



# Module 10: Modularizing APIs

## Goal



```

1  ##%RAML 1.0 Library
2  usage: Use the following traits request and response headers and response statu
3
4  traits:
5  cacheable: !include ../exchange_modules/68ef9520-24e9-4cf2-b2f5-620025690913/
6  hasAcceptHeader: !include ../traits/hasAcceptHeader.raml
7  hasGetResponse:
8      responses:
9          200:
10             body:
11                 type: <<resourcePathName | !singul
12             404:
13                 body:
14                     type: <<customErrorDataType>>
15
16  ##%RAML 1.0 Overlay
17  extends: ../acme-banking-api.raml
18  usage: Spanish localization
19
20  documentation:
21      - title: ACME API Bancario Home
22        content: |
23            **ACME Banca API** permite a los desarrolladores crear aplicaciones que hacen uso de la s
24
25      - title: Banco ACME Headline
26        content: |
27            Esta API contiene una funcionalidad que permite a los desarrolladores recuperar y manipu
28
29  ##%RAML 1.0 Extension
30  extends: ../acme-banking-api.raml
31  baseUrl: <<insert prod specific implementation URL>>

```

At the end of this module, you should be able to



- Use libraries for greater API composability
- Override resource information using overlays
- Use overlays to internationalize resources
- Use extensions to enhance resources

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## Introducing libraries



## Achieving modularity using libraries



- RAML libraries combine collections of datatypes, resource types, or traits declarations into reusable groups
  - Used mainly to externalize common declarations
  - Can be defined inline like any other fragment file
  - They can also reference fragment files in them
- Libraries can be applied with the **uses** node at the root of RAML API definition
  - The assets in the library are referenced within the document using dot notation  
For example: library\_name.asset\_name

```
uses:
  file-type: file-type.raml
traits:
  drm:
    headers:
      drm-key:
resourceTypes:
  file:
    get:
      is: [ drm ]
    responses:
      201:
        body:
          application/json:
            type: file-type.File
```

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## Walkthrough 10-1: Create and use a library of traits



- Create a library fragment file
- Refactor and move existing traits inside the library file
- Create and define new resource method request and response traits
- Refactor the API definition to reuse the traits from the library

```
1  #%RAML 1.0 Library
2  usage: Use the following traits request and response headers and response statu
3
4  traits:
5    cacheable: !include ../exchange_modules/68ef9520-24e9-4cf2-b2f5-620025690913/
6    hasAcceptHeader: !include ../traits/hasAcceptHeader.raml
7    hasGetResponse:
8      responses:
9        200:
10         body:
11           type: <<resourcePathName | !singl
12         404:
13           body:
14             type: <<customErrorDataType>>
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# Introducing overlays



## Overriding some elements of RAML API definition using overlays



- Overrides nodes of a RAML API definition but preserves its behavioral, functional aspects
  - Resources, methods, parameters, bodies, responses are some behavioral nodes that cannot be overridden in overlays
- Most commonly used for
  - Adding hooks to testing and monitoring tools
  - Appending metadata relevant to APIs
  - Providing translated human documentation

## Walkthrough 10-2: Internationalize documentation and resource descriptions using an overlay

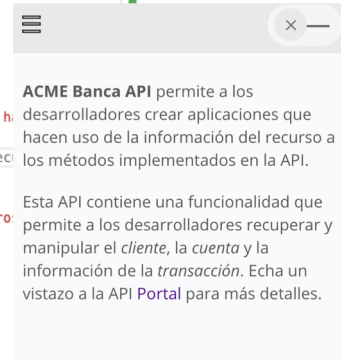


- Create a RAML overlay fragment file
- Add documentation and resource method description nodes in the overlay file to support Spanish localization

```

1  #%RAML 1.0 Overlay
2  extends: ../acme-banking-api.raml
3  usage: Spanish localization
4
5  documentation:
6    - title: ACME API Bancario Home
7      content: |
8        **ACME Banca API** permite a los desarrolladores crear aplicaciones que h
9
10     Esta API contiene una funcionalidad que permite a los desarrolladores rec
11    - title: Banco ACME Headline
12      content: |
13        **Banco ACME** es una _multinacional de servicios bancarios_ y financiero
14

```



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## Introducing extensions



## Extending behavior of RAML elements using extensions



- Extensions broaden an API definition by adding to the behavior and the functional aspects
- Used to create variants of the API, targeted to specific classes of API consumers
  - For example: A certain class of audience need to have ability to work with methods that post data to the system or delete from them (admin privileges)
  - Also used to add environment specific service URL

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## Walkthrough 10-3: Define and use API extensions to promote portability to test in multiple environments



- Create API extension files
- Add a baseUrl parameter to the extension files and enter a placeholder for environment specific implementation URL



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# Summary



## Summary



- RAML supports modular design
- Use libraries to reuse them in API definitions
- Use overlays to override non-functional aspects like testing tools, metadata information, support for internationalization
- Use extensions to extend functionality of the API
  - Useful in places where functionality is to be divided based on the relevance of the audience