

ORACLE

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Chi Sono

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JSON



JSON

Il dato elementare JSON è
una coppia chiave:valore

"Nome": "Mario"

JSON

I dati sono coppie del tipo
chiave:valore separati da virgole

`"Nome": "Mario", "Cognome": "Rossi", "Eta": 30`

JSON

Le parentesi graffe racchiudono un oggetto (elenco di coppie chiave:valore)

```
{"Nome": "Mario", "Cognome": "Rossi", "Eta": 30}
```

JSON

Le parentesi quadre racchiudono un array
(lista di valori)

```
"Nomi": ["Mario", "Anna", "Paola"]
```

JSON

La Chiave è sempre una Stringa (con i doppi apici)



```
"Nomi": ["Mario", "Anna", "Paola"]
```


JSON {

Il valore può essere:

- una stringa
- un numero
- un oggetto
- un array
- un boolean (true/false)
- null

```
"name": "Mario",
"surname": "Rossi",
"telephone": null,
"active": true,
"favoriteNumber": 54,
"birthday": {
  "day": 1,
  "month": 1,
  "year": 2000
},
"languages": [ "it", "en" ],
"addresses": [
  {"type": "Main",
   "address": "Oxfors St.",
   "city": "London"
  },
  {"type": "Alternative",
   "address": "Cambridge St.",
   "city": "London"
  }
]
}
```

Array di Oggetti

REST



REST

The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes the APEX logo, 'App Builder', 'SQL Workshop', 'Team Development', and 'Galleria'. A search bar and user information (adm usrx00) are also present. The left sidebar shows the 'Browser oggetti' section with a search for 'd17' and a list of tables, including 'D17_VENDITA'. The main area displays the configuration for the 'D17_VENDITA' table. A green message bar at the top indicates 'Elaborazione di TABLE D17_VENDITA riuscita'. Below this, a tabbed interface shows various options for the table, with the 'REST' tab selected. The REST configuration section shows the following settings:

- Versione ORDS: 23.1.2.r1151944
- Abilita oggetto per REST: ☒ Sì ☐ No
- Alias oggetto: d17_vendita
- Autorizzazione obbligatoria: ☐ Sì ☒ No
- URI RESTful: https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d17_vendita/

An 'Applica' button is located at the bottom right of the configuration section.

https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/



APEX

App Builder

SQL Workshop

Team Development

Galleria

Cerca

AD

adm

usrx00

Servizi RESTful

Oggetti abilitati per ORDS

Servizi dati RESTful

Oggetti abilitati

Moduli

Privilegi

Ruoli

Oggetti abilitati per RESTful

Vai

1. Report primario

Azioni

Schema di analisi	Oggetto analizzato	Alias oggetto	Tipo	Stato	Autenticazione REST automatica	Operazioni consentite	Percorso tipo	Con alias
WKSP_USRX00	D16_PERSONA	d16_persona	TABLE	ENABLED	DISABLED	-	ENABLED	
WKSP_USRX00	D16_VENDITA	d16_vendita	TABLE	ENABLED	DISABLED	-	ENABLED	

