

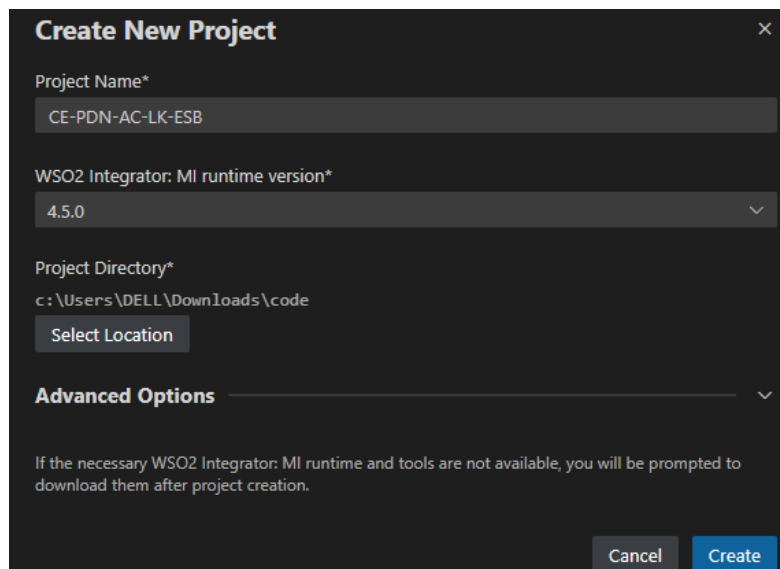
# Building an ESB Proxy with WSO2 Micro Integrator & VS Code

**Edirimanna Y.H.**

**E/20/089**

GitHub repository link- <https://github.com/YasiruHarinda/CO528-Labs/tree/main/CE-PDN-AC-LK-ESB>

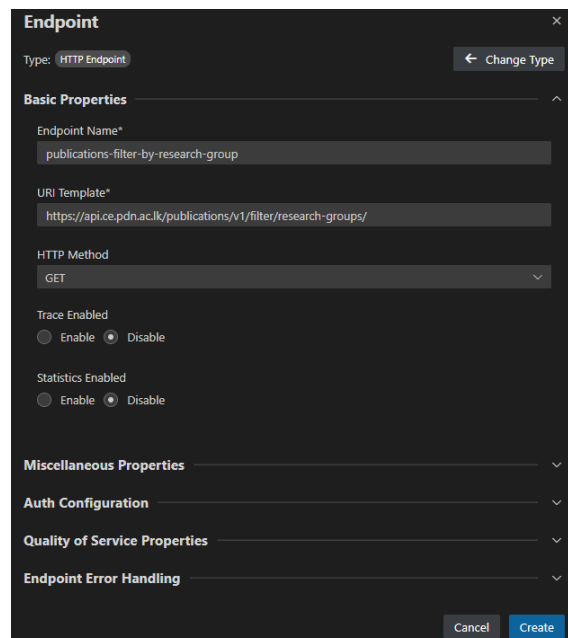
## Create a New Integration Project



The 'Create New Project' dialog box is shown with the following fields and options:

- Project Name\***: CE-PDN-AC-LK-ESB
- WSO2 Integrator: MI runtime version\***: 4.5.0
- Project Directory\***: c:\Users\DELL\Downloads\code
- Select Location**: Button
- Advanced Options**: Collapsible section (expanded)
- Message**: If the necessary WSO2 Integrator: MI runtime and tools are not available, you will be prompted to download them after project creation.
- Buttons**: Cancel, Create

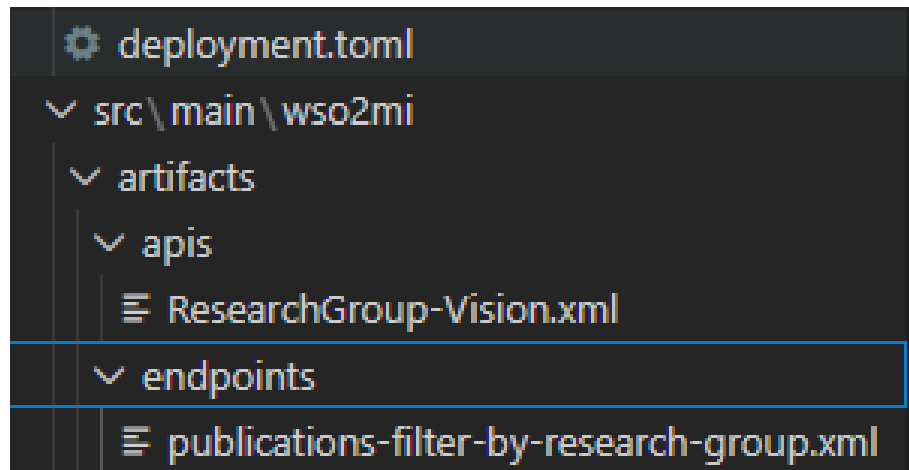
## Create HTTP Endpoints for the Backend APIs



