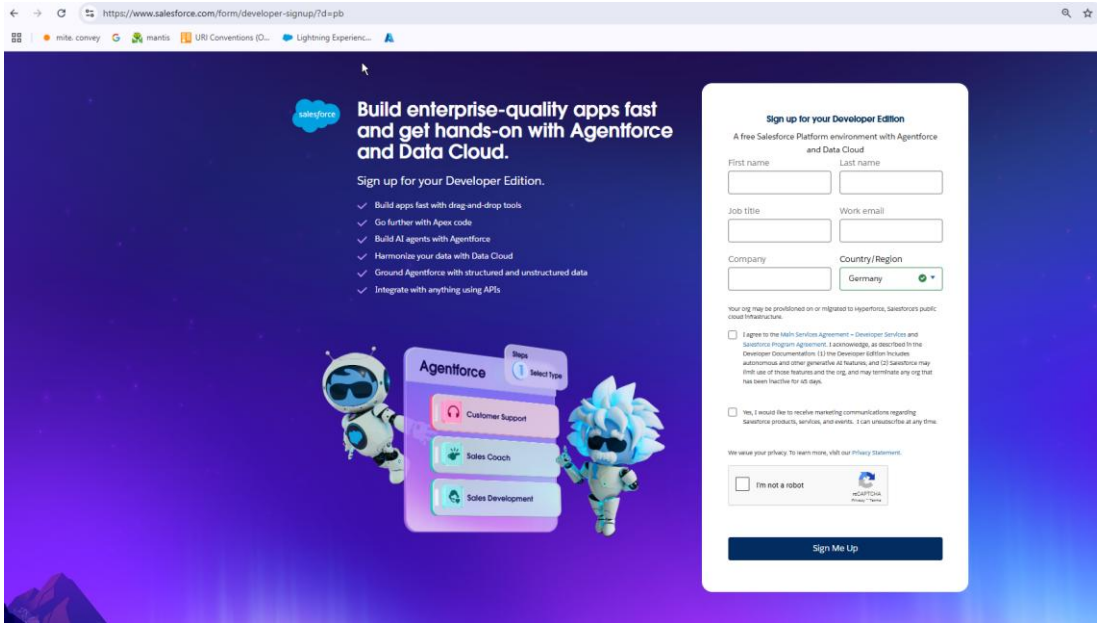
Technical Documentation for Salesforce API Integration

1. Creating a Salesforce Developer Account

1.1. Developer Account Registration

1. **Access the registration form**
    - Go to *https://www.salesforce.com/form/developer-signup/*
    - Fill out the form with your personal information
    - Choose a secure password
    - Accept the terms of use



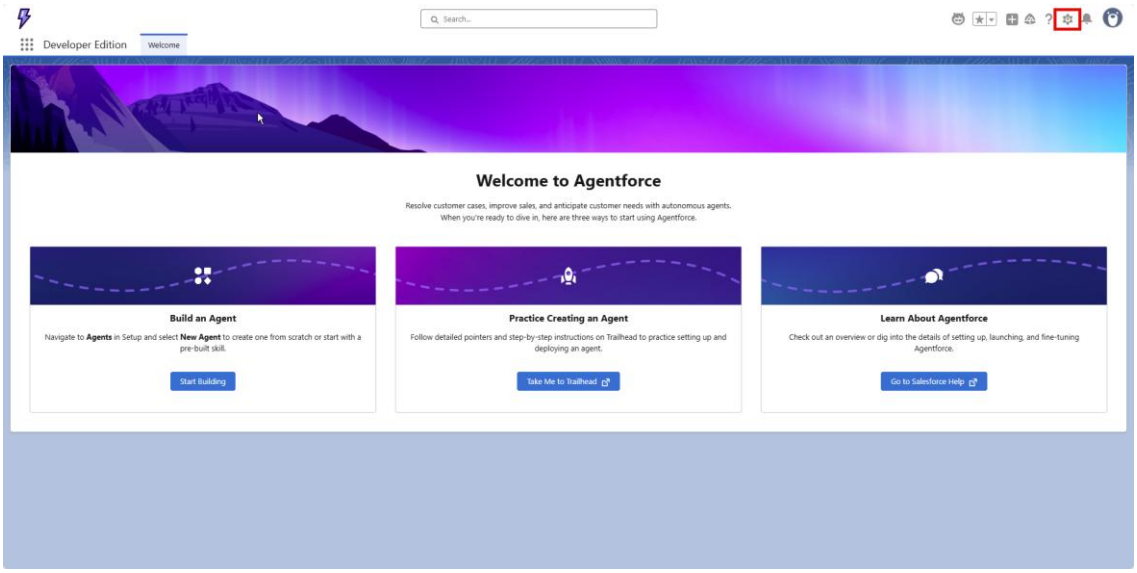
2. **Email verification**
    - Check your inbox
    - Click on the verification link received
    - Follow the instructions to finalize your account creation
3. **First login**
    - You will be redirected to the *Agentforce* home page
    - Familiarize yourself with the interface

2. Configuring a Connected App in Salesforce

You are now on the Agentforce home page, which is a Salesforce feature. To develop an application that will connect to your external system, we will follow these steps:

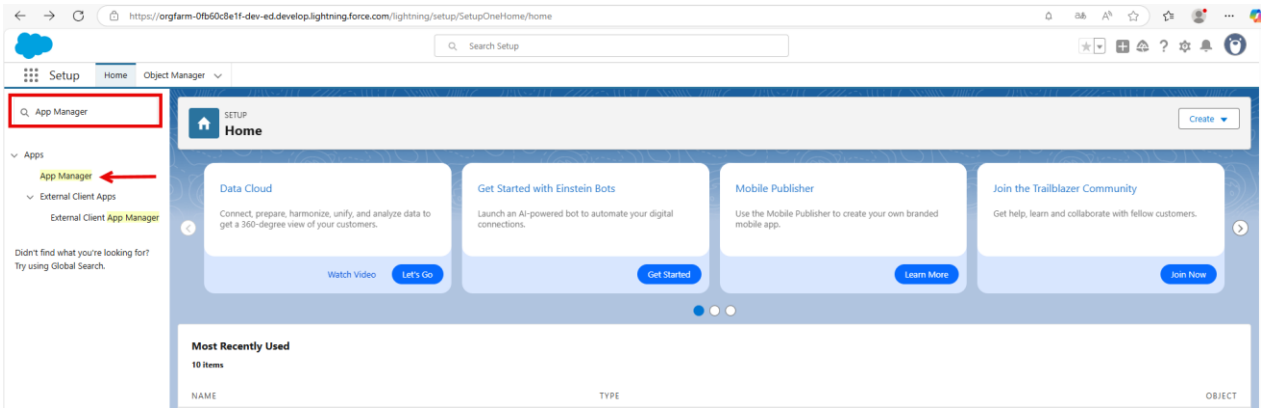
2.1 Accessing Salesforce Configuration (Setup)

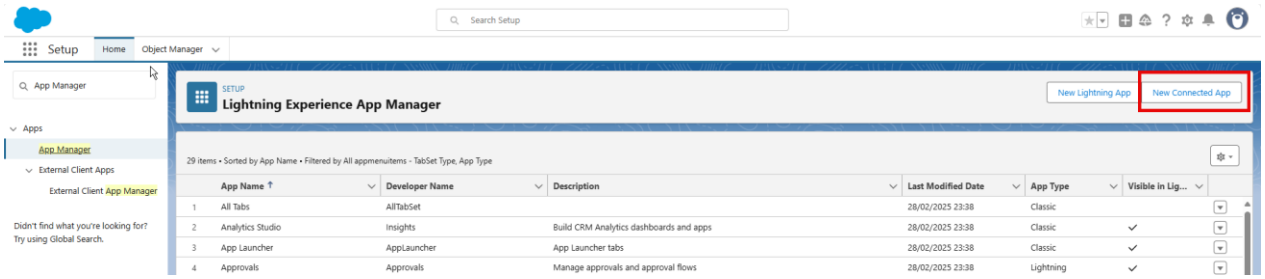
- Click on the gear icon ⚙️ in the top right corner
- Select "*Configuration*" or "*Setup*"

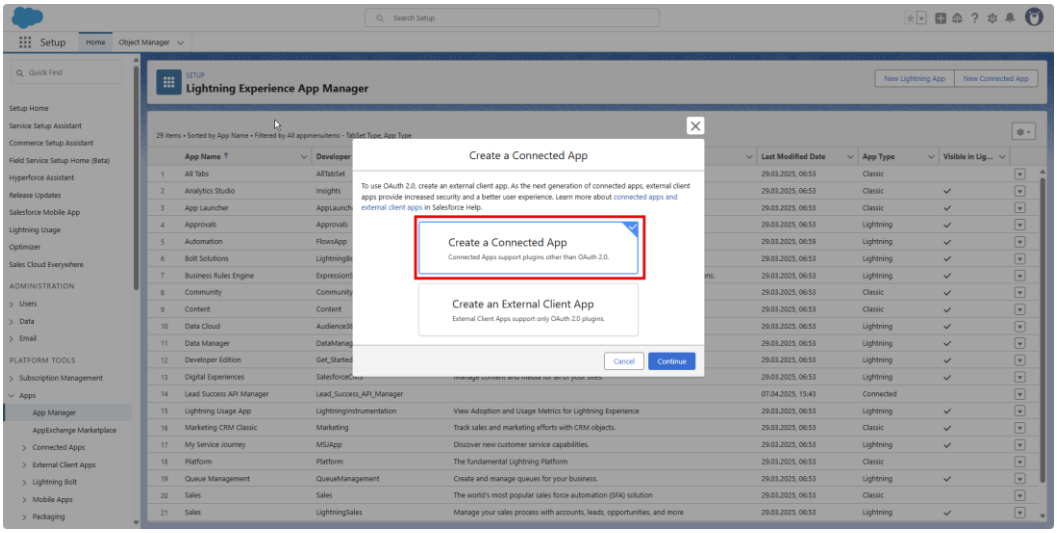


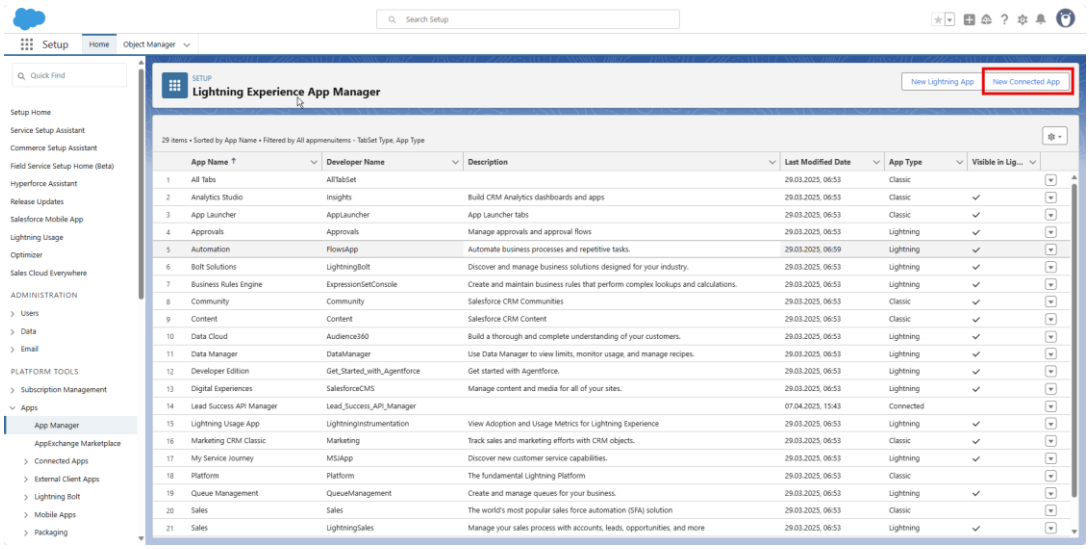
2.2. Creating a Connected App

1. **Access App Manager**
    - Click on the gear icon ⚙ in the top right corner
    - In the configuration search bar, type "*App Manager*"
    - Select "*App Manager*" from the results
2. **Initiate the application creation**
    - Click on "*New Connected App*" in the top right
    - In the dialog box that appears, select "*Create a Connected App*"









