Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

TraCIM client design and data exchange format (XML)

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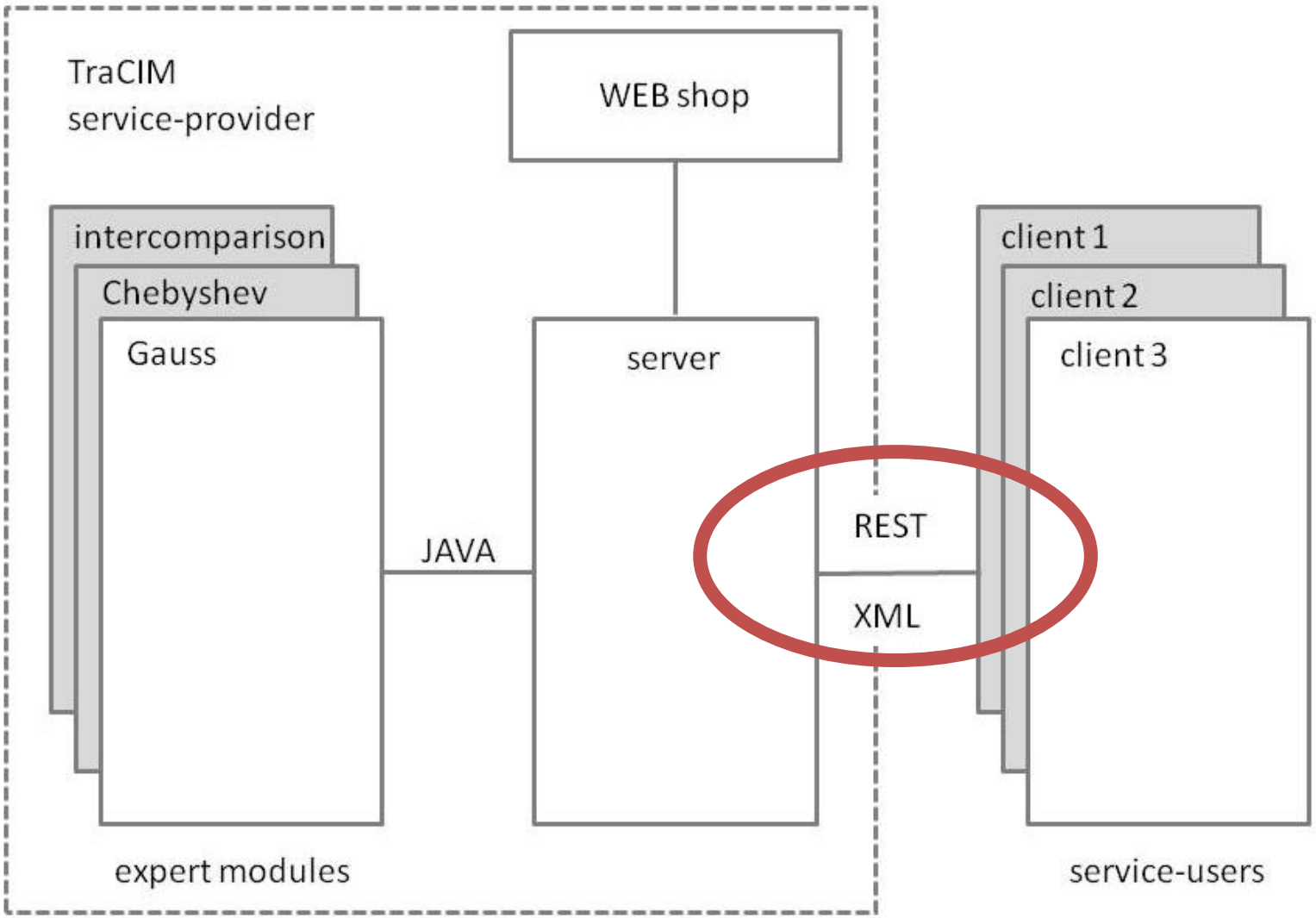
- General concept of client server communication
- Xml format for data exchange
- Example client for PTB Gauss test

TraCIM client design and data exchange format (XML)



TraCIM client design and data exchange format (XML)

- ***RE**presentational **S**tate **T**ransfer* - an architectural style which can be applied to Web service APIs
- Usually implemented based on http/https
- Defined by the following aspect:
  - base URI, such as https://tracim.ptb.de/tracim/api/order/XXXXX/test
  - Internet media type for the data. In our case XML but can be any other valid Internet media type (e.g. JSON, images, etc.)
  - standard HTTP methods (e.g., GET, PUT, POST, or DELETE)

- Example

Request	POST https://tracim.ptb.de/tracim/api/order/ORDER_E6C53D/test
Response (Header)	Status Code: 200 OK Connection: Keep-Alive Content-Location: https://tracim.ptb.de/tracim/api/test/821CD5D7 Content-Type: application/xml Date: Thu, 20 Nov 2014 21:58:29 GMT Keep-Alive: timeout=15, max=100 Server: Apache/2.2.12 (Linux/SUSE) Transfer-Encoding: chunked
Response (Body)	TraCIM Message

```
<tracim:order>
  <tracim:key>ORDER_E6C53D</tracim:key>
  <tracim:creationDate>2014-11-17T00:00:00.000+01:00</tracim:creationDate>
  <tracim:expirationDate>2014-11-17T00:00:00.000+01:00</tracim:expirationDate>
</tracim:order>
<tracim:process>
  <tracim:key>821CD5D7</tracim:key>
</tracim:process>
<tracim:test xsi:type="gauss:gaussTestPackage">
  <gauss:package>
    <gauss:testElement>
      <gauss:basicID>b01</gauss:basicID>
      <gauss:computationObject>LINE_3D</gauss:computationObject>
      <gauss:pointCloud>
```

The TraCIM server API

- URL of the TraCIM service
  - *https://tracim.ptb.de/tracim/api*
- Request testdata
  - *POST https://tracim.ptb.de/tracim/api/order/{key}/test*
- Send results to validate
  - *POST https://tracim.ptb.de/tracim/api/test/{key}*

