



# ZOOM ROOM CONTROLS

Crestron Electronics, Inc.

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## REVISION HISTORY

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Version	Date	Comments	Author
1.0.0	11/25/2020	Initial release	Casey Martineau John Pickrell
1.0.1	03/01/2021	Changed help file by adding best practices handling when creating program using these modules	John Pickrell
1.1.0	04/20/2024	Added all remaining events available	Manish Lad

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# 1 OVERVIEW

The main module must exist in the program to use the Zoom Room Control modules.

Each main module represents a single Zoom Room. The module will generate a configuration that must be given to the Zoom Room.

All events that occur within this module are momentary pulses from the Zoom Room. Should the application require these event states to persist, it is up to the application program to allocate and assign the memory needed to make that happen. This is not done within the Zoom module.

The configuration file will be written as quickly as possible after a change to the control modules. The amount of time needed to create the file depends on the processor used. This module has an output signal that will indicate when the config file is actually ready. The file name of the configuration file will be in the format of:

P{appID}\_Crestron\_ZoomRoomControls\_{mainModuleID}.txt

Example for Slot1, ID 5:

P1\_Crestron\_ZoomRoomControls\_5.txt

The default directory this file will be placed is \HTML\. This directory can be changed with an input and property on the main module.

The configuration file will include a section called "Crestron Events." This is included to handle all of the events that can occur from the Zoom Room for room functionality.

## Meeting Events

- MeetingStarted
- MeetingStopped
- MeetingRingStarted
- MeetingRingStopped

## Phone Events

- PhoneRingStarted
- PhoneRingStopped
- PhoneCallStarted
- PhoneCallStopped

## In-Meeting Events

- VideoStarted
- VideoStopped
- MicsMuted

- MicsUnmuted
- WirelessSharingStarted
- WirelessSharingStopped
- HDMISharingStarted
- HDMISharingStopped
- RecordingStarted
- RecoringStopped
- MeetingElevated

#### Pairing Events

- UserPaired
- UserUnpaired

#### Digital Signage Events

- DigitalSignageStarted
- DigitalSignageStopped

#### Whiteboarding Events

- WhiteboardingStarted
- WhiteboardingStopped

#### Admin Events

- OperationTimeStarted
- OperationTimeStopped
- PeopleDetected
- PeopleNotDetected
- VoiceCommandsOn
- VoiceCommandsOff
- ZoomAppOpened
- ZoomAppClosed

These events are included so that the programmer can indicate the meeting status on the Crestron UI connected to the control system. The panel does not have anything on it from the user perspective except the label "Crestron Events."



Crestron Events

This must be included in order to connect the basic events to the main control system. There may be a time where the control system is not showing a connection to the zoom room controls. There will be a "Retry" button on all unconnected controls. This may also include the Crestron Events box. The connection is required to the Zoom room can report the basic status of the room during a meeting.

## 2 MAIN MODULE

### 2.1 INPUTS

Name	Type	Description
Custom_Filepath	S	Custom filepath used by the module to store the configuration file. This is only used if the UseCustomFilepath parameter is set to True.  Example custom filepath: "\\html\\customDirectory\\"
Start_Server	D	Starts all internal TCPServer instances on a rising edge.  The driver uses these to listen for events from the Zoom Room.
Stop_Server	D	Stops all internal TCPServer instances on a rising edge.  The driver will not be able to receive feedback until the servers are started again. The Zoom Room UI will show that there is no communication occurring.
Enable_Logging	D	Driver will log to console while this signal is high.

