

Cloudpath Enrollment System Third-Party Authentication Configuration Guide, 5.11

Supporting Cloudpath Software Release 5.11

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Using Facebook for Third-Party Authentication

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Setting Up the Facebook Application

Before configuring Cloudpath for Facebook authentication, you must set up the Facebook application.

What You Need To Set Up the Facebook Application

- Facebook login credentials
- Name and Namespace for your application
- Display Name for your application
- Domain and Website URL for your application

Creating the New Facebook App

The steps given here are only very high-level to inform you what information you will need to collect from your Facebook project that is needed on the Cloudpath UI-side configuration. You need to refer to your Facebook developer's documentation for all the information about creating your application.

1. Go to <http://developer.facebook.com>
2. Log in using your Facebook credentials.
3. Follow the instructions in the developer's manuals on how to create a website application.
4. During the process, you need to create an App ID.
5. Later in the process, you can go to the dashboard, where both the App ID and the App Secret are shown. Be sure to write down these values because you will need them during the Cloudpath configuration process.
6. Continue the configuration process in the Basic Settings area. You will need to add a Website platform.
7. For site URL and Valid OAuth Redirect URI, obtain this information from the Cloudpath workflow process in the Cloudpath UI. When you choose the "Authenticate to a third party" step and click **Next**, scroll down to the "Facebook" section and click the "Facebook Supported?" checkbox.

Setting Up Cloudpath for Facebook Authentication

After the Facebook application is set up, you configure an authentication step in Cloudpath to prompt the user for the Facebook credentials.

What You Need to Configure Cloudpath for Facebook

- Facebook App ID
- Facebook App Secret
- (Optional) Scope parameters, Event ID, and Liked Page ID for your Facebook application

How to Add Facebook Authentication to the Workflow

1. Create an enrollment workflow for third-party authentication.
2. Add an enrollment step that prompts the user to authenticate through a third-party source.
3. Select **Create a new configuration**.

The **Third-Party Authentication Setup** page allows you to specify which third-party sources are allowed as well as API information related to those sources.

4. Enter the **Name** and **Description** of this configuration.

FIGURE 1 Cloudpath Third-Party Authentication Setup

Third-Party Authentication Setup


1 Display Name:

1 Description:

Facebook Configuration

1 Facebook Supported?

Instructions: The Facebook Developer's Console is available at <https://developers.facebook.com>. Within My Apps, create a new app for a website, and Create App ID. You will need the App ID and App Secret.



1 App ID:

1 Secret:

1 Scope:

1 Event ID:

1 Liked Page ID:

1 Redirect URL: Facebook will need a Website "Site URL" to redirect to. This must be the full enrollment URL, + "facebook", such as <https://test01.cloudpath.net/enroll/RegistrationTest?facebook>.

Based on the current deployment locations, the Site URL should be one of <https://test01.cloudpath.net/enroll/RegistrationTest?ProductionFacebook>

Google Configuration

1 Google Supported?

LinkedIn Configuration

1 LinkedIn Supported?

Custom OAuth 2.0

1 Custom OAuth 2.0 Configuration

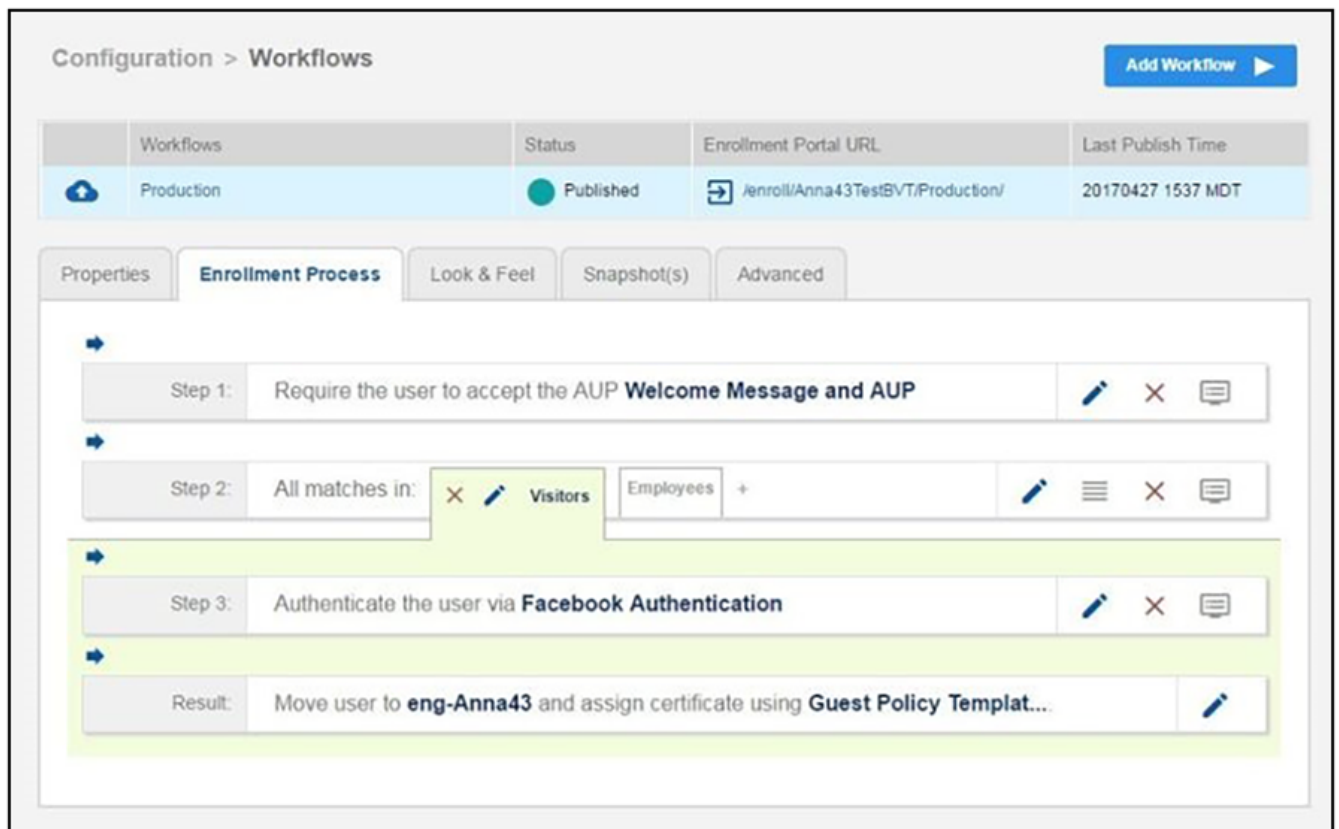
5. In the Facebook Configuration section, check the **Facebook Supported?** box and complete the following fields:
- **App ID** - The **App ID** from the Facebook application you just created.
 - **Secret** - The **App Secret** from the Facebook application you just created.
 - Optional settings:
 - **Scope** - A comma separated list of permission names that allows the application to read or write additional data (such as email or user_group) from the Facebook application. If scope is left blank, you can only obtain the **Facebook profile ID, URL, and Name**.
 - **Event ID** and **Liked Page ID** - Allows the application to provide additional information about the user. The **Scope** must include **user_likes** to use **Liked Page ID**, and **user_events** to use **Event ID**. Adding a user_event (or user_likes) in the Scope allows you to create a filter in the workflow based on whether a user is in the user_event (or user_likes) group. See the Identity Information in the Enrollment Record to view the User Groups.

NOTE

To obtain the **Event ID** or **Page ID**, right-click on the FB page or event and **View Page Source**, then search for the string **event_id** or **page_id**.

6. Click **Save**. The Facebook authentication step is added to your enrollment workflow.

FIGURE 2 Workflow with Facebook Authentication



User Experience for Facebook Authentication

During the enrollment process, the user is prompted to authenticate using their Facebook credentials.

- If the user is logged into Facebook, the enrollment continues.
- If the user is not logged into Facebook, they are prompted to log in, and after a successful authentication, redirected back to Cloudpath to continue with the enrollment process.

FIGURE 3 Authenticate Using Facebook



Using LinkedIn for Third-Party Authentication

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Setting Up the LinkedIn Application

Before configuring Cloudpath for LinkedIn authentication, you must set up the LinkedIn application.

What You Need To Set Up The LinkedIn Application

- LinkedIn login credentials
- Name and Description for your application
- Verification of company URL with your application. This is required to create OAuth 2.0 "scopes," which define what your application can do on a user's behalf. This process is described in [How to Set Up the LinkedIn App](#) on page 9.
- JavaScript API Domain

How to Set Up the LinkedIn App

1. Navigate to <http://developer.linkedin.com>.
2. Sign in to your LinkedIn account.
3. Click **Create app**.

- The **Create an app** page displays. The top part of that page is shown below:

FIGURE 4 "Create an app" Screen on LinkedIn Developers Site

DEVELOPERS Products Docs and tools Resources My apps

Create an app

* indicates required

App name *

LinkedIn Page *

ⓘ This action can't be undone once the app is saved.

The LinkedIn Page you select will be associated with your app. Verification can be done by a Page Admin. [Learn more](#)

+ Create a new LinkedIn Page

- Enter the name of your application, then click **+ Create a new LinkedIn Page** to enter information about your company. The following screen is displayed.

