



# Introduction into Sitecore Content Serialization

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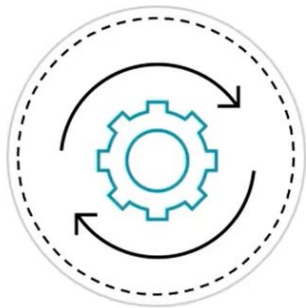
Sitecore User Group Cluj-Napoca



# Agenda

- Sitecore serialization brief history
- Sitecore Content Serialization
- Sitecore CLI
- Sitecore for Visual Studio
- Sitecore Content Serialization vs Unicorn
- Code generation with SCS using Leprechaun

# Sitecore Serialization History



**.item**

First native  
Serialization format



**TDS**

Paid UI tool,  
working with .item  
Third party



**Unicorn**

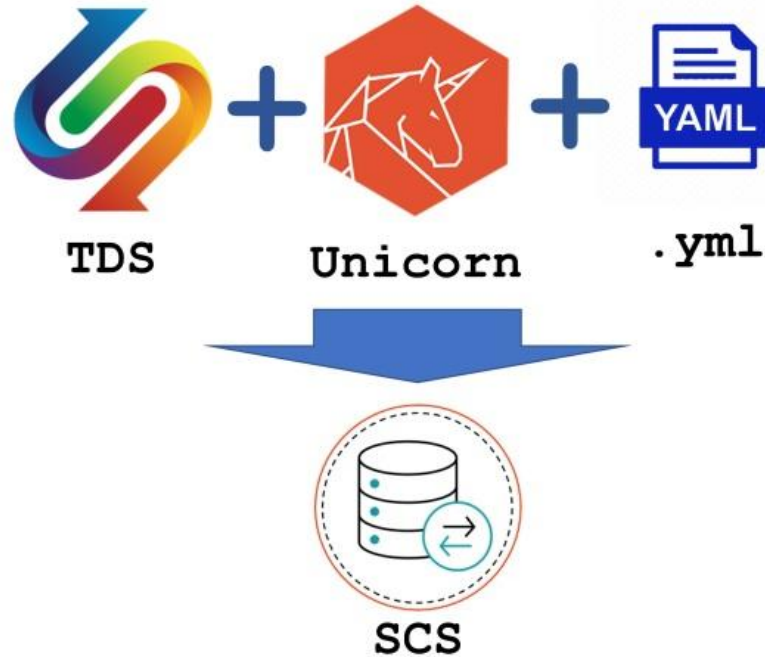
Free tool,  
works with .yaml  
Third party



**.yaml**

Human readable  
Data serialization  
Implemented by Rainbow

# Sitecore 10



Sitecore Content Serialization





# Sitecore Content Serialization

- JSON configurations format
- Configuration for Solution and Project modules
- Modular Architecture





# Setup

Install in your sitecore instance the **Sitecore Management Services Module**:

[https://dev.sitecore.net/Downloads/Sitecore\\_CLI/3x/Sitecore\\_CLI\\_300.aspx](https://dev.sitecore.net/Downloads/Sitecore_CLI/3x/Sitecore_CLI_300.aspx)

Execute the following command lines at your solution:

```
dotnet new tool-manifest
```

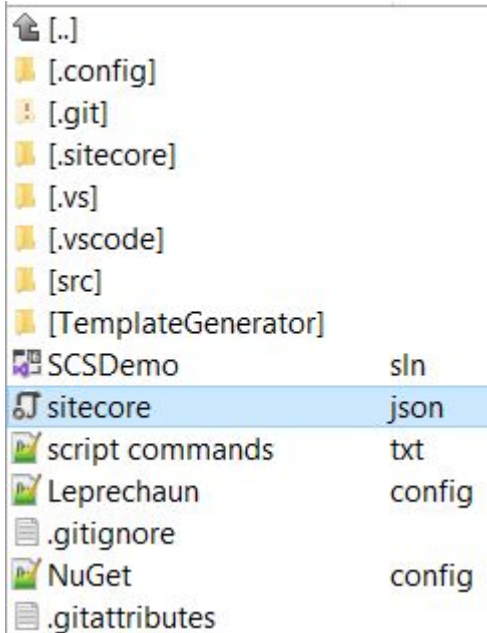
```
dotnet nuget add source -n Sitecore https://sitecore.myget.org/F/sc-packages/api/v3/index.json
```

```
dotnet tool install Sitecore.CLI
```

```
dotnet sitecore plugin add -n Sitecore.DevEx.Extensibility.Publishing
```

