



# SAP Gateway

Webinar, 24. November 2017, 10:00 Uhr



## Domi Bigl

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### Beratungsschwerpunkte

- Konzeption & Management von Entwicklungsprojekten
- Qualitymanagement & Performanceoptimierung
- ABAP, ABAP Units, TDD
- SAP Fiori/SAPUI5
- SAP Cloud



# Dusan Sacha

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## Beratungsschwerpunkte

- SAP Fiori / SAP UI5
- SAP Cloud
- SAP Gateway
- User Experience

- **REST / OData Überblick**
- **SAP Gateway Überblick**
- **LiveDemo: SAP Gateway**
- **Service Generierung**
- **LiveDemo: CDS -> Odata**
- **Annotations**

# REST Überblick

## Representational State Transfer

vereinfachte Darstellung!

Dissertation Roy Fielding: <https://www.ics.uci.edu/~fielding/pubs/dissertation/top.htm>

**Jedes „Objekt“ hat:**

- **mind. eine eindeutige ID (Ressource)**
- **zumindest eine Darstellungsform (Repräsentation)**
- **Version der Ressource (Änderungszeitpunkt)**
- **Ressourcen haben Beziehungen (Links)**
- **Einheitliche API**

- **URI: Eindeutige ID**
- **HTML: Darstellungsform**
- **HTTP Etag (Last-Modified): Version**
- **HTML Links: Beziehungen**
- **HTTP Methoden: Einheitliche API**
  - **GET, POST, PUT, DELETE, ...**

```

▼ <user>
  <id>bigld</id>
  <uri>http://www.cadaxo.com/users/user/bigld</uri>
  <fullname>Domi Bigl</fullname>
  ▼ <phonenumbers>
    <uri>http://www.cadaxo.com/users/user/bigld/numbers</uri>
    ▼ <number>
      <uri>http://www.cadaxo.com/users/user/bigld/numbers/1</uri>
      <dial>0815-1234</dial>
    </number>
    ▼ <number>
      <uri>http://www.cadaxo.com/users/user/bigld/numbers/2</uri>
      <dial>4711-9876</dial>
    </number>
  </phonenumbers>
</user>

```

```

▼ <user>
  <id ref="http://www.cadaxo.com/users/user/bigld">bigld</id>
  <fullname>Domi Bigl</fullname>
  ▼ <phonenumbers ref="/users/user/bigld/numbers">
    <number ref="/users/user/bigld/numbers/1">0815-1234</number>
    <number ref="/users/user/bigld/numbers/2">4711-9876</number>
  </phonenumbers>
</user>

```



# OData Überblick (Open Data Protocol)

- **einheitlicher Standard**
- **beschreibt „Objekt“, Ressource – Entity**
  - ID (Schlüselfelder) - Key
  - Datenfeldern - Properties
  - Links zu anderen Entity / Entities
- **Ermöglicht CRUD Operationen auf Entities**

- **Sammlung von Entities**
- **Metadaten – technische Beschreibung**
  - Entity Schlüsselfelder - Key
  - Entity Datenfelder – Properties
  - Felddetails
    - Technischen Typen (Integer, String, Datum,...)
    - Bezeichnung, änderbar, sortierbar,...
  - Beziehungen zwischen Entities („Fremdschlüssel“)