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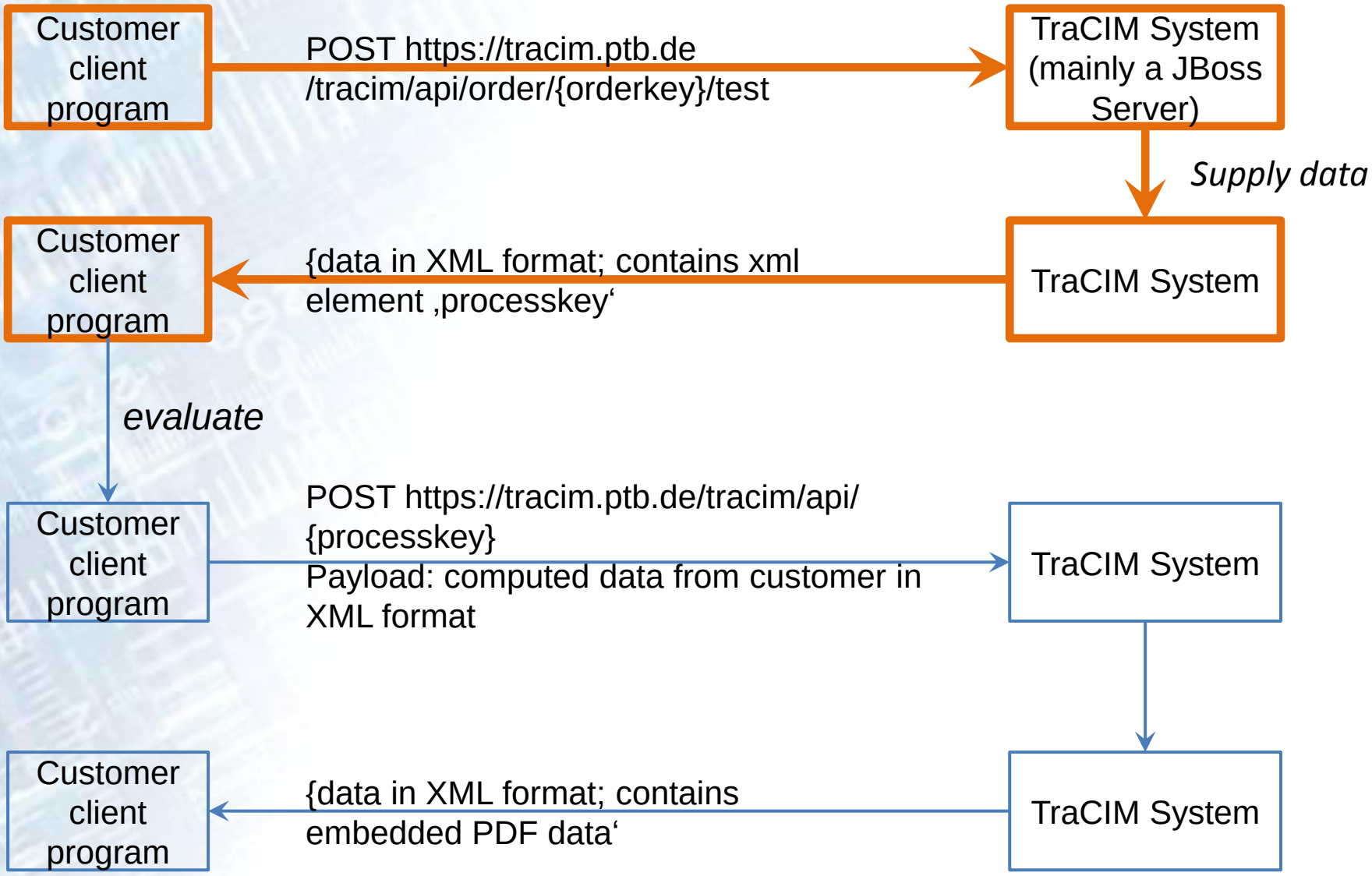

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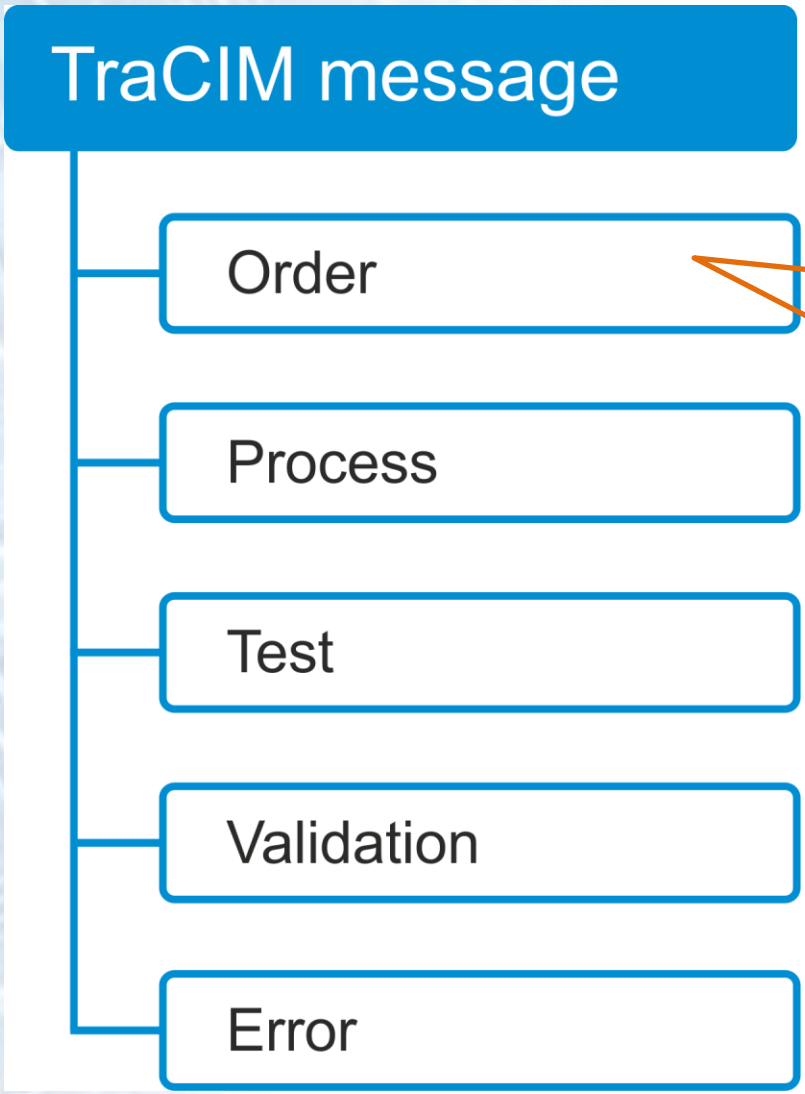