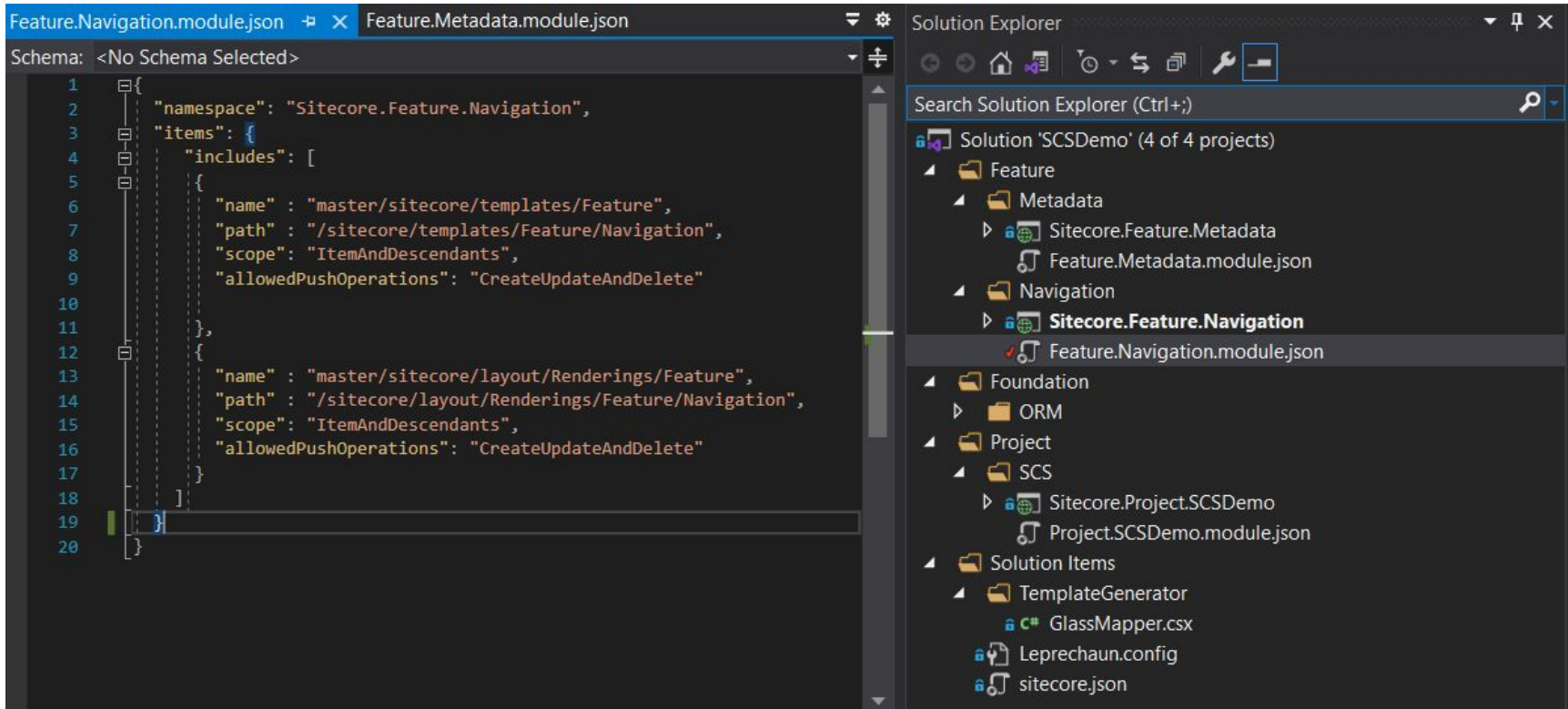
```
dotnet sitecore plugin add -n Sitecore.DevEx.Extensibility.Serialization
```

