Reprogramming the Dreambox Remote Control

Version History
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Many thanks @ starpox007 @ BlackFly for their help.

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1 Introduction

The remote control (RC) bundled with the dreambox is in fact based on the Omega model from uei (www.uei.com).

UEI Omega RC

This remote control has the possibility to handle up to 4 different devices (although originally on the Dreambox RC only 2 devices keys are present (namely TV & Dream)).
This remote doesn't have any "learning capabilities" in the sense that it is not possible to have it record IR signals.
However, it is possible to program it (The information you need is described later on).
This RC has a JP1 interface which we use to connect to a computer.

2 What you need

2.1 Software

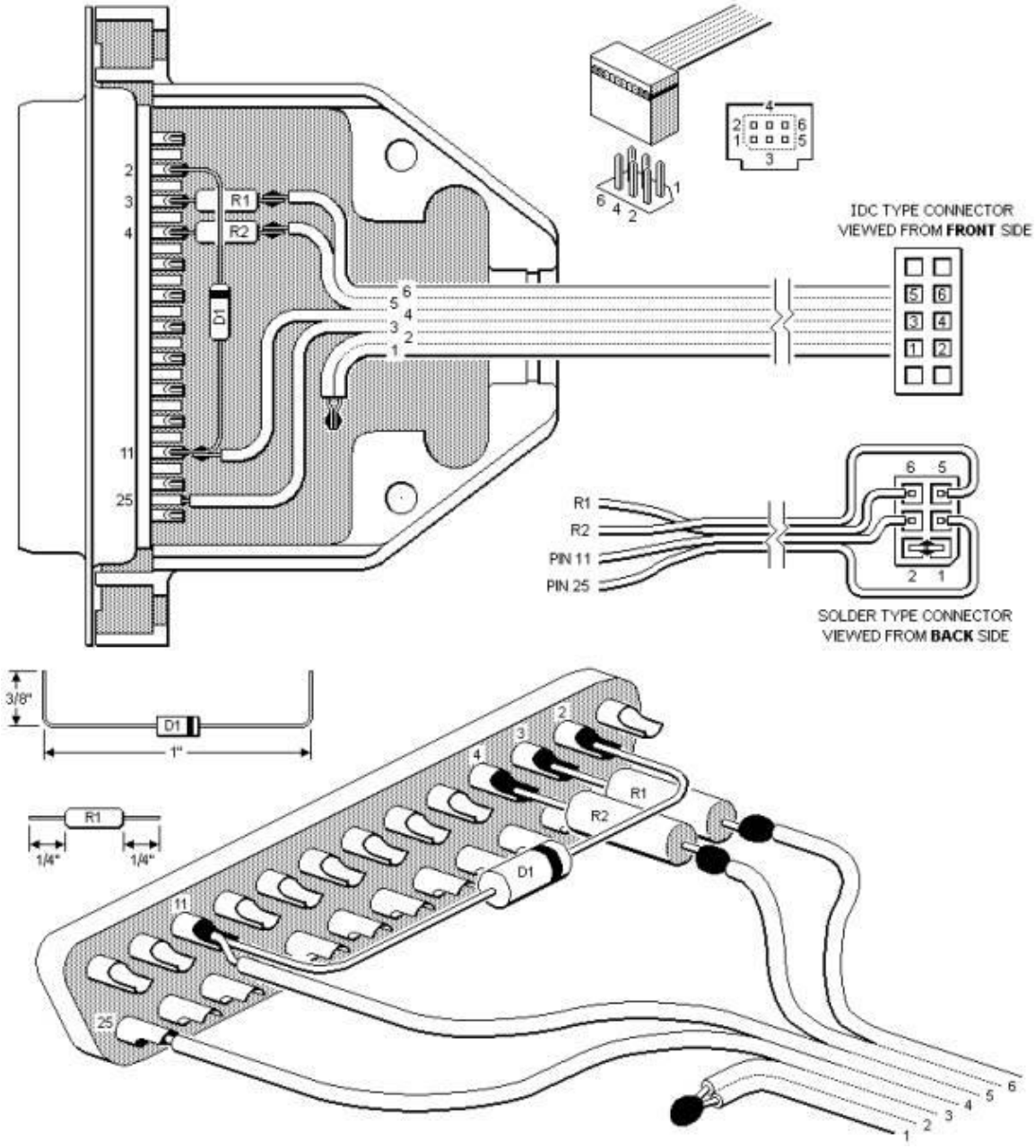
You need at least the IR program and the Excel sheet keymap master. Both can be downloaded from http://groups.yahoo.com/group/jp1/files in section Tools. To use The keymap master excel sheet, you need Excel with the analyse function (can be installed from the original Microsoft CDs).

