GraphQL fundamentals in Sitecore

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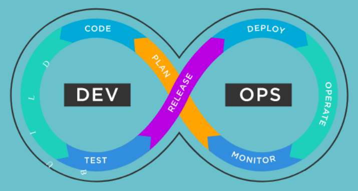
ABOUT ME

- Software development for almost 20 years. Areas: Inspections, Banking, Commercial.
- Working on Sitecore the latest 6 years. Sitecore 8, 9, 10
- DevOps studies.

ASP.NET

ASP.NET Core

SITECORE



.NET MVC

AGENDA

1. GraphQL overview. Origin

- GraphQL started as initial project for Facebook.
- It was open sourced
- It is more structured than REST
- Reduce network round trips from client

GraphQL query

```
{
  me {
    name,
    posts {
      title,
      body
    }
  }
}
```

GraphQL response

```
{
  me {
    name: "Mariela Pancho",
    posts: [
      {
        title: "Progressive Web Applications",
        body: "...."
      },
      {
        title: "A Beginners guide to getting started with React",
        body: "..."
      }
    ]
  }
}
```

Same use-case using REST

/v1/user

/v1/posts

2. GraphQL overview. Schema

- GraphQL uses a type system to validate queries sent by the client.
- The client can request only those fields that are defined in this schema.

GraphQL query

```
{
  me {
    name
  }
}
```

GraphQL schema

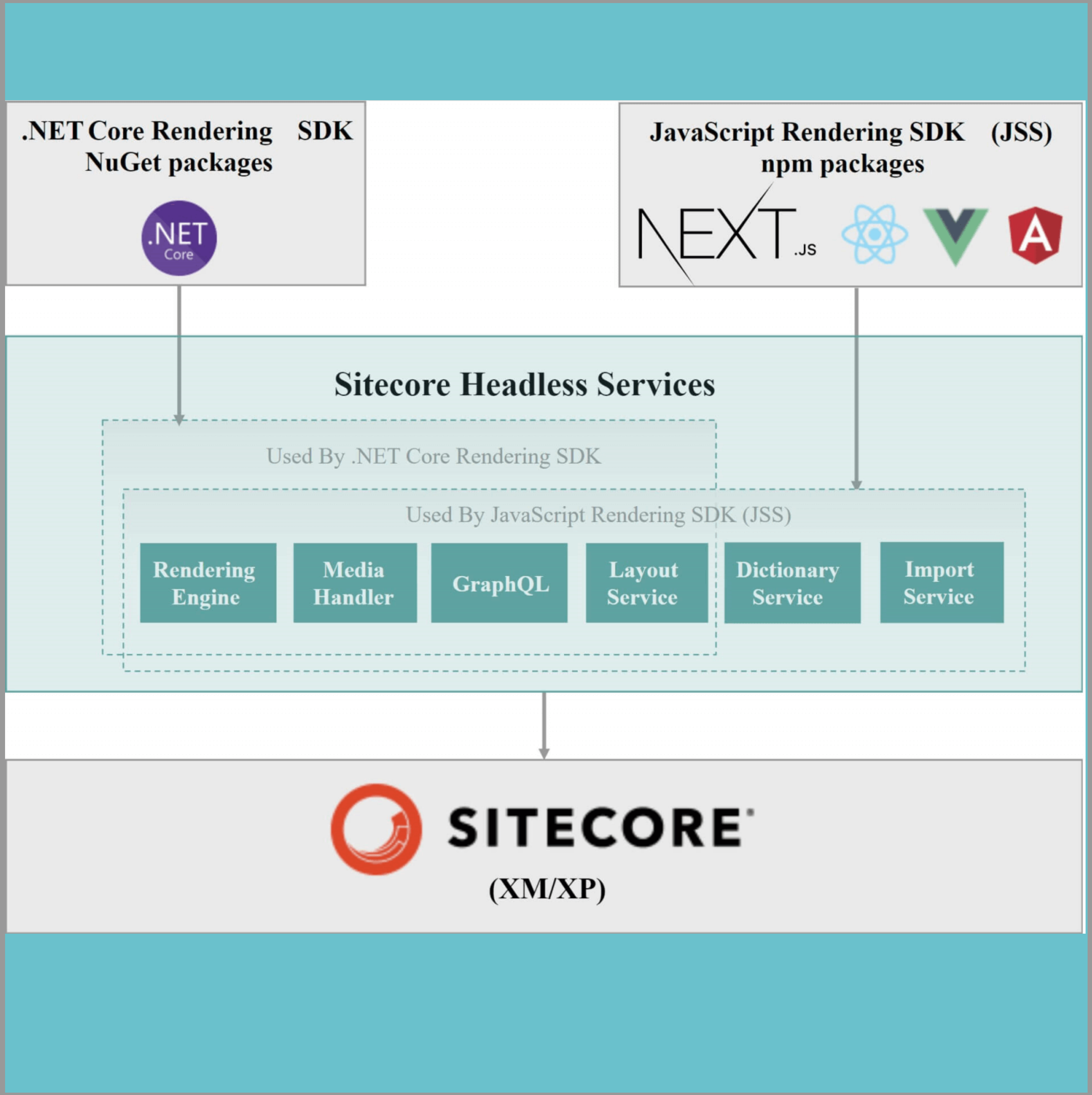
```
type User {
  id: String!
  name: String!
}
```