# Solution configuration



```
1 {
2   "$schema": "../.sitecore/schemas/RootConfigurationFile.schema.json",
3   "modules": [
4     "src/**/*.module.json"
5   ],
6   "plugins": [
7     "Sitecore.DevEx.Extensibility.Publishing@3.0.0",
8     "Sitecore.DevEx.Extensibility.Serialization@3.0.0"
9   ],
10  "serialization": {
11    "defaultMaxRelativeItemPathLength": 120,
12    "defaultModuleRelativeSerializationPath": "serialization"
13  }
14 }
```

# Project Modules Configuration



The image shows a Visual Studio interface with two main panels. The left panel displays the configuration for the `Feature.Navigation.module.json` file. The right panel shows the Solution Explorer for the 'SCSDemo' solution.

**Feature.Navigation.module.json Configuration:**

```
1 {
2   "namespace": "Sitecore.Feature.Navigation",
3   "items": {
4     "includes": [
5       {
6         "name": "master/sitecore/templates/Feature",
7         "path": "/sitecore/templates/Feature/Navigation",
8         "scope": "ItemAndDescendants",
9         "allowedPushOperations": "CreateUpdateAndDelete"
10      },
11    ],
12    {
13      "name": "master/sitecore/layout/Renderings/Feature",
14      "path": "/sitecore/layout/Renderings/Feature/Navigation",
15      "scope": "ItemAndDescendants",
16      "allowedPushOperations": "CreateUpdateAndDelete"
17    }
18  ]
19 }
20 }
```

**Solution Explorer:**

- Solution 'SCSDemo' (4 of 4 projects)
  - Feature
    - Metadata
      - Sitecore.Feature.Metadata
        - Feature.Metadata.module.json
    - Navigation
      - Sitecore.Feature.Navigation**
        - Feature.Navigation.module.json**
  - Foundation
    - ORM
  - Project
    - SCS
      - Sitecore.Project.SCSDemo
        - Project.SCSDemo.module.json
  - Solution Items
    - TemplateGenerator
      - GlassMapper.csx
    - Leprechaun.config
    - sitecore.json



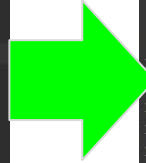


# Configuration Properties

Property	Required	Valid values	Default value
name	Yes	String	None
path	Yes	String	None
scope	No	SingleItem, ItemAndChildren, ItemAndDescendants, and DescendantsOnly.	ItemAndDescendants
database	No	master or core	master
maxRelativePathLength	No	Number	130
allowedPushOperations	No	CreateOnly, CreateAndUpdate, and CreateUpdateAndDelete	CreateUpdateAndDelete

# Ordering is very important!!!

```
1  {  
2    "namespace": "Sitecore.Feature.Navigation",  
3    "items": {  
4      "includes": [  
5        {  
6          "name": "master/sitecore/system/Settings/Feature",  
7          "path": "/sitecore/system/Settings/Feature/Navigation",  
8          "scope": "ItemAndDescendants",  
9          "allowedPushOperations": "CreateUpdateAndDelete"  
10         },  
11         {  
12          "name": "master/sitecore/templates/Feature",  
13          "path": "/sitecore/templates/Feature/Navigation",  
14          "scope": "ItemAndDescendants",  
15          "allowedPushOperations": "CreateUpdateAndDelete"  
16         },  
17         {  
18          "name": "master/sitecore/layout/Renderings/Feature",  
19          "path": "/sitecore/layout/Renderings/Feature/Navigation",  
20          "scope": "ItemAndDescendants",  
21          "allowedPushOperations": "CreateUpdateAndDelete"  
22         }  
23       ]  
24     }  
25   }
```



```
1  {  
2    "namespace": "Sitecore.Feature.Navigation",  
3    "items": {  
4      "includes": [  
5        {  
6          "name": "master/sitecore/templates/Feature",  
7          "path": "/sitecore/templates/Feature/Navigation",  
8          "scope": "ItemAndDescendants",  
9          "allowedPushOperations": "CreateUpdateAndDelete"  
10         },  
11         {  
12          "name": "master/sitecore/system/Settings/Feature",  
13          "path": "/sitecore/system/Settings/Feature/Navigation",  
14          "scope": "ItemAndDescendants",  
15          "allowedPushOperations": "CreateUpdateAndDelete"  
16         },  
17         {  
18          "name": "master/sitecore/layout/Renderings/Feature",  
19          "path": "/sitecore/layout/Renderings/Feature/Navigation",  
20          "scope": "ItemAndDescendants",  
21          "allowedPushOperations": "CreateUpdateAndDelete"  
22         }  
23       ]  
24     }  
25   }
```

