Kvaser JSON REST API

21 August 2013

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1. Introduction

NOTE! THIS SPECIFICATION IS A DRAFT VERSION AND SUBJECT TO CHANGE! NOTE!

This document specifies the JSON REST API that is available in selected Kvaser CAN interfaces. It is based upon the Kvaser CANLIB, so most function and parameter names are the same.

Assuming that the device is connected and listening on port 8080, you can access the API in the form:

http://192.168.1.10:8080/deviceStatus

The following rules applies to this API:

- All constants must be specified with its numerical value, e.g. 'canBITRATE_1M' should be given as '-1'
- All numbers are decimal
- All calls can take an optional integer parameter, 'ident=' that is included in the response

The following status constants are currently used by the JSON REST API:

Constant	Value
canOK	0
canERR_PARAM	-1
canERR_NOMSG	-2
canERR_NOCHANNELS	-5
canERR_TIMEOUT	-7
canERR_INVHANDLE	-10
canERR_NOT_IMPLEMENTED	-32
canERR_INVALID_PASSWORD	-128
canERR_NO_SUCH_FUNCTION	-129
canERR_NOT_AUTHORIZED	-130
canERR_INVALID_SESSION	-131

Note that the last four constants are extensions to current Kvaser CANLIB.

2. Connection Functions

NOTE! THIS SPECIFICATION IS A DRAFT VERSION AND SUBJECT TO CHANGE! NOTE!

The following functions is used to query and connect to a device. This is done differently than in

Kvaser CANLIB, e.g. the session concept is new.

2.1. deviceStatus

You may at any time ask a device for the status with the function deviceStatus. The device can then respond whether it is free or already connected to some host.

- uri:/deviceStatus
- parameters:

  [mode=jsonp]

  If set, the response will be coded in JSONP, i.e. wrapped with the fixed string 'canlib_callback(…)'.

- returns:

```
{"usage" : %u,           # Flags: 0=Free, 1=In use via service,
                           2=In use via JSON API, 4=In use via JSONP API

  # The following response codes are only present if the device is in use:
  "timeout" : %u,        # time left before current session will end (seconds)
  "ip" : "%u.%u.%u.%u"   # IP address of the host the device is currently
                         # connected to.
}
```

- example:

```
http://192.168.1.10:8080/deviceStatus?mode=jsonp

canlib_callback({"usage":1})

http://192.168.1.10:8080/deviceStatus?mode=jsonp&ident=0001

canlib_callback({"usage":0, "ident":1})

http://192.168.1.10:8080/deviceStatus

{"usage":1}

http://192.168.1.10:8080/deviceStatus

{"usage":3, "timeout":1066, "ip":"192.168.1.12"}
```

2.2. canInitializeLibrary

The function canInitializeLibrary sets up a connection and creates a session. It must therefore be called before any other function that needs a session is called. When a session is active, the device will deny any further calls to this function by returning -131 Invalid session.

The returned session must be used when calling other functions, denoted with <session> below.

A session is terminated either by an explicit call to 'canUnloadLibrary' or an inactivity of more than 'timeout' seconds.

- uri:/canInitializeLibrary
- parameters:

  [password=%s]

Access password, the string can be URI encoded if needed.

[mode=jsonp]

When set, the response will be coded as JSONP.

[timeout=%u]

The session timeout in seconds.

- returns:

```
{"stat":<canOK | canERR_xxx>, "session":"%32x"}
```

- example:

```
http://192.168.1.10:8080/canInitializeLibrary?timeout=1200

{"stat":0, "session":"1b6ed79f755f0ab94ff9ad62470ad0a0"}

http://192.168.1.10:8080/canInitializeLibrary?timeout=1200

{"stat":-131}
```

2.3. canUnloadLibrary

The function canUnloadLibrary terminates an active session, making the device free.

- uri:/<session>/canUnloadLibrary
- parameters: None.
- returns:

```
{"stat":<canOK | canERR_xxx>}
```

- example

```
http://192.168.1.10:8080/1b6ed79f755f0ab94ff9ad62470ad0a0/canUnloadLibrary

{"stat":0}
```

3. Canlib Equivalent Functions

NOTE! THIS SPECIFICATION IS A DRAFT VERSION AND SUBJECT TO CHANGE! NOTE!