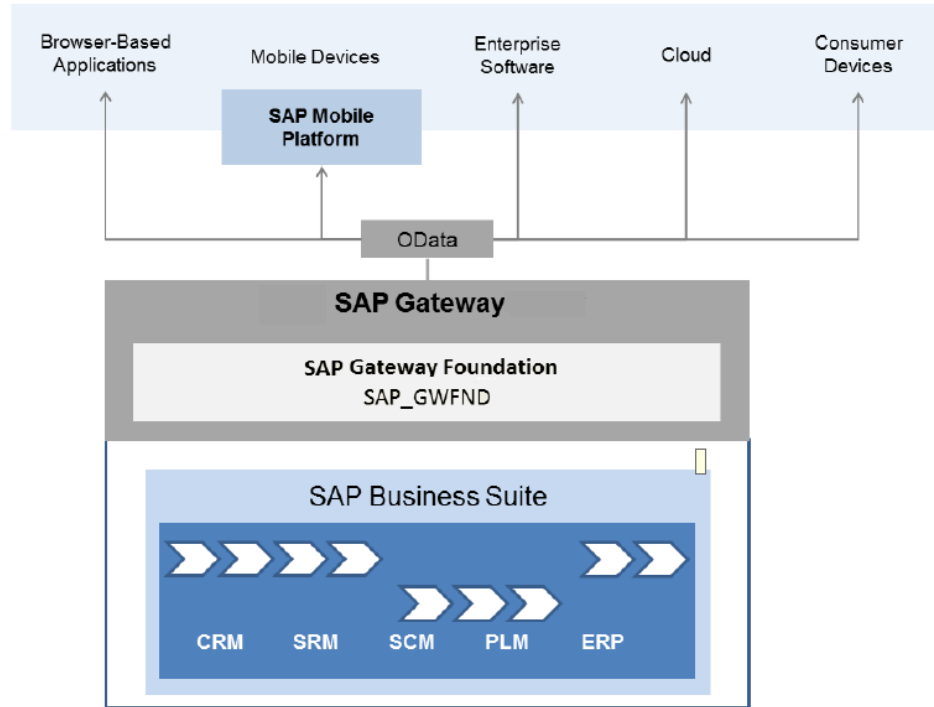
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▼<edm:Edmx xmlns:edm="http://schemas.microsoft.com/ado/2007/06/edm" xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata" xmlns:sap="http://www.sap.
  ▼<edm:DataService m:DataServiceVersion="2.0">
    ▼<Schema xmlns="http://schemas.microsoft.com/ado/2008/09/edm" Namespace="CADAXO" xml:lang="en" sap:schema-version="1">
      ▼<EntityType Name="User" sap:is-thing-type="true" sap:content-version="1">
        ▼<Key>
          <PropertyRef Name="Id"/>
        </Key>
        <Property Name="Id" Type="Edm.String" Nullable="false" MaxLength="10" FixedLength="true" sap:label="User ID"/>
        <Property Name="FullName" Type="Edm.String" sap:label="Full Name"/>
        <NavigationProperty Name="PhoneNumbers" Relationship="CADAXO.UserUserPhoneNumber" FromRole="FromRole_UserUserPhoneNumber" ToRole="ToRole_UserUserPhoneNumbers"/>
      </EntityType>
      ▼<EntityType Name="Number" sap:content-version="1">
        ▼<Key>
          <PropertyRef Name="UserId"/>
          <PropertyRef Name="Id"/>
        </Key>
        <Property Name="Id" Type="Edm.Int32" Nullable="false" sap:label="User ID"/>
        <Property Name="UserId" Type="Edm.String" Nullable="false" MaxLength="10" FixedLength="true" sap:label="User ID"/>
        <Property Name="Dail" Type="Edm.String" Nullable="false" sap:label="Phone Number"/>
      </EntityType>
      ▼<Association Name="UserUserPhoneNumber" sap:content-version="1">
        <End Type="CADAXO.User" Multiplicity="1" Role="FromRole_UserUserPhoneNumber"/>
        <End Type="CADAXO.Number" Multiplicity="*" Role="ToRole_UserUserPhoneNumbers"/>
        ▼<ReferentialConstraint>
          ▼<Principal Role="FromRole_UserUserPhoneNumber">
            <PropertyRef Name="Id"/>
          </Principal>
          ▼<Dependent Role="ToRole_UserUserPhoneNumbers">
            <PropertyRef Name="UserId"/>
          </Dependent>
        </ReferentialConstraint>
      </Association>
    </Schema>
  </edm:DataService>
</edm:Edmx>