# Rules

```
1  "items": {
2    "includes": [
3      "name": "master/sitecore/content/Home",
4      "path": "/sitecore/content/Home",
5      "rules": [
6        {
7          "path": "/Articles/Legacy",
8          "scope": "ignored"
9        },
10       {
11         "path": "/Articles",
12         "scope": "ItemAndDescendants",
13         "allowedPushOperations": "CreateUpdateAndDelete"
14       },
15       {
16         "path": "*",
17         "scope": "ignored"
18       }
19     ]
20   }
21 }
```

Property	Required	Allowed values	Default value
path	Yes	String	None
scope	Yes	Ignored, SingleItem, ItemAndChildren, and ItemAndDescendants	None
alias	No	String	None
allowedPushOperations	No	CreateOnly, CreateAndUpdate, and CreateUpdateAndDelete	Inherited from parent

# Tools for Serialization

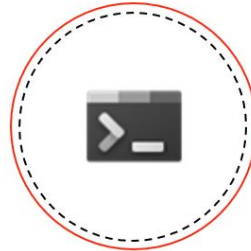


## Serialization

Headless serialization combining the best of TDS and Unicorn

Serialize developer-owned or demo content

Scriptable deployment of content items across environments.



## Sitecore CLI

Serialization from the command line

Also supports login and publishing

OR



## Sitecore for Visual Studio

Configure serialization and sync directly within Visual Studio





# Sitecore CLI

- Headless
  - .NET Core tool
  - Really Well documented
  - CI/CD friendly
- 

An aerial night view of London, featuring the River Thames, the Tower Bridge, and the surrounding city lights. The text "Sitecore CLI Demo" is overlaid in white. A blue and green geometric logo is in the top left corner.