FIGURE 5 Creating a LinkedIn Page for Your Company

Create a LinkedIn Page

Connect with clients, employees, and the LinkedIn community. To get started, choose a page type.

- Small business**
Fewer than 200 employees
- Medium to large business**
More than 200 employees
- Showcase page**
Sub-pages associated with an existing page
- Educational institution**
Schools and universities

- Click on the applicable button for your business; the example below shows the screens for a "Small business."

FIGURE 6 Identity Information for Your Company: Top Portion of Screen

The screenshot shows the top portion of the LinkedIn application setup screen. On the left, under the heading "Page identity", there are three input fields: "Name*" with the value "JeffOauthTest1 Company", "LinkedIn public URL*" with the value "linkedin.com/company/jeffoauthtest1-company", and "Website" with the value "Begin with http:// or https:// or www.". A note below the website field states "This is a link to your external website." On the right, under the heading "Page preview", there is a preview of the company page. It shows a logo for "COMMSCOPE RUCKUS" and the company name "JeffOauthTest1 Company" with the industry "Automotive" and a "Tagline" field.

- Name: Enter the name of your company.
- LinkedIn public URL: This field will be generated based on what you enter in the "Name" field.
- Website: This field is optional.

FIGURE 7 Identity Information for Your Company: Middle Portion of Screen

The screenshot shows the middle portion of the LinkedIn application setup screen, titled "Company details". It contains three drop-down menus: "Industry*" with the selected option "Automotive", "Company size*" with the selected option "2-10 employees", and "Company type*" with the selected option "Self-employed".


Select the applicable options from the drop-down lists.

FIGURE 8 Identity Information for Your Company: Bottom Portion of Screen

The screenshot shows the 'Profile details' section of a LinkedIn company page setup. It features a 'Logo' upload area with a 'RUCKUS' logo, a 'Tagline' input field with an example, and a verification checkbox. A 'Create page' button is located at the bottom right.

Profile details

Logo

 cplogo.PNG PNG 7kb ✕
Upload complete

300 x 300px recommended. JPGs, JPEGs, and PNGs supported.

Tagline ?

Example: A family-run accounting firm that promises you won't lose sleep over filing your taxes.

I verify that I am an authorized representative of this organization and have the right to act on its behalf in the creation and management of this page. The organization and I agree to the additional [terms](#) for Pages.

Create page

- Logo: Upload a logo if desired.
- Tagline: Enter a tagline if desired.
- Verification checkbox: Read and check this box in order to proceed.

Click **Create page**.

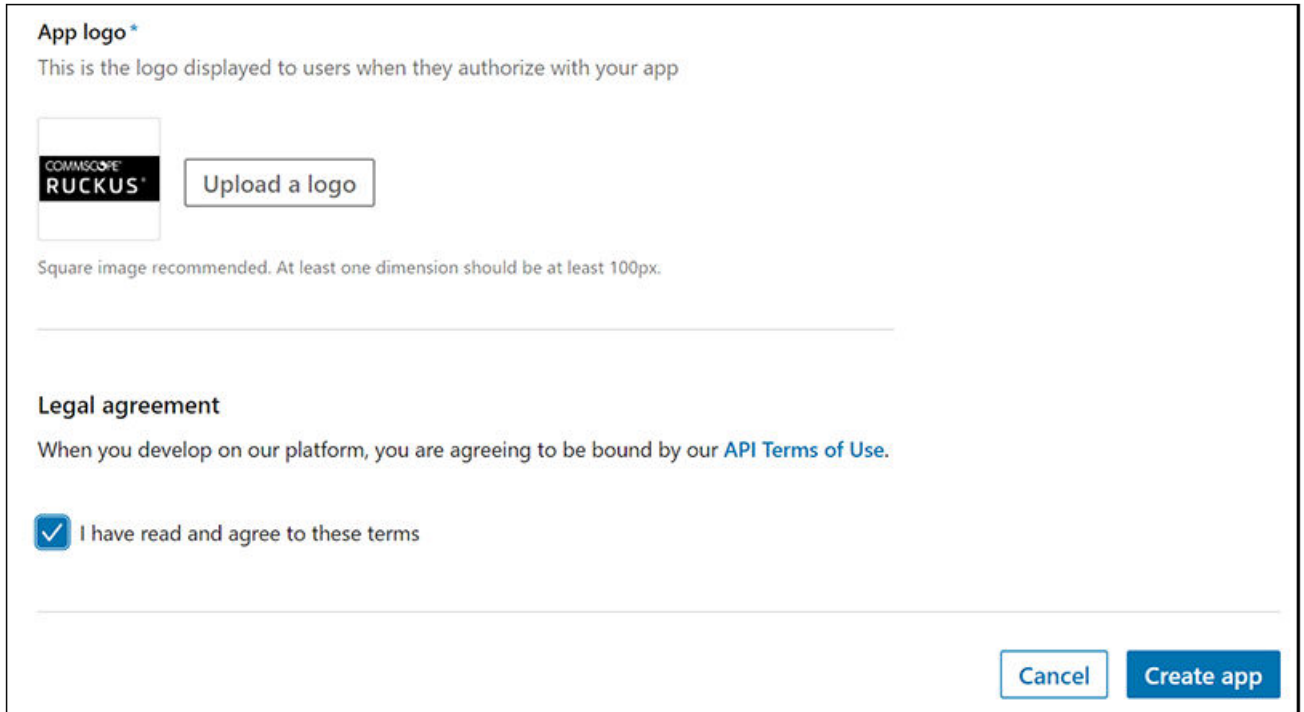
7. Click on the tab in your browser that has the original "Create an app" page that you already started.

FIGURE 9 Returning to "Create an App" Page: Top Portion of Screen

The screenshot shows the top portion of the "Create an app" page. At the top left, it says "Create an app". Below that, a note states "* indicates required". The "App name*" field contains the text "CloudpathTestApp". The "LinkedIn Page*" section includes a warning icon and text: "This action can't be undone once the app is saved." Below this is a dropdown menu showing a selection for "JeffOauthTest1 Company" with a subtext "Automotive; 1-10 employees" and a close button (X). A note below the dropdown says: "The LinkedIn Page you select will be associated with your app. Verification can be done by a Page Admin. [Learn more](#)". The "Privacy policy URL" field is empty, with a placeholder text "Begin with http:// or https://".

- App name: The name of the application you created is displayed.
- LinkedIn Page: Start typing the name of your application, then select it.
- Privacy policy URL: Optional field.

FIGURE 10 Returning to "Create an App" Page: Bottom Portion of Screen

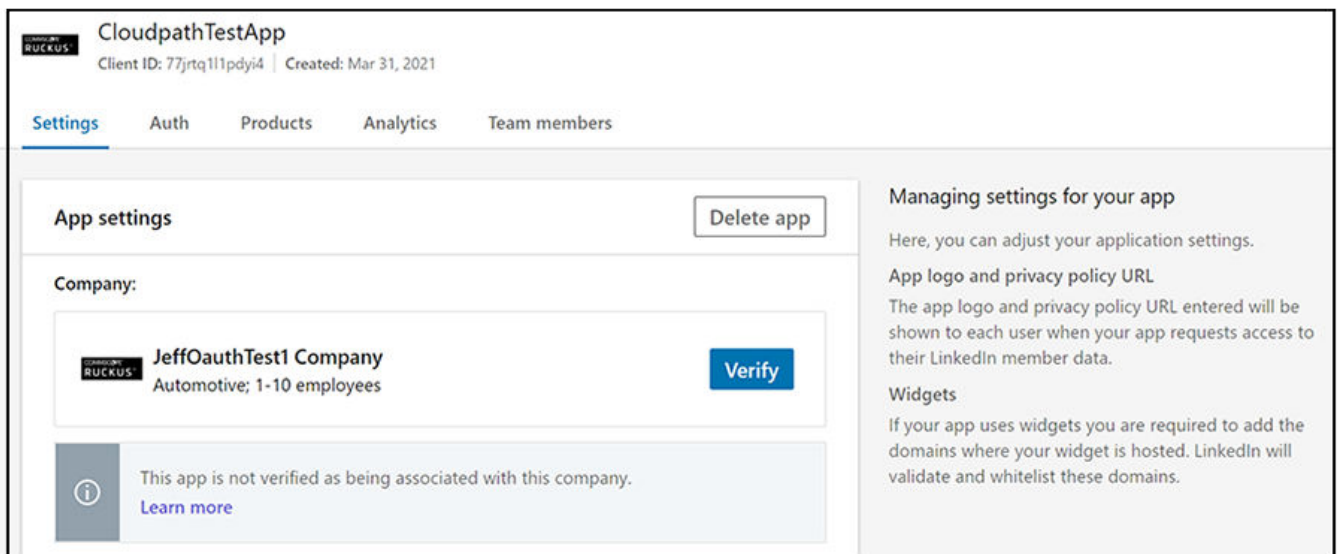


The screenshot shows the bottom portion of the 'Create an App' page. It features a section for 'App logo*' with a placeholder image of the RUCKUS logo and an 'Upload a logo' button. Below this is a note: 'Square image recommended. At least one dimension should be at least 100px.' The 'Legal agreement' section includes the text: 'When you develop on our platform, you are agreeing to be bound by our [API Terms of Use](#).' A checkbox is checked, with the text 'I have read and agree to these terms'. At the bottom right, there are two buttons: 'Cancel' and 'Create app'.

