Integrating Crestron Fusion® Cloud Software with Google Calendar™ Application

Setup and Configuration
Crestron Electronics, Inc.
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Integrating Crestron Fusion Cloud Software with Google Calendar Application

Overview

Crestron® developers have integrated Crestron Fusion Cloud with Google Calendar scheduling software. This document provides the necessary information to configure the Google Calendar API and set up Crestron Fusion Cloud so that it can access the Google Calendar API.

Initial Setup

Set up a domain on the Google® API website with the following:

- Administrator Account
- User Accounts
- Room Resources (Refer to “Appendix A: Creating Room Resources” for setup instructions)
Configure the Google Calendar API

For Crestron Fusion Cloud to exchange data with Google calendars, activate the Google Calendar API and configure the security.

Activate the Google Calendar API for the Domain

1. Using the Google Chrome™ or Firefox® browser, navigate to the following URL: https://console.developers.google.com/project.
2. Log in using an administrator account. Once you are logged in as an administrator, the Google Developers Console page opens.

   Google Developers Console Page without Loaded Project

3. Click the Select a Project drop-down list and select the API project that will be used for the Google Calendar integration with Crestron Fusion Cloud.

   Project Selection

4. Click Create a project to open the New Project form, if no projects are listed in the drop-down list.
5. Enter a **Project name** and click **Create**.

6. Load an API project into the **Google Developers Console** page. When the project is loaded, the project name is displayed in the **Select a project** drop-down list and in the **Project** field.

**Console Dashboard after Project Selection**
7. Click the **Project Name** link from the **Select a project** drop-down list, if a project is not displayed.

*Select a Project Drop-Down List*

8. Click the link in the upper left-hand corner to activate the Google Calendar API, and open the **Google Developers Console** menu.

*Google Calendar API Activate Link*

*Google Developers Console Menu*
9. Click the **API Manager** link to open the **API Manager** page. The **API Manager** will turn on the Google Calendar API.

   **API Manager Page**

   ![API Manager Page](image)

10. Click the **Calendar API** link to enable the API.

   **API Manager - Enable API**

   ![API Manager - Enable API](image)

11. Click **Enable API** to start the Google Calendar API web service. Once the web service is enabled, the button label changes to **Disable API**.

   **Enable API in Intermediate State**

   ![Enable API in Intermediate State](image)
**Disable API in Intermediate State**

![Google Developers Console](image)

**Set Up Security**

To set up security, complete the steps below.

1. Reopen the **Google Developers Console** menu using the process described in the “Activate the Google Calendar API for the Domain” section.
2. Click the **Permissions** link to open the **Permissions** page.

![Permissions Link](image)
Permissions Page

From the Permissions page you can access the service accounts that Crestron Fusion Cloud will use to access the Google Calendar API.

3. Click the Service accounts link to open the Service accounts page.
   a. If a service account has not been created or if a service account is needed, click Create service account.
   b. If a service account is already available, move to the next step.

Service Accounts Page (Service Accounts Do Not Exist)
4. Click **Create service account** to open the **Create service account** form. A service account can now be created for Crestron Fusion Cloud, if needed.

   **Create Service Account Form**

   ![Create Service Account Form]

5. Enter a name for the service account and then click **Create**.

   **NOTE:** Do not click the **Furnish a new private key** or **Enable Google Apps Domain-wide Delegation** check boxes; the functionality of these check boxes is described in the “Upload a Private Key” section which uses a different part of the Google API Console User Interface (UI).

6. Return to the **Service accounts** page, and record the e-mail address of the service account that Crestron Fusion Cloud will use to access the Google Calendar API. The e-mail address is used in a later step.

   **Service Account Email Address**

   ![Service Account Email Address]

7. Click the menu icon to the right of the service account. This is the service account that Crestron Fusion Cloud will use to access the Google Calendar API.
8. Click Create key from the drop-down list to open the Create private key form.

Create Private Key Form

9. Click the P12 key type.

NOTE: The JSON key does not work with Crestron Fusion Cloud and should not be used.

10. Click Create to open the file download page.

File Download Page - Save P12 Key Type
11. Click **Save File** to save the key file in a local storage folder. Note down the name of the folder for later use.