Browser oggetti

Tabelle

d16

D16_DIPARTIMENTO_JSON

D16_EVENTI

D16_PERSONA

D16_VENDITA

D16_VENDITA

Tabella

Dati

Indici

Modello

Vincoli

Statistiche

Valori predefiniti di interfaccia utente

Trigger

Dipendenze

SQL

REST

Query di esemp

Versione ORDS 23.1.2.r1151944

Abilita oggetto per REST

Sì

No

Alias oggetto

d16_vendita

Autorizzazione obbligatoria

Sì

No

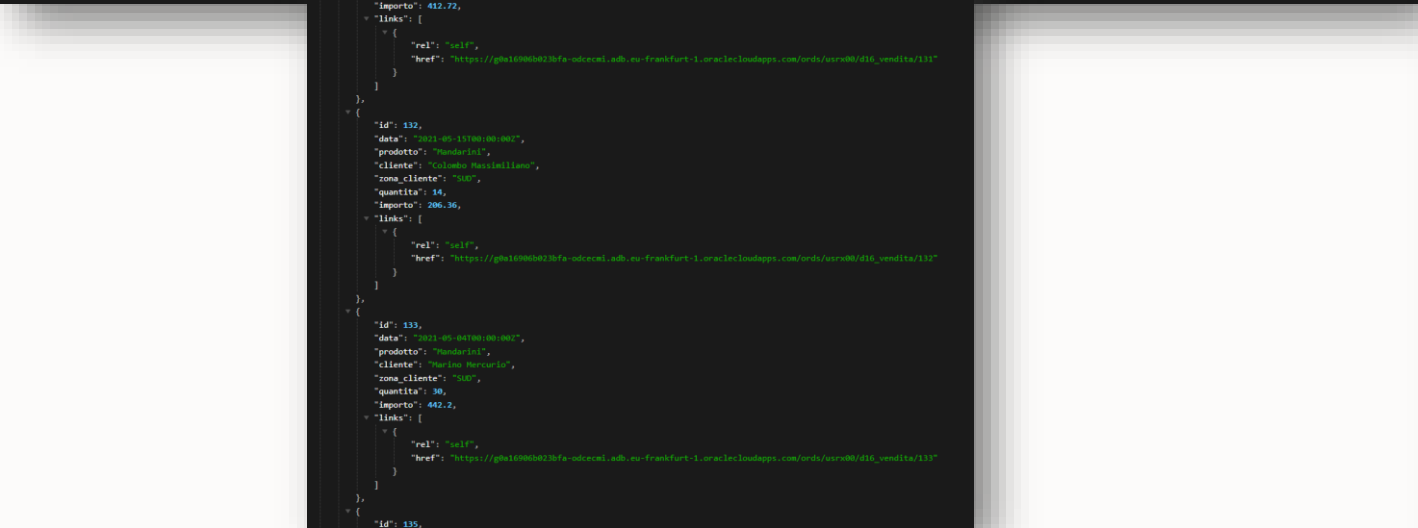
URI RESTful

https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/

Applica

https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/

https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/



REST

The screenshot shows the Oracle SQL Command Editor interface. At the top, the title bar says "Comandi SQL". On the right, the "Schema" dropdown is set to "WKSP_USRX00". Below the title bar, there's a toolbar with "Lingua" set to "SQL", "Righe" set to "100", and buttons for "Cancella comando" and "Trova tabelle". On the far right of the toolbar are "Salva" and "Esegui" buttons. The main editor area contains the following SQL code:

```
1 select
2 apex_web_service.make_rest_request(
3   p_url => 'https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com' ||
4   '/ords/usrx00/d16_vendita/',
5   p_http_method => 'GET'
6 ) vendita
7 from dual
```

