



Database

The CO.R.E OpenData API

Deliverable WP 4.5

Niccolò Salvini

Michela Gnaldi

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Introduction to the CO.R.E. OpenData API: What is an API and why use it

The database is the IT structure that allows the CO.R.E. partners to in-depth analyze the data referring to corruption cases in public procurement and the users to navigate or download the collected data in an open format for the re-use.

An API (Application Programming Interface) is a set of protocols and tools for building software apps. Essentially, it is a method for various software applications to connect and communicate with one another. Because they offer a standardized and efficient means for different software applications to interface with one another, APIs are a crucial component of software development. Regardless of their programming language, platform, or location, APIs enable software applications to securely communicate, request and exchange data with other software applications.

APIs are now widely used in a wide range of applications, including e-commerce platforms, social media platforms, mobile and web-based applications, as well as many other industries. Consider for instance an application that checks the weather. It is possible to stay up to current on the most recent weather occurrences without having to visit the weather service's website directly thanks to an app, which uses an API to communicate with a weather service to retrieve the latest weather forecast data. Similarly, when using an online booking service, the service relies on an API to retrieve availability and pricing information from the hotel's booking system instantly. These are just few examples that provide a tiny representation of some of the countless ways that APIs are used in daily life. By enabling various software applications to exchange data and perform functions quickly and easily, APIs offer an essential tool that enables developers to create a more connected and efficient society.

Moreover APIs can be used to read data from databases like the AWS Athena database used by the CO.R.E. OpenData API. Typically, an API interacts with a database by sending queries to retrieve data based on the specific parameters entered by the user.

In our context, the CO.R.E. OpenData API uses an AWS Lambda function to read data from the CO.R.E. Athena database. Via the API Gateway, the Lambda function accepts user requests and uses the parameters given in the request to send queries to retrieve data.



The retrieved data is then formatted in a standardized format, like JSON, and sent back as a response to the user through the API Gateway. This process allows an API to act as a middleman between the user and the database, providing a convenient and standardized interface for users to retrieve data without the need for direct interaction with the database.

How to use Core OpenData API, *Swagger* interface

The CO.R.E. OpenData API https://app.swaggerhub.com/apis/NICCOLOSALVINI_1/core-opendata/dev is a RESTful web service that uses Swagger to provide a user-friendly interface for developers to interact with. By identifying the endpoint and parameters, users can retrieve data in JSON format. The Swagger interface provides an easy-to-use and user-friendly way to interact with the API, making it a powerful tool for accessing anti-corruption data.

Swagger is a toolset used for designing, building, and documenting web APIs. It defines an interface for RESTful web services using JSON or YAML, which allows developers to interact with the API in a standardized way. Swagger provides a user-friendly interface, allowing developers to easily explore and communicate with the API. Currently known as OpenAPI, Swagger is one of the industry-standard tools for describing and documenting APIs.

OpenAPI is the latest version of Swagger, released in 2015 as an open-source specification. With OpenAPI, developers can standardize an API's interface and create a full description of the API's endpoints, specific parameters, expected output format, and authentication requirements.

This standardized specification format allows developers to create API specifications that are platform-agnostic and language-independent. This enables a high level of flexibility and interoperability because anyone can develop an application or tool against the API specification in any programming language.

The CO.R.E. OpenData API uses the Swagger interface to document and interact with its RESTful web services. The Swagger interface actually describes each endpoint, method, input/output format and authentication requirements, allowing developers to quickly understand what data the API can provide and how they can be accessed.



To use the CO.R.E. OpenData API, users will first need to identify which endpoint and data they would like to retrieve. For example, if users need information on contract winners, they would access the 'aggiudicatari' endpoint.

Once endpoints are identified, users can interact with it using the Swagger interface. To access the Swagger documentation, users will need to navigate to the endpoint URL, which is https://app.swaggerhub.com/apis/NICCOLOSALVINI_1/core-opendata/dev.

This will display the Swagger interface, which will provide a detailed description of the endpoint, including the parameters it accepts and the expected output format.

To retrieve data through the Swagger interface, you can use the input parameters provided by the interface. These parameters allow users to customize their request to retrieve specific data. After entering the required parameters, users can then make the GET request to the endpoint, and the API will send back the output data in JSON format.