2.3. Configuring the Connected App

1. **Basic Information**
   - Connected App Name: Enter the name of your application, for example "*Demo Lead Success API Manager*"
   - *API Name*: (automatically filled)
   - *Contact Email*: your email address
   - *Contact Phone*: your phone number (optional)
2. **OAuth Settings**
   - Check "*Enable OAuth Settings*"
   - ***Callback URL***:
     Enter the URL where our application will redirect after authentication:
     https://lsapisfbackend.convey.de/oauth-callback.html.
     Note: This callback URL is the address to which Salesforce will redirect after successful authentication. This is where our application processes authentication data and completes the OAuth flow. This URL must be entered exactly as shown - incorrect URLs will result in authentication failures.
     ***Additional Callback URLs (Optional)**: If you're testing in different environments, you can add additional callback URLs (one per line):*
     For testing: https://your-are-domain/oauth-callback.html
     For local development: http://localhost:3000/oauth-callback.html

Select OAuth scopes:

1. **Access the identity URL service (***id, profile, email, address, phone***)** *Allows access to basic user information such as profile, email, and contact details.*
2. **Manage user data via APIs** *(api) Authorizes access and manipulation of Salesforce data via REST, SOAP, and Bulk APIs*
3. **Full access** *(full) Provides complete access to the Salesforce instance, equivalent to the connected user's rights*
4. **Perform requests at any time** *(refresh_token, offline_access) Allows using a refresh token to obtain new access tokens without requiring the user to reconnect*

- IMPORTANT: Check "*Require Secret for Web Server Flow*" and "Require Secret for Refresh Token Flow"
- *DO NOT check* "Require Proof Key for Code Exchange (PKCE) Extension"

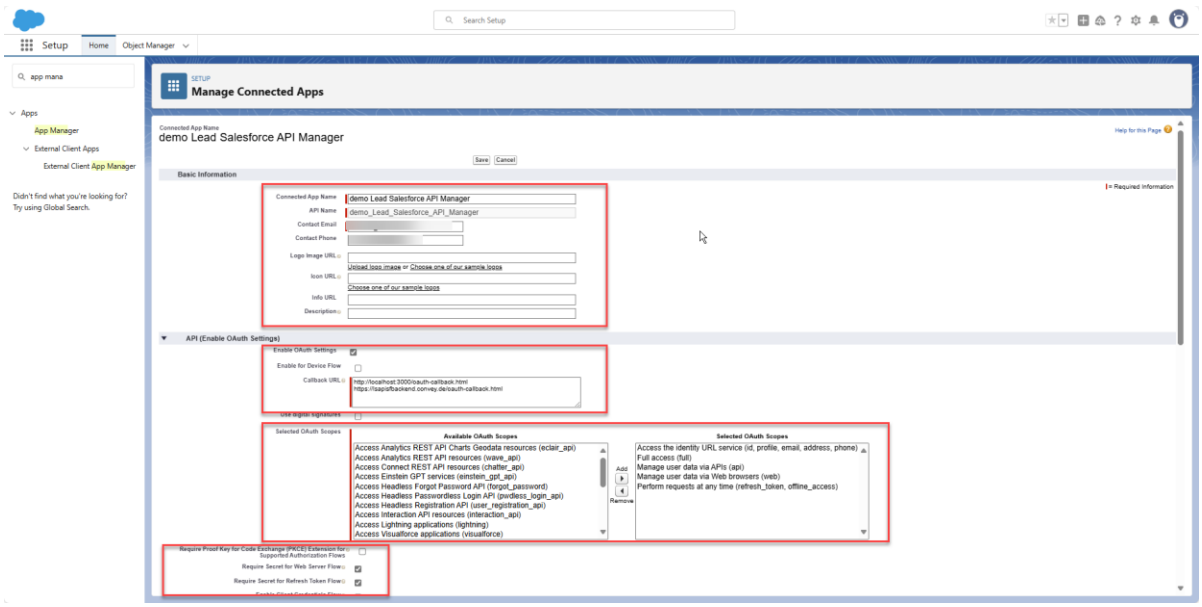
3. Why not select PKCE?

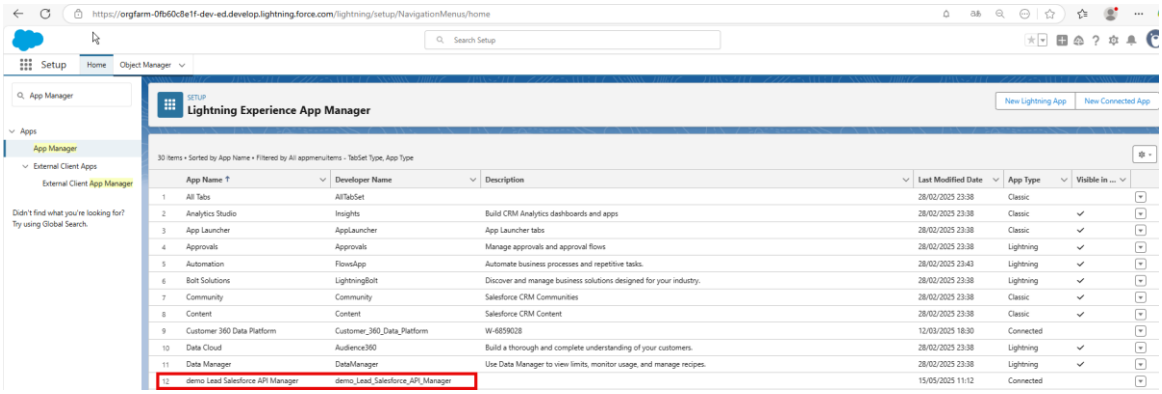
   The "**Require Proof Key for Code Exchange (PKCE) Extension for Supported Authorization Flows**" checkbox is an additional security measure primarily used for mobile applications or public applications (client-side) that cannot securely store a client secret.

   In your case, you should not select this option because:

   - Your integration is likely a server-side application that can securely store the client secret
   - Enabling PKCE requires additional authentication steps in your code
   - For testing with Postman or other API tools, the absence of PKCE considerably simplifies the authentication process
   - If you enable PKCE, you will need to modify your authentication code to include the generation and verification of PKCE codes, which complicates the integration

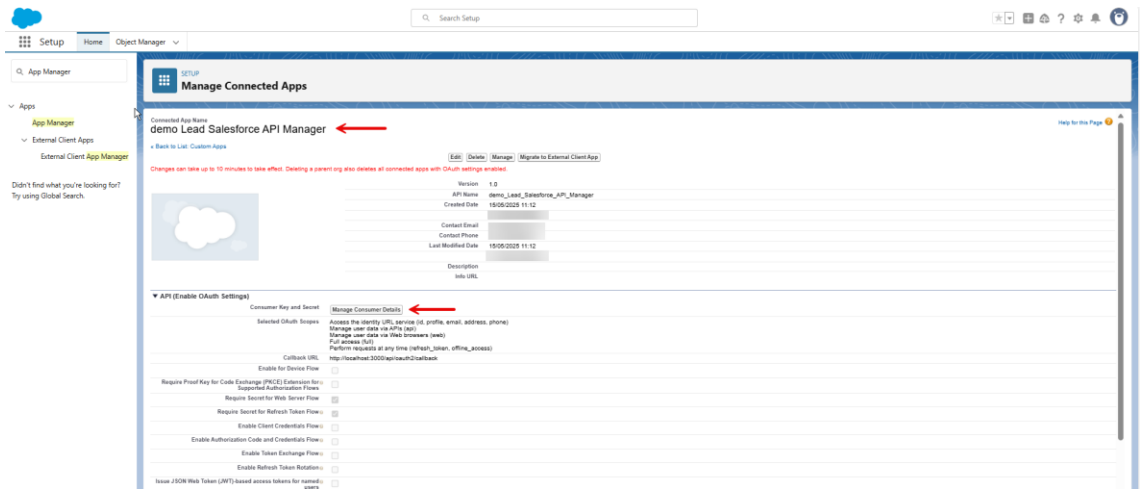
4. **Save the application**
   - Click on "***Save***" to create the connected app





2.4. Obtaining Consumer Keys

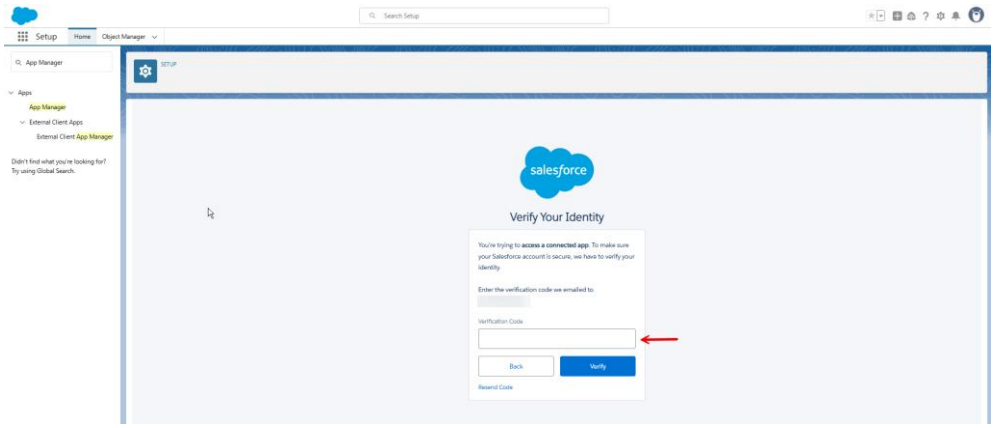
1. **Access application details**
    - In the App Manager page, locate your application "***Demo Lead Success API Manager***" or your application
    - Click on "***Manage***" to the right of the application
2. **Get Consumer Keys**
    - In the "API (**Enable OAuth Settings**)" section, click on "**Manage Consumer Details**"
    - You will need to confirm your identity with a code sent by email
    - Once authenticated, copy:
        - *Consumer Key (public key)*
        - *Consumer Secret (secret key)*
    - **Keep this information secure** - you will need it to configure your application