2.2 Hardware

2.2.1 JP1 Interface

To read and write from/to the remote control, a JP1 interface is required.
In order to make this interface the following is needed

- 1 parallel port (sub-25)
- 2 1kohm resistance
- 1 diode 1n4148
- 1 plug to connect in the remote control (I used an old IDE cabel that I cut)



Pin 1 on the JP1 interface of the DB is on the upper right when looking at JP1 connector on the back of the RC.

2.2.2 Interface test

In order to test the interface, you need to start the IR program and set under “interface-Set port address” the start of the I/O range of the printer port LPT1. This you will find out under the windows Device Manager under Ports. After, connect the cable to both the PC & RC. Then select “Interface – Check interface” and confirm with OK. Should you get an error, please recheck the whole procedure and try again.

3 Download and backup of the current remote control state

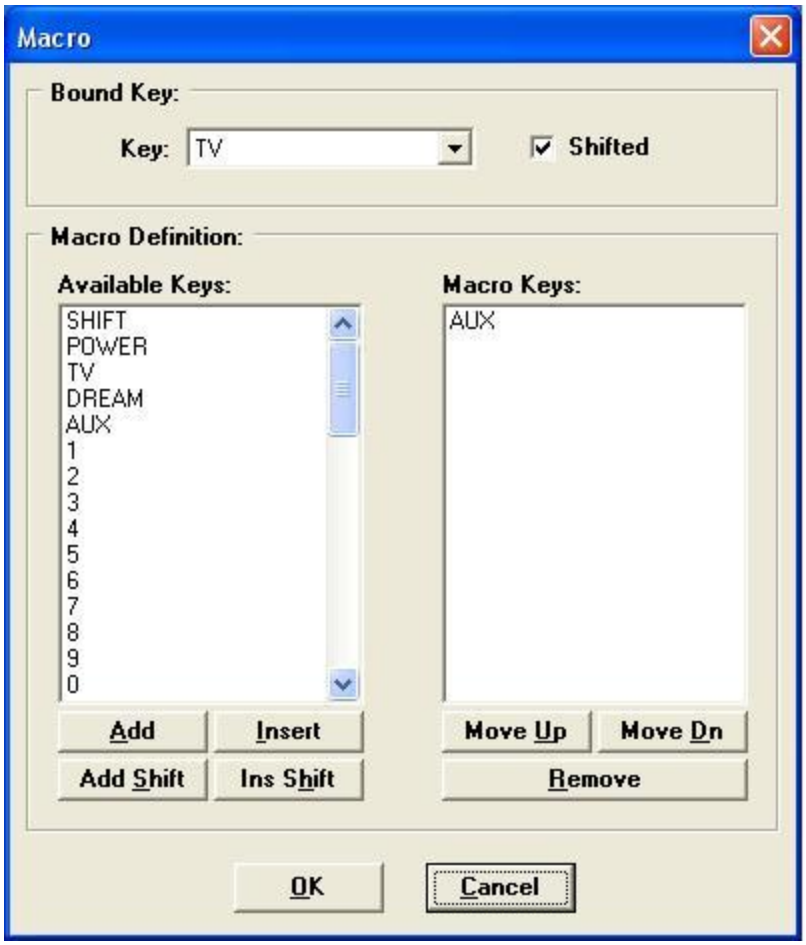
Read the RC by selecting “Remote – Download from Remote” and save the configuration with “File-Save as” in a txt file. Should something bad happen at a later stage with the reprogramming of the RC, you can always go back using this file.

4 Programming additional devices

The process to program a third and a fourth device is different.