GraphQL query with error

```
{
  me {
    name
    location
  }
}
```

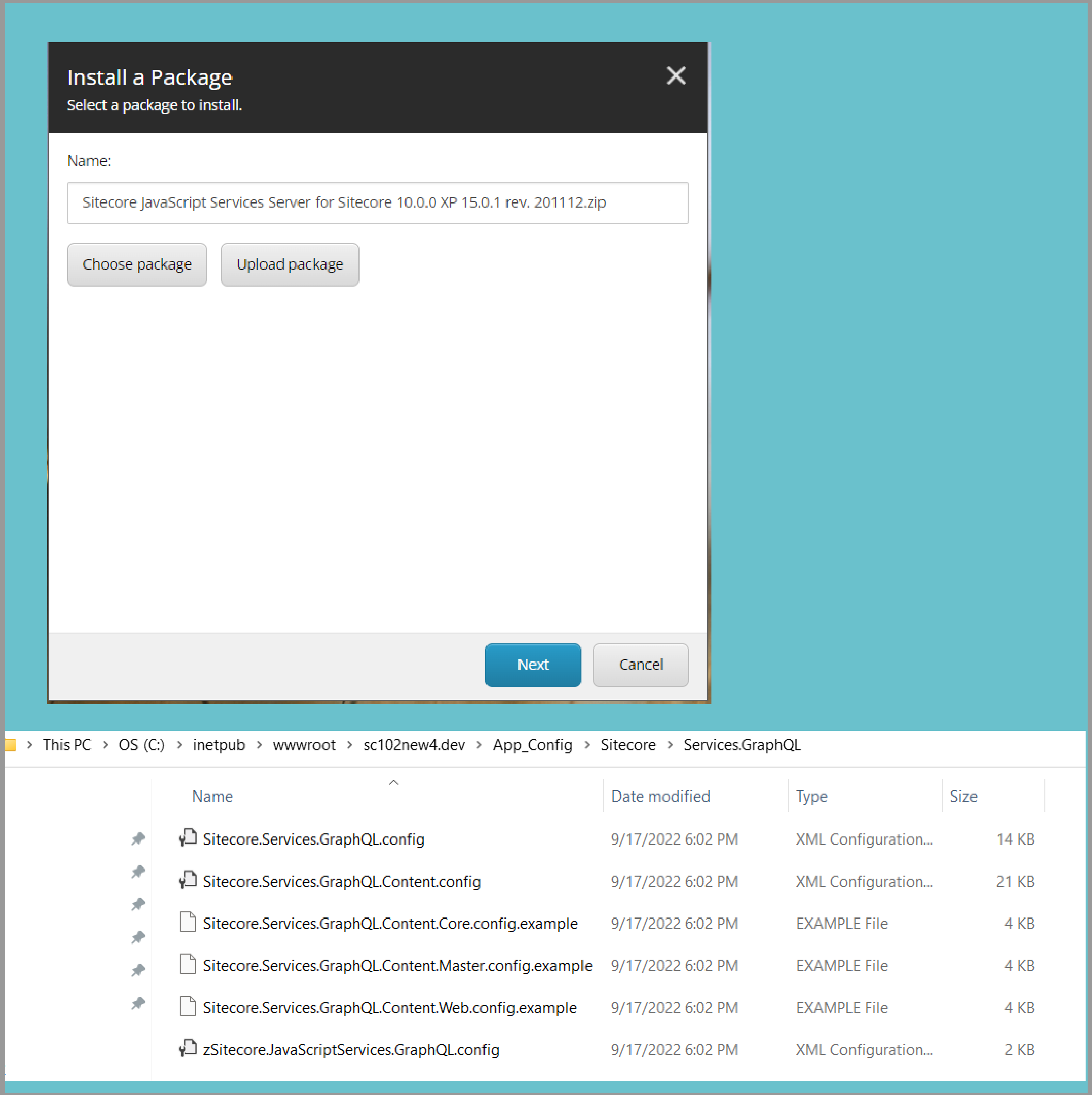
3. GraphQL in Sitecore

- The Sitecore GraphQL API is a generic GraphQL service platform on top of Sitecore
- Appeared in 2018 with JSS
- Sitecore data via API
- It is part also of Sitecore Experience Edge for XM



4. Sitecore GraphQL configuration

1. Download and install Sitecore JavaScript Services Server for Sitecore from Sitecore download page
2. Once it is installed the folder ServiceGraphQL is created



Install a Package
Select a package to install.

Name: Sitecore JavaScript Services Server for Sitecore 10.0.0 XP 15.0.1 rev. 201112.zip

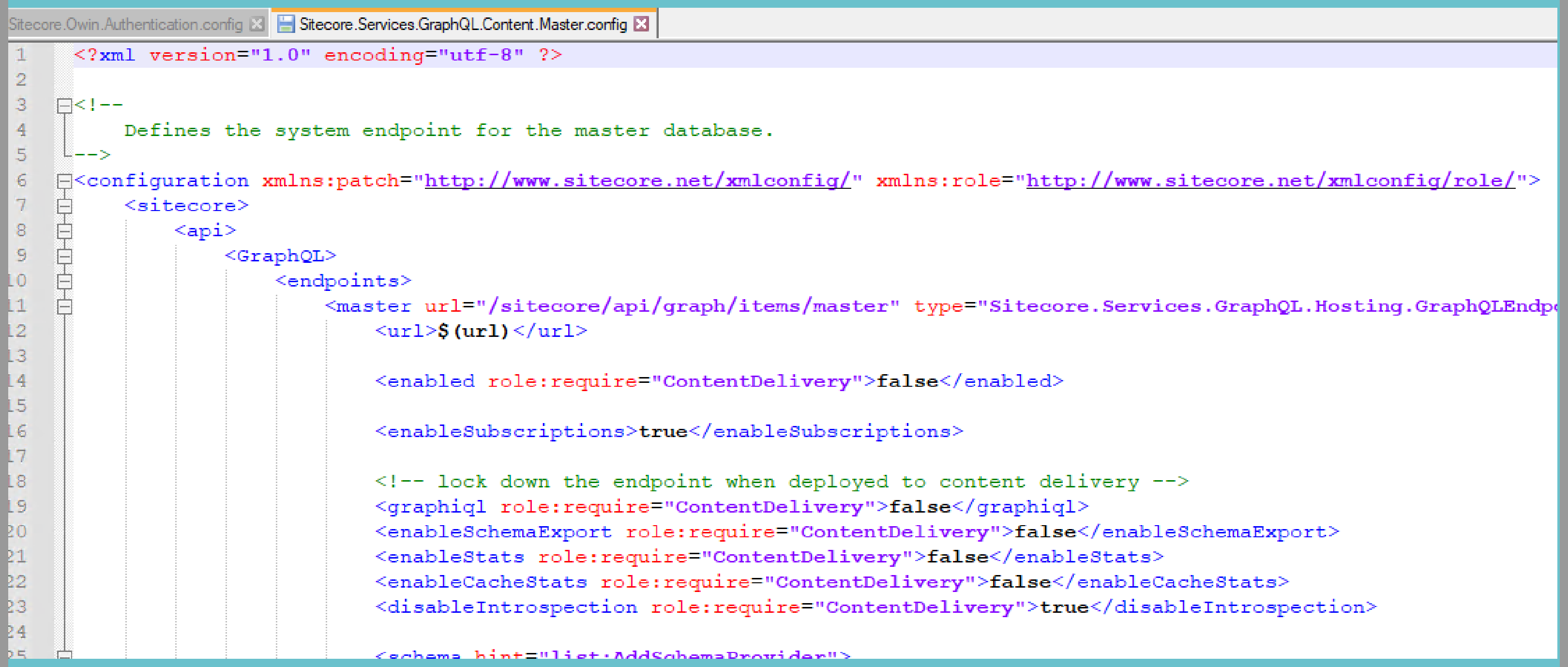
This PC › OS (C:) › inetpub › wwwroot › sc102new4.dev › App_Config › Sitecore › Services.GraphQL