- Key (identifies type of test and customer)
- creationDate
- expirationDate

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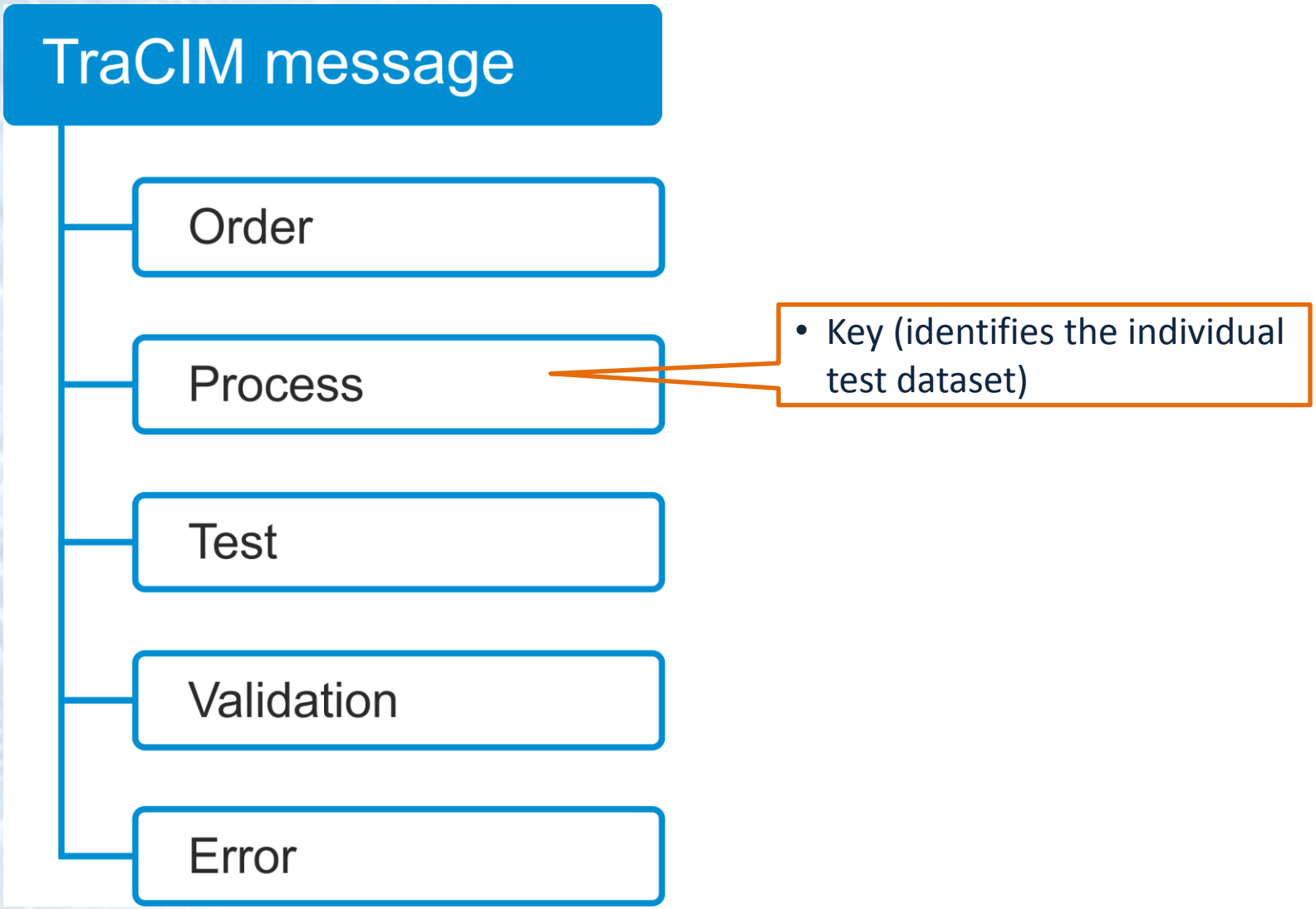

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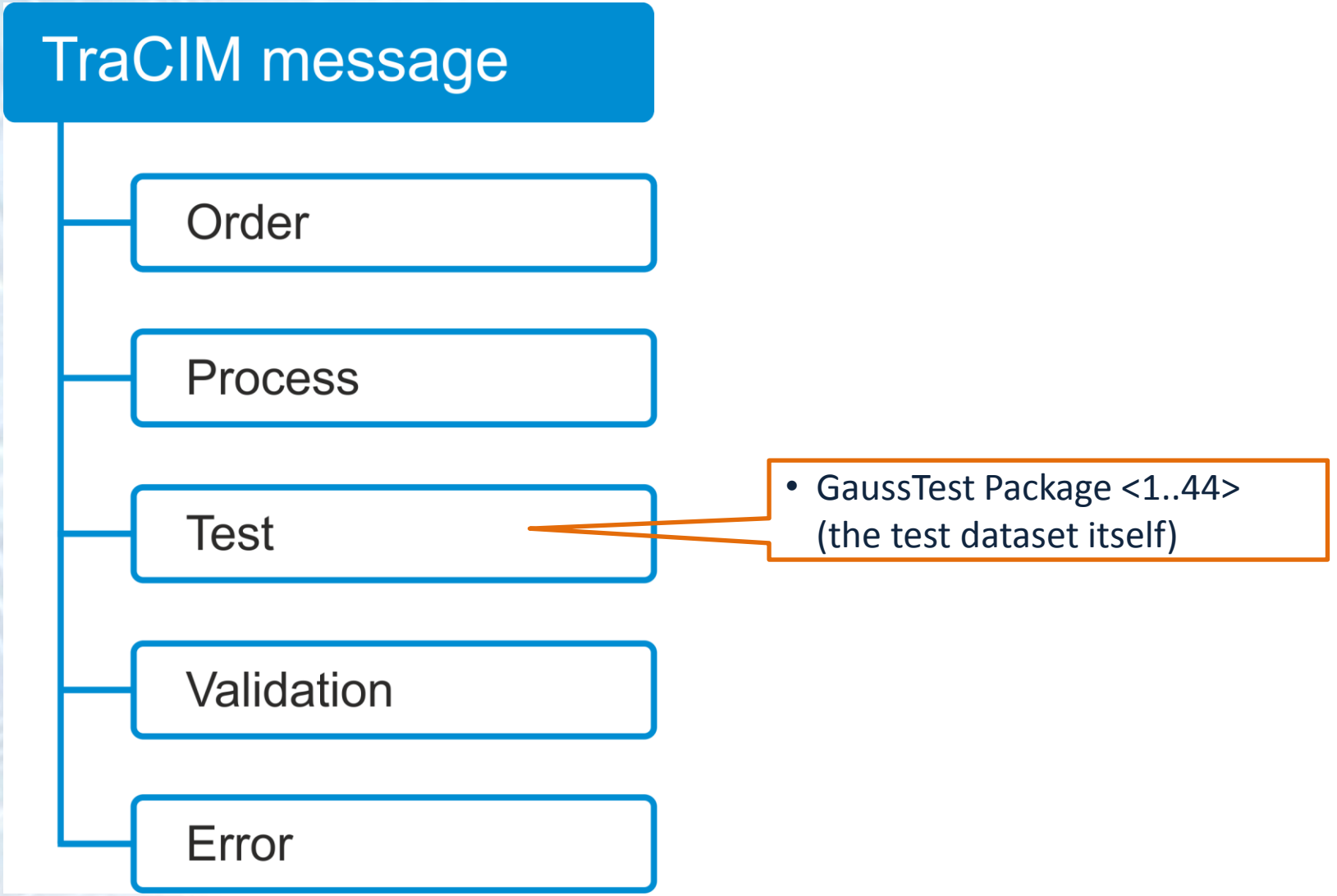