## 2.2 OUTPUTS

Name	Type	Description
Config_File_Is_Ready	D	High (1) when the config file has completed writing to the html directory of the current processor.
Server_Is_Running	D	High (1) if the TCPServer instances are listening for connections.  This only keeps track of the hidden "Crestron" group used for event handling.
Zoom_Is_Connected	D	High (1) if the Zoom Room has an active connection with the TCPServer instance.
Meeting_Has_Started	D	Pulsed when a meeting has started.
Meeting_Has_Ended	D	Pulsed when a meeting has ended
Meeting_Ring_Has_Started	D	Pulsed when a meeting request has started.
Meeting_Ring_Has_Ended	D	Pulsed when a meeting request has ended.
Phone_Ring_Has_Started	D	Pulsed when there is an incoming phone call.
Phone_Ring_Has_Ended	D	Pulsed when an incoming phone call request has ended.
Phone_Call_Has_Started	D	Pulsed when a phone call has started.
Phone_Call_Has_Ended	D	Pulsed when a phone call has ended.
Microphone_Is_Muted	D	Pulsed when the room microphone is muted.
Microphone_Is_Unmuted	D	Pulsed when the room microphone is unmuted.
Video_Has_Started	D	Pulsed when video has started.
Video_Has_Stopped	D	Pulsed when video has stopped.
Wireless_Sharing_Has_Started	D	Pulsed when wireless sharing has started.

Wireless_Sharing_Has_Ended	D	Pulsed when wireless sharing has ended.
HDMI_Sharing_Started	D	Pulsed when HDMI sharing has started.
HDMI_Sharing_Started	D	Pulsed when HDMI sharing has ended.
Recording_Has_Started	D	Pulsed when recording has started,
Recording_Has_Ended	D	Pulsed when recording has ended.
Meeting_Has_Been_Elevated	D	Pulsed when meeting has been elevated to include video.
User_Has_Paired	D	Pulsed when user pairs with meeting.
User_Has_Unpaired	D	Pulsed when user unpairs with meeting.
Digital_Signage_Has_Started	D	Pulsed when digital signage has started.
Digital_Signage_Has_Ended	D	Pulsed when digital signage has ended.
Whiteboarding_Has_Started	D	Pulsed when whiteboarding has started.
Whiteboarding_Has_Ended	D	Pulsed when whiteboarding has ended.
Operation_Time_Has_Started	D	Pulsed when operation time has started.
Operation_Time_Has_Started	D	Pulsed when operation time has ended.
People_Detected	D	Pulsed when people detected.
People_Not_Detected	D	Pulsed when people not detected.
Voice_Commands_Are_On	D	Pulsed when voice commands are turned on.
Voice_Commands_Are_Off	D	Pulsed when voice commands are turned off.
Zoom_App_Is_Open	D	Pulsed when Zoom app is opened.
Zoom_App_Is_Closed	D	Pulsed when Zoom app is closed.

Logging_Is_Enabled	D	High (1) if logging is enabled.

## 2.3 PROPERTIES

Name	Type	Description
ZoomConnectionStartPort	A	<p>This will be used as the first available port to the driver. Each control module will start its own TCP Server instance with this value plus an offset. No two or more control modules or main modules may share ports.</p> <p>For example, if there is one main module with a start port of 5000 and 5 control modules, then the ports in-use will be: 5000, 5001, 5002, 5003, 5004, 5005 You may choose any port numbers that you want provided they do not overlap or step on other ports used within the program and that those ports are not reserved for use with standard ethernet communication.</p> <p>Two or more main modules may not share the same start port, nor should they allow any overlap.</p>
UseCustomFilepath	A	Set to True (1d) if a custom filepath should be used for saving the configuration file.
Ethernet Adapter	A	Ethernet adapter index on the processor that should be used for getting IP Address / Hostname information.
Unique ID	S	<p>A unique identifier for this module.</p> <p>All control modules associated with this Zoom Room must specify this ID to link to this module.</p>

### 3 CONTROL MODULE

The Control module is the direct interface to the connected equipment in the Crestron Control system. Regardless of how the equipment is connected to the control system, all zoom adapters will be ethernet based and will have a unique port number sequentially assigned based on the Main Module port number. These ports must also be available when deciding on which port numbers to use. The program will receive a pulse from the module based on the button definitions and button groups assigned to this control module. It is up to the program developer to route these signals to the appropriate equipment definitions in the Simpl Windows program. Remember, ramping signals are not handled from the Zoom application the way Simpl programmers are accustomed to. Accommodation must be made in the Simpl Windows program to handle this use case.