Upload your logo, check the legal agreement, then click **Create app**.

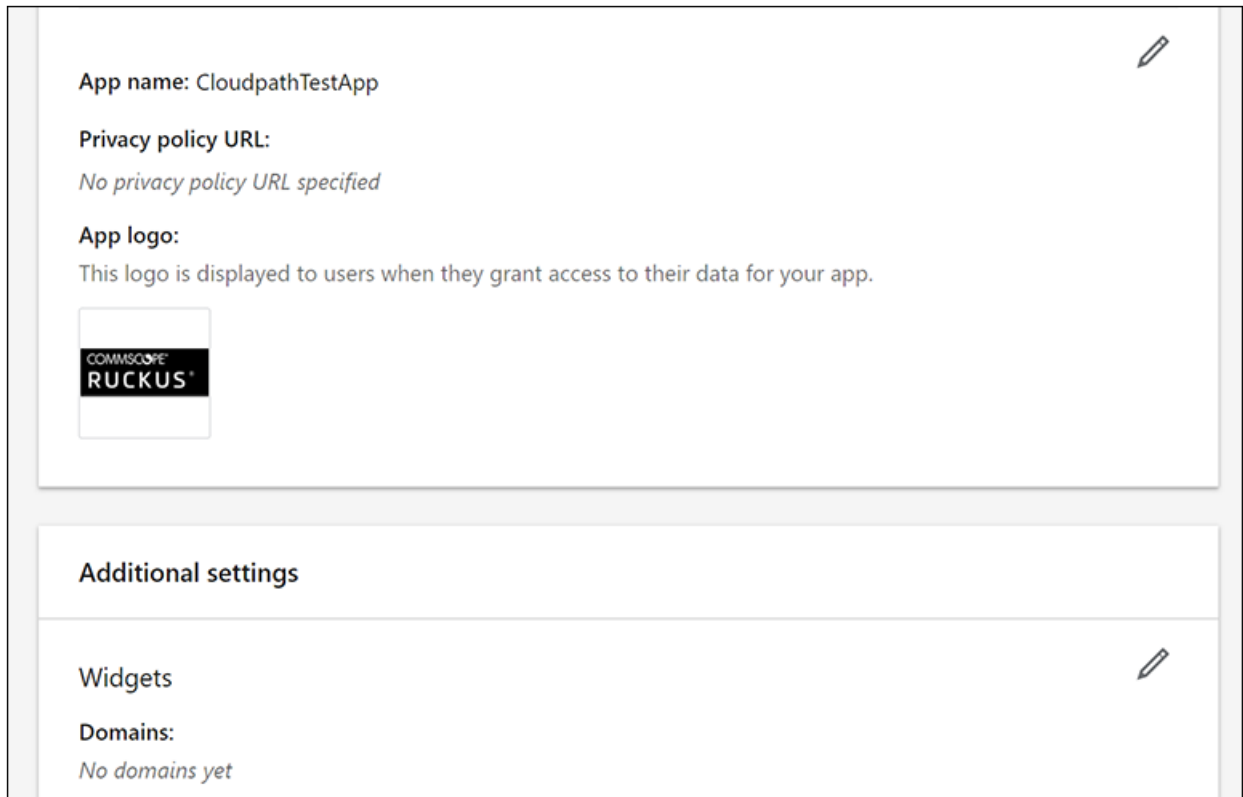
The application is created, and you are returned to a screen that provides the information you just configured. The screen that is displayed is shown below in two parts:

FIGURE 11 Application Created: Top Portion of Screen



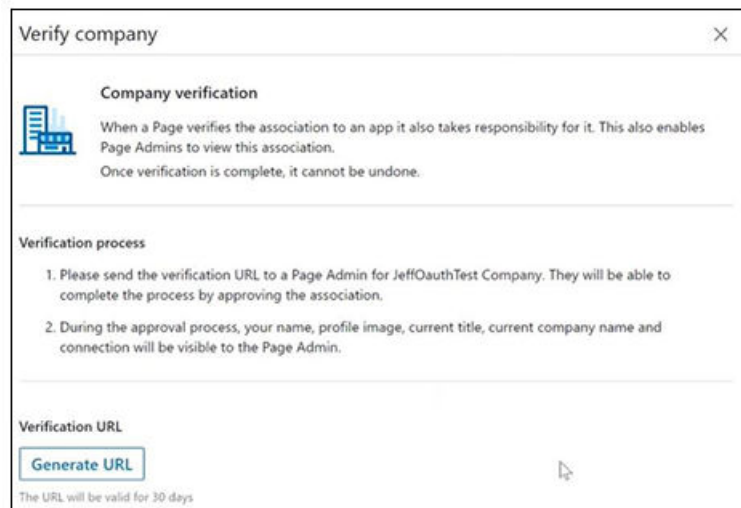
The screenshot shows the top portion of the application settings page for 'CloudpathTestApp'. The app name is 'CloudpathTestApp' with a 'Delete app' button. Below the name, it shows 'Client ID: 77jrtq111pdyi4' and 'Created: Mar 31, 2021'. There are tabs for 'Settings', 'Auth', 'Products', 'Analytics', and 'Team members'. The 'App settings' section includes a 'Company:' field with a placeholder for 'JeffOauthTest1 Company' (Automotive; 1-10 employees) and a 'Verify' button. A message below states: 'This app is not verified as being associated with this company. [Learn more](#)'. On the right, there is a 'Managing settings for your app' section with instructions on adjusting settings, app logo and privacy policy URL, and widgets.

FIGURE 12 Application Created: Bottom Portion of Screen



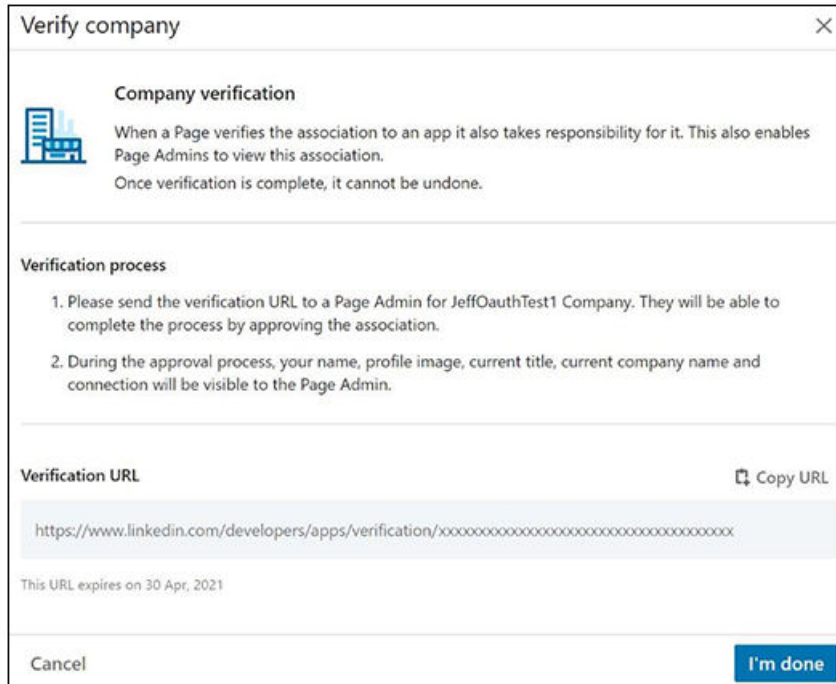
- To verify your company with your application, click the **Verify** button (see Figure 11). The following screen is displayed.

FIGURE 13 Verifying Your Company



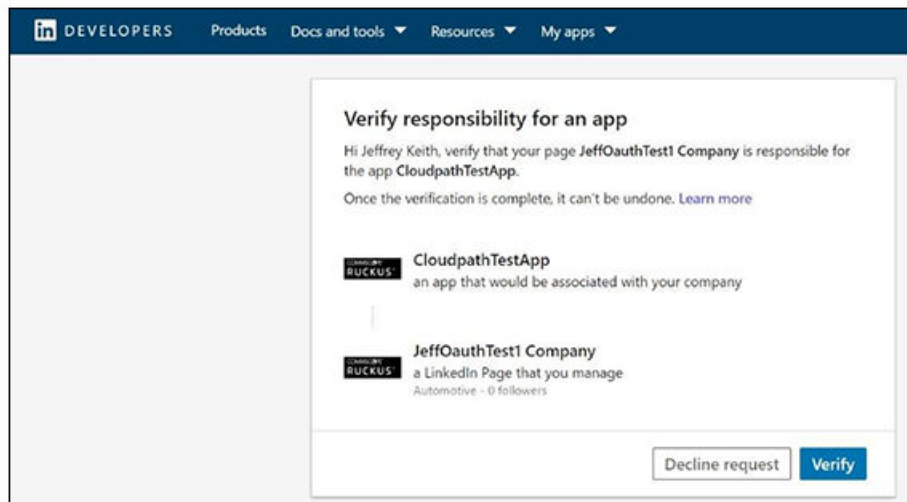
9. Click the **Generate URL** button. The URL is generated, as shown in the following screen.

