Web Services

Topics

- SOAP
  - Consuming SOAP
  - Exposing SOAP
  - SOAP Endpoints

- REST
  - Consuming a REST method
  - Callbacks
  - Consuming a REST API
  - Exposing REST

- Logging

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Web Services

Set of functionalities offered by a software system over the World Wide Web

- Provided as language-agnostic remote procedures
- Allow integration between heterogeneous systems

OutSystems simplifies consuming and exposing functionality as standard

- SOAP web services
- REST APIs

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SOAP and REST

SOAP

- "Contract" formalized in a Web Services Description Language (WSDL) file
  - All operations' parameters and return types are fully described
  - SOAP services can provide very detailed contracts
- Requests and responses in XML

REST

- Lightweight alternative to SOAP
  - No formal API contract file
  - Provide documentation and examples instead of a contract
- Requests and responses (usually) in compact JSON

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Consuming SOAP in OutSystems

Consume one or more methods with SOAP 1.1 and 1.2 bindings:

- Upload the WSDL file or type its URL
- Choose the bindings
- Select the methods to consume
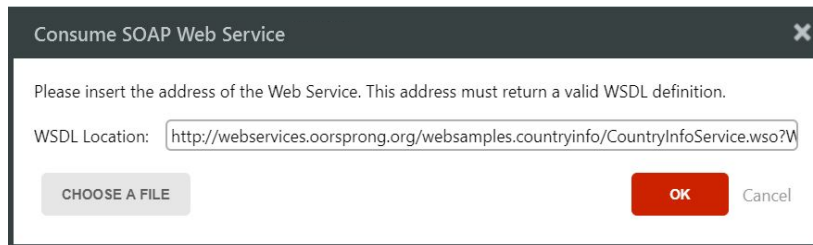
Choose one Binding

CountryInfoService
- ○ CountryInfoServiceSoapBinding
- ◉ CountryInfoServiceSoapBinding12

Choose Methods
- ☑ (Select All)
- ☑ CapitalCity
- ☑ CountriesUsingCurrency
- ☑ CountryCurrency
- ☑ CountryFlag
- ☑ CountryIntPhoneCode

▷ 📁 Server Actions
▲ 📁 Integrations
　　◉ SOAP
　　◉ RE　　➔ Expose SOAP Web Service
　　SAP SA　➔ Consume SOAP Web Service...
▷ 📁 Roles
▷ 📁 Exceptions

Consume SOAP Web Service ✖

Please insert the address of the Web Service. This address must return a valid WSDL definition.

WSDL Location: `http://webservices.oorsprong.org/websamples.countryinfo/CountryInfoService.wso?W`

CHOOSE A FILE　　　　　　　　　　　OK　　Cancel

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Using SOAP methods

OutSystems generates…

- SOAP methods as Server Actions
- any compound data types as Structures

The generated elements can be used just like regular Actions or Structures

Possible to change

- Default values of Input Parameters
- Name and description of elements

Refresh option to get the service updates and to change the consumed methods

Start

GetAddressById

CountryFlag

End

Integrations
- SOAP
  - CountryInfoService
    - CapitalCity
    - CountriesUsingCurrency
    - CountryCurrency
    - CountryFlag
      - sCountryISOCode
      - CountryFlagResult
    - CountryIntPhoneCode

