





Services

RESTfull Services mit Drupal

# Warum Services?

- Systemgrenzen überwinden
- Dienstleistungen nutzen
- Interaktion

# REST

- Representational State Transfer

# Ressourcen

- Adressierung (URL)
- Mehrere Repräsentationen (XML, JSON, PNG, PDF, ...)
- Zustandslos (HTTP)
- Abgeschlossenes Methoden-Set (HTTP Verben)
- Hypermedia (URL Links)

# Ressourcen

- Listen `/nodes`
- Instanzen `/nodes/42`
- Verschachtlung `/nodes/42/comments`  
`/nodes/42/comments/32`

# Operationen

- POST (C**reate**)
- GET (R**ead**)
- PUT (U**update**)
- DELETE (D**delete**)

# Services

- Drupal Modul
- Basis zur Implementation eines eigene Webservice



# Basisfunktionalität

- Verschieden Servertypen
  - REST, XMLRPC, SOPA, ...
- Standard Ressourcen
  - Nodes, Comments, Users, Taxonomy, Variables

# Möglichkeiten

- Services Views
- Eigene Ressourcen

# Die andere Seite

- Services Client
  - UI zur Verwaltung von Verbindungen
  - API zum abrufen von Services

# Abfrage einer Liste

http://localhost/~christian/services/api/node GET

Accept application/xml

Header Value

Close

Send Add to collection Reset

Body Cookies (7) Headers (12) STATUS 200 OK TIME 144 ms

Pretty Raw

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <result is_array="true">
3   <item>
4     <nid>56</nid>
5     <vid>56</vid>
6     <type>page</type>
7     <language></language>
8     <title>A node created with services 3.x and REST server</title>
9     <uid>0</uid>
10    <status>1</status>
11    <created>1344344801</created>
12    <changed>1344344801</changed>
13    <comment>1</comment>
14    <promote>0</promote>
15    <sticky>0</sticky>
16    <tnid>0</tnid>
17    <translate>0</translate>
18    <uri>http://localhost/~christian/services/api/node/56</uri>
19  </item>
20  <item>
21    <nid>55</nid>
22    <vid>55</vid>
23    <type>page</type>
24    <language></language>
25    <title>A node created with services 3.x and REST server</title>
26    <uid>0</uid>
27    <status>1</status>
28    <created>1344344407</created>
29    <changed>1344344533</changed>
30    <comment>1</comment>
31    <promote>0</promote>
32    <sticky>0</sticky>
33    <tnid>0</tnid>
34    <translate>0</translate>
```

12

http://localhost/~christian/services/api/node GET

Accept application/json

Header Value

Close

Send Add to collection Reset

Body Cookies (7) Headers (12) STATUS 200 OK TIME 139 ms

Pretty Raw

```
1 [
2   {
3     "nid": "56",
4     "vid": "56",
5     "type": "page",
6     "language": "",
7     "title": "A node created with services 3.x and REST server",
8     "uid": "0",
9     "status": "1",
10    "created": "1344344801",
11    "changed": "1344344801",
12    "comment": "1",
13    "promote": "0",
14    "sticky": "0",
15    "tnid": "0",
16    "translate": "0",
17    "uri": "http://localhost/~christian/services/api/node/56"
18  },
19  {
20    "nid": "55",
21    "vid": "55",
22    "type": "page",
23    "language": "",
24    "title": "A node created with services 3.x and REST server",
25    "uid": "0",
26    "status": "1",
27    "created": "1344344407",
28    "changed": "1344344533",
29    "comment": "1",
30    "promote": "0",
31    "sticky": "0",
32    "tnid": "0",
33    "translate": "0",
```

# Abfrage einer Instanz

http://localhost/~christian/services/api/node/56 GET

Accept: application/json

Header: Value

Close

Send Add to collection Reset

Body: Cookies (7) Headers (12) STATUS 200 OK TIME 134 ms

Pretty Raw [Icons] JSON XML

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <result>
3   <vid>56</vid>
4   <uid>0</uid>
5   <title>A node created with services 3.x and REST server</title>
6   <log></log>
7   <status>1</status>
8   <comment>1</comment>
9   <promote>0</promote>
10  <sticky>0</sticky>
11  <nid>56</nid>
12  <type>page</type>
13  <language></language>
14  <created>1344344801</created>
15  <changed>1344344801</changed>
16  <tnid>0</tnid>
17  <translate>0</translate>
18  <revision_timestamp>1344344801</revision_timestamp>
19  <revision_uid>0</revision_uid>
20  <body>
21    <und is_array="true">
22      <item>
23        <value>Cras mattis consectetur purus sit amet fermentum. Morbi l
24        <summary></summary>
25        <format>filtered_html</format>
26        <safe_value>&lt;p&gt;Cras mattis consectetur purus sit amet ferm
27      </safe_value>
28      <safe_summary></safe_summary>
29    </item>
30  </und>
31 </body>
32 <rdf_mapping>
33   <rdftype is_array="true">
34     <item>foaf:Document</item>
35   </rdftype>
36   <title>
37     <predicates is_array="true">
38       <item>dc:title</item>
39     </predicates>
40   </title>
41   <created>
42     <predicates is_array="true">
43       <item>dc:date</item>
```