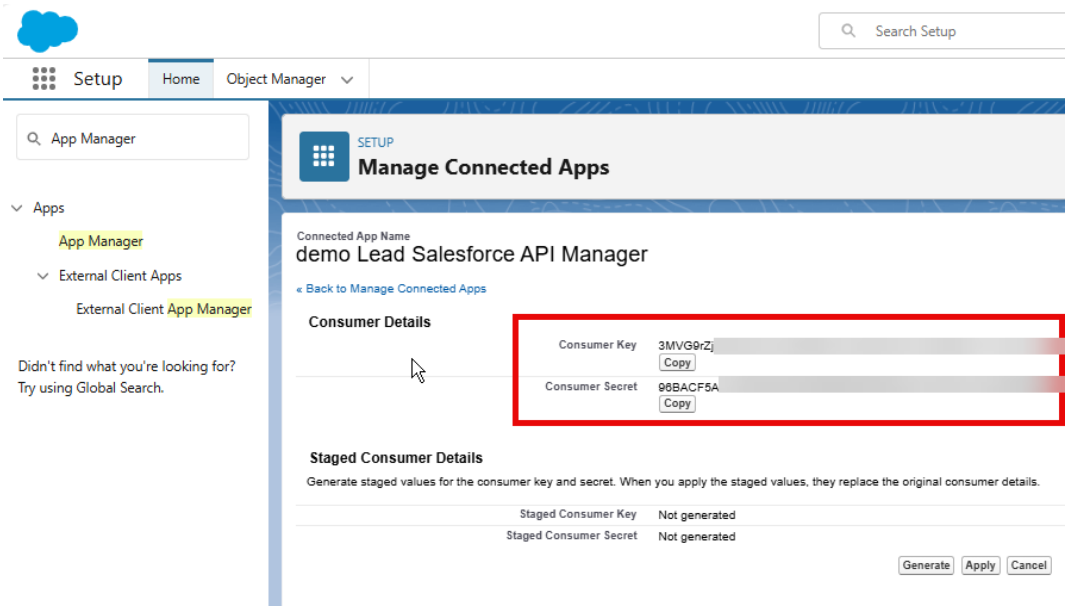
Salesforce Authentication Flow

When connecting to our application through Salesforce, you'll need to verify your identity. After entering your Salesforce credentials, you'll see this verification screen.

Enter the verification code sent to your email address in the field highlighted with the red arrow. This extra security step ensures only authorized users can connect to our application with your Salesforce credentials.



Once verified, you'll be redirected back to our application, and the integration will be complete.



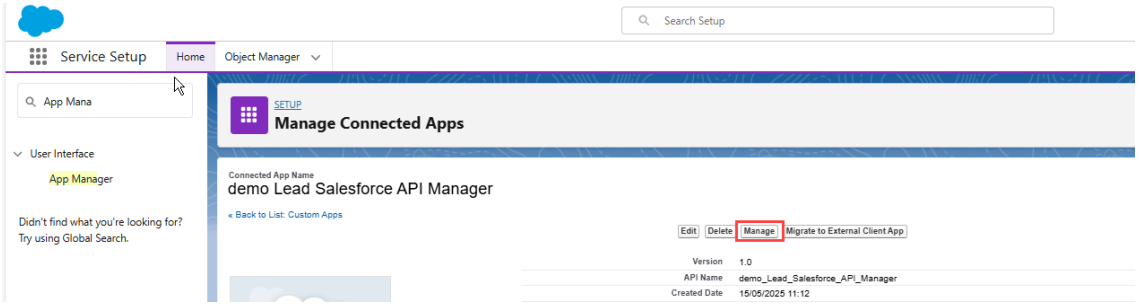
- **Consumer Key**: This is your Client ID (shown as "3MtVG9rZj" in the example)
- **Consumer Secret**: This is your Client Secret (shown as "96BACF6A" in the example)

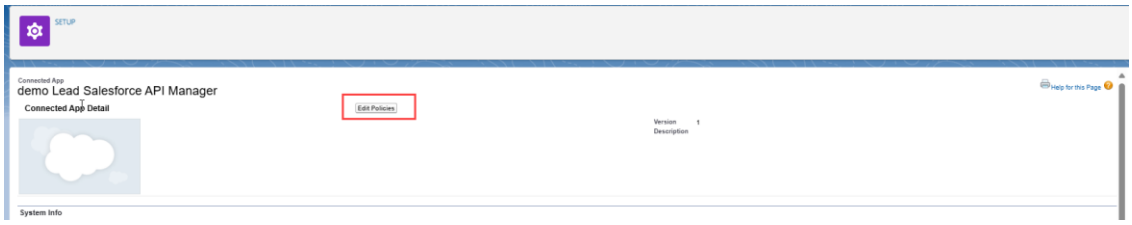
These credentials must be entered in our application's Salesforce configuration section. Use the "Copy" buttons to copy each value without typing errors. Keep these credentials secure as they provide access to your Salesforce *data*.

Note: The values shown are examples and your actual credentials will be different. *Never share these credentials publicly.*

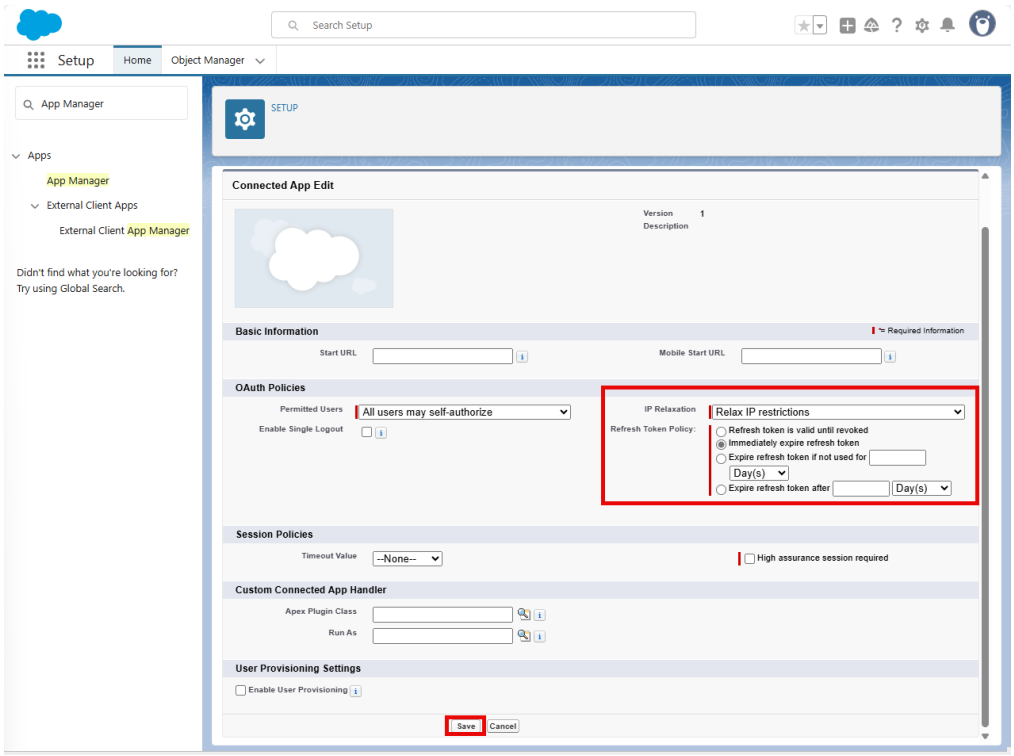
2.5. Configuring OAuth Policies

1. **Edit policies**
    - On the connected app details page, click on "**Manage** " after that **Edit Policies**"





2. **Configure security settings**
    - Permitted Users: "***All users may self-authorize***"
    - IP Relaxation: "***Relax IP restrictions***" (allows connections from different IP addresses)
    - Refresh Token Policy: "**Immediately expire refresh token**" (or according to your security needs)
    - Click on "***Save***"

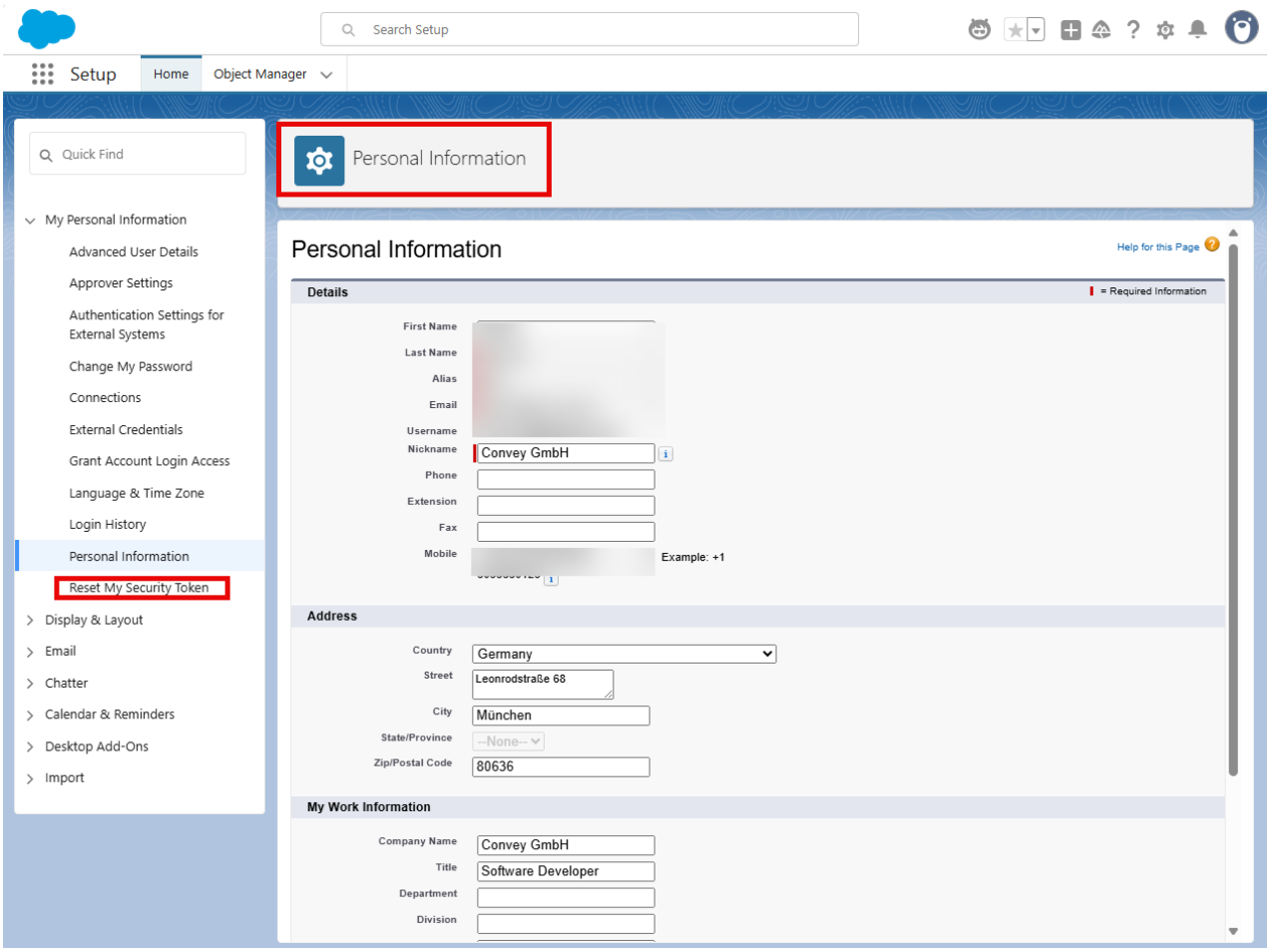


2.6. Personal Security Configuration

Step 1: Access personal information

- In the configuration menu, navigate to "***My Personal Information***"

- You can view and modify your personal information such as name, email, etc.