Below the editor, there's a tabbed interface with "Risultati" selected. The results are displayed under the heading "VENDITA". The JSON response is as follows:

```
{
  "items": [
    {
      "id": 131,
      "data": "2020-08-07T00:00:00Z",
      "prodotto": "Mandarino",
      "cliente": "Costa Marianna",
      "zona_cliente": "NORD2",
      "quantita": 28,
      "importo": 412.72,
      "links": [
        {
          "rel": "self",
          "href": "https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/131"
        }
      ]
    },
    {
      "id": 132,
      "data": "2021-05-15T00:00:00Z",
      "prodotto": "Mandarini",
      "cliente": "Colombo Massimiliano",
      "zona_cliente": "SUD",
      "quantita": 14,
      "importo": 206.36,
      "links": [
        {
          "rel": "self",
          "href": "https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/132"
        }
      ]
    },
    {
      "id": 133,
      "data": "2021-05-04T00:00:00Z",
      "prodotto": "Mandarini",
      "cliente": "Marino Mercurio",
      "zona_cliente": "SUD",
      "quantita": 30,
      "importo": 442.2,
      "links": [
        {
          "rel": "self",
          "href": "https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/133"
        }
      ]
    },
    {
      "id": 135,
      "data": "2021-04-30T00:00:00Z",
      "prodotto": "Mandarini",
      "cliente": "Lombardi Minervino",
      "zona_cliente": "SUD",
      "quantita": 20,
      "importo": 294.8,
      "links": [
        {
          "rel": "self",
          "href": "https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/135"
        }
      ]
    },
    {
      "id": 136,
      "data": "2021-01-05T00:00:00Z",
      "prodotto": "Mandarini",
      "cliente": "Romano Marcella",
      "zona_cliente": "CENTRO",
      "quantita": 14,
      "importo": 206.36,
      "links": [
        {
          "rel": "self",
          "href": "https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/136"
        }
      ]
    },
    {
      "id": 137,
      "data": "2020-12-27T00:00:00Z",
      "prodotto": "Mandarini",
      "cliente": "Marino Mercurio",
      "zona_cliente": "SUD",
      "quantita": 13,
      "importo": 191.62,
      "links": [
        {
          "rel": "self",
          "href": "https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/137"
        }
      ]
    }
  ]
}
```

```
select apex_web_service.make_rest_request(
  p_url => 'https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/' ||
  '/d10_vendita/',
  p_http_method => 'GET'
) vendita
from dual
```

REST

```
select *
  from json_table(
apex_web_service.make_rest_request(
  p_url => 'https://cnde8nae4maapcd-capancioni.adb.eu-zurich-
1.oraclecloudapps.com/ords/cn0/d10_vendita/',
  p_http_method => 'GET'
),
 '$.items[*]' columns(
      id                number                path '$.id'
    ,data               date                  path '$.data'
    ,prodotto           varchar2(100)         path '$.prodotto'
    ,cliente            varchar2(100)         path '$.cliente'
    ,zona_cliente       varchar2(100)         path '$.zona_cliente'
    ,quantita           number                path '$.quantita'
    ,importo            number                path '$.importo'
  )
);
```

