



DoorBird v2.9 Module Application Guide

Description

This Module allows two-way control of DoorBird Video Door Stations some of which are listed below. If the specific model you have is not listed below, please contact us.

A1121, D10x, D20x, B10x, D1101xV, D1812, D110xFV, D1101KH, D210xV, D210xKV, D21DKH, D21DKV and Holovision models 230, 232, 332, 430, 432, 567, 568, 569, 572, 573, 576, 577, 578, 731, 732, 831, 832, 925, 976, 977, 1032 (Holovision note: Only the DoorBird components are available for control and status) Door Stations running firmware 000102 and above.

This Module supports manual SIP Calling (not RAVA Group calling), control of native and external (from a connected I/O controller) relay functions, doorbell events, RFID events, motion events, fingerprint events, keypad entry events, and generic events. Additionally, this driver supports the A series keypads with RFID and keypad events.

Crestron RAVA, and the DoorBird calling RAVA Groups is **not facilitated with this Driver**, or supported by ControlWorks. At the time of writing this document, RAVA Group calling is supported on D11 products and the D1812. Please contact DoorBird for specific details on this feature.

If you are using a DoorBird device and plan on Manual SIP Calling (not using RAVA Groups) please refer to the section [Manual SIP Calling](#) (not using RAVA Groups).

This Module uses a Module Instance License that can be obtained at www.controlworks.com. Each DoorBird in a system requires a separate module, and each module requires a separate license in order to function. See below for detailed instructions on ordering and activation. The module also offers a complimentary trial period of 30 minutes if no license has been purchased.

Compatibility			Processor Requirements	
 COMPATIBLE		 COMPATIBLE		

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<http://www.controlworks.com>

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Supported Processors

Any 3-Series, 4-Series processor appliance, or VC-4 instance that supports SIMPL Windows and has Ethernet.

Module Instance License

Overview

This Module requires a Module Instance License that can be obtained here <https://store.controlworks.com/products/DoorBird-SIMPL-License>. Each Module in a program requires a separate license in order to function. Licenses are tied to the Crestron processor and DoorBird combination.

License Changes

If a device fails and is replaced (DoorBird or Crestron) the license will need to be updated, we offer one complimentary update of the license. Subsequent changes to either device (DoorBird or Crestron) will be assessed a fee to change the license. We encourage the use of our 30-minute [trial period](#) to allow for development and testing without purchasing licenses.

Steps for Purchasing a License

Licenses are tied to the Crestron Processor and DoorBird combination. The steps below outline how to purchase a license and activate your module.

Directly below are steps for a physical Crestron Processor. [For VC-4 see below](#).

1. Ensure the DoorBird is connected to a network and can be reached by the Crestron processor.
2. Ensure the credentials for the Crestron DoorBird account (**these credentials do not exist by default**) are in the module parameters. For details on how to create the Crestron account, see the section below labeled [DoorBird Username and Passwords](#).
3. Ensure the permissions for the account are set correctly. See the section below labeled [DoorBird Username and Passwords](#).
4. Ensure the [reboot_finished] signal on the module is being latched high (not pulsed i.e. not using a STEPPER, MV, and not driven from an out* from a SR or equivalent) after boot. See the demo program for an example.
5. Open Text Console in toolbox, connect to the processor.
6. Ensure the processor has DNS servers by using the command [LISTDNS].

```
AV3>listdns
TableStart: [DNS Servers]
Device ID | IP | Issued By |
-----+-----+-----+
Device 0 | 10.2.0.5 | DHCP |
Device 1 | 10.255.1.2 | DHCP |
```

Figure 1- LISTDNS Example

7.

- a. If no DNS servers are present, add them by using [ADDDNS <DNS server>] or using the Ethernet Addressing dialog box.

```
AV3>adddns 8.8.8.8
Success:New DNS value set.
AV3>|
```

Figure 2 - ADDDNS Example

- b. You can also test your DNS server by using the command [TESTDNS www.controlworks.com].

```
AV3>testdns www.controlworks.com
IPAddress = 173.236.4.201
AV3>|
```

Figure 3 - TESTDNS Example

8. Load your program to the processor.
9. After the program has been loaded, in text console, use the command [UCMD:<program slot number> "GET ACTIVATION INFO"]. i.e UCMD:1 "GET ACTIVATION INFO" This will provide you with an activation key and a URL to make the purchase.

```
CP3>ucmd:1 "GETACTIVATIONINFO"
S-2.1: Activation key for ControlWorks.com: 00107f [REDACTED]
```

Figure 4 - GETACTIVATIONINFO Example

10. In a web browser, browse to <https://store.controlworks.com/products/DoorBird-SIMPL-License>. The website will prompt you for the activation key. Enter the activation key and your site name, then click the proceed button.
11. The web store will have added your license to the shopping cart. Proceed through the checkout process.
12. After the checkout process has completed, in text console issue the command [UCMD:<program slot number> "RETRYAUTH"], or restart the program, and the module will attempt to contact the activation server for authentication. Once activated, the [module_authorized] will be high.

```
CP3>ucmd:1 "RETRYAUTH"
S-2.1: Retrying DoorBird authorization for all module instances, this may take a moment.
```

Figure 5 - RETRYAUTH Example

Once the module has been activated, its activation information is stored on the processor and will not need to reach the ControlWorks activation server to remain activated. Certain Crestron recovery procedures may clear the activation information and the module may need to reach out to check for activation. Should the Module require to reach out to the ControlWorks server, this process should occur automatically and be transparent as long as the processor has Internet access.

For VC-4 instances:

1. Ensure the DoorBird is connected to a network and can be reached by the Crestron processor.
2. Ensure the [reboot_finished] signal on the module is being latched high (not pulsed i.e. not using a STEPPER, MV, and not driven from an out* from a SR or equivalent) after boot. See the demo program for an example.

3. Ensure your VC4 instance has internet access.
4. Take note of the SIMPL program tag and load your program to VC4.
5. In a web browser open the ControlWorks Licensing page. The url is as follows:
[https://\[ip Address of VC4\]/VirtualControl/Rooms/\[Room ID\]/cws/\[program tag\]/ControlWorks](https://[ip Address of VC4]/VirtualControl/Rooms/[Room ID]/cws/[program tag]/ControlWorks)
6. Take note of the Activation Key in the Activation Info Column.