Name	Date modified	Type	Size
Sitecore.Services.GraphQL.config	9/17/2022 6:02 PM	XML Configuration...	14 KB
Sitecore.Services.GraphQL.Content.config	9/17/2022 6:02 PM	XML Configuration...	21 KB
Sitecore.Services.GraphQL.Content.Core.config.example	9/17/2022 6:02 PM	EXAMPLE File	4 KB
Sitecore.Services.GraphQL.Content.Master.config.example	9/17/2022 6:02 PM	EXAMPLE File	4 KB
Sitecore.Services.GraphQL.Content.Web.config.example	9/17/2022 6:02 PM	EXAMPLE File	4 KB
zSitecore.JavaScriptServices.GraphQL.config	9/17/2022 6:02 PM	XML Configuration...	2 KB

4. Sitecore GraphQL configuration

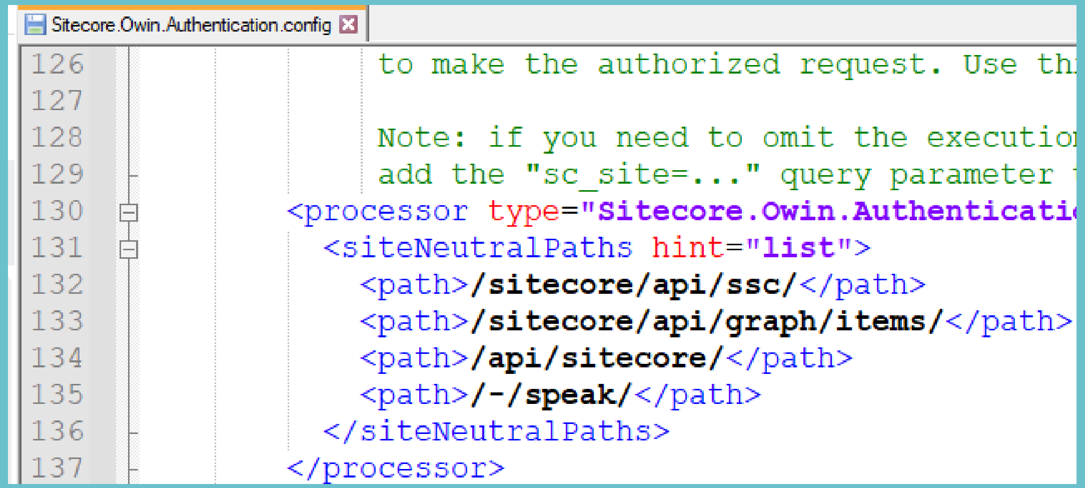
3. Create the config file for your project based on the examples provided by Sitecore. Rename Sitecore.Services.GraphQL.Content.Master.config

4. Change the Sitecore.Owin.Authentication.config to include on siteNeutralPaths the endpoint



Sitecore.Owin.Authentication.config | Sitecore.Services.GraphQL.Content.Master.config

```xml
<?xml version="1.0" encoding="utf-8" ?>

<!--
    Defines the system endpoint for the master database.
-->
<configuration xmlns:patch="http://www.sitecore.net/xmlconfig/" xmlns:role="http://www.sitecore.net/xmlconfig/role/">
    <sitecore>
        <api>
            <GraphQL>
                <endpoints>
                    <master url="/sitecore/api/graph/items/master" type="Sitecore.Services.GraphQL.Hosting.GraphQLEndp
                        <url>$(url)</url>

                        <enabled role:require="ContentDelivery">false</enabled>

                        <enableSubscriptions>true</enableSubscriptions>

                        <!-- lock down the endpoint when deployed to content delivery -->
                        <graphiql role:require="ContentDelivery">false</graphiql>
                        <enableSchemaExport role:require="ContentDelivery">false</enableSchemaExport>
                        <enableStats role:require="ContentDelivery">false</enableStats>
                        <enableCacheStats role:require="ContentDelivery">false</enableCacheStats>
                        <disableIntrospection role:require="ContentDelivery">true</disableIntrospection>

                        <schema hint="list:AddSchemaProvider">
```



