Horizon - RESIST

Visualization Tool of CCA Solutions, Tools, and Technologies – Installation Guide

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1 Code accessibility

The code repository is openly accessible through GitHub at https://github.com/VidaFarBan/resist, allowing users to fork, clone, or conveniently download it as a zip file using GitHub's standard features.

2 Implementing the RESIST Visualization Tool

The RESIST visualization tool employs GitHub Pages (https://pages.github.com/) as its hosting platform, and the installation guide provided is tailored to this platform. However, it's important to note that the tool is adaptable to other hosting platforms supporting the technologies utilized, such as Angular (https://angularjs.org) and Node.js (https://nodejs.org/en/). Users can install the tool on these alternative platforms following similar procedures as outlined in the provided guide.

2.1 Download the code and adjust environmental variables

The RESIST visualization tool code is openly accessible via the following link: https://github.com/VidaFarBan/resist.To initiate work on the tool, the initial step involves creating a fork of the repository. This action can be performed under your organization's username or your personal username on GitHub, enabling modifications and adaptations to be made within your own repository.

After downloading the repository, you acquire full ownership and the ability to freely modify and customize the tool based on your preferences. A central element crucial to the tool's functionality is the src/assets/cases.json file, acting as the comprehensive repository for content within the user interface. This file contains extensive data regarding the solutions, datasets, tools, and technologies implemented across diverse project regions.

Of note, within the code lie environment variables (src/environments/) responsible for locating the cases.json file and building the URL to share the current state of the web application. These variables need to be adjusted to reflect your repository.

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Specifically, modifications are required in the **environment.prod.ts** and **environment.ts** files. Replace the **'base_url' URL** within these files with the base URL of your repository to ensure proper functionality and synchronization:

- If your repository was established within an organization, utilize this format for the URL:
- https://[ORGANIZATION].github.io/[REPOSITORY_NAME]/#/home
- In case the repository is under your personal username, follow this pattern: https://[USERNAME].github.io/[REPOSITORY_NAME]/#/home

Afterward, update the URL for **'cases_json_url'** in the **environment.prod.ts** and **environments.ts** files with the new link from the moved repository. To obtain this URL, access src/assets/cases.json, select the 'Raw' option, and then copy the URL. Below are screenshots of the files:

resist / src / environments / **environment.ts**

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| Code | Blame | 13 lines (11 loc) · 706 Bytes | Raw |

```
1    // The file contents for the current environment will overwrite these during build.
2    // The build system defaults to the dev environment which uses `environment.ts`, but if you do
3    // `ng build --env=prod` then `environment.prod.ts` will be used instead.
4    // The list of which env maps to which file can be found in `.angular-cli.json`.
5
6     // https://resist-tool-v13.web.app/#/home  'https://vidafarban.github.io/RESIST/#/home'  'http://localhost:4200/#/home'
7
8    export const environment = {
9      production: false,
10     base_url: 'https://VidaFarBan.github.io/resist/#/home',
11     cases_json_url: 'https://raw.githubusercontent.com/VidaFarBan/resist/main/src/assets/cases.json'
12    //cases_json_url: 'assets/cases.json'
13    };
```

resist / src / environments / **environment.prod.ts**

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| Code | Blame | 5 lines (5 loc) · 209 Bytes | Raw |

```
1    export const environment = {
2      production: true,
3      base_url: 'https://VidaFarBan.github.io/resist/#/home',
4      cases_json_url: 'https://raw.githubusercontent.com/VidaFarBan/resist/main/src/assets/cases.json'
5    };
```

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2.2 Set up GitHub pages

To set up GitHub Pages for your repository, access the GitHub website and proceed to your repository settings. Once there, navigate to the 'Pages' section within the left-hand menu. Under the 'Source' settings, select 'gh-pages' to build the web application. Don't forget to save your changes by clicking the 'Save' button.

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2.3 Creating a Personal Access Token for GitHub Repository

To facilitate file uploads to a GitHub repository, the platform no longer supports username and password authentication (as of August 2021). Instead, a personal access token is now mandated, necessitating its creation for accessing the GitHub repository. Refer to the GitHub documentation for instructions on generating a personal access token specifically for your ERESIST repository:

https://docs.github.com/en/enterprise-server@3.6/authentication/keeping-your-account-and-data-secure/managing-your-personal-access-tokens

When generating the personal access token, granting 'repo' permissions should typically suffice, although additional permissions may be necessary based on your GitHub setup.

2.4 Build the application and proceed to upload it to the gh branch.

To deploy the application, it needs to be built on your local computer and subsequently uploaded to the 'gh' branch, previously configured in step 2.2. Prior to building the application, essential tools must be installed on your development computer to ensure compatibility with the RESIST tool. Here is a list of the required tools, along with their compatible versions:

- Node.js: https://nodejs.org/en/download/ (developed and tested with version 14.16.1)
- Angular CLI: Version 11.0.4: https://angular.io/cli (developed and tested with version 11.0.4)
- Git: https://git-scm.com/book/en/v2/Getting-Started-Installing-Git
- npm: Included with Node.js

It's important to note that the RESIST tool is developed and installed based on these specified versions. Installing newer versions of the libraries may result in errors or warnings during the application-building process.

