



# Pairing a 3-Series<sup>®</sup> Control System with Apple<sup>®</sup> HomeKit<sup>®</sup> Technology

Programming Guide

Crestron Electronics, Inc.

**Original Instructions**

The U.S. English version of this document is the original instructions.  
All other languages are a translation of the original instructions.

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# Introduction

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This document describes the procedures necessary for pairing a Crestron® 3-Series® control system with an Apple® HomeKit® technology system. Once the control system is paired with a HomeKit system via SIMPL Windows programming, a TSR-310 handheld touch screen remote can be used to control Apple TV® devices.

**NOTE:** Observe the following limitations when pairing a 3-Series control system with Apple HomeKit:

- The TSR-310 is capable of providing a defined set of commands to an Apple TV device. For more information, refer to [Appendix A: Joins and Parameters for Apple HomeKit Module \(on page 14\)](#).
- This feature is only available when using the TSR-310. Other Crestron touch screens, handheld remotes, and keypads are not supported. For these interfaces, traditional IR or CEC control must be used to control Apple TV devices.

# Prerequisites

The following prerequisites must be met prior to pairing the control system with an Apple HomeKit system.

- One of the following 3-Series control system models running firmware version 1.601.0009 or higher\*:
  - AV3
  - CP3
  - CP3N
  - DIN-AP3
  - DIN-AP3MEX
  - MPC3-101
  - MPC3-102
  - MPC3-201
  - MPC3-302
  - PRO3
  - RMC3
- A TSR-310 running firmware version 1.003.0050 or higher\*
- An iOS® 12 hardware device with the Apple Home app installed (The Apple Home app must be associated with the customer's Apple ID and not the dealer's Apple ID.)
- A PC with the latest versions of Crestron Toolbox™ and SIMPL Windows software installed. The latest versions of the Device Database and Crestron Database should also be downloaded and installed to enable HomeKit in SIMPL Windows.\*

\* The required device firmware and Crestron software can be downloaded from the "Software & Firmware Updates" section of [www.crestron.com](http://www.crestron.com). Enter the device or software name in the search field to locate the latest version.

# Pair with Apple HomeKit

Before attempting the procedures described in this section, confirm the following:

- All Crestron devices have been updated to the latest firmware and all other prerequisites have been met. For more information, refer to [Prerequisites \(on the previous page\)](#).
- The 3-Series control system, TSR-310, iOS device, and PC running Crestron software are all connected to the same network. The network must also support multicast for the Bonjour® networking protocol.
- The 3-Series control system must have internet access and must have DNS (Domain Name System) enabled.
- The 3-Series control system must be registered to a MyCrestron account prior to pairing it with Apple HomeKit. To register the device, visit <http://portal.my.crestron.com>, select **Add Device** from the **Devices** tab, and then follow the provided instructions.
- The iOS device is associated with the customer's Apple ID. All Apple TV and iOS devices must be logged into the same Apple ID, and all Apple TV devices must be added to Apple HomeKit using the Apple Home app.

## Prepare the Control System for Pairing

To prepare the 3-Series control system for pairing with Apple HomeKit:

1. Open Crestron Toolbox software and establish a connection to the control system.
2. Use the **SSL Management** function in Crestron Toolbox or the `ssl` console command to configure SSL on the control system. For more information on configuring the control system for a secure residential deployment, refer to [Appendix B: Secure Device Deployment \(on page 16\)](#).
3. Use a web browser to navigate to `http://xxx.xxx.xxx.xxx/setup`, where `xxx.xxx.xxx.xxx` is the IP address of the control system. The 3-Series splash page is displayed.