FIGURE 14 Using the Verification URL



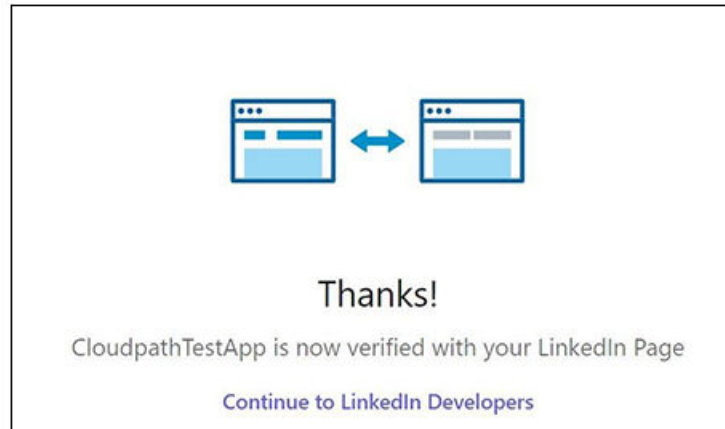
10. Copy the URL (and click **I'm done**.)
11. Paste the URL into a new tab on your browser (and click on the highlighted link as you paste it into the browser). You will receive the following screen, which shows the example company "JeffOAuthTest1 Company" created earlier.

FIGURE 15 Pasting the URL Into a Browser to Verify the Company



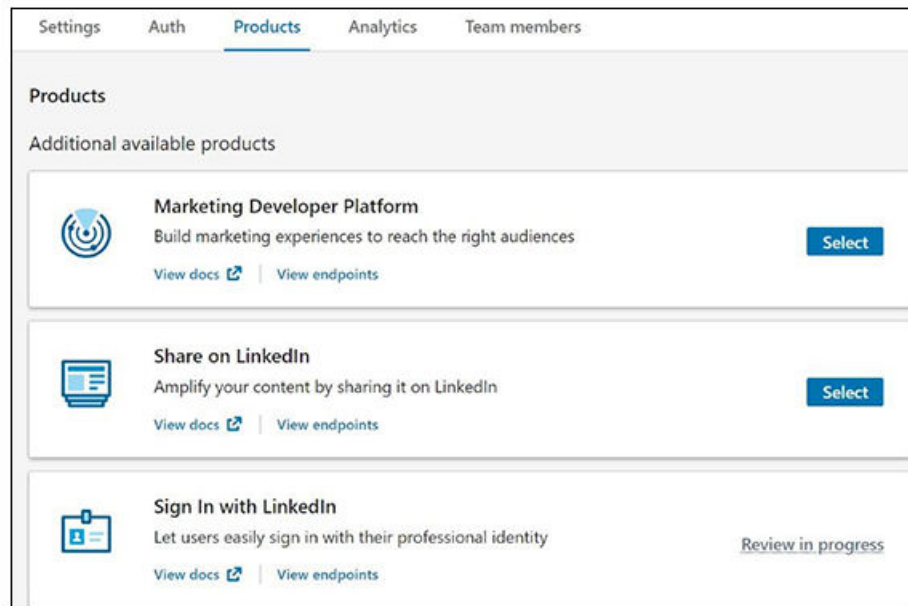
12. Click **Verify**. A successful verification will yield the following screen.

FIGURE 16 Verification Successful



13. From the Developer's page, click on the **Products** tab, then sign in with LinkedIn.

FIGURE 17 Signing in With LinkedIn from the Products Tab of Developer's Page



NOTE

You can refresh the page after a few minutes to check if the review has completed. You will also receive an email notification once you application has been verified as being associated with your company. Once verification is successful, the "Sign in with LinkedIn" step adds the "r_emailaddress" and "r_liteprofile" scopes to the OAuth 2.0 scopes (as shown in [Figure 20](#)). These scopes allow the Oauth integration to use the primary e-mail address associated with the LinkedIn account as well as the person's name and photo. Without these scopes being successfully added, the Oauth integration fails.

Using LinkedIn for Third-Party Authentication
Setting Up the LinkedIn Application

14. On the Developer's page, go to the **Settings** tab, then scroll down to the "Widgets" area, use the pencil icon to add your domain, and click **Update**.

FIGURE 18 Adding Your Domain to Widgets



15. Click the **Auth** tab of the Developer's screen. An example figure is shown below in two parts:

FIGURE 19 Auth Tab Settings of Newly Created Application - Top Part of Screen

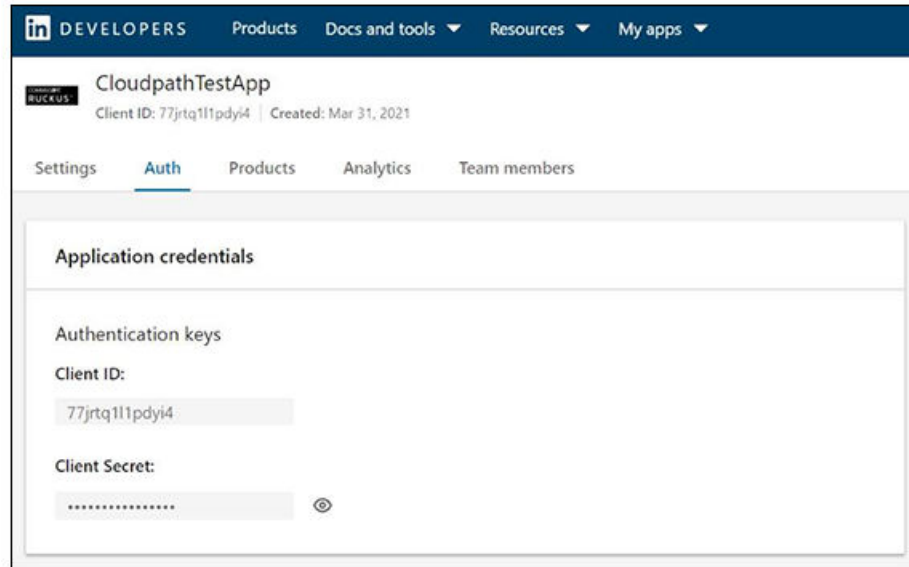
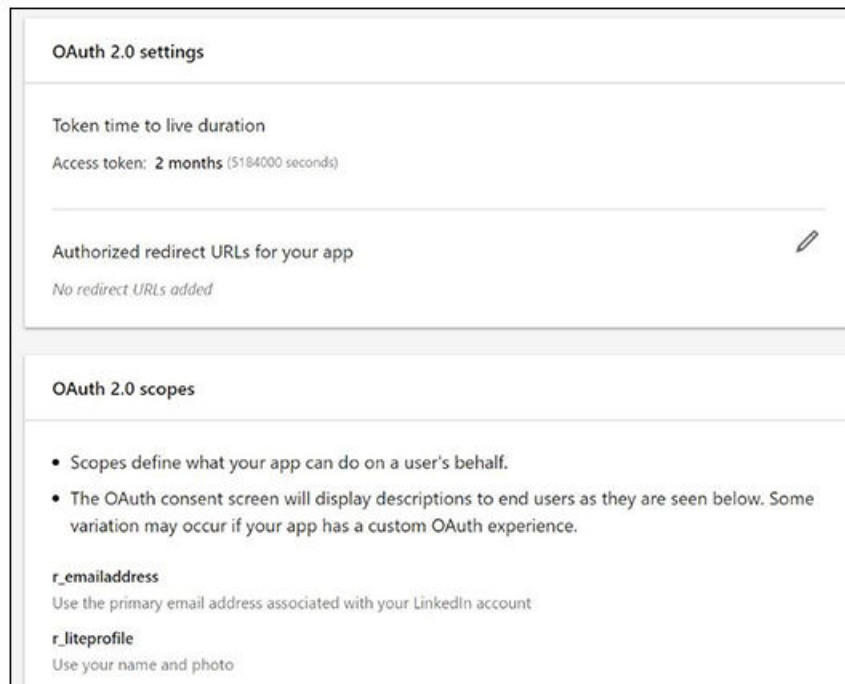


FIGURE 20 Auth Tab Settings of Newly Created Application - Bottom Part of Screen



16. In the OAuth 2.0 settings section, use the pencil icon to enter the Redirect URLs.

NOTE

These must be acceptable Redirect URLs and must include the full enrollment URL + "/linkedin". An example is: `https://jeff243.cloudpath.net/enroll/JackTest/Production/linkedin`.

You obtain the "Redirect URL" during workflow creation when you add a step to "Authenticate to a third party." For more information, refer to [How to Add LinkedIn Authentication to the Workflow](#) on page 20. (Figure 22 on page 21 shows the Redirect URL, which appears once you have checked the "LinkedIn Supported?" box when adding the third-party authentication step.)

You can add multiple URLs.

The following figure shows the Redirect URL section after adding a URL:

FIGURE 21 Redirect URL Added to LinkedIn Configuration



17. Click **Update** to save configuration changes to your application.

Make a note of your **Client ID** and **Client Secret** from [Figure 19](#). You need this information to set up the LinkedIn authentication within Cloudpath.

Setting Up Cloudpath for LinkedIn Authentication

After the LinkedIn application is set up, you configure an authentication step in Cloudpath to prompt the user for the LinkedIn credentials.