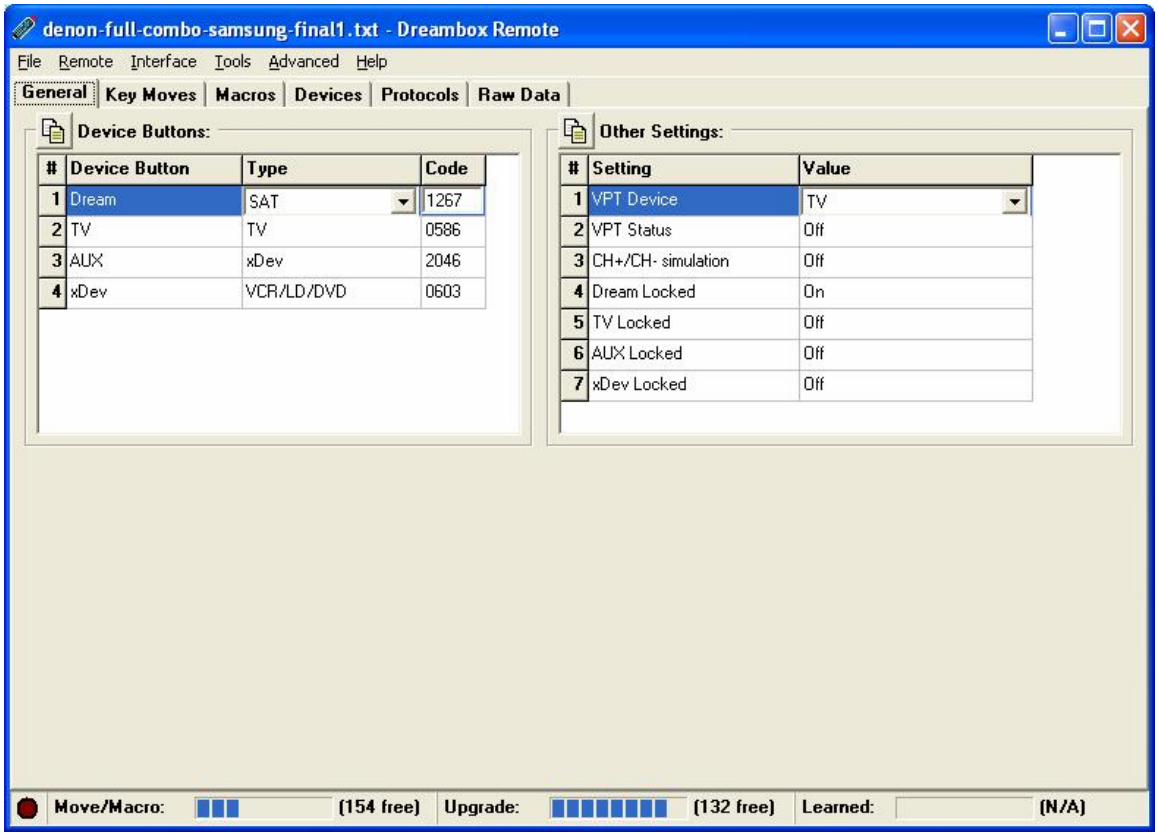
4.1 Programming a third device (AUX)

In order to achieve this, in IR, go to “Macros” then select “Add” and set it up so that it looks like the window below. This AUX device can be later selected by clicking SHIFT and THEN TV (not simultaneously !).



4.1.1 Easy way

In the DB manual, there are only codes for TV. However, the RC knows codes as well for other devices. The complete list can be found in the appendix.
If the device you are programming is among them, then you are luck, it's going to be really simple.



Just put the device code (in my case 2046).

4.1.2 Hard way - Searching for the right EFCs

You should now look for the device that the RC should handle.
Devices codes can be found @ http://groups.yahoo.com/group/jp1 - Files -3. Device codes.
Should the device you are looking for not be listed, you should try another device from the same manufacturer. Reprogram a single key and check if it works

4.1.2.1 Programming of the AUX device

The TXT file you have just downloaded should be opened in Keymap-Master (You need Excel) by clicking on LOAD.

In IR, select “Devices” and then “Add”. Select VCR/LD/DVD with a setup code of 2047. In the upper field , there is a sequence of hexadecimals numbers which is going to be explained later on.

The first 2 digits of the upper field are the last 2 digits of the Protocol-ID obtained in Keymap-master.
Should the first 2 digits of the protocol ID be 01, then check the checkbox “>FF”. If they are 00 then, uncheck it.

Then come 2 zeros.
In my case it was 41 00.

As a next step, you need to choose which keys on the DB RC should be reprogrammed.

To easy the task, you should use one of the table listed in appendix. Please note that they differ depending on the chose device type. At any rate, I advise to always select the xDev device type.

Now we should get a number of 7 digits-long binary numbers.
If you want to program the number keys, then is the first digit 1.
If you want to program VOL+, VOL- or TV_STOP then the second digit is 1
If you want to program BOUQUET+ or -, then the third digit is 1. Otherwise, it's 0.
From there each key has its own position.

As an example, if you want to program VOL+, VOL-, TV/STOP and MUTE, the code would be
0101000

For the other keys, the same procedure applies. For the whole RC, it could look like this
0101000 0011111 0111100 1110000

From there, we will add a trailing 0 to all the blocks except the last one. On the last block, we will add a trailing 1.

This gives us

01010000 00111110 01111000 11100001

Now we convert these blocks in hex:
50 3E 79 E1

This sequence should now be placed in the upper field in IR:
41 00 50 3E 79 E1

If a value in the "Fixed Date" is present in keymaster, it should be added to the sequence. For me it was FE F1. The result is now
41 00 50 3E 79 E1 FE F1

You should now enter the hex key codes (These you can find in the Keymaster spreadsheet) following the order of the table. Only the keys that have been reprogrammed should be entered.
So for example, let's say you have selected to reprogram the VOL+, VOL -, TV/STOP and Mute, only 4 codes should be entered. These hex codes can be either 1 or 2 bytes long (It depends on the protocol).

So it gives out
41 00 50 3E 79 FE F1 xx xx xx xx xx xx

When all keys have been programmed, click OK in IR.

