18:16 **baskiers** The quickest way to record is execute `api('POST', '/manager/microcontroller/record', console.log)` in the console while you have the homey site open

18:20 **bvdbos** I'm not at home now but your commands first gives an "undefined" and then throws a null array (or something like that)... Going to try further tonight...

18:21 **cri_sys** Im trying now that but it gives me 500.. before was suggested a cold reset, i will do it onces im at home

18:23 **baskiers** **@bvdbos** this is correct, the `undefined` you mention is the return value of the api call which is correct since it is an async call (so no direct return value)

18:23 **cri_sys** well im trying your app as well :slightly_smiling_face: but it looks that there is an issue when tries to generates the 433_generate folder on assets, it keeps on a loop. for now, im creating my app from scratch, but still as **@joolee** says cannot do anything without the signal definitation.

18:23 **baskiers** And the second resoponse is `null, Array` in the form of `Error, Data`

18:24 The Array is an Array of Measurements (Each measurement is an array of timings)

18:24 **joolee** Looking at the 433_generator code, it doesn't create that folder for you

18:24 **cri_sys** i am getting invalid token when executing /manager/microcontroller/record

18:24 msmits @jeroenveenvan hmm settings on the phone are correct. Always keep wifi on when device is sleeping. Perhaps the "cleaner" on her phone kills the process on the background? :neutral_face:

18:25 **cri_sys** {
  "status": 500,
  "result": "invalid_token"
}

18:25 **baskiers** indeed, the 433_generator expects the file `./433_generator/config.js` to be there and if not it throws an error

18:25 msmits @jeroenveenvan Hmm btw, shouldn't be the problem since it works when i manually switch wifi off and on

18:25 **baskiers** **@cri_sys** and you are using this command?: `api('POST', '/manager/microcontroller/record', console.log)` (edited)

18:26 **cri_sys** **@baskiers** i did had the file, and it tried creating the folder 433_generate on assets, but one inside another.

18:26 **bvdbos** You're talking about different things

18:26 **@cri_sys** is talking about the generator app

18:27 **cri_sys** i am talking about generator app, and url /manager/microcontroller/record

18:27 **fire69** **@baskiers** I get this when running the command an pushing my doorbell

18:27 **fire69**

api('POST', '/manager/microcontroller/record', console.log)

undefined

api.js:1 null [Array[35]]0: Array[35]0: 131: 2482: 433: 5424: 11685: 316: 3067: 318: 1389: 1010: 4311: 2112: 25113: 1014: 6215: 7116: 18817: 1018: 7319: 2120: 14721: 14622: 7423: 2124: 7325: 2126: 7527: 1028: 10629: 34330: 2031: 25732: 3133: 39834: 21length: 35__proto__: Array[0]concat: concat()constructor: Array()copyWithin: copyWithin()entries: entries()every: every()fill: fill()filter: filter()find: find()findIndex: findIndex()forEach: forEach()includes: includes()indexOf: indexOf()join: join()keys: keys()lastIndexOf: lastIndexOf()length: 0map: map()pop: pop()push: push()reduce: reduce()reduceRight:

reduceRight()reverse: reverse()shift: shift()slice: slice()some: some()sort: sort()splice: splice()toLocaleString: toLocaleString()toString: toString()unshift: unshift()Symbol(Symbol.iterator): values()Symbol(Symbol.unscopables): Object__proto__: Objectlength: 1__proto__: Array[0]concat: concat()constructor: Array()copyWithin: copyWithin()e...