# Sitecore CLI Demo

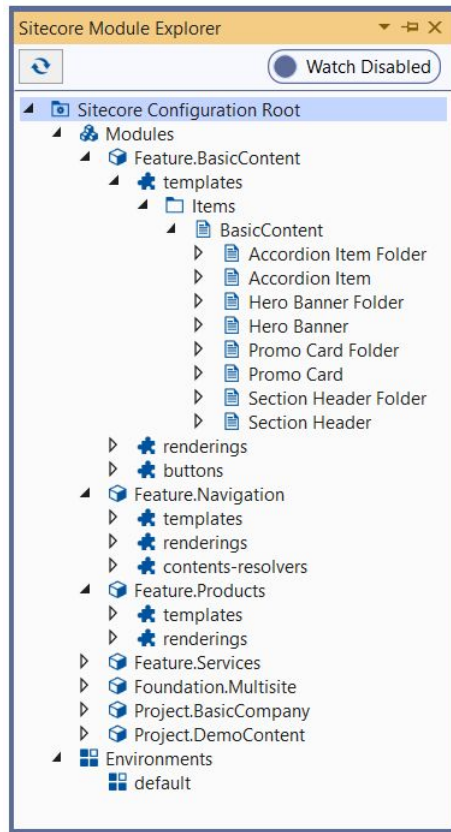




# Sitecore for Visual Studio - SVS

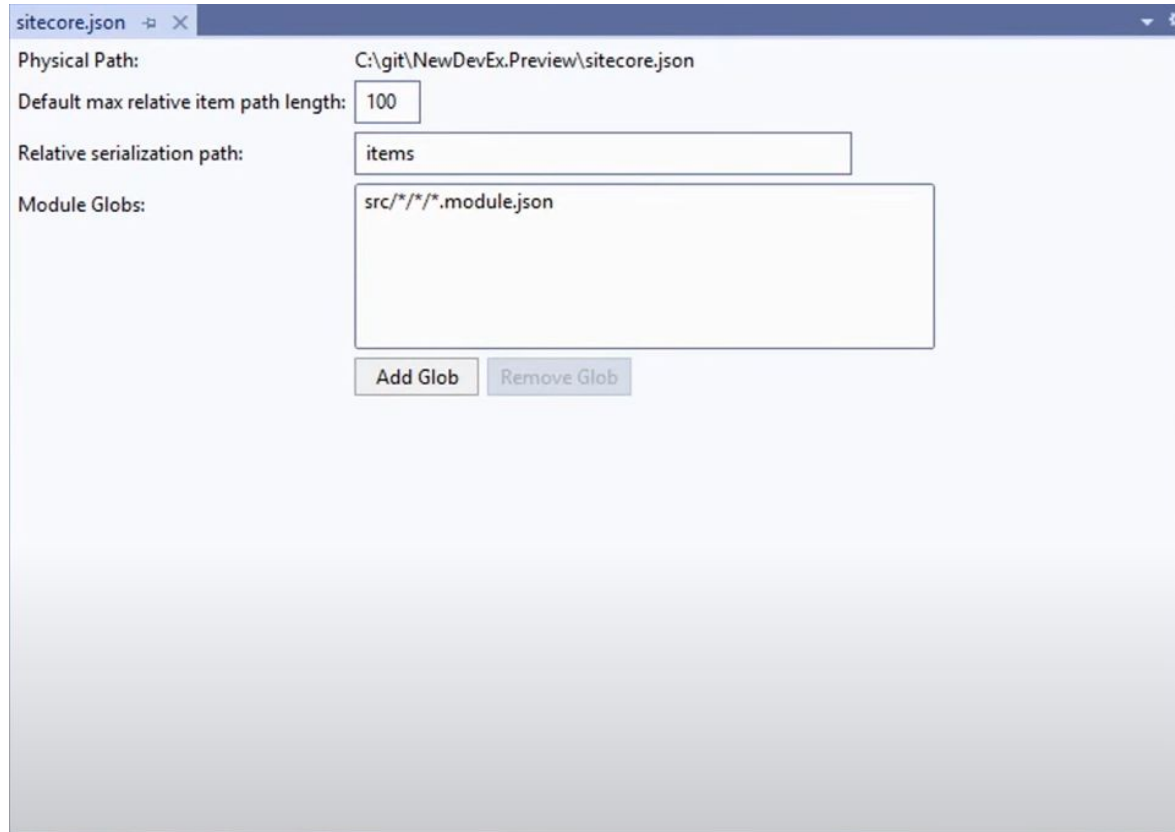
- UI similar to TDS at sync etc, using CLI
- UI for solution/module configurations
- Watch and automatic serialization

# SVS Module





# Solution Configuration



The screenshot shows the 'sitecore.json' configuration window. It has a title bar with the filename and standard window controls. The configuration is organized into four sections on the left, each with a corresponding input field or list on the right:

- Physical Path:** The input field contains the file path `C:\git\NewDevEx.Preview\sitecore.json`.
- Default max relative item path length:** The input field contains the value `100`.
- Relative serialization path:** The input field contains the value `items`.
- Module Globs:** A text area contains the glob pattern `src/**/*.module.json`. Below this text area are two buttons: 'Add Glob' and 'Remove Glob'.