4.1.2.2 Adding the protocol

If in Key master the field “S3C8 Protocol Code” is not empty, then this code must be entered in IR. Don’t forget to change the type of the RC in Keymaster to be 15-1994.

For me, I had the following:

```
Upgrade protocol 0 = 01 41 (S3C8)
 43 8B 22 8B 12 CF 44 08 08 01 18 01 06 01 18 03
 39 D2 DC 11 94 08 B6 20 01 76 05 80 EB 08 E6 04
 FE E6 05 F1 8B 06 E6 04 BE E6 05 B1 E4 06 07 60
 07 20 10 46 29 0D 8D 01 36
End
```

In order to add the protocol, please select “Protocols”in IR and click “Add”. Under Protocol ID should be the code that is under Upgrade Protocol (Here 0141), The lines below this should be copied and placed in the upper field of IR.

4.1.2.3 Last step

As final step, we need to configure code 2047 for AUX in IR.
Then we will be able to save the file using “File – Save As” and to upload to the RC .

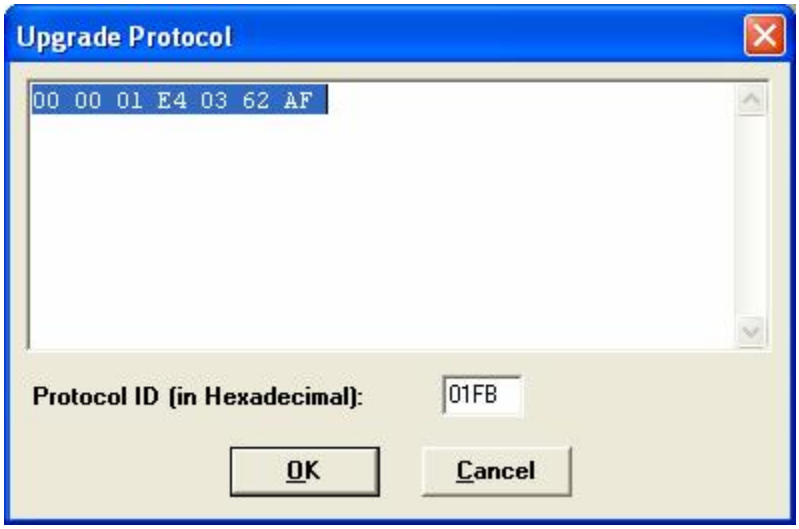
4.2 Programming a fourth device

As you might have noticed, when you add a MACRO, there is only one AUX available. So how are we going to program a fourth device ? Using a trick (device select protocol).

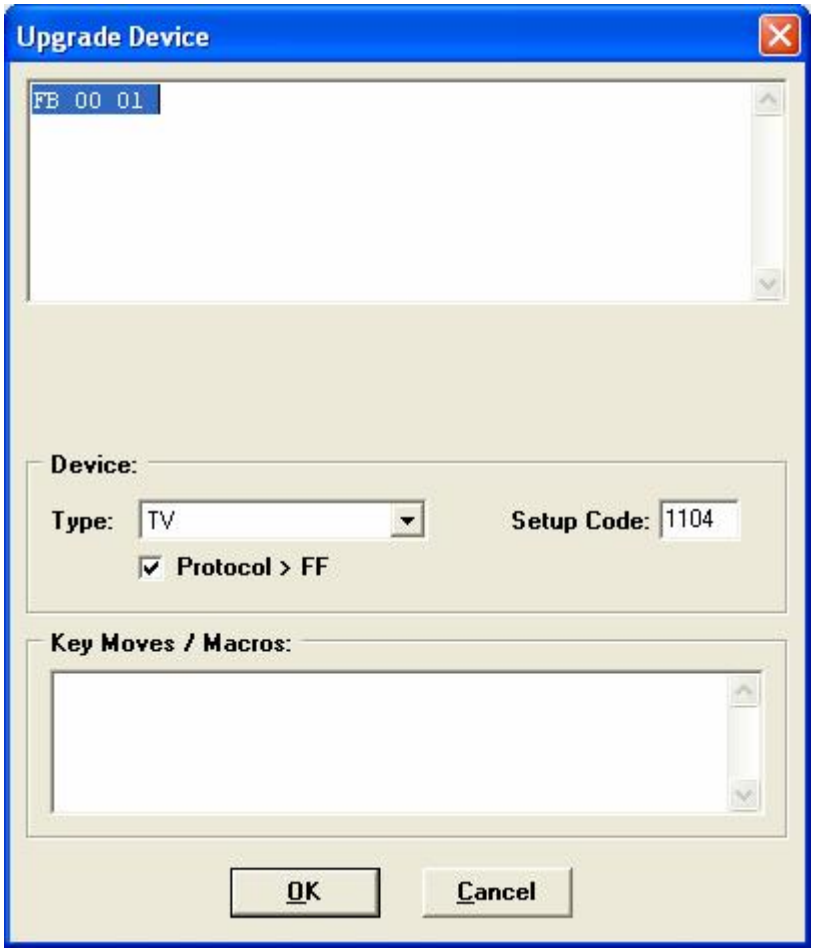
You have to carefully follow the procedure below.

```
Under protocols in IR add the following protocol
Upgrade protocol 0 = 01 FB (S3C8)
```