18:27 **fire69** Is that something I can use?
18:28 **baskiers** Correct, yes it is but I would recommend to press the doorbell over and over again to get more measurements
18:28 **fire69** OK, will do! :smile:
18:28 **cri_sys** and how to turn that info to homey signal definination?
18:28 **baskiers** And then you can figure out what timings mean a `1` and what timings mean a `0` and create a signal definition from that
18:29 If you can post a better recording I will demonstrate how to transform this into a signal definition
18:29 **cri_sys** :slightly_smiling_face:
18:30 **caseda** i'll stay with developing for z-wave atm :neutral_face::relaxed:
18:30 **jeroenvollenbrock** **@baskiers** isn't there a writeup in the developer portal on constructing signals?
18:30 https://developers.athom.com/library/signals/rf/
18:31 **baskiers** Ah there is, and it is a must read if you want to develop 433 apps, but I do not think it explains this step (?)
18:32 **cri_sys** It doesnt
18:32 i am trying api('POST', '/manager/microcontroller/record', console.log), but get not_ready always
18:32 **baskiers** hmm
18:33 **cri_sys** **@fire69** did that happened to you?
18:33 **fire69** No, I get a response here. :slightly_smiling_face: Just a sec.
18:34 **fire69**

api('POST', '/manager/microcontroller/record', console.log)

undefined

api.js:1 null [Array[53], Array[60], Array[51], Array[64], Array[51], Array[87], Array[42], Array[162], Array[45], Array[50], Array[100], Array[52], Array[33], Array[51], Array[125], Array[49], Array[45], Array[113], Array[51], Array[50], Array[87], Array[154], Array[40], Array[66], Array[43], Array[66], Array[51], Array[48], Array[75], Array[40], Array[64], Array[59], Array[53], Array[47], Array[44], Array[52], Array[49], Array[54], Array[49], Array[48], Array[58], Array[56], Array[55], Array[145], Array[44], Array[32], Array[96], Array[58], Array[93], Array[118], Array[46], Array[45], Array[49], Array[41], Array[42], Array[61], Array[33], Array[143], Array[126], Array[35], Array[35], Array[35], Array[35], Array[35], Array[35], Array[39], Array[36], Array[35], Array[35], Array[37], Array[35], Array[35], Array[37], Array[35], Array[35], Array[35], Array[35], Array[35], Array[37], Array[35], Array[35], Array[35], Array[35], Array[35], Array[35], Array[37], Array[35], Array[35], Array[35], Array[35], Array[35], Array[35], Array[37], Array[35], Array[35], Array[35], Array[35], Array[35], Array[35], Array[35], Array[35]…][0 … 99][100 … 152]length:

153__proto__: Array[0]

18:34 **fire69** Is that formatting ok?
18:36 **baskiers** Could you do a `JSON.stringify()` on the result?
18:36 you can assign the result to a variable by right clicking -> make global variable
18:38 **fire69** JSON.stringify()

undefined

18:38 Am I doing it wrong? :stuck_out_tongue:
18:39 **caseda** add the result inside the (), now it does not know what to stringify
18:39 **fire69** ah, ok :slightly_smiling_face:
18:40 **joolee** Right click on the result > make global variable
18:40 En then execute JSON.stringify(temp1);
18:40 Gives me

"[[15934,5851,31,115,52,146,21,53,64,118,10,10,41,115,42,169,42,95,84,20,21,94,21,21,42,10,31,
251,42,254,11],
[15862,5417,32,21,21,104,32,222,20,10,83,31,52,103,123,83,71,113,31,20,144,84,148,31,52,31,25
2,21,568,21,882,10],
[15881,5221,21,10,31,94,104,103,21,62,41,82,20,30,20,31,125,42,31,31,20,174,21,31,31,42,115,11
6,31,135,10,113,10]]" but thet's just noise :stuck_out_tongue:
18:41 **caseda** so you've just recorded the Big Bang :stuck_out_tongue:
18:41 tiny part at least
18:42 **joolee** Homey sits on a huge subwoofer so that might be correct in more then one way XD
18:42 **caseda** poor homey, getting shaken every movie
18:42 **fire69**