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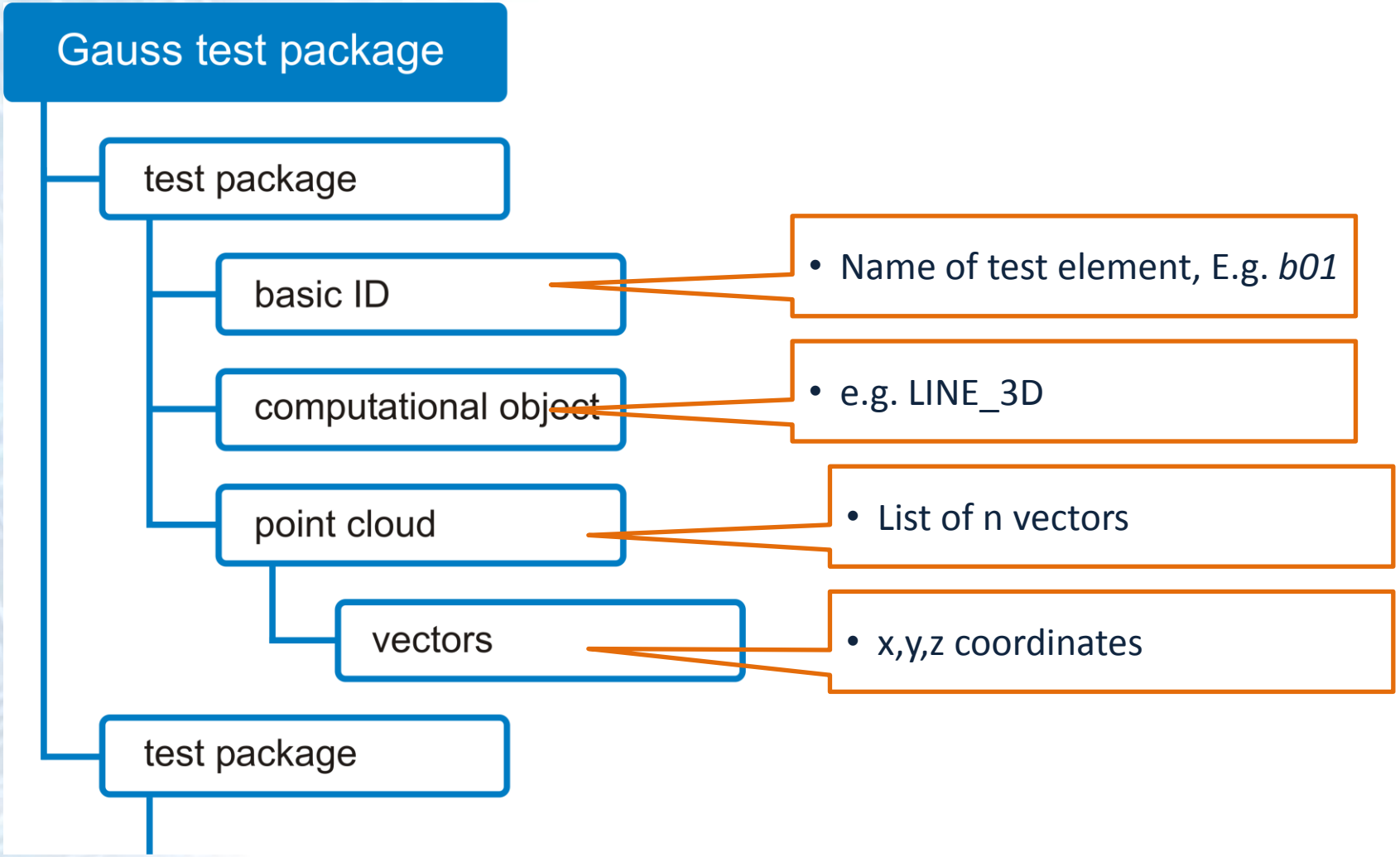