The following functions mirrors functions in Kvaser CANLIB, please refer to the CANLIB documentation for further information about these functions and their parameters.

Note that all constants must be specified with its decimal numerical value, e.g. 'canBITRATE_1M' should be given as '-1'. All return values will also be returned as decimal integers, e.g. 'canOK' will be returned as '0'.

3.1. canOpenChannel

The function canOpenChannel returns a handle to the opened channel. This should be passed as the parameter 'hnd' in functions that needs it.

- uri:<session>/canOpenChannel
- parameters:

  channel=%u

  Channel number on the device.

  flags=%u

  Flags according to canOPEN_xxx.

- returns:

```
{"stat":<canOK | canERR_xxx>, "hnd":%d}
# hnd is only valid if stat returns canOK
```

- example:

```
http://192.168.1.10:8080/1b6ed79f755f0ab94ff9ad62470ad0a0/canOpenChannel?
channel=0&flags=8

{"stat":0, "hnd":0}
```

3.2. canClose

- uri:<session>/canClose
- parameters:

  hnd=%u

- returns:

```
{"stat":<canOK | canERR_xxx>}
```

- example:

```
http://192.168.1.10:8080/1b6ed79f755f0ab94ff9ad62470ad0a0/canClose?hnd=0

{"stat":0}
```

3.3. canSetBusParams

- uri:<session>/canSetBusParams
- parameters:

  hnd=%u

  freq=%d

  Bit rate, or one of canBITRATE_xxx.

  If freq is not any of canBITRATE_xxx, the following parameters must also be set:

  tseg1=%u

  tseg2=%u

sjw=%u

noSamp=%u

- returns:

```
{"stat":<canOK | canERR_xxx>}
```

- example:

```
http://192.168.1.10:8080/1b6ed79f755f0ab94ff9ad62470ad0a0/canSetBusParams?
hnd=0&freq=-1&ident=1234

{"stat":0, "ident":1234}
```

3.4. canBusOn

- uri:<session>/canBusOn
- parameters:

  hnd=%u

- returns:

```
{"stat":<canOK | canERR_xxx>}
```

- example:

```
http://192.168.1.10:8080/1b6ed79f755f0ab94ff9ad62470ad0a0/canBusOn?hnd=0

{"stat":0}
```

3.5. canBusOff

- uri:<session>/canBusOff
- parameters:

  hnd=%u

- returns:

```
{"stat":<canOK | canERR_xxx>}
```

- example:

```
http://192.168.1.10:8080/1b6ed79f755f0ab94ff9ad62470ad0a0/canBusOff?hnd=0

{"stat":0}
```

3.6. canSetBusOutputControl

- uri:<session>/canSetBusOutputControl
- parameters:

hnd=%u

drivertype=%u

Driver type according to canDRIVER_xxx.

- returns:

```
{"stat":<canOK | canERR_xxx>}
```

- example:

```
http://192.168.1.10:8080/1b6ed79f755f0ab94ff9ad62470ad0a0/canSetBusOutputControl?
hnd=0&drivertype=4

{"stat":0}
```

3.7. canRead

- uri:<session>/canRead

- parameters:

hnd=%u

[max=%u]

Max number of messages to be received in the answer, default is 1.

- returns:

```
{"stat":<canOK | canERR_xxx>,
 "msgs:" : [
   {
     "id" : %u,
     "dlc" : %u,
     "time" : %u,
     "flag" : %u,
     "msg" : [%u, ...]
   },
   ...
 ]
}
```

- example:

```
192.168.1.10:8080/1b6ed79f755f0ab94ff9ad62470ad0a0/canRead?hnd=0&max=5

{"stat":0, "msgs":[
{"id":10, "dlc":4, "msg":[67,12,8,0], "time":3520517614,"flag":2},
{"id":12, "dlc":3, "msg":[32,12,16], "time":3520517724,"flag":2},
{"id":14, "dlc":4, "msg":[0,0,24,0], "time":3520517835,"flag":2}]}
```