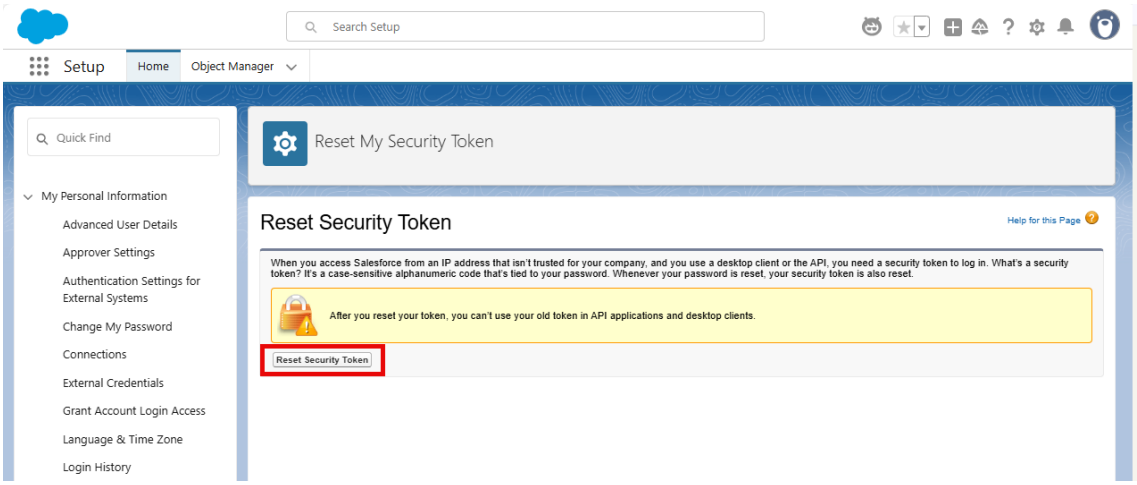


Step 2: Manage security tokens

- In the side menu, click on "***Reset My Security Token***"
- The security token is necessary for API authentication in certain scenarios

Step 3: Reset the security token

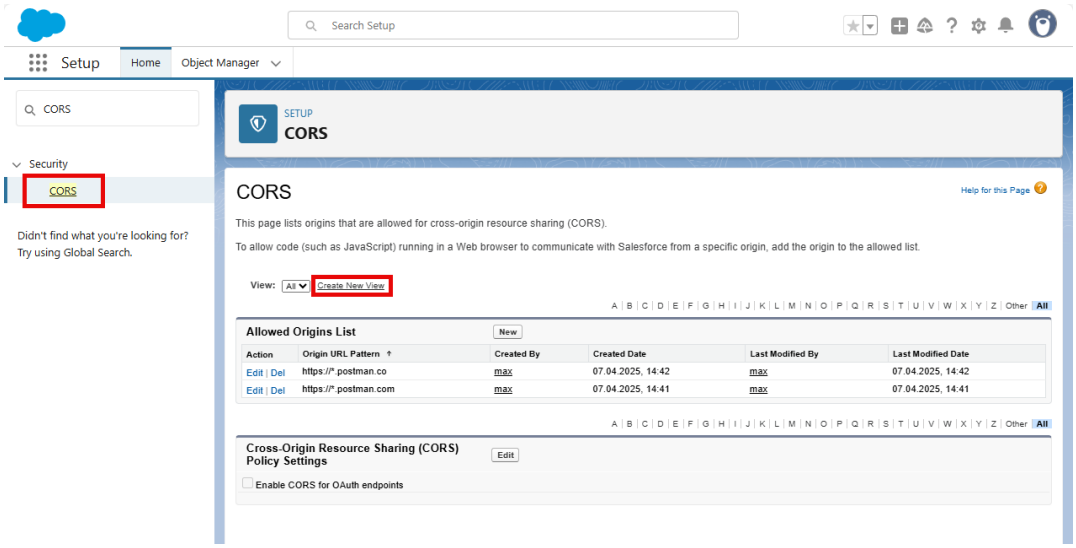
- Click on the "**Reset Security Token**" button
- A new token will be sent to your **email** address
- This token may be necessary for API authentication in certain scenarios, particularly when authenticating with username and password

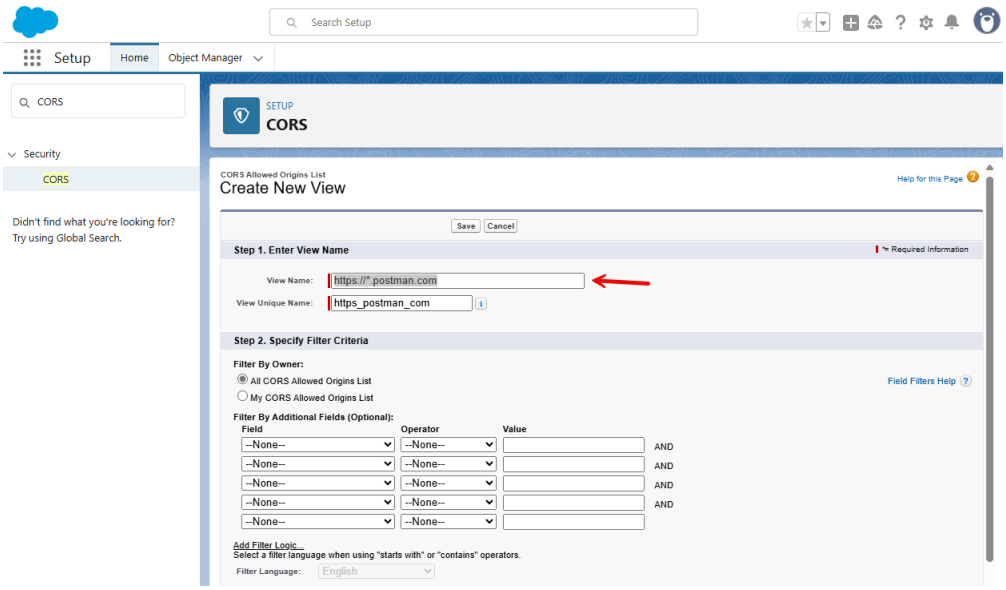


3. Configuring CORS to Allow Cross-Origin Requests

CORS (Cross-Origin Resource Sharing) is essential to allow your frontend application to communicate with Salesforce.

1. **Access CORS settings**
    - In the configuration search bar, type "CORS"
    - Select "CORS" under the Security section
2. **Add allowed domains**
    - Click on "**New**" to add a new origin
    - Add **https://*.postman.com** for testing with Postman
    - Add **https://*.postman.co** for testing with Postman
    - Also add the URL of your application (for example**: https://your-domain.com**)
3. **Why configure CORS?**
    - **CORS** is a security mechanism that prevents websites from making requests to other domains
    - Without this configuration, requests from your frontend application to Salesforce would be blocked
    - Adding Postman domains allows for easy API testing before complete integration





4. Architecture and Integration Operation

4.1. System Architecture

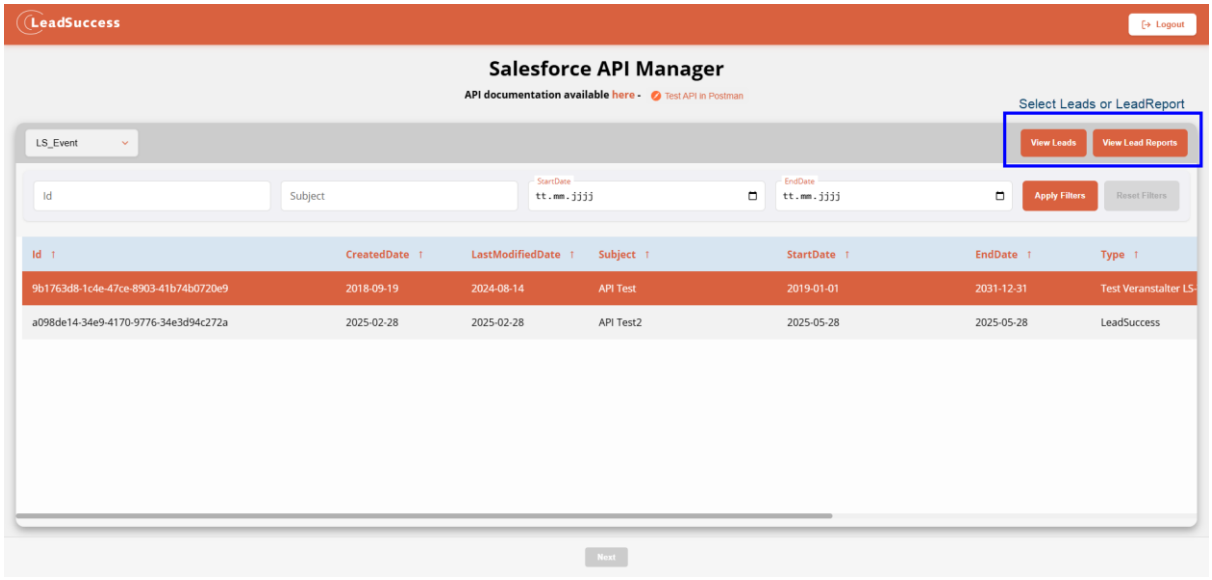
The integration between your application and Salesforce relies on three key components that work together to provide a seamless lead transfer experience:

