

Exploring the Nuxeo REST API Enabling Rapid Content Application Craftsmanship

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Enabling Rapid Content Application Craftsmanship

Introduction

What do the words craftsmanship and artistry make you think of? Beautiful handmade objects? Remarkable works of art? What about... Enterprise application development? Maybe that one doesn't come to mind quite as readily, but we at Nuxeo think it should. Just as a true work of art can have a transformative effect on the viewer, Nuxeo empowers developers to create truly business-transforming content-driven applications. A key way we make this happen is through our REST API—the “canvas” for developers to rapidly craft the next killer business app.

Chapter 1— The Nuxeo REST API

A REST API as Flexible and Powerful as the Nuxeo Platform Itself.

The Nuxeo Platform is a highly flexible and extensible system for enterprise content management (ECM), digital asset management (DAM) and case management, capable of handling the most demanding content-driven enterprise business processes:

- Benchmarked at processing one billion documents
- Utilizes MongoDB as a NoSQL option for content storage
- Includes tight, native integration with Elasticsearch
- Supports custom workflows and rich content objects containing advanced data structures and custom metadata

And yet, the Nuxeo Platform offers organizations even more: Unlike other content-related tools, the Nuxeo Platform provides a complete end-to-end environment to develop, test, deploy and manage highly customized, content-driven applications at massive scale—with a REST API as powerful as the platform itself.

“The Nuxeo Platform is much more than just a content repository. We also provide everything needed around the content repository for developers to build modern, content focused web applications with the latest development technologies. That’s why we have focused so heavily on our API.”

Thierry Delprat, CTO, Nuxeo

Purpose, Target Audience, and Organization of this eBook

This ebook will provide you with a technical overview of the Nuxeo REST API and explain what sets it apart from other HTTP/HTTPS APIs.

You will also discover plentiful resources available to help you understand and master the use of the Nuxeo REST API, including technical references, blog articles with code examples, videos and online documentation. Descriptions of these resources with content excerpts are provided, as well as links to the original material.

This ebook is targeted primarily at the developer community, offering resources and guidance in the development of contentdriven web services for the Nuxeo Platform based on RESTful principles. However, it will also be helpful for ECM/DAM decision makers, including CIOs, CTOs, enterprise information architects and anyone actively involved in business processes involving brand assets, documents, digital media and other content.

Resources are updated on a regular basis, so please review the Nuxeo site for new additions and articles to increase your knowledge of the API and stay abreast of new Nuxeo Platform releases. Even better, please subscribe to our [tech track](#) and receive automatic notifications of newly available content, upcoming events, and much more.

The Nuxeo Platform and REST API: Flexible, Extensible, Composable

The Nuxeo REST API offers a means to connect with the Nuxeo Platform repository remotely, integrating portals, workflow engines, custom applications, and the enterprise service buses (ESBs).

The Nuxeo REST API enables developers to make HTTP calls to the Nuxeo Platform and receive JSON in return, making the API usable from virtually any programming language, including JavaScript, Ruby, PHP and Python.

“We built the Nuxeo platform from the ground up to be as flexible and extensible as possible and we want to provide that same high level of flexibility and extensibility through the API. This means that our API must be dynamic and composable.”

Thierry Delprat, CTO, Nuxeo

Two key traits set the Nuxeo REST API apart from your typical HTTP/HTTPS API:

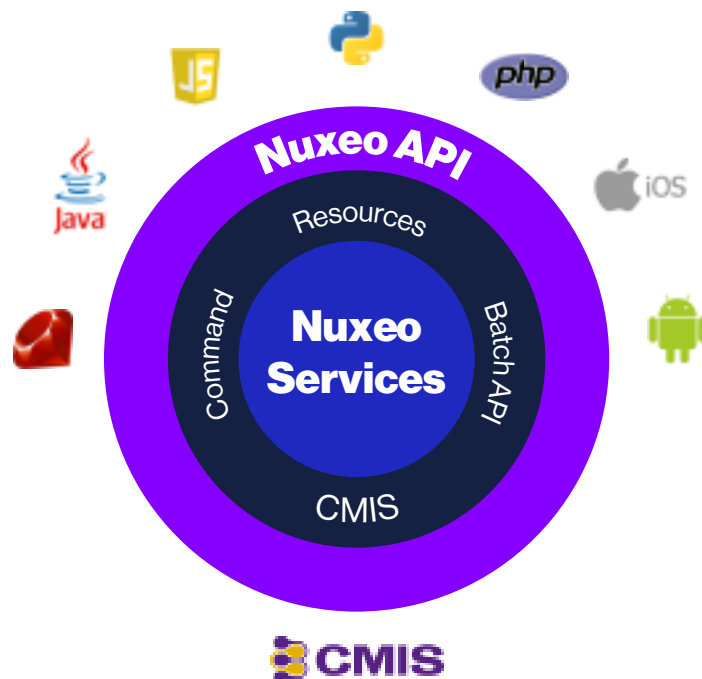
First of all, the Nuxeo REST API is fully **dynamic** to provide the same complete level of exceptional flexibility and extensibility of the Nuxeo Platform itself.

