS_LIST = [
  "BLACK&TOP_RED", ".BLACK,TOP.RED"
];
```

```
list SETS_LIST = [
  "BTM_B&T_R", "BOTTOM.BLACK,TOP.RED"
];
```

## SMC.KERNEL Local Interface

The message string separator is "◆"

```
llDumpList2String([...], "◆")
```

Submit

**-643323390**

Apply a predefined property to a predefined part and support custom append and override

```
llMessageLinked(LINK_SET, -643323390, "{PART}◆{SET}[◆{DATA...}]", "");
```

- PART and SET must be defined in the configuration, and SET must belong to PART for this commit to work.
- The DATA part is an append or override attribute, written as in SET, optional parameters.

Examples

```
// Most commonly used (using predefined configuration LINES)
llMessageLinked(LINK_SET, -643323390, "TOP◆BLACK", "");
// with customized properties
llMessageLinked(LINK_SET, -643323390, "TOP◆BLACK◆6◆<1.0, 0.0, 0.0>◆9◆TRUE◆4◆ee509dfd-0974-6fb5-3eea-2504fa13ef4c", "");
// Easy style
llMessageLinked(LINK_SET, -643323390, llDumpList2String(["TOP", "BLACK", 6, <1.0, 0.0, 0.0>, 9, TRUE, 4, "ee509dfd-0974-6fb5-3eea-2504fa13ef4c"], "◆"), "");
// It is recommended to use constants, which can be written as
llMessageLinked(LINK_SET, -643323390, llDumpList2String(["TOP", "BLACK", C, <1.0, 0.0, 0.0>, F, TRUE, S, "ee509dfd-0974-6fb5-3eea-2504fa13ef4c"], "◆"), "");
```

\* Batch mode

```
llMessageLinked(LINK_SET, -643323390, "◆{SET}", "");
```

- If with no PART, the full match mode will be triggered at this point, and all PARTs containing the SET will be automatically found, and work together.
- The DATA appended at this moment, will be applied to all relevant PARTs.

Examples

```
// In the defined PART, such as TOP, MIDDLE and BOTTOM.
// If there is BLACK in TOP and MIDDLE, those will be found automatically and BLACK will be applied.
// The same with carrying out TOP◆BLACK and MIDDLE◆BLACK
llMessageLinked(LINK_SET, -643323390, "◆BLACK", "");
```

## -643323392

Apply a customized set of attributes to predefined parts

```
llMessageLinked(LINK_SET, -643323392, "{PART}◆{DATA...}", "");
```

- PART must have been defined in the configuration for this commit to work.
- The writing style of DATA, such as properties in SET, is different with those above for the custom properties of PART.

Examples

```
llMessageLinked(LINK_SET, -643323392, "TOP◆6◆<1.0, 0.0, 0.0>◆9◆TRUE◆4◆ee509dfd-0974-6fb5-3eea-2504fa13ef4c", "");
// Easy style
llMessageLinked(LINK_SET, -643323392, llDumpList2String(["TOP", 6, <1.0, 0.0, 0.0>, 9, TRUE, 4, "ee509dfd-0974-6fb5-3eea-2504fa13ef4c"], "◆"), "");
// It is recommended to use constants, which can be written as
llMessageLinked(LINK_SET, -643323392, llDumpList2String(["TOP", C, <1.0, 0.0, 0.0>, F, TRUE, S, "ee509dfd-0974-6fb5-3eea-2504fa13ef4c"], "◆"), "");
```

## -643323393

Apply a set of custom properties to a customized part.

```
llMessageLinked(LINK_SET, -643323393, "{DATA...}", "");
```

- DATA must be with the full PART + SET contents.
- No need to follow the configuration, this is a completely independent selection + properties rule.

## Examples

```
llMessageLinked(LINK_SET, -643323393, "2◆top◆0123◆6◆<1.0, 0.0, 0.0>◆9◆TRUE◆4◆ee509dfd-0974-6fb5-3eea-2504fa13ef4c", "");
// Easy style
llMessageLinked(LINK_SET, -643323393, llDumpList2String([2, "top", "0123", 6, <1.0, 0.0, 0.0>, 9, TRUE, 4, "ee509dfd-0974-6fb5-3eea-2504fa13ef4c"], "◆"), "");
// It is recommended to use constants, which can be written as
llMessageLinked(LINK_SET, -643323393, llDumpList2String([SUFFIX, "top", "0123", C, <1.0, 0.0, 0.0>, F, TRUE, S, "ee509dfd-0974-6fb5-3eea-2504fa13ef4c"], "◆"), "");
```

## Request(with callback)

### -643323410

#### Request PART List

```
llMessageLinked(LINK_SET, -643323410, "", id);
```

#### KERNEL callback: -643323411

```
llMessageLinked({SENDER}, -643323411, "{PART1}◆{PART2}◆....", id);
```

```
link_message(integer sender_num, integer num, string str, key id)
{
    if(num == -643323411) {
        list parts = llParseString2List(str, ["◆"], []);
        // parts: ["PART1", "PART2", ....]
    }
}
```

### -643323420

#### Request SET List

```
llMessageLinked(LINK_SET, -643323420, "{PART}", id);
```

#### KERNEL callback: -643323411

```
llMessageLinked({SENDER}, -643323421, "{SET1}◆{SET2}◆....", id);
```

```
link_message(integer sender_num, integer num, string str, key id)
{
    if(num == -643323421) {
        list sets = llParseString2List(str, ["◆"], []);
        // sets: ["SET1", "SET2", ....]
    }
}
```

```
    }
```

## SMC.Menu Local Interface

### Parameter MENU\_OPEN\_LOCAL\_NUM defined in .SMC.Menu

#### Call up the menu

```
llMessageLinked(LINK_SET, {MENU_OPEN_LOCAL_NUM}, "", {USER});
```

#### Call up the menu to PART list

```
llMessageLinked(LINK_SET, {MENU_OPEN_LOCAL_NUM}, "part", {USER});  
  
// Use button to override definition and provide callback, which is only valid for this menu.  
// Selecting an option or clicking the back button will send a local message.  
llMessageLinked(LINK_SET, {MENU_OPEN_LOCAL_NUM}, "part◆{BackButton}◆{LocalNum}", {USER});
```

#### Call up the menu to SET list of specific PART

```
llMessageLinked(LINK_SET, {MENU_OPEN_LOCAL_NUM}, "set◆{PART}", {USER});  
  
// Use button to override definition and provide callback, which is only valid for this menu.  
// Selecting an option or clicking the back button will send a local message.  
llMessageLinked(LINK_SET, {MENU_OPEN_LOCAL_NUM}, "set◆{PART}◆{BackButton}◆{LocalNum}", {USER});
```

#### Call up the menu to SETS list

```
llMessageLinked(LINK_SET, {MENU_OPEN_LOCAL_NUM}, "sets", {USER});  
  
// Use button to override definition and provide callback, which is only valid for this menu.  
// Selecting an option or clicking the back button will send a local message.  
llMessageLinked(LINK_SET, {MENU_OPEN_LOCAL_NUM}, "sets◆{BackButton}◆{LocalNum}", {USER});
```

\* Special thanks to my darling **Amber0089**