http://localhost/~christian/services/api/node/56 GET

Accept: application/xml

Header: Value

Close

Send Add to collection Reset

Body: Cookies (7) Headers (12) STATUS 200 OK TIME 133 ms

Pretty Raw [Icons] JSON XML

```
1 {
2   "vid": "56",
3   "uid": "0",
4   "title": "A node created with services 3.x and REST server",
5   "log": "",
6   "status": "1",
7   "comment": "1",
8   "promote": "0",
9   "sticky": "0",
10  "nid": "56",
11  "type": "page",
12  "language": "",
13  "created": "1344344801",
14  "changed": "1344344801",
15  "tnid": "0",
16  "translate": "0",
17  "revision_timestamp": "1344344801",
18  "revision_uid": "0",
19  "body": {
20    "und": [
21      {
22        "value": "Cras mattis consectetur purus sit amet fermentum. Morb
23        "summary": "",
24        "format": "filtered_html",
25        "safe_value": "<p>Cras mattis consectetur purus sit amet ferment
26        "safe_summary": ""
27      }
28    ]
29  },
30  "rdf_mapping": {
31    "rdftype": [
32      "foaf:Document"
33    ],
34    "title": {
35      "predicates": [
36        "dc:title"
37      ]
38    },
39    "created": {
40      "predicates": [
41        "dc:date",
42        "dc:created"
43      ]
44    }
45  }
46 }
```

# Erstellen einer Instanz

http://localhost/~christian/services/api/node POST

Accept	application/xml	✕
Content-Type	application/json	✕
Header	Value	

Close

form-data x-www-form-urlencoded raw

```
{
  "title": "A node created with services 3.x and REST server",
  "type": "page",
  "body": {
    "und": [
      {
        "value": "Cras mattis consectetur purus sit amet fermentum.
        Morbi leo risus, porta ac consectetur ac, vestibulum at eros. Cum
        sociis natoque penatibus et magnis dis parturient montes, nascetur
        ridiculus mus. Duis mollis, est non commodo luctus, nisi erat
        porttitor ligula, eget lacinia odio sem nec elit. Nulla vitae elit
        libero, a scelerisque urna, faucibus eu luctus. Donec sed odio dui."
      }
    ]
  }
}
```

http://localhost/~christian/services/api/node

Accept	application/xml	✕
Content-Type	application/json	✕
Header	Value	

Body Cookies (7) Headers (12) STATUS 200 OK TIME 156 ms

Pretty Raw [Icons] JSON XML

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <result>
3   <nid>58</nid>
4   <uri>http://localhost/~christian/services/api/node/58</uri>
5 </result>
6
```

# Löschen einer Instanz

The screenshot shows a REST client interface with the following elements:

- URL:** `http://localhost/~christian/services/api/node/58` (circled in green)
- Method:** **DELETE**
- Accept Header:** `application/xml` (circled in green)
- Form Data:** `x-www-form-urlencoded` is selected.
- Status:** **STATUS 200 OK** (circled in red)
- Time:** **TIME 150 ms**
- Body:** The response is shown in **Raw** mode (selected) as XML: 

```
<?xml version="1.0" encoding="utf-8"?>
<result>1</result>
```

 (circled in red)

A green arrow points from the `application/xml` header to the XML response body.

# Weiteres zum Thema

- Stefan Tilkov, REST und HTTP, dpunkt.verlag, Heidelberg 2009
- <http://drupal.org/project/>
  - [services, services\\_views, services\\_rules, services\\_client, jsonrpc\\_server, soap\\_server, amfphp](#)
- <http://drupal.org/node/736522>
- [http://de.wikipedia.org/wiki/Representational\\_State\\_Transfer](http://de.wikipedia.org/wiki/Representational_State_Transfer)
- Postman: Chrome Plugin zum absetzen von HTTP Anfragen.  
[https://chrome.google.com/webstore/detail/fdmmgilgnpjigdojojpjoooidkmcomcm?utm\\_source=chrome-ntp-icon](https://chrome.google.com/webstore/detail/fdmmgilgnpjigdojojpjoooidkmcomcm?utm_source=chrome-ntp-icon)