4.1.1. Frontend (Web Application)

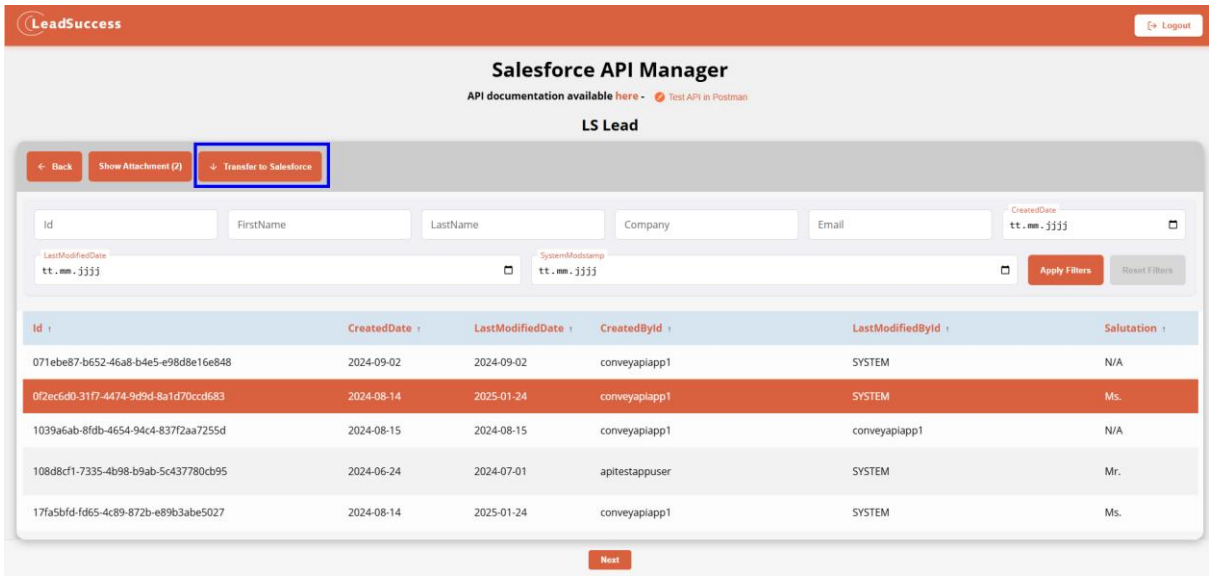
The frontend handles the user interface and client-side operations:

- **User Interface**
  - User interface for selecting and viewing leads
  - Lead selection and preview interface
  - Attachment preview and management
  - Transfer button and status indicators
  - Configuration modal for client-specific Salesforce settings
  - Communication with the backend for authentication and transfer operations

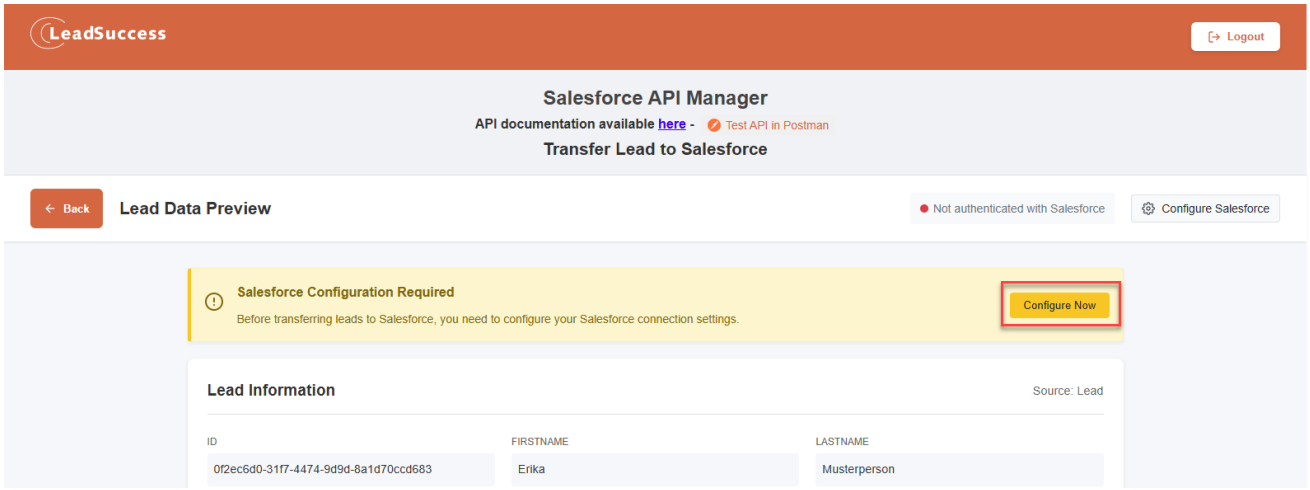
- **Data Management**
  - Temporary storage of lead data in ***sessionStorage*** for transfer operations
  - Secure storage of authentication tokens in ***localStorage***
  - Secure storage of client-specific Salesforce configurations in localStorage
  - Client-side validation of lead data
- **Authentication**
  - Management of OAuth2 authentication flow initiation
  - Handling of authentication callbacks
  - Secure storage of tokens
  - Automatic token refresh handling



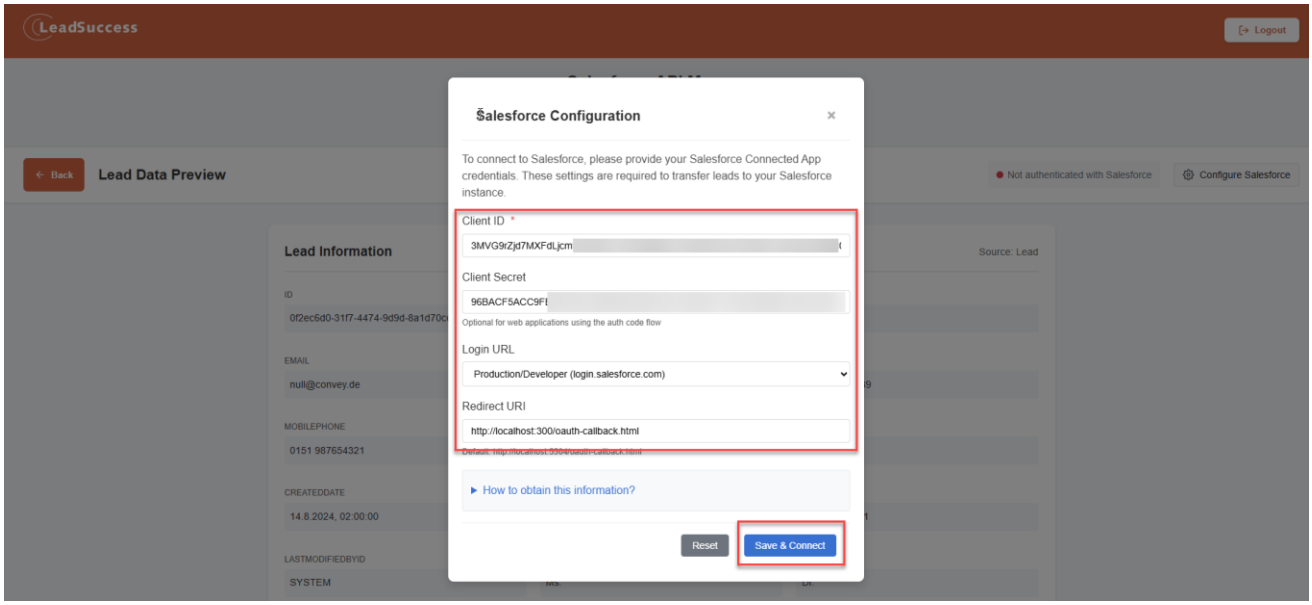
Lead Management Interface LeadSuccess lead management interface with data table view



LS (Lead Success) lead management interface with "Show Attachment" and "Transfer to Salesforce" buttons

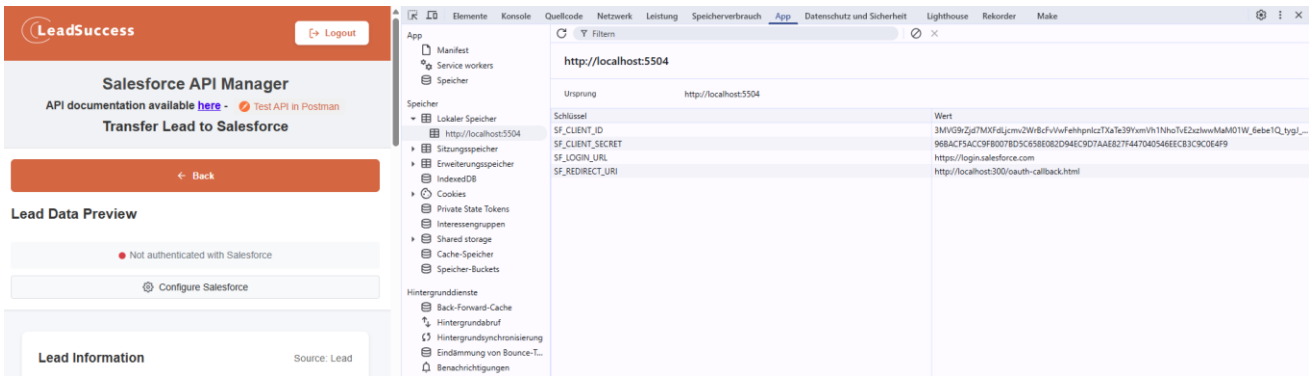


1 - When you access the Lead Data Preview screen, you'll see a notification indicating that Salesforce configuration is required before you can transfer leads. Click the Configure Now button to begin the setup process.



2 - Enter Salesforce Connected App Credentials

In the configuration modal, you'll need to provide the following information:

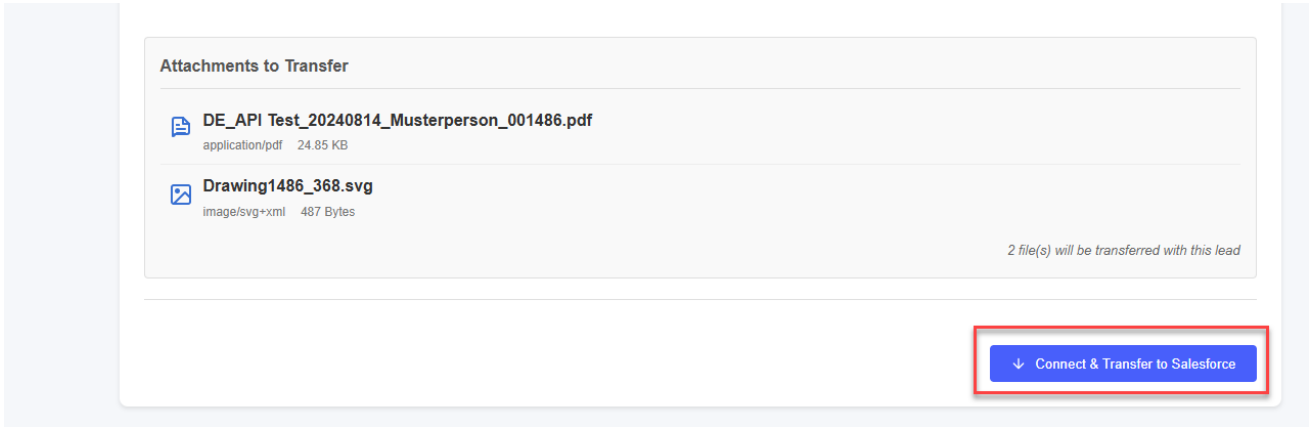


After entering your Salesforce Connected App credentials, click the Save & Connect button. This will store your configuration and initiate the authentication process with Salesforce.