What You Need to Configure Cloudpath for LinkedIn

- LinkedIn application Client ID (API Key in previous versions)
- LinkedIn application Client Secret (Secret Key in previous versions)

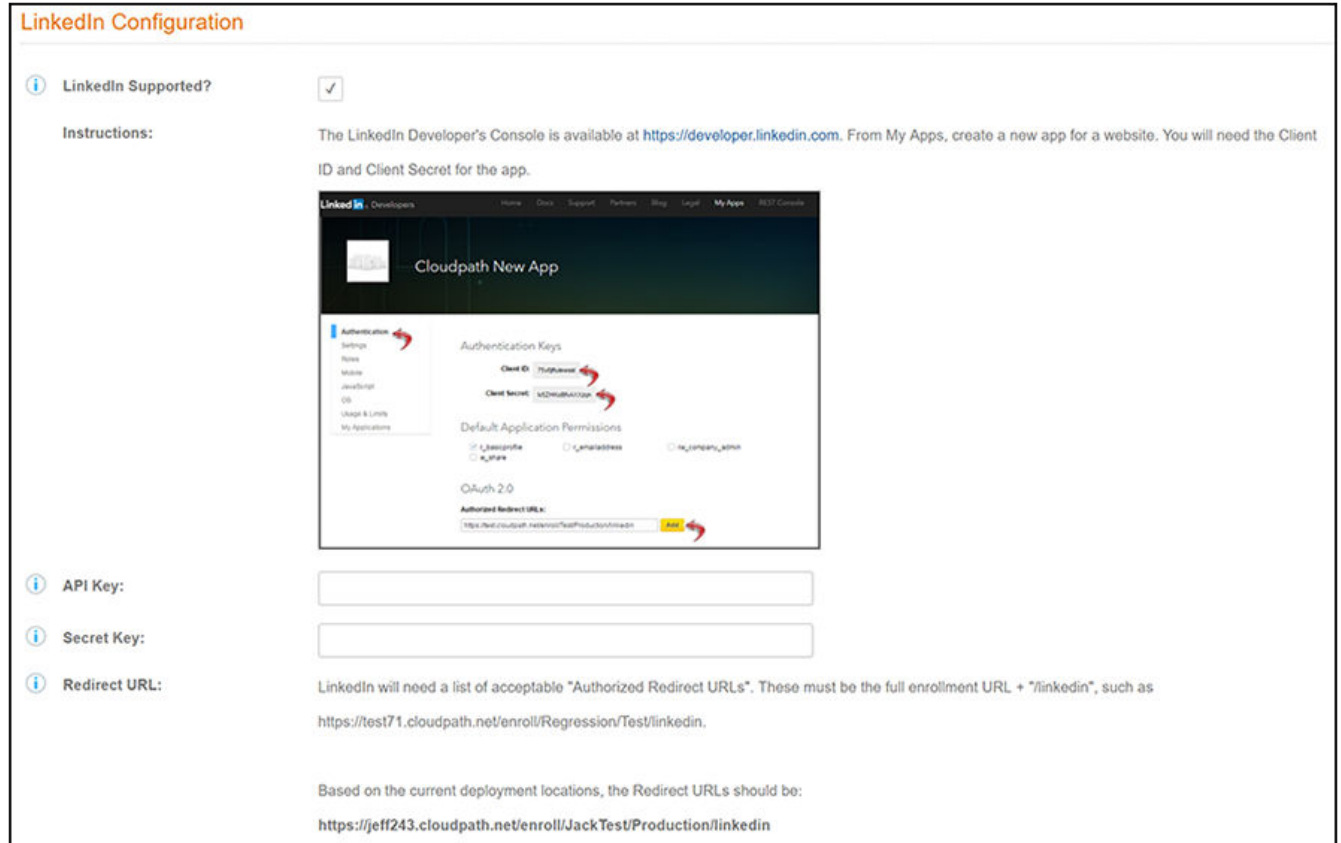
How to Add LinkedIn Authentication to the Workflow

You can add a step to the enrollment workflow to authenticate a user by using the LinkedIn application.

1. Create an enrollment workflow for third-party authentication.
2. Add an enrollment step that prompts the user to authenticate through a third-party source. The **Third-Party Authentication Setup** page allows you to specify which third-party sources are allowed as well as API information related to those sources.
3. Place the authentication step after the **User Type** option.
4. Enter the **Name** and **Description** of this configuration.

5. Scroll down to the **LinkedIn Configuration** section, and check the **LinkedIn Supported?** box.

FIGURE 22 Cloudpath Third-Party Authentication Setup for LinkedIn



6. In the API Key field, enter the Client ID from the LinkedIn Auth Tab Settings of Newly Created Application screen (refer to [Figure 19](#) on page 19).
7. In the Secret Key field, enter the Client Secret from the LinkedIn Auth Tab Settings of Newly Created Application screen (refer to [Figure 19](#) on page 19).

Using LinkedIn for Third-Party Authentication

Setting Up Cloudpath for LinkedIn Authentication

8. Click **Save**. The LinkedIn authentication step is added to your enrollment workflow.

FIGURE 23 Cloudpath Workflow With LinkedIn Step Added

The screenshot displays the 'Configuration > Workflows' interface. At the top right, there is an 'Add Workflow' button. Below it is a table with the following data:

Workflows	Status	Enrollment Portal URL	Last Publish Time
Production	Published	/enroll/Anna43TestBVT/Production/	20170427 1540 MDT

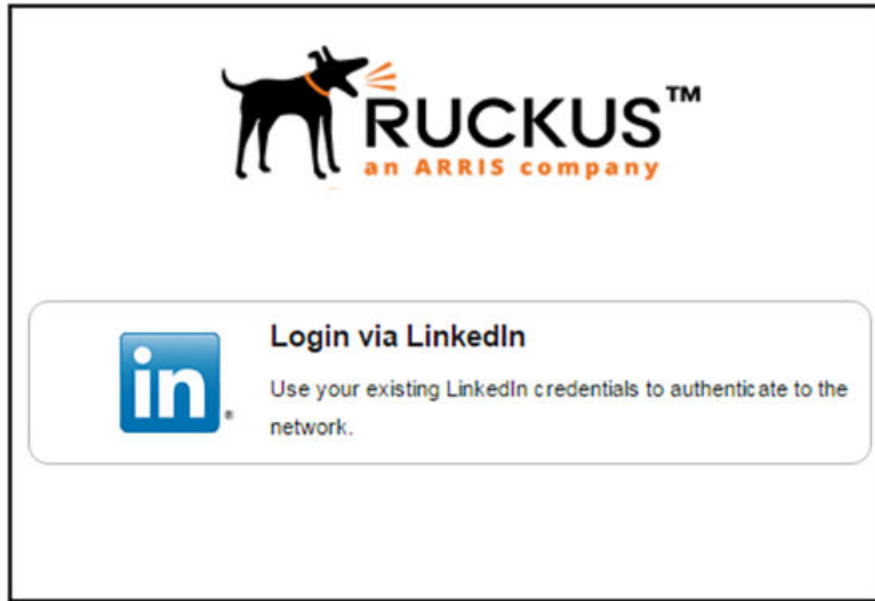
Below the table are tabs for 'Properties', 'Enrollment Process', 'Look & Feel', 'Snapshot(s)', and 'Advanced'. The 'Enrollment Process' tab is active, showing a workflow with four steps:

- Step 1: Require the user to accept the AUP **Welcome Message and AUP**
- Step 2: All matches in: **Visitors** Employees +
- Step 3: Authenticate the user via **LinkedIn Authentication** (highlighted in green)
- Result: Move user to **eng-Anna43** and assign certificate using **Guest Policy Templat...**

User Experience for LinkedIn Authentication

When a user attempts to gain access to your network, they receive the LinkedIn authentication prompt during the enrollment process.

FIGURE 24 User Prompt for LinkedIn Authentication



After authenticating the user with their LinkedIn credentials, Cloudpath continues with the enrollment process and moves the user to the secure network.

Using Google for Third-Party Authentication

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Setting Up the Google Application

Before configuring Cloudpath for Google authentication, you must set up the Google application.

What You Need To Set Up The Google Application

- Google login credentials
- Branding information for your application
- Redirect URL for your application

Creating the Google Web Application Project

The steps given here are only very high-level to inform you what information you will need to collect from your Google project that is needed on the Cloudpath UI-side configuration. You need to refer to your Google developer's documentation for all the information about creating your application.

1. Go to <https://console.developers.google.com>.
2. Sign in to your Google account.
3. Create and name your API web-application project.
4. During creation of your application, you may see a field called "Authorized Javascript origins." Leave this field blank.
5. When you get to the "Authorized redirect URIs" field, the entry must be in this format: `#{ENROLLER_URL}/enroll/google/`, where `#{ENROLLER_URL}` is the external URL to which the user is redirected. For multiple redirect URLs, enter one path on each line.