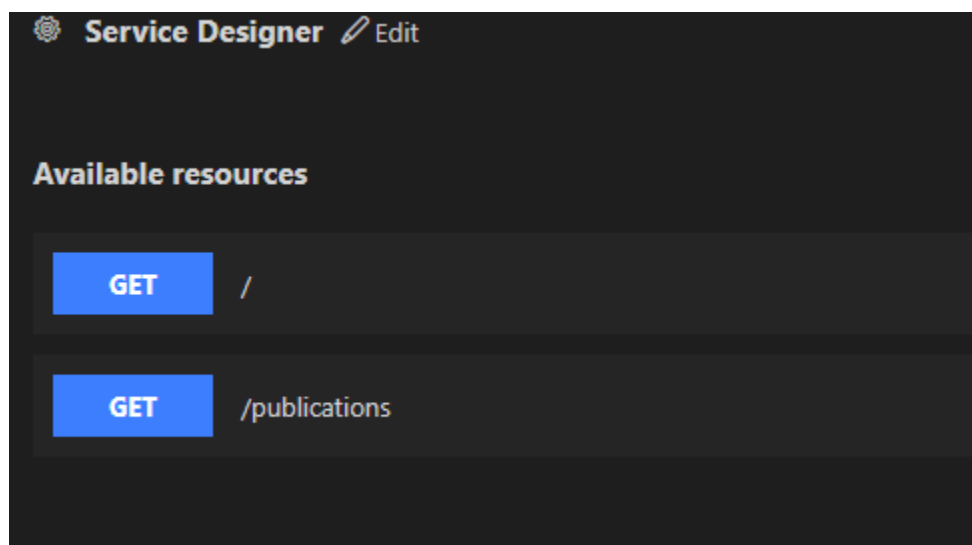
The 'Endpoint' configuration dialog box is shown with the following fields and options:

- Type**: HTTP Endpoint
- Change Type**: Button
- Basic Properties**: Collapsible section (expanded)
- Endpoint Name\***: publications-filter-by-research-group
- URI Template\***: https://api.ce.pdn.ac.lk/publications/v1/filter/research-groups/
- HTTP Method**: GET
- Trace Enabled**: Enable (radio button), Disable (radio button)
- Statistics Enabled**: Enable (radio button), Disable (radio button)
- Miscellaneous Properties**: Collapsible section (expanded)
- Auth Configuration**: Collapsible section (expanded)
- Quality of Service Properties**: Collapsible section (expanded)
- Endpoint Error Handling**: Collapsible section (expanded)
- Buttons**: Cancel, Create

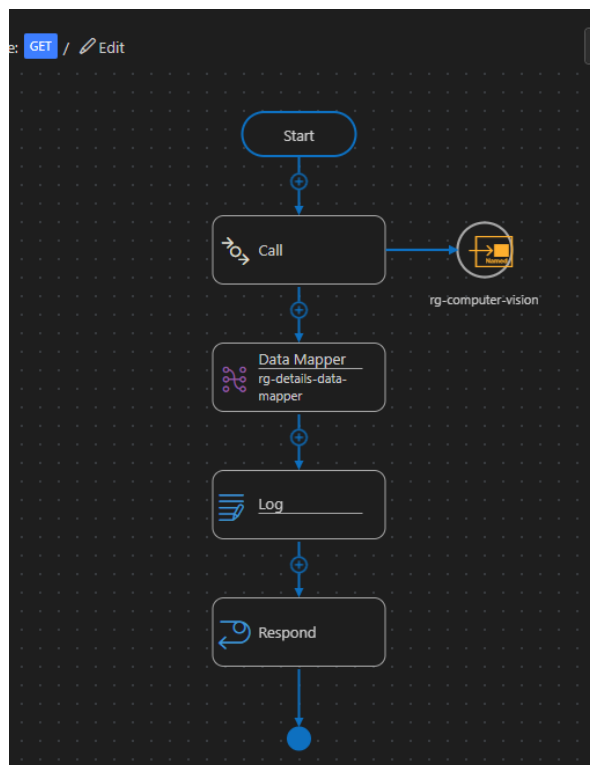
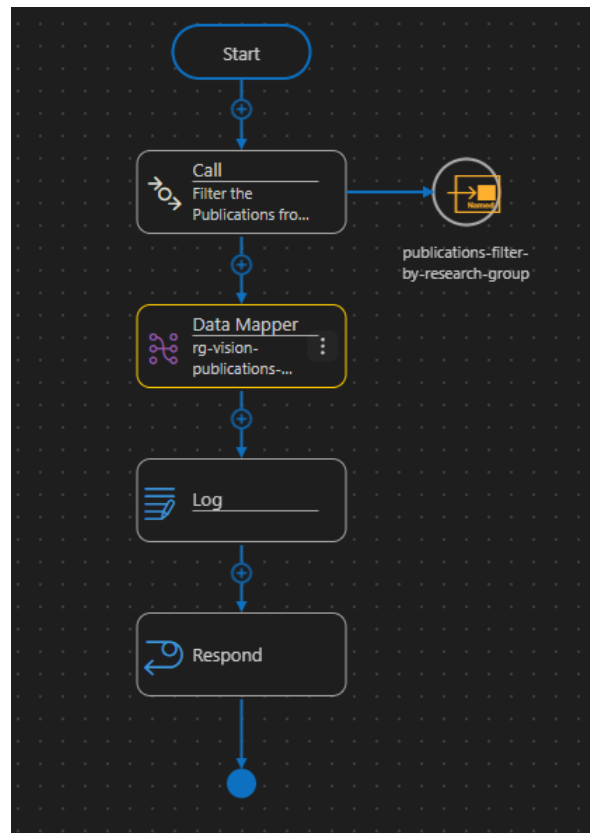
This will create an endpoint XML



