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Product Manual

Crestron® Control App for Zoom Rooms® Software

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Overview

The Crestron® Control App for Zoom Rooms® Software allows custom user interfaces to be added to the Zoom Rooms controller application using [Crestron HTML5 User Interface](#) and [Crestron Construct™](#) technologies. The app enables custom control logic and third-party device support for the Zoom Rooms controller application, providing a tailored Zoom Rooms user experience that fits the specific needs of an enterprise.

The Crestron Control App for Zoom Rooms is compatible with supported [Crestron Flex for Zoom Rooms solutions](#) when paired with a compatible 3-Series®, [4-Series®](#) or [Crestron Virtual Control \(VC-4\)](#) control system^{1,2}. The associated program is loaded to a program slot (3-Series and 4-Series control systems) or room (Crestron Virtual Control), allowing multiple Zoom Rooms systems to be hosted on a single control system³.

The app is available in the [Zoom® App Marketplace](#) and must be deployed via the Zoom Portal. For more information, refer to [Deployment on page 3](#).

Notes:

1. Refer to Specifications for supported Crestron® control systems and Zoom Rooms® system components. The control system must be connected to the internet to deploy and run the app.
2. The MC3 and TPCS-4SM control systems are not compatible with the Crestron Control App for Zoom Rooms.
3. Certain 3-Series® and 4-Series® control systems ship with one program slot enabled by default. Up to 10 simultaneous programs can be run on these control systems by enabling Modular Programming Architecture (MPA), which requires the purchase of one [SW-RMC3-10PROG](#) license.

Specifications

Refer to the following product specifications for the Crestron® Control App for Zoom Rooms® Software.

Product Specifications

Minimum Requirements

Crestron® Control System	3-Series® control system, firmware version 1.8001.0251 or greater ² ; 4-Series® control system, firmware version 2.8001.00095 or greater; Crestron Virtual Control (VC-4), software version 4.0002.00039 or greater
Zoom Rooms® System	Software version 5.16.5 or higher; TS/TSW-1070 series or Crestron Flex Mini Tabletop conference device; Compatible with select third-party Zoom Rooms controllers
Crestron HTML5 User Interface	SDK version 2.7 or higher
Embedded ZRC Web Browser	Chromium version 98 or higher

Notes:

1. Refer to Specifications for supported Crestron® control systems and Zoom Rooms® system components. The control system must be connected to the internet to deploy and run the app.
2. The MC3 and TPCS-4SM control systems are not compatible with the Crestron Control App for Zoom Rooms.
3. Certain 3-Series® and 4-Series® control systems ship with one program slot enabled by default. Up to 10 simultaneous programs can be run on these control systems by enabling Modular Programming Architecture (MPA), which requires the purchase of one [SW-RMC3-10PROG](#) license.

Deployment

Use the following procedures to deploy Crestron® control for a Zoom Rooms® software solution.

NOTE: Crestron recommends turning off (or not using) the page flip project when the Zoom Rooms app is used with Crestron control.

Prerequisites

Ensure the following prerequisites are met prior to deployment.

- Crestron control system with minimum firmware version
 - 3-Series® control system: 1.8001.0251
 - The MC3 and TPCS-4SM are not compatible with the Crestron Control App for Zoom Rooms.
 - 4-Series® control system: 2.8001.00095
 - Crestron Virtual Control (VC-4): 4.0002.00039

NOTE: The control system must be connected to the internet to deploy and run the app.

- Crestron Flex (or third-party) Zoom Rooms system and Zoom Room Controller (ZRC)
 - Software version 5.16.5 or higher
 - TS/TSW-1070 series or Crestron Flex Mini Tabletop conference device to run the ZRC
- Crestron HTML5 User Interface (CH5)
 - SDK version 2.7 or higher
- Embedded ZRC Web Browser
 - Chromium version 98 or higher

Configure the Crestron Control System

A WebSocket token must be created to allow the Crestron Control App for Zoom Rooms to authenticate against the control system that is hosting the custom Crestron HTML5 User Interface (CH5) project. The process for creating a WebSocket token differs based on the control system type.