Symbol ID	Module Name	Status	Activation Info	Purchase URL	Refresh License
S-3.2:	Pentair IntelliCenter SIMPL Version 2.5.8210.18399	Module authorized from cached license file.	VC400155...	License	Refresh License
S-4.1:	DoorBird SIMPL Version 2.6.8210.18008	DoorBird Module was already authorized in trial mode and is now disabled.	VC400155...	License	Refresh License
S-4.2:	DoorBird SIMPL Version 2.6.8210.18008	DoorBird Module was already authorized in trial mode and is now disabled.	VC400155...	License	Refresh License
S-4.3:	DoorBird SIMPL Version 2.6.8210.18008	DoorBird Module was already authorized in trial mode and is now disabled.	VC400155...	License	Refresh License
S-4.4:	DoorBird SIMPL Version 2.6.8210.18008	DoorBird Module was already authorized in trial mode and is now disabled.	VC400155...	License	Refresh License

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13. Next click the Purchase URL link or browse to <https://store.controlworks.com/products/DoorBird-SIMPL-License>. The website will prompt you for the Activation Key and Site Name. Enter the Activation Key from the processor and a Site Name of your choosing (the Site Name is an aid for your future reference and to help speed support if required, but is not part of the license), then click the proceed button to go through the checkout process.
7. After the checkout process has completed, on the ControlWorks Licensing page, click "Refresh License" or restart the program, and the module will attempt to contact the activation server to retrieve its license. Once activated, the status on the Licensing page will reflect the current license status and the [module_authorized] signal will be high.

Once the module has activated its license, the license information is stored in the VC-4 filesystem and the module will not need to reach the ControlWorks activation server for any reason. If the file is deleted or moved, the module will automatically connect to the ControlWorks activation server to check for a license. Should the module require to reach out to the ControlWorks server to receive its license, this process will attempt to occur automatically and be transparent to the user as long as VC-4 has internet access.

Trial Period

To aid testing your programming before deployment, we are offering a complimentary trial period of 30 minutes; during this time the module is fully functional. This functionality only

works for systems that have an active Internet connection and are able to reach ControlWorks' activation servers.

When the [\[reboot_finished\]](#) signal is held high, the module will attempt to activate. If the module has not been previously activated and doesn't find a license when checking the activation server, the trial period will be enabled for 30 minutes. After 30 minutes, the module will attempt reactivation. If a license has been purchased, the module will retain full functionality; if a license has not been purchased the module will be disabled. If you are developing in a lab or staging environment, simply restart your program to restart the trial period.

To prevent abuse of this service, the total number of trial activations for any DoorBird/processor may be limited in ControlWorks sole discretion.

Module Application

Active Internet Connection

This module utilizes an online activation method and retrieves configuration files that are hosted on ControlWorks servers. While the module is not required to have an active connection to the internet as activation and configuration are stored on the processor, and communication with DoorBird is local, we recommend the Crestron processor having access to the internet to expedite activation and setup.

Locating devices on your LAN

There are a number ways to locate your DoorBird device on the LAN. DoorBird offers a device discovery using the iOS/Android app. Since the module requires [registering a new account on the door station](#), we will focus on using the mobile App which will be used later to create the necessary account.

Download the latest DoorBird iOS/Android App from your platform's App Store and install it on your mobile device. Using your mobile device and while connected to the same network and VLAN as the DoorBird device(s), launch the app. Select *Settings* (Gear Icon in the footer) -> *Administration* -> *Magnifying Glass* (Figure 6). The App will display a list of devices by MAC address, with their associated IP address (Figure 7).



Figure 7 - Successful Device Discovery Example

If you have multiple DoorBird devices on the same LAN, locate the Digital Passport that came with the devices. The Digital Passport contains the MAC address that you can use to associate the discovery results to real world devices.

Note that at this time, it is not possible to specify an IP Address in the DoorBird. ControlWorks recommends that a DHCP reservation be created for the DoorBird device.

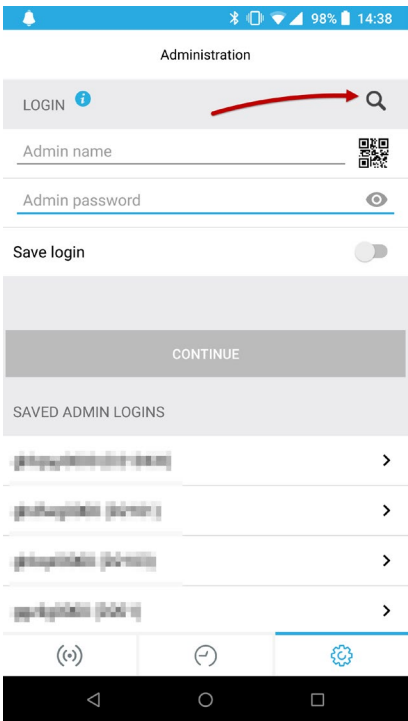


Figure 6 - Device Discovery
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DoorBird Usernames, Passwords, and Permissions

This Module uses an account that must be created on the DoorBird and which **does not exist by default** for control of the DoorBird. To create the account, using the DoorBird app Tap *Settings* (Gear Icon in the footer) -> *Administration* and login to the device using the administration account (found on the digital passport provided with the DoorBird). Once in the Administration view under the user heading, tap *Add* (figure 8), this will create a new account. Next, in the *Name (comment)* field, enter *Crestron* and take note of the Username and Password (figure 9).

Next tap *Permissions* and ensure all permissions are enabled with a checkmark. Once all the permissions have been set, press back then save (figure 10).