Following the installation of the necessary tools, the initial step is to clone your RESIST repository onto your development computer. Begin by opening a terminal window. Utilize the 'git clone' command followed by the URL of the specific repository you wish to clone. Execute the command by pressing 'Enter'. This action will generate a duplicate of the repository on your local machine. Next, navigate to the folder of the repository on your development computer using the terminal and execute the following commands (refer to section 2.6 Troubleshooting for assistance in case of issues):

1. Install application dependencies (Note: Warnings might appear when utilizing more recent versions of Node.js (14.16.1) and Angular CLI (11.0.4)):

Regions for climate change resilience through Innovation, Science and Technology

```
→ npm --force install
```

2. To run the application locally and observe it in real-time, execute the following command in your terminal or command prompt:

```
→ ng serve
```

This command starts the development server for your application, enabling you to view and interact with the application in your web browser. Additionally, any modifications you make to the code will be quickly reflected in the application, allowing you to see the changes instantly.

3. To make the application online and publicly accessible, execute the following command. install the GitHub pages cli:

```
→ npm i angular-cli-ghpages --save-dev
```

4. build the application using the updated repository URL

   For a repository created within an organization:

```
→ ng build --prod --base-href https://[ORGANIZATION].github.io/[REPONAME]/
```

   For a repository created under your personal username:

```
→ ng build --prod --base-href https://[USERNAME].github.io/[REPONAME]/
```

5. To deploy the build to GitHub Pages, you'll need to authenticate using your GitHub username and a personal access token generated in step 2.4 (refer to the Troubleshooting section for GitHub login issues):

```
→ npx angular-cli-ghpages --dir=dist
```

Upon successful upload, you'll receive a message similar to this:

🚀 `Uploading via git, please wait...`
💥 `Successfully published via angular-cli-ghpages! Have a nice day!`

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2.5 Access the URL and verify that the website is operational

After successfully uploading, note that it may take approximately 5 to 10 minutes for GitHub Pages to refresh and display the updated webpage.

For deployment within an organization: Access the deployed application via https://[ORGANIZATION].github.io/[REPONAME]/

For deployment using a user account: Access the deployed application via https://[USERNAME].github.io/[REPONAME]/

2.6 Troubleshooting

1. JavaScript Heap Error

During the procedures outlined in 2.5, you may encounter an error message related to:

→ `"JavaScript heap out of memory"`

This error indicates insufficient memory allocated to JavaScript by node.js, often occurring on Windows systems and leading to JavaScript execution failure. To address this issue, you can attempt to increase the heap size using the following command (resuming the installation from the previously failed step):

→ `set NODE_OPTIONS="--max-old-space-size=8192"`

If the error persists, consider further increasing the heap size by doubling the value 8192 (e.g., to 16384, 32768 - the maximum value depends on the available memory on your computer).

2. **GitHub login problems**

Authentication issues on GitHub during step 2.5.5 might arise due to various reasons. One common cause is the use of an incorrect username or password, which can inadvertently occur if you're utilizing a credential manager (e.g., Windows Credential Manager on Windows, KeyChain on Mac) or if there's a mismatch in the git configuration (e.g., in files like .gitconfig, .git/config, ~/.git-credentials, or similar config files) containing different or incorrect username/password details. Remember, the personal access token should be used as the password (refer to step 2.3!). To address these issues with your credential manager or git configuration, and during step 2.5.5, you

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can manually set the upload repository and employ your personal access token in the following manner:

For the repository is created within an organization:

→ `npx angular-cli-ghpages --repo=https://[GITHUB PERSONAL ACCESS TOKEN]@github.com/[ORGANIZATION]/[REPONAME].git`

For the repository is created under your personal username:

→ `npx angular-cli-ghpages --repo=https://[GITHUB PERSONAL ACCESS TOKEN]@github.com/[USERNAME]/[REPONAME].git`

3 Credits

The code was customized to suit the requirements of the RESIST project (https://resist-project.eu/) to serve as a specialized tool for visualizing Europe's array of climate change adaptation solutions, tools, and technologies by the SADL research group (https://ees.kuleuven.be/en/sadl) at KU Leuven (https://www.kuleuven.be/kuleuven). The original code was developed by the GEOTEC research group (http://geotec.uji.es/) at the Universidad Jaime I (http://www.uji.es/) in Castellón, Spain, within the European Location Interoperability Solutions for e-Government (ELISE) Lot 1 Project conducted for the European Commission's Joint Research Centre (JRC).

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