"[[293,1115,360,381,1090,377,1087,390,1080,377,1096,375,1096,384,1092,1100,372,1097,373,11
02,362,1114,360,1109,363,373,1091,378,1096,374,1097,380,1081,392,1084,5064,10,359,10,206,3
2,20,21,21,72,41,31,73,52,32,95,83,20],
[431,1125,349,385,1086,376,1099,377,1092,375,1089,391,1076,397,1077,1122,352,1111,362,1112
,363,1101,362,1115,363,374,1094,374,1093,371,1100,382,1083,380,1100,5223,40,40,31,102,51,10
4,52,76,75,53,63,64,10,52,21,84,75,32,52,32,116,21,84,21],
[347,391,1084,382,1083,382,1096,380,1082,389,1085,385,1092,1105,363,1112,361,1104,363,1111
,361,1116,352,385,1082,389,1091,382,1087,384,1083,384,1088,5196,31,146,21,96,21,127,42,85,3
2,104,63,95,10,146,95,73,20],
[352,384,1092,379,1093,380,1090,379,1089,384,1086,389,1084,1113,359,1111,363,1107,363,1101
,369,1107,356,380,1102,372,1097,377,1095,376,1087,389,1082,4728,64,160,84,104,83,137,32,84,
42,85,42,11,52,82,52,21,73,52,41,93,31,31,71,50,60,50,20,31,72,41],
[351,381,1092,379,1090,394,1073,391,1079,383,1093,380,1095,1105,363,1112,359,1106,368,1110
,355,1113,364,379,...

18:43 **joolee** It's on it's lowest setting. I'm afraid on falling 60 meters down if i blast it at full
18:43 **caseda** wow, that's some signal for just a doorbel
18:45 **fire69** I have no idea. **@baskiers** asked me to push it 5 times so I did. Guess it's 5 times the same signal I got then?
18:46 **baskiers** Ah ok, you only pushed it 5 times :stuck_out_tongue:
18:46 **fire69** Yep :smile:

18:46 **baskiers** there are 155 readings so 150 are noise :stuck_out_tongue:
18:46 **fire69** d'oh!
18:47 **baskiers** that will make it a bit harder to figure out what the signal of your doorbell is
18:47 **caseda** (and still people complain the 433 mhz doesn't work fully)
18:48 **fire69** Aha, so each array is a 'signal' (noise or doorbell)?
18:48 **jeroenvollenbrock** yup
18:50 **caseda** does it become more easy to find the signal if you start the recording just before you push? like within .2 of a second
18:50 **fire69** how long does it record? otherwise I can just push the button like crazy for like 30seconds or so :slightly_smiling_face: (edited)
18:51 **baskiers** It will be the most easy to just keep spamming the button while it is recording
18:51 Than you can look at the recording and say the signal length that occurs most is probably your button
18:51 and then you can work from there
18:52 it will record for 15-20 seconds or something
18:52 **cri_sys** makes sense! i would like to try mine as well, but i kept geting not_ready i restarted the microcontroller but still same issue
18:52 **fire69** PTP :slightly_smiling_face:
18:53 I'll disconnect my bell and start pushing the button (don't want to drive my family crazy :smile:)
18:53 **jeroenvollenbrock** Can you send a log before you do that?
18:58 **fire69** Sorry, missed your message, was already off to push the button...
18:58 Should I start over?
18:58 **cri_sys** **@fire69** BTW you can also tell homey how long yoy want to record, sending {"timeout":30} on the POST call
18:58 edit timeout for desired secod
18:59 **jeroenvollenbrock** **@fire69** I meant **@cri_sys** :stuck_out_tongue:
18:59 **fire69** ah, ok :wink:
18:59 so here's my result then
19:00 **fire69**

