

ā'pěks alpe adria

Dev Team Insights on Oracle APEX Fusion Apps Extensions



Oracle Applications Cloud

April 12th, 2024
Steve Muench,
Senior Architect, APEX Dev Team



Background

- Fusion Applications (FA) exposes many documented REST APIs
- Before 23.2, APEX supported *read-only* pagination for FA data
- Customers with low-code, SQL-centric skills want to extend FA

The screenshot shows the Oracle Help Center interface. At the top, there's a navigation bar with the Oracle logo, a menu icon, and the text "Help Center". To the right is a search bar containing the text "REST API for Sales and Fusion Service in Oracle Fusion C...". Below the navigation bar, a breadcrumb trail reads "Cloud / Cloud Applications / Sales". The main heading is "REST API for Sales and Fusion Service in Oracle Fusion Cloud Customer Experience". On the left, a sidebar menu lists various API endpoints under "Sales Leads", with "Get all sales leads" highlighted. The main content area displays the title "Get all sales leads" with a "GET" method indicator and the endpoint path "/crmRestApi/resources/11.13.18.05/leads". There are navigation arrows and a "Jump to" dropdown. Below this, a "Request" section shows "Query Parameters" with a text input field containing "effectiveDate: string".

Help Center

REST API for Sales and Fusion Service in Oracle Fusion C...

Cloud / Cloud Applications / Sales

REST API for Sales and Fusion Service in Oracle Fusion Cloud Customer Experience

- Sales Insights
- Sales Leads
 - Accept lead
 - Assign leads
 - Convert a lead to an opportunity
 - Create a sales lead
 - Delete a sales lead
 - Get a sales lead
 - Get all sales leads
 - Rank leads

Get all sales leads

GET

/crmRestApi/resources/11.13.18.05/leads

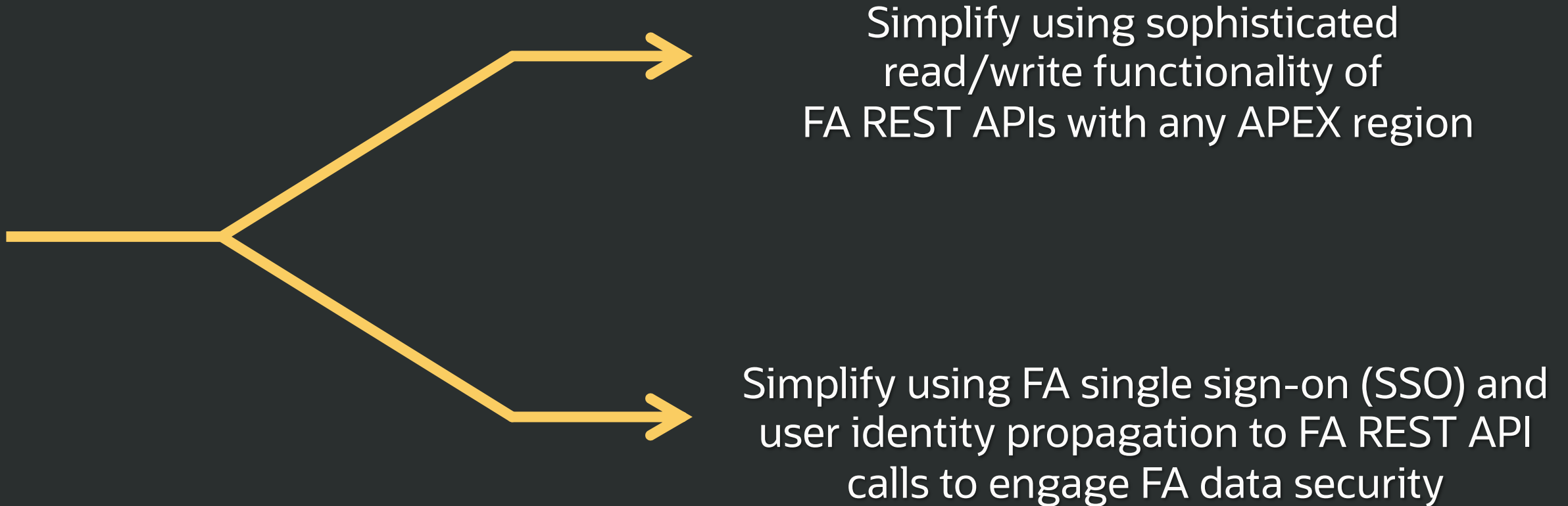
Jump to

Request

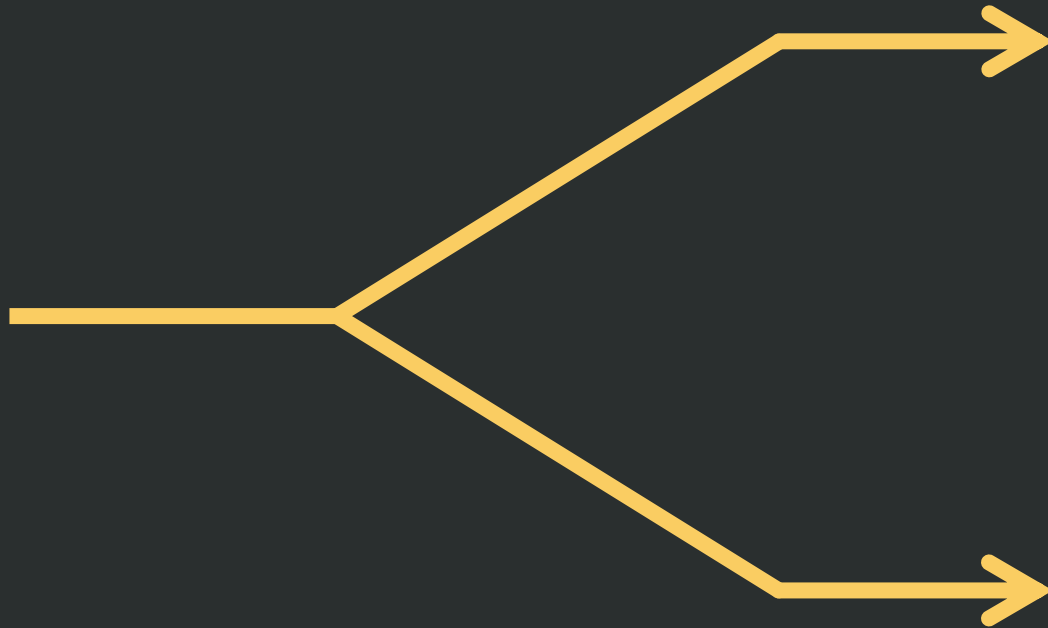
Query Parameters

effectiveDate: string

APEX Strategy to Simplify Low-Code FA Extensions



APEX Strategy to Simplify Low-Code FA Extensions: Progress Update



APEX 23.2

Simplify using sophisticated
read/write functionality of
FA REST APIs with any APEX region

APEX 23.2

Simplify using FA single sign-on (SSO) and
user identity propagation to FA REST API
calls to engage FA data security

Recorded Video Demos of the Features in Action

APEX 23.2

Simplify using sophisticated
read/write functionality of
FA REST APIs with any APEX region



New Feature Overview



APEX Office Hours Demo

Goal: Self-Service Option for APEX in FA "Circle of Trust"



*(Possible today by following instructions in technical papers, but not **easy** yet)*

Simplify using FA single sign-on (SSO) and user identity propagation to FA REST API calls to engage FA data security

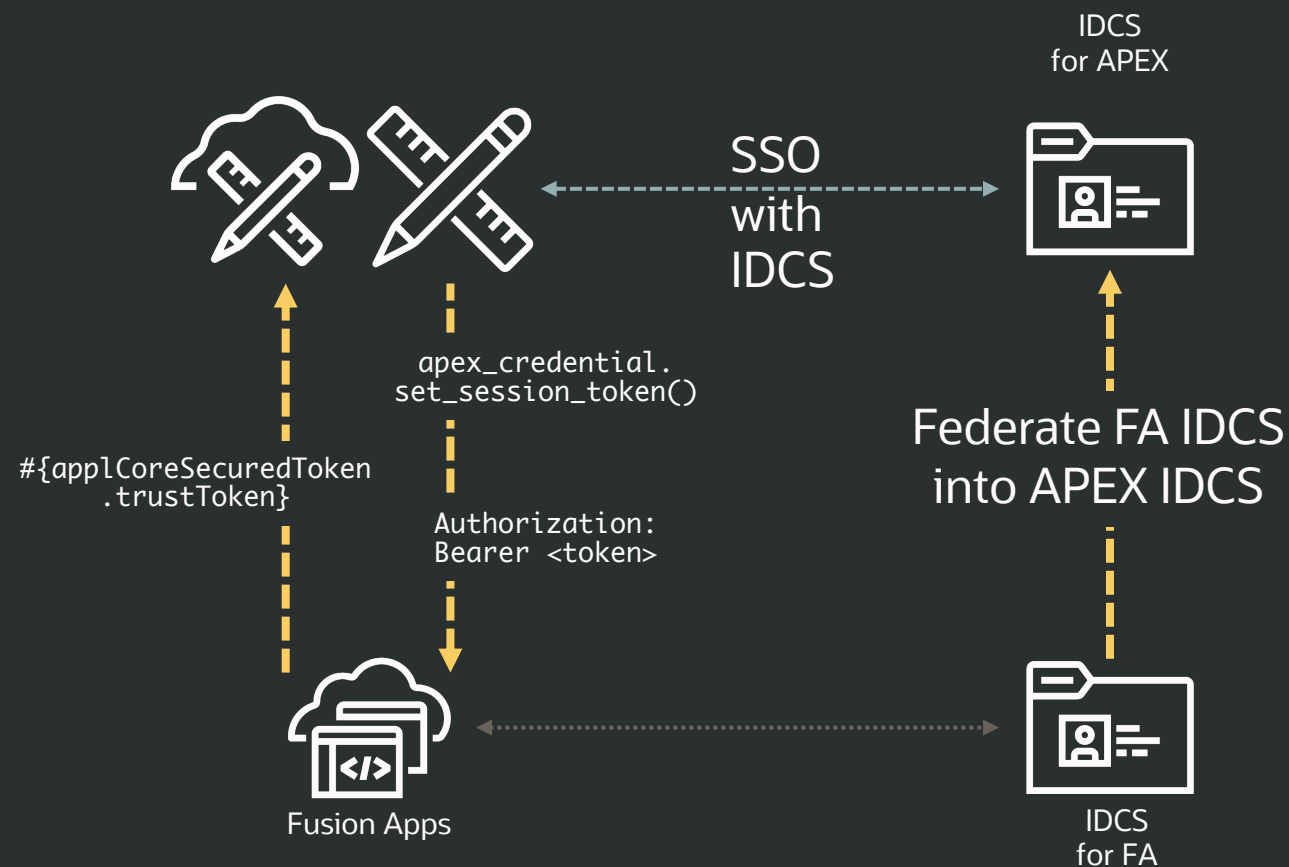


Safe Harbor Statement

APEX and FAaaS teams are Actively Working on Delivering this in the Future



Integrate Oracle APEX IDCS with Fusion Apps IDCS




Integrate an Oracle SaaS Application with Oracle PaaS

Configure federated SSO between Oracle Fusion Applications Cloud Service and your Oracle Identity Cloud Service-based Oracle PaaS account. Optionally, set up user, role, and role assignment synch.

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Public

Integrate Oracle APEX IDCS with Fusion Apps IDCS





 A-Team Chronicles

A-Team Chronicles

Integrating SSO between APEX Cloud and Identity Cloud Service the Easy Way

August 5, 2019 | 9 minute read

 **Tim Melander**
A-Team Cloud Solution Architect



Johannes Murmann wrote a great blog [Integrating APEX with Oracle Identity Cloud Service](#), but this integration is for APEX running on-premises. Fast forward, APEX has moved to the cloud like many other things, so I thought I should write an article on how to integrate the cloud version of APEX with Oracle Identity Cloud Service. The integration is quite different as it uses the OpenID Connect protocol, and should be possible with any APEX cloud application. As a bonus you can do this entire setup using a free trial APEX workspace at <https://apex.oracle.com> that takes about 2 minutes, install a sample application that comes with the APEX workspace in about 3 minutes, and complete the integration with Identity Cloud Service in about 15 minutes (Assuming you have an IDCS tenant and are an Administrator). In all, this entire setup from start to finish should only take about 30 minutes or less. So let's hit that timer and get started!

Install a Sample Application in APEX

This section assumes you can follow the simple steps to get your free trial APEX workspace, and then will step you through installing a sample Calendar application so that we have an example to configure OpenID Connect with Identity Cloud Service. This section should take about 5-7 minutes.



Making Oracle APEX Roll for Fusion SaaS Application Extensions



Bhavesh S.