Control System Authentication Parameters

Prior to creating a WebSocket token, the control system authentication parameters must be configured as follows to support the Crestron Control App for Zoom Rooms connection. Issue the `auth`, `ssl`, and `userpageauth` commands in an SSH client connected to the control system to confirm or change the corresponding authentication parameter.

Parameter	3-Series	4-Series	VC-4
auth	Any setting	Always enabled	N/A
ssl	Enabled	Always enabled	Enabled
userpageauth	Disabled	Disabled	Disabled

Create a WebSocket Token for 3-Series and 4-Series Control Systems

To create the WebSocket token for 3-Series and 4-Series control systems:

1. Open an SSH client for the control system over its IP address or host name. The **Text Console** tool in Crestron Toolbox™ software can also be used.
2. Issue the `websockettoken generate` command to generate a WebSocket token.

```
MC4>websockettoken ?
WEBSOCKETTOKEN [DELETE | GENERATE]
DELETE - Deletes the existing authorization token
GENERATE - Generate new authorization token if not yet created
No Parameter - Display current authorization if already created

MC4>

MC4>websockettoken
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCIsImlnVdXJjZSI6IkJNbnRyb2wgU3lzdGVtIn0.eyJleHAiOiJlE2ODUwNDE5MTUsInVzZXJuYXV1IiwiT2ZmbG1uZVRva2VuIiwiaW13B0aW9uYXV1IiwiaWF0Ij0iYmDExOTc5MjQxIn0.gypi7bW1kr4iFieaJsf13wJZQx7pEv9YDcUtz1IChzM
```

3. Copy the provided token to a location on the local computer that can be later accessed.
4. **(4-Series control systems only)** Issue the following console commands to configure the JWT (JSON Web Token) public key for the control system connection.

```
hostname <hostname>
domain <domain>
JWTPUBLICKEYSOURCE add crestron-cs https://<hostname>.<domain>
JWTPUBLICKEYSOURCE add crestron-webserver HTTPS://APP.ZRC.CRESTRON.IO
JWTCSPALLOWURLSTATE on
```

NOTE: The IP address for the control system and its domain can be used in place of the reported <hostname> and <domain> values. This is true only for the control system URL and not for the Crestron web server URL.

To view the current JWT public key information for the control system, issue the `JWTPUBLICKEYSTATUS` command.

```
MC4>jwtpublickeystatus
Source:          CRESTRON-CS
Url:             HTTPS://HOSTNAME.DOMAIN
State:           Success
LastSynchedTime: Wed May 31 14:19:33 2023
Source:          CRESTRON-WEBSERVER
Url:             HTTPS://APP.ZRC.CRESTRON.IO
State:           In Progress
LastSynchedTime:
```

Create a WebSocket Token for Crestron Virtual Control

To create the WebSocket token for Crestron Virtual Control:

NOTE: If using Crestron Virtual Control software that is installed on a Linux® server, Crestron Virtual Control must first be hardened as described in the [Crestron Virtual Control Server Software Security Reference Guide](#). Additionally, a root certificate must be applied to the chosen Zoom Rooms Controller as a standalone device. Refer to the documentation for your Zoom Rooms Controller device for more instructions on loading certificates. These prerequisites are not required for the VC-4-PC-3.

1. Log into an account with sudo privileges on the Linux platform where the Crestron Virtual Control package is installed.
2. Open a new terminal window.
3. Issue the following command to allow the CH5 project to connect to Crestron Virtual Control, where **[VirtualControlHome]** is the home directory set during installation.

```
sudo ln -s [VirtualControlHome]/conf/crestron_10.conf /etc/httpd/conf.modules.d/crestron_10.conf
```

4. Issue the following command to restart the HTTPD service:

```
sudo systemctl restart httpd
```


5. Enter **http://[ServerURL]/VirtualControl/config/settings/** into a supported web browser, where **[ServerURL]** is the IP address or host name of the Linux platform. The Crestron Virtual Control web configuration interface is displayed.