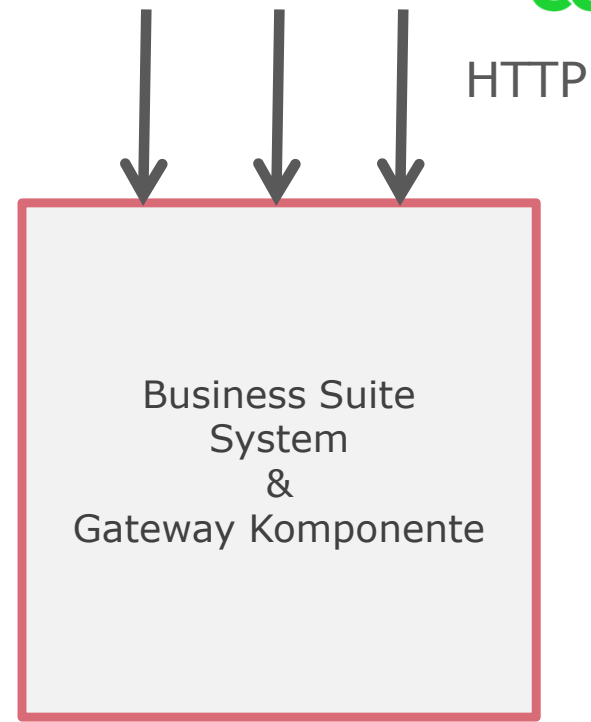
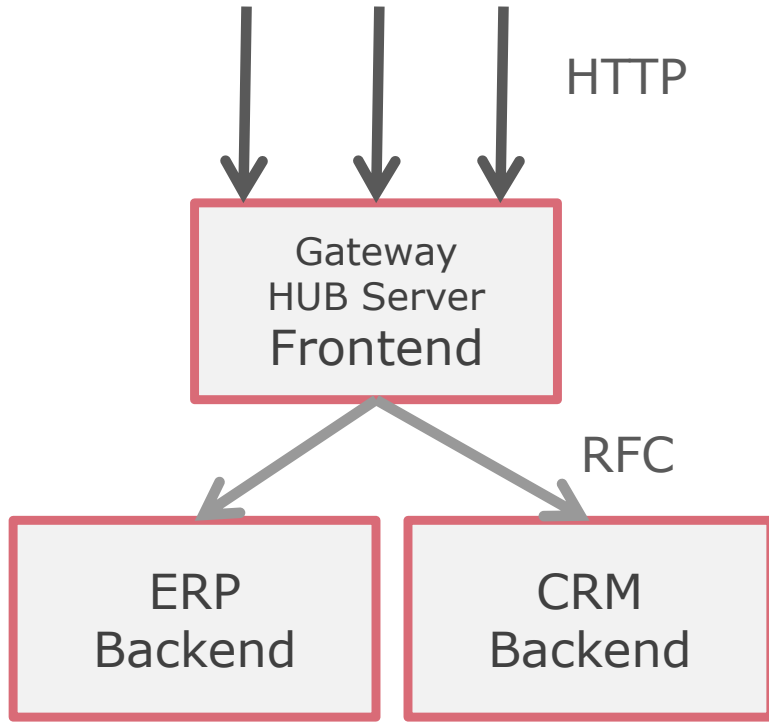
```

# SAP Gateway

## (Implementierung von REST mittels OData)



<https://help.sap.com/viewer/68bf513362174d54b58cddec28794093/7.5.6/en-US>



- **>700 <= 731**
  - als Add-On zu installieren
  - Frontend (HTTP Server + OData Verarbeitung)
  - Backend (Datenbeschaffung und Verarbeitung)
  
- **>= 740**
  - Gateway in der Basis Komponente
    - auf jedem System als Frontend & Backend

[https://help.sap.com/viewer/p/SAP\\_GATEWAY](https://help.sap.com/viewer/p/SAP_GATEWAY)

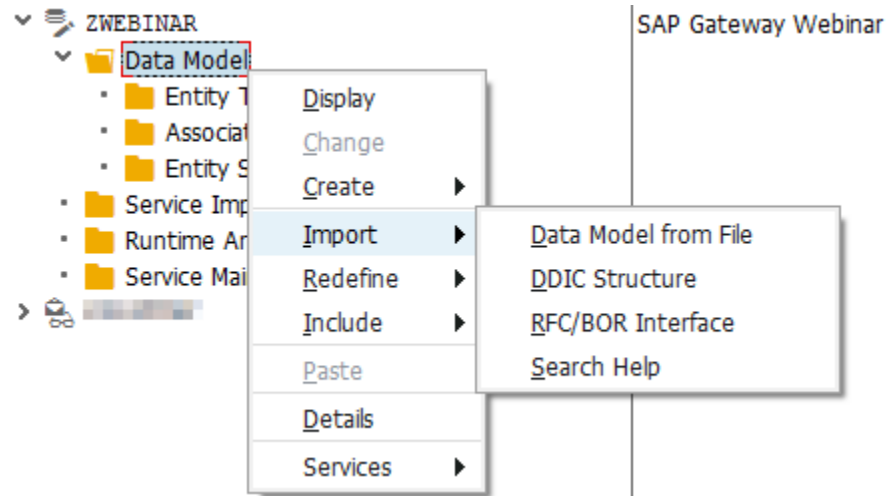


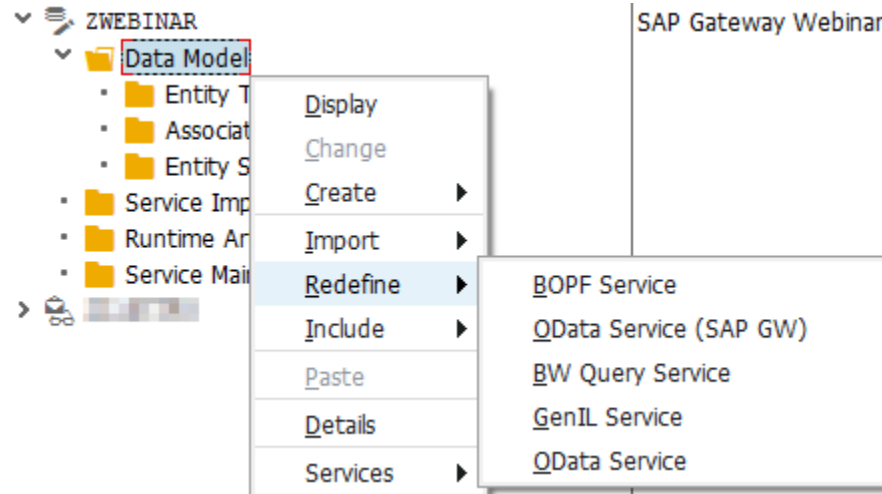
# **Live Demo (SAP Gateway)**

- **SAP Gateway T-Codes**
  - **SEGW – Service Builder**
  - **/IWFND/MAINT\_SERVICE – Activate and Maintain Service**
  - **/IWFND/GW\_CLIENT – SAP Gateway Client**
  - **/IWFND/ERROR\_LOG – SAP Gateway Error Log**

# Service Generierung

- GW OData Service
- OData Service
- BI Query
- GenIL (CRM)
- BOPF – Business Object Processing Framework
  - <http://www.cadaxo.com/high-class-development/webinar-sap-bopf/>
- CDS Views – Core Data Services
  - <http://www.cadaxo.com/high-class-development/webinar-abap-cds-views/>





# Live Demo


## (CDS -> OData)

# Annotations










- **Zusätzliche Informationen zu Metadata**
- **SAP Annotations**
- `<Property Name="Partner" sap:updatable="false"  
sap:label="BusinessPartner"/>`
- **Nützlich im Frontend (Fiori UI Element Smart Table)**











- Smart Table Demo

Standard \* 

BusinessPartner:  Last name:

Hide Filter Bar Filters [Go](#)

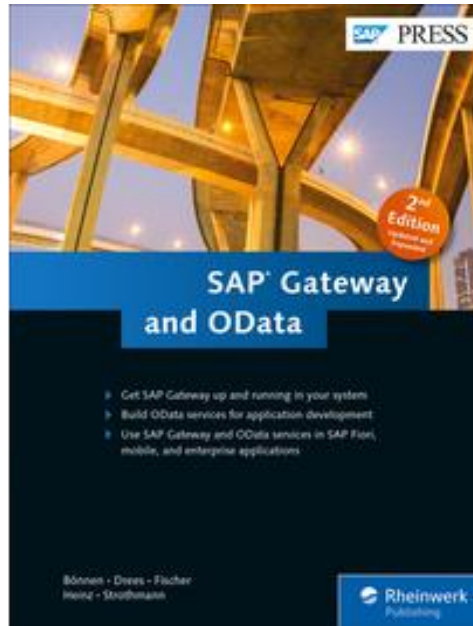
Business Partners (6)       