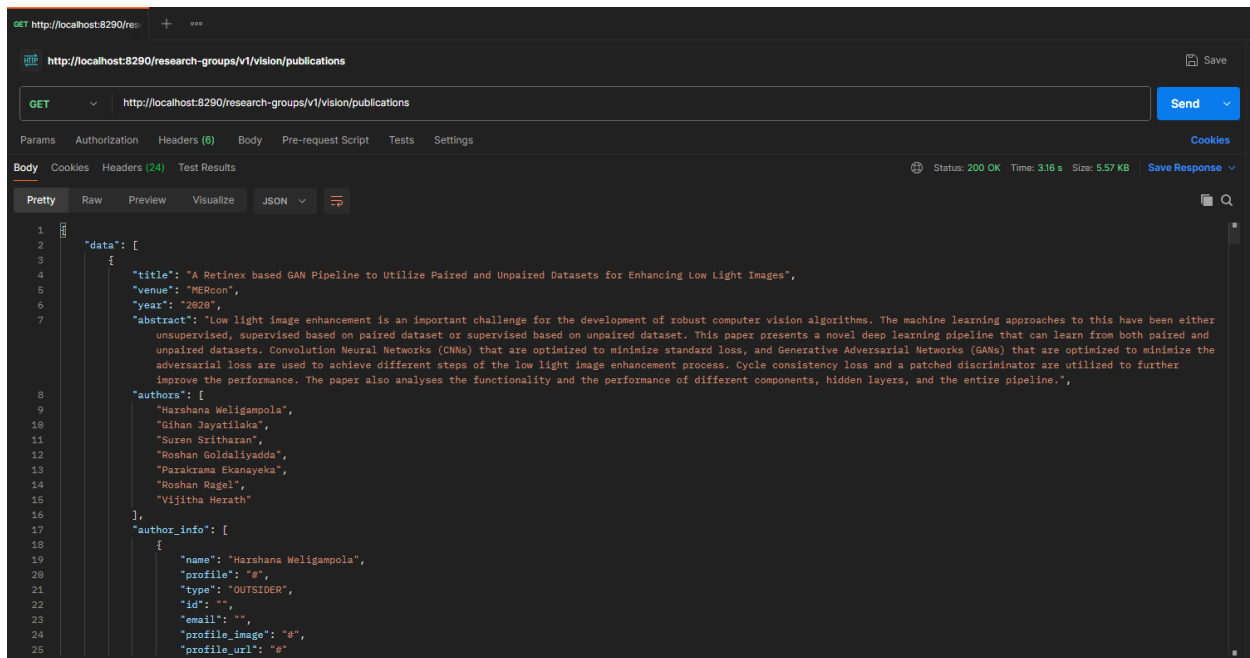
Add Resource



## Wire the API to the Endpoints



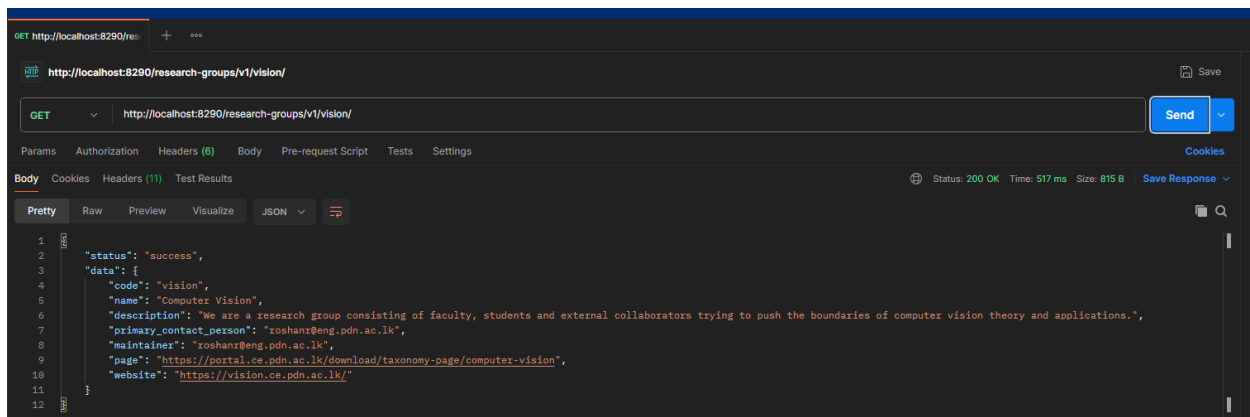
## outputs



```
GET http://localhost:8290/research-groups/v1/vision/publications

Status: 200 OK Time: 3.16 s Size: 5.57 KB Save Response

Body
Pretty Raw Preview Visualize JSON
1  {
2    "data": [
3      {
4        "title": "A Retinex based GAN Pipeline to Utilize Paired and Unpaired Datasets for Enhancing Low Light Images",
5        "venue": "MERcon",
6        "year": "2020",
7        "abstract": "Low light image enhancement is an important challenge for the development of robust computer vision algorithms. The machine learning approaches to this have been either unsupervised, supervised based on paired dataset or supervised based on unpaired dataset. This paper presents a novel deep learning pipeline that can learn from both paired and unpaired datasets. Convolution Neural Networks (CNNs) that are optimized to minimize standard loss, and Generative Adversarial Networks (GANs) that are optimized to minimize the adversarial loss are used to achieve different steps of the low light image enhancement process. Cycle consistency loss and a patched discriminator are utilized to further improve the performance. The paper also analyses the functionality and the performance of different components, hidden layers, and the entire pipeline.",
8        "authors": [
9          "Harshana Meligampola",
10         "Gihan Jayatilaka",
11         "Suren Sritharan",
12         "Roshan Goldaliyadda",
13         "Parakrama Ekanayeka",
14         "Roshan Ragel",
15         "Vijitha Herath"
16       ],
17       "author_info": [
18         {
19           "name": "Harshana Meligampola",
20           "profile": "s",
21           "type": "OUTSIDER",
