N8N-LEDEs Conversion

Automated Legal Invoice Format Generator

Overview

N8N-LEDEs Conversion is a fully automated workflow in n8n to convert emailed time entry or invoice attachments into standardized LEDES 1998B and XML file formats, along with PDF/HTML summaries, using advanced AI extraction capabilities. Backed by Excel-based tracking, the system leverages email, AI, and integration infra to process incoming invoices, extract relevant information, generate files, and send everything back to the user—seamlessly and reliably.

- Monitors an inbox and classifies email attachments (PDF/Word)
- Uses AI to extract time entries and sender details
- Reads and writes to Excel for invoice tracking and number management
- Produces LEDES 1998B, LEDES XML, and HTML (plus PDF) files automatically
- Returns validated files by email, with all data archived in Excel

> **NOTE: Designed for end-to-end legal invoice workflows — suited for law firms, legal ops, and finance/accounting teams handling electronic billing standards such as LEDES.**

Prerequisites

1. **n8n Server:** Self-hosted or cloud account. See n8n setup guide.
2. **IMAP-enabled Email Account:** Credentials for inbox watching. (i.e. user, password, server/port.)
3. **Microsoft Excel Online:** Workbook and worksheet in OneDrive/SharePoint, with API access credentials.
4. **Microsoft Outlook Account:** OAuth2 credentials for sending outbound email.
5. **OpenAI API Key:** For AI extraction of time entries and sender details (generate here).
6. **Gotenberg PDF Service:** URL endpoint for HTML-to-PDF conversion (see Gotenberg docs).
7. **n8n Credentials:** All secrets/keys listed below configured as credentials in n8n.

Installation

1. **Download the Workflow JSON:**
   Obtain the provided N8N-LEDEs Conversion JSON file from your administrator or repository.
2. **Import into n8n:**
   a. Log in to your n8n instance.
   b. Navigate to **Workflows** > **Import**.
   c. Upload the JSON file.
   d. Verify nodes count (should be **27**) and all node names are visible.
3. **Install Additional Nodes** (if required):
   Some custom/AI nodes require installation. Use:
   `n8n-nodes-word2text`, `@n8n/n8n-nodes-langchain`, etc.
   Follow prompts for Community Node setup if not already installed.

Configuration

Configure each of the following credentials and placeholders described below before activating the workflow:

Credentials Required

Credential Type	Where Used	Details / Required Data
IMAP	`When Email Received` (Inbox trigger)	**IMAP Host/Port:** e.g. `outlook.office365.com:993` **Username** & **Password** **SSL/TLS:** Enabled **Mailbox:** The folder to monitor (e.g. `INBOX`).
Microsoft Excel OAuth2 API	`Read Invoice Numbers from Excel` `Append Time Entries to Excel` `Append Invoice Number to Excel`	**Application (client) ID & Secret** **Tenant ID** **Workbook (File) location:** In OneDrive/SharePoint **Excel table and worksheet details (see placeholders below).**

OpenAI API Key	`OpenAI GPT-4o for Time Entries` `OpenAI GPT-4o-mini for Sender Info`	**API Key**: Must have API quota/credit **Model Permissions:** Access to GPT-4o and GPT-4o-mini models recommended.
Microsoft Outlook OAuth2 API	`Send Outlook Email Message`	**Client ID/Secret** **Tenant ID** **Email Address** (for "from" field)

Configuration Placeholders

Replace all placeholder values in the workflow with the actual IDs/names matching your Excel Online setup:

Placeholder	Description	Where	How to Find/Replace
`YOUR_WORKBOOK_ID`	Unique ID or path to the target Excel workbook in OneDrive/SharePoint.	All Excel node operations (e.g. `Read Invoice Numbers from Excel`)	1. In OneDrive/SharePoint, open file and check URL or use Microsoft Graph API Explorer to get file ID. 2. Paste or select the correct file name in the n8n Excel node's "Workbook" field.
`YOUR_WORKSHEET_ID`	Worksheet (tab) name or ID inside the workbook.	Excel read/append nodes	1. Open Excel workbook, check worksheet tab name (case-sensitive). 2. Copy/paste into n8n node "Worksheet" field.

`YOUR_TABLE_ID`	Table name or Table ID in the worksheet (must be formatted as a table in Excel).	Excel read/append nodes	1. Select your data range in Excel, choose Insert > Table, and set a name in Table Design. 2. Use in the n8n node "Table" field.

Gotenberg PDF Endpoint

Edit the `Post to Gotenberg HTML to PDF` HTTP node for PDF conversion:

- URL should point to your operational Gotenberg server, e.g. `http://gotenberg.example.com/forms/chromium/convert/html`
- Test with a simple HTML upload to confirm service reaches and returns PDF.

Usage

1. **Enable the Workflow:**
   In n8n, activate *N8N-LEDEs Conversion*. The workflow now **continuously watches** the email inbox you specified.
2. **Send an Email with Attachment:**
   Attach a PDF or Word (.docx) file with properly formatted time entries/invoice details.
   - The workflow will classify each attachment automatically.
   - Picks up the file, extracts text, runs AI extraction on entries and sender, and moves to preparation.
3. **Automatic Processing:**
   - **AI Extraction:** - Time entries, amounts, and sender/client/lawfirm info are extracted with OpenAI GPT-4o.
   - **Excel Invoice Numbering:** - Reads the latest invoice number from Excel, increments, and appends the new record.
   - **LEDES & Output Files:** - Generates `.txt` (1998B), `.xml` (LEDES XML), `.html` (invoice), and `.pdf` (converted from HTML) files.

- **Notification:** - Sends an Outlook email with all generated files to the appropriate recipient(s).

4. **Track in Excel:**
   The workflow appends time entries and new invoice number data to the designated Excel file for audit/compliance.
5. **File Review:**
   Check the recipient inbox for returned LEDES files and PDF/HTML summaries for each processed submission.

Troubleshooting

- **IMAP/Inbox Not Triggering?**
  - Double-check credentials and mailbox/folder name (case sensitive).
  - Ensure IMAP access is enabled in your mail provider's settings.
- **Excel Operations Failing?**
  - Verify workbook, worksheet, `Table` name/ID, and OAuth2 permissions (file must be a "Table" not just a range).
  - Ensure your account has write permissions to the workbook location.
- **AI Extraction Doesn't Work?**
  - Confirm your OpenAI API key, account status, and that you have GPT-4o model access.
  - Some document formats with poor text layout may require enhancing the template or parameters within the workflow's AI prompt nodes for better accuracy.
- **Missing Attachments/Emails?**
  - Check the n8n execution logs for errors in any node.
  - Look for rate limit or size limit on outbound messages from your Outlook/O365 account.
- **PDF Conversion Fails?**
  - Test that your Gotenberg endpoint is correct and reachable from your n8n server.
  - Check Gotenberg logs for crash/errors.
- **General:**
  - Edit and re-test credentials in n8n. If you change workbook, worksheet, or tables in Excel, always update placeholders in the workflow.
  - Review step-by-step logs; use `Execute workflow > Manual` run for debugging.

Support

For workflow customization, advanced extraction scenarios, or deployment support, please contact us:

- Email: support@ais.email
- Web: automatedintelligentsolutions.com
- Phone: 404-293-0331