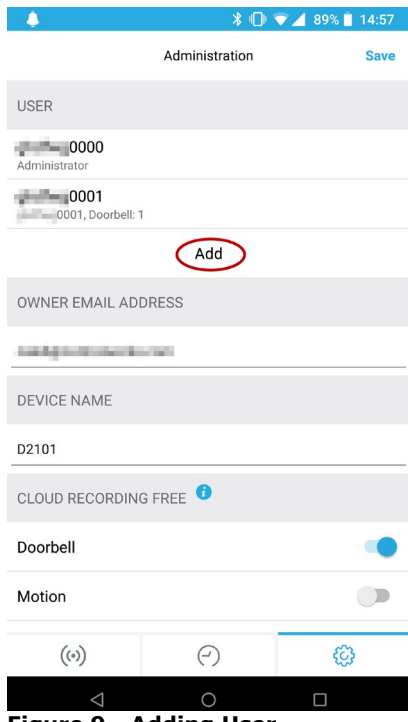


Figure 9 - Adding User

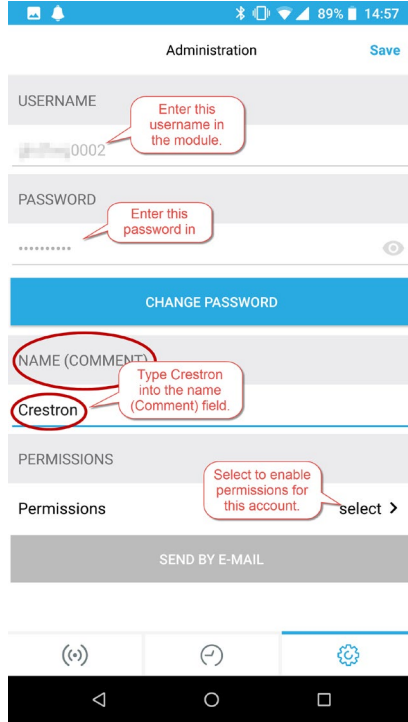


Figure 10 – Modifying Name (Comment) comment filed

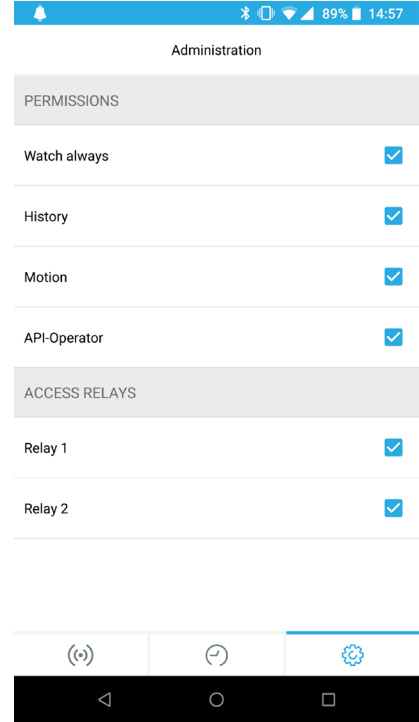


Figure 8 – Selecting Permissions

SIP Calling (RAVA Groups)

Crestron RAVA, and the DoorBird calling RAVA Groups is **not supported with this Module**, or by ControlWorks. At the time of writing this document, RAVA Group calling is supported on the D11 and the D1812. Please contact DoorBird for specific details or troubleshooting this feature.

Manual SIP Calling (not using RAVA Groups)

The DoorBird supports generic point to point SIP calls and works with Crestron touchpanels that support SIP in Peer to Peer Mode. Each SIP call automatically terminates 180 seconds after it was initiated, unless the touchpanel hangs up or you send the hang up command to the DoorBird via the module before this timeout occurs. The DoorBird supports only one SIP call across all devices at any time, including the DoorBird mobile app.

Calling the DoorBird

The DoorBird by default does not allow untrusted inbound calls. You can enable inbound calls, however you must specify the SIP user(s) that will be calling the door station. ControlWorks recommends that the DoorBird call the touchpanel as documented below, and does not provide support for inbound calls to the DoorBird.

DoorBird calling a touchpanel

In a typical application, the programmer should program the DoorBird to place a call to the desired touchpanel. This is done by sending the touchpanels SIP URI to the [number_to_dial\$] input, then by pulsing [dial] to initiate the call. The string should be in the format of SIP:<extension_number>@<ip_address or hostname>. The touchpanels SIP URI can be found on the TSW VOIP Reserved Joins device extender or in the RAVA setup screen (under the heading *Local Extension*).

To see all the settings for SIP on the DoorBird, you can browse to <http://<device-Address>/bha-api/sip.html> using the credentials you created in DoorBird Usernames, Passwords, and Permissions.

Note:

Testing has revealed that the DTMF PIN cannot be used with Crestron Touchpanels DTMF to open the door relay contact.

ControlWorks has been unable to establish a SIP call with the Crestron App on Android, and has not been able to reliably establish a SIP call with the Crestron App on iOS. As a result we do not currently support using the module to call a device running the Crestron App.

Subscription to DoorBird Events

The DoorBird provides unsolicited feedback for Doorbell Presses, Motion Sensors, RFID, Keypad and generic events. A single parameter (Notification Port Number) on the module provides the connection information so the DoorBird can contact the Crestron processor for an event.

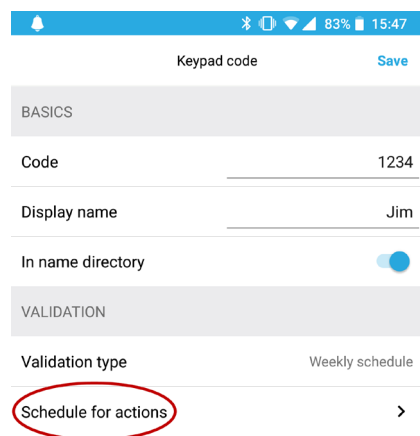
By default, ControlWorks uses port 9783 however this is an arbitrary port number and can be changed by changing the parameter on the Module. Care should be taken to ensure that this port is not in use by other devices or in other program slots. **If two or more DoorBird's modules are in use on a processor** (including in different program slots), **each module instance must be assigned a unique port number.**

If running this module on VC-4, you must create an inbound firewall exception to allow requests from the DoorBird to pass to the Crestron Program. These ports are defined on the Modules parameters [Notification Port Number](#) and [Live Image Port Number](#). Since each module in your program needs unique port numbers, care should be taken to review the settings on the module.

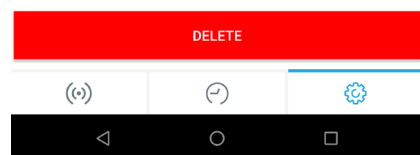
D21DKV/D21DKH Doorbell Events

The D21DKx devices does not have a physical doorbell button like most DoorBirds do. Each doorbell pressed event output on the module must be manually assigned to either the default bell button, or to a Keypad Code.

To assign events to Keypad Code, ensure the module has been loaded to the processor, and is either activated or running in trial mode. When the module detects a D21DKV or D21DKH, it will create 18 doorbell button links that correspond to [doorbell_buttonx_press_event_pulse](#) outputs that you will need to assign to a Keypad Code. In the DoorBird iOS/Android app, navigate to the administration settings of the device: *Settings (Gear Icon in the footer) -> Administration* and login to the device using the administration account (found on the digital passport provided with the DoorBird). Once in the Administration view under the heading *Keypad*, tap *Settings* (figure 11). Next select an existing Keypad Code, or add a Keypad Code. Select *Schedule for Actions* (figure 12).



Next tap the bell icon, and then tap the globe icon for HTTP Calls (figure 13). In the middle of the page next to globe icon, you will see text appear. Touch the text and select an event to select. Each ControlWorks_DoorBell1-18 correspond the digital doorbell pressed outputs on the module. Tap the desired event, then press the "toggle all times" button on the right to enable all times. Press back and save the schedule.



If a guest doesn't know a Keypad Code, they can press the physical bell button without selecting a user. In this case, the default bell action is used. An event can be assigned to the default bell and the process is similar. While in Administration and in the Keypad settings, create a Keypad Code to be used by the default bell button. Schedule the Keypad Code for an actions

(reference previous steps). Press back, and save the schedule. Back in Administration, navigate to the Keypad heading and select Default for bell. Assign the Keypad Code from the previous step to the bell. Each time a user presses only the bell button on the device, it will ring that Keypad Code, and will pulse in Crestron to the assigned doorbell output.