REST

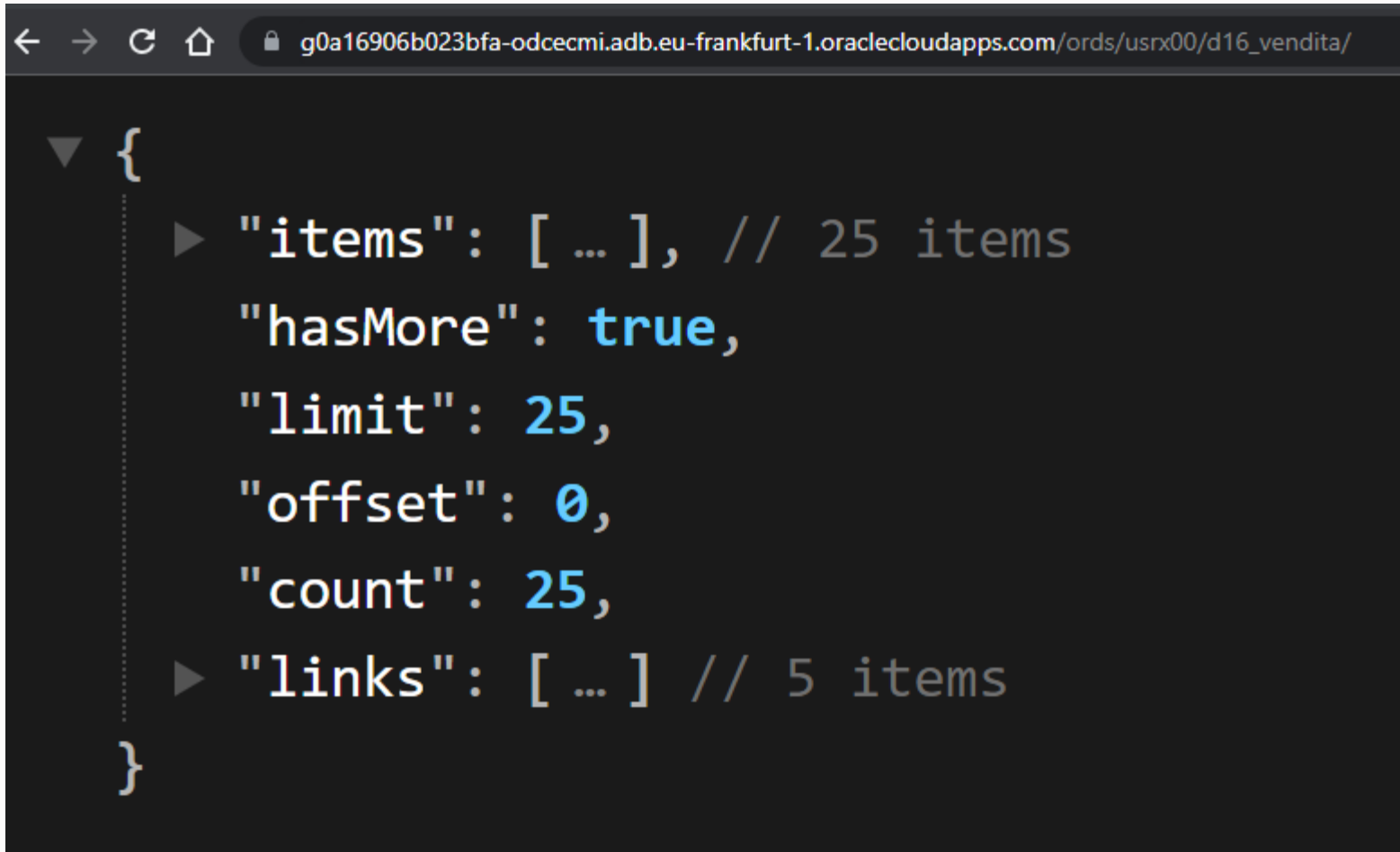
```
8
9  select *
10  from json_table(
11  apex_web_service.make_rest_request(
12    p_url => 'https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/',
13    p_http_method => 'GET'
14  ),
15  '$.items[*]' columns(
16    id          number      path '$.id'
17    ,data        date        path '$.data'
18    ,prodotto    varchar2(100) path '$.prodotto'
19    ,cliente     varchar2(100) path '$.cliente'
20    ,zona_cliente varchar2(100) path '$.zona_cliente'
21    ,quantita    number      path '$.quantita'
22    ,importo     number      path '$.importo'
23  )
24 );
```

isultati Spiega Descrivi SQL salvato Cronologia

ID	DATA	PRODOTTO	CLIENTE	ZONA_CLIENTE	QUANTITA	IMPORTO
131	07/08/2020	Mandarino	Costa Marianna	NORD2	28	412,72
132	15/05/2021	Mandarini	Colombo Massimiliano	SUD	14	206,36
133	04/05/2021	Mandarini	Marino Mercurio	SUD	30	442,2