12. Click **OK** to open the key creation confirmation form.

**Key Creation Confirmation Form**

```
New public/private key pair
FusionIntegration-0d867ca673b.p12 has been saved on your computer. This is
the only copy of the key, so store it securely.

This is the private key's password. It will not be shown again. You must present
this password to use the private key. Learn more

notasecret
```

13. Check that the password displayed is notasecret. Crestron Fusion Cloud is already set up to use this password. Click **Close**.

### Share Room Accounts with Service Account

**NOTE:** Impersonation can be used (if preferred) rather than sharing accounts. Refer to “Appendix B: Using Impersonation in Google Calendar API” for more information.

1. Navigate to Google.com using a Google Chrome or Firefox browser.

2. Check if a green circled icon appears in the upper right-hand corner. If so, click the icon and check if the current account in use is the administrator account noted in the Initial Setup section.

**NOTE:** If it is not an administrator account, click Sign out and move to the next step. If it is an administrator account, skip the next two steps.

### Google.com Sign In

3. Sign in as an administrator by clicking Sign in. From the resulting list, select the administrator account noted in the “Initial Setup” section.
4. Enter your password and click **Sign in**.

5. Click the grid icon to open the **Google Application** menu.

6. Click the Calendar icon to open the Google Calendar application.
7. Click the gear icon, and then click **Settings** to open the **Calendar Settings** page.

**Calendar Settings Page**

8. Click the **Calendars** link to view the room calendars.
9. Review the room calendars; there should be a calendar for each physical room to be integrated with Crestron Fusion Cloud.

If no room calendars are shown or more are needed, refer to “Appendix A: Creating Room Resources” for more information.

**NOTE:** Typically, room calendars are shared with the service account, as discussed in the “Set Up Security” section. However, some customers prefer to allow the service account to impersonate a user with elevated privileges. If impersonation is needed, refer to “Appendix B: Using Impersonation in Google Calendar API” and skip step 5 in that section.

10. Complete the steps below on each room calendar to be integrated with Crestron Fusion Cloud. This will share calendars with service accounts that Crestron Fusion Cloud will use to access the Google Calendar API.

   a. Click the room name link to open the Room Details page.

   b. Click the Share this Calendar link to open the sharing area.

   c. Enter the service account from the Share with specific people section e-mail address (from the "Set Up Security" section) into the Person field.

   d. Click Make changes to events from the Permission Settings drop-down list.

   e. Click Add Person. Note down the e-mail address of the room (to be used later in this document.)

   f. Click Save.
11. Click the grid icon to open the Google Application menu.

   *Grid Icon*

12. Click the Admin icon to open the Google Console menu.

   *Admin Icon*

   *Google Console Menu*

13. Click the Apps link, and then click Calendar.
14. Click **Sharing settings**, and then click **Share all information**, and allow managing of calendars.

*Sharing Settings Page*

![Sharing Settings Page](image)
Set Up Crestron Fusion Cloud to Access the Google Calendar API

This section describes how to configure Crestron Fusion Cloud to access the Google Calendar API. The system-wide security settings will be configured using data from the previous section. This section also includes instructions on how to link a room represented by Crestron Fusion Cloud to a Google Calendar.

Upload a Private Key

1. Navigate to the Crestron Fusion Cloud Configuration Web Client.
2. Click Scheduling and then click Google to open the Settings: Google form.

3. Click Browse to open the File Upload dialog box.

4. Navigate to the location where the key file was stored. Locate and select the private key file, and then click Open.
5. Enter the Service Account e-mail address entered in step 6 on page 8.
6. Click Save.
Configure Rooms in Crestron Fusion Cloud to Use Google Calendar API

1. Do the following for each room represented by a Google calendar.
   a. Navigate to the Crestron Fusion Cloud Setup Web Client, select the node, and then add the room.

   **Crestron Fusion Cloud Setup Web Client**

   - Click the Add drop-down list (if the room has not been created), and then click Add Room.
   - Click the Room node if the room has already been created.
   - Complete the first page of the Room Details tab, if adding a new room.

   **Room Details Tab**
b. Click the **Scheduling Details** tab, and then select **Google** from the **Server Access** drop-down list.

**Scheduling Details Tab**

![Image of Scheduling Details Tab]

- Click **Scheduling Details** tab, and then select **Google** from the **Server Access** drop-down list.

- Enter the e-mail address of the first room entered in step 9 on page 13.

- Click **Verify Mailbox Setting** to ensure the room is configured for proper integration with Crestron Fusion Cloud.