Structures
- CountryInfoService
  - tContinent
  - tCountryCodeAndName
  - tCountryInfo
  - tCurrency
  - tGroupedByContinent
  - tLanguage
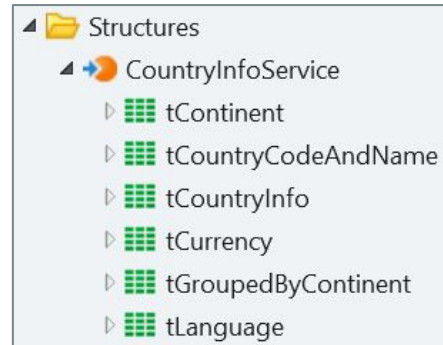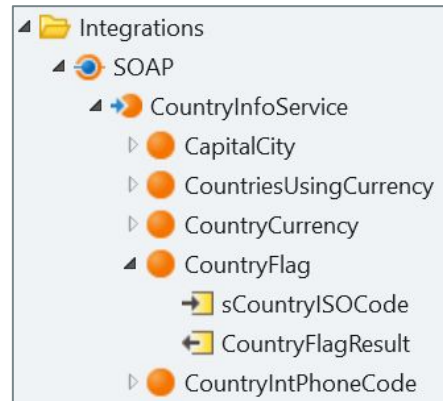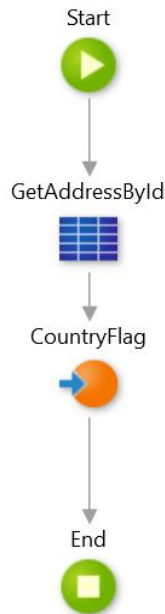
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Exposing SOAP in OutSystems

To expose a Service in OutSystems
- Create the Service
- Create each method
- Implement them as any Action

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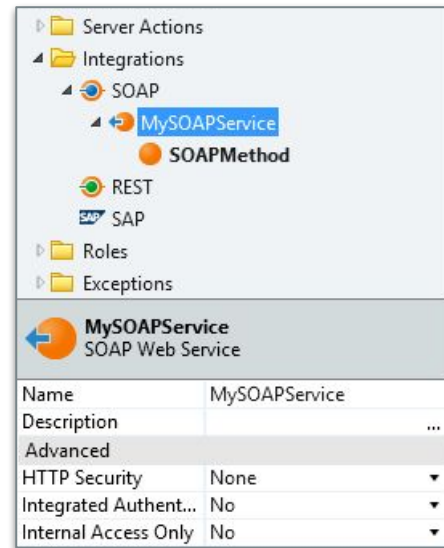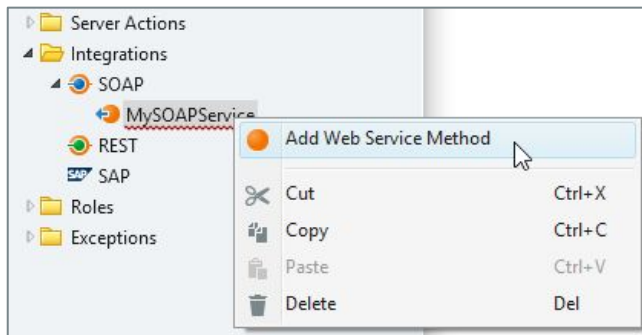
SOAP Endpoints

Endpoint information of exposed Web Services is in Service Center

- Module's Integration tab

The endpoint and WSDL URLs use the host name and module name

- SOAP WSDL: http://<hostname>/<ModuleName>/<WebServiceName>.asmx?WSDL
- Endpoint: http://<hostname>/<ModuleName>/<WebServiceName>.asmx