REST

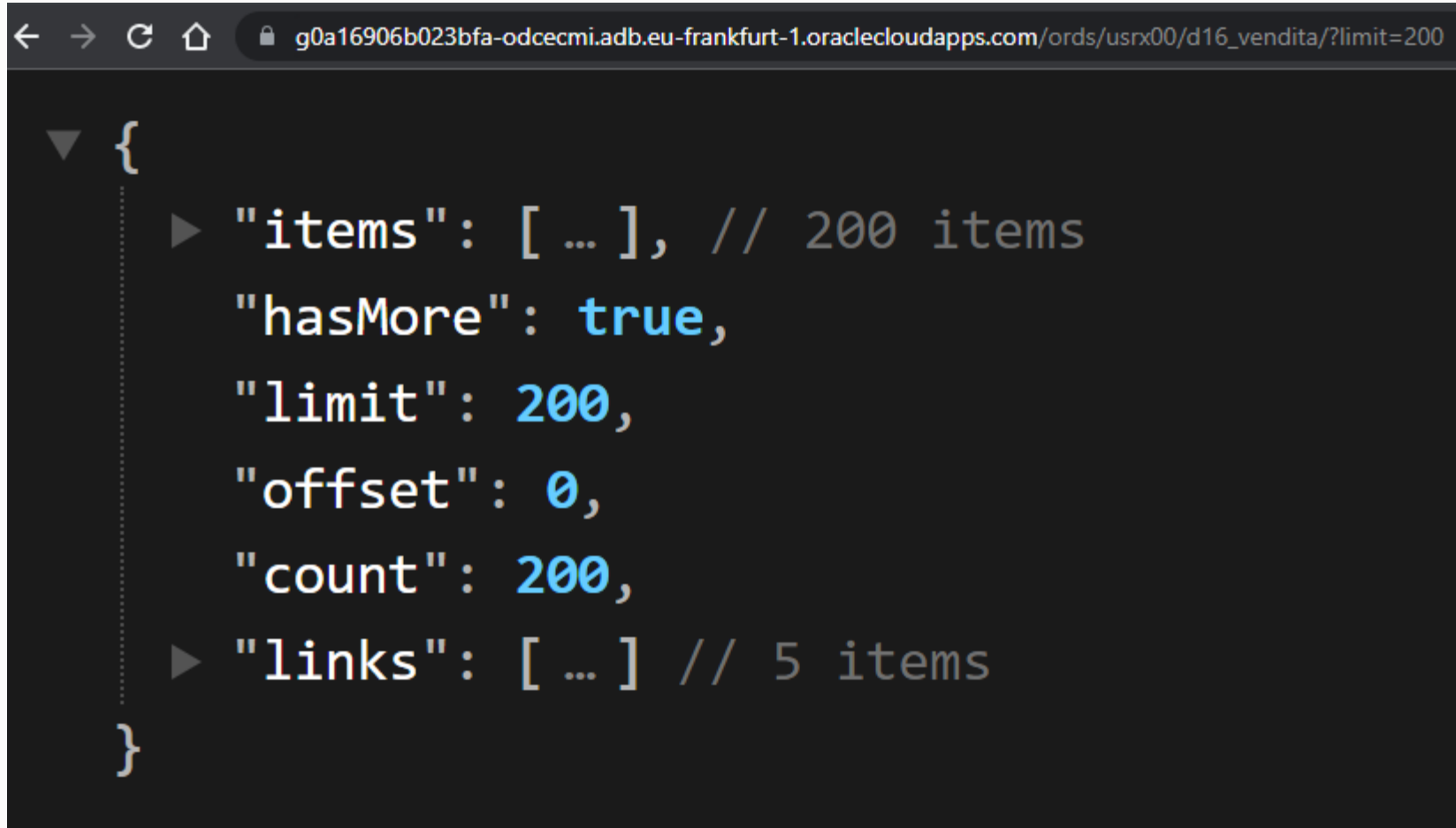


A screenshot of a web browser window displaying a REST API response. The browser's address bar shows the URL: `g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/`. The response is a JSON object, which is expanded to show its contents. The JSON structure is as follows:

```
{
  "items": [ ... ], // 25 items
  "hasMore": true,
  "limit": 25,
  "offset": 0,
  "count": 25,
  "links": [ ... ] // 5 items
}
```

