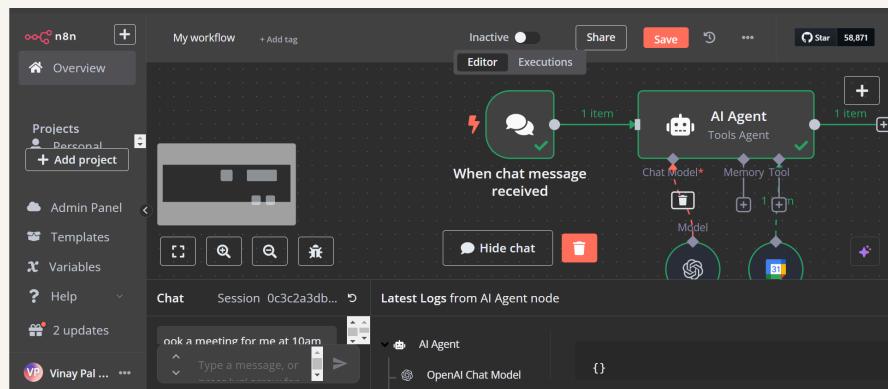


# Building an AI Workflow



Vinay Pal Singh





# Introducing Today's Project!

In this project , we will demonstrate how to build an AI workflow using n8n. Simply send a text to your workflow , and it will schedule events in our Google Calendar for us. We're doing this project to learn how to automate tasks with AI.

## Tools and Techniques

Services we used were n8n, OpenAI, Google Calendar, Key concepts and skills we learnt were how to set up an AI workflow, workflows vs agents, credentials , JSON expressions and analyzing logs from an AI agent to troubleshoot errors.

## Project reflection

This project took me approximately two hours .The most challenging part was using fixed vs expressions in a system was (an important detail easy to miss). It was most rewarding to see the difference between a tailored system can make.

This project was useful for getting an intro to AI automations, workflow and eventually building an AI agent. This project met our goals because we got to set up a wrong prototype by the end.



# Exploring n8n

We're using n8n in this project to build our workflow. Workflow are sequences of tasks that completes a task. You can involve AI in a workflow by using AI to automate some of the decision making / actions e.g. generative AI to draft email replies.

We signed up for a free trial for n8n, which includes 14 days of access to n8n and the ability to create up to 5 workflows. We don't need to enter credit card details to start the trial, so we won't be charged.

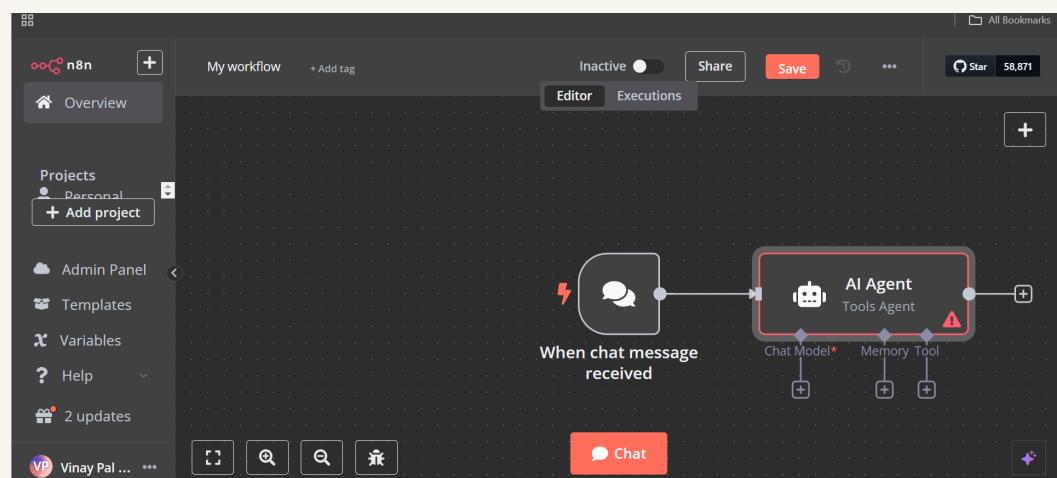
The screenshot shows the n8n homepage. At the top, there's a navigation bar with the n8n logo, links for Product, Use cases, Docs, Community, Enterprise, and Pricing, and buttons for Sign in and Get started. Below the navigation, there's a GitHub icon with a star count of 57,391. The main headline reads "Secure, AI-native workflow automation". A subtext line says "The world's most popular workflow automation platform for technical teams". At the bottom, there are two buttons: "Get started for free" and "Talk to sales".



# Starting an AI Workflow

To set up a workflow, we first configured a trigger, which means the action or scheduled time that kicks off the workflow (make it run). Our trigger is a chat message. Other options include scheduled time (every day at 8am) or a manual trigger.