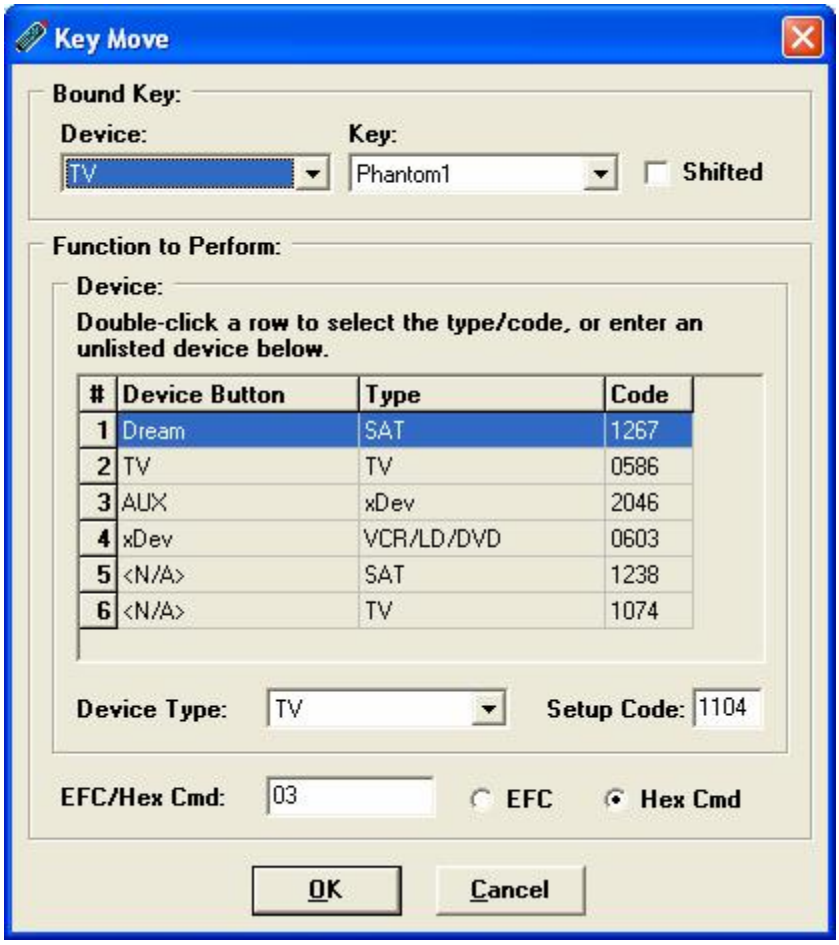
00 00 01 E4 03 62 AF



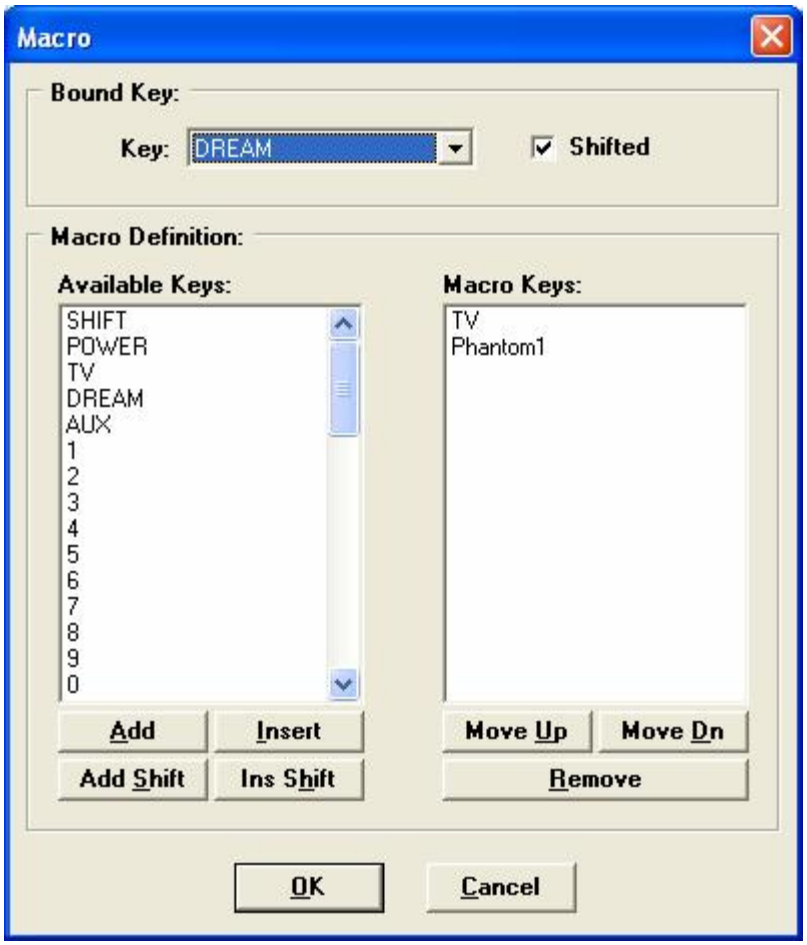
Under Device in IR, add the following :
Upgrade code 0 = 1C 32 (TV/1104)
FB 00 01



