

# GraphQL API for use with Content Fragments

The GraphQL API used with Content Fragments is heavily based on the standard, open source GraphQL API.

## The GraphQL API

*"GraphQL is a data query language and specification developed internally by Facebook in 2012 before being publicly open sourced in 2015. It provides an alternative to REST-based architectures with the purpose of increasing developer productivity and minimizing amounts of data transferred. GraphQL is used in production by hundreds of organizations of all sizes..."* See [GraphQL Foundation](#).

For further information about the GraphQL API, see the following sections (amongst many other resources):

- At [graphql.org](#):
  - [Introduction to GraphQL](#)
  - [The GraphQL Specification](#)
- At [graphql.com](#):
  - [Guides](#)
  - [Tutorials](#)
  - [Case Studies](#)

## Use Cases for Author and Publish Environments

The use cases can depend on the type of AEM as a Cloud Service environment:

- Publish environment; used to:
  - Query data for JS application (standard use-case)
- Author environment; used to:
  - Query data for "content management purposes":
    - GraphQL in AEM as a Cloud Service is currently a read-only API.
    - The REST API can be used for CR(u)D operations.

## Schema Generation

The data schemas correlate to (are based on) the [Content Fragment Models](#). The data schema caches are refreshed when you update a Content Fragment Model.

## Permissions

The permissions are those required for accessing Assets.

## Filtering

See the [Sample Queries](#) for examples.

## End-Points

To have access to GraphQL servlets in AEM you need to configure an endpoint. This also includes two OSGi configurations.

1. The Sling schema servlet that responds to requests to retrieve the GraphQL schema:

The screenshot shows the configuration window for the 'AEM Sites GraphQL Schema Servlet'. The title bar reads 'AEM Sites GraphQL Schema Servlet'. Below the title bar, a description states: 'Servlet that provides GraphQL schemas for AEM Sites'. The configuration is divided into four sections: 'Selectors', 'Resource Types', 'Methods', and 'Extensions'. Each section has a text input field, a warning icon, and a description. The 'Selectors' field is empty. The 'Resource Types' field is empty. The 'Methods' field contains 'GET'. The 'Extensions' field contains 'GQLschema'. Below these sections is a 'Configuration Information' section with three rows: 'Persistent Identity (PID)' with the value '[Temporary PID replaced by real PID upon save]', 'Factory Persistent Identifier (Factory PID)' with the value 'com.adobe.aem.graphql.sites.adapters.SlingSchemaServlet', and 'Configuration Binding' with the value 'Unbound or new configuration'. At the bottom right, there are five buttons: 'Cancel', 'Reset', 'Delete', 'Unbind', and 'Save'.

AEM Sites GraphQL Schema Servlet	
Servlet that provides GraphQL schemas for AEM Sites	
Selectors	<input type="text"/> Standard Sling servlet property (sling.servlet.selectors)
Resource Types	<input type="text"/> Standard Sling servlet property (sling.servlet.resourceTypes)
Methods	<input type="text" value="GET"/> Standard Sling servlet property (sling.servlet.methods)
Extensions	<input type="text" value="GQLschema"/> Standard Sling servlet property (sling.servlet.extensions)
<strong>Configuration Information</strong>	
Persistent Identity (PID)	[Temporary PID replaced by real PID upon save]
Factory Persistent Identifier (Factory PID)	com.adobe.aem.graphql.sites.adapters.SlingSchemaServlet
Configuration Binding	Unbound or new configuration

- **Selectors** ( `sling.servlet.selectors` )  
Must be left blank.
- **Resource Types** ( `sling.servlet.resourceTypes` )  
Define the resource type that the GraphQL servlet should listen to.  
For example:  
`graphql-enablement/components/endpoint` .

- **Methods**

( `sling.servlet.methods` ) The HTTP method the servlet should listen to; usually GET.

- **Extensions** ( `sling.servlet.extensions` )

Specify the extension that the Schema Servlet should respond to. In this case it is `GQLschema` , to be compatible with the GraphQL specifications.

2. The servlet that responds to graphql requests :

The screenshot shows the 'Apache Sling GraphQL Servlet' configuration window. It has a title bar with a close button. Below the title bar, it says 'Servlet that implements GraphQL endpoints'. There are four main sections: 'Selectors', 'Resource Types', 'Methods', and 'Extensions'. Each section has a text input field and a warning icon with the text 'Standard Sling servlet property (sling.servlet.selectors)', 'Standard Sling servlet property (sling.servlet.resourceTypes)', 'Standard Sling servlet property (sling.servlet.methods)', and 'Standard Sling servlet property (sling.servlet.extensions)' respectively. The 'Selectors' field is empty. The 'Resource Types' field contains 'sling/servlet/default'. The 'Methods' field contains 'GET'. The 'Extensions' field contains 'gql'. Below these sections is a 'Configuration Information' section with three rows: 'Persistent Identity (PID)' with the value '[Temporary PID replaced by real PID upon save]', 'Factory Persistent Identifier (Factory PID)' with the value 'org.apache.sling.graphql.core.GraphQLServlet', and 'Configuration Binding' with the value 'Unbound or new configuration'. At the bottom right, there are five buttons: 'Cancel', 'Reset', 'Delete', 'Unbind', and 'Save'.

- **Selectors** ( `sling.servlet.selectors` )

Must be left blank.

- **Resource Type** ( `sling.servlet.resourceTypes` )

The resource type the GraphQL servlet should respond to.

For example, `graphql-enablement/components/endpoint` .

- **Methods** ( `sling.servlet.methods` )

The HTTP methods the GraphQL servlet should respond to, usually GET and POST .

- **Extensions** ( `sling.servlet.extensions` )

The extension to listen for GraphQL requests, usually `gql` .

3. You now need to create an endpoint - a node of the `sling:resourceType` defined in these configurations.

For example, to create an endpoint for retrieving the GraphQL Schema create a new node under `/apps/<my-site>/graphql` :

- Name: endpoint
- Primary Type: `nt:unstructured`
- `sling:resourceType`: `graphql-enablement/components/endpoint`