"[[279,6607,364,1107,360,390,1080,389,1084,388,1085,379,1092,384,1084,390,1074,1125,353,1115,353,1119,359,1111,357,1109,364,373,1091,384,1083,393,1079,390,1083,381,1090],
[356,1125,351,382,1077,399,1083,379,1089,388,1077,389,1086,381,1092,1112,359,1114,353,1119,360,1105,365,1105,361,388,1086,384,1088,378,1085,392,1082,390,1079],
[355,1122,355,390,1075,394,1076,392,1079,395,1078,389,1088,379,1090,1117,357,1112,355,1111,358,1116,354,1112,359,381,1087,383,1084,388,1089,388,1077,388,1091],
[364,1112,358,393,1077,384,1088,391,1087,383,1087,384,1079,391,1078,1119,361,1104,362,1114,358,1107,365,1103,358,391,1086,373,1096,378,1088,388,1085,388,1078],
[367,1108,361,389,1076,391,1084,379,1097,374,1093,384,1079,389,1085,1115,364,1108,352,1119,353,1115,350,1119,354,389,1084,381,1092,379,1093,375,1093,384,1081],
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,360,1114,362,1104,364,383,1087,381,1085,382,1090,386,1080,385,1083],
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,354,1119,361,1106,361,381,1081,391,1081,383,1087,392,1085,380,1084],
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,356,1116,359,1111,363,378,1089,382,1093,384,1077,383,1090,387,1091],
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[354,1124,352,392,1075,389,1089,384,1084,382,1089,388,1085,381,1087,1109,364,1111,363,1102,362,1117,352,1113,362,383,1080,390,1088,383,1083,386,1090,382,1086],

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[363,1122,342,393,1080,387,1088,390,1081,385,1088,383,1082,393,1080,1119,350,1120,354,1106,360,1113,362,1114,365,378,1081,385,1091,371,1091,384,1088,385,1086],

[370,1120,353,389,1086,382,1086,384,1086,383,1088,387,1078,386,1094,1108,354,1113,363,1112,359,1110,362,1106,366,378,1091,370,1092,380,1092,382,1101,371,1088],

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This snippet was truncated for display: see it in full.
19:00 **fire69** Better than the previous one?
19:00 **cri_sys** **@jeroenvollenbrock** where can i see the logs?
19:01 **jeroenvollenbrock** settings -> system -> send log
19:02 **baskiers** Hmm yes but there are still a lot of measurements of length 35 and what is confusing me is that was also the case in the recording where you only pressed 5 times
19:02 So I'll guess length 35 is noise at your location :stuck_out_tongue:
19:03 **fire69** I don't know if the time I push the button matters?
19:03 **baskiers** Hmm it probably just is the message of length 35
19:03 **cri_sys** **@fire69** how many times did you pressed it
19:03 ?
19:03 more or less
19:03 **fire69** About 15 times I guess
19:03 **baskiers** the doorbell sends it multiple times to make sure it is received correctly
19:04 **cri_sys** i would say your array is: [362,1122,348,391,1081,390,1080,387,1085,392,1082,381,1092,383,1085,1112,360,1114,353,1123,349,1119,365,1095,363,382,1095,382,1086,383,1081,390,1088,381,1086]
19:04 **baskiers** it should be because the length distribution is this: `{33: 6, 34: 7, 35: 106, 37: 7, 38: 3, 39: 9, 41: 4, 42: 1, 43: 2, 44: 1, 45: 3, 46: 2, 47: 4, 48: 5, 49: 2, 50: 2, 52: 3, 57: 1, 60: 1, 61: 1, 70: 1, 73: 1, 75: 1, 77: 3, 78: 2, 80: 1, 82: 3, 83: 1, 84: 1, 85: 1, 89: 2, 92: 1, 93: 1, 94: 2, 95: 1, 98: 1, 103: 2, 109: 1, 117: 1, 118: 1, 122: 1, 127: 2, 154: 1, 157: 1, 202: 1, 252: 1, 257: 1}`
19:04 the only outlier is length 35
19:04 So ok, we are going to make a signal definition out of those measurements
19:05 **fire69** ok, tell me what to do :slightly_smiling_face:
19:06 **cri_sys** **@baskiers** what do you mean with the lenght distribution
19:06 **baskiers** Ok, I've filtered your result by using this command: `test = test.filter((arr) => arr.length === 35)` where `test` is the variable that holds the measurements
19:06 **cri_sys** i want to do same process for my device
19:07 **baskiers**

```
test.reduce((result, arr) => {
    result[arr.length] = (result[arr.length] || 0) + 1;
    return result
}, {})
```

19:08 That is what I used to get the length distribution. I took all array lengths and put them in an object. If the array length existed it will add +1 to it

19:08 **cri_sys** Got it!