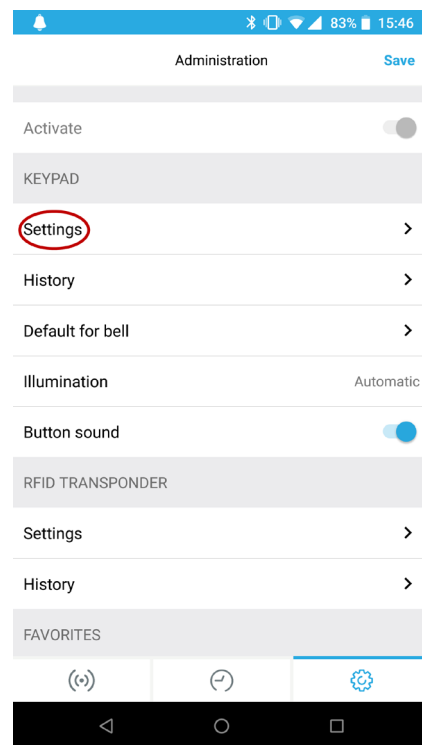
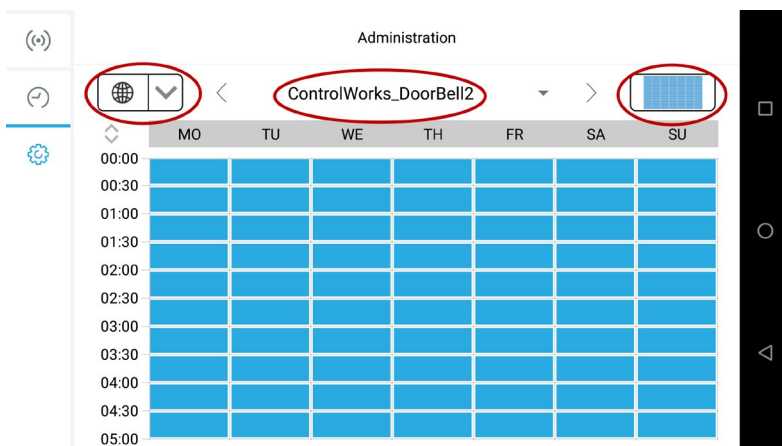


Figure 11 - Keypad Settings



Setup for RFID, Keypad, Fingerprint, and Generic Events

To monitor RFID, Keypad, Fingerprint, and Generic Events, ensure the module has been loaded to the processor, and is either activated or running in trial mode.

- When the module detects a DoorBird that supports one of these events, the module will create 20 favorites that correspond to digital outputs on the module.
 - Generic favorites are created for every device.

RFID Events

To assign a favorite to a RFID tag, navigate to the RFID Transponder settings in the app: *Settings* (Gear Icon in the footer) -> *Administration* and login to the device using the administration account (found on the digital passport provided with the DoorBird). *Scroll to RFID Transponder, select settings.*

- If no tags have been learned, refer to the DoorBird instructions on learning tags.
- Select a learned tag.
- Tap *Schedule for Actions* (figure 14).
- Next tap the bell icon, and tap the globe icon for HTTP Calls (figure 15). In the middle of the page next to globe icon, you will see text appear.
- Touch the text and select an event to select. Each ControlWorks_RFID1-20 correspond the RFID digital outputs on the module.
- Select the desired event, then press the "toggle all times" button on the right to enable all times. Press back and save the schedule.

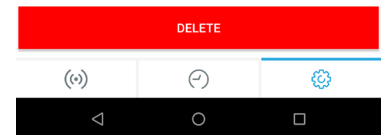
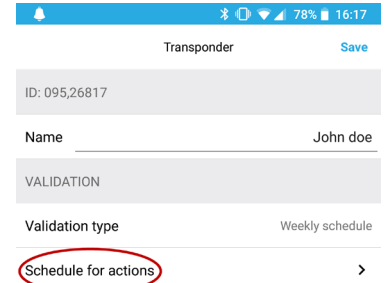


Figure 13 - Schedule for actions with an RFID tag

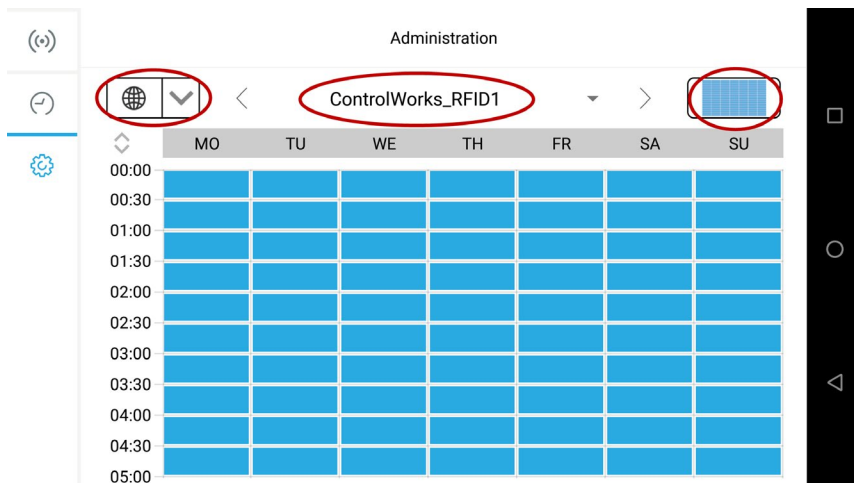
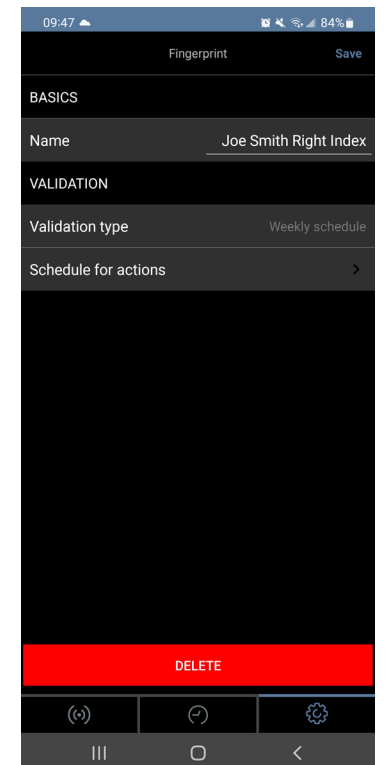


Figure 14 - Adding RFID Favorites to schedule for actions



Fingerprint Events

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To assign a favorite to a Fingerprint, navigate to the Fingerprint settings in the app: *Settings* (Gear Icon in the footer) -> *Administration* and login to the device using the administration account (found on the digital passport provided with the DoorBird). *Scroll to Fingerprint Reader, select settings.*

- If no fingerprints have been learned, refer to the DoorBird instructions on adding Fingerprints.
- Select a learned fingerprint.
- Tap *Schedule for Actions* (figure 16).
- Next tap the bell icon, and tap the globe icon for HTTP Calls (figure 17). In the middle of the page next to globe icon, you will see text appear.
- Touch the text and select an event to select. Each ControlWorks_Fingerprint1-20 correspond the Fingerprint digital outputs on the module.
- Select the desired favorite, then press the "toggle all times" button on the right to enable all times. Press back and save the schedule.