### 3-Series Splash Page



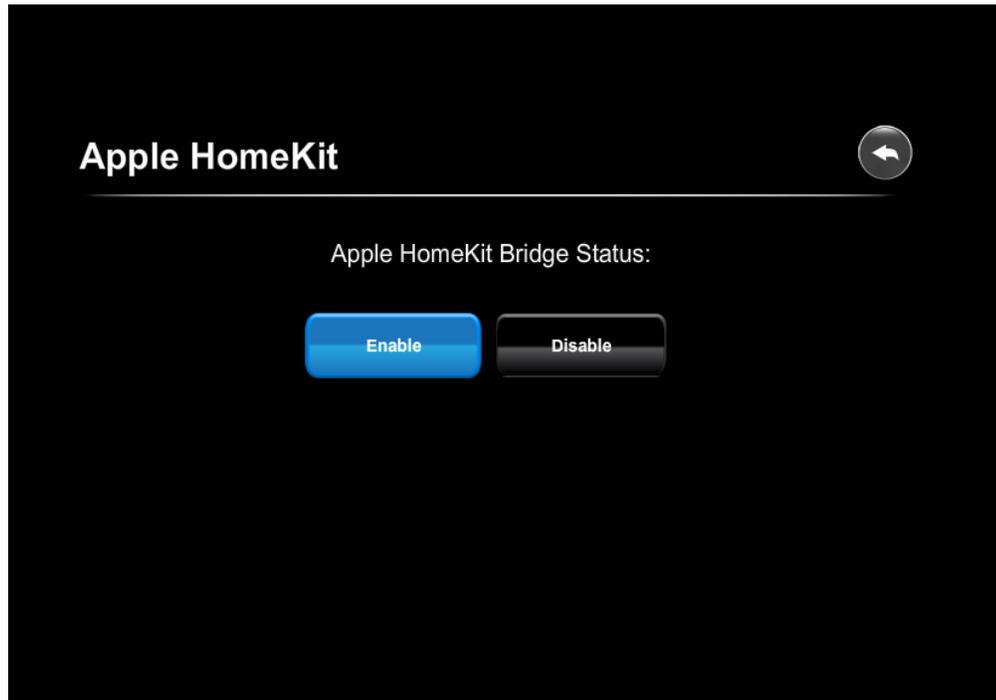
4. Click **Setup**. The main **Setup** page is displayed.

### CP3 Setup Page



5. Click **Apple HomeKit**. The Apple HomeKit page is displayed.

Apple HomeKit Page



6. Click **Enable** to enable the HomeKit feature on the control system.
7. Click **OK** to reboot the control system after a reboot confirmation message is displayed.

- Return to the main **Setup** page. A unique eight-digit code is now shown in the **HK Setup Code** field.

#### CP3 Setup Page



- Record the HomeKit code that is shown in the **HK Setup Code** field. This code is used later for pairing.

## Create and Load a HomeKit Program

An Apple HomeKit program must be created in SIMPL Windows using the AppleHomeKit module and loaded to an open program slot on the control system. The AppleHomeKit module acts as a SIMPL interface for controlling Apple TV devices.

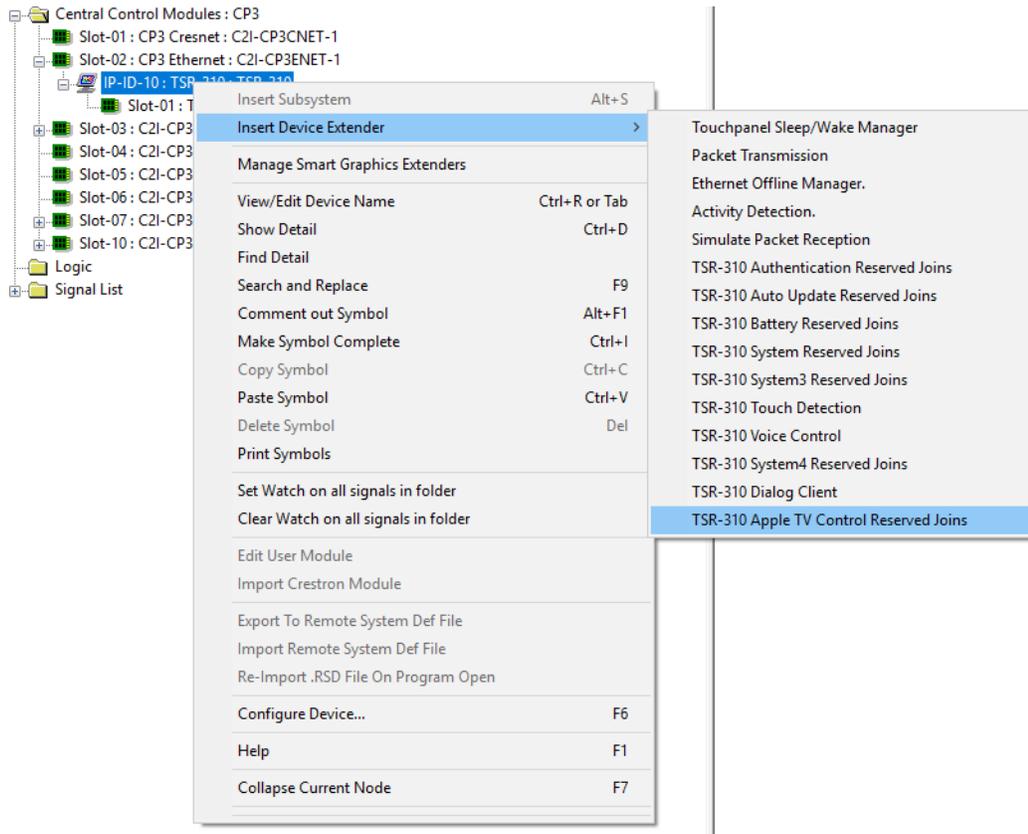
**NOTE:** The Apple HomeKit module is used in conjunction with the **Apple TV Control Reserved Joins** device extenders described below.