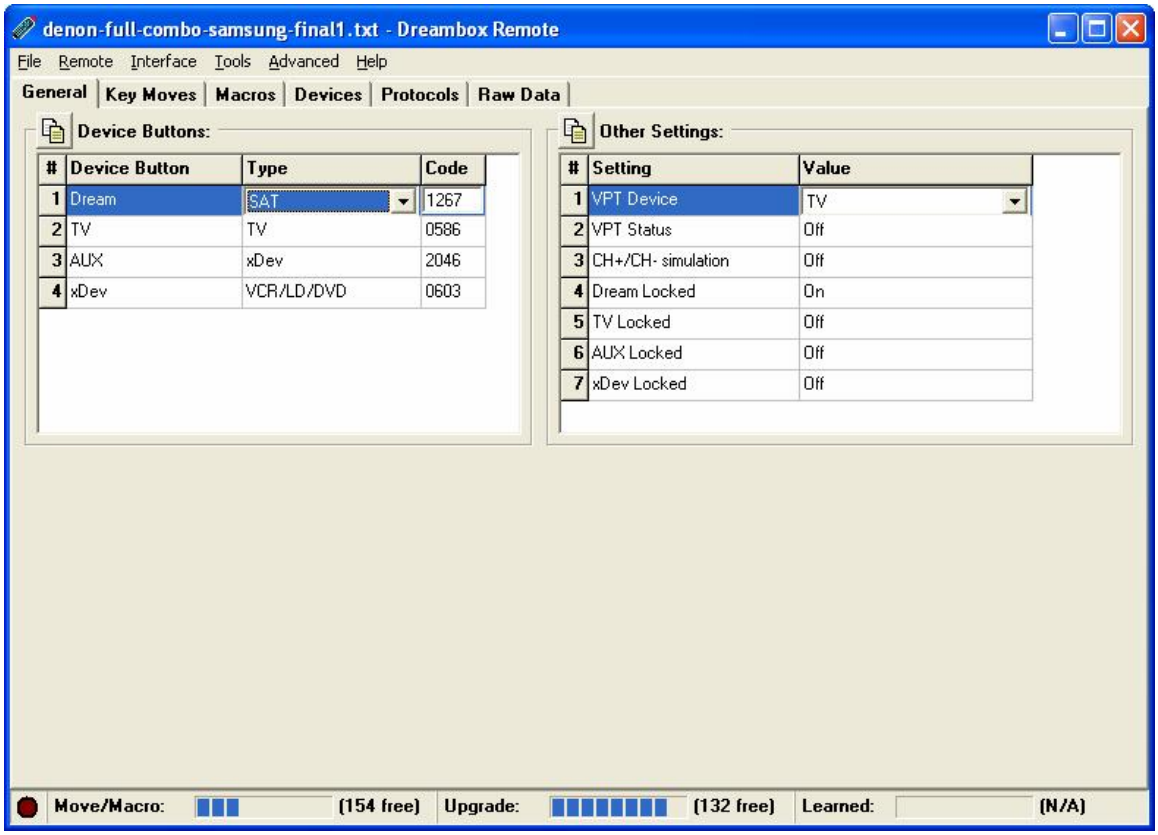
Under Key Move in IR, add the following:
Key Move:
Bound Device: TV
Bound Key: Phantom1
Device Type: TV
Setup Code: 1104
Hex Cmd: 03




```
Under Macro in IR, add the following
Macro:
SHIFT-DREAM = TV;Phantom1
```