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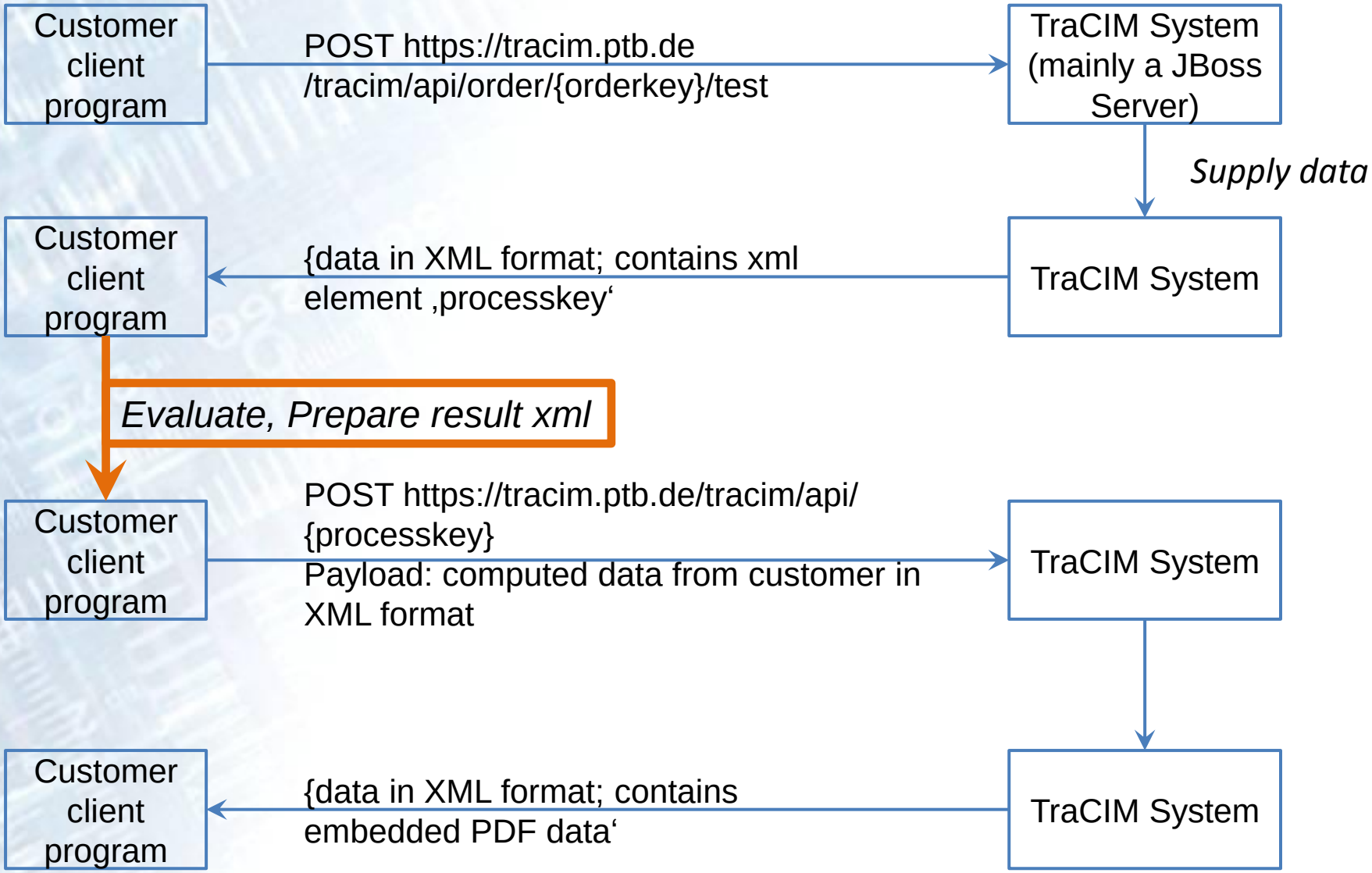

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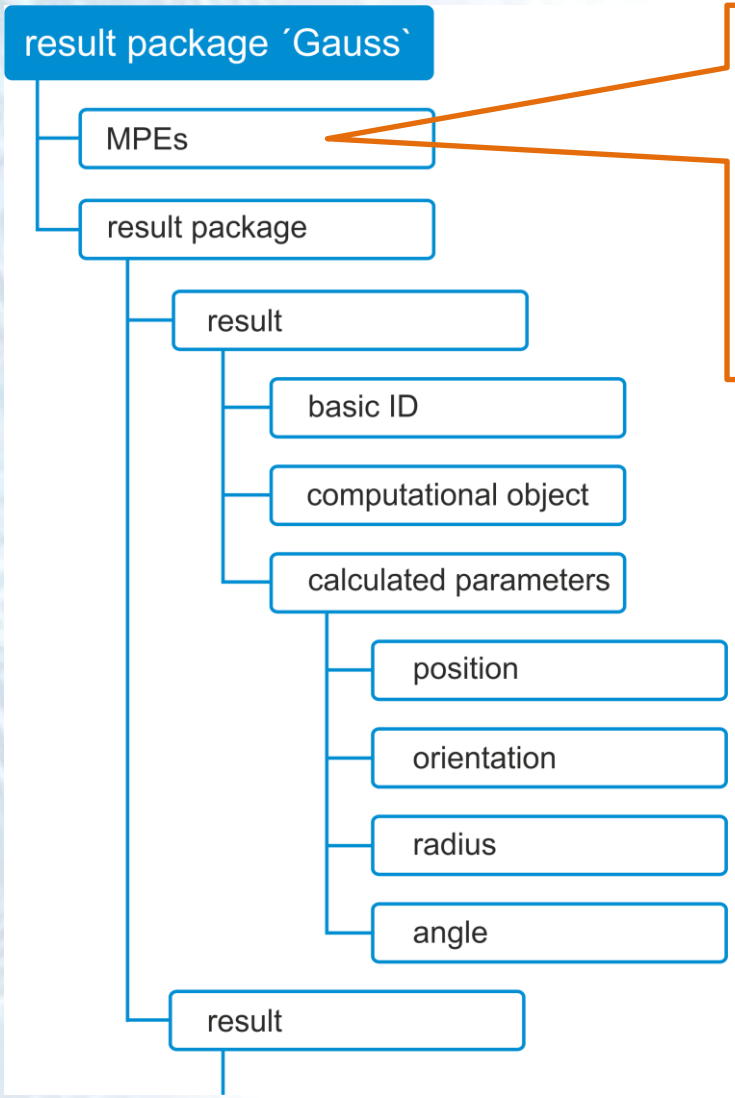