Technical Architect at Oracle | Helping Customers Realize Goals with Oracle Cloud PaaS/SaaS | TOGAF® 9 Certified Enterprise Architect

12 articles

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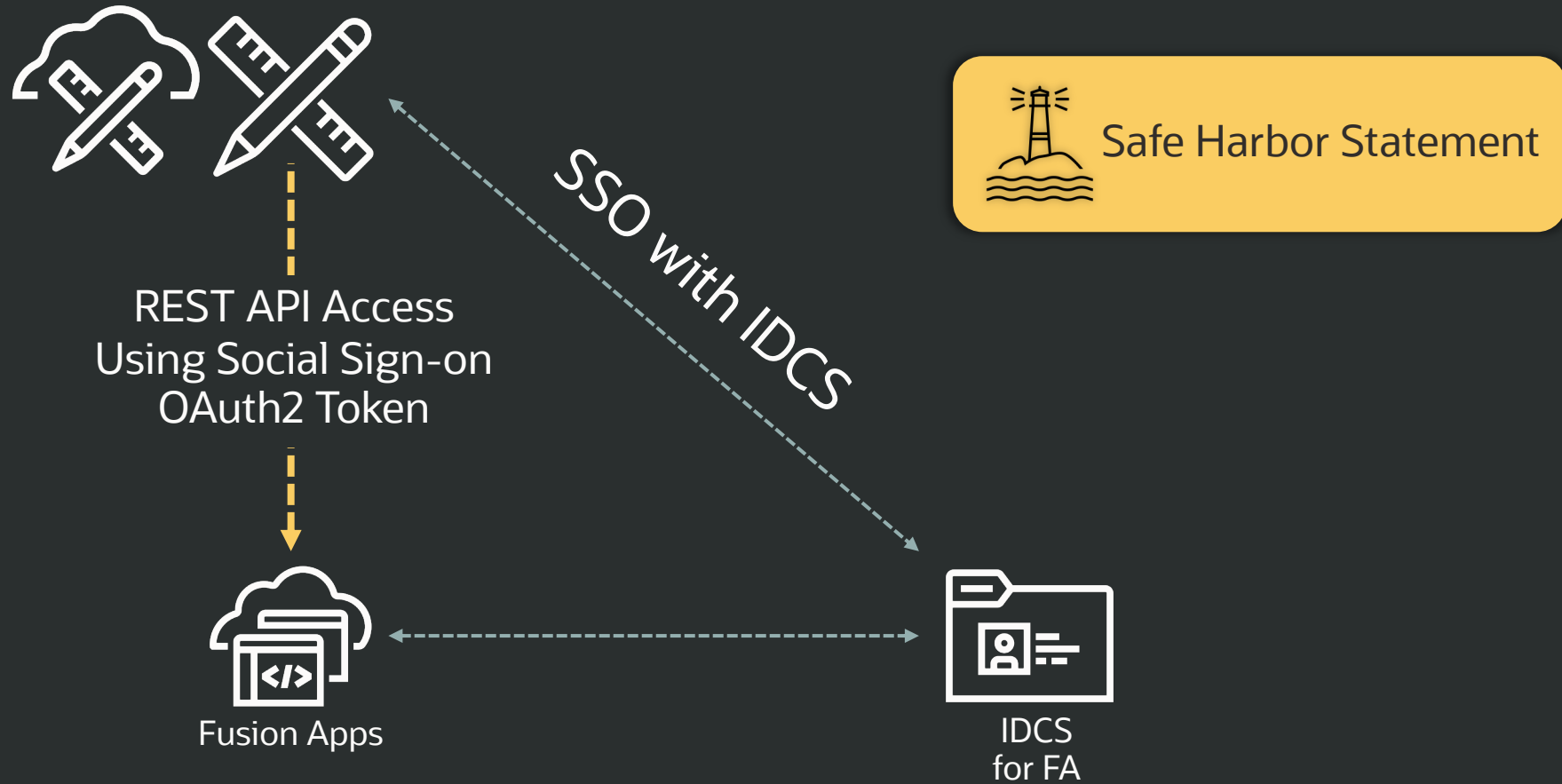
June 13, 2021

[Open Immersive Reader](#)

In a [previous](#) article I compared APEX and VBCS, two low code application platforms from Oracle. While VBCS is an obvious choice for many use-cases around extending Oracle Fusion SaaS applications, depending upon use-case there are a couple of things that weigh on VBCS. One is pricing and another is size of data persistence. APEX positions itself very well in both these areas and hence it makes absolute sense to consider it for SaaS extensions. Let us look at a few things to keep in mind while using APEX for this purpose.



Future Simplification (Joint FAaaS + APEX Effort)



APEX Now a *First Class* App Builder for FA Extensions

- Discover all query and CRUD operations and simplify data sources by hiding unused fields
- Use with all APEX regions: faceted search, maps, interactive reports/grids, forms, etc.

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- Delegate filtering, sorting, and bulk operations to FA REST endpoint
 - Select only required data & get total row count without fetching all (e.g. 1-10 of 200)
- See validation errors from backend business objects like regular APEX validation errors

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- Build parent/child select lists, popup LOVs, all region types & QBE screens w/ filter params

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- See validation errors from backend business objects like regular APEX validation errors
- Build parent/child select lists, popup LOVs, all region types & QBE screens w/ filter params
- Work against a Fusion Apps sandbox to iterate APEX UI for pending data model extensions

APEX Now a *First Class* App Builder for FA Extensions

The screenshot displays the 'Fusion Art Gallery' application. On the left, a sidebar contains navigation tabs: 'Discover', 'Leads', 'Leads Map', 'Artworks' (selected), 'Artists', and 'Media'. Below these is a search bar and a table of artworks. The table has columns for 'Title' and 'Artist'.

Title	Artist
Absinthe Robette	Henri Privat-Livemont
Salon Des Cent	Alphonse Mucha
Hatfield Route 155	Gregory Brown
San Francisco	Joseph Binder
Las Vegas	David Klein

On the right, a modal window titled 'Artwork' shows details for the selected 'San Francisco' artwork. It includes fields for 'Title' (San Francisco), 'Artist' (Joseph Binder), 'Code' (ART-000018), 'Medium' (Lithograph Vintage Poster), 'Year' (1957), and 'Price' (2400). Below these fields is a preview of the artwork, which is a vintage poster for 'UNITED AIR LINES' featuring a street scene in San Francisco. At the bottom of the modal are 'Cancel', 'Delete', and 'Apply Changes' buttons.

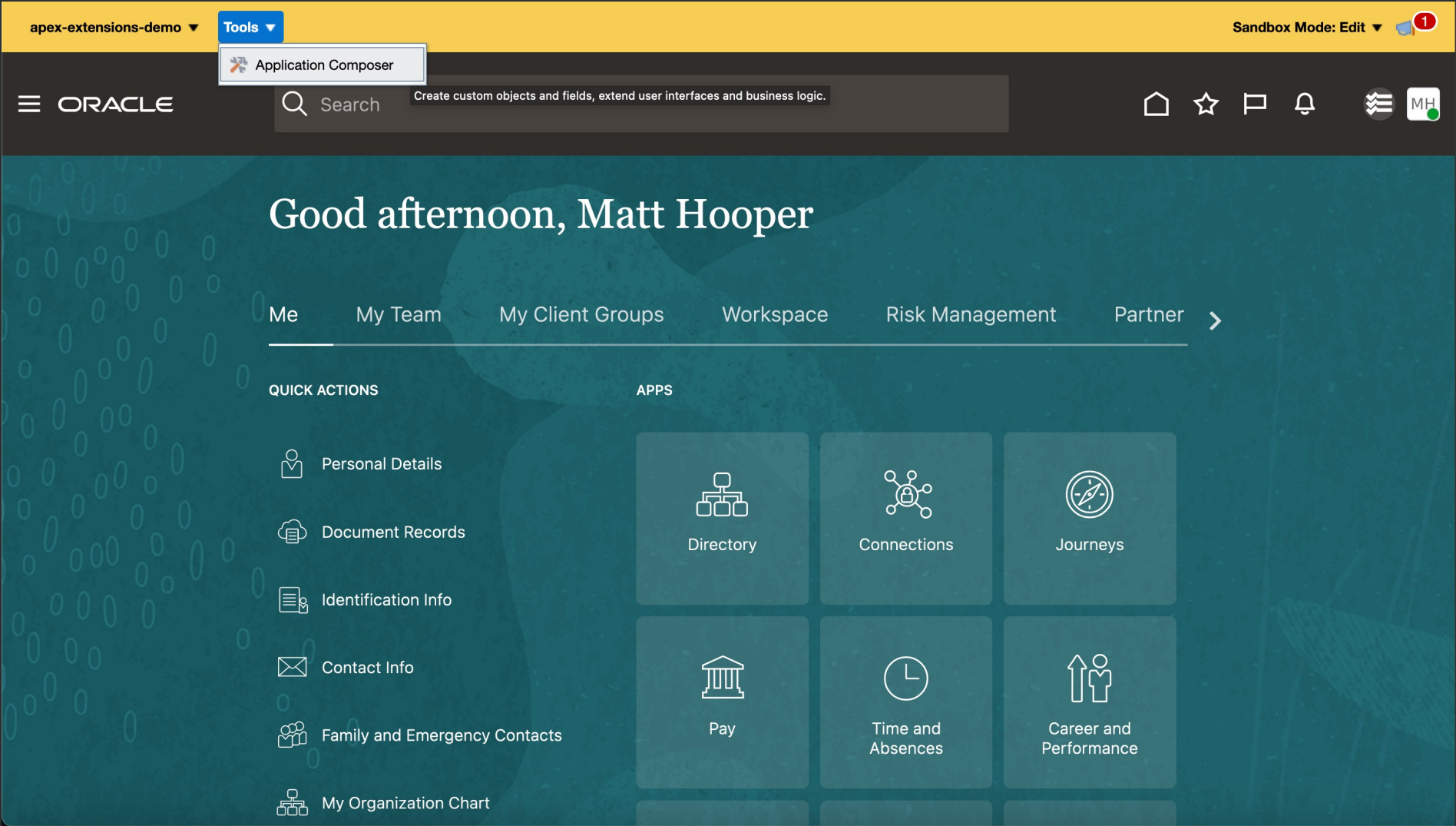
Oracle Applications Cloud



Oracle Cloud Apps (SaaS)
REST Data Sources



Fusion App Composer



Custom Objects in Fusion App Composer

apex-extensions-demo ▾Tools ▾

Sandbox Mode: Edit ▾

1

ORACLE

🔍🏠☆🚩🔔⚙️MH

Application Composer

Application CRM Cloud ▾

Object name 🔍

Object Tags ☐ Innovation ☐ Sales ☐ Quality ☐

Objects

Custom Objects +

Standard Objects

Common Setup

CX Extension Generator

Copy Maps

Data Quality Rules

Desktop Pages

Global Functions

Mashup Content

Metadata Manager

Mobile Application Setup

Notification Preferences

Object Workflows

Oracle Sales Assistant Setup

Outlook Setup

Custom Objects ?

Objects

Action ▾View ▾

📄✎↺🗑️🔍

Search Display Label ▾

Display Label	Name	Description	Parent Object	REST Resource	Actions
AC_CO_Change...	AC_CO_Change...			Service Describe	⚙️
AC_CO_Child	AC_CO_Child		AC_CO_Change...	Via Parent	⚙️
AGCO1	AGCO1			Service Describe	⚙️
AccountCustom...	AccountCustom...			Service Describe	⚙️
AdfRegularNQu...	AdfRegularNQu...			Service Describe	⚙️
AdfRelated	AdfRelated			Service Describe	⚙️
Art Medium	ArtMedium			Service Describe	⚙️
Artist	Artist			Service Describe	⚙️
Artwork	Artwork			Service Describe	⚙️
Artwork Inquired	ArtworksInquired		Sales Lead		⚙️

Custom Objects in FA



Custom Attributes in Fusion App Composer

apex-extensions-demo ▾Tools ▾

Sandbox Mode: Edit ▾

ORACLE

Application Composer

Application CRM Cloud ▾

Object name

Object Tags ☐ Innovation ☐ Sales ☐ Quality ☐

Objects

Custom Objects +

AC_CO_ChangeHistory

AGCO1

AccountCustomObjectSubtab

AdfRegularNQuery

AdfRelated

Art Medium

Artist

Artwork

Fields

Pages

Actions and Links

Security

Server Scripts

AuditCO1 1234

Fields ?