# Module Configuration

The screenshot displays the Sitecore Module Explorer interface. On the left, a tree view shows the 'Sitecore Configuration Root' with a 'Modules' folder expanded, listing several modules including 'Feature.BasicContent'. The main panel on the right is titled 'BasicContent.module.json' and contains the following configuration fields:

- Physical Path:** C:\git\NewDevEx.Preview\src\Feature\BasicContent\BasicContent.module.json
- Name:** Feature.BasicContent
- Description:** (Empty text box)
- Serialization Path:** (Empty text box)
- References:** A list of modules with radio buttons: Feature.Navigation, Feature.Products, Feature.Services, Foundation.Multisite, Project.BasicCompany, and Project.DemoContent. The 'Project.DemoContent' reference is currently selected.
- Add Reference:** A button to add new references.
- Include Order:** A list containing 'templates', 'renderings', and 'buttons'.
- Move Up / Move Down:** Buttons to adjust the order of the include list.

# Environment Configuration

The screenshot displays the Sitecore Module Explorer interface. On the left, a tree view shows the 'Sitecore Configuration Root' with sub-items 'Modules' and 'Environments'. Under 'Environments', 'default' and 'test' are listed, with 'default' selected. A 'Watch Disabled' button is visible. The main pane on the right shows the configuration for the 'default' environment. It includes a 'Name' field set to 'default', a checked 'Allow Write' checkbox, a 'Host' field with 'https://cm.basic-company.localhost/', an 'Authority' field with 'https://id.basic-company.localhost/', an unchecked 'Use client credentials' checkbox, a 'Client ID' field with 'Device', and an 'Access token' field with '[Set]'.

Sitecore Module Explorer

Watch Disabled

- Sitecore Configuration Root
  - Modules
  - Environments
    - default
    - test

default

Name: default

☒ Allow Write

Host: https://cm.basic-company.localhost/

Authority: https://id.basic-company.localhost/


☐ Use client credentials

Client ID: Device

Access token: [Set]

# Comparison Tool

Pull items from Sitecore








default

Filters: - All -

Refresh

☐ Select All

[Feature.BasicContent]	<b>Sitecore Path:</b>
<input type="checkbox"/> <b>templates</b>	[master]: /sitecore/templates/Feature/BasicContent
 <input type="checkbox"/> Update	/sitecore/templates/Feature/BasicContent/Accordion Item/Accordion Item/Title (5718e787-142b-41d9-b5a1-0b18f45b8236) 
	Update: en#1: __Revision: e5a5ed51-dfea-4de1-b3c4-d5e011020b33 → 6e35fac2-59c2-472f-8654-a1d8f7e67174
	Update: en#1: __Updated by: sitecore\unicorn → sitecore\Admin
	Update: en#1: __Updated: 20190930T183112Z → 20200714T142651Z
	Update: __Sortorder: (not set) → 100
 <input type="checkbox"/> Create	/sitecore/templates/Feature/BasicContent/Accordion Item/Accordion Item/Image (0fe3e63f-7815-4659-a97f-fb8e903e66f7)
[Project.DemoContent]	<b>Sitecore Path:</b>
<input type="checkbox"/> <b>content</b>	[master]: /sitecore/content/Basic Company
 <input type="checkbox"/> Update	/sitecore/content/Basic Company/Home (97479c6b-bb30-4a15-afd1-2c89f207e9d6) 

Sync



# Sync Configuration

The screenshot displays the Sitecore user interface, specifically the 'Sitecore Module Explorer' and 'Rules for templates' panels.