CRESTRON VIRTUAL CONTROL

Server: VC-4

▼ Status Settings

▼ Rooms

Global Filter Add Room

Room	Room ID	Status	Program	Actions	Debugging
CCUIVswitch	CCUIVSWITCHRM1	▶ Running	CCUIsttBuild	i edit trash	
JNREG624	JNREG	▶ Running	JN624REG	i edit trash	
KVV624Merged	KVV624MERGEDRM1	▶ Running	KVV624Merged	i edit trash	
KVVCCUIHDMD400	CCUIHDMD400RM1	▶ Running	CCUIsttBuild	i edit trash	
Room001	ROOM001	▶ Running	Testbug	i edit trash	

« 1 » 10

► Devices

► Device Info

► Network

► Licenses

► Crestron Fusion HTML5

► BACnet

► BACnet Advanced

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6. Navigate to **Settings > Tokens**.

▼ Tokens

Add Token

Token	Description	Status	Actions
-------	-------------	--------	---------

« 1 » 10

7. Select **Add Token**. The **Add Token** dialog box is displayed.

+ Add Token







Description

Read-Only ☐

Add Cancel

- Tokens

Add Token

Token	Description	Status	Actions
eyJ0eXAiOiJKV1QiLCJhbC	SIMPL	Read-Write	 
eyJ0eXAiOiJKV1QiLCJhbC	Test	Read-Write	 
eyJ0eXAiOiJKV1QiLCJhbC	ZRC	Read-Only	 

1

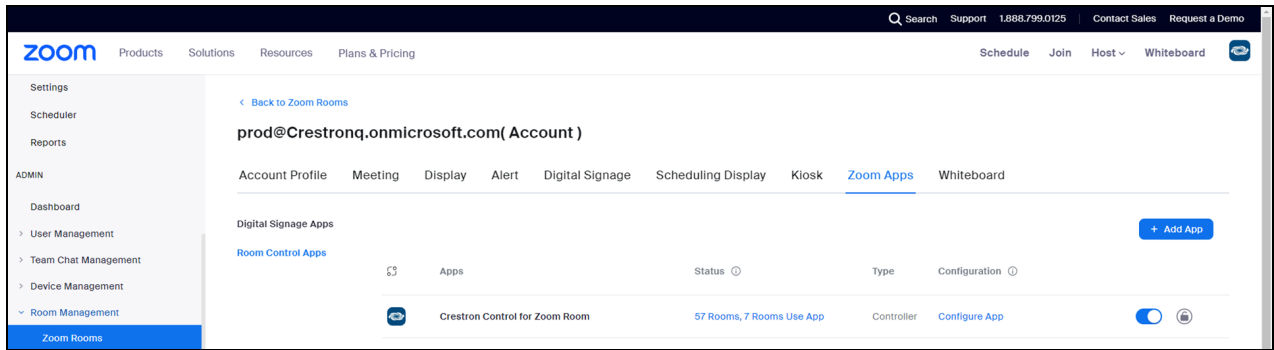
10

The following procedures are required for configuring the Crestron Control App for Zoom Rooms for use with a Crestron control system.

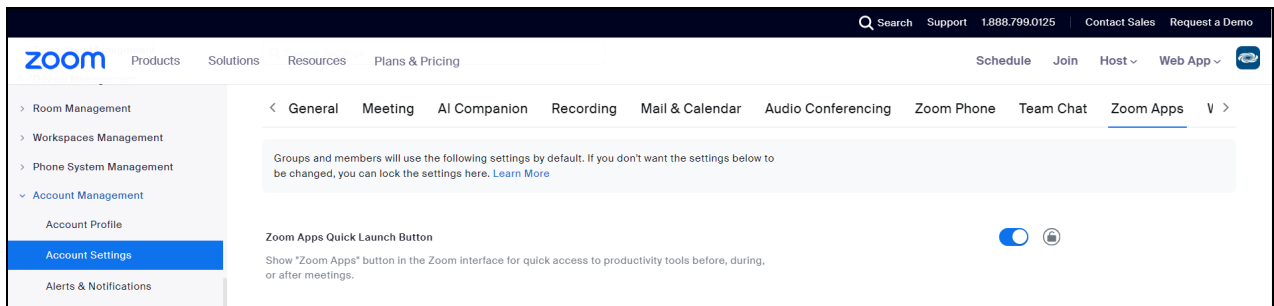
1. Log in to the Zoom Portal as an owner or administrator.