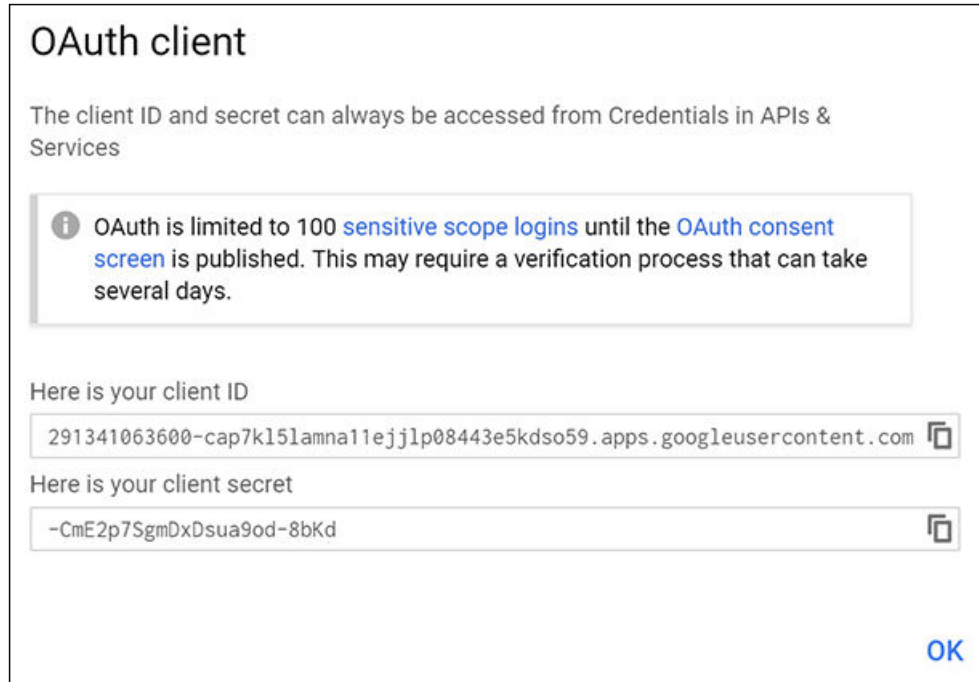
NOTE

To obtain the Redirect URI, when you are creating a workflow and you choose the "Authenticate to a third party" step and click **Next**, scroll down to the "Google" section and click the "Google Supported ?" checkbox. The redirect URI appears.

6. At some point during the process, you will be notified of the following information that you need to take note of because you will need this information for Cloudpath configuration:
 - client ID
 - client Secret

An example of one screen that provides you with this information is the following:

FIGURE 25 Client ID and Client Secret for Google Application



Setting Up Cloudpath for Google Authentication

After the Google application is set up, you configure an authentication step in Cloudpath to prompt the user for the Google credentials.

What You Need to Configure Cloudpath for Google

- Google application Client ID
- Google application Client Secret

How to Add Google Authentication to the Workflow

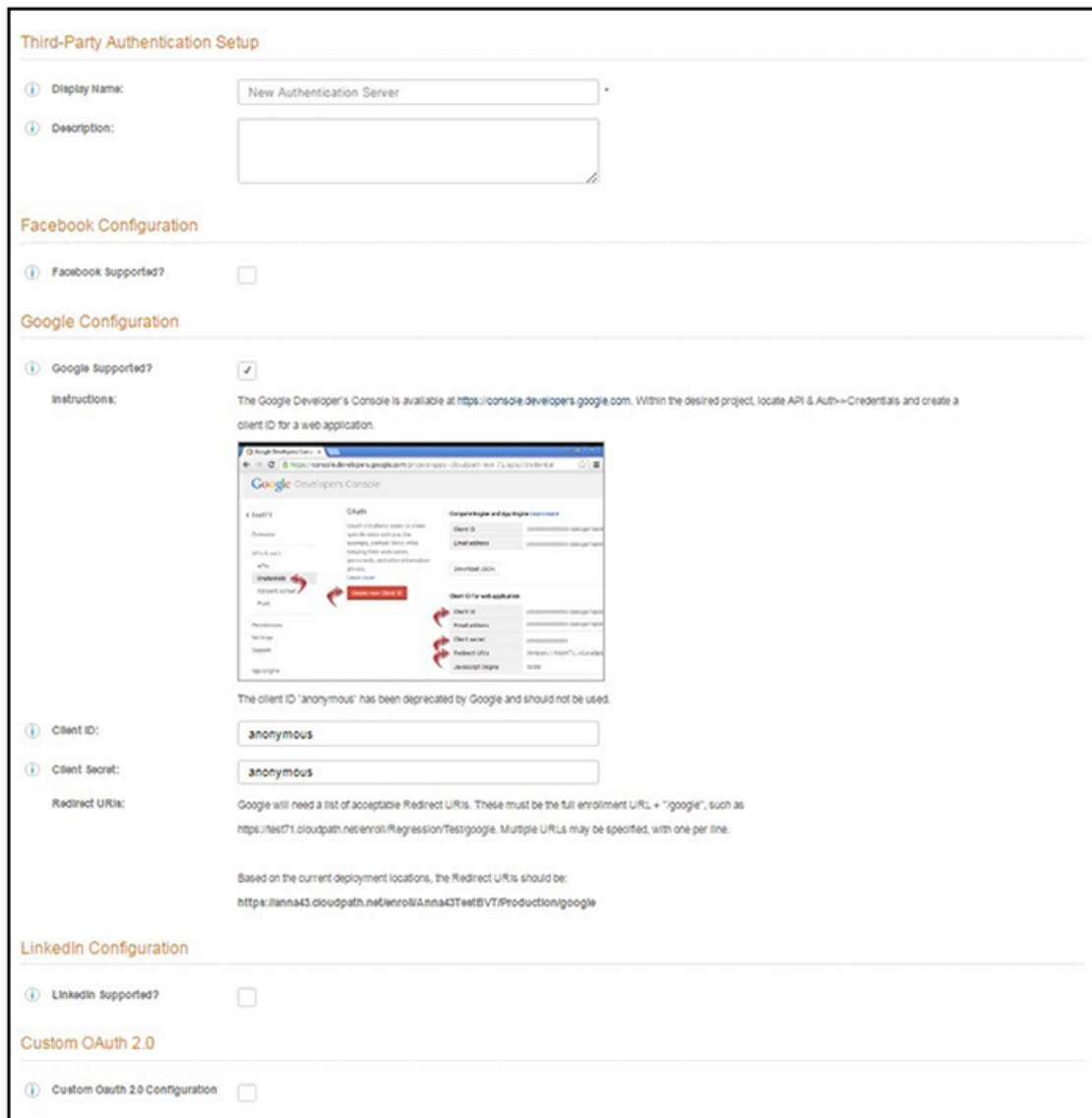
1. Create an enrollment workflow for third-party authentication.
2. Add an enrollment step that prompts the user to authenticate through a third-party source.

3. Select **Create a new configuration**.

The **Third-Party Authentication Setup** page allows you to specify which third-party sources are allowed as well as API information related to those sources.

4. Enter the **Name** and **Description** of this configuration.

FIGURE 26 Google Third-Party Authentication Setup



5. In the Google Configuration section, check the **Google Supported?** box.
6. Read the instructions for creating a client key. Be sure that the URI in the Google application matches the instructions on this page.
7. Enter the **Client ID** and **Client Secret** from the Google application.

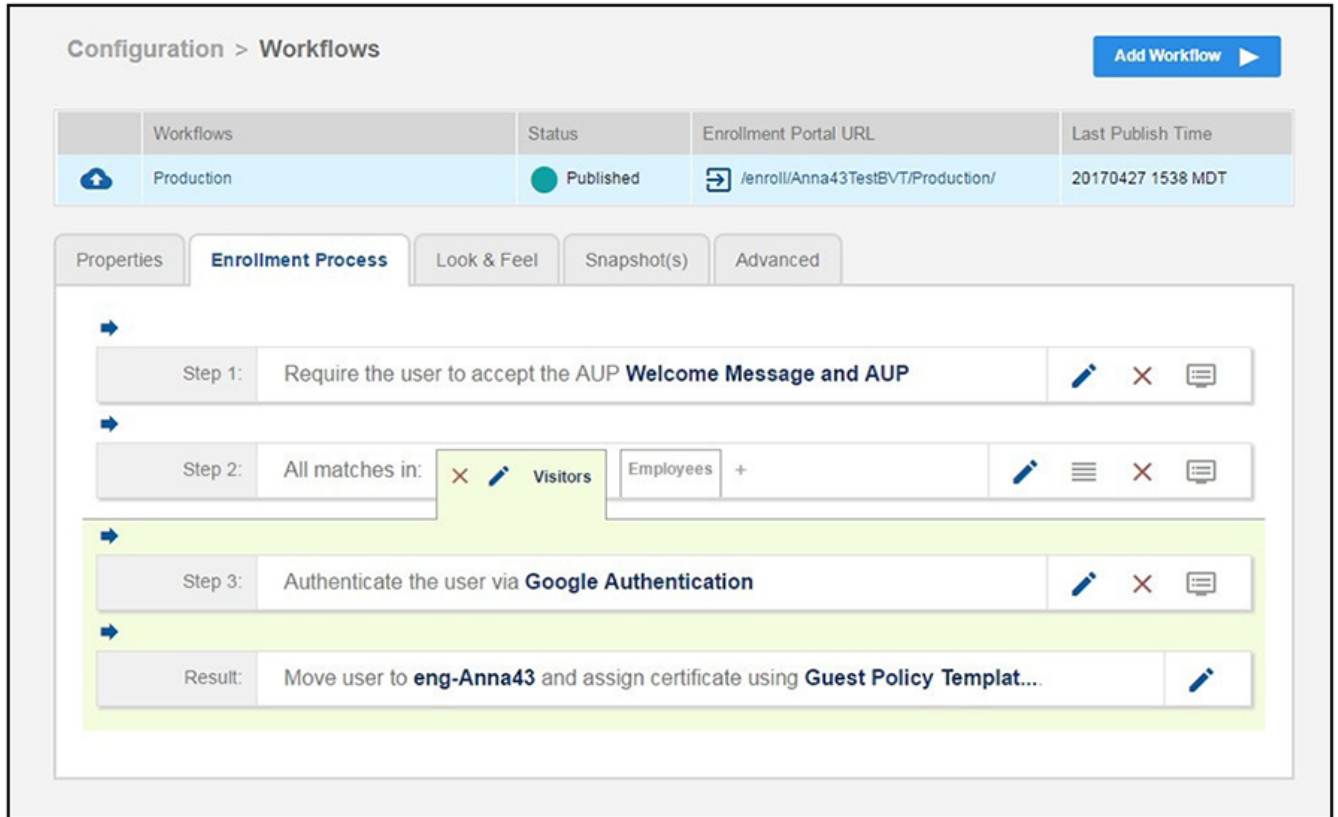
Note: These entries must match what is specified in the Google application.

