

# LAN-2-LAN API FOR DOORBIRD AND BIRDDGUARD

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## OVERVIEW

This document specifies the external API of Bird Home Automation products. The interface provides the functionality for IP communicating with Bird Home Automation products via LAN (Local Area Network), handled by the built-in servers in Bird Home Automation products.

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## COMPATIBLE DEVICES

- DoorBird Video Door Station D10x
  - Hardware version 1.00 and above
  - Firmware Version 000099 and above
- DoorBird Video Door Station D20x
  - Hardware version 1.00 and above
  - Firmware Version 000099 and above
- BirdGuard B10x
  - Hardware version 1.00 and above
  - Firmware Version 000099 and above

Firmware Change Log: <http://www.doorbird.com/changelog>  
For reasons of brevity, we use the terms “device” to refer to our “DoorBird Video Door Station” and “BirdGuard” products and “mobile device” to refer to a smartphone or tablet.

## GENERAL INFORMATION

### PRIVACY STATEMENT

Please observe any relevant country-specific statutory regulations concerning the use of surveillance components and security surveillance applicable at the installation site and within your third-party solution.

### LOCATING DEVICES IN YOUR LAN

You can locate devices and obtain its IP address within your LAN using the Apple Bonjour Protocol, see e.g.

- DoorBird App -> Settings -> Administration -> Search
- Online tool <http://www.doorbird.com/checkonline>
- Apple Bonjour command line tool “dns-sd”, e.g. “dns-sd.exe -B \_http.\_tcp local”. Please see the Apple Bonjour documentation for further information on this topic
- [http://en.wikipedia.org/wiki/Bonjour\\_%28software%29](http://en.wikipedia.org/wiki/Bonjour_%28software%29)
- <http://www.axis.com/de/de/axis-ip-utility/download>

### CONCURRENT CONNECTIONS

The device handles via this third-party API a maximum of 1 concurrent connection per second for API access.

*Please keep in mind that the device is a door intercom unit, which*

*handles in general - like all commercially relevant door stations - only one simultaneous audio/video call for live communication. You get a status code "503" (Busy) if another user already took the call. In that case you can notify the user with a message dialog on your GUI, e.g. "Line busy" and additionally preview one still image (LIVE IMAGE REQUEST).*

## **URL SCHEME**

You can use the URL Scheme "DoorBird" to start the DoorBird App for iOS using a third party iOS App. You can use the URL Scheme "DoorBird" to start the DoorBird App for Android using a third party Android App.



## **HTTP INTERFACE DESCRIPTION**

### **AUTHENTICATION**

Please use Basic or Digest authentication as defined in RFC 2617 for each HTTP request. Use the same credentials as you are using to add a device to the DoorBird App.

Alternatively to authentication as defined in RFC 2617 you can use the plain-text HTTP parameters "http-user" and "http-password" to authenticate (more insecure because of plain-text, but some third-party home automation platforms support only HTTP parameters), e.g.

"http://<device-ip>/bha-api/video.cgi?http-user=xxxxxx0001&http-password=xxxxxxx".

### **DEMONSTRATION**

You may browse to http://<device-ip>/bha-api/view.html with a web browser to see a demonstration of the API in a standard webpage.

### **LIVE VIDEO REQUEST**

Returns a multipart JPEG live video stream with the default resolution and compression as defined in the system configuration. When MJPG video is requested, the server returns a continuous flow of JPEG files. The content type is "multipart/x-mixed-replace" and each image ends with a boundary string <boundary>. The returned image and HTTP data is equal to the request for a live image request. An average of up to 8 fps can be provided using this third-party API, depending on the network speed and load factor of the device.

Please note, that the video connection can get interrupted at any time, when the official DoorBird app requests the stream. It has precedence over users of the LAN-API.

**Method:** GET

#### **Syntax:**

```
http://<device-ip>/bha-api/video.cgi
```

#### **Example Request:**

```
http://<device-ip>/bha-api/video.cgi
```

**Return:**

```
HTTP/1.0 200 OK\r\nContent-Type: multipart/x-mixed-replace;boundary=<boundary>\r\n\r\n--<boundary>\r\n <image>
```

where the proposed <boundary> is "myboundary" and the returned <image> field is

```
Content-Type: image/jpeg\r\nContent-Length: <image size>\r\n\r\n<JPEG image data>\r\n --<boundary>\r\n <image>
```

**Example:** Requested Multipart JPEG image.

## LIVE IMAGE REQUEST

Returns a JPEG file with the default resolution and compression as defined in the system configuration. The content type is "image/jpeg".