2. Navigate to **Admin > Room Management > Zoom Rooms** from the left navigation menu.
3. Select the **Account Settings** tab at the top of the interface.
4. Select the **Zoom Apps** tab.
5. Select **Room Control Apps**, and then select **+ Add App**.
6. Add the Crestron Control App for Zoom Rooms from the Marketplace using the provided interface to authorize the app for the account.

- Turn on the toggle next to the app once it has been added to enable it for the account.

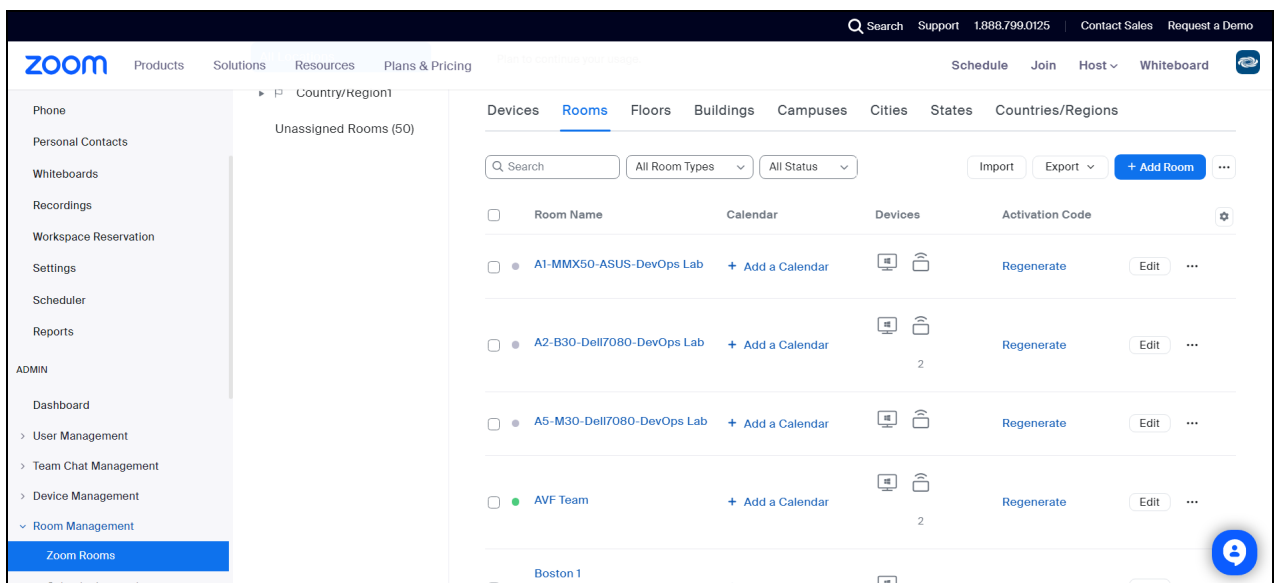


- Navigate to **Account Management > Account Settings > Zoom Apps**, then turn on the **Zoom Apps Quick Launch Button** toggle.



Enable the App for Each Zoom Room

- In the Zoom Portal, navigate to **Admin > Room Management > Zoom Rooms** from the left navigation menu.
- Select the **Rooms** tab.
- Select the target Zoom Room from the provided list, or use the search function to locate a specific room.



4. Select **Room Settings** for the chosen room at the top of the interface.
5. Select the **Rooms Profile** tab.
6. Select **Devices** from the left navigation menu.
7. In the **Enable Room Controls** section, turn on the toggle to enable room controls for the Zoom Room.
8. In the **Added Apps** section, fill the check box next to the Crestron Control App for Zoom Rooms to enable it for the room.