Custom Standard

Action ▾View ▾

Search Display Label

Display Label	Name	Type	Required	Updatable	Description	Parent Field
Artist	Artist	Choice List (Dynamic) <Artist>	—	✓		
Medium	Medium	Choice List (Dynamic) <ArtMedium>	—	✓		
Owner	OraZcxOwner	Choice List (Dynamic) <Resource>	✓	✓	Owner of the re...	
Price	Price	Number	—	✓		
Title	Title	Text	✓	✓		
Year	Year	Number	—	✓		

Custom Attributes on a Custom Object

Custom Child Objects in Fusion App Composer

apex-extensions-demoTools

Sandbox Mode: Edit

ORACLE

Application Composer

ApplicationCRM Cloud

Object name

Object Tags

Innovation

Sales

Quality

Resource

Sales Account

Sales Campaign

Sales Competitor

Sales Lead

Fields

Joins

Pages

Actions and Links

Security

Server Scripts

Artwork Inquired

Fields

Pages

Actions and Links

Security

Fields

CustomStandard

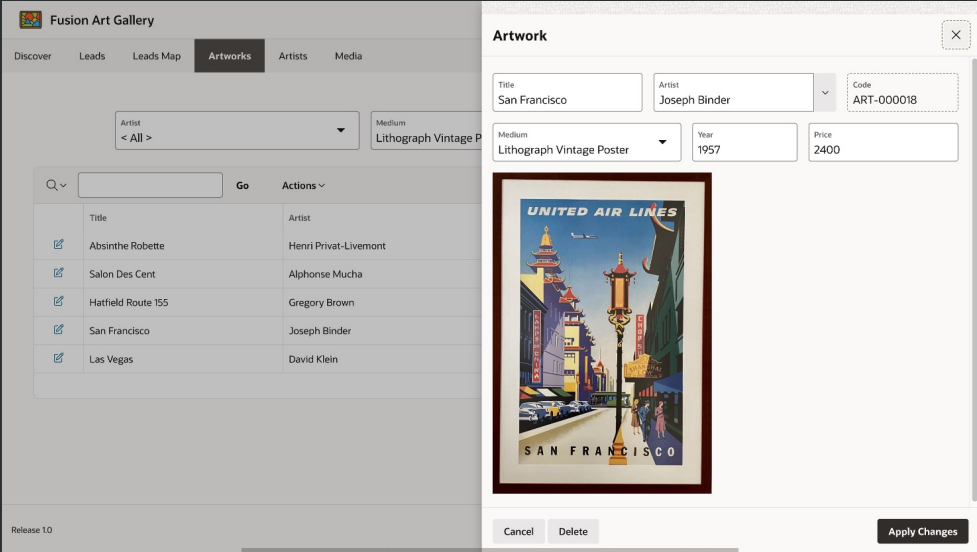
ActionView

SearchDisplay Label

Display Label	Name	Type	Required	Updatable	Description	Parent Field
Artwork	Artwork	Choice List (Dynamic) <Artwork>	—	✓		
Interest Level	InterestLevel	Choice List (Fixed) <Artwork Interest ...	—	✓		

Custom Attributes on a Custom *Child* Object

Combine Local Data with Custom Objects

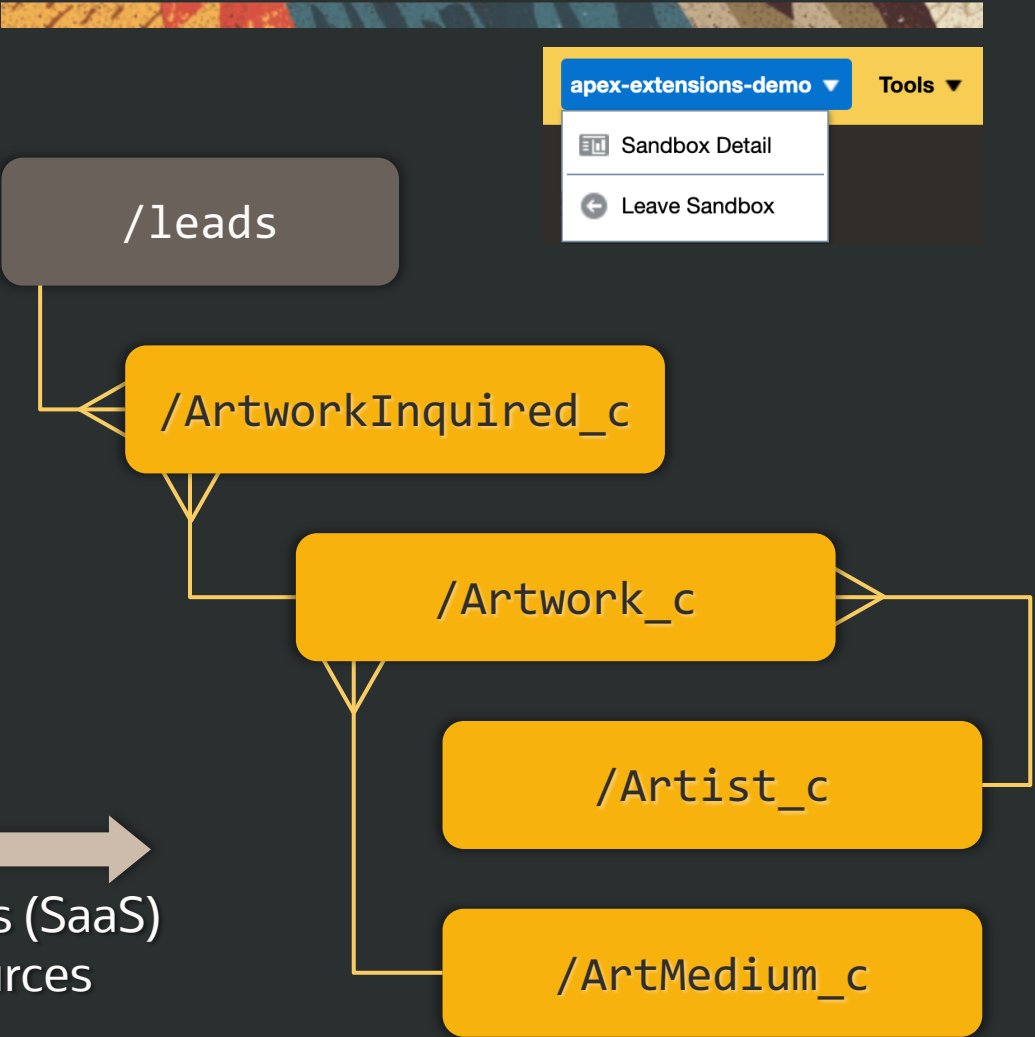


 artwork_images

 APEX

←→
Oracle Cloud Apps (SaaS)
REST Data Sources

Oracle Applications Cloud



Combine Standard Objects with Custom Objects

Fusion Art Gallery

DiscoverLeadsLeads MapArtworks

Leads

Q v

Go

Contact Name	Email
Jill Jesper	jill.jesper@example.org
Dan Dunn	ddunn@example.org
Wally Wendel	wendel@example.org
Tess Turner	tess@example.org
Max Morris	max@example.org

Release 1.0

Lead

ContactJill Jesper

Emailjill.jesper@example.org

CustomerJesper Properties

Address827 Rosedale Ave

CityLafayette

StateCA

Zip94549

StatusQualified

RankCold

Deal Amount3420

Budget4000

Estimated Close Date11/30/2023

Q v

Search: All Text Columns

Go

Actions

Edit

Add Row

Reset

☐

Inquired About Artwork

Level of Interest

☐

Hatfield Route 155

Warm

☒

San Francisco

High

1 rows selected1 - 1

Cancel

Delete

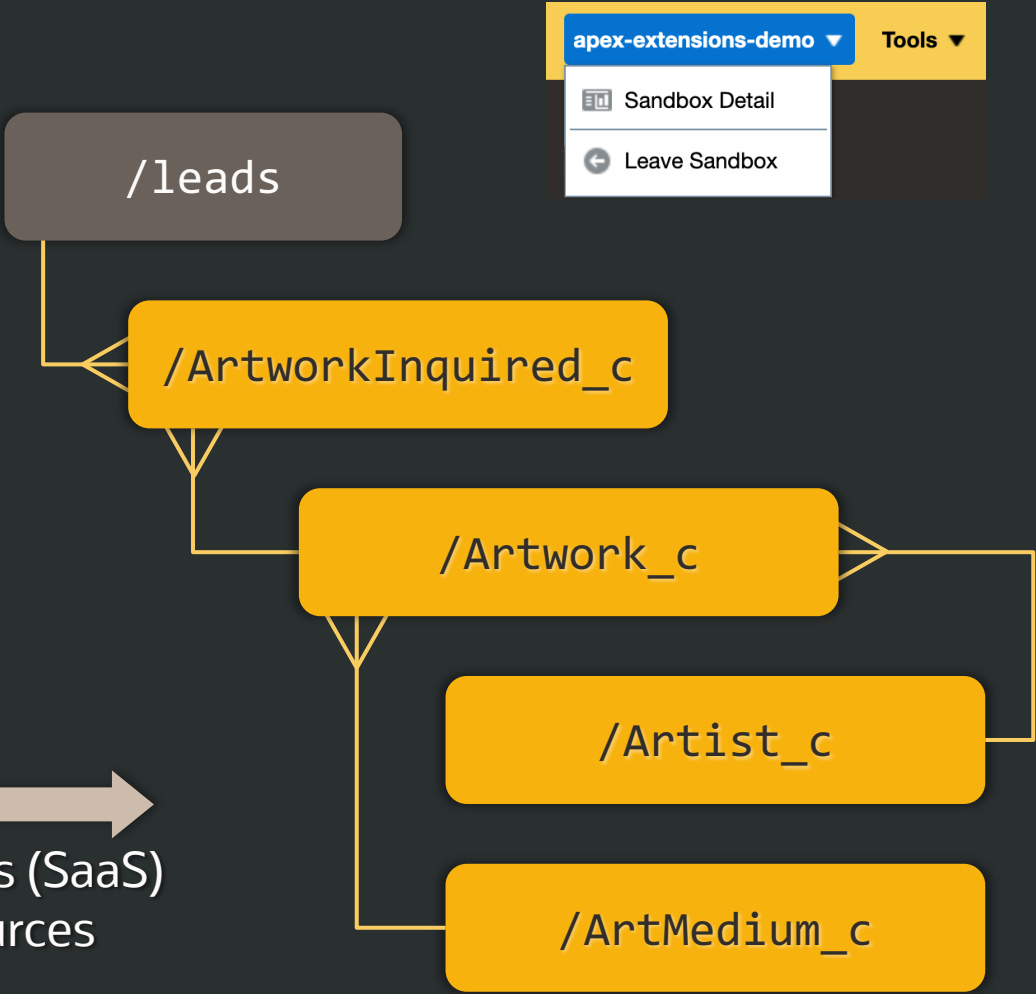
Apply Changes

 artwork_images

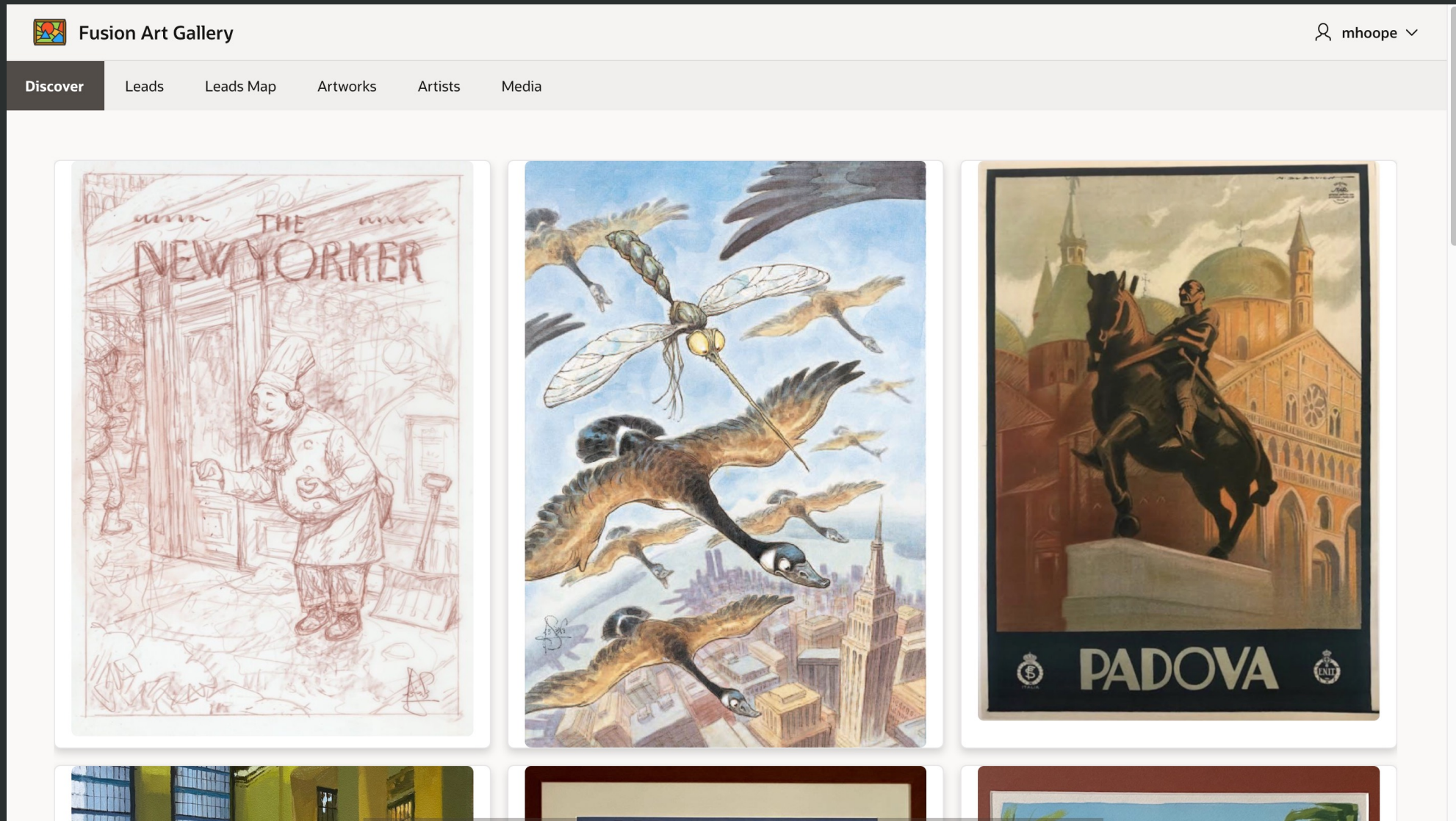
 APEX

←→
Oracle Cloud Apps (SaaS)
REST Data Sources


Oracle Applications Cloud




In 23.2 Use FA REST APIs as Easily as a Local Table...