Figure 15 - Schedule for actions with a fingerprint

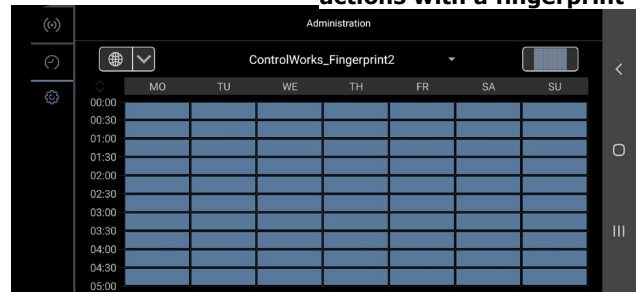


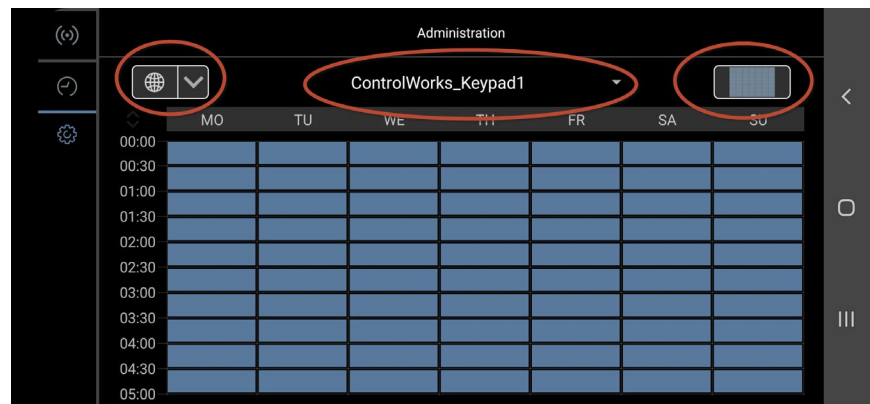
Figure 16 - Adding Fingerprint Favorites to schedule for actions

Keypad Events

To assign a favorite to a Keypad keycode, navigate to the Keypad settings in the app: *Settings* (Gear Icon in the footer) -> *Administration* and login to the device using the administration account (found on the digital passport provided with the DoorBird). *Scroll to Keypad, select settings.*

- If no keypad codes have been entered, refer to the DoorBird instructions on adding keypad codes.
- Select a keypad code.
- Tap *Schedule for Actions* (figure 16).
- Next tap the bell icon, and tap the globe icon for HTTP Calls. In the middle of the page next to globe icon, you will see text appear.

- Touch the text and select an event to select. Each ControlWorks_Keypad1-20 correspond the keypad digital outputs on the module.
- Select the desired favorite, then press the "toggle all times" button on the right to enable all times. Press back and save the schedule.



H.264 and MJPEG streams

Since each project is different, and every touchpanel works differently, please take some time and review the following information to help consider how best to implement your project with regards to streaming the DoorBird Camera.

Crestron has provided a best practices online help article (Answer ID 5195) for streaming video to touchpanels. https://support.crestron.com/app/answers/detail/a_id/5195/kw/streaming.

H.264: The DoorBird provides one H.264 stream, as well two MJPEG streams to view the live camera. The **H.264 stream only allows one concurrent stream at any given time**. Care should be taken to ensure that only one device is receiving the H.264 stream. The stream is a 1280x720, 720p HD Variable bit rate at 10FPS stream. These settings cannot be changed.

For convenience, optional module parameters have been provided to build an h.264 url for use when mobile projects are attempting to see the stream from the WAN. The URLs alone will not allow access to the stream and additional networking configuration will be needed. See the parameters section below for more detail. Note that SIP calls negotiate the RTP port, SIP calling is will likely not work outside the customer's LAN.

Note: At the time this document was written, ControlWorks was unable to view the H.264 stream on a TSW-1050, TSW-1052, and TSW-750, however TSW-X60, and TS-1542 touchpanels have been successfully tested.

MJPEG: The MJPEG stream is a 640x480 steam with an average of 8FPS. The MJPEG stream only allows two concurrent connections; care should be taken to ensure that **a maximum of two devices are receiving the MJPEG stream**. These settings cannot be changed.

For convenience, optional module parameters have been provided to build an h.264 url for use when mobile projects are attempting to see the stream from the WAN. The URLs alone will not allow access to the stream and additional networking configuration will likely be needed. See the parameters section below for more detail. Note that SIP calls negotiate the RTP port, SIP calling is will likely not work outside the customer's LAN.

Relays

The DoorBird does not provide feedback, nor does it provide discrete events to control the relays. The only option is to "activate" a relay. When pulsing the [\[activate_onboard_relayx\]](#) input, the DoorBird will perform the action as defined in the DoorBird App. If the relay was setup as a pulse, it will pulse. If it was setup as a latch, the latch will change states.

Live Image URL

ControlWorks recommends using the live image snapshot URL (with a dynamic graphics object) to show the user who is at the door at the time of an event, and only using the H.264 or MJPEG stream when needed at a specific panel, as illustrated in the demo program included with the module.

The Live Image URL is a url pointing to the processor, on the specified port as defined by the [Live Image Port Number parameter](#). By default, ControlWorks uses port 12280 however this is an arbitrary port number and can be changed by changing the parameter on the module. Care should be taken to ensure that this port is not in use by other devices or in other program slots. **If two or more DoorBird's modules are in use on a processor** (including in different program slots), **each module instance must be assigned a unique port number.**

If running this module on VC4, you must create an inbound firewall exception to allow inbound requests to pass to the Crestron Program.

DoorBird I/O Door Controller

As the DoorBird allows external relay controllers (DoorBird I/O Door Controller) we have provided an additional helper module. This gives the programmer the ability to control multiple external controllers associated with a single DoorBird device.

Setup is simple. All you need to know is the external relay controller's username (figure 16), what relays you want to control, and what DoorBird device is hosting the I/O Door Controller. To locate the username, using the DoorBird app tap *Settings* (Gear Icon in the footer) -> Administration and login to the device using the administration account (found on the digital passport provided with the DoorBird.). Once in the Administration view scroll to Peripherals and select Settings -> select the I/O Controller. In the header, the username will be listed.

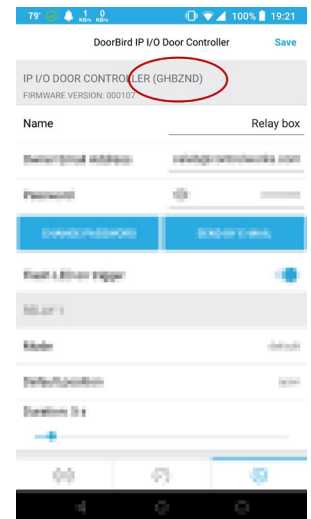


Figure 17 - Relay box username

Place the username in the Parameter "External Relay Box Username (without digits)" and connect the serial to the associated DoorBird device. From there, simply pulse the desired [\[activate_external_relayx\]](#) input on the module to activate the relay.