3.8. canWrite

- uri:<session>/canWrite

- parameters:

hnd=%u

id=%u

flag=%u

dlc=%u

msg=%u[,%u[…]]

- returns:

```
{"stat":<canOK | canERR_xxx>}
```

- example

```
http://192.168.1.10:8080/1b6ed79f755f0ab94ff9ad62470ad0a0/canWrite?
hnd=0&id=55&flag=0&msg=99,100,101,102,103,104,105&dlc=7

{"stat":0}
```

3.9. canIoCtl

- uri:<session>/canIoCtl

- parameters:

  hnd=%u

  func=%u

  Function according to canIOCTL_xxx.

  [buf=%s]

  Parameter depending on the actual function used.

- returns:

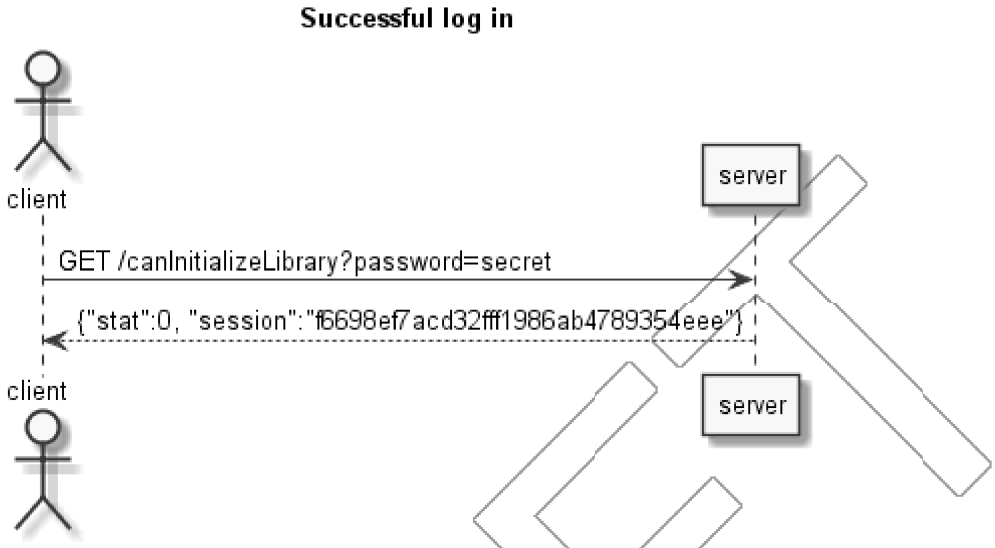
```
{"stat":<canOK | canERR_xxx>}
```

- example:

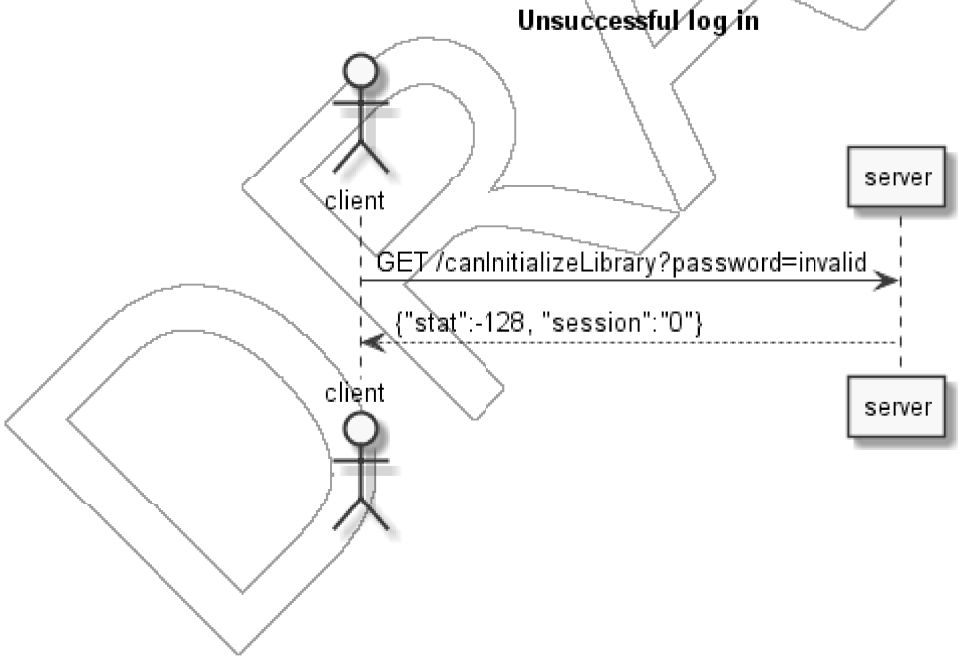
```
http://192.168.1.10:8080/1b6ed79f755f0ab94ff9ad62470ad0a0/canIoCtl?hnd=0&func=10

{"stat":0}
```