Important things to know:

When we define the methods the zoom application will use to send the Simpl Windows program the events, we use a dot syntax in our definitions. These "methods" use the label name as the name of our method followed by ".SomeFunction". You cannot include a "period" at the end of your label name when defining your Control Groups or Button Groups or this will break that section of the UI that Zoom will create. The module will scrape out any periods that break the rules for these 2 fields but not for button labels. Only [0 – 9][a – z][A – Z] as well as space, dash and underscore are acceptable for Control Group or Button Group Labels. It is preferable that the programmer not use any "periods" at the end of any strings fed into the Zoom control modules as this could have an adverse affect on many elements within the json file.

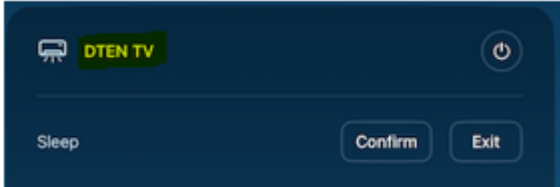
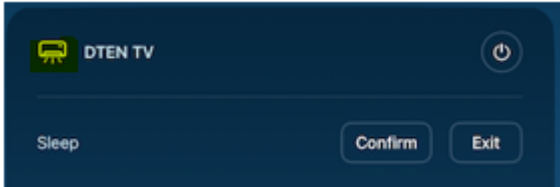
You cannot define a "Blank" button with this application. In order for there to be a button control added to the JSON, there must be a Button Group defined and there must be either a button label or an Icon defined or both. If you choose to set your icon as "none", the button must have a label in order to be added to the file. The "none" icon is not an official Zoom icon and is used by Crestron in circumstances when creating the JSON.

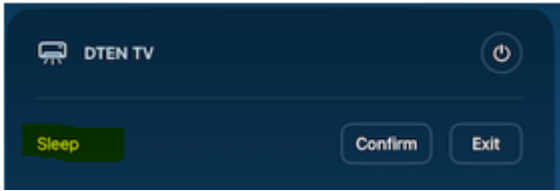
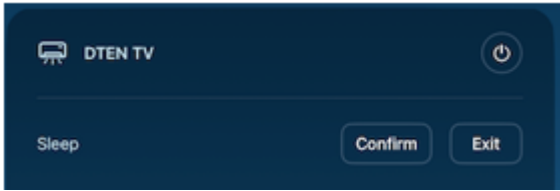
Zoom only sends "pulses" back to the Crestron control system. Additionally, the event only occurs on the release of the Zoom button. A press and hold will not do anything for the control system. Only the release of the Zoom button will trigger the event. Make sure that the end user has an understanding of this to avoid any confusion. This is how Zoom currently works. There may be a update sometime in the future but it will not come from Crestron.

Feedback from the equipment to Zoom has not been implemented in this version of the Zoom control. Future updates may include feedback options as they become available.

When triggering the InitializeGroup signal, please note that the json will be built in the order that the control modules are initialized. Depending on the processor, you should consider spacing out the initializations by 5t to 10t using a stepper symbol. This will allow the driver to queue up all command groups in the proper order. If you place a '1' in the InitializeGroup signals, the json could be ordered differently. Placing a '1' is not considered best practice in this case.

### 3.1 INPUTS

Name	Type	Description
InitializeGroup	D	Signal used to add the group to the json
ControlsGroupLabel	S	<p>The label that should be used in the Zoom UI for this control group. No 'periods' are acceptable in this label. Only [0 – 9][a – z][A – Z] as well as space, dash and underscore are acceptable in this field.</p> <p>Highlighted below is a label of "DTEN TV":</p> 
ControlsGroupIcon	S	<p>The icon that should be used in the Zoom UI for this control group.</p> <p>See section 3.4 for a list of supported icons.</p> <p>Highlighted below is the icon "Projector":</p> 
ButtonGroup[n]Label	S	The label that should be used for a group that belongs to this control group. No 'periods' are acceptable in this label. Only [0 – 9][a – z][A – Z] as well as space, dash and underscore are acceptable in this field.