The configuration is saved locally in your browser's storage, as shown in the developer tools

Important Notes

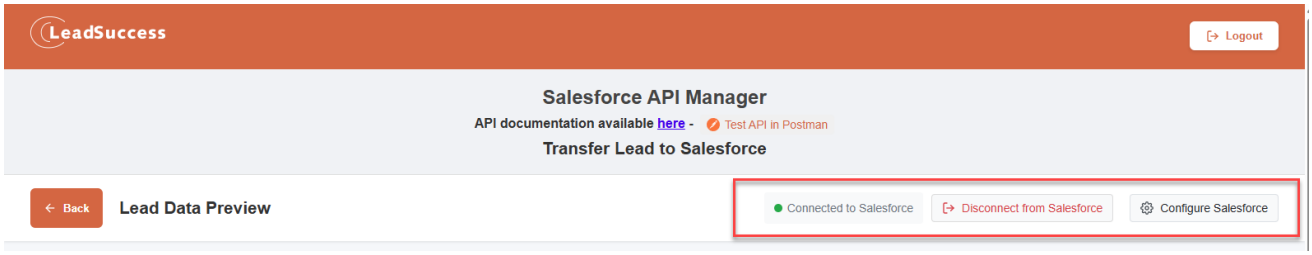
1. The Client ID and Client Secret must match exactly what's provided in your Salesforce Connected App settings.
2. For security reasons, make sure you're using the correct Login URL for your Salesforce environment.
3. The Redirect URI must match precisely with the Callback URL configured in your Salesforce Connected App.
4. If you're testing in a development environment, the Redirect URI will differ from the production URL.



After configuring your Salesforce connection, you'll see a preview of any attachments associated with the lead. The example shows:

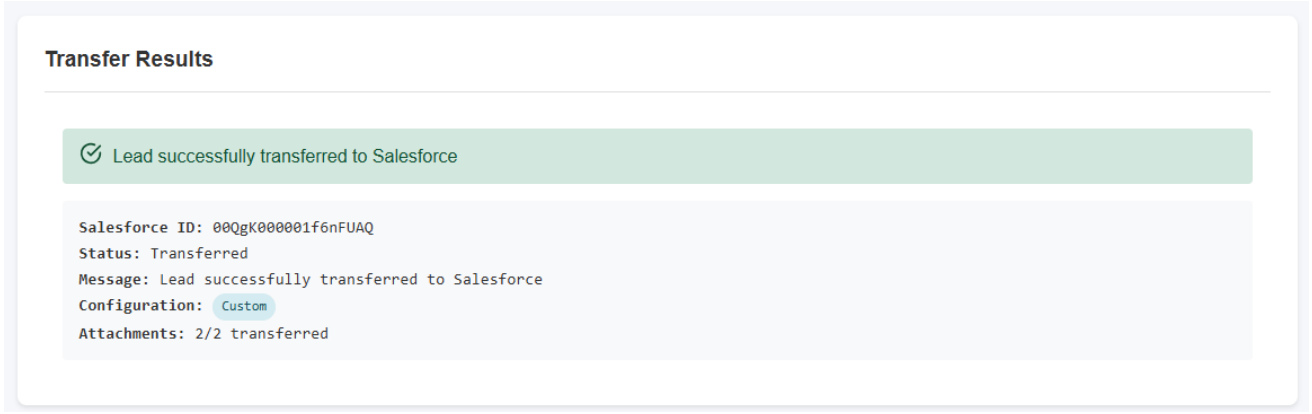
- *A PDF document (24.85 KB)*
- *An SVG image file (487 bytes)*

*These files will be automatically transferred along with the lead information when you complete the transfer process. Click the **Connect & Transfer to Salesforce** button highlighted in blue to proceed.*



Once you've successfully authenticated with Salesforce, you'll see a green status indicator showing "Connected to Salesforce" as highlighted in the red box. From this screen, you can:

- *Confirm your active connection status*
- *Disconnect from Salesforce if needed*
- *Access configuration settings*



After the transfer is complete, you'll receive a confirmation showing:

- *Success status with a green checkmark*
- *The Salesforce ID of the newly created lead*
- *Status confirmation ("Transferred")*
- *Success message*
- *Configuration type used (Custom)*
- *Attachment transfer status (2/2 transferred)*

This confirmation page provides verification that both your lead data and all associated attachments have been successfully transferred to your Salesforce organization.


LeadSuccess
Logout
Salesforce API Manager
API documentation available here
Transfer Lead to Salesforce
Back
Lead Data Preview
Connected to Salesforce
Configuration Salesforce
Lead Information
Source: Lead Report
Attachments to be transferred
DE_API Test2_20250326_Schwaab_001535.pdf
Drawing1535_409.svg
Drawing1535_410.svg
Drawing1535_412.svg
Photo1535_411.jpg
Visitenkarte1535.jpg
Transfer to Salesforce
Transfer Results
Lead successfully transferred to Salesforce

4.1.2. Client-Side Data Storage

The system intelligently uses browser storage mechanisms to maintain state and configuration:

SessionStorage - Used for temporary data during page navigation:

- Selected lead data for transfer
- Lead source information
- Attachment IDs

LocalStorage - Used for persistent data across sessions:

- Salesforce authentication tokens
- Client-specific Salesforce configuration
- User preferences

4.2. Authentication Flow

The authentication flow has been enhanced to support client-specific Salesforce configurations:

4.2.1. Authentication Process

1. **Initialization**
   - User clicks “Transfer to Salesforce” button
   - System checks for existing valid authentication token
   - If no valid token exists, authentication process begins
2. **Configuration Selection**
   - System checks for client-specific Salesforce configuration
   - If exists, uses client configuration for authentication
   - If not, uses default system configuration
3. **Authorization Request**
   - System generates authorization URL with appropriate parameters
   - A popup window opens with the Salesforce login page
   - User authenticates with Salesforce credentials
4. **Authorization Grant**
   - User approves access for the application
   - Salesforce redirects to the callback URL with an authorization code
5. **Token Exchange**
   - Server exchanges authorization code for access and refresh tokens
   - Tokens are passed back to the frontend via ***window.postMessage()***
   - Frontend securely stores tokens in *localStorage*

4.3. Lead Transfer Process

The lead transfer process now incorporates client-specific Salesforce configuration:

4.3.1. Transfer Preparation

1. **Lead Selection**
   - User selects a lead from the list in displayLsLead.html or displayLsLeadReport.html
   - Selected lead data is stored in sessionStorage
   - User is redirected to the transfer page
2. **Lead Preview**
   - The transfer page (displayLeadTransfer.html) loads and displays the lead data
   - Associated attachments are previewed if available
   - User can verify information before transferring
3. **Configuration Check**
   - System checks for client-specific Salesforce configuration
   - If available, this configuration will be used for the transfer
   - User can see which configuration will be used via the config button

4.3.3. Server-Side Processing

The server-side route /direct-lead-transfer now handles client-specific configuration:

```
// Direct lead transfer endpoint with attachments
apiRouter.post('/direct-lead-transfer', async (req, res) => {
  const { accessToken, instanceUrl, leadData, attachments } = req.body;

  console.log('Token present:', !!accessToken);
  console.log('Instance URL:', !!instanceUrl);
  console.log('Attachments count:', attachments ? attachments.length : '0');

  if (!accessToken || !instanceUrl) {
    console.error('Missing authentication data');
    return res.status(401).json({
      success: false,
      message: 'Missing authentication data. Please connect to Salesforce.'
    });
  }

  if (!leadData) {
    console.error('Missing lead data');
    return res.status(400).json({
      success: false,
      message: 'Lead data missing.'
    });
  }

  try {
    // Ensure token is decoded
    const decodedToken = decodeURIComponent(accessToken);

    // Basic check for duplicate lead by email
    if (leadData.Email) {
      try {
        console.log('Checking for duplicate by email:', leadData.Email);
```

```
        const queryResponse = await
fetch(`${instanceUrl}/services/data/v59.0/query?q=${encodeURIComponent(`SELECT
Id, Name FROM Lead WHERE Email = '${leadData.Email.replace(/'/g, "\\'")}'`)}`, {
          method: 'GET',
          headers: {
            'Authorization': `Bearer ${decodedToken}`,
            'Content-Type': 'application/json'
          }
        });

        if (queryResponse.ok) {
          const queryResult = await queryResponse.json();

          if (queryResult.records && queryResult.records.length > 0) {
            console.log('Duplicate lead found by email:',
queryResult.records[0].Id);
            return res.status(409).json({
              success: false,
              message: `A lead with this email already exists in Salesforce (ID:
${queryResult.records[0].Id})`,
              duplicateId: queryResult.records[0].Id
            });
          }
        }
      } catch (dupError) {
        console.error('Error checking for duplicate:', dupError);
        // Continue with transfer if duplicate check fails
      }
    }

    // Prepare lead data for Salesforce - with improved validation
    console.log('Preparing lead data...');
    const sfLeadData = {
      FirstName: leadData.FirstName || '',
      LastName: leadData.LastName || 'Unknown',
      Company: leadData.Company || 'Unknown',
      Email: leadData.Email || '',
      Phone: leadData.Phone || '',
      MobilePhone: leadData.MobilePhone || '',
      Title: leadData.Title || '',
      Industry: leadData.Industry || '',
      Description: leadData.Description || '',
      LeadSource: 'LeadSuccess API'
    };

    // Function to clean field values before sending to Salesforce
    const cleanField = (value) => {
      if (!value || value === 'N/A' || value === 'undefined' || value === 'null')
{
        return ''; // Empty string is safer than null for Salesforce
      }
      return value;
    };

    // Add address fields only if they have valid values
    if (leadData.Street) sfLeadData.Street = cleanField(leadData.Street);
    if (leadData.City) sfLeadData.City = cleanField(leadData.City);
    if (leadData.PostalCode) sfLeadData.PostalCode =
cleanField(leadData.PostalCode);
    if (leadData.Country) sfLeadData.Country = cleanField(leadData.Country);
    if (leadData.State) sfLeadData.State = cleanField(leadData.State);

    // Create the lead in Salesforce
    console.log('Creating lead in Salesforce...');
```

```
    const leadResponse = await
fetch(`${instanceUrl}/services/data/v59.0/sobjects/Lead`, {
      method: 'POST',
      headers: {
        'Authorization': `Bearer ${decodedToken}`,
        'Content-Type': 'application/json'
      },
      body: JSON.stringify(sfLeadData)
    });

    if (!leadResponse.ok) {
      const leadError = await leadResponse.json();
      console.error('Lead creation failed:', leadError);
      return res.status(leadResponse.status).json({
        success: false,
        message: `Failed to create lead: ${leadError[0]?.message ||
JSON.stringify(leadError)}`,
        errors: leadError
      });
    }

    const leadResult = await leadResponse.json();
    const leadId = leadResult.id;
    console.log('Lead created successfully, ID:', leadId);

    // Process attachments if available
    let attachmentsTransferred = 0;
    let attachmentErrors = [];

    if (attachments && attachments.length > 0) {
      console.log(`Processing ${attachments.length} attachments for lead
${leadId}`);

      for (const attachment of attachments) {
        try {
          // Create ContentVersion record in Salesforce
          const contentVersionData = {
            Title: attachment.Name,
            PathOnClient: attachment.Name,
            VersionData: attachment.Body,
            ContentLocation: 'S', // S for Salesforce, E for External
            FirstPublishLocationId: leadId // Link to the Lead record
          };

          const attachmentResponse = await
fetch(`${instanceUrl}/services/data/v59.0/sobjects/ContentVersion`, {
            method: 'POST',
            headers: {
              'Authorization': `Bearer ${decodedToken}`,
              'Content-Type': 'application/json'
            },
            body: JSON.stringify(contentVersionData)
          });

          const attachmentResult = await attachmentResponse.json();

          if (attachmentResponse.ok) {
            attachmentsTransferred++;
            console.log(`Attachment '${attachment.Name}' created, ID:
${attachmentResult.id}`);
          } else {
            console.error(`Attachment creation failed:
${JSON.stringify(attachmentResult)}`);
            attachmentErrors.push(`Failed to upload ${attachment.Name}:
${attachmentResult[0]?.message || 'Unknown error'}`);
          }
        } catch (attachErr) {
```

```
          console.error(`Error creating attachment '${attachment.Name}':`,
attachErr);
          attachmentErrors.push(`Error with ${attachment.Name}:
${attachErr.message}`);
        }
      }
    }

    return res.json({
      success: true,
      leadId: leadId,
      status: 'Transferred',
      message: 'Lead successfully transferred to Salesforce',
      attachmentsTransferred,
      attachmentErrors: attachmentErrors.length > 0 ? attachmentErrors :
undefined
    });
  } catch (error) {
    console.error('Error during lead transfer:', error);
    return res.status(500).json({
      success: false,
      message: `Error: ${error.message}`
    });
  }
});
```