Maximum permissible errors for the software under test

- mpe size
- mpe angle
- mpe position
- mpe orientation

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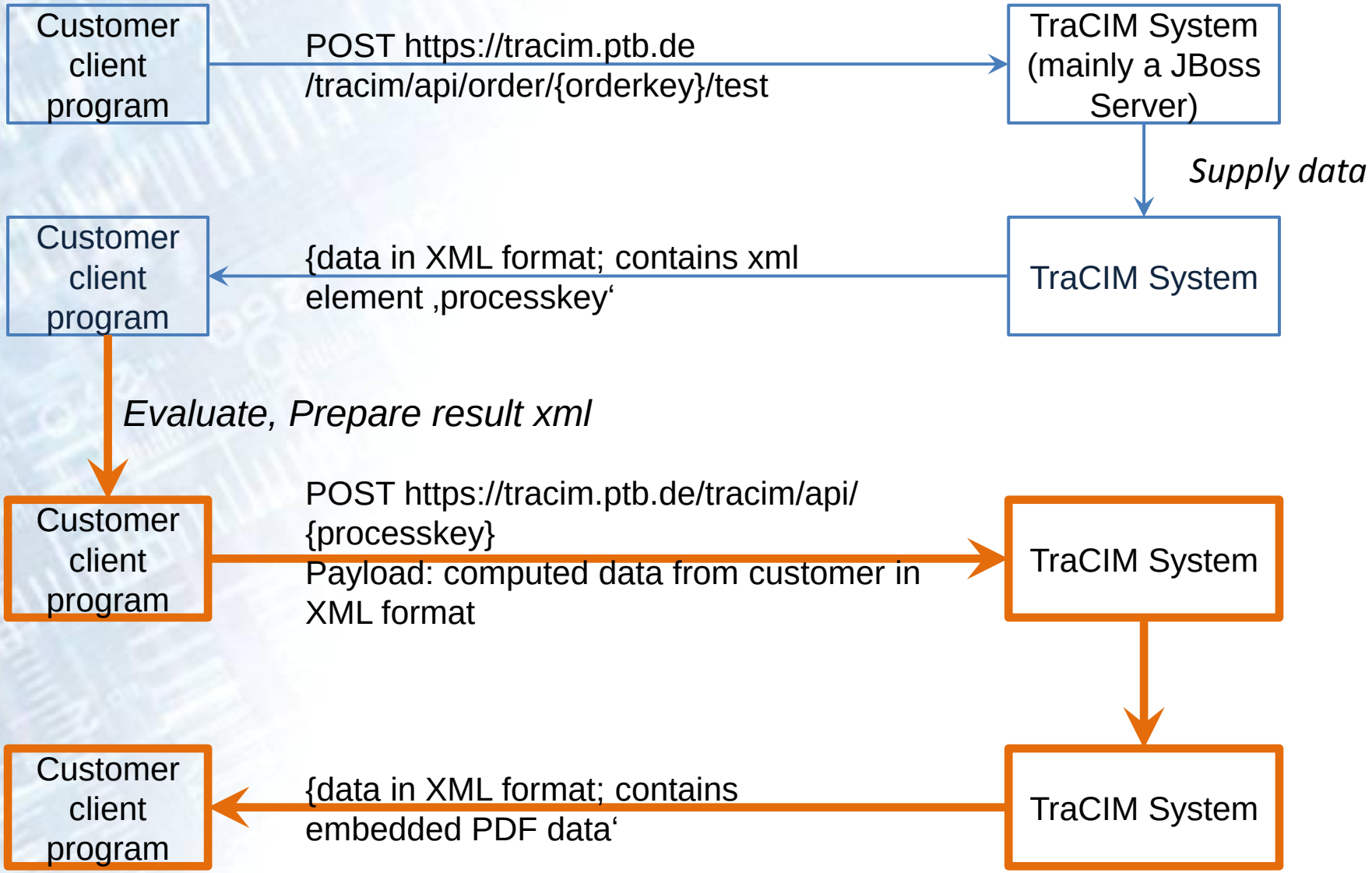

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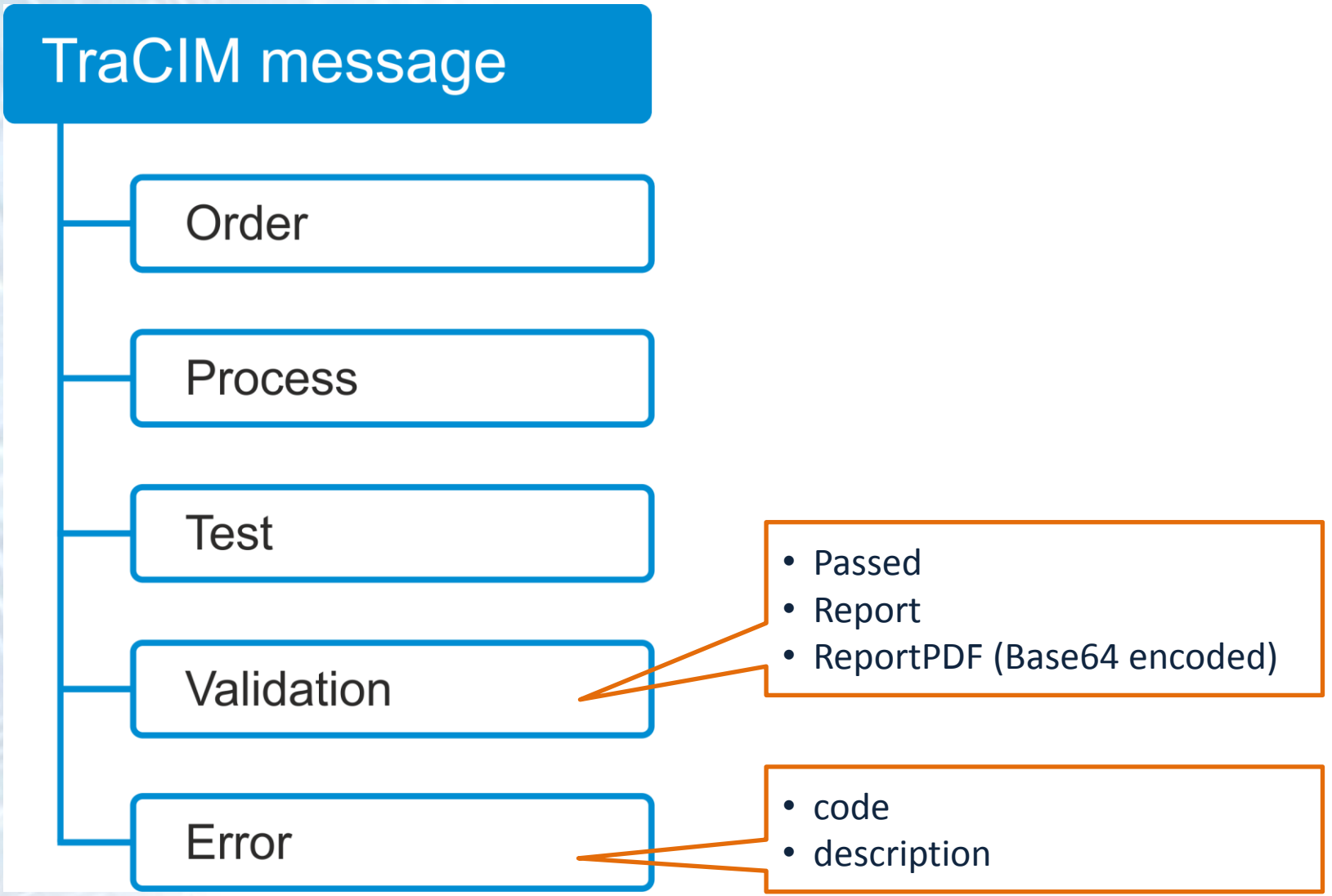