22           "id": "",
23           "email": "",
24           "profile_image": "s",
25           "profile_url": "s"
26         }
27       ]
28     }
29   ]
30 }
```



```
GET http://localhost:8290/research-groups/v1/vision/

Status: 200 OK Time: 517 ms Size: 815 B Save Response

Body
Pretty Raw Preview Visualize JSON
1  {
2    "status": "success",
3    "data": {
4      "code": "vision",
5      "name": "Computer Vision",
6      "description": "We are a research group consisting of faculty, students and external collaborators trying to push the boundaries of computer vision theory and applications.",
7      "primary_contact_person": "roshan@eng.pdn.ac.lk",
8      "maintainer": "roshan@eng.pdn.ac.lk",
9      "page": "https://portal.ce.pdn.ac.lk/download/taxonomy-page/computer-vision",
10     "website": "https://vision.ce.pdn.ac.lk/"
11   }
12 }
```

## MI console logs

```
[2025-12-29 22:43:42,014] INFO {LogMediator} - {api:ResearchGroup-Vision GET /research-groups/v1/vision/publications}
MessageID: urn:uuid:f1b1dc6c-6cac-4fe5-8a4a-ce0a712af96d, correlation_id: b513e68c-94c2-47b2-a88b-6519ef630672,
```

## how the ESB based Research Group API simplifies department API management

- The ESB helps ensure consistency in the structure of the data fed into the client applications despite changes in the structure of the services within an organization.
- It mainly routes the request to the proper back-end services without having the clients need to route the request.

- By acting as an intermediary, the ESB can decrease the dependencies between clients and backend systems.
- The ESB enables centralized monitoring, which enhances visibility when dealing with APIs.
- Overall, ESB improves both stability and controllability in interactions involving department APIs.