To create the Apple HomeKit program:

- Open SIMPL Windows and create a new program.
- Add a TSR-310 device to the program.

3. Add the **Apple TV Control Reserved Joins** device extender to the TSR-310 symbol.

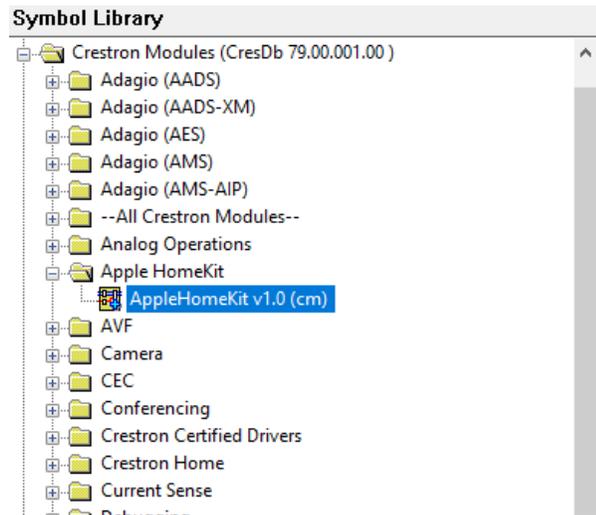
#### Add Apple TV Control Reserved Joins Device Extender to TSR-310 Symbol



4. Add the Apple HomeKit module to the program.

**NOTE:** If updating from an older version of the Apple HomeKit module, the SIMPL program may need to be resynced.

#### Add Apple HomeKit Module



5. Connect the digital feedback signals from the extender to the module. The names of the signals should match. (For example, **Up\_fb** on the extender should be connected to the **Up** input on the module.)
6. Click the **Serial** tab on the extender, and then connect the **Data\_fb** signal to the **Voice\_Data** input on the module.
7. Connect the **Apple TV Select** analog input on the module to a driving source (such as the analog join of a dynamic list SmartObject® software item). Refer to the included sample project and [Appendix A: Joins and Parameters for Apple HomeKit Module \(on page 14\)](#) for more information.
8. Enter the appropriate data into the **Remote Name**, **Remote ID**, and **Serial Number** parameter fields. Refer to [Appendix A: Joins and Parameters for Apple HomeKit Module \(on page 14\)](#) for more information.
9. Connect the **Identify** output signal on the module to the **Identify** input signal on the extender. This signal is used to trigger the identify routine on the TSR-310 via the identify button for the remote on the Apple Home app.

Once programming is complete, upload the compiled program to an open slot on the control system using Crestron Toolbox. For more information, refer to the Crestron Toolbox embedded help files.

## Connect the TSR-310 to the Control System

The TSR-310 device(s) that will be used to control Apple TVs via Apple HomeKit must be connected to the control system via the IP table associated with the SIMPL Windows program.