19:08 **baskiers** And because the majority of data should be from the doorbell you should see a clear outlier

19:09 pauluz Hi All, Is there a place where I can find examples of Flows?

19:09 **baskiers** Ok, so I've filtered the array and checked some entries manually to look if they have the same characteristics

19:09 markswift I'm watching this 433mhz 'tutorial' closely

19:10 I'd like to add one to my vacuum and some other devices (basic 433mhz relays)

19:10 **baskiers** notice that all recordings I saw start like this:

```
0: 369
1: 1119
2: 348
3: 393
4: 1077
5: 389 (edited)
```

19:10 jeroenveenvan Same here for motion detector

19:10 Same signal every time

19:11 **cri_sys** 362 as well

19:11 **baskiers** So the frame starts with `short, long, short, short, long, short`

19:12 **fire69** so this is basically some sort of morse code?

19:12 **baskiers** yea sort of

19:12 Most devices have 2 'words'

19:13 **baskiers** This means a combination of pulses that indicates a `0` and a combination of pulses that indicates a `1`

19:13 **baskiers** More complex signals can sometimes have a third or even fourth word for instance for specifying that the command is a 'dim' command

19:14 **cri_sys** **@baskiers** , so now we can get the Manchester data from there i guess

19:15 **fire69** **@baskiers** interesting stuff :slightly_smiling_face: I'm reading the rf-page jeroen posted earlier. Too bad I'm no programmer...

19:15 markswift Would be wicked to make my doorbell smart and make an app for it

19:15 pauluz What do you guys do, when creating a flow that contains several items that you need in other flows as well.. I miss a copy function

19:15 **baskiers** Given the data I would say that there are 2 words: `[390, 1080]` and `[1115, 355]`

19:16 pauluz It's very timeconsuming to take a single item one by one to create new flows

19:17 markswift If we could have a tool that makes this easier, it would be winner… I still think a clone mode on Homey would be good for many cases, I know I added about 20 cheap motion sensors from Aliexpress to my NinjaBlocks about 5 years ago, and they worked great. I just hit learn, spammed each sensor, and it added it, magic!

19:18 **baskiers** But because the frame starts with `369, 1119, 348, 349, 1077` there is a part of the signal that indicates the `start of frame`, since `348, 349` belongs to the signal but cannot be parsed by the words we specified

19:18 **cri_sys** **@baskiers** which array are you working on? just to be clear?

19:19 **baskiers** the one in the message from **@fire69** at 7:00pm

19:19 **cri_sys** **@baskiers** i know but i thought you picked one out of the noise
19:20 **baskiers** yea just pick a random one with length 35
19:20 we will use the rest of the measurements with length 35 later
19:20 All signals should contain about the same timings
19:20 **cri_sys** ahh ok got it!
19:20 markswift Are there no tools that can cut the hardwork and work with the machester data?
19:21 **cri_sys** yeah the one i picked:
[362,1122,348,391,1081,390,1080,387,1085,392,1082,381,1092,383,1085,1112,360,1114,353,1123
,349,1119,365,1095,363,382,1095,382,1086,383,1081,390,1088,381,1086]it is quite similar
19:21 if i got all the steps right, and works for me, i could develop a tool for it!
19:21 **baskiers** But like I was saying, Because `348, 349` does not fit in a word we will add it to the `start of frame`
19:22 **baskiers** And because the signal length is is not divisible by 2 (the length of our words) we will take the shortest (uneven) `start of frame` that we need which is `369, 1119, 348` such that the rest of the signal can be parsed into words (edited)
19:26 **cri_sys** **@baskiers** what it will be the maximum word size since you want to move data to the sof
19:27 when you say to take the shortest uneven, wouldnt it be just 369?
19:28 **baskiers** **@cri_sys** Yes you are correct :stuck_out_tongue:
19:28 **cri_sys** **@baskiers** :wink:
19:29 **baskiers** ok, we will take the `sof` of all measurements and create an average
19:29 **baskiers** This can be done with the following command