The Web Service is exposed with a WSDL having a SOAP 1.1 or 1.2 binding

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REST APIs

Consuming a Single REST method

Consume a single REST method

- Provide the method's URL
- Test to get a sample response
- Copy the response to the Body
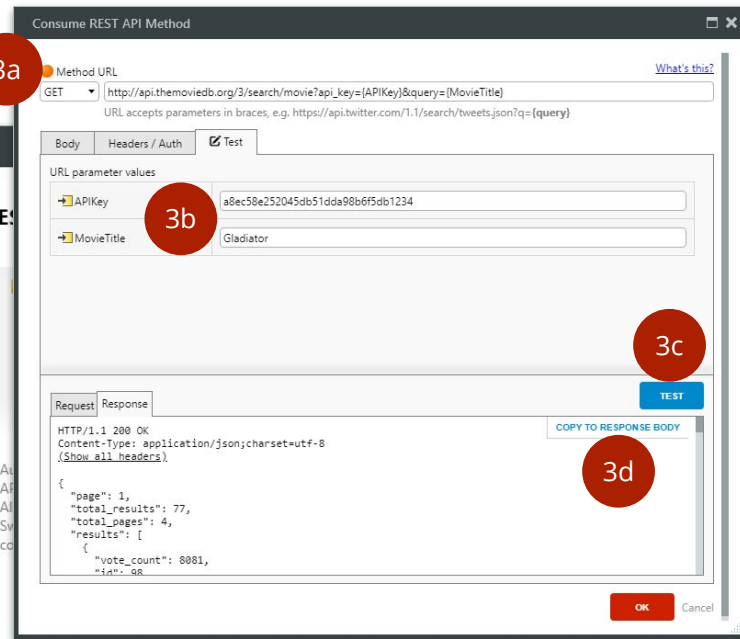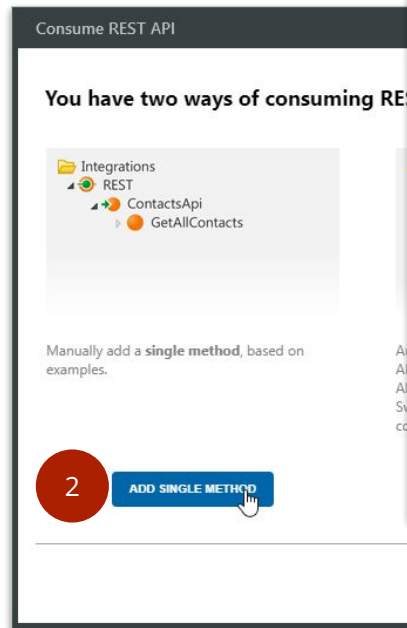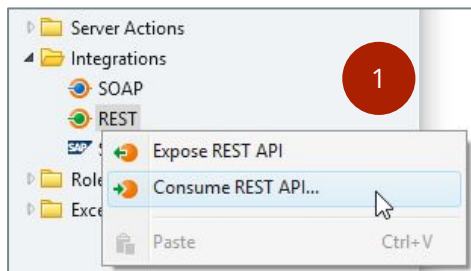
Using REST methods

OutSystems generates

- REST methods as Actions
- Compound data types as Structures

The generated elements can be used just like regular Actions or Structures

Possible to change

- Default values of Input Parameters
- Name and description of elements
- **Change data types** of attributes and parameters
  - And also **add and remove them**

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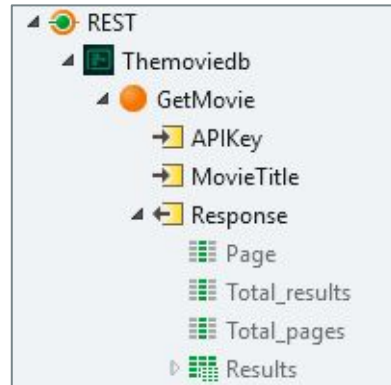
REST Callbacks

REST services provide the following Callbacks

- OnBeforeRequest
- OnAfterResponse

Actions are automatically called before the request or after getting the response