Using Google for Third-Party Authentication

Setting Up Cloudpath for Google Authentication

8. Click **Save**. The Google authentication step is added to your enrollment workflow.

FIGURE 27 Cloudpath Workflow



The screenshot displays the 'Configuration > Workflows' interface. At the top right, there is an 'Add Workflow' button. Below it is a table with the following data:

Workflows	Status	Enrollment Portal URL	Last Publish Time
Production	Published	/enroll/Anna43TestBVT/Production/	20170427 1538 MDT

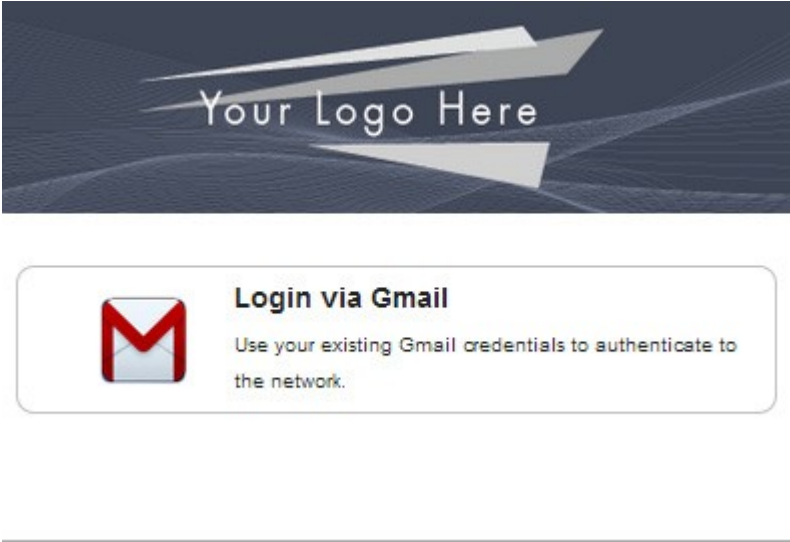
Below the table are tabs for 'Properties', 'Enrollment Process', 'Look & Feel', 'Snapshot(s)', and 'Advanced'. The 'Enrollment Process' tab is active, showing a workflow diagram with four steps:

- Step 1: Require the user to accept the AUP **Welcome Message and AUP**
- Step 2: All matches in: **Visitors**, **Employees**
- Step 3: Authenticate the user via **Google Authentication**
- Result: Move user to **eng-Anna43** and assign certificate using **Guest Policy Templat...**

User Experience for Google Authentication

When a user attempts to gain access to your network, they receive the Google authentication prompt during the enrollment process.

FIGURE 28 User Prompt for Google Authentication



After authenticating the user with their Gmail credentials, Cloudpath continues with the enrollment process and moves the user to the secure network.

Using Google LDAP Client as an Authentication Server

If you use G Suite to manage your users with Google Directory, you can use Google LDAP as an authentication server for onboarding users to your Cloudpath Enrollment System.

Prerequisites

Before you begin any configuration on the Cloudpath UI, be sure you have the following:

- Google LDAP client with access permissions as follows:
 - Specify the LDAP client access level for verifying user credentials. When a user tries to sign in to the application, this setting specifies which organizational units the LDAP client can access to verify a user's credentials. Users who not part of one of the selected organizational units cannot sign in to the application.
 - Specify the LDAP client access level for reading user information. This setting specifies the organizational units that the LDAP client can access to retrieve additional user information.
 - Specify whether the LDAP client can read group information. This setting specifies whether the LDAP client can read group details and check a user's group memberships for purposes such as a user's role in the application.
- Google LDAP client certificate zip file (which contains both the public and private keys). The certificate is used for encryption by the LDAP service provider.
- (Optional) Access credentials from Google LDAP client: If you will require Cloudpath to use the "Binding Username" and "Binding Password" fields ([Figure 29](#)) in addition to the certificate to connect to the secure LDAP service you must generate access credentials.

NOTE

Refer to your G Suite LDAP documentation for information about setting up Google LDAP clients.

Configuration Steps

Follow these steps to configure the Google LDAP authentication server in the Cloudpath UI:

NOTE

Because access credentials are optional, the configuration steps below do not include using the applicable fields: Binding Username, Binding Password, and Lookup Bind Credentials.

1. Go to **Configuration > Authentication Servers**, and click **Add Server**.
2. In the next screen, where you select the type of Authentication server, scroll down and select the "Connect to LDAP" button, then fill in the LDAP Host and DN fields as shown in the example below:

FIGURE 29 Connect to LDAP Selection

Connect to LDAP
Select this option to enable end-users to authenticate via LDAP (or LDAPs).

Required LDAP Information

- LDAP Host:** ldaps://ldap.google.com *
- DN:** dc=cloudpath,dc=net *
- Bind Username:** [ex. uid=bob,cn=users,dc=test,dc=cloudpath,dc=local]
- Bind Password:**
- Lookup Bind Credentials:** User
- Search Filter:** (&(objectClass=person)(uid={0}))

- Connect to LDAP: ldaps://ldap.google.com

NOTE

ldaps://ldap.google.com is always the LDAP host name for G Suite LDAP client

- DN: The distinguished name of the domain
3. If you are not using binding, leave the Bind Username and Bind Password fields empty, then click **Save**. The new LDAP server ("Jack Test LDAP") is now added to the list of authorization servers, as shown in the example below:

FIGURE 30 LDAP Authentication Server Added

Configuration > Authentication Servers Add Server

>	Server 1:	LDAP server Jack Test LDAP		
>	Server 2:	SAML Identity Provider (IdP) Jack Test SAML		
>	Server 3:	OAuth server LinkedIn, Facebook, or Gmail		
>	Server 4:	Active Directory server Jack Test AD		

4. Enter edit mode for the newly created LDAP server by clicking the pencil icon to the right of the server name.
5. In the ensuing Modify Authentication Servers screen, check the TLS Client Certificate box. When you check this box, the screen allows you to upload the certificate using the "Define Certificate" button, as shown at the bottom of the following illustration:

FIGURE 31 Checking the TLS Client Certificate Button

The screenshot shows a configuration interface for connecting to an LDAP server. At the top, there is a radio button labeled "Connect to LDAP" which is selected. Below it is a descriptive text: "Select this option to enable end-users to authenticate via LDAP (or LDAPs)".

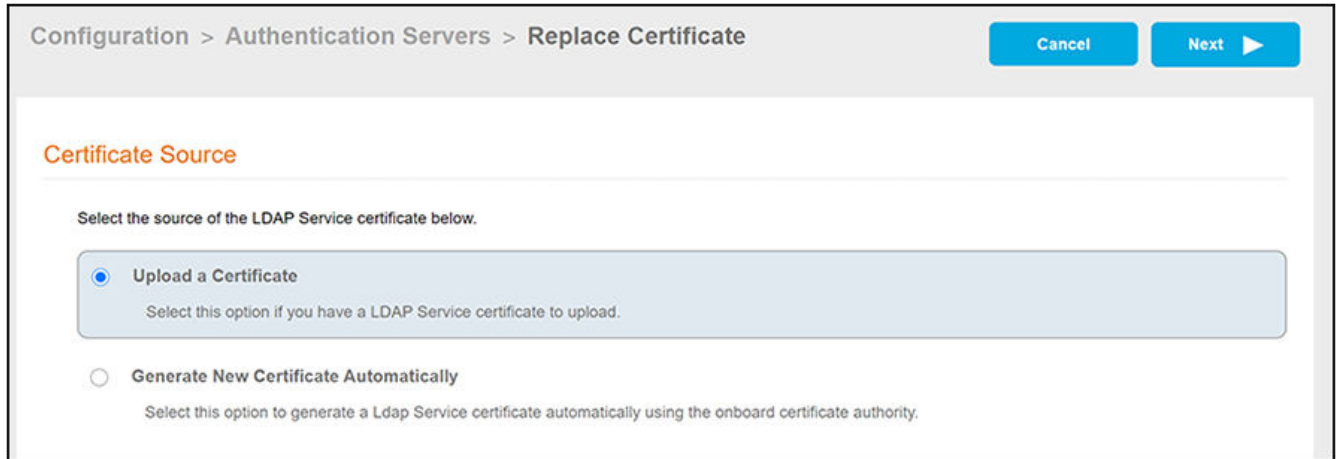
The main section is titled "Required LDAP Information" and contains several fields:

- Reference Name:** Jack Test LDAP *
- LDAP Host:** ldaps://ldap.google.com *
- DN:** dc=cloudpath,dc=net *
- Bind Username:** [ex. uid=bob,cn=users,dc=test,dc=cloudpath,dc=local]
- Bind Password:** (empty field)
- Lookup Bind Credentials:** User (dropdown menu)
- Search Filter:** (&(objectClass=person)(uid={0}))
- TLS Client Certificate:**

Below the fields, there is a message: "No certificate defined - Press 'Define Certificate' button below." At the bottom, under the "Actions:" label, there is a button labeled "Define Certificate".