Running the Module in VC-4

This module is compatible with VC-4, however notifications and the live image feature will not function properly unless firewall exceptions are made to the VC-4 machine. Refer to [Live Image URL](#) and [Subscription to Doorbell presses](#) for more detail on the specific ports that need to be opened.

Programming Tips

- When attempting to retrieve the activation key, and if the module responds with "This instance of the ControlWorks DoorBird Module has not yet been activated. Additionally, required information from the DoorBird could not be obtained. Please check the processors error log for any additional information."
 - Check the processors error log for any errors pertaining to the module. If an error occurs during startup, it gets logged to the processors error log.
 - If the log entry is 401 Unauthorized, check the credentials entered into the module. Additionally refer to the DoorBird Usernames, Passwords, and Permissions section of this document.
- Since the DoorBird supports a very limited number of concurrent video streams (MJPEG allows 2 streams, while H.264 allows 1 stream), you should not have every panel request a stream when the door trigger notification occurs. Instead, use the `live_image_url$` to show the user who is at the door. The `live_image_url$` contains a dynamic graphic image of the camera at the time you request it. Once in a call, show the camera on the desired touchpanel using a video window.
- The DoorBird only supports 1 concurrent SIP call. This includes calls between the DoorBird and iOS and/or Android apps. If the module is unable to place a call because a call is already in progress, the `[sip_call_failed]` output on the module will be pulsed.
- If you're experiencing any difficulty with the module, take a look at the processors error log. The module uses the error log to record and communicate any issues to aid in troubleshooting. If the module was unable to perform an action, there should be a notice in the log.

MDU Applications

This Module will work in MDU applications where multiple Crestron processors need access to a single DoorBird. Note that communication with the DoorBird occurs on the local network and not over the Internet, so all Crestron Processors must be able to directly access the DoorBird, and the DoorBird must be able to directly access the Crestron processor using various TCP and UDP Ports.

An understanding of how DoorBird handles scheduling favorites is necessary for MDU operation. Please review the sections on [D21DKV/D21DKH Doorbell Events](#), [Setup for RFID, Keypad, Fingerprint, and Generic Events](#) as you will be required to follow those steps in each module deployment.

Functionality differences between MDU Unit ID's:

- A MDU Unit ID of 0d should be used in non-MDU applications where a single Crestron processor is the only Crestron processor communicating with a DoorBird device. This behavior is the same as prior versions of the module with the exception of updated favorite names.
- All modules with a MDU Unit ID that is not 0d will create favorites for doorbell buttons (multiple buttons for models that support up to 18), generic events, RFID events (if applicable), and fingerprint events (if applicable). All the favorites created will be labeled as CW-IDx_event_name (i.e. CW-ID0_DoorBell1)
- Modules with MDU Unit ID's 1d, 2d, and 3d will always attempt to attach themselves to a single button on a unit that supports multiple buttons (for example the D2103 supports 18 buttons, but comes with 3 on the faceplate). If a Driver with Unit ID 0d has already subscribed to the button, Drivers with MDU Unit ID's 1d, 2d, and 3d will always overwrite the existing subscription/schedule. (Note: A Driver with MDU Unit ID 0d will never overwrite an existing schedule)
- Modules with MDU Unit ID's 4d and greater will only create favorites on the DoorBird. It is up to the installing dealer to manually assign a favorite to a button/event.
- Module with MDU Unit ID greater than 0d and connected to MDU DoorBird Devices (such as a D21DKV or D21DKH that only support a keypad and LCD screen to navigate a directory) the module will only create favorites. It is up to the integrator to manually assign a favorite to a unit number on the device. Please review the sections on [D21DKV/D21DKH Doorbell Events](#), [Setup for RFID, Keypad, Fingerprint, and Generic Events](#) for help with assigning a favorite to keypad code.

Motion events are not available with any MDU Unit ID greater than 0d. Only Drivers with MDU Unit ID 0d will work with motion; configuring multiple Crestron processors to communicate with a single DoorBird with MDU Unit 0d is not supported.

Signal and Parameter Descriptions DoorBird_v2.8_(ControlWorks)

Bracketed signals such as "[signal_name]" are optional signals

DIGITAL INPUTS

reboot_finished(latch_high)	Latch this signal high after your reboot is complete. Module will attempt to activate when this input goes high. Do not use a 1 to drive this signal.
[activate_onboard_relayX]	Pulse to send the command to the DoorBird to activate the specified relay. The input is momentary, and the duration in which the input is held high has no bearing on how long the relay is energized. Additionally, if the relay is setup as a toggle, each pulse will change the relay position.
[light_on]	Pulse to turn the IR camera light on. The duration in which the signal is high has no bearing on how long the light is on. The light will automatically time out, and cannot be manually turned off.
[manual refresh_live_image]	Pulse to manually refresh the live image. This signal should typically not be used as the image is refreshed on motion and doorbell events, but in certain implementations, this may be needed.
[dial]	Pulse to have the DoorBird dial the SIP number on [number_to_dial\$].
[end_call]	Pulse to have the DoorBird terminate any SIP call in progress.
[reset_sip_settings]	Pulse to reset all the SIP settings on the DoorBird. This will clear out any SIP values, and hang up any ongoing call.
[query_sip_settings]	Pulse to query all SIP settings. After module activation, this will be done automatically.
[enable_sip]	Pulse or hold high to enable the SIP functions on the DoorBird. Can be triggered by a 1 on the input.
[disable_sip]	Pulse or hold high to disable the SIP functions on the DoorBird. Can be triggered by a 1 on the input.
[enable_dtmf]	Pulse or hold high to enable DTMF control of the door station. When in a call and DTMF is enabled. Will not work with DTMF from touchpanels. Please use one of the relays to trigger the door contact.
[disable_dtmf]	Pulse or hold high to disable DTMF control of the door station. Can be triggered by a 1 on the input.
[enable_anc]	Pulse to enable acoustic noise cancellation in the DoorBird. Can be triggered by a 1 on the input.
[disable_anc]	Pulse to disable acoustic noise cancellation in the DoorBird. Can be triggered by a 1 on the input.
[get_info]	pulse to query the version number and build number.

ANALOG INPUTS

[historical_image_1-50]	Initialize to update the dynamic graphic [historical_image_url\$] with the initialized value. Range is 1d-50d. "Cloud recording free" must be enabled in the DoorBird settings for this feature to work.
[microphone_volume]	Initialize after [module_authorized] is high. Range is 1d-100d. This input should be used with an Analog Initialize. Do not ramp the input.
[speaker_volume]	Initialize after [module_authorized] is high. Range is 1d-100d. This input should be used with an Analog Initialize. Do not ramp the input.
[notification_port_override]	Analog input to override the Notification Port parameter. Set this signal to a value and then latch [reboot_finished]. The program must be restarted if this value needs to be changed after setting it.
[use_host_name_or_ipaddress_Override]	Analog input to override the Use Host Name parameter. Set this signal to a value and then latch [reboot_finished]. The program must be restarted if this value needs to be changed after setting it.
[image_cgi_port_override]	Analog input to override the Live Image Port Number parameter. Set this signal to a value and then latch [reboot_finished]. The program must be restarted if this value needs to be changed after setting it.