**Verify Mailbox Setting**

![Image of Verify Mailbox Setting]

- If the room is configured properly, the **Verify Mailbox Setting** message box displays. Click **OK**.

**Verify Mailbox Setting Message Box**

![Image of Verify Mailbox Setting Message Box]

2. If creating a new room, fill in the required fields (shown with red asterisks) in the **Room Details** tab.
Room Details Tab

3. Repeat the above steps for the remaining room e-mail addresses entered in step 9 on page 13.
4. Click Save & Close after adding e-mail addresses for the rooms,
5. Perform a test of the synchronization between the Google and Crestron Fusion Cloud calendars as follows:
   a. Navigate to Google.com and sign in as an Administrator. Refer to the “Initial Setup” section.
      Administrator Sign In

   b. Click the grid icon to open the Google Application menu.
      Grid Icon

   c. Click the Calendar icon to open the Google Calendar page.
      Calendar Icon
d. Select one room created in the previous section. This will display the Room’s calendar in the UI.

e. Double-click any time slot (after the current time) to open the **Add Meeting** form.

**Add Meeting Form**

f. Enter a title for the meeting and then click **Save**.

g. A message indicating the meeting was created should appear along with the meeting displayed on the room’s calendar selected in step 0 above.

**Booked Meeting on Google Client Calendar**
h. Open the Crestron Fusion Cloud Web Client and select the **RoomView® Monitoring** button.

**RoomView® Monitoring Selection**

From the Schedule tab, select the room and the date the meeting is scheduled. The meeting created in step f above should appear on the Crestron Fusion Cloud calendar.

**Crestron Fusion Cloud Calendar Showing Meeting**

j. Double-click the meeting and verify the meeting times (**Start Date/Time** and **End Date/Time**) and name.

**Verify Meeting Details**
k. Create a meeting in Crestron Fusion Cloud after the meeting is set by the Google Calendar.

**Create New Meeting**

![Create New Meeting](image)

l. Navigate back to the Google Calendar shown in step g above. The meeting created in Crestron Fusion Cloud should appear on the Google Calendar below the meeting created in step d above.

**Google Calendar Showing Meeting Created in Crestron Fusion Cloud**

![Google Calendar with Meeting](image)
Appendix A: Creating Room Resources

This section provides information on how to create room resources in Crestron Fusion Cloud.

1. Navigate to Google.com and sign in as an Administrator.

   *Google Sign In*

   ![Google Sign In Image]

2. Click the grid icon to open the **Google Application** menu.

   *Grid Icon*

   ![Grid Icon Image]

3. Click the **Admin** icon to open the **Google Console** menu.

   *Admin Icon*

   ![Admin Icon Image]

4. Click the **Admin** icon to open the **Google Console** menu.
5. Click **Apps** to open the **Google Apps™** page.

6. Click **Google Apps**.

7. From the next page, click the **Calendar** link to open the **Settings for Calendar** page.
8. Click Resources to open the Resources page.

9. Click Create a new resource to create a new room resource.
10. From the **Create Resource** section, enter a **Resource Name** and **Resource type** (room name and type.) Typically the room type is ConfRoom, but any name will work. If the configuration is successful, the room is listed on the **Settings for Calendar** page.

*Settings for Calendar Page – Room Resource List*

![Room Resource List](image)

11. Click the newly created room resource to display the room details (including the e-mail address.)

*Room Details Displayed*

![Resource Details](image)

12. From the **Edit Resource** section, note the e-mail address of the room resource. This will be used to create a calendar.

13. At the top of the **Resources** page, click the grid icon.

*Grid Icon*

![Grid Icon](image)

14. Click the **Calendar** icon.

*Calendar Icon*

![Calendar Icon](image)
15. Click the gear icon and then click Settings to open the Calendar Settings page.

**Gear Icon and Google Calendar Settings Link**

![Calendar Settings Page]

16. Click the Calendars tab and then click Create new calendar.

**Create New Calendar**

![Calendar Settings Page]
17. Enter the e-mail address (noted above) into the Person field, and then select Make changes to events from the Permission Settings drop-down list.