To connect the TSR-310 to the control system:

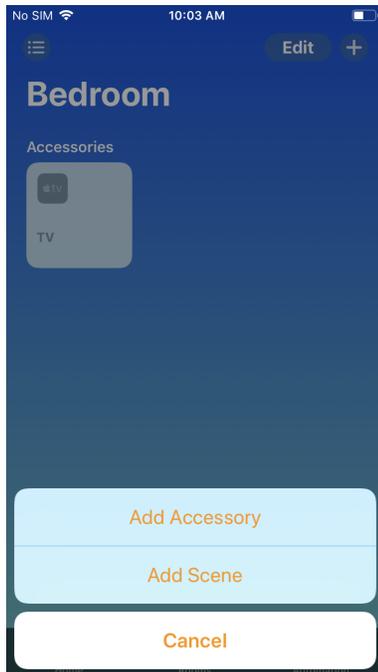
1. Configure the TSR-310 for a secure residential deployment. Refer to [Appendix B: Secure Device Deployment \(on page 16\)](#) for instructions.
2. Connect the TSR-310 to the control system's IP table as described in the TSR-310 Supplemental Guide (Doc. 8226) at [www.crestron.com/manuals](http://www.crestron.com/manuals). Ensure that the IP ID used matches the IP ID used in the SIMPL Windows program.
3. Confirm that the TSR-310 is connected to the control system using the correct IP ID by issuing the `ipt` console command to the TSR-310.

## Complete the Pairing

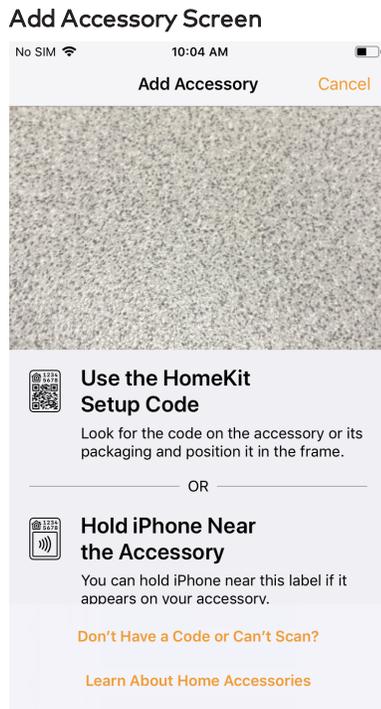
To connect the Apple HomeKit system to the control system:

1. Open the Apple Home app on the customer iOS device. This iOS device must be associated with the customer's Apple ID, as the control system will be paired to the Apple ID associated with the iOS device used for pairing.
2. Tap **Add Accessory**.

### Apple Home App UI

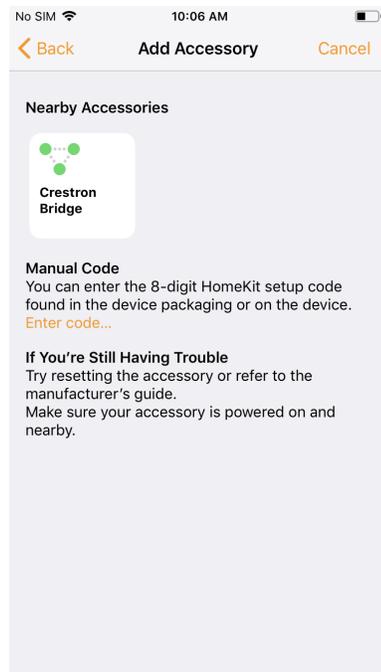


3. Tap **Don't Have a Code or Can't Scan?** on the bottom of the screen.



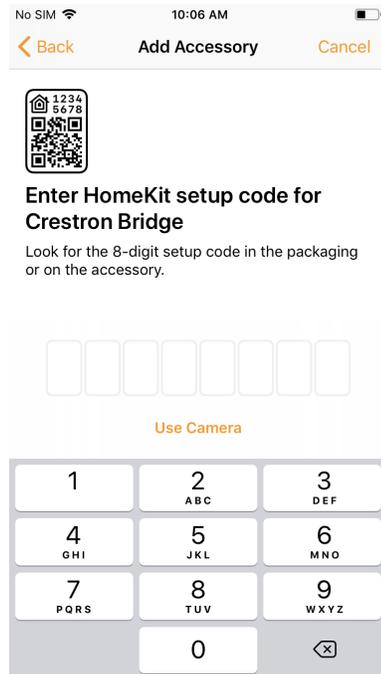
4. Tap **Crestron Bridge** under **Nearby Accessories**.