SERIAL INPUTS

[number_to_dial\$]	Initialize the input to a SIP number to call. The string should be in the format of SIP:<extension_number>@<ip_address or hostname>. Once the string is initialized, pulsing [dial] will send the command to the DoorBird to dial the specified SIP number.
[from_optional_io_modules\$]	Tie to optional I/O module module, if in use.
[ip_address_or_hostname_override\$]	Serial string to override the IP Address or Hostname parameter. Set this string to a value and then latch [reboot_finished]. The program must be restarted if this value needs to be changed after setting it.
[doorbird_user_name_override\$]	Serial string to override the DoorBird Username parameter. Set this string to a value and then latch [reboot_finished]. The program must be restarted if this value needs to be changed after setting it.
[doorbird_password_override\$]	Serial string to override the DoorBird Password parameter. Set this string to a value and then latch [reboot_finished]. The program must be restarted if this value needs to be changed after setting it.

DIGITAL OUTPUTS

[module_authorized_fb]	Latched high after the module is authorized. The module will not function if this output is low.
[module_in_trial_mode_fb]	Latched high when the module is authorized for trial mode.
[sip_call_failed]	Pulsed high if the Door Station returns "503 Service Unavailable" when a call is attempted. Also a user event notice is logged in the error log when this occurs.
[sip_enabled_fb]	Latched high if SIP is enabled.
[sip_disabled_fb]	Latched high if SIP is disabled.
[dtmf_enabled_fb]	Latched high if DTMF is enabled.
[dtmf_disabled_fb]	Latched high if DTMF is disabled.
[anc_enabled_fb]	Latched high if acoustic noise cancellation is enabled.
[anc_disabled_fb]	Latched high if acoustic noise cancellation is disabled.
[motionsensor_event_pulse]	Pulsed high when the DoorBird detects motion.
[doorbell_buttonx_press_event_pulse]	Pulsed high when the DoorBird detects a doorbell press.
[rfid_eventx_pulse]	Pulsed high when the module detects an RFID event.
[generic_eventx_pulse]	Pulsed high when the module detects an generic event.
[fingerprint_eventx_pulse]	Pulsed high when the module detects an fingerprint event.

ANALOG OUTPUTS

[microphone_volume_fb]	Indicates the current microphone volume. Range is 1-100d.
[speaker_volume_fb]	Indicates the current speaker volume. Range is 1-100d
[last_error_code]	Indicates the most recent SIP registration status code. 200 if everything is ok, 401 authentication failure, 402 if SIP function is not licensed (previous versions of firmware) 503 if there is was call currently in progress.
[number_of_relays]	Indicates the total number of relays assigned to this device.

SERIAL OUTPUTS

[mjpg_stream_url\$]	String URL for a MJPEG stream.
[live_image_url\$]	String URL for a current image snapshot of the camera. Use with a dynamic graphic object.
[rtsp_url\$]	String URL for the h.264 stream. DoorBird only supports one concurrent stream.
[historical_image_url\$]	String URL for a historical image. Initializing [historical_image_1-50] will update the URL. "Cloud recording free" must be enabled in the DoorBird settings for this feature to work.
[mjpeg_stream_WAN_url\$]	String url containing
[last_error_fb\$]	reports the last error text as provided by the door station.
[build_number_fb\$]	String indicating the build number of the DoorBird
[version_number_fb\$]	Indicates the current firmware version number
[mac_address_fb\$]	String indicating the DoorBird Wireless MAC Address.
[device_type_fb\$]	String indicating the DoorBird device type.

PARAMETERS

IP Address or Hostname.....	Enter the DoorBird's IP address or hostname.
DoorBird Username	Enter the SIP account username.
DoorBird Password	Enter the SIP account password.
Notification Port Number	Enter a port number the DoorBird should send notifications on. ControlWorks uses 9783 as a default, but can be any port number. If you are using two or more DoorBird modules in your program, the port numbers must be unique to each module. The value must be between 1024 and 65535. Note that if using this Module in VC4, an inbound firewall exception will need to be created.
Number of Doorbell Buttons	Enter the maximum number of doorbell buttons on the device you are controlling. This value determines how many doorbell button subscriptions are created, and provides math to provide accurate [event_doorbell_subscribed_fb] .
Use IP Address or Hostname for Notifications.....	0 for IP Addresses, 1 for Hostnames. This parameter is used to setup subscriptions using the processors host name or the processors IP address. If there is no name server that can resolve the processor's host name, use 0d.
Project WAN Hostname(Optional)	Optionally, you may enter the projects hostname. This is used when building the [mjpeg_stream_WAN_url\$] and [rtsp_WAN_url\$]. Do not include the port number. Example: projectname.mycrestron.com.
MJPEG WAN Port Number(Optional).....	Optionally, you may enter the MJPEG port number used to externally to access the MJPEG stream as a string. This is used when building [mjpeg_stream_WAN_url\$] Example: 90
RTSP WAN Port Number(Optional).....	Optionally, you may enter the RTSP port number used to externally to access the RTSP stream as a string. This is used when building [rtsp_WAN_url\$] Example: 555
Live Image Port Number	Enter a port number for the processor to host the live image on. ControlWorks uses 12280 as a default, but can be any port number not in use on the processor. If you are using two or more DoorBird modules in your program, the port numbers must be unique to each module. The value must be between 1024 and 65535. Note that if using this Module in VC4, an inbound firewall exception will need to be created.
MDU Unit ID	Integer defining the unit ID. A MDU Unit ID of 0d should be used in non-MDU applications where a single Crestron processor is communicating with a DoorBird device. Changing this value significantly changes the operation of the module. If using the module in a MDU application, please review the MDU Applications section of this help file.

Signal and Parameter Descriptions DoorBird_ External_Relays_v2.0_(ControlWorks)

Bracketed signals such as "[signal_name]" are optional signals

DIGITAL INPUTS

[activate_external_relayx] Pulse to send the command to the DoorBird to activate the specified relay. The input is momentary, and the duration in which the input is held high has no bearing on how long the relay is energized. Additionally, if the relay is setup as a toggle, each pulse will change the relay position.

ANALOG INPUTS

This module does not use any Analog Inputs.

SERIAL INPUTS

This module does not use any Serial Inputs.

DIGITAL OUTPUTS

This module does not use any Digital Outputs.

ANALOG OUTPUTS

This module does not use any Analog Outputs.

SERIAL OUTPUTS

[to_main_doorbird_module] Tie to [from_optional_io_modules\$] that the DoorBird I/O Controller is associated with.

PARAMETERS

External Relay Box Username (without digits) Enter the I/O Controllers user name as defined in the DoorBird app. The username should not include digits.

