Please note:
This document is for system integrators and programmers. relaydroid™ devices contain a built-in webserver with a web user interface suitable for most users. This document shows how you can substitute or extend the built-in functionality.

relaydroid™ devices can be controlled externally from a custom program via HTTP or TCP commands.

1. HTTP GET API

1.a) Get the relay states without switching

API v1 command:
http://relaydroid_address/api.cgi?p=admin_password

API v2 command:
http://relaydroid_address/api2.cgi?p=admin_password

answer:
relay states (see 1.d section)

relaydroid_address: the IP or NetBios name of the device
admin_password: the password of the admin user

1.b) Switch a relay ON or OFF continuously without a time limit and get the relay states
The state is stored in a non-volatile memory and is remembered in case of a system reboot.

API v1 command:
http://relaydroid_address/api.cgi?p=admin_password&sw=oc_num&v=com

API v2 command:
http://relaydroid_address/api2.cgi?p=admin_password&sw=oc_num&v=com

answer:
relay states (see 1.d section)
relaydroid_address: the IP or NetBios name of the device
admin_password: the password of the admin user
oc_num: 1, 2, .. n (number of the OC output to switch)
com: 0: switch OFF, 1: switch ON, 2: switch over (ON->OFF; OFF->ON)

1.c) Switch a relay ON with a time limit and get the relay states
The state is NOT stored in a non-volatile memory and in case of a system reboot the output will be OFF.

API v1 command:
http://relaydroid_address/api.cgi?p=admin_password&t=minutes&sw=oc_num&v=1
OR
http://relaydroid_address/api.cgi?p=admin_password&t0=seconds&sw=oc_num&v=1
OR (since v1.06)
http://relaydroid_address/api.cgi?p=admin_password&t1=milliseconds&sw=oc_num&v=1

API v2 command:
http://relaydroid_address/api2.cgi?p=admin_password&t=minutes&sw=oc_num&v=1
OR
http://relaydroid_address/api2.cgi?p=admin_password&t0=seconds&sw=oc_num&v=1
OR (since v1.06)
http://relaydroid_address/api2.cgi?p=admin_password&t1=milliseconds&sw=oc_num&v=1

answer:
relay states (see 1.d section)

relaydroid_address: the IP or NetBios name of the device
admin_password: the password of the admin user
t or t0 or t1 (since v1.06): time limit in minutes (t) or seconds (t0) or milliseconds (t1) (after the given time the selected OC output will switch OFF automatically)
oc_num: 1, 2, .. n (number of the OC output to switch)

1.d) Relay state format of the answers when using api.cgi and api2.cgi
API v1 answer:
Sequence of '0'-s and '1'-s, showing which open collector output or digital input is ON (1) or OFF(0).
3 OC out e.g.:
100 (OC1: ON, OC2-3: OFF)
3 OC out + 3 dig. input e.g.:
100011 (OC1: ON, OC2-3: OFF, IN1: OFF, IN2-IN3: ON)
API v2 answer:

```
RELAY_MAX  \
R1_name$R2_name$...$Rmax_name\n
R1_default_time$R2_default_time$...$Rmax_default_time\n
R1_state$R2_state$...$Rmax_state\n
INPUT_MAX  \nI1_state$I2_state$...$Imax_state
```

**RELAY_MAX**: the number of OC outputs  
**Rx_name**: the name of the OC output  
**Rx_default_time**: the default ON time set on the web GUI  
**Rx_state**:  
- pl. ON,0: ON without a time limit  
- pl. ON,-: ON with a time limit of less than 1 seconds  
- pl. ON,100: ON with a time limit of 100 seconds (it will be OFF after 100 seconds)  
- pl. OFF: off  

**INPUT_MAX**: the number of digital inputs  
**Ix_state**: ON (closed) or OFF (open)

e.g.:

```
3  - the number of OC outputs is 3
R01$R02$R03  - the name of the outputs is R01, R02 and R03
1$1$1  - the default ON time is 1, 1 and 1 sec
ON,10$ON,0$OFF  - the OC1 output is ON for another 10 seconds (ON,10),  
                 the OC2 output is ON without a time limit (ON,0),  
                 the OC3 output is OFF
0  - there are 0 digital input ports 
    empty line because there are no digital inputs
```

2. TCP/IP API

Usage: open a TCP port and send the message below. 
Port number to open at the IP address of the device: 80 
Message to send (plain text):

```
r[1-n] [0-999999999] [admin_password]  
```

OR (since v1.06)

```
r[1-n] [0-999999999]- [admin_password]  
```

OR (since v1.06)
r[n-1] - [admin_password]\n
e.g.: rl 3000 passwd\n- switch on OC1 for 3 seconds

e.g. (since v1.06): rl 1000- passwd\n- switch on OC1 for 1 second and ask for current state of outputs

Example (since v1.06):
rl - passwd\n- ask for current state of outputs

answer:
OK
OR (since v1.06)

[sequence of '0' and '1'] OK

The '0' and '1' characters show which OC output is ON (1) or OFF (0). This character sequence is in the answer only if the request contains the '-' (hyphen) character. Without the '-' the answer is simply 'OK'.

rn: n is the number of the OC output to switch
0-999999999: time limit in milliseconds. After the given time the selected OC output will switch OFF automatically. The '0', '1' and '2' values have a special meaning:

- '0' means: switch OFF immediately.
- '1': means: switch ON without a time limit.
- '2': means: switch to the opposite state (ON->OFF, OFF->ON) without a time limit.
- Other values (bigger than 2) are rounded to 100 millisecond intervals and they mean a time limit.

Since v1.06 version the request can contain the '-' (hyphen) character after the number or as a standalone character. Using the '-' character the answer will contain the state of the OC outputs. Using it with no number you can ask for the OC states without modifying any of them.

admin_password: the password of the admin user.
\n: the new-line character (ASCII 0x0A)