var sof = test.map(arr => arr.slice(0, 1)).reduce((result, arr) => arr.map((timing, index) => (result[index] || 0) + (timing / test.length))) (edited)
19:29 **cri_sys** of all measurement s with length 35, right?
19:30 **baskiers** Yes, it must be noted that `test` is the result with *only* the measurements of length 35 (edited)
19:31 **@baskiers** not use homey????????
19:31 **cri_sys** exactly!
19:31 **baskiers** I will from now on prepend the commands I did earlier
test = test.filter((arr) => arr.length === 35);

var sof = test.map(arr => arr.slice(0, 1)).reduce((result, arr) => arr.map((timing, index) => (result[index] || 0) + (timing / test.length))) ;
(edited)
19:32 **cri_sys** slice 1! should be not 3
19:32 pauluz **@baskiers** So this is a place for in depth app programming or something?
19:32 **baskiers** Yes, fixed it :slightly_smiling_face:
19:32 That was the old command before you corrected me :stuck_out_tongue:
19:32 **cri_sys** :wink:
19:33 **cri_sys** **@baskiers** but just to be clear, what would happen if the lenght would have been pair! so 36 for example
19:34 then we would take the longest in an uneven pos or so?
19:35 **fire69** **@baskiers** **@cri_sys** you guys totally lost me! :smile:
19:35 **cri_sys** and again... what it would be the maximum size of the word? that it will be necessary to set the sof
19:39 **baskiers** Ok, the following command I used is a bit complicated and can be done more verbose
19:41 But what I did was trim all `sof` values from the measurements and flatten the measurements such that all timings are in 1 big array. Then put the timings of the array in an object with key 0 if the first timing (of the two subsequent) was below 800 and at key 1 if the first timing was above

```
test = test.filter((arr) => arr.length === 35);
var sof = test.map(arr => arr.slice(0, 1)).reduce((result, arr) => arr.map((timing, index) =>
(result[index] || 0) + (timing / test.length))) ;
var words = [].concat.apply([], test.map(arr => arr.slice(1))).reduce((result, measurement, index,
arr) => { if(index % 2 === 0){result[measurement > 800 ? 1 : 0].push(arr.slice(index, index +
2)); } return result; }, {0: [], 1: []}); (edited)
```

19:42 so `[].concat.apply([], test.map(arr => arr.slice(1)))` slices the first timing and flattens the array (e.g. `[[300, 1100], [300, 1100], [1100, 300]] => [300, 1100, 300, 1100, 1100, 300]`)

19:44 and the second part loops through that array and puts them in the correct key of the result object

```
.reduce(
    (result, measurement, index, arr) => {
        if(index % 2 === 0) {
            result[measurement > 800 ? 1 : 0].push(arr.slice(index, index + 2));
        }
        return result;
    },
    {0: [], 1: []}
) (edited)
```

19:44 **cri_sys** **@baskiers** is there a specific reason why 800? or it just indicates the middle between 1 and 0? (edited)

19:45 **baskiers** because it is a value between ~360 and ~1100 :stuck_out_tongue: (edited)

19:45 **cri_sys** got it

19:46 So with that we will get then the binary data?

19:46 **baskiers** (fixed a syntax issue)

19:47 Yea you will get all timings grouped by their corresponding 'word'

19:47 now we can calculate averages of these timings

19:47 **fire69** man, this is complicated...

19:47 Sure hope it works! :smile:

19:48 **cri_sys** **@baskiers** so this is the word values in Manchester?