Support

This Module is supported by ControlWorks Consulting, LLC. Should you need support for this Module you may email us at support@controlworks.com or call us at:

- (+1) 440 449 1100 (Cleveland, Ohio)
- (+1) 508 695 0188 (Boston, Massachusetts)
- (+1) 202 381 9070 (Washington, DC)
- (+44) (0)20 4520 4600 (London, England)

ControlWorks normal office hours are 9 AM to 5 PM US Eastern time, Monday through Friday, excluding holidays.

Before calling for support, please ensure that you have loaded and tested operation using the included demonstration program and touchpanel(s) to ensure that you understand the correct operation of the module. It may be difficult for ControlWorks to provide support until the demonstration program is loaded.

Updates

Updates, when available, are automatically distributed via email notification to the address entered when the module was downloaded or license purchased. In addition, updates may be obtained using your username and password at <https://store.controlworks.com/account/login.aspx>.

Distribution Package Contents

The distribution package for this module should include:

DoorBird_V2.8_(ControlWorks).smw	Demonstration Program
DoorBird_V2.8_(ControlWorks).umc	Main User Module
DoorBird_Engine_v2.8_(ControlWorks).usp	SIMPL+ for use inside main module
DoorBird_Engine_v2.8_(ControlWorks).ush	SIMPL+ header file, for use inside main module
DoorBirdEngine.clz	SIMPL# module for use in SIMPL+
DoorBird_V2.8_(ControlWorks).vtp	Demonstration Touchpanel file
DoorBird_v2.8_(ControlWorks)_Help.pdf	This help file.

Revision History

V2.9 caleb@controlworks.com 2025.10.2

- Help file updates for RAVA Group Calling.
- Added serial input for user name override on external relays module.

V2.8 caleb@controlworks.com 2022.11.09

- Update for using the Driver in an MDU application. Refer to [MDU Applications](#) for operational differences.

V2.7 caleb@controlworks.com 2022.11.09

- Support for A1121 Keypads.
- General housekeeping and cleanup from previous versions.
- Added CLZ version validation, module won't start if it finds an old CLZ.
- Added methods to manually override all the parameter properties if desired.
- Update store URLs, including adding URLs to GETACTIVATIONINFO to populate the key on the store page when purchasing a license.
- Bug fix for fingerprint events not pulsing.

V2.6.1 caleb@controlworks.com 2022.08.01

- Fixed internal URL issue.

V2.6 caleb@controlworks.com 2022.07.26

- Added VC4 licensing support.
- Added the ability to manually refresh the live image.

V2.5 caleb@controlworks.com 2021.06.01 – not released

- Added Fingerprint and Generic Events

V2.4 caleb@controlworks.com 2020.09.17

- Resolved issue raised by DoorBird Engineering - multiple requests to live image url causing DoorBird performance issues. Added Live Image Proxy server. Processor now stores the live image on the processor in RAM. Touchpanels should retrieve the image from the processor instead of DoorBird.
- Added automatic license validation retry for sites that experience power loss, and when power is restored, the module is running before the DoorBird is reachable causing authorization to fail. Module will retry up to five times, over five minutes.

V2.3 caleb@controlworks.com 2020.07.28

- Recompile for Crestron's Newtonsoft Database 200 breaking change.

V2.2 caleb@controlworks.com 2019.07.19

- Bug fix for improperly formatting the attributes url.

V2.1 caleb@controlworks.com 2019.06.19

- Fix for module removing manually entered schedules.
- Requests for WAN urls for RTSP and MJPEG streams.

V2.0 caleb@controlworks.com 2018.10.16

- Support for D21DKx devices.
- Support for D10x,D20x devices.
- Added support for retrieving device configuration files from ControlWorks server.
- Deprecated DoorBird_V1.4_(ControlWorks).umc family of modules.
- Added support for RFID Events

V1.1 caleb@controlworks.com 2018.07.11

- Fixed an issue where users would run the module for the first time, and not receive any motion or button press events. This was due to a firmware change on the DoorBird.

V1.0 caleb@controlworks.com 2018.05.09

- Initial release

Development Environment

This module version was developed on the following hardware and software. Different versions of hardware or software may or may not operate properly. If you have questions, please contact us.

Manufacturer Hardware	Software Version
D201	115
D2101	115
D2103	116
D21DKH	116
Crestron Hardware	Firmware Version
Crestron AV3 Processor	v1.601.3935.27221
CP3	v1.8001.4925.26115
TSW-1052	v1.003.0020
TSW-1060	v1.002.0031
Software	Software Version
SIMPL Windows	4.20
Vision Tools Pro-e	6.0.07
Smart Graphics Controls	2.09.06.01
Crestron Database	215.00
Device Database	200.230

ControlWorks Consulting, LLC Module Instance License Agreement

Definitions:

ControlWorks, *We*, and *Us* refer to ControlWorks Consulting, LLC, with headquarters located at 8228 Mayfield Road Suite 6B Rear, Chesterland, Ohio 44026. *You* and *Dealer* refer to the entity purchasing the module. *Client* and *End User* refer to the person or entity for whom the Crestron hardware is being installed and/or will utilize the installed system. *System* refers to all components described herein as well as other components, services, or utilities required to achieve the functionality described herein. Module Instance License refers to a module license that is granted to a specific combination of a Crestron Processor and a single controlled device (for example, based on the respective serial numbers); a separate Module Instance License must be purchased for each such combination. *Module* refers to files required to implement the functionality provided by the module and may include source files with extensions such as UMC, USP, SMW and VTP. *Demo Program* refers to a group of files used to demonstrate the capabilities of the Module, for example a SIMPL Windows program and VisionTools Touchpanel file(s) illustrating the use of the Module but not including the Module. *Software* refers to the Module and the Demo Program.

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Provision of Support

We provide limited levels of technical support only for the most recent version of the Module as determined by Us. We do not provide support for previous version of the module, modifications to the module not made by Us, to persons who have not purchased the module from Us. In addition, we may decline to provide support if the Demo Program has not been utilized. We may withdraw a module from sale and discontinue providing support at any time and for any reason, including, for example, if the equipment for which the Module is written is discontinued or substantially modified. The remainder of your rights and obligations pursuant to this license will not be affected should ControlWorks discontinue support for a module.

Modification of Software

You may not decrypt (if encrypted), reverse engineer, modify, translate, disassemble, or de-compile the Module in whole or part. Any modifications to the Module shall immediately terminate any licenses purchased with respect thereto. You may, however, modify the Demo Program. In no event will ControlWorks Consulting, LLC be liable for direct, indirect, incidental or consequential damages resulting from You modifying the Software in any manner.

Indemnification/Hold Harmless

ControlWorks, in its sole and absolute discretion may refuse to provide support for the application of the Module in such a manner that We feel has the potential for property damage, or physical injury to any person. Dealer shall indemnify and hold harmless ControlWorks Consulting LLC, its employees, agents, and owners from any and all liability, including direct, indirect, and consequential damages, including but not limited to personal injury, property damage, or lost profits which may result from the operation of a program containing a ControlWorks Consulting, LLC Module or any component thereof.

License Grant

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