4. Connection flow examples

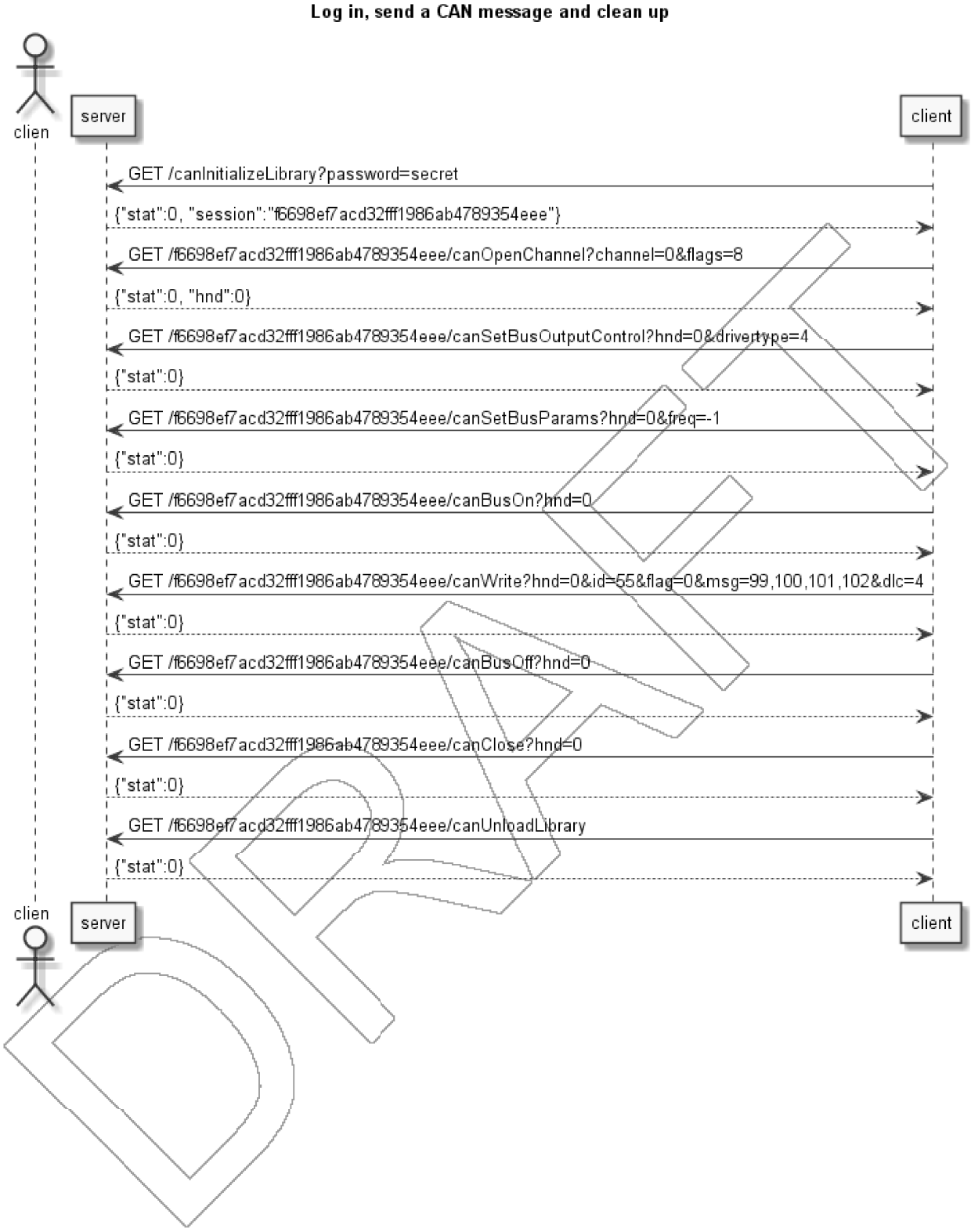
4.1. Successful log in



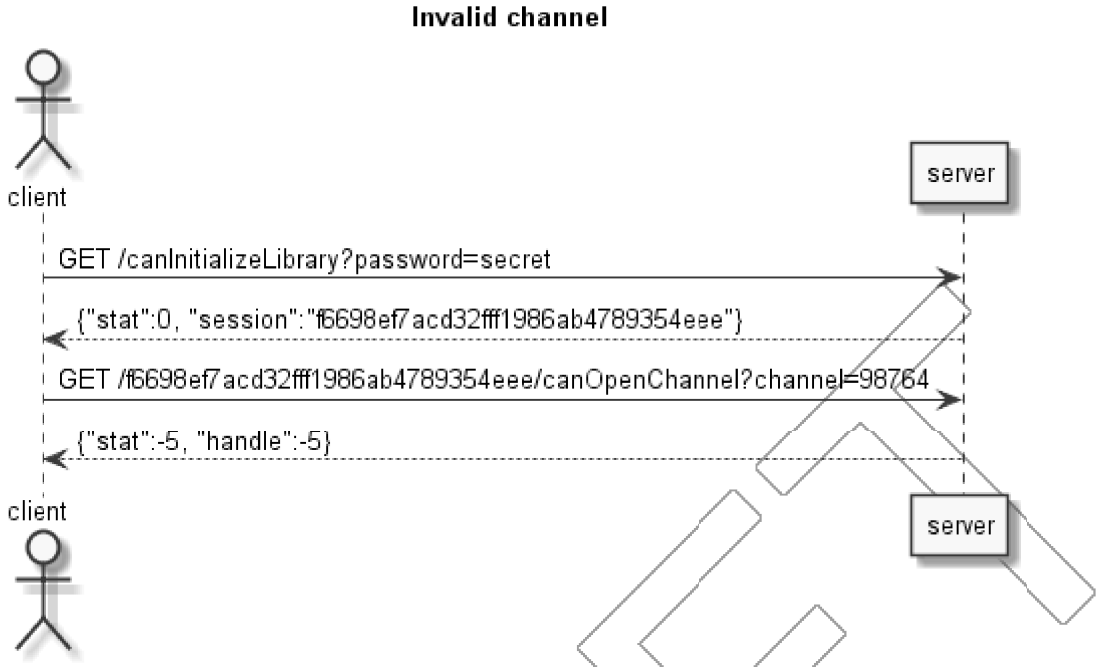