REST

https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?limit=200

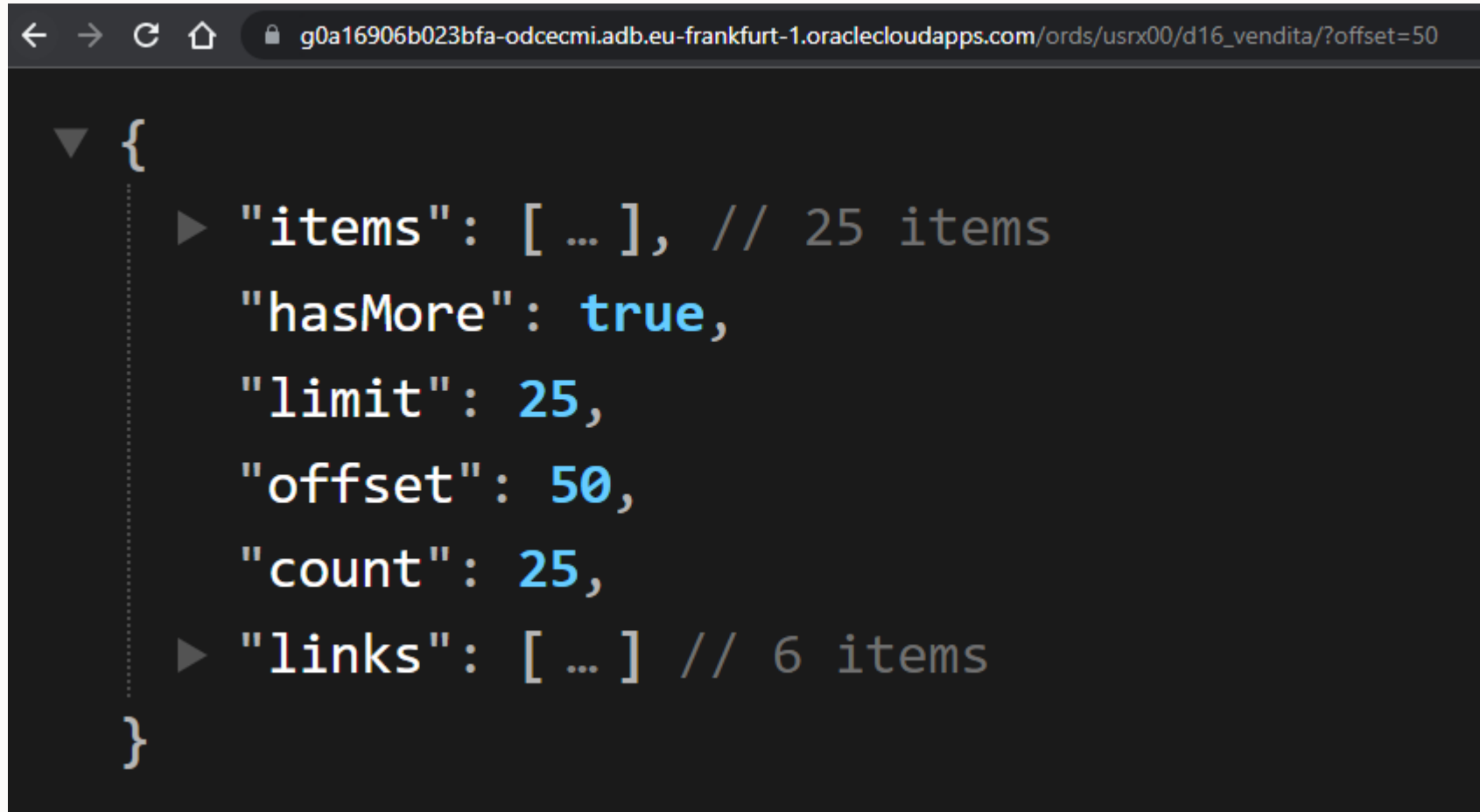


The screenshot shows a web browser window with the address bar displaying the URL: `g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/?limit=200`. The main content area displays a JSON response, which is partially expanded to show the following structure:

```
{
  ▶ "items": [ ... ], // 200 items
  "hasMore": true,
  "limit": 200,
  "offset": 0,
  "count": 200,
  ▶ "links": [ ... ] // 5 items
}
```