Use any Regions with Native Filtering & Sorting

 Fusion Art Gallery

 mhoope ▾

Discover

Leads

Leads Map

Artworks

Artists

Media






Leads

Q ▾

Go

Actions ▾

Create

	Contact Name	Email	Customer	Status	Rank	Budget	Close Date	Deal Amount	City	Post Code	State
	Jill Jesper	jill.jesper@example.org	Jesper Properties	UNQUALIFIED	COOL				Lafayette	94549	CA
	Dan Dunn	ddunn@example.org	Zenith Sounds	UNQUALIFIED	COOL				El Cerrito	94530	CA
	Wally Wendel	wendel@example.org	VocalEdge Communications	QUALIFIED	WARM	6000	11/10/2023	5505	Alameda	94501	CA
	Tess Turner	tess@example.org	Wavefront Innovations	QUALIFIED	COOL	3000	11/15/2023	1250	Walnut Creek	94598	CA
	Max Morris	max@example.org	Maximum Beats	QUALIFIED	HOT	6000	11/24/2023	5600	San Francisco	94114	CA


1 - 5 of 8 >

Release 1.0

^



Easily Use Maps and Faceted Search

 Fusion Art Gallery

Discover

Leads

Leads Map

Artworks

Artists

Media

mhoope

▼

Leads Map

Q Search...

Budget

Clear

⋮

☒ Medium (4)

☐ Small (1)

Status

Clear

⋮

☒ Qualified (4)

Rank

⋮

☐ Hot (2)

☐ Cold (1)

☐ Warm (1)

Leads Shown 4

Budget

Medium

×

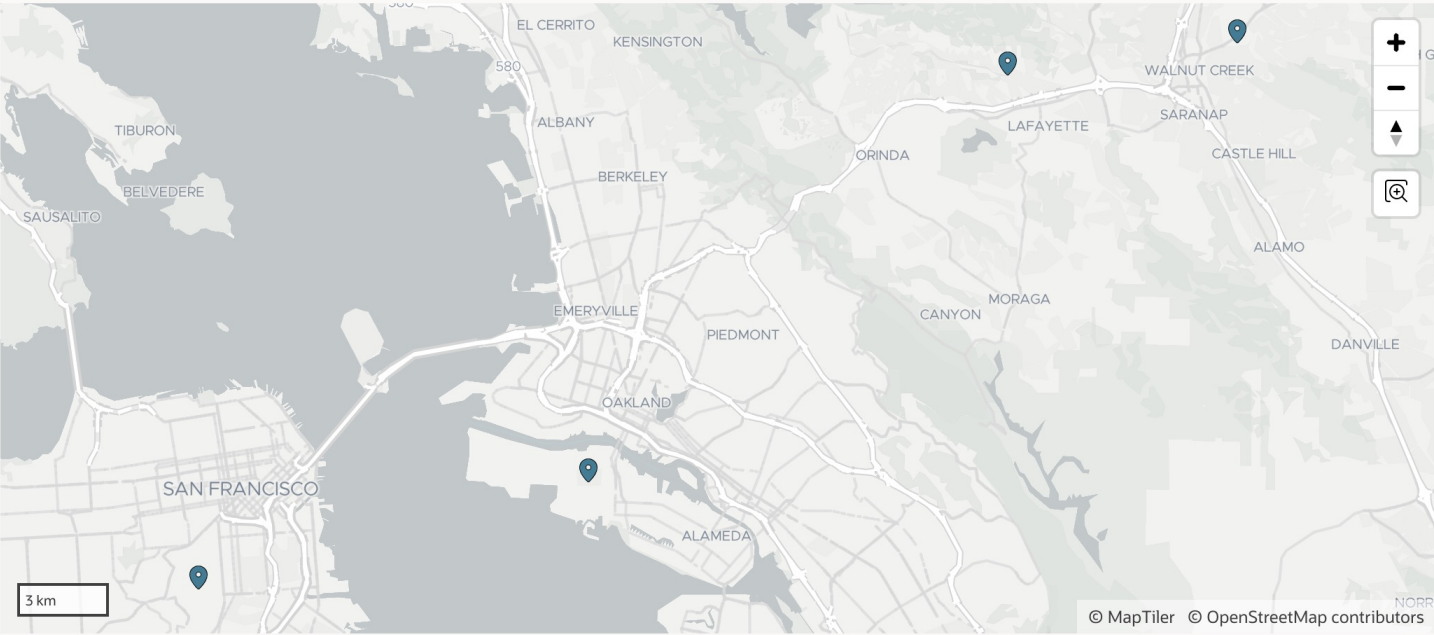
Status

Qualified

×


Clear All


Reset





Easily Create Query by Example & Cascade Filters

 Fusion Art Gallery

 mhoope ▾

Discover

Leads

Leads Map

Artworks


Artists


Media

Artist
< All >

Medium
< Any >

Created
< Anytime >








 ▾

Go

Actions ▾

Create

	Title	Artist	Medium	Year	Price
	Just a Pinch	Peter de Sève	Drawing on Paper	2014	1550
	The Bite of Spring	Peter de Sève	Watercolor Painting on Paper	2000	3500
	Padova	Marcello Dudovich	Seriagraph Vintage Poster	1930	1100
	Grand Central Station	Michael John Ashcroft	Oil Painting on Canvas	2022	1300
	Afrique du Nord Air France	Bernard Villemot	Seriagraph Vintage Poster	1948	1400


1 - 5 of 13 >

Release 1.0





Easily Create Query by Example & Cascade Filters

 Fusion Art Gallery

Discover

Leads

Leads Map

Artworks

Artists

Media

Artist


< All >

Medium

Lithograph Vintage Poster

Created

Before 1960








Q

Go


Actions

Create

	Title	Artist	Medium	Year	Price
	Absinthe Robette	Henri Privat-Livemont	Lithograph Vintage Poster	1896	2100
	Salon Des Cent	Alphonse Mucha	Lithograph Vintage Poster	1897	3200
	Hatfield Route 155	Gregory Brown	Lithograph Vintage Poster	1916	1020
	San Francisco	Joseph Binder	Lithograph Vintage Poster	1957	2400
	Las Vegas	David Klein	Lithograph Vintage Poster	1958	1005


1 - 5 of 6 >

Release 1.0





Easily Integrate Data from Fusion Apps & Local APEX DB

 Fusion Art Gallery

Discover

Leads

Leads Map

Artworks

Artists

Media

Artist

< All >






Medium

Lithograph Vintage P

Q

Go

Actions

	Title	Artist
	Absinthe Robette	Henri Privat-Livemont
	Salon Des Cent	Alphonse Mucha
	Hatfield Route 155	Gregory Brown
	San Francisco	Joseph Binder
	Las Vegas	David Klein

Release 1.0

Artwork

Title

San Francisco

Artist

Joseph Binder

Code

ART-000018

Medium


Lithograph Vintage Poster

Year

1957

Price

2400



Cancel

Delete

Apply Changes



```
/leads
```

```
/ArtworkInquired_c
```



Business Object Validation Rule in App Composer

apex-extensions-demo ▾Tools ▾

Sandbox Mode: Edit ▾

ORACLE

Application Composer

Application CRM Cloud ▾

Object name 🔍

Object Tags ☐ Innovation ☐ Sales ☐ Quality ☐

▶ Resource

▶ Sales Account

▶ Sales Campaign

▶ Sales Competitor

▶ Sales Lead

▶ Fields

▶ Joins

▶ Pages

▶ Actions and Links

▶ Security

▶ Server Scripts

▶ Artwork Inquired

▶ AuditISO1_1234

▶ AuditISO2_1234

▶ CustChildFor_Sales Lead

▶ Sales Lead Campaigns

Edit Object Validation Rule

Save and CloseCancel

▲ Name

* Rule Name No_Budget_for_Unqualified_Leads

Description

▲ * Error Message ?

Enter a message to display to the user when validation fails.

Unqualified leads cannot have a budget or close date.


Rule Definition ?

Edit Script

Find < > 🔍 Go to Line 🔍

```
1 if (StatusCode == "UNQUALIFIED") {
2   return BudgetAmount == null && EstimatedCloseDate == null
3 }
4 return true
```


Automatically See Business Object Errors

 Fusion Art Gallery

Discover

Leads

Leads Map

Artworks

Ar

Leads Map

Search...

Budget

Status

Rank

Qualified (5)

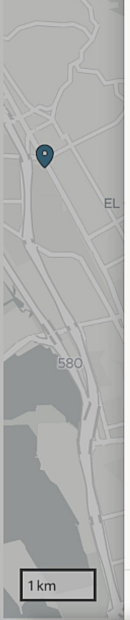
Unqualified (2)

Converted (1)

Cold (2)

Leads Sho

Status Unqu



Lead

ContactJill Jesper

Emailjill.jesper@example.org

Address827 Rosedale Ave

CityLafayette

StateCA

Zip94549

StatusUnqualified

RankHot

Deal Amount3420

Budget4000

Estimated Close Date11/22/2023

1 error has occurred

Unqualified leads cannot have a budget or close date.

Search: All Text Columns

Go

Actions

Edit

Add Row

Reset

<input type="checkbox"/>	<input type="checkbox"/>	Inquired About Artwork	Level of Interest
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hatfield Route 155	High
<input type="checkbox"/>	<input type="checkbox"/>	San Francisco	High

1 rows selected

1 - 1

Cancel

Delete

Apply Changes

App 101

Page 10

Session

Debug

Quick Edit

Customize

Info

Settings



Creating an FA REST Data Source

Create REST Data Source

General

REST Data Source Type

Oracle Cloud Applications (SaaS) REST Service

?

* Name

Books

?

* URL Endpoint

urn-1.ocp.oraclecloud.com/ic/builder/design/APEX_Testing/1.0/resources/data/Book

?

HTTPS Host Name

?

<

Next >

Source type
for FA REST



Creating an FA REST Data Source

Create REST Data Source - Settings

✓

✓

●

●

●

Settings

Use Batch DML?	Yes	?
Use Total Results?	No	?
Use Pagination?	Yes	?

Perform all data changes for a region in a single transaction (i.e. single HTTP request)

<

Next >

Creating an FA REST Data Source

Create REST Data Source - Settings

✓

✓

●

●

●

Settings

Use Batch DML?

Yes

▼

?

Use Total Results?

No

▼

?

Use Pagination?

Yes

▼

?

<

Next >

Return total number of results for pagination display

Creating an FA REST Data Source

Create REST Data Source - Settings

✓

✓

●

●

●

Settings

Use Batch DML?

Yes

?

Use Total Results?

No

?

Use Pagination?

Yes

?

<

Next >

Disable when service does not support pagination

Creating an FA REST Data Source

Authentication

✓

✓

✓

Authentication

* Authentication Required

?

Credentials

VB APEX

▼

?

<

Create REST Source Manually

Advanced >

Discover >

Creating an FA REST Data Source

REST Data Source Discovery

✓

✓

✓

✓

Preview

Data

Data Profile

Response Body

Apex\$Resourcekey	Id	Creationdate	Lastupdateddate	Createdby	Lastupdatedby	Title	Isbn	Publisheddate	Publisher
2	2	11-JUL-23 07:10:10.000000000 AM +00:00	11-JUL-23 07:10:10.003000000 AM +00:00	steve.muench@oracle.com	steve.muench@oracle.com	Oracle PL/SQL Programming: 6th Edition	978- 1449324452	01/23/2014	1
3	3	11-JUL-23 07:10:48.000000000 AM +00:00	30-JUL-23 03:28:41.000000000 PM +00:00	steve.muench@oracle.com	steve.muench@oracle.com	Modern Oracle Database Programming: Level Up Your Skill Set to Oracle's Latest and Most Powerful Features in SQL, PL/SQL, and JSON	978- 1484291658	07/31/2023	2
						Extending Oracle Application			

<

More Detail

Create REST Data Source



All Supported Operations Automatically Configured

REST Data Source







Table1010

DeleteApply Changes

Show AllREST Data SourceSettingsSynchronizationAuthenticationData ProfileOperationsParametersSubscriptionREST Source CatalogAdvanced

response formatreturnscolumnsvisibleDerived

OperationsAdd Operation

Edit	Name	Operation	Database Action	URL Pattern	Parameters	Test Operation
	-	DELETE	Delete row	/:APEX\$ResourceKey	-	
	-	GET	Fetch rows	.	-	
	-	GET	Fetch single row	/:APEX\$ResourceKey	-	
	-	POST	Insert row	.	-	
	-	PATCH	Update row	/:APEX\$ResourceKey	-	

1 - 5

All Query and CRUD operations "just work" with no fiddling



All FA REST Services Use APEX\$ResourceKey as PK

REST Data Source

Show All

REST Data Source

Settings

Synchronization

Authentication

Database

Operations

Subscription

REST Source Catalog







Advanced

Delete

Apply Changes

Operations

Add Operation

Edit	Name	Operation	Database Action	URL Pattern	Parameters	Test Operation
	-	DELETE	Delete row	/:APEX\$ResourceKey	-	
	-	GET	Fetch rows	.	-	
	-	GET	Fetch single row	/:APEX\$ResourceKey	-	
	-	POST	Insert row	.	-	
	-	PATCH	Update row	/:APEX\$ResourceKey	-	

Consistent resource key for:

1. Single-attribute primary key
2. Multi-attribute primary key
3. Alternate unique key

1 - 5



Data Profile

Data Profiles describe how Data Source format are being parsed and converted to rows and columns. For XML or JSON data format, the **Row Selector** attribute stores an XML or JSON path expression pointing to the node containing the collection of rows. **Data Profile Columns** determine how one row is parsed and converted to multiple columns.