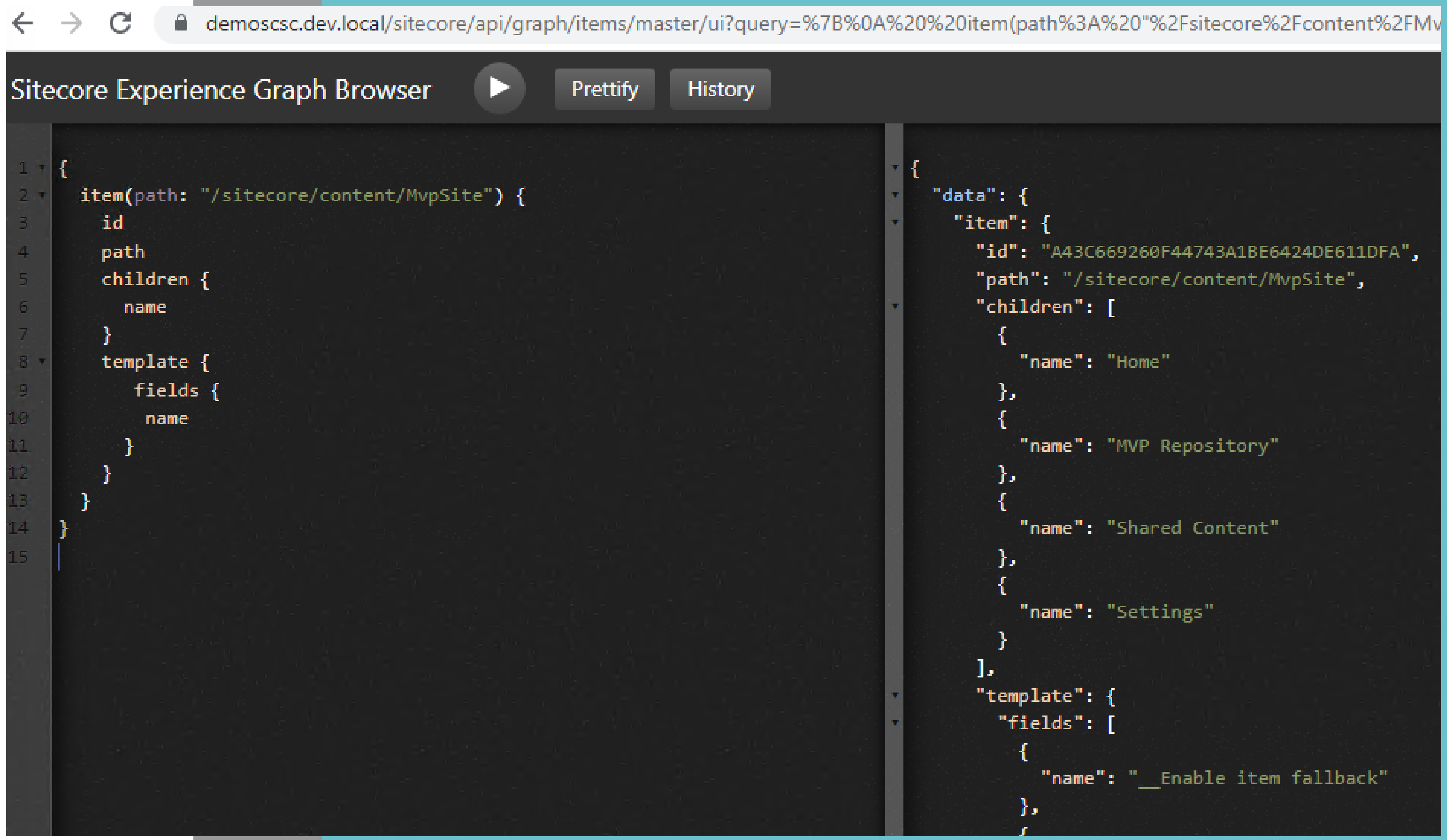
Sitecore.Owin.Authentication.config

```xml
            to make the authorized request. Use th

            Note: if you need to omit the executio
            add the "sc_site=..." query parameter 
        <processor type="Sitecore.Owin.Authenticati
          <siteNeutralPaths hint="list">
            <path>/sitecore/api/ssc/</path>
            <path>/sitecore/api/graph/items/</path>
            <path>/api/sitecore/</path>
            <path>/-/speak/</path>
          </siteNeutralPaths>
        </processor>
```

5. Sitecore GraphQL Queries

1. Query. Most commonly used type. Reading data.
2. Mutations. Write-only operations
3. Subscriptions. Build real-time applications

Demo to execute some queries
1. Get the Item data, children and template information
2. Create, Update and Delete and Item


demoscsc.dev.local/sitecore/api/graph/items/master/ui?query=%7B%0A%20%20item(path%3A%20"%2Fsitecore%2Fcontent%2FMv
Sitecore Experience Graph Browser
Prettify
History

```
{
  item(path: "/sitecore/content/MvpSite") {
    id
    path
    children {
      name
    }
    template {
       fields {
        name
      }
    }
  }
}
```