9. Select **Configure App** next to the Crestron Control App for Zoom Rooms. The **Configure Application** dialog box is displayed.
10. Enter the following information:
 - **Authorization:** Select the **Authorization Bearer Token** radio button.
 - **Auth Token:** Copy the WebSocket token that was generated as described in [Configure the Crestron Control System on page 3](#).
 - **URL:** Enter the URL of the control system that is hosting the CH5 project:

NOTE: The `ipId` parameter in the following syntax examples is case sensitive as must be entered exactly as written.

- For 3-Series and 4-Series control systems, use the following syntax:

```
https://<cs-hostname-domain>/<ch5-proj-name>?ipId=<IPID>
```

- For Crestron Virtual Control, use the following syntax:

NOTE: The **<Room ID>** parameter can be obtained by navigating to the **Status > Details** page of the Crestron Virtual Control room that is running the CH5 project. For more information, refer to the [Crestron Virtual Control Server Software Product Manual](#).

```
https://<cs-hostname-domain>/VirtualControl/MA/Rooms/<Room ID>/XPanel/index.html?ipId=<IPID>
```

- **Allow Unverified Connections:** Fill the check box only if the control system connection will not use a CA certificate. While the connection will still be encrypted over HTTPS/WSS, no certificate validation will occur.

Configure Application

Authorization

☐ Username & Password ☒ Authorization Bearer Token

Auth Token ⓘ

eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCIsIiwiaXNpdXJZSI6IkNvbnRyb2wgU3lzdGVtIn0.eyJ

URL

https://10.254.90.9/zoom-project/index.html?ipId=9

☒ Allow Unverified Connections ⓘ

Additional Allowed Domains

+

10.254.90.192 ☒ Allow Unverified Connections ⓘ -

Reset Cancel Save

11. Select **Save**.
12. Repeat steps 4–11 for each Zoom Room that will use the Crestron Control App for Zoom Rooms.

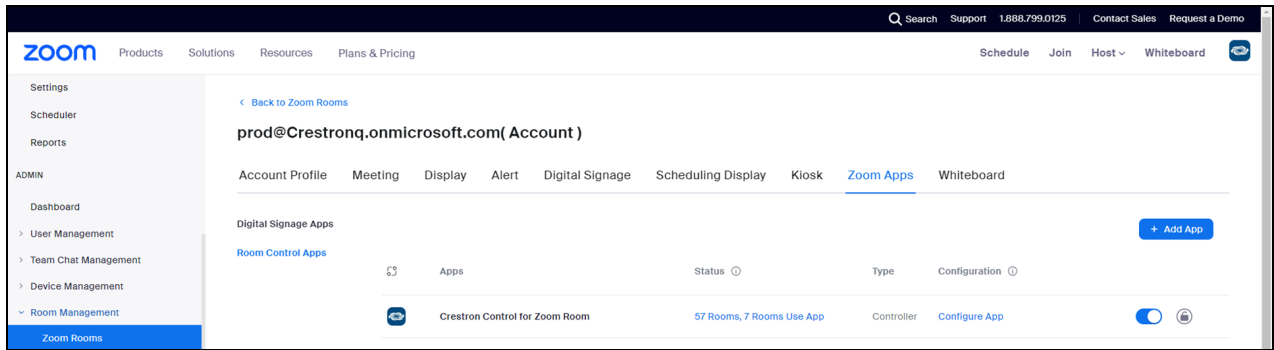
NOTE: To disable the Crestron Control App for Zoom Rooms for a specific room following deployment, navigate to the room as described in the procedure above and then turn off the **Enable Room Controls** toggle in the room settings.

Deploy Multiple Zoom Rooms

It is possible to deploy Crestron control on multiple Zoom Rooms at once via a CSV file.

1. Log in to the Zoom Portal.
2. Navigate to **Admin > Room Management > Zoom Rooms** from the left navigation menu.
3. Select the **Account Settings** tab at the top of the interface.

4. Select the **Zoom Apps** tab.



5. Select **Room Control Apps**, and then select **Configure App** next to the Crestron Control App for Zoom Rooms. The **Configure Application** dialog box is displayed.