For example, the Nuxeo Platform allows you to deploy only those services required for a given application (each service is provided as its own component!), contribute custom services and configure rich content objects capable of supporting complex data structures.

Any static API implementation would simply be unable to effectively provide all Nuxeo functionality—but Nuxeo’s fully dynamic API does!

Second, the API is fully **composable**, enabling developers to specify the assembly of API calls in desired combinations and level of granularity as required.

Developers can request as little or as much JSON data as required, through extensible JSON marshaling provided by Nuxeo, as well as content enrichers that contribute additional required JSON data within the same single HTTP call instead of requiring several small calls. This yields superior performance, and, even more importantly, enables a transactional-style rollback of an entire set of combined calls in the event one or more of the calls are not successful.



Further Resources

Watch our [on-demand webinar](#) in which our CTO Thierry Delprat discusses Nuxeo's REST API in further detail.

Check out our new white paper, [A True Building Block Platform](#), providing a complete overview of the Nuxeo Platform and its REST API, as well as our blog article [Why You Need a Good API Toolset in Your Content Management Software](#).

The relationship of the Nuxeo REST API and Nuxeo content repository (Core) and other components is shown in this figure. The platform features an extensive, document-oriented API to create, query, and manage content, and a command-oriented API for complex interactions. Combined, the REST API is a great way to build applications and integrate with the platform.

Chapter 2

API

Resources

Nuxeo offers a wide variety of Nuxeo REST API resources, including Nuxeo University for ondemand video learning, the Nuxeo API Playground, an online sandbox for API testing, plus webinars, blog articles, and technical documentation.

Read on and get started!



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Nuxeo University

[Nuxeo University](#) is our new, fast-growing online resource, providing free video-based, learn-by-example training for all major aspects of the Nuxeo Platform.

We are constantly updating Nuxeo University with new courses, including our most recently added series, [Working with the REST API](#).

Each Nuxeo University course series takes you step by step through a “real world” hands-on example utilizing the Nuxeo Platform.

In the case of the API course, you will observe how to utilize the API to set up a simple web interface in order to handle a custom “contract” document type already configured using Nuxeo Studio.

If you are eager to get going building content-intensive enterprise applications that will transform your business, Nuxeo University is the fastest way to get you there.

The screenshot shows the Nuxeo University course interface for "Discovering the REST API". The course is part of the "Working with the REST API" series. The interface includes a sidebar with a table of contents, a main video player, and a right-hand navigation pane.

Chapter	Topic
1	Discovering the REST API
2	Using Content Endpoints
3	Importing Files with the REST API

Difficulty level: **beginner** Length: 4:22

Video player content: **Discovering The Nuxeo Platform's REST API**

Time	Topic
0:20	Final Goal
0:29	Use Case
0:40	API Playground Introduction
1:08	Existing Endpoints
1:28	Launching a First Call
2:08	Path Endpoint URL Breakdown
2:46	Using the Path Endpoint
3:41	Requesting Custom Schemas

Nuxeo API Playground

The Nuxeo API Playground is an interactive tool that gives developers and information architects a means for examining the data structures, command endpoints, and assets that can be accessed using the API. Real tests can be generated from within the playground and users can view the attributes expected to carry out operations through the API.

About the Nuxeo API Playground

A free sandbox and learning tool available online via the [Nuxeo API Playground](#), which provides a means of accessing and interacting with repositories, data structures, resources endpoints, and command endpoints available from the Nuxeo Platform in a realistic and accessible manner. The playground also makes it possible to experiment with batch uploads of content.

[This blog article](#) provides a brief introduction to the Nuxeo API Playground and suggests some of its capabilities.

You can also view the full documentation for [Nuxeo API Playground](#).

The Nuxeo API Playground lets you perform the following operations:

Browse the repository including exploring content metadata.

Survey the resources endpoints; experiment with REST calls to see JSON results and related cURL request (see the figure).

Browse the data structures, including the definitions of types, schemas and properties, and facets.