19:49 AND, this shit just got real **@baskiers** :wink:

19:50 **baskiers** Nope this is not Manchester (if I'm right)

19:51 But I know more of the software implementation than of what happens on the hardware side :stuck_out_tongue:

19:52 **baskiers** I can now calculate the average values of the words by the following commands:

```
test = test.filter((arr) => arr.length === 35);
var sof = test.map(arr => arr.slice(0, 1)).reduce((result, arr) => arr.map((timing, index) =>
(result[index] || 0) + (timing / test.length))) ;
var words = [].concat.apply([], test.map(arr => arr.slice(1))).reduce((result, measurement, index,
arr) => { if(index % 2 === 0){result[measurement > 800 ? 1 : 0].push(arr.slice(index, index +
2)); } return result; }, {0: [], 1: []});
```

```
word0 = words[0].reduce((result, arr) => arr.map((timing, index) => (result[index] || 0) +
(timing / words[0].length)));
word1 = words[1].reduce((result, arr) => arr.map((timing, index) => (result[index] || 0) +
(timing / words[1].length)));
```

19:52 **cri_sys** **@baskiers** so once again, when you said:

But like I was saying, Because `348, 349` does not fit in a word we will add it to the `start of frame`
What do you mean exactly with does not fit in a word? which size does it have a word?

19:52 **baskiers** And now it is only a matter of filling in the signal definition

19:53 markswift If that's all that's left than, pah, it's EASY

19:53 **baskiers** In the original measurements we have this sequence: `369, 1119, 348, 393, 1077, 389` (edited)

19:54 If we are going to parse this measurement into the words we defined we will get `0, undefined, 1`

19:55 **baskiers** because `348, 393` cannot be parsed into one of the 2 words we defined

19:55 **fire69** @msmits probably, Emile said that if you send them stuff they'll support it :slightly_smiling_face:

19:55 **baskiers** That plus the fact that the signal is not divisible by our word length (2) means that a part of the signal should be in either `sof` or `eof`

19:56 **cri_sys** **@baskiers** how did you know that the word length is 2?

19:57 and how did you parse 369, 1119, 348, 393, 1077, 389 into words?

19:58 ahh i got it, i saw the code

19:58 so first you ran..

```
´var words = [].concat.apply([], test.map(arr => arr.slice(1))).reduce((result, measurement, index,
arr) => { if(index % 2 === 0){result[measurement > 800 ? 1 : 0].push(arr.slice(index, index +
2)); } return result; }, {0: [], 1: []});´ (edited)
```

19:58 **baskiers** because if you look at the signal the words `[390, 1080]` and `[1115, 355]` seem to be parsable perfectly

19:59 and words are (most often) a multiple of 2 timings)

20:00 **cri_sys** a multiple of 2 timings?

20:05 markswift **@baskiers** can we use an arduino and rc-switch to cut down the work at all?

20:05 **baskiers** **@cri_sys** one sec there is still an issue with my code :stuck_out_tongue:

20:05 **cri_sys** :wink:

20:05 **baskiers** the words I calculated look like they are 2x the timing value they should be

20:06 @markswift Don't know, I've only used this method and once you know the drill it is a matter of 30 minutes

20:07 But I should save my commands somewhere because I am writing them again every time now XD

20:07 **cri_sys** @markswift it is also a way but still you need to know how to calculate words, for the homey signal

20:07 **@baskiers** :smile:

20:07 what if you do a public google doc?

20:08 **caseda** or just update the developers page

20:08 **cri_sys** **@baskiers** BTW still dont know what you mean with the timings and how you got that there were 2 words

20:09 **baskiers** pff, cannot edit the post I want to edit so here is the fixed version:

```
test = test.filter((arr) => arr.length === 35);
var sof = test.map(arr => arr.slice(0, 1)).reduce((result, arr) => arr.map((timing, index) =>
(result[index] || 0) + (timing / test.length))) ;
var words = [].concat.apply([], test.map(arr => arr.slice(1))).reduce((result, measurement, index,
```

```
arr) => { if(index % 2 === 0){result[measurement > 800 ? 1 : 0].push(arr.slice(index, index +
2)); } return result; }, {0: [], 1: []});
var word0 = words[0].reduce((result, arr) => arr.map((timing, index) => (result[index] || 0) +
timing)).map(timing => timing / words[0].length);
var word1 = words[1].reduce((result, arr) => arr.map((timing, index) => (result[index] || 0) +
timing)).map(timing => timing / words[1].length); (edited)
```