Configure Application

☐ I acknowledge although the connection to this equipment will be encrypted over HTTPS/WSS. No certificate validation will be conducted.

Drag and drop file here, or

Choose a File

Warning: uploading configuration via CSV overwrites any existing Zoom Apps configuration for all Zoom Rooms included in the uploaded CSV.

[Download CSV Template](#)

Cancel

Save

6. Select **Download CSV Template**, and then open the template file on the local computer.
7. Populate the CSV template with the required information as described in the table below, and then save the file.
8. Drag the modified CSV template into the **Configure Application** dialog box, or select **Choose a File** to navigate to it on the local computer.
9. Once the file is uploaded, select **Save**.

CSV Template File Data for Crestron Control for Zoom Rooms App

Field	Information
Room Name	Enter the name of the target Zoom Room.
HTTP Auth Username	N/A (not used)
HTTP Auth Password	N/A (not used)
Token	Enter the WebSocket token that was generated as described in Configure the Crestron Control System on page 3 .
URL	Enter the IP address or hostname of the control system.

Field	Information
Support Unverified Connection (for the control system)	Enter True if using a CA certificate for the control system connection. Enter False if not using a CA certificate for the control system connection.
Additional Allowed Domain	Enter the IP address or hostname of the first control system domain.
Support Unverified Connection (per domain)	Enter True if using a CA certificate for the second control system domain. Enter False if not using a CA certificate for the second control system domain.
Additional Allowed Domain	Enter the IP address or hostname of the second control system domain.

NOTE: The final two rows (**Support Unverified Connection** and **Additional Allowed Domain**) can be repeated as needed to add further allowed domains.

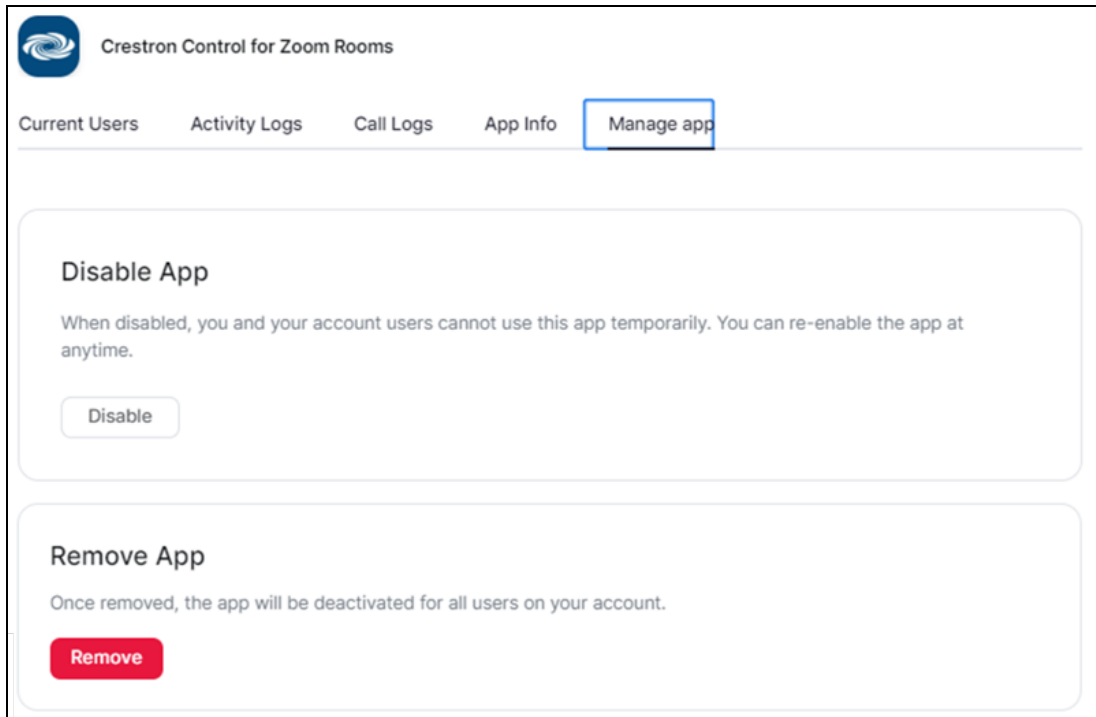
Remove the App from a Zoom Account

If required, the Crestron Control App for Zoom Rooms can be removed from your Zoom account.