Data Profile

Name

Accounts

Format

JSON

Row Selector

items

Contains Single Row

☐

Always the first data profile created is mapped to selector `@context.items`

Columns

Search: All Text Columns

Go

Edit

Add Data Column

			Sequence ↑	Name	Column Type	Data Type	Selector	Primary Key	Visible
<input checked="" type="checkbox"/>	≡	✎	1	APEX\$RESOURCEKEY	Data	VARCHAR2	@context.key	Yes	Yes
<input type="checkbox"/>	≡	✎	2	PARTYID	Data	NUMBER	PartyId	No	Yes
<input type="checkbox"/>	≡	✎	3	PARTYNUMBER	Data	VARCHAR2	PartyNumber	No	Yes
<input type="checkbox"/>	≡	✎	4	SOURCESYSTEM	Data	VARCHAR2	SourceSystem	No	Yes
<input type="checkbox"/>	≡	✎	5	SOURCESYSTEMPEER	Data	VARCHAR2	SourceSystemRef	No	Yes

Cancel

Apply Changes






Always the first data profile column,
mapped to selector `@context.key`

Search: All Text Columns

Go

Edit

Add Data Column

<input type="checkbox"/>	≡		Sequence ↑	Name	Column Type	Data Type	Selector	Primary Key	Visible
<input checked="" type="checkbox"/>	≡		1	APEX\$RESOURCEKEY	Data	VARCHAR2	@context.key	Yes	Yes
<input type="checkbox"/>	≡		2	PARTYID	Data	NUMBER	PartyId	No	Yes
<input type="checkbox"/>	≡		3	PARTYNUMBER	Data	VARCHAR2	PartyNumber	No	Yes
<input type="checkbox"/>	≡		4	SOURCESYSTEM	Data	VARCHAR2	SourceSystem	No	Yes
<input type="checkbox"/>	≡		5	SOURCESYSTEMREF	Data	VARCHAR2	SourceSystemRef	No	Yes

Cancel

Apply Changes



Note for FA REST Services with Over 150 Fields

Data Profile

Data Profiles describe how Data Source format are being parsed and converted to rows and columns. For XML or JSON data format, the **Row Selector** attribute stores an XML or JSON path expression pointing to the node containing the collection of rows. **Data Profile Columns** determine how one row is parsed and converted to multiple columns.

Name

Accounts

Format

JSON

Row Selector

items

Contains Single Row

☐

Max 150 data profile columns initially visible, others marked *Visible = No*

Columns

Search: All Text Columns

Go

Edit

Add Data Column

			Sequence ↑	Name	Column Type	Data Type	Selector	Primary Key	Visible
<input type="checkbox"/>	≡		103	PARTYSTATUS	Data	VARCHAR2	PartyStatus	No	Yes
<input type="checkbox"/>	≡		104	PARTYTYPE	Data	VARCHAR2	PartyType	No	Yes
<input type="checkbox"/>	≡		105	CREATEDBYMODULE	Data	VARCHAR2	CreatedByModule	No	No
<input type="checkbox"/>	≡		106	CREATEDBY	Data	VARCHAR2	CreatedBy	No	No
<input type="checkbox"/>	≡		107	CREATIONDATE	Data	TIMESTAMP(6)	CreationDate	No	No

Cancel

Apply Changes

Note for FA REST Services with Over 150 Fields

Data Profile

Data Profiles describe how Data Source format are being parsed and converted to rows and columns. For XML or JSON data format, the **Row Selector** attribute stores an XML or JSON path expression pointing to the node containing the collection of rows. **Data Profile Columns** determine how one row is parsed and converted to multiple columns.

Data Profile

* Name

Accounts

* Format

JSON

?

Row Selector

items

Contains Single Row

☐

?

150 is not a hard limit, but avoids bad "out of memory" experience for devs who take all the default values

A region with 200+ fields from a REST service uses a SQL statement that can exceed 150 columns

Columns

Resequence Columns

Add Column >

Search: All Text Columns

Go

Edit

Add Data Column

<input type="checkbox"/>			Sequence	Name	Column Type	Data Type	Selector	Primary Key	Visible
<input type="checkbox"/>			103	PARTYSTATUS	Data	VARCHAR2	PartyStatus	No	Yes
<input type="checkbox"/>			104	PARTYTYPE	Data	VARCHAR2	PartyType	No	Yes
<input type="checkbox"/>			105	CREATEDBYMODULE	Data	VARCHAR2	CreatedByModule	No	No
<input type="checkbox"/>			106	CREATEDBY	Data	VARCHAR2	CreatedBy	No	No
<input type="checkbox"/>			107	CREATIONDATE	Data	TIMESTAMP(6)	CreationDate	No	Yes

Cancel

Apply Changes

Note for FA REST Services with Over 150 Fields

Data Profile

Data Profiles describe how Data Source format are being parsed and converted to rows and columns. For XML or JSON data format, the **Row Selector** attribute stores an XML or JSON path expression pointing to the node containing the collection of rows. **Data Profile Columns** determine how one row is parsed and converted to multiple columns.

Data Profile

*

Name

Accounts

?

*

Format

JSON

?

Row Selector

items

?

Contains Single Row

☐

?

Columns

Search: All Text Columns

Go

Edit

Add Data Column

		Sequence ↑	Name	Column Type	Data Type	Selector	Primary Key	Visible
<input type="checkbox"/>	≡		PROMOTEDACCOUNTID	Data	NUMBER	PromotedAccountID	No	No
<input type="checkbox"/>	≡		197 PROMOTEDFLAG	Data	VARCHAR2	PromotedFlag	No	No
<input type="checkbox"/>	≡		198 PROMOTEDPARTYNAME	Data	VARCHAR2	PromotedPartyName	No	No
<input type="checkbox"/>	≡		199 PROMOTEDPARTYNUMBER	Data	VARCHAR2	PromotedPartyNu...	No	No
<input type="checkbox"/>	≡		200 ORGANIZATIONDEO_CUSTOMERTYPE_C	Data	VARCHAR2	OrganizationDEO_...	No	Yes

Cancel

Apply Changes

FA REST services prioritize custom fields whose names end with the `_c` suffix

Other REST service types pick the first 150

Data Profile

Data Profiles describe how Data Source format are being parsed and converted to rows and columns. For XML or JSON data format, the **Row Selector** attribute stores an XML or JSON path expression pointing to the node containing the collection of rows. **Data Profile Columns** determine how one row is parsed and converted to multiple columns.

Data Profile

Name

Accounts

Format

JSON

Row Selector

items

Contains Single Row

☐

Use editable grid to quickly change the **Visible** setting of any data profile column

Columns

Search: All Text Columns

Go

Edit

Add Data Column

			Sequence ↑	Name	Column Type	Data Type	Selector	Primary Key	Visible
<input type="checkbox"/>	≡	✎	196	PROMOTEDACCOUNTID	Data	NUMBER	PromotedAccountID	No	No
<input checked="" type="checkbox"/>	≡	✎	197	PROMOTEDFLAG	Data	VARCHAR2	PromotedFlag	No	<input checked="" type="checkbox"/>
<input type="checkbox"/>	≡	✎	198	PROMOTEDPARTYNAME	Data	VARCHAR2	PromotedPartyName	No	No
<input type="checkbox"/>	≡	✎	199	PROMOTEDPARTYNUMBER	Data	VARCHAR2	PromotedPartyNu...	No	No
<input type="checkbox"/>	≡	✎	200	ORGANIZATIONDEO_CUSTOMERTYPE_C	Data	VARCHAR2	OrganizationDEO_...	No	Yes

Cancel

Apply Changes

APEX App Builder SQL Workshop Team Development Gallery

Application 101 Page Designer

Page 1: Home

- Pre-Rendering
- Components
 - Breadcrumb Bar
 - Leads
 - Body
 - Leads
 - Columns
 - APEX\$RESOURCEKEY
 - OWNERPARTYNAME
 - STATUSCODE
 - CUSTOMERPARTYNAME
 - INVENTORYITEMDESCRIPTION
 - DEALAMOUNT
 - PRIMARYCONTACTID
 - PRIMARYCONTACTPARTYNAME
 - PRIMARYCONTACTADDRESS1
 - PRIMARYCONTACTCITY
 - PRIMARYCONTACTCOUNTRY
 - PRIMARYCONTACTEMAILADDRESS
 - LATITUDE
 - LONGITUDE
 - NAME
 - RECORDS
 - LEADNUM
 - RANK
 - SOURCECODE

Layout Page Search Help

Home

BREADCRUMB BAR

Leads

REGION CONTENT

BODY

Leads

REGION CONTENT

Regions Items Buttons

Avatar Badge Breadcrumbs Calendar Cards

Chart Classic Report Column Toggle Report Comments Content Row

Dynamic Content Faceted Search Form Help Text Interactive Grid

Expand All Below

Collapse All Below

Uncomment

Delete

APEX Only Retrieves Necessary Data!

New *Comment* and *Uncomment* feature makes it easy to quickly include only the columns required.



APEX App Builder SQL Workshop Team Development Gallery

Application 101 Page Designer

Page 1: Home

- Pre-Rendering
- Components
 - Breadcrumb Bar
 - Leads
 - Body
 - Leads
 - Columns
 - APEX\$RESOURCEKEY
 - OWNERPARTYNAME
 - STATUSCODE
 - CUSTOMERPARTYNAME
 - INVENTORYITEMDESCRIPTION
 - DEALAMOUNT
 - PRIMARYCONTACTID
 - PRIMARYCONTACTPARTYNAME
 - PRIMARYCONTACTADDRESS1
 - PRIMARYCONTACTCITY
 - PRIMARYCONTACTCOUNTRY
 - PRIMARYCONTACTEMAILADDRESS
 - LATITUDE
 - LONGITUDE
 - NAME
 - RECORDS
 - LEADNUM
 - RANK
 - SOURCECODE

Layout Page Search Help

Home

BREADCRUMB BAR

Leads

REGION CONTENT

BODY

Leads

REGION CONTENT

Regions Items Buttons

Avatar Badge Breadcrumbs Calendar Cards

Chart Classic Report Column Toggle Report Comments Content Row

Dynamic Content Faceted Search Form Help Text Interactive Grid

Expand All Below

Collapse All Below

Uncomment

Delete

APEX Only Retrieves Necessary Data!

Keeps REST payloads small and performance fast.



APEX App Builder SQL Workshop Team Development Gallery

Application 101 Page Designer

Page 1: Home

Pre-Rendering

Components

Breadcrumb Bar

Leads

Body

Leads

Columns

- APEX\$RESOURCEKEY
- OWNERPARTYNAME
- STATUSCODE
- CUSTOMERPARTYNAME
- INVENTORYITEMDESCRIPTION
- DEALAMOUNT
- PRIMARYCONTACTID
- PRIMARYCONTACTPARTYNAME
- PRIMARYCONTACTADDRESS1
- PRIMARYCONTACTCITY
- PRIMARYCONTACTCOUNTRY
- PRIMARYCONTACTEMAILADDRESS
- LATITUDE
- LONGITUDE
- NAME
- RECORDS
- LEADNUM
- RANK
- SOURCECODE

Layout Page Search Help

Home

BREADCRUMB BAR

Leads

REGION CONTENT

BODY

Leads

REGION CONTENT

Regions Items Buttons

Avatar Badge Breadcrumbs Calendar Cards

Chart Classic Report Column Toggle Report Comments Content Row

Dynamic Content Faceted Search Form Help Text Interactive Grid

Expand All Below

Collapse All Below

Uncomment

Delete

APEX Only Retrieves Necessary Data!

Could just delete the unused columns... but they'll come back on next *Synchronize Columns*!



APEX App Builder SQL Workshop Team Development Gallery

Application 101 Page Designer

Page 1: Home

- Pre-Rendering
- Components
 - Breadcrumb Bar
 - Leads
 - Body
 - Leads
 - Columns
 - APEX\$RESOURCEKEY
 - OWNERPARTYNAME
 - STATUSCODE
 - CUSTOMERPARTYNAME
 - INVENTORYITEMDESCRIPTION
 - DEALAMOUNT
 - PRIMARYCONTACTID
 - PRIMARYCONTACTPARTYNAME
 - PRIMARYCONTACTADDRESS1
 - PRIMARYCONTACTCITY
 - PRIMARYCONTACTCOUNTRY
 - PRIMARYCONTACTEMAILADDRESS
 - LATITUDE
 - LONGITUDE
 - NAME
 - RECORDS
 - LEADNUM
 - RANK
 - SOURCECODE

Layout Page Search Help

Home

BREADCRUMB BAR

Leads

REGION CONTENT

BODY

Leads

REGION CONTENT

Regions Items Buttons

Avatar Badge Breadcrumb... Calendar Cards

Chart Classic Report Column Toggle Report Comments Content Row

Dynamic Content Faceted Search Form Help Text Interactive Grid

Expand All Below

Collapse All Below

Uncomment

Delete

APEX Only Retrieves Necessary Data!

Use a column again with an *Uncomment* operation.



APEX App Builder SQL Workshop Team Development Gallery

Application 101 Page Designer

Page 1: Home

- Pre-Rendering
- Components
 - Breadcrumb Bar
 - Leads
 - Body
 - Leads
 - Columns
 - APEX\$RESOURCEKEY
 - OWNERPARTYNAME
 - STATUSCODE
 - CUSTOMERPARTYNAME
 - INVENTORYITEMDESCRIPTION
 - DEALAMOUNT
 - PRIMARYCONTACTID
 - PRIMARYCONTACTPARTYNAME
 - PRIMARYCONTACTADDRESS1
 - PRIMARYCONTACTCITY
 - PRIMARYCONTACTCOUNTRY
 - PRIMARYCONTACTEMAILADDRESS
 - LATITUDE
 - LONGITUDE
 - NAME
 - RECORDS
 - LEADNUM
 - RANK
 - SOURCECODE

Expand All Below

Collapse All Below

Uncomment

Delete

Regions Items Buttons

Avatar Badge Breadcrumb...