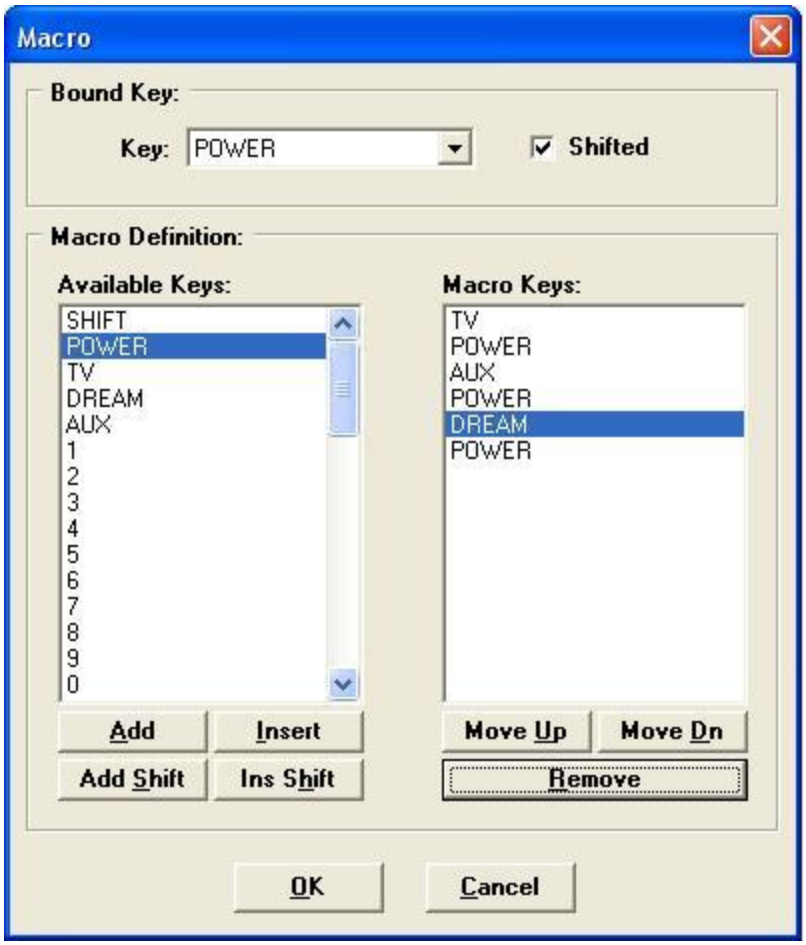
You should now enter a code under IR (Here 0603). This can be either a preprogrammed code (as described in the easy way section) or a non-preprogrammed code (as described in the hard way section). In the latter case, you will need to follow the steps described in the hard way section.



On the right side under “Settings”, we have the possibility to choose whether the volume keys should control the same device regardless of the selected device in the RC (VPT). With “Locked” we can specify that the device code can only be changed using IR and not using the RC.

5 Set-up of a macro to turn-on and turn-off all devices

In order to set up a macro that turns on /off all devices, in IR, please select “Macros” and “Add new Macro”. Under “Bound Key” we will see the key that need to be pressed in order to execute the macro.
In the lower part the keys can be added in order.



6 Appendix A – Setup Codes

TV

Akai	0391 0238 0401 0067 0463 0221 0065 0039 0102 0248 0193 0546 0586 0578 0510 0247 0661 0246 0294
Barco	0410 0193
Best	0367 0400
Blaupunkt	0221 0225 0230 0243 0357 0358 0348
Crown	0039 0400 0106 0067 0389 0609 0448 0238 0517
Daewoo	0039 0067 0246 0404 0248 0247
Dux	0067 0042
Finlux	0135 0134 0067 0376 0247 0102 0193 0106 0546 0100 0117 0132 0441 0661 0522
Fujitsu	0236 0102 0132 0247 0193

GoldStar	0067 0400 0039 0247 0277 0246 0193 0391
Grundig	0225 0221 0517 0100 0106 0235 0267 0067 0586
Hitachi	0255 0066 0379 0503 0193 0373 0226 0228 0247 0336 0224 0546 0102 0067 0135 0586 0180 0578
ITT	0193 0510 0379 0391 0503 0578 0597 0376 0238
JVC	0683 0083 0066 0401 0248
Loewe	0542 0067 0117 0400
Luma	0236 0067 0193 0289 0441 0404 0039
Luxor	0224 0267 0510 0522 0379 0391 0238 0578 0193 0376
NEC	0066 0350 0485 0039 0404 0247 0067
Nokia	0391 0193 0510 0379 0578 0522 0389 0503 0238 0404 0661 0376
Nordmende	0139 0531 0317 0429 0226 0373 0228 0243 0605 0590 0225 0067 0365
Panasonic	0256 0680 0280 0244 0243 0391 0267 0397 0546 0067 0193 0578
Philips	0586 0067 0042 0353 0221 0117 0373
Pioneer	0067 0458 0400 0373 0391 0139
Saba	0317 0243 0117 0429 0193 0139 0531 0546 0373 0391 0528 0226 0228 0365 0235 0655 0578
Salora	0224 0379 0193 0389 0391 0546 0578
Samsung	0067 0586 0617 0039 0247 0400 0294 0246 0102 0238
Sanyo	0238 0187 0066 0041 0400 0102 0246 0247 0134 0243 0039 0193 0067 0585
Sharp	1223 0123 0187 0066 0324 0683 0083
Sony	1535 1040 1681 0535 0040 0041 0030 0066 0132 0681 0104
Tandberg	0397 0441 0139 0367 0226 0391
Telefunken	0139 0531 0528 0501 0429 0317 0104 0114 0131 0365 0292 0336 0373 0226 0067 0655
Thomson	0317 0429 0139 0531 0363 0501 0365 0226 0228 0235 0267 0373 0067 0520 0590 0655
Toshiba	0065 0538 0273 0066 0100 0132 0247