REST

https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?offset=50



The screenshot shows a web browser window with a dark theme. The address bar displays the URL: `g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/?offset=50`. The main content area shows a JSON response, which is partially expanded to reveal its structure. The JSON object has a root key that is expanded, showing several properties: `"items": [...], // 25 items`, `"hasMore": true`, `"limit": 25`, `"offset": 50`, `"count": 25`, and `"links": [...] // 6 items`. The values `true`, `25`, and `50` are highlighted in blue. The `"items"` and `"links"` values are truncated with ellipses and comments indicating the total number of items in each array.

```
{
  ▶ "items": [ ... ], // 25 items
  "hasMore": true,
  "limit": 25,
  "offset": 50,
  "count": 25,
  ▶ "links": [ ... ] // 6 items
}
```

REST

[https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?q={"Prodotto":{"\\$instr":"cotto"}}}](https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?q={)

```
g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/?q={"Prodotto":{"$instr":"cotto"}}

▼ {
  ▼ "items": [
    ▼ {
      "id": 1,
      "data": "2020-08-26T00:00:00Z",
      "prodotto": "Prosciutto cotto",
      "cliente": "Russo Maida",
      "zona_cliente": "SUD",
      "quantita": 24,
      "importo": 413.04,
      ▼ "links": [
        ▼ {
          "rel": "self",
          "href": "https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/1"
        }
      ]
    },
    ▼ {
```

REST

[https://cn0e8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?q={"importo":{"\\$lte":100}}](https://cn0e8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?q={)

```
▼ {
  ▼ "items": [
    ▼ {
      "id": 139,
      "data": "2021-01-24T00:00:00Z",
      "prodotto": "Latte",
      "cliente": "Esposito Marinetta",
      "zona_cliente": "NORD",
      "quantita": 18,
      "importo": 72.93,
      ▼ "links": [
        ▼ {
          "rel": "self",
          "href": "https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/139"
        }
      ]
    },
    ▼ {
```

REST

[https://cn0e8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?q={"data":{"\\$lte":{"\\$date":"2021-03-08T23:59:59Z"}}}}](https://cn0e8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?q={)

```
g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/?q={"data":{"$lte":{"$date":"2021-03-08T23:59:59Z"}}}}
{
  "items": [
    {
      "id": 131,
      "data": "2020-08-07T00:00:00Z",
      "prodotto": "Mandarino",
      "cliente": "Costa Marianna",
      "zona_cliente": "NORD2",
      "quantita": 28,
      "importo": 412.72,
      "links": [
        {
          "rel": "self",
          "href": "https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/131"
        }
      ]
    },
    {
```

REST

[https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?q={"importo": {"\\$and": \[{"\\$gt": 100}, {"\\$lt": 300}\]}}](https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?q={)

```
g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/?q={"importo": {"$and": [{"$gt": 100}, {"$lt": 300}]}}

{
  "items": [
    {
      "id": 132,
      "data": "2021-05-15T00:00:00Z",
      "prodotto": "Mandarini",
      "cliente": "Colombo Massimiliano",
      "zona_cliente": "SUD",
      "quantita": 14,
      "importo": 206.36,
      "links": [
        {
          "rel": "self",
          "href": "https://g0a16906b023bfa-odcecmi.adb.eu-frankfurt-1.oraclecloudapps.com/ords/usrx00/d16_vendita/132"
        }
      ]
    },
    {

```

REST

[https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?q={"importo": {"\\$and": \[{"\\$gt": 100}, {"\\$lt": 300}\]}}](https://cnde8nae4maapcd-capancioni.adb.eu-zurich-1.oraclecloudapps.com/ords/cn0/d10_vendita/?q={)

"\$eq"	:	string		number		date
"\$ne"	:	string		number		date
"\$lt"	:	number		date		
"\$lte"	:	number		date		
"\$gt"	:	number		date		
"\$gte"	:	number		date		
"\$instr"	:	string				
"\$ninstr"	:	string				
"\$like"	:	string				
"\$null"	:	null				
"\$notnull"	:	null				
"\$between"	:	betweenValue				