#### Add Accessory Screen - Nearby Accessories



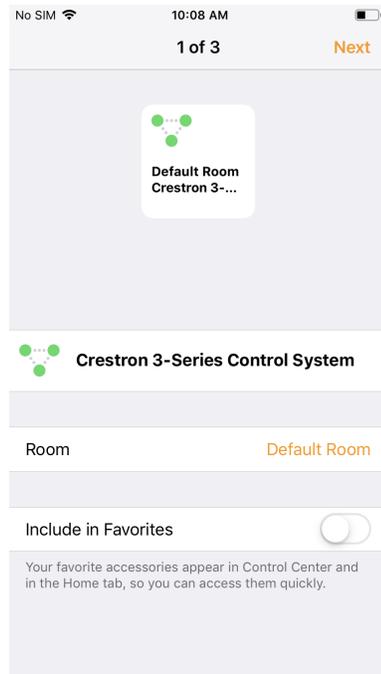
5. Enter the HomeKit code that was recorded in step 9 of Prepare the Control System for Pairing (on page 6).

### Add Accessory Screen - Enter HomeKit Setup Code

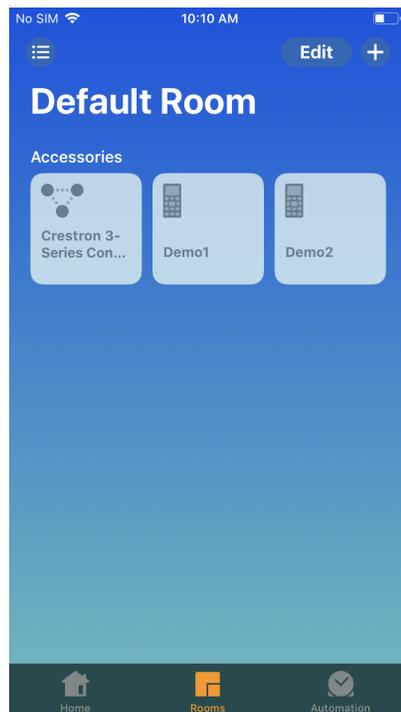


If the pairing is successful, the 3-Series control system and any TSR-310 devices added to the SIMPL program will be added to the app.

## Crestron 3-Series Control System Accessory



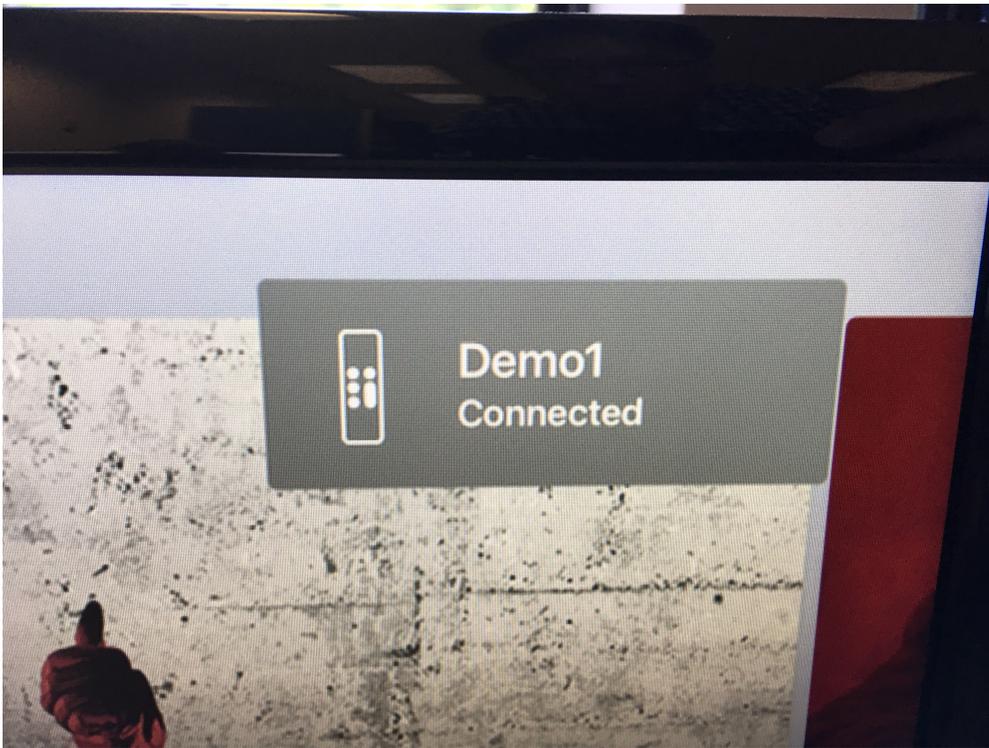
## Crestron Accessory Selection



**NOTE:** There is no user interaction with the 3-Series control system after it has been added to the Apple Home app. The 3-Series control system accessory can be placed in a separate unused room so that it is less obvious to the customer.