| <input type="checkbox"/> BusinessPartner | Last name                                | First name                               | Role   | Archive Flag                        | Created On  |
|--|--|--|--|-------------------------------------|---|
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| <input type="checkbox"/> 0000000666      | <input type="text" value="MuseterMock"/> | <input type="text" value="MaxMock"/>     | <input type="text" value="USER"/>       | <input type="checkbox"/>            | <input type="text" value="Apr 5, 2017, 12..."/>  |
| <input type="checkbox"/> 0000000101      | <input type="text" value="NameLast 1"/>  | <input type="text" value="NameFirst 1"/> | <input type="text" value="ADMIN"/>      | <input checked="" type="checkbox"/> | <input type="text" value="Apr 4, 2017, 12..."/>  |
| <input type="checkbox"/> 0000000102      | <input type="text" value="NameLast 2"/>  | <input type="text" value="NameFirst 2"/> | <input type="text" value="ADMIN"/>      | <input type="checkbox"/>            | <input type="text" value="Apr 5, 2017, 12..."/>  |
| <input type="checkbox"/> 0000000103      | <input type="text" value="NameLast 3"/>  | <input type="text" value="NameFirst 3"/> | <input type="text" value="ADMIN"/>      | <input checked="" type="checkbox"/> | <input type="text" value="Apr 4, 2017, 12..."/>  |

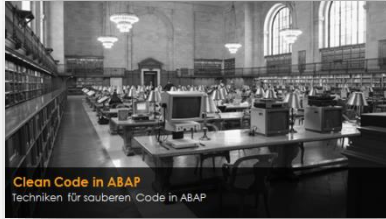
Made by: [Cadaxo](#)

- SAP Gateway Community
  - <https://www.sap.com/community/topic/gateway.html>
  
- SAP Learners
  - <http://www.saplearners.com/>
  
- Public OData Test Service
  - <http://services.odata.org/>

- **SAP Press Book – SAP Gateway and OData**







<http://www.cadaxo.com/blog/>

# See you again!

***Thank you for participating!***



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