**Sitecore Module Explorer:**

- Sitecore Configuration Root
  - Modules
    - Feature.BasicContent
      - templates
        - Rules (3)**
          - Items
          - renderings
          - buttons
        - Feature.Navigation
        - Feature.Products
        - Feature.Services
        - Foundation.Multisite
        - Project.BasicCompany
        - Project.DemoContent
      - Environments

**Rules for templates:**

- Buttons: Add a new rule, Remove selected rules
- Select a rule to edit:
  - /people (selected)
  - /news
  - /events
- Buttons: Move Up, Move Down
- Path String: /people
- Alias: (empty field)
- Scope: Item and Descendents
- Allowed Push Operations: Create, Update and Delete



# SCS VS Unicorn

## Unicorn

- Configurations with .config files
- **Reserialize or Automatic sync**
- **User/Roles synchronization**
- **Sync all the things**
- .yaml and folders used in serialization

## SCS

- Configurations with .json files
- Manually using **dotnet sitecore ser pull**
- User/Roles synchronization **not released yet**
- **dotnet sitecore ser push**
- .yaml, folder, .scindex(for performance) used in serialization

**Different serialized YML files between SCS and Unicorn serialization**

# YML difference

Navigation.yml

```
1 ---
2 ID: "361a3438-41e1-4a9f-a68b-d99f1015bfc8"
3 Parent: "8f343079-3cc5-4ef7-bc27-32addb46f45e"
4 Template: "0437fee2-44c9-46a6-abe9-28858d9fee8c"
5 Path: /sitecore/templates/Feature/Navigation
6 Languages:
7 - Language: en
8   Versions:
9   - Version: 1
10     Fields:
11     - ID: "25bed78c-4957-4165-998a-calb52f67497"
12       Hint: __Created
13       Value: 20210816T213953Z
14     - ID: "52807595-0f8f-4b20-8d2a-cb71d28c6103"
15       Hint: __Owner
16       Value: |
17         sitecore\Admin
18     - ID: "5dd74568-4d4b-44c1-b513-0af5f4cda34f"
19       Hint: __Created by
20       Value: |
21         sitecore\Admin
22     - ID: "8cdc337e-a112-42fb-bbb4-4143751e123f"
23       Hint: __Revision
24       Value: "9e77e8a4-abaf-497a-ae37-10887b1467f8"
25     - ID: "badd9cf9-53e0-4d0c-bcc0-2d784c282f6a"
26       Hint: __Updated by
27       Value: |
28         sitecore\Admin
29     - ID: "d9cf14b1-fa16-4ba6-9288-e8a174d4d522"
30       Hint: __Updated
31       Value: 20210816T213953Z
```

NavigationUnicorn.yml

```
1 ---
2 ID: "361a3438-41e1-4a9f-a68b-d99f1015bfc8"
3 Parent: "8f343079-3cc5-4ef7-bc27-32addb46f45e"
4 Template: "0437fee2-44c9-46a6-abe9-28858d9fee8c"
5 Path: /sitecore/templates/Feature/Navigation
6 Languages:
7 - Language: en
8   Versions:
9   - Version: 1
10     Fields:
11     - ID: "25bed78c-4957-4165-998a-calb52f67497"
12       Hint: __Created
13       Value: 20210816T213953Z
14     - ID: "52807595-0f8f-4b20-8d2a-cb71d28c6103"
15       Hint: __Owner
16       Value: |
17         sitecore\Admin
18     - ID: "5dd74568-4d4b-44c1-b513-0af5f4cda34f"
19       Hint: __Created by
20       Value: |
21         sitecore\Admin
```



# Code generation with SCS using Leprechaun

- Headless
- Third party, open source, free to use tool
- CI/CD friendly
- Well documented
- Option for GlassMapper models generation





# Leprechaun Demo





# Contact



<https://gerhartmagdas.wordpress.com/>  
my personal blog



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gerhart92  
on Sitecore Community slack channel





# Thanks

<https://github.com/gerhart92/scs-demo>

<https://gerhartmagdas.wordpress.com/2021/05/17/leprechaun-glassmapper-model-generation-with-sitecore-content-serialized-items/>

<https://gerhartmagdas.wordpress.com/2021/04/23/introduce-sitecore-content-serialization/>

<https://github.com/blipson89/Leprechaun>

<https://www.teamdevelopmentforsitecore.com/Sitecore-for-Visual-Studio>

<https://doc.sitecore.com/en/developers/100/developer-tools/sitecore-content-serialization.html>

<https://vohil.net/2020/08/10/sitecore-10-sitecore-content-serialization/>