Once the 3-Series control system is paired with Apple HomeKit, a "Connected" message showing the connected remote name(s) is displayed on the Apple TV devices configured for control.

The image below shows an example of successful connection message for a remote named "Demo1."



If the Apple TV device cannot be controlled after this message is displayed, ensure that the TSR-310 has been configured as described in [Connect the TSR-310 to the Control System \(on page 8\)](#).

# Appendix A: Joins and Parameters for Apple HomeKit Module

Refer to the table below for the joins and parameters that are compatible with the Apple HomeKit module in SIMPL Windows.

## Joins and Parameters for Apple HomeKit Module

Join Type	Input/Output	Name	Description
Digital	Input	Up	Up command
Digital	Input	Down	Down command
Digital	Input	Left	Left command
Digital	Input	Right	Right command
Digital	Input	Select	Select command
Digital	Input	Guide	Guide command (acts as the Home button)
Digital	Input	Menu	Menu command
Digital	Input	Exit	Exit command (acts as the Menu command)
Digital	Input	Play	Play/pause command
Digital	Input	Pause	Play/pause command
Digital	Input	Stop	Play/pause command
Digital	Input	Rewind	Left command
Digital	Input	Fast_Forward	Right command
Digital	Input	Mic	Mic button down
Digital	Input	Restore	Restores HomeKit to factory settings (removes pairing)
Serial	Input	Voice_Data	Voice data
Analog	Input	Apple_TV_Select	Selects the Apple TV (values range from 1 to 32 based on alphabetical order of devices). Sending 0 clears the selection.
Digital	Output	ReadyState	Shows if the TSR-310 is online with HomeKit and can control the Apple TV.
Digital	Output	IdentifyRemote	Triggers the identify routine on the TSR-310
Analog	Output	SelectedTarget	Indicates the currently selected Apple TV (values range from 1 to 32 based on alphabetical order of devices). 0 indicates no selection.
Serial	Output	Apple_TV_Name_1_FB	Name of the 1st Apple TV

Join Type	Input/Output	Name	Description
Serial	Output	Apple_TV_Name_[N]_FB	Name of the <i>N</i> th Apple TV, where <i>N</i> is the ordered number of the device
Serial	Parameter	RemoteName	TSR-310 device name
Serial	Parameter	RemoteID	TSR-310 remote ID (ranging from 2 to 255)
Serial	Parameter	SerialNumber	TSR-310 serial number
Digital	Output	ErrorDetected	Outputs high when an error is reported from the bridge
Serial	Output	ErrorMessage	Outputs the error message when an error is reported
Digital	Input	ClearError	Forces ErrorDetected low and clears the ErrorMessage output

# Appendix B: Secure Device Deployment

Perform the procedures described in this appendix to secure a 3-Series control system and TSR-310 for integration with Apple HomeKit.

**NOTE:** These procedures assume that the user is familiar with operating Crestron Toolbox software. For more information on operating Crestron Toolbox, refer to the help files built into the software.

## Secure a 3-Series Control System

Use the following procedures to secure a 3-Series control system with Crestron Toolbox software.

**NOTE:** For more information on configuring authentication and security settings for a 3-Series control system, refer to the 3-Series Control System Reference Guide (Doc. 7150) at [www.crestron.com/manuals](http://www.crestron.com/manuals).

### Verify the Firmware Version

1. Open Crestron Toolbox software.
2. Navigate to **Tools > EasyConfig**. The **EasyConfig** tool is displayed.
3. Click the pencil icon at the bottom of the **EasyConfig** tool. A dialog box for editing the connection type is displayed.