Chart Classic Report Column Toggle Report

Dynamic Content Faceted Search Form

Comments Content Row

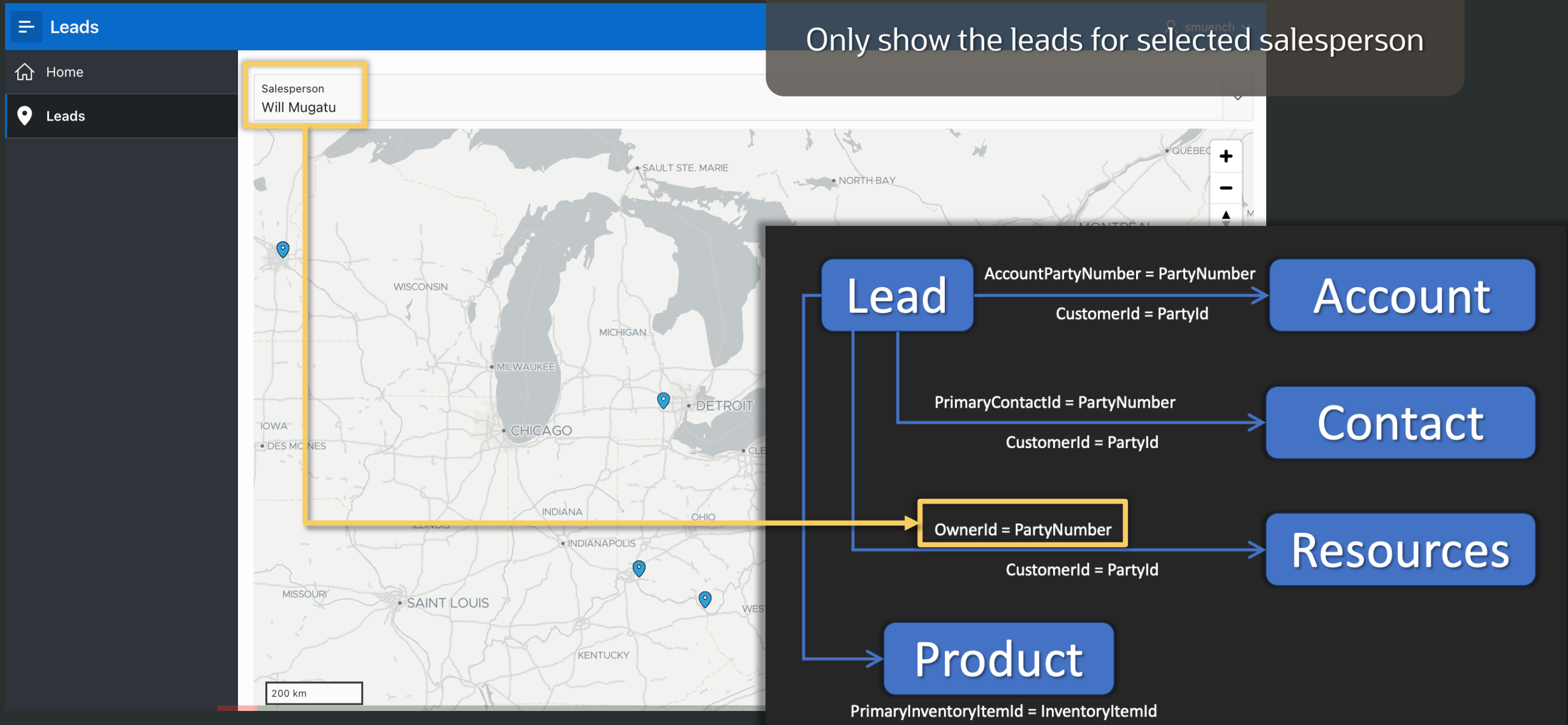
Help Text Interactive Grid

APEX Only Retrieves Necessary Data!


NOTE: Only Visible = Yes data profile columns show
Synchronize Columns after "unhiding" a profile column.



Simplify Parameterized Queries with Filter Params



Simplify Parameterized Queries with Filter Params

↑  Application 101 \ Shared Components \ REST Data Sources \ Leads by Owner \ Operation

REST Source Operation

Cancel Delete **Apply Changes**

Show All

Operation

Operation Parameters

Caching

Advanced

Operation

Name

URL Pattern

.

REST Source Base URL

https://fa-esec-saasfademo1.ds-fa.oraclepdemos.com:443/crmRestApi/resources/latest/leads

* HTTP Method

GET

?

Database Operation

Fetch rows

?

Operation Parameters

Add Parameter

1

3

OwnerId_eq\$norowsifnull

2

Type	Direction	Default Value	Required	Static	Last Updated
URL Pattern	In	-	No	No	2 days ago

1 - 1


Define optional URL pattern parameters on **Fetch Rows** operation.
Each param name indicates:

- 1 field to constrain
- 2 operator to use, and
- 3 behavior when *null*





Simplify Parameterized Queries with Filter Params

↑

 Application 101 \ Shared Components \ REST Data Sources \ Leads by Owner \ Operation

+





REST Source Operation

Cancel

Delete

Apply Changes

Show All

Operation

Operation Parameters

Caching

Advanced

Operation

Name

?

URL Pattern

.

?

REST Source Base URL

https://fa-esec-saasfademo1.ds-fa.oraclepdemos.com:443/crmRestApi/resources/latest/leads

* HTTP Method

GET

?

Database Operation

Fetch rows

?

Operation Parameters

Add Parameter

OwnerId_eq\$norowsifnull

2

Type	Direction	Default Value	Required	Static	Last Updated
URL Pattern	In	-	No	No	2 days ago

1 - 1


2

Supported operators:

eq
startsWith
contains



Simplify Parameterized Queries with Filter Params

↑  Application 101 \ Shared Components \ REST Data Sources \ Leads by Owner \ Operation

REST Source Operation

Cancel Delete **Apply Changes**

Show All

Operation

Operation Parameters

Caching

Advanced

Operation

Name

?

URL Pattern

.

?

REST Source Base URL

https://fa-esec-saasfademo1.ds-fa.oraclepdemos.com:443/crmRestApi/resources/latest/leads

* HTTP Method

GET

?

Database Operation

Fetch rows

?

Operation Parameters

Add Parameter

3

OwnerId_eq\$norowsifnull

Type	Direction	Default Value	Required	Static	Last Updated
URL Pattern	In	-	No	No	2 days ago

1 - 1

3

Supported behaviors:

ignoreifnull
norowsifnull
matchifnull

3

Simplify Parameterized Queries with Filter Params

APEX App Builder SQL Workshop Team Development Gallery Search SA

Application 101 Page Designer 2 Go Save

Page 2: Leads Map by Salesperson

- Pre-Rendering
- Components
 - Body
 - P2_SALESPERSON
 - Leads Map
 - Layers
 - Leads
 - Parameters
 - OwnerId_eq\$norowsifnull
 - Dynamic Actions
 - Post-Rendering

Leads Map by Salesperson

BODY

P2_SALESPERSON

Leads Map

REGION CONTENT

Parameter

Filter

Identification

Name

OwnerId_eq\$norowsifnull

Operation

Parameter

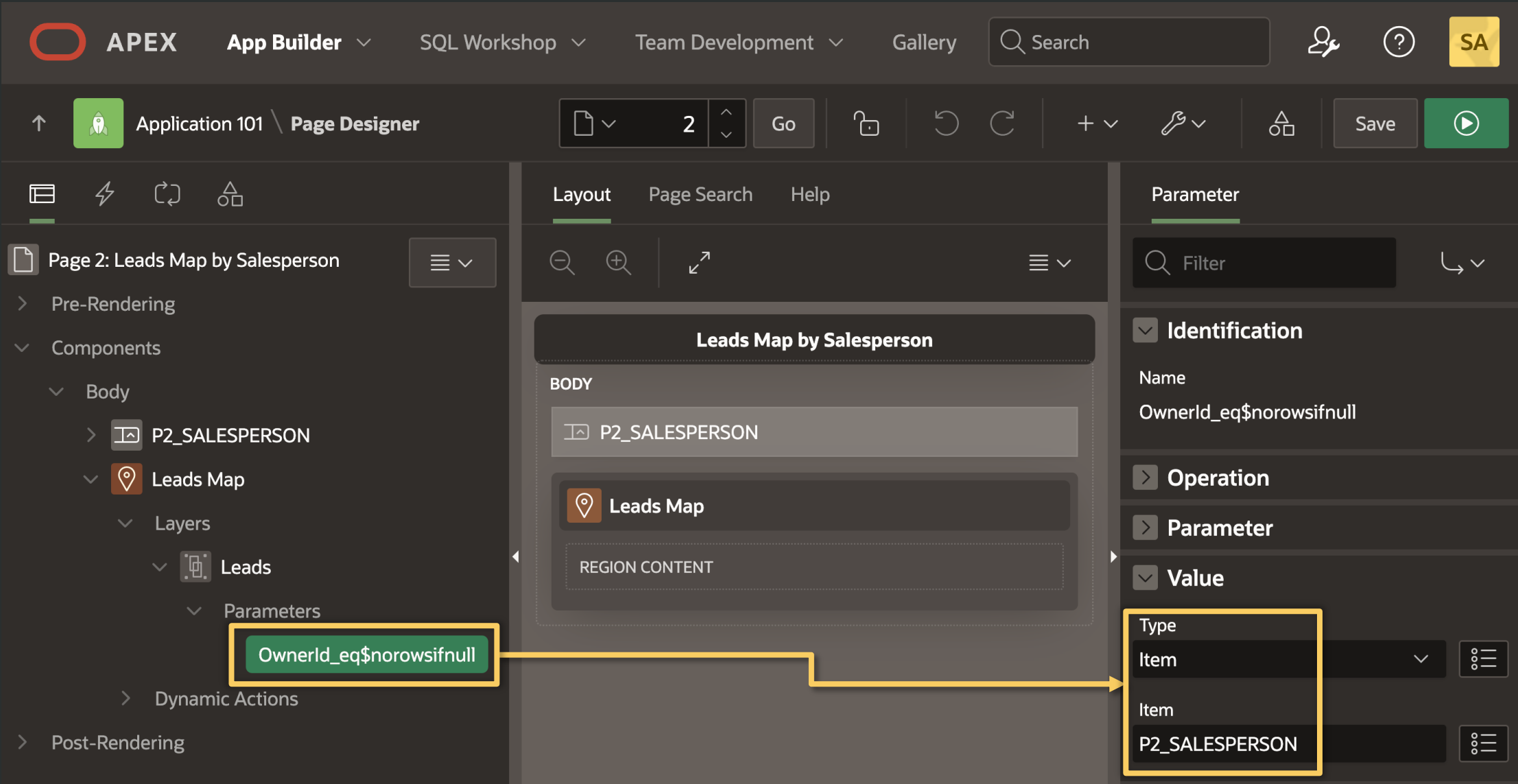
Value

Type





Item

Item


P2_SALESPERSON





Simplify Query by Example Pages with Filter Params


  VB BugDB  smuench 

Product




<Any Product> 

Go

Actions 

Create

	Bug Number	Status	Severity	Description	Product	Component	Subcomponent	Filedby	Assignedto
	143	Open	2: Severe	NO NEED TO SHOW A MODEL DIALOG WHEN THE CODE TYPECHECKS SUCCESSFULLY	Oracle Database	DB Development Tools	DB Regression Spotter	smuench	
	144	Need More Info	2: Severe	NOT OBVIOUS THAT YOU CAN DRAG TO PAN/SCROLL ACTION CHAIN DIAGRAMMER CANVAS	Visual Builder Cloud Service	New VBCS Design Time	Actions	smuench	
	145	Open	2: Severe	COLUMN CONFLICTS NOT RESOLVED IF CONFLICTING COLUMNS ARE IN USE BY A SANDBOX	Oracle JDeveloper	Simplified Customization	Attribute Taskflows	smuench	jloropez

1 - 3

Simplify Query by Example Pages with Filter Params

VB BugDB

smuench

Product

Oracle Database

Q

Go

Actions

Create

	Bug Number	Status	Severity	Description	Product	Component	Subcomponent	Filedby	Assignedto
	143	Open	2: Severe	NO NEED TO SHOW A MODEL DIALOG WHEN THE CODE TYPECHECKS SUCCESSFULLY	Oracle Database	DB Development Tools	DB Regression Spotter	smuench	