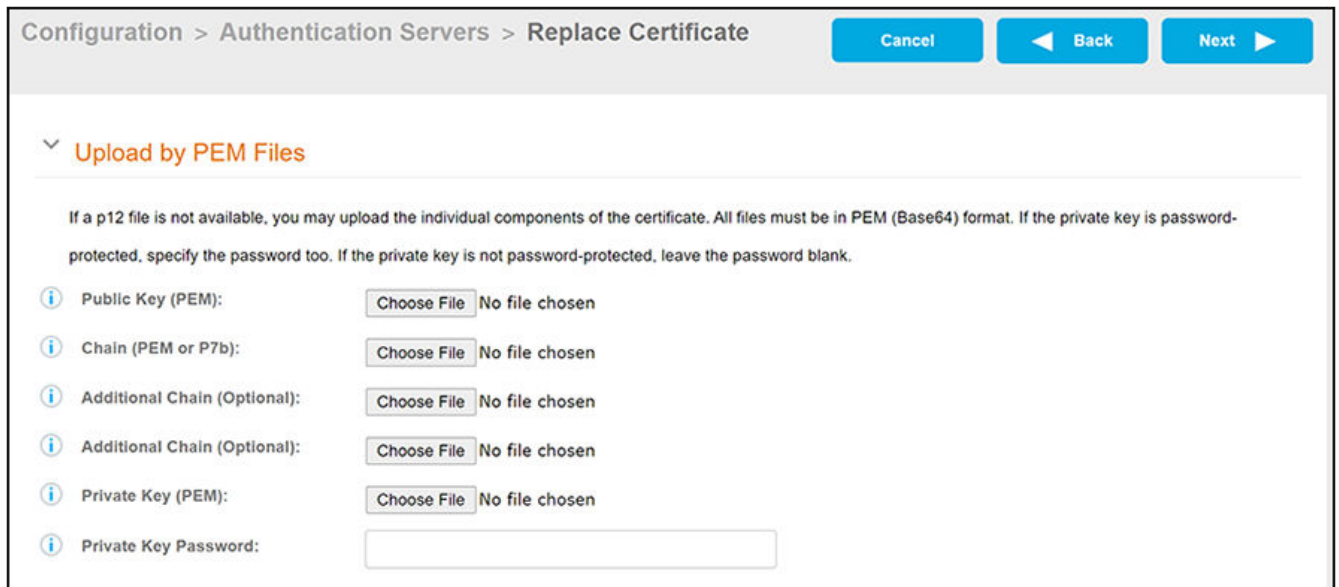
6. Click "Define Certificate" to invoke the following screen, where you select the source of your certificate:

FIGURE 32 Selecting the Certificate Source



7. With the "Upload a Certificate" button selected, click **Next**. The following screen appears:

FIGURE 33 Screen for Uploading Certificates



8. Using the Public Key (PEM) field, click **Choose File** to upload your certificate (a .crt file).
9. Using the Private Key (PEM) field, click **Choose File** to upload your private key (a .key file). The screen should now appear as follows:

FIGURE 34 Screen After Certificate Files Are Added

The screenshot shows a configuration window titled "Configuration > Authentication Servers > Replace Certificate". At the top right are three buttons: "Cancel", "Back", and "Next". Below the title bar is a section header "Upload by PEM Files" with a dropdown arrow. A paragraph of text explains that if a p12 file is not available, individual components of the certificate can be uploaded in PEM (Base64) format, and that passwords should be specified for password-protected private keys. Below this text are six rows of input fields, each with an information icon (i) on the left:

- Public Key (PEM): Choose File Google_2023_...08_1523.crt
- Chain (PEM or P7b): Choose File No file chosen
- Additional Chain (Optional): Choose File No file chosen
- Additional Chain (Optional): Choose File No file chosen
- Private Key (PEM): Choose File Google_2023_...08_1523.key
- Private Key Password: [Empty text input field]

10. Click **Next**. A message indicating success of the certificate upload briefly appears, and you are returned to the LDAP Configuration screen.

FIGURE 35 LDAP Configuration Screen After Certificates Are Successfully Added

The screenshot shows the 'Connect to LDAP' configuration screen. At the top, there is a radio button selected for 'Connect to LDAP' and a sub-header 'Required LDAP Information'. Below this, several fields are listed with information icons on the left and asterisks on the right:

- Reference Name: Jack Test LDAP *
- LDAP Host: ldaps://ldap.google.com *
- DN: dc=cloudpath,dc=net *
- Bind Username: jack@cloudpath.net
- Bind Password: [Redacted]
- Lookup Bind Credentials: User (dropdown menu)
- Search Filter: (&(objectClass=person)(uid={0}))
- TLS Client Certificate: [checked]

Below the fields, certificate details are displayed:

- Common Name: LDAP Client
- Issuer Name: LDAP Client
- Thumbprint: E55777EB27E70518C7250D8D9CF76FEAF6430F3D
- Serial Number: 00171572d628c
- Algorithm (Bits): SHA256WITHRSA (2048)

At the bottom, there are two buttons: 'Replace Certificate' and 'Delete Certificate'.

11. If you are not using binding, you should remove any values that may have been placed into the Bind Username and Bind Password fields, then click **Save**.

NOTE

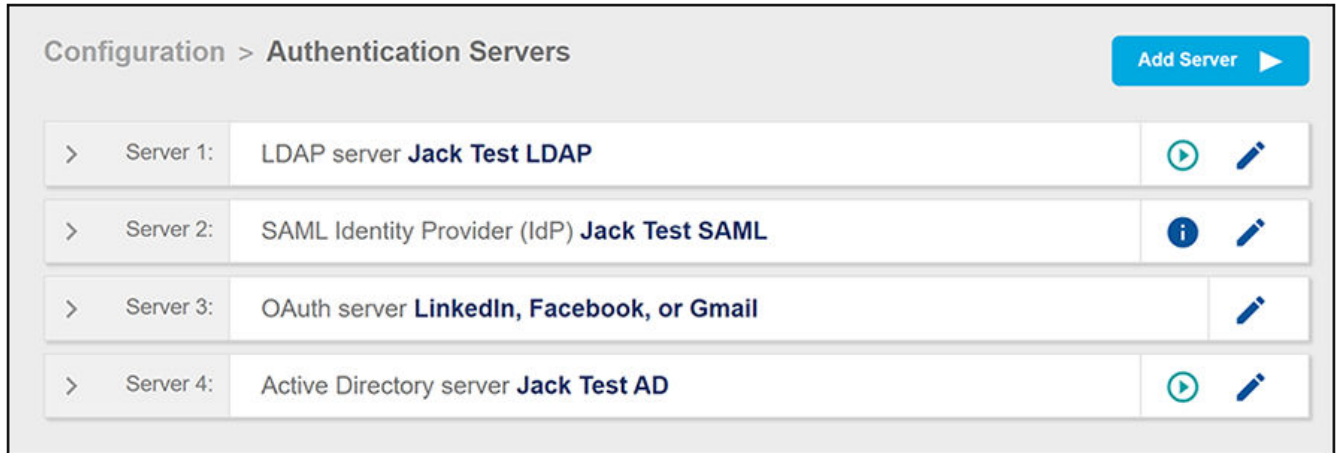
As shown in the screen above, you can now view details such as thumbprint and serial number of the certificate, and you can also replace or delete the certificate from this screen. To return to this screen later, go to **Configuration > Authentication Servers** and click the pencil icon next to the sever to go into edit mode, then follow the instructions.

Testing

To test the connection to the LDAP server, do the following:

1. Go to **Configuration > Authentication Servers** and click the arrow to the right of the server name, as shown below:

FIGURE 36 Testing Server Connection



2. Enter a valid Google G Suite LDAP client username and password, then click **Continue**. If the connection is good, a message will indicate successful authentication.

NOTE

If the connection test fails, be sure that the Binding Username and Binding Password fields are empty (if you are not using binding) in the LDAP configuration screen.

Next Steps

You can include the LDAP authentication server in a workflow. For more information about workflows, refer to the *Cloudpath ES Deployment Administration Guide*.



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