Useful to debug and customize requests

- Detect and locally handle HTTP error statuses (400 and over)
- Alter the sent and return values transparently to the caller code
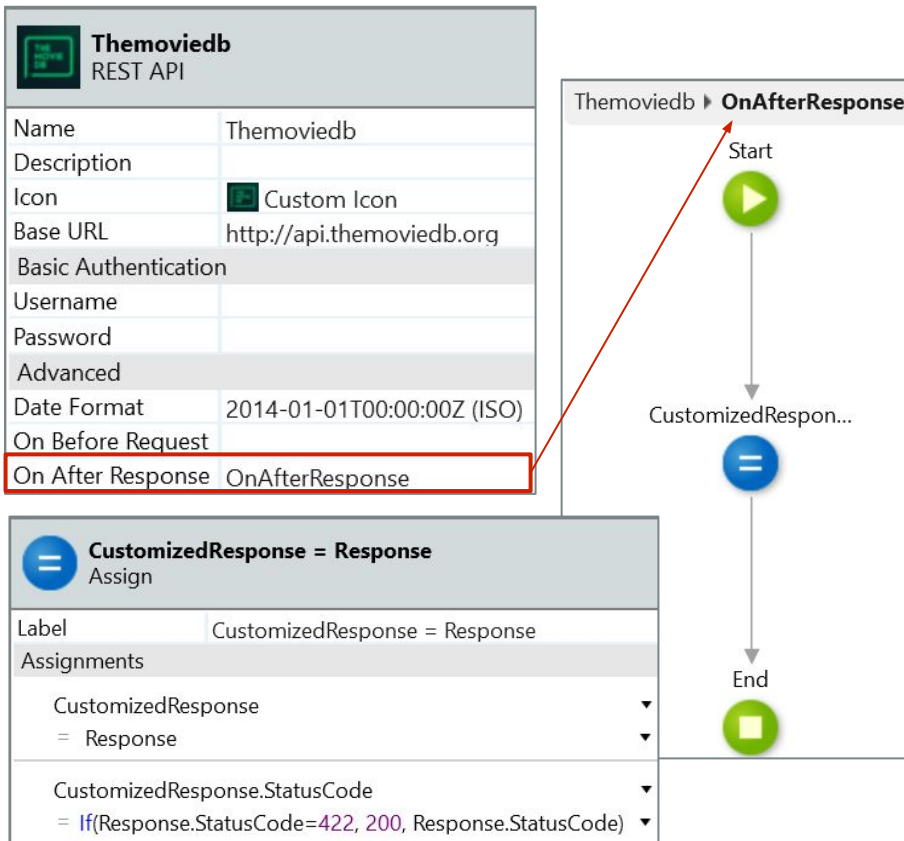
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Consuming a REST API

Consume all REST methods
- Provide the API URL
- REST API must be compliant with Swagger specification

Exposing REST in OutSystems

To expose a Service in OutSystems

- Create the Service
- Create each method
- Implement them as any Action
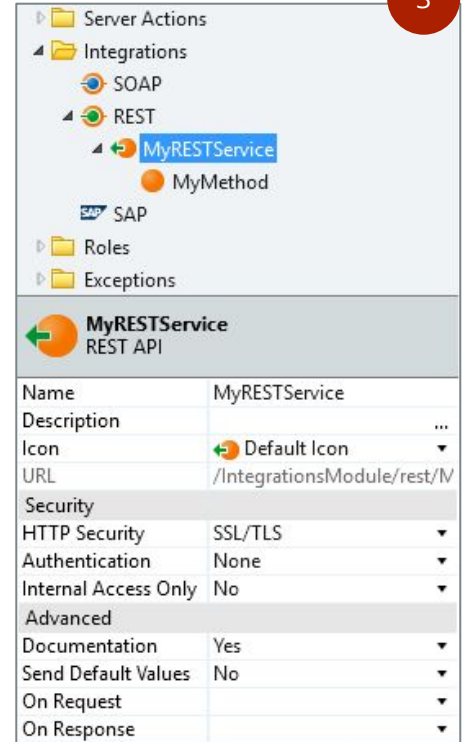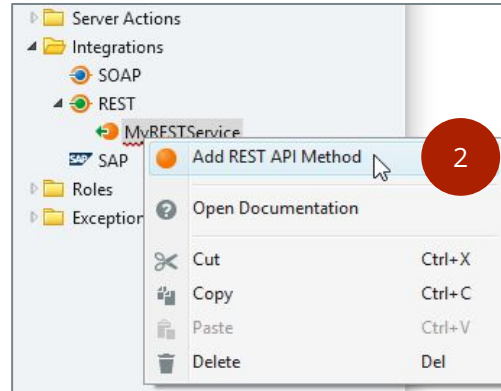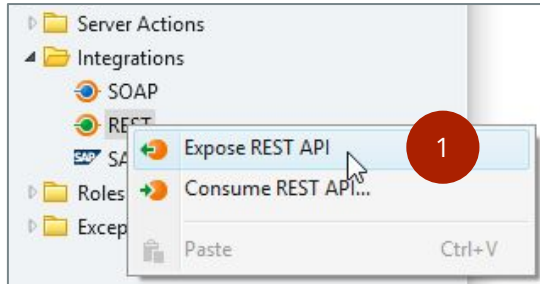
Logging