To remove the app:

1. Log in to the Zoom Portal as an owner or administrator.
2. In the Zoom App Marketplace, navigate to **Manage > Admin App Management > Apps on Account** at the top right of the page.
3. Search for "Crestron Control App for Zoom Rooms".
4. Select the app from the search results, then select **Manage App**. Options for managing the app are displayed.

5. Select **Remove** in the **Remove App** section. A confirmation dialog is displayed.



6. Select **Remove** again to remove the app from your Zoom account.

Connect to the Control System with a CA Certificate

If using a CA certificate to connect the app to the control system:

NOTE: The process of establishing a connection to Crestron Virtual Control with a CA certificate differs from 3-Series and 4-Series models. For more information, refer to the or the [Crestron Virtual Control Server Software Security Reference Guide](#).

1. Issue the `ipconfig /all` console command to the control system to get the required control system information for certificate generation.
2. Generate the following files and load them to the control system as described in the [4-Series Control Systems Product Manual](#).
 - **request.csr**
 - **srv_key.pem**
 - **srv_cert.cer**
 - **rootCA_cert.cer**
3. Issue the `ssl ca -p: <privatekeypassword>` command in the control system console.
4. Issue the `reboot` command to restart the control system.

Deploy the Zoom Rooms CH5 Project to the Control System

A Zoom Rooms CH5 project can be deployed to the control system once it is saved as a CH5 archive (.ch5z) file. The Zoom Rooms CH5 project requires the Zoom App library to be included in order for it to run (provided in CH5 version 2.7 or higher). For more information on deploying CH5 archives, refer to the [Crestron HTML5 User Interface Developer Microsite](#).

- To deploy the Zoom Rooms CH5 project to a 3-Series control system, refer to the [3-Series® Control Systems Reference Guide](#).
- To deploy the Zoom Rooms CH5 project to a 4-Series control system, refer to the [4-Series Control Systems Product Manual](#).

NOTE: The project must be added as a **Web Project** using the **Add Project** dialog box.

- To deploy the Zoom Rooms CH5 project to Crestron Virtual Control, refer to the [Crestron Virtual Control Server Software Product Manual](#).

NOTE: As a best practice, the room created within Crestron Virtual Control that is associated with the CH5 project should have the same name as the Zoom Room.

Resources

The following resources are provided for Crestron® Control App for Zoom Rooms® Software.

NOTE: You may need to provide your Crestron.com web account credentials when prompted to access some of the following resources.

Crestron Support and Training

- [Crestron True Blue Support](#)
- [Crestron Resource Library](#)
- [Crestron Online Help \(OLH\)](#)
- [Crestron Training Institute \(CTI\) Portal](#)

Programmer and Developer Resources

- help.crestron.com: Provides help files for Crestron programming tools such as SIMPL, SIMPL#, and Crestron Toolbox™ software
- developer.crestron.com: Provides developer documentation for Crestron APIs, SDKs, and other development tools

Related Documentation

- [3-Series® Control Systems Reference Guide](#)
- [3-Series® Control Systems Security Reference Guide](#)
- [4-Series® Control Systems Product Manual](#)
- [4-Series® Control Systems Security Reference Guide](#)
- [Crestron Flex Unified Communications Solutions Product Manual](#)
- [Crestron® HTML5 User Interface Developer Microsite](#)
- [Crestron Virtual Control Server Software Product Manual](#)
- [Crestron Virtual Control Server Software Security Reference Guide](#)

Support

For technical support when using Crestron® Control App for Zoom Rooms® Software, contact Crestron True Blue support via phone, email, or chat as described at www.crestron.com/Support.