I connected my trigger with an AI agent node. AI agents are autonomous systems designed to perceive, reason, and act towards goals. But, in this project, I am building a solution that leverages AI to automate specific tasks efficiently.

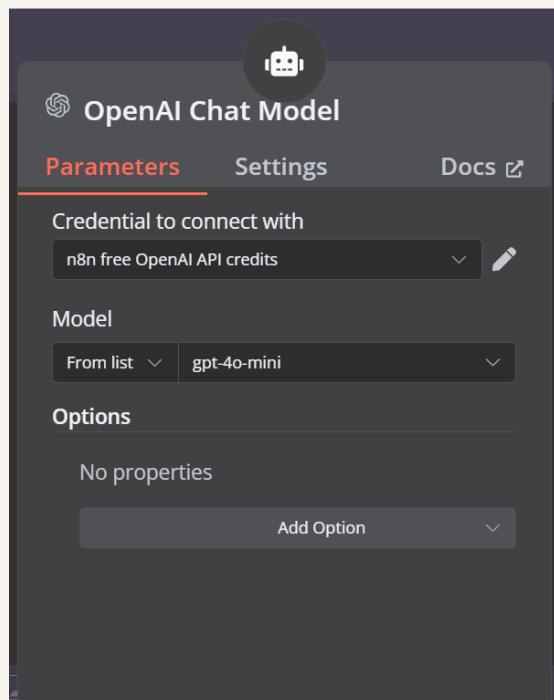




# Integrating ChatGPT

An AI workflow can be broken into three key components, which are data preparation (gathering, cleaning, and labeling data), model development (training and evaluation), and deployment (integrating and monitoring the AI model).

My workflow's chat model uses OpenAI's GPT. Usually, connecting with OpenAI requires an API key and payment plan. I could connect with OpenAI for free by leveraging platforms that offer built-in integrations without extra cost.

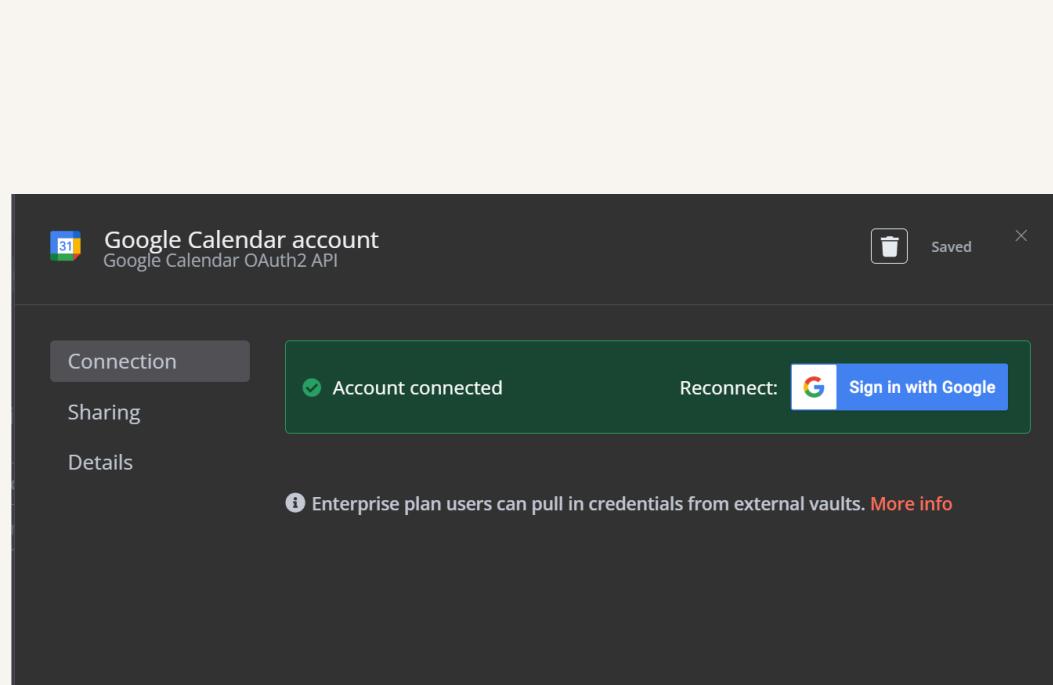




# Integrating Google Calendar

In this workflow, the tool is Google Calendar because we'll need to connect our AI agent with the API(i.e. Google Calendar Tool that actually creates new events in our calendar. You can think of the tool as the muscle that actually does the job.

To connect with Google Calendar, you have to allow n8n access to creating and editing events and entire calendars in your account. For security best practise, it's important to delete those credentials when you no longer need it for this workflow.