### Connection Type Dialog Box

Connection Type:

TCP  RS232  USB  Indirect

IP Address / Hostname: 172.30.16.xxx

SSH

< Advanced

Port (if not default):

Username:

Password:

Use Secondary Console

Control Subnet

Hostname:

Port (if not default):

Auto Detect

< Advanced Device Detection

Auto-Detect

Address Book... OK Cancel

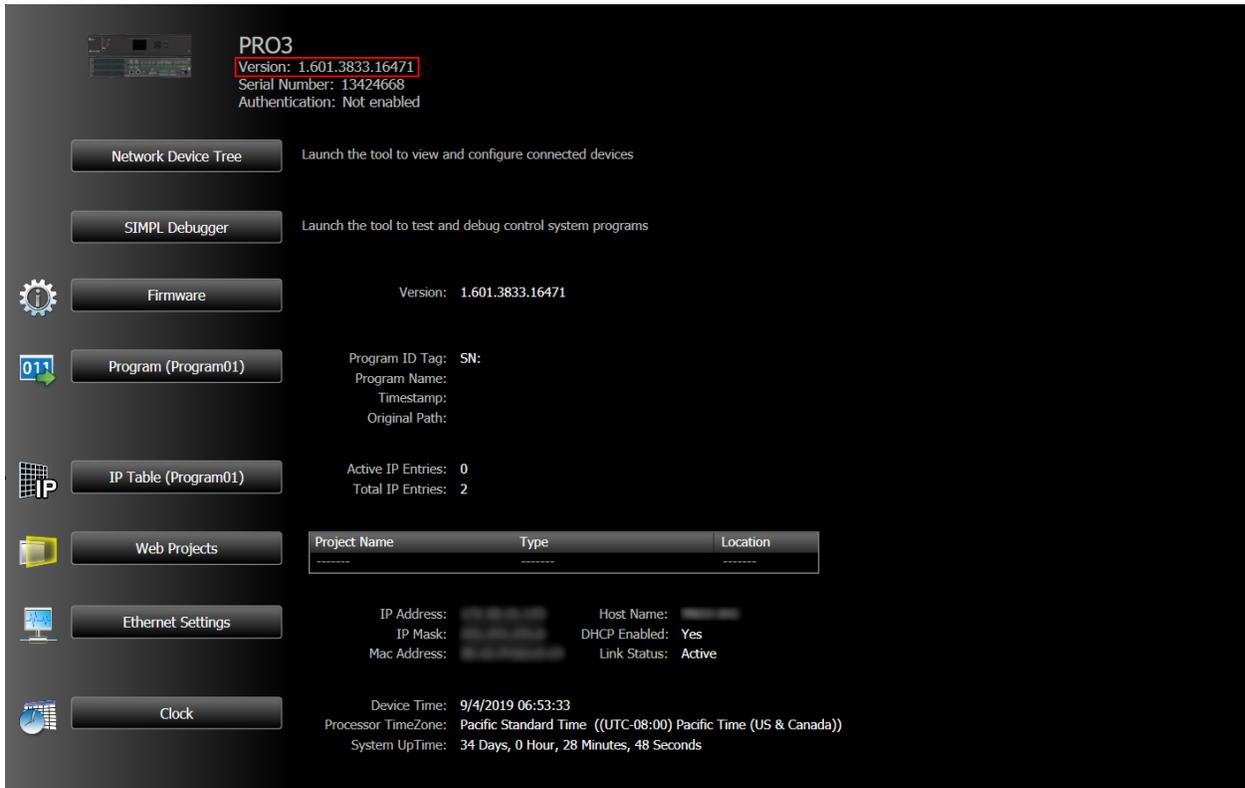
4. Select the **TCP** button under **Connection Type**.
5. Enter the control system IP address or hostname in the **IP Address / Hostname** text field.
6. Select **SSH** from the drop-down menu under the **IP Address / Hostname** text field.

**NOTE:** If a console port is currently open for external use, route it to port 22.

7. Configure any additional TCP connection settings as needed.

- Click **OK**. The **EasyConfig** tool is displayed with information about the 3-Series control system.