TraCIM client design and data exchange format (XML)

- XML schemas can be downloaded from:

  https://tracim.ptb.de/tracim/schema/tracim.xsd

  https://tracim.ptb.de/tracim/schema/PTB_MATH_GAUSS_v0.1_BETA_test.xsd

  https://tracim.ptb.de/tracim/schema/PTB_MATH_GAUSS_v0.1_BETA_result.xsd

- *The schema file can be use to validate the created/recieved XML files or to build classes (Java, C#, C++, VB,..) which can be serialized to XML*

- Example client (C#)

1. Download: ftp://ftp.ptb.de/incoming/franke05/setup_TraCIM_PTB_Gauss_Example.exe
2. Run the installer setup_TraCIM_PTB_Gauss_Example.exe (no administrator privileges are required)
3. Start the application
4. Open the VisualStudio solution *TraCIM_PTB_CMM_Gauss_CSharpExample.sln* and examine the example code

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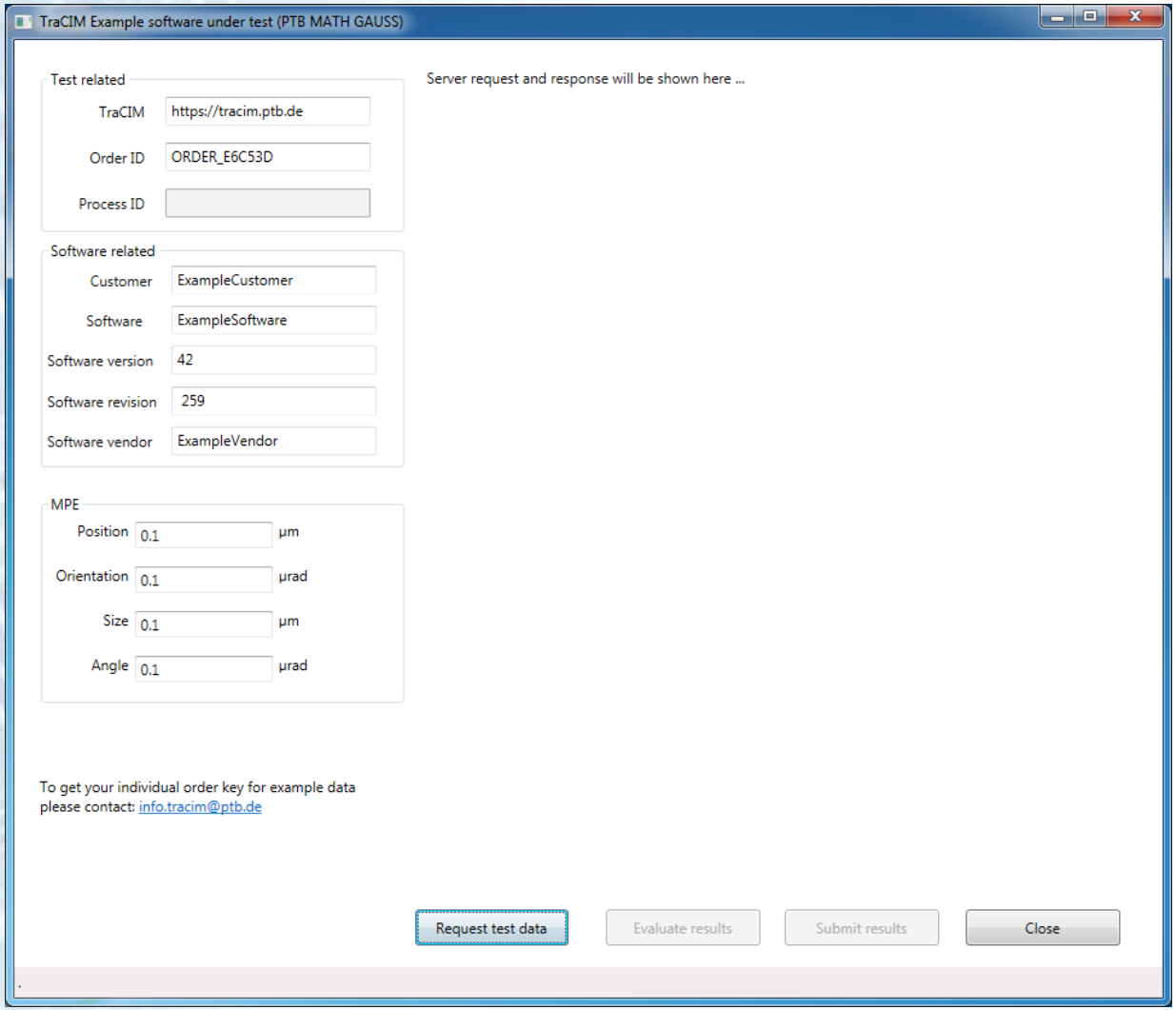