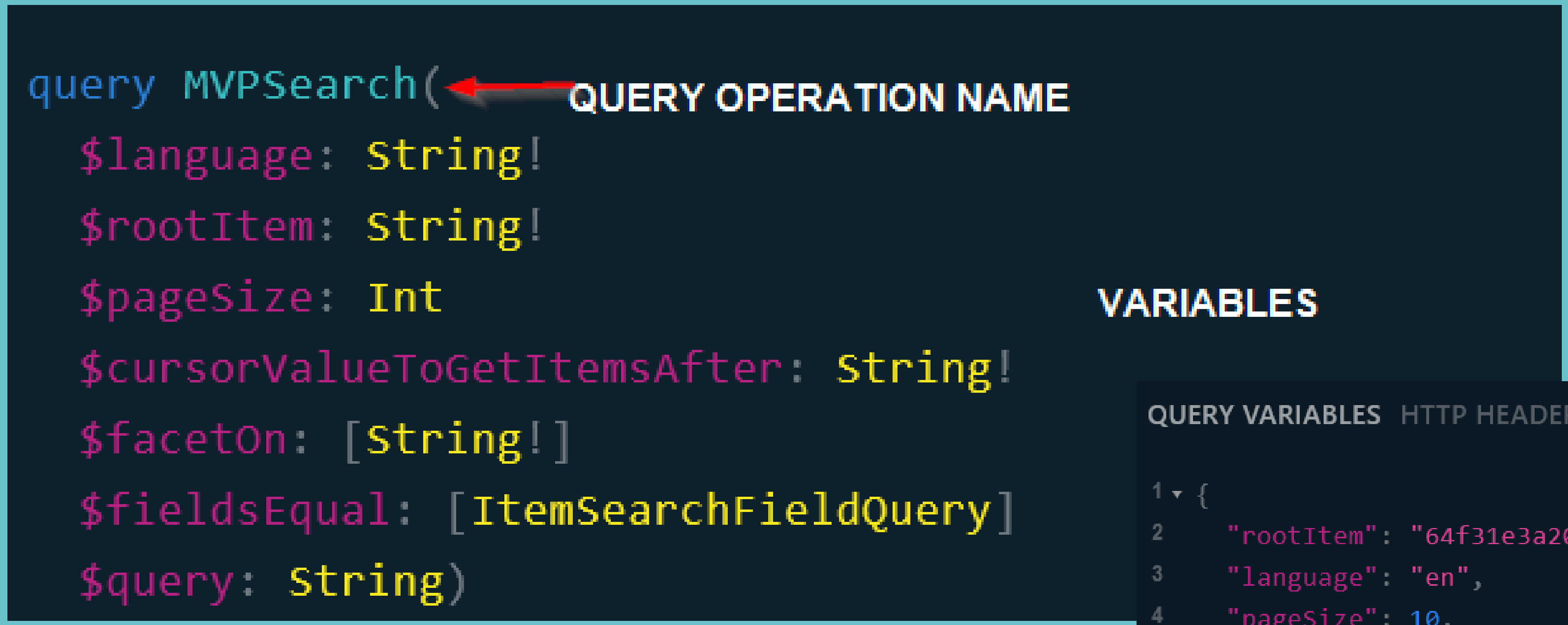
```
{
  "data": {
    "item": {
      "id": "A43C669260F44743A1BE6424DE611DFA",
      "path": "/sitecore/content/MvpSite",
      "children": [
        {
          "name": "Home"
        },
        {
          "name": "MVP Repository"
        },
        {
          "name": "Shared Content"
        },
        {
          "name": "Settings"
        }
      ],
      "template": {
        "fields": [
          {
            "name": "__Enable item fallback"
          },
          {
```

5. Sitecore GraphQL Queries

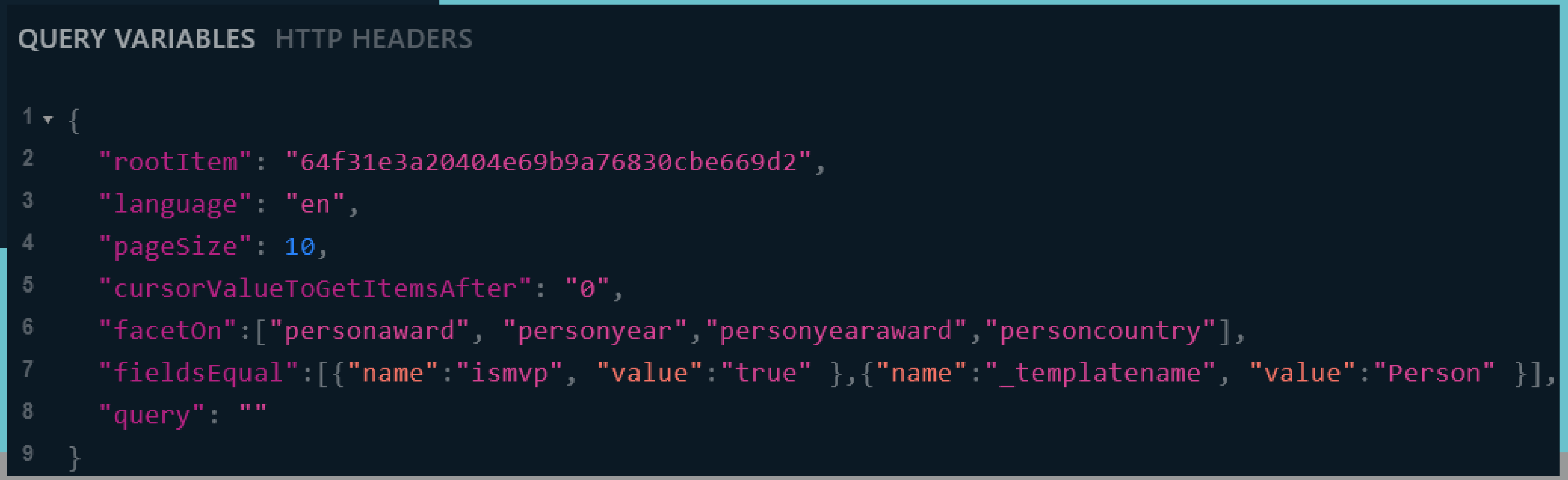
Access to GraphQL UI utility to test the queries. https://[CMS URL]/[Endpoint URL]/ui