**Method:** GET

**Syntax:**

```
http://<device-ip>/bha-api/image.cgi
```

**Example Request:**

```
http://<device-ip>/bha-api/image.cgi
```

**Return:**

```
HTTP/1.0 200 OK\r\nContent-Type: image/jpeg\r\nContent-Length: <image size>\r\n\r\n<JPEG image data>\r\n
```

## OPEN DOOR

Energize the door opener/ alarm output relay of the device. Returns JSON.

**Method:** GET

**Syntax:**

```
http://<device-ip>/bha-api/open-door.cgi
```

**Example Request:**

```
http://<device-ip>/bha-api/open-door.cgi
```

## LIGHT ON

Energize the light relay of the device. Returns JSON.

**Method:** GET

**Syntax:**

```
http://<device-ip>/bha-api/light-on.cgi
```

**Example Request:**

```
http://<deviceip>/bha-api/light-on.cgi
```

## HISTORY IMAGE REQUEST

Returns a JPEG history image with the default resolution and compression as defined in the system configuration. The history images are stored in the cloud.

**Method:** GET

**Syntax:**

```
http://<device-ip>/bha-api/history.cgi?<parameter>=<value>
```

<parameter>=<value>	Values	Description
index=<int>	1..20	Index of the history images, where 1 is the latest history image
event=<string>	doorbell  motionsensor	Event type (optional), default is the doorbell for DoorBird devices and the Input trigger for BirdGuard devices. Use the doorbell keycode, e.g. „1234“ for multi tenant devices.

**Example Request:**

```
http://<deviceip>/bha-api/history.cgi?index=1
http://<deviceip>/bha-api/history.cgi?event=1&index=20
http://<deviceip>/bha-api/history.cgi?event=1234&index=6
http://<deviceip>/bha-api/history.cgi?event=motionsensor&index=5
```

**Return:**

```
HTTP/1.0 200 OK\r\n
Content-Type:
image/jpeg\r\n Content-
Length: <image
size>\r\n \r\n
<JPEG image data>\r\n
```

## NOTIFICATION REQUEST

Check and set the notification when a certain event occurs. If you set no parameter, the current notification settings will be returned as JSON. The parameters event, subscribe and url must be set.

**Method:** GET

**Syntax:**

```
http://<device-ip>/bha-api/notification.cgi?<parameter>=<value>
```

<parameter>=<value>	Values	Description
url=<string>		HTTP or HTTPS URL to call with GET command if the event occurs
user=<string>		Basic or Digest authentication user for the HTTP URL, leave blank if not mandatory
password=<string>		Basic or Digest authentication password or the HTTP URL, leave blank if not mandatory
event=<string>	doorbell motionsensor dooropen	Event type
subscribe=<int>	0 1	0: disable notification the given event, 1: enable the notification for the given event
relaxation=<int>	10..10000	Relaxation time in seconds, for concurrent events. Default value is "10"
reset=1	1	1: Reset all notifications. Default factory defaults, please do not send this parameter if not necessary
test=<string>	doorbell motionsensor dooropen	triggers the given notifications event.

**Example Request:**

```
http://<deviceip>/bha-api/notification.cgi?url=http://foo.bar?doorbell&user=&password=&event=doorbell&subscribe=1
```

**Example Return:**

```
{"BHA": {"RETURNCODE": "1", "NOTIFICATIONS": [{"event": "doorbell", "subscribe": "1", "url": "http://foo.bar/e.php?e=doorbell", "user": "foo", "password": "bar"}, {"event": "motionsensor", "subscribe": "0", "url": "http://foo.bar/e.php?e=motionsensor", "user": "foo", "password": "bar"}]}}
```

## CHECK REQUEST

Returns the current states of motionsensor and doorbell.

**Method:** GET

**Syntax:**

```
http://<device-ip>/bha-api/monitor.cgi?check=doorbell[,motionsensor]
```

**Example Request:**

```
http://<device-ip>/bha-api/monitor.cgi?check=doorbell,motionsensor
```

**Example Return:**

```
HTTP/1.1 200 OK\r\nContent-Type: text/plain\r\n\r\ndoorbell=0\r\nmotionsensor=1
```

## MONITOR REQUEST

Returns the current states of motionsensor and doorbell as a continuous stream. There are up to 8 concurrent Streams allowed. When all streams are busy returns HTTP code 509.