1 - 1



Simplify Cascading Select Lists with Filter Params

VB BugDB

Cancel

Delete

Apply Changes

smuench ▾

Bug Number

143

Description

NO NEED TO SHOW A MODEL DIALOG WHEN THE CODE TYPECHECKS SUCCESSFULLY

Assigned

▾

Type

Dev Bug ▾

Severity

2: Severe ▾

Status

Open ▾

Product

Oracle Database ▾

Component

DB Development ▾

Subcomponent

DB Regression S1 ▾

Rel Status

Beta ▾

Platform

macOS ▾

Base Bug

Filed By

smuench ▾

Filed

5/14/2018

Updated By

steve.muench@oracle.com

Updated

8/16/2023

Tags

REL13BLOCKER

Add Comment

Simplify Cascading Select Lists with Filter Params

VB BugDB

Cancel

Delete

Apply Changes

smuench

Bug Number

143

Description

NO NEED TO SHOW A MODEL DIALOG SUCCESSFULLY

Assigned

Type

Dev Bug

Status

Open

Product

Oracle Database

Component

DB Development

Platform

macOS

Base Bug

Filed By

smuench

Filed

5/14/2018

Updated By

steve.muench@oracle.com

Updated

8/16/2023

Tags

REL13BLOCKER

Add Comment

DB BugBuddy Tool

DB Diag Score Tool

DB Kspare Tool


DB Mergescript Checks

✓ DB Regression Spotter

RDBMS Auto Bugs Assignment Tool



Use External Filter for Powerful Where Clauses


 Fusion Art Gallery

DiscoverLeadsLeads MapArtworksArtistsMedia

Artist< All >

MediumLithograph Vintage Poster

CreatedBefore 1960








Q

Go


Actions

Create

	Title	Artist	Medium	Year	Price
	Absinthe Robette	Henri Privat-Livemont	Lithograph Vintage Poster	1896	2100
	Salon Des Cent	Alphonse Mucha	Lithograph Vintage Poster	1897	3200
	Hatfield Route 155	Gregory Brown	Lithograph Vintage Poster	1916	1020
	San Francisco	Joseph Binder	Lithograph Vintage Poster	1957	2400
	Las Vegas	David Klein	Lithograph Vintage Poster	1958	1005

1 - 5 of 6 >

Release 1.0





Use External Filter for Powerful Where Clauses

The screenshot displays the Oracle APEX Page Designer interface for 'Application 103 \ Page Designer'. The left sidebar shows the project structure, including 'Page 3: Artworks' and its components like 'Filters', 'Search', and 'Artworks'. The main canvas shows the 'Artworks' report configuration. A yellow box highlights the 'P3_BEFORE_YEAR' filter in the 'Filters' section. A yellow arrow points from this filter to the 'External Filter and Order By' section on the right. In this section, the 'Enabled' toggle is turned on, and the 'Filter' field contains the SQL clause: `Year__c < &P3_BEFORE_YEAR.`

Page 3: Artworks

- Pre-Rendering
- Components
 - Body
 - Filters
 - Region Body
 - P3_ARTIST
 - P3_MEDIUM
 - P3_BEFORE_YEAR
 - Search
 - Artworks
 - Columns
 - Column Groups
 - Saved Reports
 - Parameters
 - Dynamic Actions
 - Right of Interactive Report Search
 - CREATE
 - Post-Rendering

Artworks

REGION BODY

- P3_ARTIST
- P3_MEDIUM
- P3_BEFORE_YEAR

REGION CONTENT

RIGHT OF INTERACTIVE REPORT SEARCH BAR

CREATE

Region Attributes Printing

Filter

Identification

Title: Artworks

Type: Interactive Report

Source

Location: REST Source

REST Source: Artworks

Page Items to Submit: P3_ARTIST,P3_MEDIUM,P3_BEFORE_YEAR

Optimizer Hint

External Filter and Order By

Enabled: ☒

Filter: Year__c < &P3_BEFORE_YEAR.

Order By

Local Post Processing

Type: - Select -



Values Computed Server-Side Shown Automatically

VB Things

smuench

Things Grid

Search: All Text Columns

Go

Actions

Edit

Save

Add Row

Reset

<input type="checkbox"/>	<input type="checkbox"/>	Name	Description	Quantity	Datepurchased	PriceinUSD ↑	PriceinEUR	Userkey
<input type="checkbox"/>	<input type="checkbox"/>	The Peasants	Based on Nobel-Prize...	9	6/30/2023	10	6.4	CHLOPI
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quirky Fungus	Interesting vegan boyan	2	4/3/2023	28	16.47	FUNG3
<input type="checkbox"/>	<input type="checkbox"/>	Big Boy	Large able bodied per...	3	6/21/2023	18	16.47	XXXY
<input type="checkbox"/>	<input type="checkbox"/>	Theoretically	Tee One Plus	2	7/21/2023	123	112.51	xyz
<input type="checkbox"/>	<input type="checkbox"/>	Cowboy C4	Electric Bike	1	6/26/2023	300	274.43	BIKE0156
<input type="checkbox"/>	<input type="checkbox"/>	Something Very Exciting	by David Hockney	10	7/3/2023	1001	915.67	DH
<input type="checkbox"/>	<input type="checkbox"/>	Loving Vincent	First feature length oil...	1	6/26/2023	3354	3068.09	ZZZQQQ

1 rows selected

1 - 40

Values updated by end-user

Values Computed Server-Side Shown Automatically

VB Things

Things Grid

Changes saved

Values computed by "Before Update" business object triggers in the REST API backend

Q

Search: All Text Columns

Go

Actions

Edit

Save

Add Row

<input type="checkbox"/>	<input type="checkbox"/>	Name	Description	Quantity	Datepurchased	PriceinUSD ↑	PriceinEUR	Userkey
<input type="checkbox"/>	<input type="checkbox"/>	The Peasants	Based on Nobel-Prize...	9	6/30/2023	10	9.15	CHŁOPI
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quirky Fungus	Interesting vegan boyan	2	4/3/2023	28	25.61	FUNG3
<input type="checkbox"/>	<input type="checkbox"/>	Big Boy	Large able bodied per...	3	6/21/2023	18	16.47	XXXY
<input type="checkbox"/>	<input type="checkbox"/>	Theoretically	Tee One Plus	2	7/21/2023	123	112.51	xyz
<input type="checkbox"/>	<input type="checkbox"/>	Cowboy C4	Electric Bike	1	6/26/2023	300	274.43	BIKE0156
<input type="checkbox"/>	<input type="checkbox"/>	Something Very Exciting	by David Hockney	10	7/3/2023	1001	915.67	DH
<input type="checkbox"/>	<input type="checkbox"/>	Loving Vincent	First feature length oil...	1	6/26/2023	3354	3068.09	ZZZQQQ

1 rows selected

1 - 40


An APEX App Can Now Optionally Work with a Sandbox

The screenshot shows the APEX App Builder interface. The top navigation bar includes the APEX logo, 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar is on the right. Below the navigation bar, the breadcrumb trail shows 'Application 581 \ Shared Components \ Component Settings'. The 'Component Settings' tab is active, and the 'History' tab is also visible. A search bar with a 'Go' button and a 'Reset' button are present. A table lists various components, with the 'Oracle Cloud Applications (SaaS) REST Service' row highlighted by a yellow box. A yellow arrow points from a text box to this row.

Name ↑	Type	Subscribed From	Subscription Status	Subscribers	Updated
Checkbox	Item	-	-	-	3 weeks ago
Color Picker	Item	-	-	-	3 weeks ago
Date Picker	Item	-	-	-	3 weeks ago
Geocoded Address	Item	-	-	-	3 weeks ago
Interactive Report	Region	-	-	-	3 weeks ago
Map	Region	-	-	-	3 weeks ago
Oracle Cloud Applications (SaaS) REST Service	REST Data Source	-	-	-	3 weeks ago
Region Display Selector	Region	-	-	-	3 weeks ago
Star Rating	Item	-	-	-	3 weeks ago
Switch	Item	-	-	-	3 weeks ago

Configure the optional sandbox name in Component Settings for the Oracle Cloud Applications (SaaS) REST Service REST Data Source


An APEX App Can Now Optionally Work with a Sandbox


[↑](#)  Application 581 \ [Shared Components](#) \ [Component Settings](#) \ [Edit](#)

Component Settings

[Show All](#) [Settings](#) [Subscription](#)

Settings


Name: **Oracle Cloud Applications (SaaS) REST Service** 

Sandbox Name 

Subscription


Subscribe From

▼




This is the "master" copy of this component settings.

No components subscribed to this component settings.



When empty, the FA REST services in this app use production FA REST endpoints

An APEX App Can Now Optionally Work with a Sandbox

[↑](#)  Application 581 \ [Shared Components](#) \ [Component Settings](#) \ [Edit](#)

Component Settings

[Show All](#) [Settings](#) [Subscription](#)

Settings

Name: **Oracle Cloud Applications (SaaS) REST Service** ⓘ

Sandbox Name

cloud-world-apex-demo ⓘ

Subscription

Subscribe From

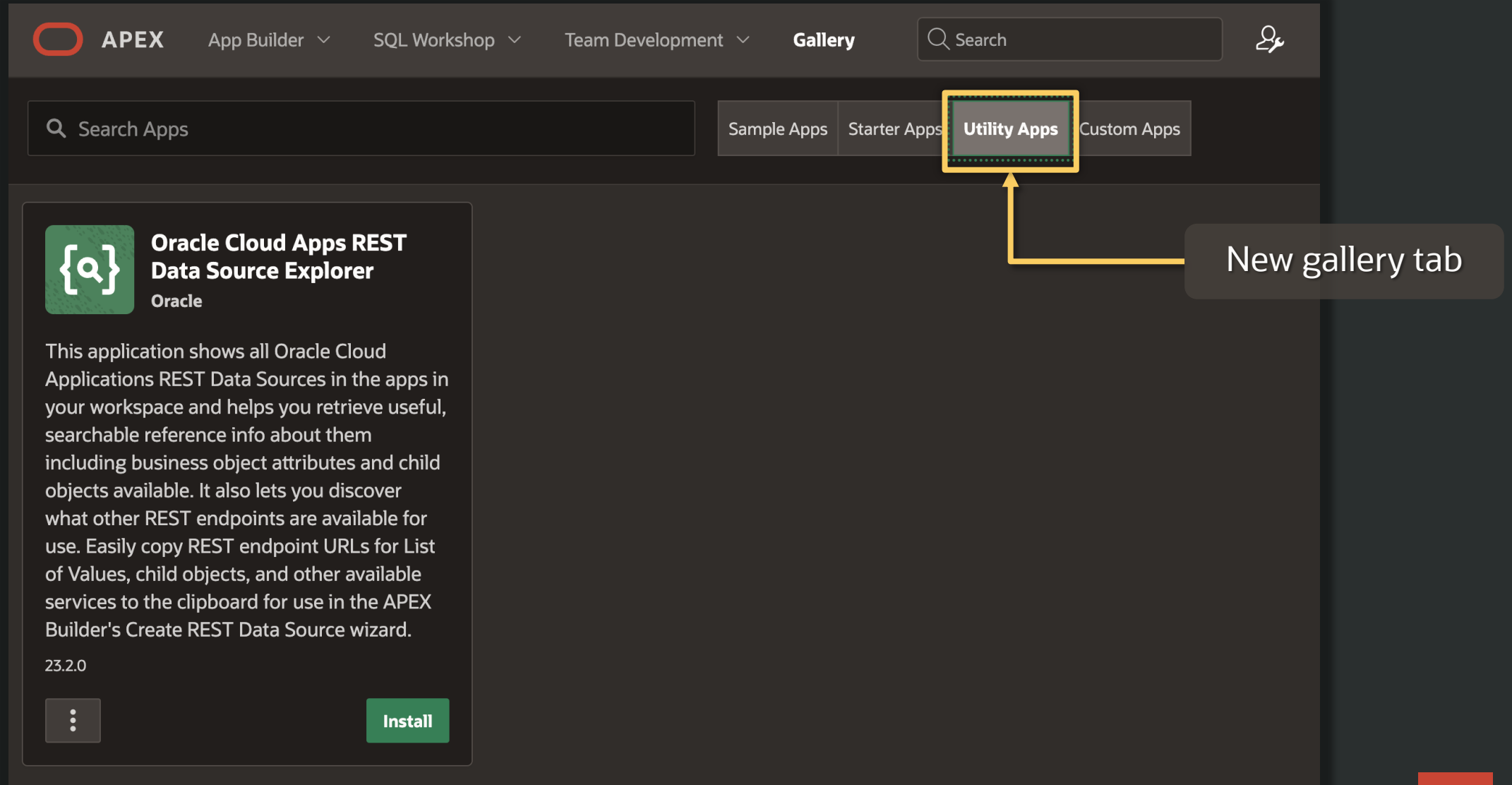
ⓘ

This is the "master" copy of this component settings.

No components subscribed to this component settings.

Enter FA metadata sandbox name to work with its pending changes to the FA data model

Oracle Cloud Apps Data Source Explorer Utility App



The screenshot displays the Oracle APEX interface. At the top, the navigation bar includes the APEX logo, 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar is located to the right of the navigation bar. Below the navigation bar, there is a 'Search Apps' input field and a row of gallery tabs: 'Sample Apps', 'Starter Apps', 'Utility Apps', and 'Custom Apps'. The 'Utility Apps' tab is highlighted with a yellow box, and a yellow arrow points from a callout box labeled 'New gallery tab' to this tab. On the left side of the main content area, a card for the 'Oracle Cloud Apps REST Data Source Explorer' app is visible. The card features a green icon with a white magnifying glass and curly braces, the app name, the Oracle logo, a detailed description of the app's functionality, the version number '23.2.0', a three-dot menu icon, and a green 'Install' button.


Oracle Cloud Apps REST Data Source Explorer
Oracle

This application shows all Oracle Cloud Applications REST Data Sources in the apps in your workspace and helps you retrieve useful, searchable reference info about them including business object attributes and child objects available. It also lets you discover what other REST endpoints are available for use. Easily copy REST endpoint URLs for List of Values, child objects, and other available services to the clipboard for use in the APEX Builder's Create REST Data Source wizard.