Example: https://cm.sc-mvp.localhost/api/content/people/ui

QUERY SECTION



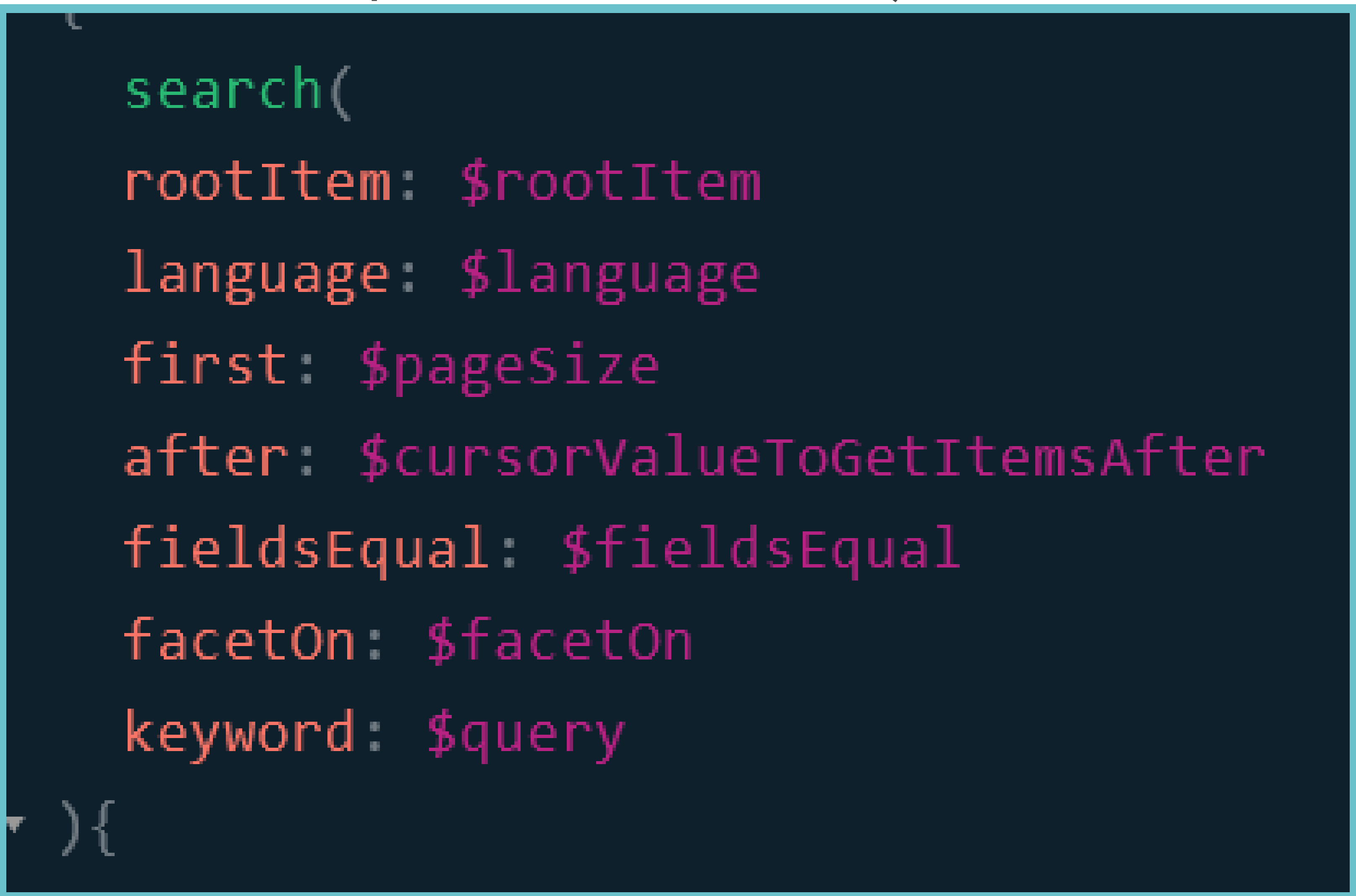
```
query MVPSearch(
  $language: String!
  $rootItem: String!
  $pageSize: Int
  $cursorValueToGetItemsAfter: String!
  $facetOn: [String!]
  $fieldsEqual: [ItemSearchFieldQuery]
  $query: String)
```



```
{
  "rootItem": "64f31e3a20404e69b9a76830cbe669d2",
  "language": "en",
  "pageSize": 10,
  "cursorValueToGetItemsAfter": "0",
  "facetOn":["personaward", "personyear","personyearaward","personcountry"],
  "fieldsEqual":[{"name":"ismvp", "value":"true" },{"name":"_templatename", "value":"Person" }],
  "query": ""
}
```