Service Center: Module's Integration Tab

Consumed and exposed Web Services are configurable in Service Center

- Effective endpoint URL
- Security
- Log verbosity

Configuration done per module

- Integrations tab in Service Center

Service Center: Integration Logs

Summary

- SOAP
  - Consuming SOAP
  - Exposing SOAP
  - SOAP Endpoints

- REST
  - Consuming a REST method
  - Callbacks
  - Consuming a REST API
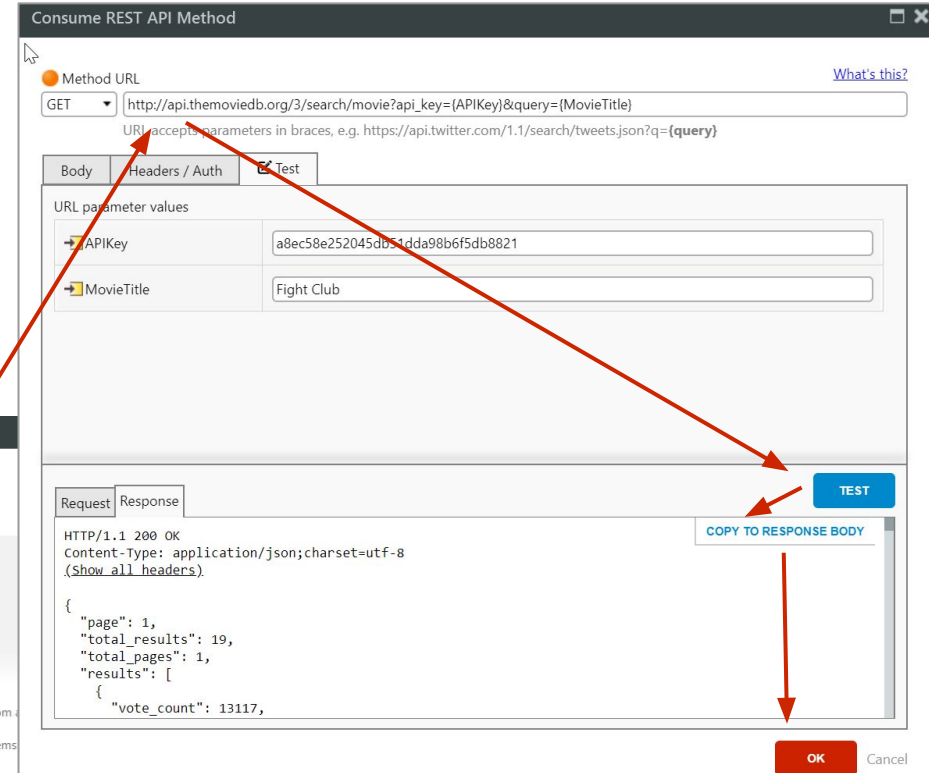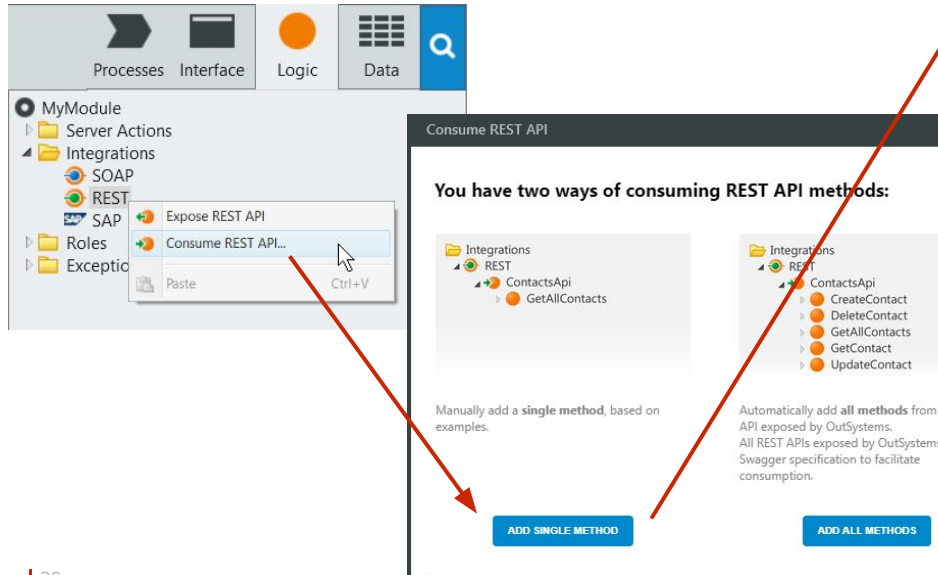 - Exposing REST