### EasyConfig Tool - 3-Series Control System

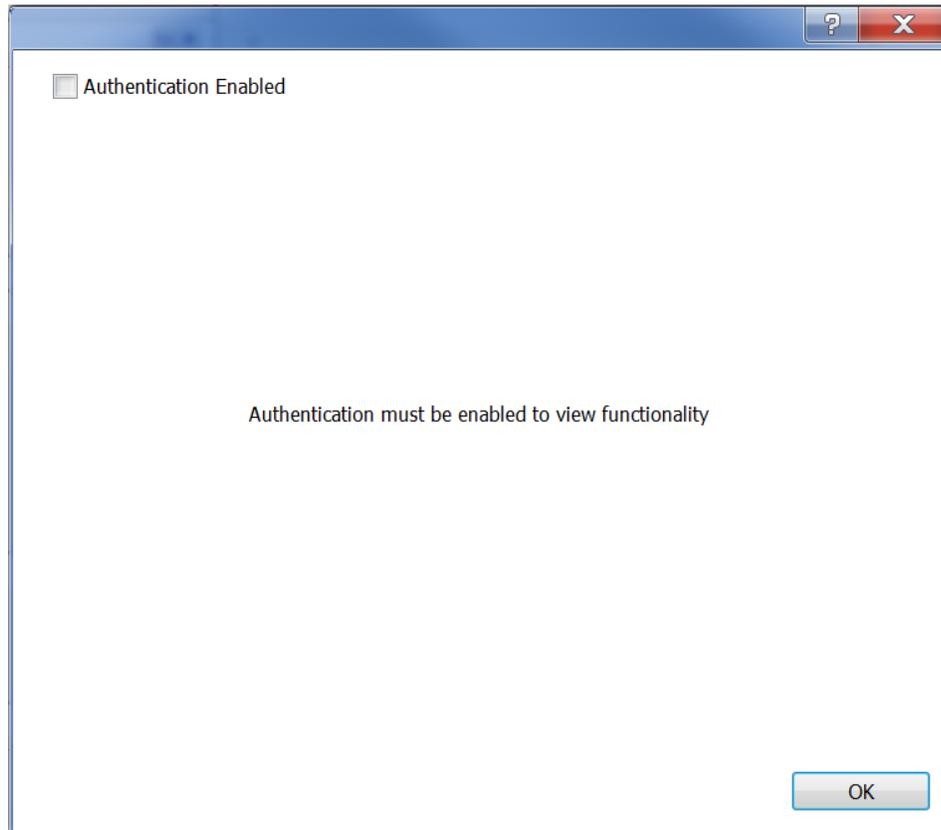


- Verify that the firmware version (listed next to **Version** at the top of the tool is 1.601.0009 or higher. Update the device firmware to the required version if necessary.

## Configure Authentication

1. Open the **EasyConfig** tool for the 3-Series control system by following steps 1–8 of [Verify the Firmware Version \(on page 16\)](#).
2. Navigate to **Functions > Authentication**. A dialog box for configuring authentication settings is displayed.

### Authentication Dialog Box



3. Click the check box next to **Authentication Enabled**. A filled check box indicates that authentication is enabled.

If authentication is enabled for the first time on the 3-Series control system, a dialog box for creating an administrator account is displayed.

### Create Administrator Account Dialog Box

The device currently does not have an account with administrative privileges which is required to turn on Authentication. Please enter a username and password which will be used to create an administrative account

Username

Password

Verify Password

OK Cancel

4. Enter a user name in the **Username** text field.
5. Enter a password in the **Password** text field. The password rules are as follows:
  - The password length must be between 8 and 13 characters.
  - The password must contain at least one of each of the following:
    - Uppercase letter
    - Lowercase letter
    - Numeric digit
    - Special character: ` ~ ! @ \$ % ^ & \* ( ) \_ - + = { } [ ] \ | ; " < > , . ? /
6. Enter the password created in step 5 in the **Verify Password** text field.
7. Click **OK**. The 3-Series control system reboots automatically, and the new settings take effect following the reboot.

**NOTE:** After multiple incorrect login attempts, the control system locks out any additional login attempts from the same IP address for a 24-hour period. Any incorrect login attempt over a USB connection is blocked for 5 minutes. For more information, refer to the [Crestron Secure Deployment Guide](#).

Once authentication is enabled, the administrator may create new users and groups, add users to groups, set permissions, and change user passwords.

## Secure a TSR-310

Use the following procedures to secure a TSR-310 with Crestron Toolbox software.

1. Connect to the TSR-310 in Crestron Toolbox and open the **Text Console** tool.
2. Issue the `SSL NOVERIFY` command to enable SSL.
3. Supply the username and password for the control system CIP connection via the `SETCSAUTHENTICATION -N:[username] -P:[password]` command.
4. Reboot the TSR-310 for the new settings to take effect.

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