5. Sitecore GraphQL Queries

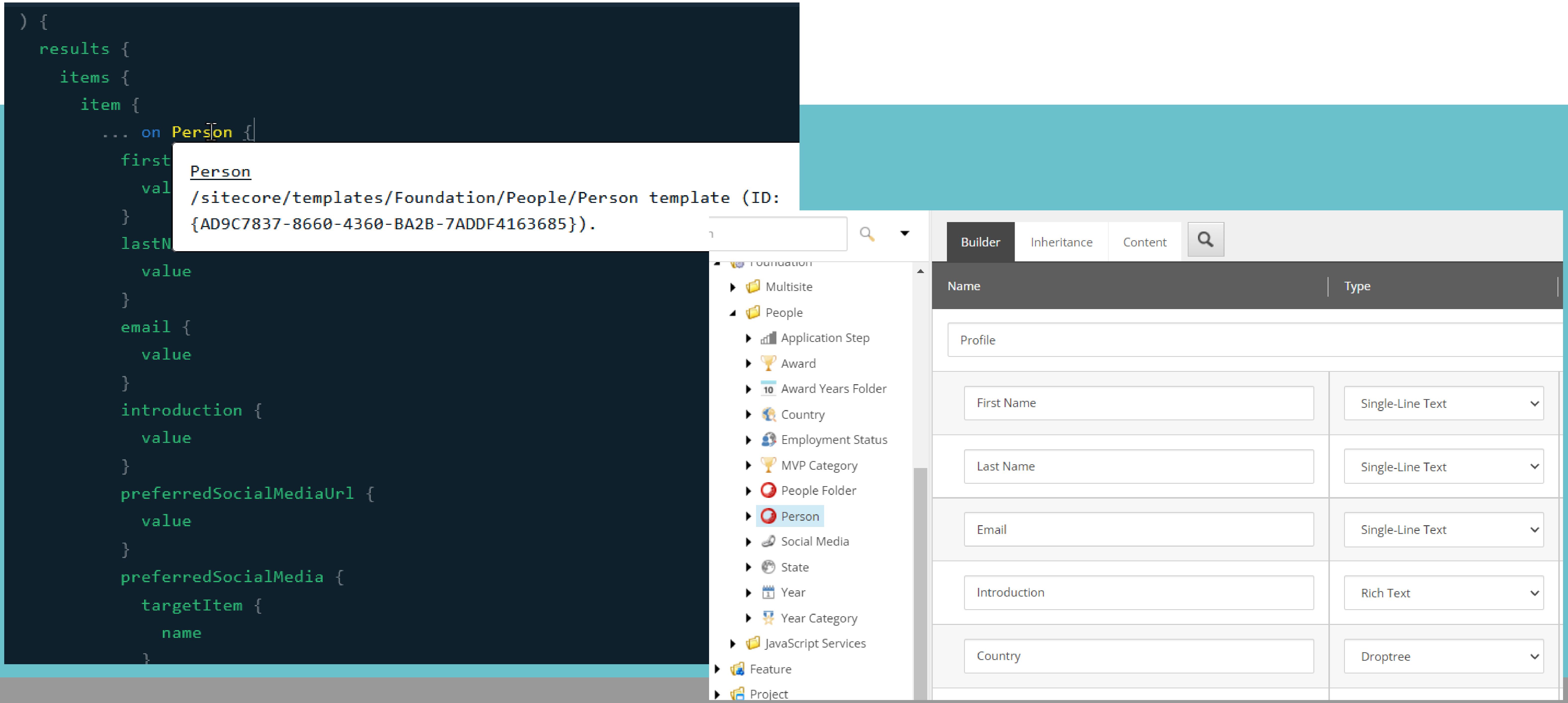
- Search Query - get item data from the content search indexes. Parameters (rootItem, keyword, language, lastVersion, index, fieldEquals, facetOn, after)



```
  search(
  rootItem: $rootItem
  language: $language
  first: $pageSize
  after: $cursorValueToGetItemsAfter
  fieldsEqual: $fieldsEqual
  facetOn: $facetOn
  keyword: $query
){
```

5. Sitecore GraphQL Queries

- Results



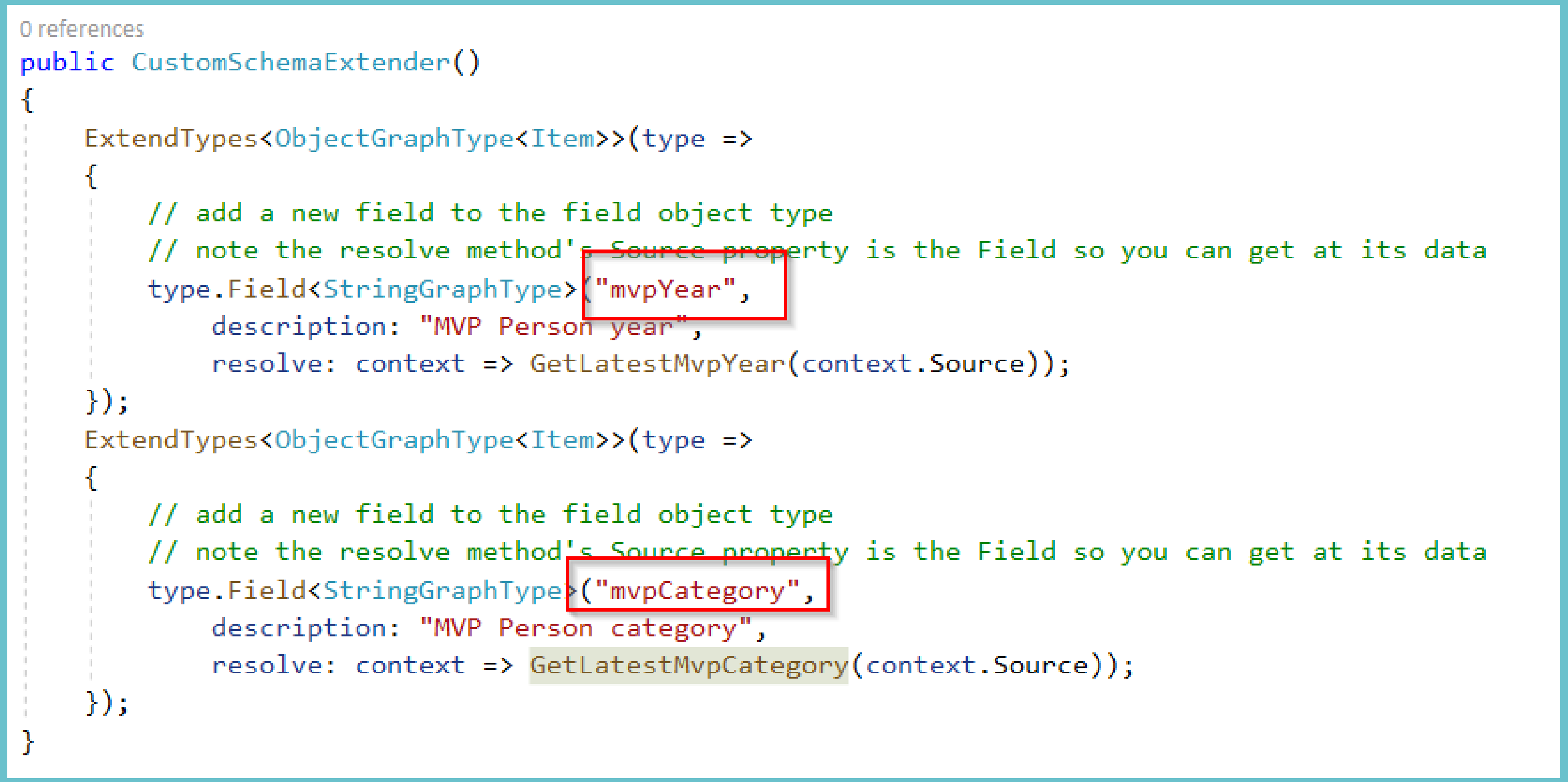
```
) {
  results {
    items {
      item {
        ... on Person {
          first
            val
          }
          lastN
            value
          }
          email {
            value
          }
          introduction {
            value
          }
          preferredSocialMediaUrl {
            value
          }
          preferredSocialMedia {
            targetItem {
              name
            }
```