- Logging

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Web Services

Thank You!

Consuming a REST method in OutSystems
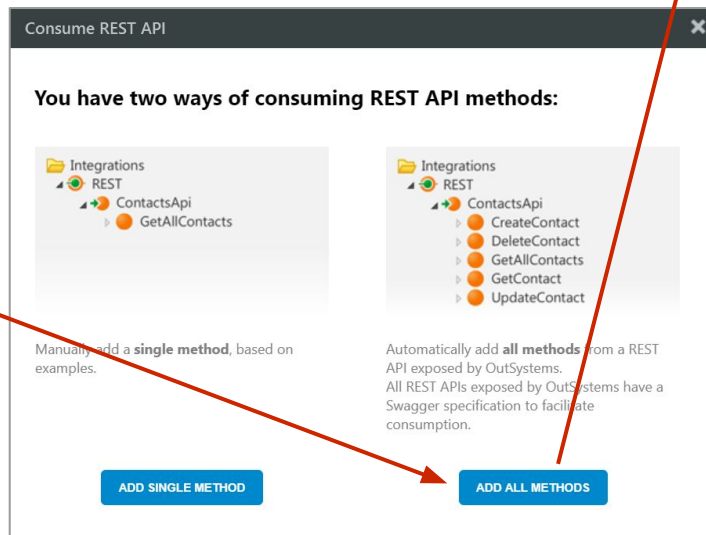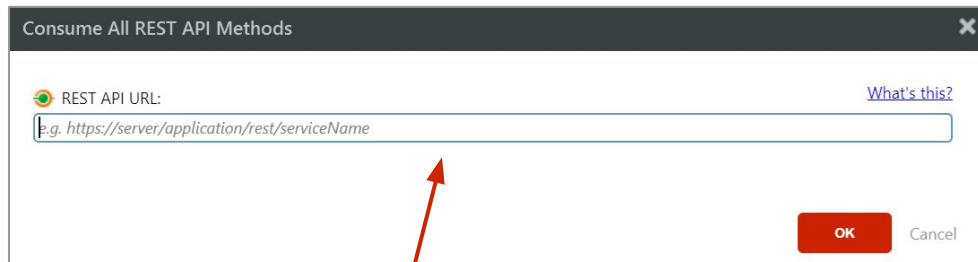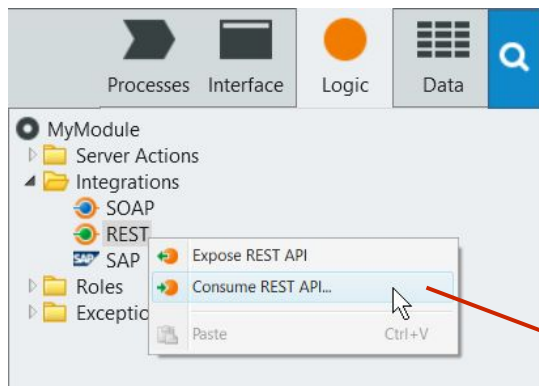
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Consuming a REST API in OutSystems

Consume all REST methods

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Exposing REST in OutSystems

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