Investigate automation operations that are available and the chains deployed on the connected server. Experiment with automation calls by filling in expected parameters and input.

Create batches by uploading one or more files that can be referenced as resource endpoints using the Reference a batch button.



Blog Posts and Articles

Blog articles include content written by Nuxeo staff members, as well as frequent guest appearances, exploring a wide range of topics—everything from new features and capabilities associated with the latest platform releases to procedures on how to perform certain operations and accomplish tasks using available tools.

The following references cover a sample of those blog articles that apply to the Nuxeo REST API. Additional topics can be found by performing a search from the [Blog homepage](#).

Filesharing Web App Built Using the Nuxeo REST API

Complex user interfaces are a common requirement of elaborate document management systems and the Nuxeo Platform supports the development of customized UIs that can handle a high degree of complexity.

Sometimes, however, a simple user interface best suits the end goal. [This blog post](#) offers a case study of how the University of Orléans constructed a web application to serve students, professors, and other staff members, using the Nuxeo REST API.

Build a Q&A Web App with Angular JS and Nuxeo REST API

[The application shown in this post](#) provides a way for Nuxeo users to ask and answer questions, using AngularJS for the coding and the Nuxeo API. CRUD operations are used as the basis for the application, which provides a good illustration of how the API can be leveraged easily for simple apps of this type.

How to Attach Files to Documents with REST API

[This code example](#) takes advantage of the [nuxeo-automationclient](#), a high-level client implementation for Java programmers, in a unit test, deploying a basic Nuxeo in a Jetty. An example of an automation client built using PHP is also included in the post.

Getting Started with the REST API Using iOS

Nuxeo offers an iOS SDK to streamline access to the REST API. This blog post discusses the basics to get developers started by adding the SDK to any XCode project.

More details on the [Nuxeo iOS SDK can be found here](#).

Developing with AngularJS

AngularJS provides an ideal front-end addition to the backend capabilities of the Nuxeo Platform. This [angular-nuxeo](#) project provides a module for supporting the Nuxeo REST API and Nuxeo Automation, wrapping the Nuxeo JavaScript client so that it is usable from within an AngularJS application.

[Click here](#) for more details about developing with AngularJS.

Creating a Thumbnail Browsing Module with AngularJS and the REST API, Part 1

[Part 1](#) of this three-part series walks developers through the process of creating a simple module for scanning image thumbnails, created using AngularJS and the REST API.

The technique is designed to display all images having a particular tag, easily scrolled and quickly searchable. In Part 1, the 11 author focuses on how to use the REST API and the search and Business Object adapters.

Creating a Thumbnail Browsing Module with AngularJS and the REST API, Part 2

[Part 2](#) of this series explains how to create an infinite scrolling page in Angular JS. The example builds on the [nuxeo-angular sample](#) available through GitHub. This application lets you browse, edit, delete, and create documents in an Nuxeo instance.

How to Upload a File in Nuxeo Platform Using the REST API Batch Processing Endpoint

The Nuxeo Platform supports the uploading of binaries under a given batch ID. You can then reference that batch ID for posting a document resource or fetching it from the custom automation chain.

[This documentation entry](#) describes how to use the REST API batch processing endpoint to accomplish this.

How to Use the Query Endpoint from a REST Client

The Query endpoint gives REST clients a means to direct queries to the Nuxeo repository, as described on [this documentation page](#).

Using REST API to Start a Workflow

[This video demonstration](#) shows how a REST API call can be used to run a particular Nuxeo Operation that will perform a workflow process on a document. Among the concepts and tools presented:

- Demonstration of the REST API explorer tool, including a view of the available REST calls and the method of executing them;
- A high-level view of Nuxeo Server operations;
- A REST call for an operation and how to set required parameters in a JSON object;
- A look at the workflow structure in a sample Case Management application.

Publishing Content Using Pluggable JSON

Complete with source code, [this article](#) walks step by step through the process of publishing desired content using a single REST API call that will return the required JSON data—complete with a clever extension to the JSON marshaller.

This article is part of an instructive series featuring the creation of a sample [Collaborative Showroom](#) ecommerce-related application that collects content submitted by customers, validates the data, and then presents the data online for all customers to see and share.



About Nuxeo

Nuxeo dramatically improves how content-based applications are built, managed and deployed, making customers more agile, innovative and successful. Nuxeo provides a next generation, enterprise ready platform for building traditional and cuttingedge content-driven applications, trusted by some of the most recognizable brands, including Verizon, Internal Revenue Service, Capital One, Electronic Arts, Sharp, FICO, the U.S. Navy, and Boeing. Nuxeo is based in New York and Paris.