		<p>Highlighted below is the group label "Sleep":</p> 
ButtonGroup[n]Icon	S	<p>The icon that should be used for a group that belongs to this control group.</p> <p>See section 3.4 for a list of supported icons.</p>
Button[n]Group	A	<p>The group this button belongs to. If the button should belong to the control group and not an individual group, then this signal must be set to 100d. If this is for an individual group, then that group's index must be used. Buttons must belong to a group/control group.</p> <p>In the image below the Power button belongs to the control group and Confirm/Exit are buttons that belong to the Sleep group:</p>  <p>While the driver will automatically set certain styles such as defining the main_method on each control group, these may be changed by the user if other styles are required. Refer to the Zoom Room Controls documentation for information on how the configuration file is formatted.</p>
Button[n]Label	S	<p>The label that should be used for a button.</p> <p>The driver will attempt to format the label/icon and use it as a unique identifier, therefore no group or control group may</p>

		have multiple buttons with the same label and/or icon.
Button[n]Icon	S	The icon that should be used for a button. See section 3.4 for a list of supported icons.

### 3.2 OUTPUTS

Name	Type	Description
Connected_To_Main_Module	D	High (1) if this control module has successfully registered with the main module.  If this is not high, then the main module ID specified may be incorrect.
Button_[n]_Press	D	Pulsed when a button is pressed on the Zoom Room UI.

### 3.3 PROPERTIES

Name	Type	Description
MainModuleID	S	The ID of the main module that this control group belongs to.
ControlModuleID	S	A unique identifier for this control module.  This is used internally to identify this as a control group. No two control modules may share the same ID.

### 3.4 MINIMUM FIRMWARE REQUIREMENTS

4 Series: v2.4474.00017

3 Series: v1.603.4298.29856

### 3.5 VALID ICON VALUES

- none (used to indicate that no icon will be used but a button label is required)
- icon\_air\_conditioner
- icon\_cable\_tv
- icon\_ceiling\_mic
- icon\_curtain
- icon\_dvd\_player
- icon\_game\_console
- icon\_hdmi
- icon\_laptop
- icon\_light
- icon\_projector
- icon\_satellite\_dish
- icon\_speaker
- icon\_speakerphone
- icon\_tv
- icon\_power
- icon\_up
- icon\_down
- icon\_cold
- icon\_hot
- icon\_dry
- icon\_wind
- icon\_rack\_equipment

Current icons supports by Zoom Rooms can be found in <https://support.zoom.us/hc/en-us/articles/360033716572>

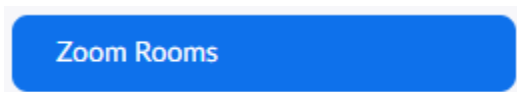
## 4 ZOOM ROOM CONFIGURATION

Once the control system generates the Zoom Room Controls configuration data, it must be manually copied to your Zoom Room.

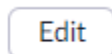
1. Copy the JSON data to your computer clipboard. This can be accomplished using either of the following methods. By default, the control system generates a text file in the HTML folder of the control system.
  - a. Use Toolbox File Manager or an FTP application to transfer the configuration file to your computer, where it can be opened using a text editor and the data copied to the clipboard.
  - b. Use a web browser and enter the path to the text file. Then, copy the data to the clipboard.

I.E. If the program is running in Slot-1 and the Main Module Id is 5. The URL would be [http://P1\\_Crestron\\_ZoomRoomControls\\_5.txt](http://P1_Crestron_ZoomRoomControls_5.txt).

2. Log into your Zoom Room account at <https://zoom.us/signin>.
3. Select the "Zoom Rooms" menu.



4. Locate the correct room and click "Edit".



5. Select "Devices" from the menu.

Basic

Setup

Phone Integration

**Devices**


Control System API

Device Management

Communications Content  
Storage Location

6. Scroll down until you find "Enable Room Controls" and enable the control.

Enable Room Controls

When enabled, you can create a configuration profile to add outgoing IP control messages from Zoom Room to control external devices using the Zoom Room Controller. [Learn More](#) 



7. Click "Edit Profile" and paste-in the data generated by the control system.

[Edit Profile](#)

Ensure you clear out any existing data before pasting new/updated data into the profile window.

8. Click "Save". It may take up to 1-2 minutes before the Zoom Room Control application is updated.