**Method:** GET

**Syntax:**

```
http://<device-ip>/bha-api/monitor.cgi?ring=doorbell[,motionsensor]
```

**Example Request:**

```
http://<device-ip>/bha-api/monitor.cgi?ring=doorbell,motionsensor
```

**Example Return:**

```
HTTP/1.1 200 OK\r\nContent-Type: multipart/x-mixed-replace; boundary=--ioboundary\r\n\r\n--ioboundary\r\nContent-Type: text/plain\r\n\r\ndoorbell:H\r\n\r\n--ioboundary\r\nContent-Type: text/plain\r\n\r\nmotionsensor:L\r\n\r\n
```



```
..  
--ioboundary\r\n  
Content-Type: text/plain\r\n\r\n  
doorbell:L\r\n\r\n  
--ioboundary\r\n  
Content-Type: text/plain\r\n\r\n  
motionsensor:L\r\n\r\n
```

## LIVE AUDIO RECEIVE AND TRANSMIT - General information

- Audio can be received and transmitted via our HTTP interface or SIP interface.
- AEC/ANR: The transmitting user device (e.g. Home Automation tablet) MUST do the echo and noise reduction on its own (AEC, ANR). The DoorBird Video Door Station has a high-end hardware- and software-based echo canceller built-in, but due to natural physical circumstances you have to do echo cancellation on both sides, user device and door station. Our native Apps use high-end self-learning AEC and ANR algorithms. Our AEC and ANR algorithms in our native Apps are one of our core technologies and thus not available for any third party. You must develop an AEC / ANR on your own or use the native AEC / ANR of the operating system, see e.g. [http://developer.apple.com/library/content/documentation/MusicAudio/Conceptual/AudioUnitHostingGuide\\_iOS/UsingSpecificAudioUnits/UsingSpecificAudioUnits.html](http://developer.apple.com/library/content/documentation/MusicAudio/Conceptual/AudioUnitHostingGuide_iOS/UsingSpecificAudioUnits/UsingSpecificAudioUnits.html) and <http://developer.android.com/reference/android/media/audiofx/AcousticEchoCanceller.html> for information about acoustic echo cancellation.
- Codec: When using this API audio MUST be G.711  $\mu$ -law (sampling rate 8000 Hz).
- Wireshark: When using Wireshark for packet inspection during development, audio transmission might not be shown in the “http” Filter, please chose a different filter.

## LIVE AUDIO RECEIVE

Use this method to obtain real-time audio (G.711  $\mu$ -law) from the device. Please note, that the audio connection can get interrupted at any time, when the official DoorBird app requests the stream. It has precedence over users of the LAN-API.

**Method:** GET

### Syntax:

```
http://<device-ip>/bha-api/audio-receive.cgi
```

### Example Request:

```
http://<device-ip>/bha-api/audio-receive.cgi
```

**Return:**

```
HTTP/1.0 200 OK\r\n
<AUDIO DATA>
<AUDIO DATA>
<AUDIO DATA>
...
```

**LIVE AUDIO TRANSMIT**

Transmit audio (G.711  $\mu$ -law) from your mobile device (e.g. Home Automation tablet) to the device. Only one consumer can transmit audio (talk) at the same time. The second consumer will be rejected. Please note, that the audio connection can get interrupted at any time, when the official DoorBird app requests the stream. It has precedence over users of the LAN-API.

**Method:** POST

**Syntax:**

```
http://<device-ip>/bha-api/audio-transmit.cgi
```

**Example 1:** Singlepart audio data transmit with G.711  $\mu$ -law (authorization omitted).

```
POST /bha-api/audio-transmit.cgi HTTP/1.0\r\n
Content-Type: audio/basic\r\n
Content-Length: 9999999\r\n
Connection: Keep-Alive\r\n
Cache-Control: no-cache\r\n
\r\n
<AUDIO DATA>
<AUDIO DATA>
<AUDIO DATA>
...
```

**Example 2:** Multipart audio data transmit with G.711  $\mu$ -law (authorization omitted).

**INFO REQUEST**

Get some version information from the device in JSON format.

**Method:** GET

**Syntax:**

```
http://<device-ip>/bha-api/info.cgi
```

**Example Request:**

```
http://<deviceip>/bha-api/info.cgi
```

**Example Return:**

```
{"BHA": { "RETURNCODE": "1", "VERSION": [{"FIRMWARE": "000096", "BUILD NUMBER": "41865"}]}}
```



## RTSP INTERFACE DESCRIPTION

### LIVE VIDEO REQUEST

Returns a MPEG4 H.264 live video stream with the default resolution and compression as defined in the system configuration. Uses RTSP on 554 and the RTSP-over-HTTP protocol on port 8557 of DoorBird and BirdGuard devices. An average of up to 12 fps can be provided using this third-party API, depending on the network speed and load factor of the device.

Requires standard RTSP authentication (no parameter authentication supported as we support for HTTP).

Please note, that the RTSP connection can get interrupted at any time, when the official DoorBird app requests the stream. It has precedence over users of the LAN-API.

**Method:** GET

#### Syntax:

```
rtsp://<device-ip>:<device-rtsp-port>/mpeg/media.amp
```

#### Example Request:

```
rtsp://<device-ip>:8557/mpeg/media.amp  
rtsp://<device-ip>/mpeg/media.amp
```



### Session Initiated Protocol (SIP)

Please see [www.doorbird.com/sip](http://www.doorbird.com/sip) for further information.