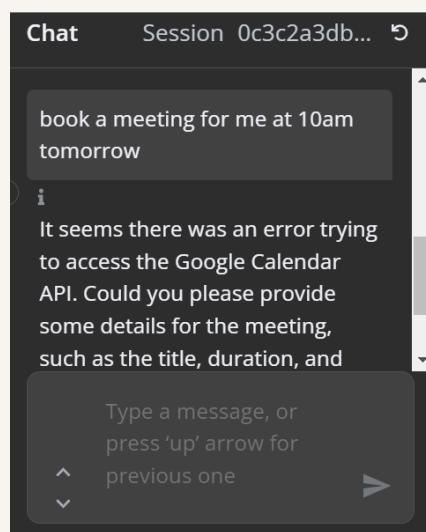




# Testing My Workflow

I tested my AI workflow by asking it to book a meeting for tomorrow at 10am. The response was that it started booking an event for now multiple times, which is an error because it's at the wrong time and the workflow should only took the event ONCE

To troubleshoot errors, you can investigate the AI Agent's logs. We observed that the logs for the Calendar tool showcased no input, which means it's not getting any information around the proper start and end time for the event you want to book.

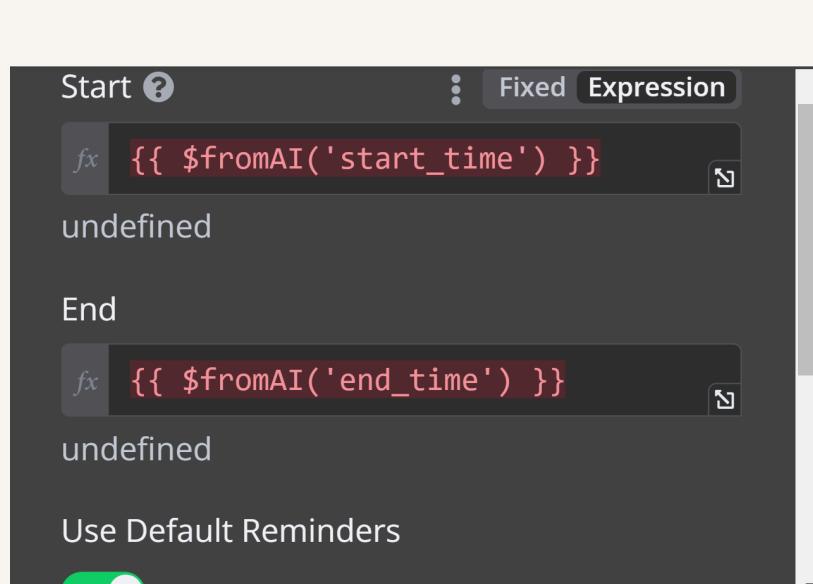




# JSON Expressions

We decided to troubleshoot by reviewing our Calendar tool's set up. We noticed an error in the tool's start and end time configuration. By default, it takes in the current time as the start time-this ignores input/information from the chat model.

We updated the start and end times in our Calendar tool to JSON references for information our AI model will gather. For example, instead of the current time, the start time is now `{{ $fromAI('start_time') }}`, which the AI model will fill for us.





# System Messages

On our second test, our workflow successfully created an event and took in input from our AI chat model. But it still made an error in scheduling the right date. This was because our chat model is passing the wrong dates to our Calendar tool.

This time, I tried to troubleshoot the error by writing a system message, which is: "A system message provides instructions or context to guide user interactions, define tasks, and establish behavior for AI or automated processes."

The screenshot shows the AI Agent interface with a dark theme. At the top, there are two buttons: 'AI Agent' (with a microphone icon) and 'Test step' (with a test tube icon). Below these are three tabs: 'Parameters' (highlighted in red), 'Settings', and 'Docs'. The main area contains a system message:

```
You are a calendar assistant. Your job is to check my availability and create new events for times that my calendar is free.

You are to use the Chat Model to process the user's requests, then check using the Check Availability tool on whether that time is free. You can use the Google Calendar tool to create a new event in my calendar if I am available.

Today's date is
{{DateTime.now().setZone('Asia/Kolkata').toFormat('dd LLL yyyy
HH:mm:ss')}}
```



# Success!

On our final test, a new event was scheduled at the night time because our system message was set as an expression (and not fixed). This means our AI agent will get accurate information around today's date, calculated automatically at every message.

The image shows a digital calendar interface. On the left, a monthly calendar for February 2025 is displayed, with the 7th highlighted. On the right, a daily view for Friday, February 7th, is shown. The daily view includes a header for 'GMT+05:30' and 'Vasant Panchami'. The day is divided into hourly slots from 8 AM to 4 PM. An event titled '(No title) 10 – 11am' is listed in the 10 AM slot. The interface also includes a search bar for people and a section for 'My calendars' which lists 'Vinay Pal Singh' (checked), 'Birthdays', and 'Family'.



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