20:10 **baskiers** Most of the time there are only 2 words (`0` and `1`) so if it can fit the measurement
you should go for that

20:11 **baskiers** if not, let say when you see sequences like for instance `2144, 111, 1000, 500,
1000, 500, 500, 1000, 700, 600, 1000, 500, 700, 600, 254`

20:12 You can defer that there are 3 patterns: `[1000, 500]`, `[500, 1000]` and `[700, 600]` so 3
words

20:13 And the timings at the front and back of the measurement differ from the words you deferred
so you can put those in your `sof` and `eof`

20:16 **baskiers** or if you have for instance `1000, 300, 500, 1000, 1000, 700, 200, 1000, 1000,
700, 200, 1000, 1000, 300, 500, 1000` you can defer that either you have 3 words (`[300,
500]`, `[1000, 1000]` and `[700, 200]`) and a sof and eof of `[1000]` OR you have 2 words
(`[1000, 300, 500, 1000]` and `[1000, 700, 200, 1000]`)

20:17 This is because there is no tool build for that yet

20:17 markswift You just need the equivalent of this on Homey

20:17
https://github.com/ninjablocks/433Utils/blob/master/Arduino_sketches/RF_Sniffer/RF_Sniffer.ino

20:17 **joolee** @markswift Recording and re-transmitting means copying and amplifying noise and
errors

20:17 **baskiers** It could be possible but since we have more pressing features to build there are no
plans for such a tool yet

20:18 **joolee** The transmitter has imperfections, noise is added during transmit. The recorder has
imperfections and adds some more by retransmitting it, add in some more noise and count in some
imperfections in the receiver

20:19 **joolee** It'll work but it's not good for your range

20:19 **joolee** Working out the real transmission code like this will greatly improve range
:stuck_out_tongue:

20:20 **joolee** But, if you want your ninja blocks, you can now build an app that works with all the
code posted here

20:20 **baskiers** But to finish the tutorial, we now have (almost) all data to fill in our signal
definition:

```
{
    "signals": {
        "433": {
            "klikaanklikuit": {
                sof: [364], // Start of frame
                eof: [], // End of frame
                words: [
                    [385, 1085], // 0
                    [1113, 358], // 1
                ],
```

```
            interval: 10000, // Time between two subsequent signals. You can get this by trial
and error. (most of the time the rule is: if it works it works)
            sensitivity: 0.9, // between 0.0 and 2.0. This value indicates how far off the
timings of the words can be and still be parsed (e.g. `1000, 300` is still parsable to word
`1100, 390`)
            repetitions: 20, // choose something that you like, more repetitions means sending
takes longer but is more likely to arrive to the receiver
            minimalLength: 17, // (35 - sof.length) / word[x].length
            maximalLength: 17, // all signals should be of this length
          }
        }
      }
}
```

20:23 **cri_sys @baskiers** got it!

20:23 So we need rest of the data

20:23 markswift **@cri_sys** write an app and you'll be a legend!

20:23 **fire69** I get the last part, just not how to get to it :smile:

20:24 **cri_sys** @markswift i am planning to ;)

20:24 But there still of the theory that i dont get

20:25 I have to understand how homey does the signal definition

20:25 markswift I think we all do, apart from wizard **@baskiers**

20:26 **cri_sys** I just ordered a arduino to sniff data from it, not knowing everything **@baskiers** is saying :p

20:27 **jeroenvollenbrock** If you want to TX only, you can put the entire sequence in your SOF, leave the words and eof out, and define a sensible interval and repetition count. But that makes it impossible to receive.

20:28 but that makes it impossible to decode/construct the data (edited)

20:28 markswift It's an Athom attack… That makes sense and sounds pretty easy. **@jeroenvollenbrock** (edited)

20:28 The arduinos have some great sniffers, perhaps they may help **@cri_sys**