Person
/sitecore/templates/Foundation/People/Person template (ID:
{AD9C7837-8660-4360-BA2B-7ADDF4163685}).

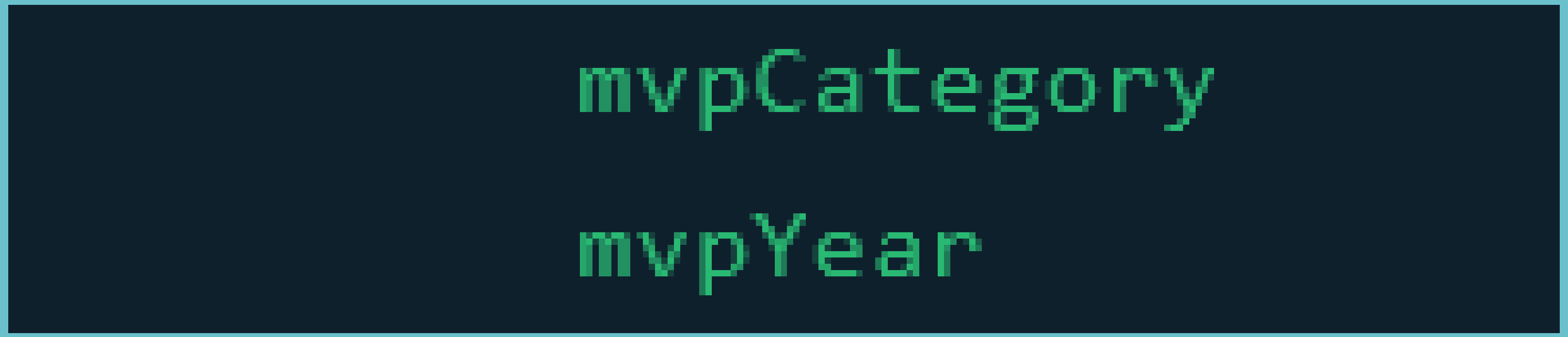
Name	Type
Profile	
First Name	Single-Line Text
Last Name	Single-Line Text
Email	Single-Line Text
Introduction	Rich Text
Country	Droptree

5. Sitecore GraphQL Queries

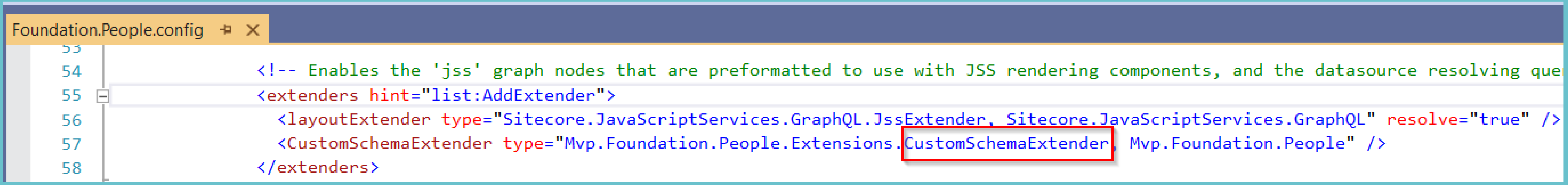
Custom schema with custom fields



```
0 references
public CustomSchemaExtender()
{
    ExtendTypes<ObjectGraphType<Item>>(type =>
    {
        // add a new field to the field object type
        // note the resolve method's Source property is the Field so you can get at its data
        type.Field<StringGraphType>("mvpYear",
            description: "MVP Person year",
            resolve: context => GetLatestMvpYear(context.Source));
    });
    ExtendTypes<ObjectGraphType<Item>>(type =>
    {
        // add a new field to the field object type
        // note the resolve method's Source property is the Field so you can get at its data
        type.Field<StringGraphType>("mvpCategory",
            description: "MVP Person category",
            resolve: context => GetLatestMvpCategory(context.Source));
    });
}
```



```
mvpCategory
mvpYear
```



Foundation.People.config

```
                <!-- Enables the 'jss' graph nodes that are preformatted to use with JSS rendering components, and the datasource resolving que
                <extenders hint="list:AddExtender">
                  <layoutExtender type="Sitecore.JavaScriptServices.GraphQL.JssExtender, Sitecore.JavaScriptServices.GraphQL" resolve="true" />
                  <CustomSchemaExtender type="Mvp.Foundation.People.Extensions.CustomSchemaExtender, Mvp.Foundation.People" />
                </extenders>
```

6. Sitecore GraphQL Integration

01

Json Rendering creation and reference to the View Component

MVPSearch component

02

View Component class with InvokeAsync entry method

GraphQLPeopleListViewComponent class

03

Implement Service to return the GraphQL data

GraphQLPeopleService class, method Search. That calls the GraphQLProvider class and GraphQL.Client nuget package 3.16

Thank you

Questions

Bibliography

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