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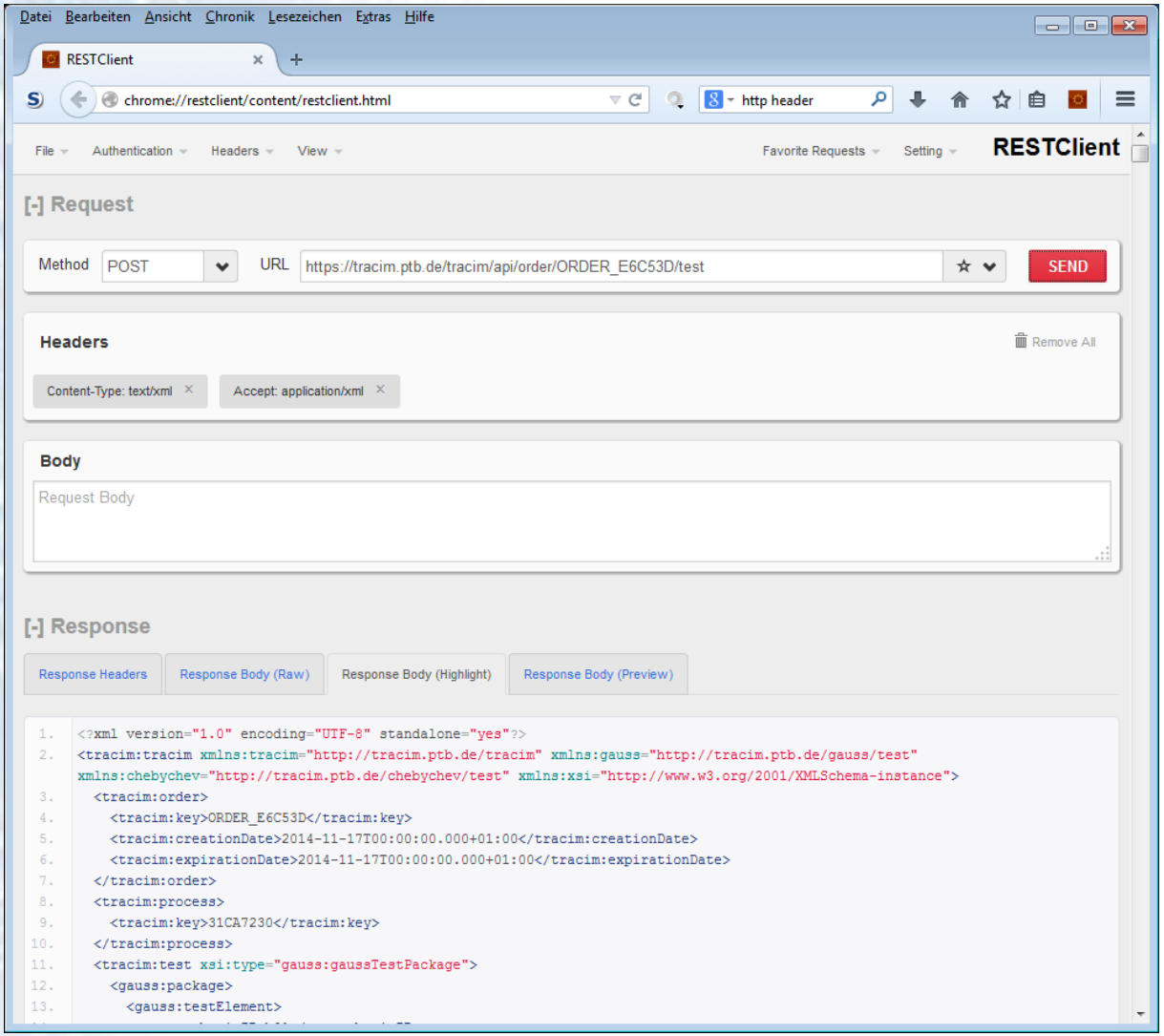

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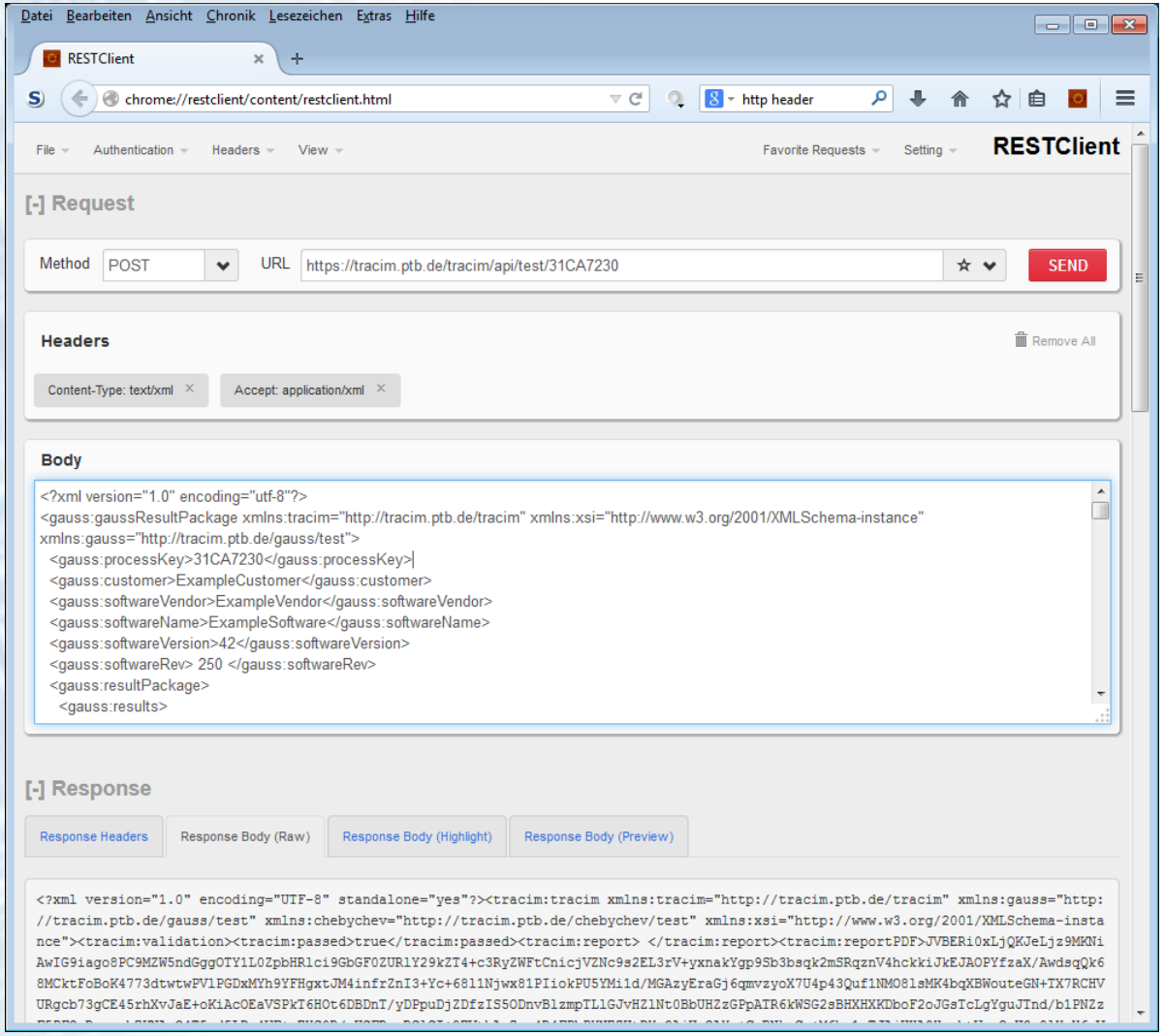

Thank you for your attention!

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