VCR

Aiwa	0337 0030 0071 0239 0378 0382

	0067
Akai	0136 0345 0083 0071 0050 0382
Blaupunkt	0256 0111 0184 0257 0192 0036 0225 0433 0064
Crown	0308 0102 0050 0352
Daewoo	0308 0050 0075 0239 0382
GoldStar	0067 0030
Grundig	0037 0225 0111 0377 0379 0256 0036 0433 0350
Hitachi	0072 0196 0071 0030 0270 0111 0034 0134 0433
ITT	0136 0071 0076 0414 0134 0270
JVC	0071 0097 0038 0236 0237 0414 0516
Kenwood	0071
LG	0067 0030 0308
Luxor	0136 0076 0073 0102 0134 0077 0078
Marantz	0111 0068 0036 0239
Mark	0308 0050
Mitsubishi	0073 0097 0111
NAD	0134
National	0256 0192
NEC	0071 0068 0097 0134 0067
Nokia	0134 0136 0345 0071 0308 0076 0270 0078 0072 0111
Panasonic	0192 0192 0256 0257
Philips	0111 0036 0433
Pioneer	0097 0111 0072
Saba	0071 0217 0327 0236 0237 0350 0351 0414 0524 0610
Salora	0076 0073 0136 0134
Samsung	0270 0462
Sanyo	0134 0076 0077 0078
Sharp	0078
Sony	0063 0064 0062 0041 0136 0062
Tandberg	0308
Telefunken	0217 0071 0327 0350 0351 0414 0523 0524 0559 0560
Thomson	0071 0414 0350 0236 0351 0523 0524 0558
Toshiba	0075 0071 0414 0073 0111 0433
United Quick Star	0308

DVD

Akai	0641
Denon	0520 0664
Grundig	0569
JVC	0588
Kenwood	0564
Magnavox	0533
Marantz	0569
Micromega	0569
Onkyo	0642 0533
Optimus	0555

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Panasonic                       0520
Philips                         0569 0533 0662
Pioneer                         0555 0601 0662
Samsung                         0603
Sony                            0563
Technics                        0520
Thomson                         0581
Toshiba                         0533
Yamaha                          0520 0575
-------------------------------------------------------------
```

7 Appendix B : Tables

Table sheet for xDev device

Block	Position	Key
1	1	0 1 2 3 4 5 6 7 8 9
	2	VOL+ VOL- TV / Stop
	3	Bouquet+ Bouquet -
	4	Mute
	5	Text
	6	Help
	7	Lame
2	1	Power
	2	Forward
	3	Back
	4	Info
	5	Dream_menu
	6	Radio
	7	Arrow_up
3	1	Arrow_down

	2	Arrow_left
	3	Arrow_right
	4	ok
	5	Audio
	6	Red
	7	Green

4	1	Yellow
	2	Blue
	3	Video

Table sheet for VCR device

Block	Stelle	Taste Dream
1	1	1
		2
		3
		4
		5
		6
		7
		8
		9
		0
	2	VOL+
		VOL-
		TV_STOP
	3	BOUQUET+
		BOUQUET-
	4	POWER
	5	FORWARD
	6	BACK
	7	INFO
2	1	DREAM_MENU
	2	RADIO
	3	ARROW_UP
	4	ARROW_DOWN
	5	ARROW_LEFT
	6	ARROW_RIGHT
	7	OK
3	1	AUDIO
	2	GREEN
	3	YELLOW
	4	RED
	5	BLUE
	6	MUTE
	7	HELP

8 Appendix C : Device select protcol

If you need additional info here is readme for Device Select protocol:

special-protocols: Device Select

The 7541, 7560, Outlaw, and Replay remotes all have an EEPROM position for an extra device. The 15-2116 and URC8910 remotes seem to have EEPROM positions for 7 extra devices.

Unlike the 7'th device of a URC6800 or 5'th device of a millenium 4, there is no built-in code that can be put in a macro to make the remote think you pressed the missing device keys (of the remotes listed above).

This special protocol lets you define a Key Move that will do device selection of any device index on any model remote. This is intended primarily for the cases (described above) in which the remote has EEPROM space reserved for extra device(s) but does not have a built in button code for selecting those device(s).

Install the protocol and device upgrades. Create a key move for which the hex code is the device number. Be sure to hit the "radio button" in IR that specifies hex cmd, not EFC.

Devices are numbered from 0. For example in the 7541 the devices are:

Sat = 0
TV = 1
VCR = 2
AUX = 3
extra device = 4