4.2. Unsuccessful log in



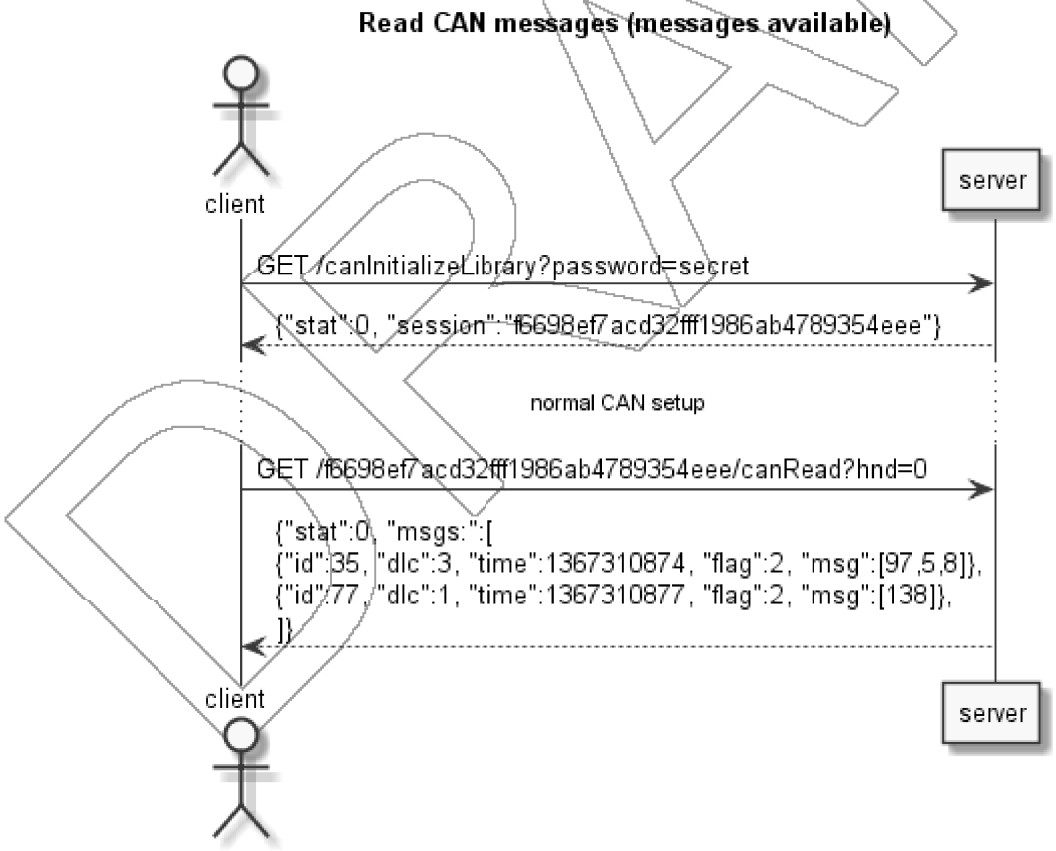
4.3. Log in, send a CAN message and clean up



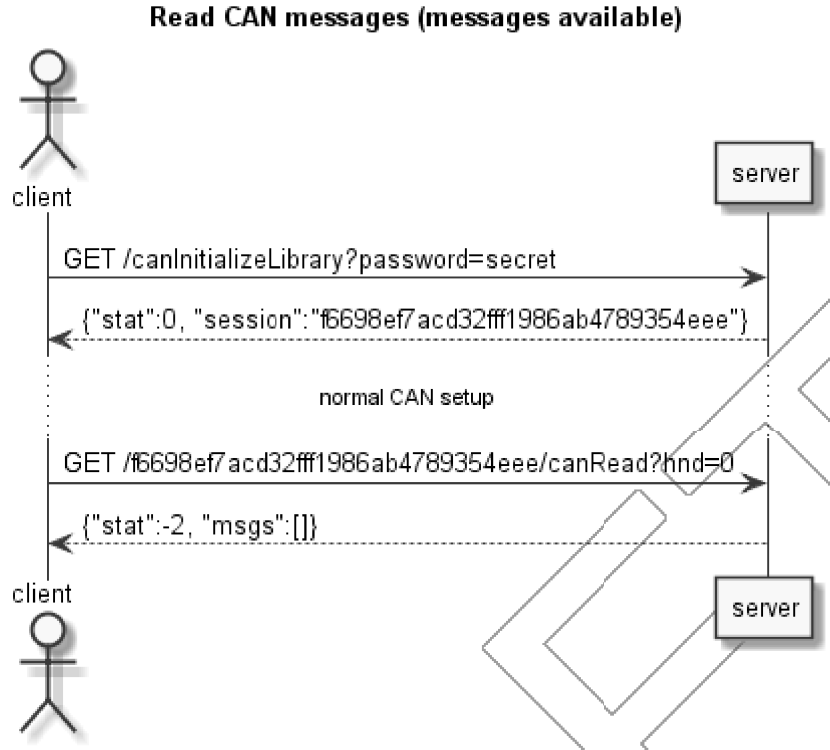
4.4. Invalid channel



4.5. Read CAN messages (messages avaiable)



4.6. Read CAN messages (no messages avaiable)



4.7. Error examples