4.3.4. Result Handling

After transfer completion:

1. **Success Indication**
   - Green checkmark with success message
   - Salesforce lead ID displayed
   - Attachment transfer status (e.g., “1/1 transferred”)
   - Configuration used (Custom or Default)
2. **Error Handling**
   - Red error icon with specific error message
   - Option to retry or reconnect if authentication issue
   - Detailed attachment errors if applicable

Successful Transfer Result *Lead transfer success with Salesforce ID and configuration information*

4.4. Security Considerations

- **No Server Storage**: Client credentials are never stored on the server
- **Isolated Configuration**: Each client's configuration is isolated in their own browser
- **Transparent Usage**: Clear indication of which configuration is being used
- **Controlled Scope**: OAuth scopes limited to only what's necessary
- **Secure Token Management**: Tokens stored in browser localStorage, accessible only to your domain

4.2. Authentication Flow

1. **Authentication initiation**
   - The user clicks on the "**Transfer to Salesforce**" button

- The ***handleTransferButtonClick()*** function in ***displayLeadTransferController.js*** checks for existing authentication data
- If no authentication data is found, a request is sent to */api/salesforce/auth*

```
/**
 * Get Salesforce authentication URL
 * @returns {Promise<string>} Authentication URL
 */
async getAuthUrl() {
  try {
    console.log('Requesting Salesforce auth URL...');
    const response = await fetch(`${this.apiBaseUrl}/salesforce/auth`, {
      method: 'GET',
      headers: {
        'Accept': 'application/json',
        'Cache-Control': 'no-cache, no-store, must-revalidate'
      }
    });

    if (!response.ok) {
      throw new Error(`HTTP error: ${response.status}`);
    }

    const data = await response.json();
    console.log('Auth URL received');
    return data.authUrl;
  } catch (error) {
    console.error('Error getting auth URL:', error);
    throw error;
  }
 }
```

2. **Redirection to Salesforce**
    - The server generates a Salesforce authentication URL with OAuth2 parameters
    - A popup window opens with this URL
    - The user logs in to Salesforce and authorizes the application
3. **Callback and token storage**
    - After authentication, Salesforce redirects to the */api/oauth2/callback* endpoint
    - The server exchanges the authorization code for access and refresh tokens
    - The tokens are returned to the frontend via *window.postMessage()*
    - The frontend stores the tokens in *localStorage* via *storeAuthData()*
4. **Token usage**
    - Subsequent requests to Salesforce include the access token
    - If the token expires, the authentication process is restarted

5. Transferring Leads to Salesforce

5.1. Selecting a Lead

1. **Displaying available leads**
    - The ***displayLsLead.html*** or ***displayLsLeadReport.html*** page displays available leads
    - The ***displayLsLeadController.js*** controller retrieves leads from your source API
2. **Selecting a lead**
    - Click on a lead in the list to select it
    - The handleRowSelection() function activates the "Transfer to Salesforce" button

- The selected lead data is stored in the **selectedRowItem** variable

3. **Initiating the transfer**
    - Click on the "**Transfer to Salesforce**" button
    - The lead data is stored in sessionStorage
    - The user is redirected to displayLeadTransfer.html

5.2. Preparing Attachments

1. **Retrieving attachments**
    - The displayAttachmentsPreview() function in displayLeadTransferController.js displays attachments associated with the lead
    - Attachments are retrieved via ApiService from IDs stored in AttachmentIdList
2. **Processing attachments**
    - During transfer, the fetchAttachments() function retrieves the binary content of attachments
    - Files are converted to base64 for transfer to Salesforce

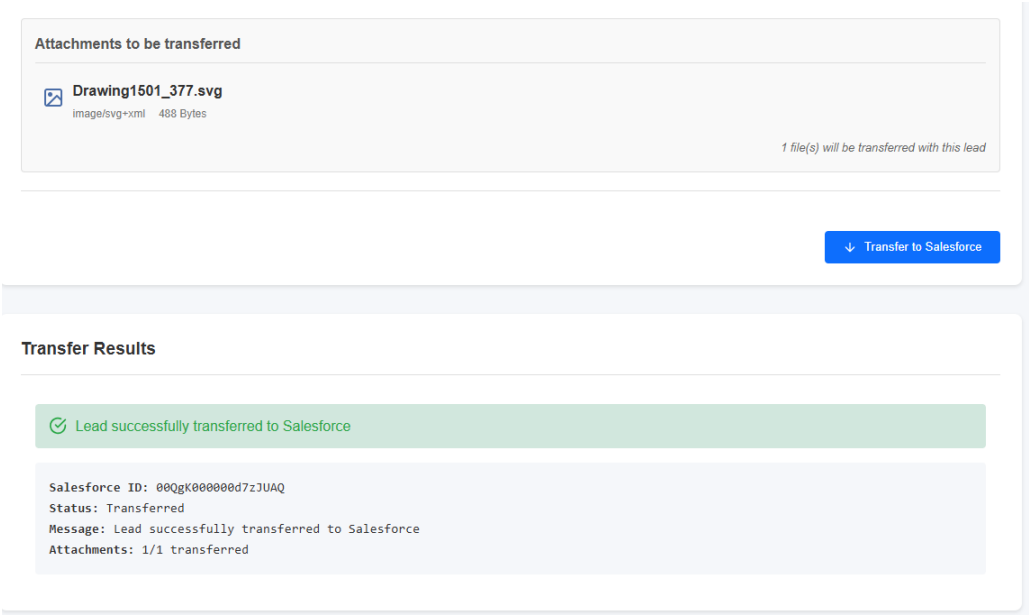
5.3. Sending the Lead to Salesforce

1. **Preparing lead data**
    - The continueTransferWithAuth() function cleans and validates lead data
    - Required fields (LastName, Company) are checked and filled if necessary
2. **Sending the request**
    - A **POST** request is sent to **/api/direct-lead-transfer**
    - The server then uses Salesforce APIs to create the lead
3. **Transferring attachments**
    - After creating the lead, the server creates ContentVersion entries for each attachment
    - Files are associated with the lead via **ContentDocumentLink**
4. **Managing results**
    - The transfer result (success or failure) is displayed to the user
    - In case of success, the Salesforce ID of the created lead is displayed

5.4. Displaying Results in the LeadSuccess Application

After clicking the "Transfer to Salesforce" button, the system will process your request and display a summary of the result in the "Transfer Results" section:

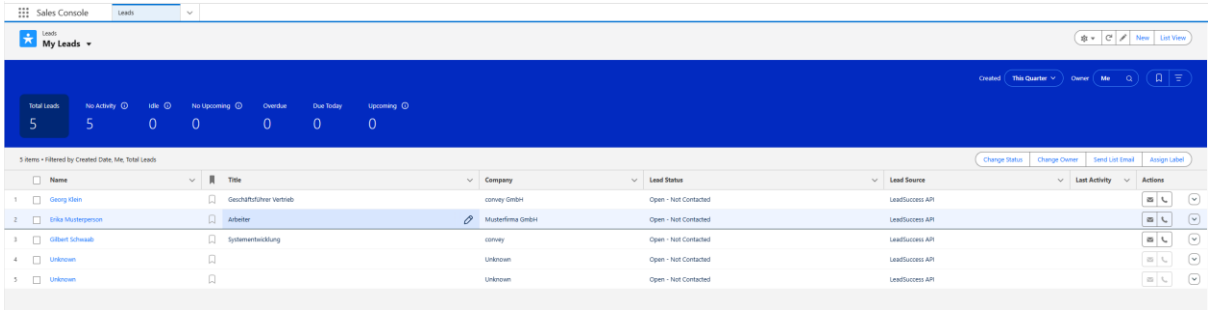
- A green banner with a checkmark appears in case of success
- Detailed information is displayed as a list:
    - Salesforce ID: Unique identifier of the lead created in Salesforce (e.g., 00Qgk000000d7zJUAQ)
    - Status: Transfer status ("Transferred")
    - Message: Confirmation of successful transfer
    - Attachments: Number of attachments transferred (e.g., "1/1 transferred")