18. Click Add Person.

```
Calendar Sharing Detail Form

Share with specific people

<table>
<thead>
<tr>
<th>Person</th>
<th>Permission Settings</th>
<th>Remove</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="mailto:entechman@crestron.mybiz.com">entechman@crestron.mybiz.com</a></td>
<td>Make changes to events</td>
<td></td>
</tr>
<tr>
<td><a href="mailto:crestron.mybiz.com_1133373905303433353338@resource.calendar.google.com">crestron.mybiz.com_1133373905303433353338@resource.calendar.google.com</a></td>
<td>Make changes and manage sharing</td>
<td></td>
</tr>
</tbody>
</table>
```

19. Enter the name of the room resource into the Calendar Name field. If needed, set the time zone and click Create Calendar.

```
Create New Calendar Form

Create New Calendar

Calendar Details

- Back to calendar  Create Calendar  Cancel

Calendar Name: Conference Room 201

Organization: Crestron Electronics, Inc.

Description:

Location:

Calendar Time Zone:

- United States

- Display all time zones

- Choose a different country to see other time zones

- New selected time zone

- GMT/EDT: Eastern time

20. Click the grid icon to confirm successful creation of the room resource calendar.

```
Grid Icon
```

21. Click the Calendar icon to open the Google Calendar application.

```
Calendar Icon
```
22. Click the gear icon and then click **Settings** to open the **Calendar Settings** page.

*Calendar Settings Page*

23. Click the **Calendars** link to open the **Calendar Settings** room list.

*Calendar Settings Room List*

24. Locate the newly created calendar for the room resource in the list.

**NOTE:** If the room is listed, the room resource creation was successful. If the room is not listed, review the steps in this appendix.
Appendix B: Using Impersonation in Google Calendar API

Customers may not prefer the opt-in model (described in step 9 on page 13) where the room shares the calendar with the service account. Instead, a second configuration option is available that will allow the service account (used by Crestron Fusion Cloud) to access the Google Calendar API to use the identity of another account.

Typically, the account that the service account impersonates has elevated privileges. With elevated privileges, the account being impersonated can read and write to the room calendar that is being shared.

**NOTE:** For impersonation, it is not necessary to complete the “Share Room Accounts with Service Account” section and should be avoided.

To configure impersonation, do the following:

1. Open the Google API Console menu using the process described in the “Activate the Google Calendar API for the Domain” section.
2. Click the Permissions link to open the Permissions page. The user can access the service accounts Crestron Fusion Cloud will use to access the Google Calendar API.

Permissions Link

Permissions Page
3. Click the Service accounts link to display the services accounts list.

![Service Accounts List](image1)

4. Click the View Client ID link to open the Credentials form. The View Client ID contains the service account that will use impersonation.

![Credentials Form](image2)

5. Note the client ID for use in a later step, and then click Cancel.

6. Navigate to Google.com and sign in as Administrator.

![Google API Console - Sign in Page](image3)
7. Click the grid icon, and then click the **Admin** icon.

   *Grid Icon*

   ![Grid Icon]

8. Click the menu icon to open the **Admin console** menu.

   *Admin Console Menu*

   ![Admin Console Menu]

9. Click the **Security** link to open the **Security** form.

   *Security Link*

   ![Security Link]
10. Click the **Show more** link, and then click the **Advanced settings** link.

**Advanced Settings Link**

11. Click the **Manage API client access** link to open the **Manage API client access** page.
12. Enter the following:
   - **Client Name**: Enter the Service Account Name from the **Credentials** form.
   - **One or More API Scopes**: Enter the following URL:

13. Click **Authorize**.
14. Confirm that the service account was added to the list.

**NOTE:** At this point, the service account is authorized to access any account.
15. Open the Crestron Fusion Cloud Web Client and select Configuration to open the Configuration page.

**Configuration Selection**

![Configuration Page]

16. Click All from the tree menu and then click Add to open the Add Config Entry window.

17. Determine the user account to be used for impersonation. Typically the admin account is used. However, an account with elevated privileges can be used.

18. Obtain the e-mail for this account from the Google API Sign In page.

**Google API Sign In Page**

![Google API Sign In Page]
19. In the **Add Config Entry** page, enter the following:
   - **Name**: GoogleImpersonationUser
   - **Type**: VarChar250
   - **Description**: Google Impersonation User
   - **Value**: E-mail address (from step 18 above)

   **Add Config Entry Page**

   ![Add Config Entry](image)

20. Click **Save & Close**.

   The service account is now set to impersonate the account with the elevated privileges noted above. Run the tests at the end of “Setting Up Crestron Fusion Cloud to Access the Google Calendar API” section to confirm the impersonation has been configured properly.
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