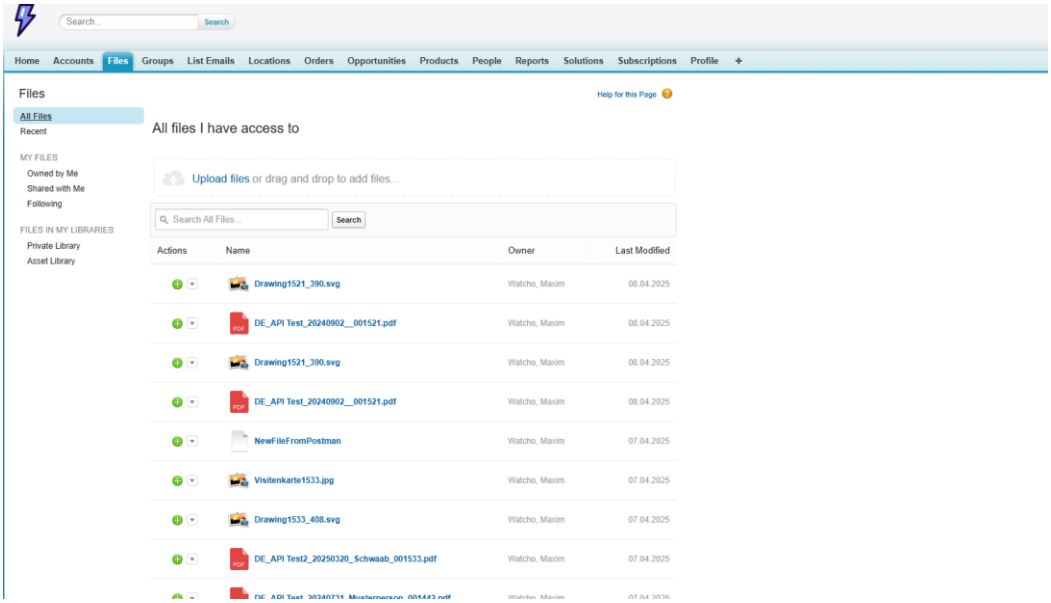
5.4.1 Accessing the Lead in Salesforce

To verify that the lead and its attachments have been properly created in Salesforce:

1. **Log in to Salesforce**
   - Open your browser and go to your Salesforce instance (typically https://login.salesforce.com)
   - Enter your login credentials
2. **Navigate to leads**
   - Once logged in, click on the "Leads" tab in the top navigation bar
   - If you don't see the tab, click on the App Launcher icon (nine dots) then search for "Leads"
3. **Search for the transferred lead**
   - In the leads view, use the search bar at the top to search for the lead by name
   - You can also create a recent view to see leads created today
   - Leads are typically marked as "Open - Not Contacted" by default
4. **View lead details**
   - Click on the lead name to open its detail page
   - Verify that all information has been correctly transferred
   - Note that some custom fields may appear differently in Salesforce



5. **Access all files**
   - To see all files in your organization, click on the "Files" tab in the navigation bar
   - You can filter by owner or date to find your recently transferred files



This verification allows you to confirm that the transfer was successful and that all data is correctly available in Salesforce for commercial follow-up.

6. Server-Side Technical Implementation

6.1. Node.js Server Configuration

The ***server.js*** file contains the server implementation needed for integration:

```
const SF_CLIENT_ID = process.env.SF_CLIENT_ID;
const SF_CLIENT_SECRET = process.env.SF_CLIENT_SECRET;
const SF_REDIRECT_URI = process.env.SF_REDIRECT_URI
const SF_LOGIN_URL = process.env.SF_LOGIN_URL || 'https://login.salesforce.com';
```

SF_CLIENT_ID	The **Consumer Key** of your Salesforce Connected App. This unique identifier tells Salesforce which app is requesting access.
SF_CLIENT_SECRET	The **Consumer Secret** of your Connected App. This serves as a password and should be kept secure. Together with the Client ID, it proves your app's identity to Salesforce.
SF_REDIRECT_URI	The callback URL where Salesforce will redirect users after authentication. This must exactly match one of the Callback URLs configured in your Connected App.
SF_LOGIN_URL	The base URL for Salesforce authentication. The default is 'https://login.salesforce.com' for production. For sandboxes, you would use 'https://test.salesforce.com'.

6.2. Authentication Routes

1. **Route /api/salesforce/auth**
   - Generates the Salesforce authentication URL
   - Defines necessary OAuth scopes
   - Used by the frontend to start the authentication process
2. **Route /api/oauth2/callback**
   - Receives the authorization code from Salesforce
   - Exchanges the code for access tokens

- Returns the tokens to the frontend via window.postMessage()

6.3. Lead Transfer Route

1. **Route /api/direct-lead-transfer**
    - Receives lead data and attachments
    - Checks for potential duplicates
    - Creates the lead in Salesforce
    - Uploads attachments and associates them with the lead
    - Returns detailed results to the frontend

7. Client-Side Technical Implementation

7.1. Salesforce Service

The ***salesforceService.js*** file handles communication with Salesforce:

```
// Retrieving stored authentication data
getStoredAuthData() {
  try {
    const authDataStr = localStorage.getItem('sf_auth_data');
    if (authDataStr) {
      return JSON.parse(authDataStr);
    }
    return null;
  } catch (error) {
    console.error('Error parsing stored auth data:', error);
    return null;
  }
}

// Storage of authentication data
storeAuthData(authData) {
  if (authData) {
    localStorage.setItem('sf_auth_data', JSON.stringify(authData));
    this.authData = authData;
  } else {
    localStorage.removeItem('sf_auth_data');
    this.authData = null;
  }
}
```

7.2. Lead Transfer Controller

The ***displayLeadTransferController.js*** file handles the interface and transfer logic:

```
// Handling the transfer button click
async function handleTransferButtonClick() {

  if (isTransferInProgress) return;

  const transferBtn = document.getElementById("transferToSalesforceBtn");
  const transferResults = document.getElementById("transferResults");
  const transferStatus = document.getElementById("transferStatus");

  if (!selectedLeadData) {
    showError("No lead data available.");
```

```
    return;
  }

  isTransferInProgress = true;
  transferBtn.disabled = true;
  transferBtn.innerHTML = `
    <div class="spinner"></div>
    Connecting and transferring...
  `;

  try {
    // Show progress indicator
    transferResults.style.display = "block";

    // Get existing auth data
    const authData = getAuthData();

    // If no auth data, start authentication flow
    if (!authData) {
      updateConnectionStatus("connecting", "Connecting to Salesforce...");

      transferStatus.innerHTML = `
        <div class="transfer-pending">
          <svg xmlns="http://www.w3.org/2000/svg" width="20" height="20" viewBox="0 0 24 24" fill="none"
stroke="currentColor" stroke-width="2" stroke-linecap="round" stroke-linejoin="round">
            <circle cx="12" cy="12" r="10"/>
            <polyline points="12 6 12 12 16 14"/>
          </svg>
          Salesforce authentication in progress...
        </div>
      `;

      // Start authentication
      const response = await fetch(`${appConfig.apiBaseUrl}/salesforce/auth`);
      const data = await response.json();
      const authUrl = data.authUrl;

      authWindow = window.open(
        authUrl,
        "salesforceAuth",
        "width=600,height=700"
      );

      if (!authWindow) {
        throw new Error("Popup blocked! Please allow popups for this site.");
      }

      // The rest of the auth flow will be handled by the message event listener
      return;
    }

    // Otherwise, proceed directly to transfer using existing auth data
    await continueTransferWithAuth(authData);
  } catch (error) {
    console.error("Process failure:", error);

    // Show error
    transferStatus.innerHTML = `
      <div class="status-error">
        <svg xmlns="http://www.w3.org/2000/svg" width="20" height="20" viewBox="0 0 24 24" fill="none"
stroke="currentColor" stroke-width="2" stroke-linecap="round" stroke-linejoin="round">
          <circle cx="12" cy="12" r="10"/>
          <line x1="15" y1="9" x2="9" y2="15"/>
```

```
        <line x1="9" y1="9" x2="15" y2="15"/>
       </svg>
       Transfer failed: ${error.message || "Unknown error"}
      </div>
    `;

    // Reset button
    isTransferInProgress = false;
    transferBtn.disabled = false;
    transferBtn.innerHTML = `
      <svg xmlns="http://www.w3.org/2000/svg" width="16" height="16" viewBox="0 0 24 24" fill="none"
stroke="currentColor" stroke-width="2" stroke-linecap="round" stroke-linejoin="round">
        <path d="M12 5v14M19 12l-7 7-7-7"/>
      </svg>
      Transfer to Salesforce
    `;
  }
}
```

7.3. Lead List Controller

The displayLsLeadController.js file handles the display and selection of leads:

```
// Adding the transfer button
function addTransferButton() {
  // Creating the button
  const transferButton = document.createElement('button');
  transferButton.id = 'transferButton';
  transferButton.className = 'action-button';
  transferButton.disabled = true;
  transferButton.innerHTML = `
    <svg xmlns="http://www.w3.org/2000/svg" width="16" height="16" viewBox="0 0 24 24" fill="none"
stroke="currentColor" stroke-width="2" stroke-linecap="round" stroke-linejoin="round">
      <path d="M12 5v14M19 12l-7 7-7-7"/>
    </svg>
    <span>Transfer to Salesforce</span>
  `;

  // Adding click event
  transferButton.addEventListener('click', () => {
    if (selectedRowItem) {
      sessionStorage.setItem('selectedLeadData',JSON.stringify(selectedRowItem));
      sessionStorage.setItem('selectedLeadSource', 'Lead');
      window.location.href = 'displayLeadTransfer.html';
    } else {
      alert('Please select a lead to transfer.');
    }
  });

}
```

8. Maintenance and Troubleshooting

8.1. Authentication Issues

1. **Expired token**
    - Salesforce access tokens typically expire after 2 hours

    - If a request fails with code 401, the application automatically restarts the authentication process
2. **Connection problems**
    - Verify the validity of the Consumer Key and Consumer Secret
    - Ensure Callback URL parameters are correct
    - Check that OAuth scopes are sufficient

8.2. Lead Transfer Issues

1. **Lead creation failure**
    - Verify that all required fields are filled
    - Check logs for specific error messages
2. **Attachment issues**
    - Check file size limits (Salesforce limits to 25MB per file)
    - Verify supported file formats

8.3. CORS Issues

1. **Errors like "No 'Access-Control-Allow-Origin' header"**
    - Verify that all necessary domains are configured in Salesforce CORS settings
    - Ensure the application uses HTTPS if the CORS configuration requires it

9. Conclusion

This documentation guides you through the complete process of integration with Salesforce, from creating a developer account to transferring leads with attachments. The architecture implemented uses OAuth2 authentication best practices and offers a smooth user experience.

For any additional questions or assistance, please contact the technical support team.

10. Available Resources

10.1. Official Salesforce Documentation

- Salesforce Developer Guide
- Salesforce REST API Documentation
- OAuth 2.0 Authentication Guide
- Salesforce Trailhead (free interactive training)

10.2. Development Tools

- Postman - For testing API requests
- Salesforce CLI - Command-line tool for interacting with Salesforce
- Workbench - Web tool for exploring and manipulating Salesforce data
- VSCode Extension Pack for Salesforce - Salesforce development in VSCode

10.3. Forums and Communities

- Salesforce Stack Exchange

- Salesforce Developers Community
- Salesforce Ohana Slack - Slack community for Salesforce developers

10.4. Known Limitations and Quotas

- Salesforce API Limits
- Maximum attachment size: 25 MB per file
- Supported file types: most common formats (PDF, DOCX, XLSX, JPG, PNG, etc.)
- API call quota: varies by Salesforce edition (starting at 1,000 requests/24h for Developer Edition)

10.5. Tutorials and Code Examples

- Salesforce REST API Integration Examples with Node.js
- JSforce - JavaScript Library for Salesforce
- Salesforce Integration Tutorials on YouTube

10.6. Technical Support

- Salesforce Developer Support
- Salesforce Services Status