23.2.0

Install

Oracle Cloud Apps Data Source Explorer Utility App













 FA REST Data Source Explorer - REST Data Sources

Install App smuench

 All the Oracle Cloud Application (SaaS) REST Service data sources in your workspace appear on the *Endpoints In Use* tab below. All endpoints available from the Fusion Apps pillars in use show on the *All Endpoints* tab. After downloading the description of an in-use data source, click its name to explore its attributes and child objects...

Endpoints In UseAll EndpointsBackground Progress

Go Actions


Action	Endpoint URL	REST Data Source Static Id ↑	Application
		accounts	Leads (101)
		contacts	Leads (101)
		leads	Leads (101)
		leads_by_owner	Leads (101)
		products	Leads (101)
		resources	Leads (101)



1 - 6


See all FA REST data sources in use in the apps in your workspace



Oracle Cloud Apps Data Source Explorer Utility App

 FA REST Data Source Explorer - Service Details: Leads

 Install App  smuench ▾

 Explore the Leads data source's attributes and child objects below. Click the application icon to return to the data source list...

Attributes



Child Objects

2. All Attributes ▾

Actions ▾

Alternative Default: All Attributes


 ✕

Attribute Name	Type	Label	Description	LOV Endpoint	Preferred UI	Queryable?	Required?	Defaulted?	Editable?	Remote PK?	Custom?	Only Open
Name	string(250)	Lead Name	Lead Name used for identifying the lead.			Y	Y	N	Y	N	N	
RecordSet	string	Record Set			Select List	Y	N	N	N	N	N	
LeadNumber	string(30)	Lead Number	User friendly unique identifier for a lead.			Y	N	Y	On Create	N	N	
OwnerPartyName	string(360)	Owner	Name associated with the owner of this sales lead.		Popup LOV	Y	N	N	Y	N	N	

Drill down for info
about attributes
and LOVs



Oracle Cloud Apps Data Source Explorer Utility App

 FA REST Data Source Explorer - Service Details: Leads

Install App smuench

Explore the Leads data source's attributes and child objects below. Click the application icon to return to the data source list...

Attributes

Child Objects

Q

Go

Alternative Default: All Attributes

Default

1. Primary Report

✓ 2. All Attributes



3. Attributes with LOV

4. Queryable Attributes

5. Updateable Attributes


Actions

Pre-defined filters to narrow focus


Attribute Name	Type	Label	Description	LOV Endpoint	Preferred UI	Queryable?	Required?	Defaulted?	Editable?	Remote PK?	Custom?	Only Open
Name	string(250)	Lead Name	Lead Name used for identifying the lead.			Y	Y	N	Y	N	N	
RecordSet	string	Record Set			Select List	Y	N	N	N	N	N	
LeadNumber	string(30)	Lead Number	User friendly unique identifier for a lead.			Y	N	Y	On Create	N	N	
OwnerPartyName	string(360)	Owner	Name associated with the owner of this sales lead.		Popup LOV	Y	N	N	Y	N	N	



Oracle Cloud Apps Data Source Explorer Utility App

 FA REST Data Source Explorer - Service Details: Leads

Install App smuench

 Explore the Leads data source's attributes and child objects below. Click the application icon to return to the data source list...

Attributes Child Objects

Q







Go

5. Updateable Attributes

Actions


Alternative Default: Updateable Attributes

✓ Editable? != 'N'


Attribute Name	Type	Label	Description	LOV Endpoint	Preferred UI	Queryable?	Required?	Defaulted?	Editable?	Remote PK?	Custom?	Only Operators?
Name	string(250)	Lead Name	Lead Name used for identifying the lead.			Y	Y	N	Y	N	N	
LeadNumber	string(30)	Lead Number	User friendly unique identifier for a lead.			Y	N	Y	On Create	N	N	
OwnerPartyName	string(360)	Owner	Name associated with the owner of this sales lead.		Popup LOV	Y	N	N	Y	N	N	
StatusCode	string(30)	Status	Pre-defined code used to indicate the status of a lead.		Select List	Y	N	N	Y	N	N	
Rank	string(30)	Rank	Rank associated with this sales lead.		Select List	Y	N	N	Y	N	N	
SourceCode	string(30)	Source Code	Marketing source code associated with this sales lead.		Popup LOV	Y	N	N	Y	N	N	
CustomerPartyName	string(360)	Account Name	Name of the customer.			Y	N	N	Y	N	N	
ProductGroupName	string(250)	Product Group	Name of the product group associated with a lead.		Popup LOV	Y	N	N	Y	N	N	
InventoryItemDescription	string(240)	Product Item	The description of the product added to a lead.		Popup LOV	N	N	N	Y	N	N	
RegistrationNumber	string(120)	Registration Number	Registration number of the sales lead. This unique identifier is generated when the sales lead is approved. This is a deal specific attribute.			Y	N	N	Y	N	N	



Oracle Cloud Apps Data Source Explorer Utility App












 FA REST Data Source Explorer - Service Details: Leads

Install App smuench

 Explore the Leads data source's attributes and child objects below. Click the application icon to return to the data source list...

Attributes Child Objects

Q Go Actions

Endpoint URL	Cardinality	Object Name
	1 to *	AccountPlan_Lead_Tgt_LeadToAccountPlan_Lead_c_Tgt
	1 to *	AllLeadAttachments
	1 to *	Assessments
	1 to *	Interviews
	1 to *	LeadCampaigns
	1 to *	LeadCompetitors
	1 to *	LeadOpportunity
	1 to 1	LeadRollup
	1 to *	MklLeadResources
	1 to *	MklLeadTcMembers1
	1 to *	MklLeadTeam

See related objects your APEX app might need

Copy service URL & paste into Create REST Data Source wizard

Oracle Cloud Apps Data Source Explorer Utility App

FA REST Data Source Explorer - REST Data Sources

Install App smuench

All Endpoints

Endpoints In Use

Background Progress

Q

Go

Actions

Refresh Catalog In Background

Row text contains 'sales'

Base Url

Base Url: https://fa-esec-saasfademo1.ds-fa.oraclepdemos.com:443/crmRestApi/resources/11.13.11.05

Endpoint URL	Resource Name	Title
	EXTSalesParent_c	EXT SalesParent
	SalesAssessment_c	Sales Assessments
	SalesLeadDeals_c	SalesLeadDealss
	SalesTool_c	Sales Tools
	competitorAccounts	Sales Competitor
	iisFeatures	Intelligence in Sales Features
	leads	Sales Leads
	lightboxDocuments	Sales Lightbox Documents
	optyStatusesLOV	Sales Lookup SDO

Browse & search all
FA REST endpoints from the
"pillars" your app is using

*"Pillar" is family of related apps
(HCM, ERP, CX, SCM, Common)*

Use Case: Retrieve Only Leads for Logged in User

Oracle Cloud Apps Data Source Explorer - Service Details: Leads

Show Only Visible Attributes ⓘ Install App smuench

Attributes Child Objects

Q Go 4. Queryable Actions

▶

Queryable

owner

Queryable?

Attribute Name	Type	Label	Description	LOV Endpoint	Preferred UI	Queryable?	Required?	Defaulted?	Editable?	Remote PK?	Custom?	Only Operators?
OwnerPartyName	string(360)	Owner	Name associated with the owner of this sales lead.		Popup LOV	Y	N	N	Y	N	N	
OwnerId	integer(18)	Owner ID	Party identifier associated with the owner of this sales lead.			Y	N	Y	Y	N	N	
OwnerPartyNumber	string(30)	Owner Number				Y	Y	N	N	N	N	

1 - 3

Who owns the Lead?



Use Case: Retrieve Only Leads for Logged in User

Oracle Cloud Apps Data Source Explorer - Service Details: Resources

Show Only Visible Attributes

Install App

smuench

Attributes

Child Objects

Q

Go

4. Queryable

Actions

▶

Queryable

Id

Queryable?

Attribute Name	Type	Label	Description	LOV Endpoint	Preferred UI	Queryable?	Required?	Defaulted?	Editable?	Remote PK?	Custom?	Only Operators?
ResourceProfileId	integer(18)	Resource Profile ID	Unique identifier for the Resource Profile. Primary Key.			Y	Y	Y	N	Y	N	
PartyId	integer(18)	Resource	Identifier for the party. Foreign key to the HZ_PARTIES PARTY_ID.			Y	Y	N	On Create	N	N	
PartyNumber	string(30)	Registry ID	Unique identification number for this party			Y	Y	N	N	N	N	

1 - 3

Id of the Resource
(Salesperson in this case)



Use Case: Retrieve Only Leads for Logged in User

Application Process

CancelDeleteApply Changes

Show AllNameSubscriptionSourceConditionsAuthorizationConfigurationComments

Name

Application10001 Leads ⓘ

* Sequence1 ⓘ

* Process PointAfter Authentication ⓘ

* NameSET_SESSION_INFO_FOR_USER ⓘ

TypeExecute Code ⓘ

Subscription

Subscribe From ⓘ

This is the "master" copy of this application process.

No application process subscribed to this process.

Source

LanguagePL/SQL ⓘ

* Code ⓘ

1leads_app.set_session_info_for_user;

Get the numeric PartyId and user full name from the logged-in session username

Use Case: Retrieve Only Leads for Logged in User

```
procedure set_session_info_for_user
is
    l_ctx apex_exec.t_context;
    l_ret number;
begin
    l_ctx := oca_ds.open_query(
        p_select => 'PartyId,PartyName',
        p_from   => 'resources',
        p_where  => 'upper(Username) = '||apex_exec.enquote_literal(
                                                    get_session_username));
    if apex_exec.next_row(l_ctx) then
        apex_session_state.set_value('APP_USER_FULLNAME',
                                     oca_ds.get_varchar2(l_ctx, 'PartyName'));
        apex_session_state.set_value('APP_USER_PARTYID',
                                     oca_ds.get_number(l_ctx, 'PartyId'));
    end if;
    oca_ds.close(l_ctx);
end set_session_info_for_user;
```

Use Case: Retrieve Only Leads for Logged in User

The screenshot shows the Oracle APEX Page Designer interface for 'Application 10001'. The left sidebar shows the page structure with 'Page 2: Leads' selected. The main canvas shows a 'Leads' report component. The right-hand 'Properties' pane is open to the 'Region' tab, showing the following configuration:

- Identification:** Name is 'Leads', Type is 'Interactive Report'.
- Source:** Location is 'REST Source', REST Source is 'Leads'.
- External Filter and Order By:** The 'Enabled' toggle is turned on. The 'Filter' field contains the expression `OwnerId = &APP_USER_PARTYID.`, which is highlighted by a yellow box and an arrow from an external callout.

Show only leads owned by the currently logged-in user

`OwnerId = &APP_USER_PARTYID.`

Use Case: Retrieve Only Leads for Logged in User

Leads

mhoope

APP_USER_USERNAME: MHoope, APP_USER_PARTYID: 100010037456865

Go

Actions

OwnerId = &APP_USER_PARTYID.

Name	Ownerpartyname	Statuscode	Rank	Customerpartyname	Createddate	Summary / Contactpartyname	Score
DF Lead for Layout Issue CCUT-TEST 19012018_2304	Matt Hooper	UNQUALIFIED	COOL	BIQA_R13_AccountStanalone1 (USA Fulfillment, US)	1/19/2018		789
sfsfs role_UserMgr_test5@oracle.com 9/6/18 6:43 PM	Matt Hooper	UNQUALIFIED		CSS Automation Test9 US)	9/6/2018	sfsfs role_UserMgr_test5@oracle.com	
BIQA_LEAD_TO_DR_01	Matt Hooper	CONVERTED			4/26/2021		
BIQA_LEAD_TO_DR_02	Matt Hooper	CONVERTED		BIQA B2C Healthcare (Moen, NO)	4/26/2021	BIQA_SER_CONTACT BIQA_SER_CONTACT	
BIQA_LEAD_TO_DR_04	Matt Hooper	CONVERTED		BIQA B2C Healthcare (Moen, NO)	4/26/2021	BIQA_SER_CONTACT BIQA_SER_CONTACT	
BIQA_LEAD_TO_DR_05	Matt Hooper	CONVERTED			4/26/2021	BIQACMN_HH_CONTACT_DEL BIQACMN	
Daniel Bakery	Matt Hooper	QUALIFIED		Sun Microsystems US (Delaware, US)	1/6/2023		
Coffee Shop Redwood	Matt Hooper	UNQUALIFIED		Sun Microsystems US (Delaware, US)	1/6/2023		
Golden Pipes	Matt Hooper	QUALIFIED		Siebel Systems US (SAN MATEO, US)	1/6/2023		
Finland Cars	Matt Hooper	QUALIFIED		Oracle Corporation Subsidiaries (DELAWARE, US)	1/6/2023		
Siebel Bakery	Matt Hooper	UNQUALIFIED		Siebel Technology Company (REDWOOD CITY, US)	1/6/2023		
MKLENGSALES_2112303447	Matt Hooper	UNQUALIFIED			4/20/2023		
MKLENGSALES_2112303447MKTLEAD	Matt Hooper	UNQUALIFIED			4/20/2023		
MKLENGSALES_2112303447MKTLEAD	Matt Hooper	UNQUALIFIED			4/20/2023		



APEX Now a *First Class* App Builder for FA Extensions

- Discover all query and CRUD operations and simplify data sources by hiding unused fields
- Use with all APEX regions: faceted search, maps, interactive reports/grids, forms, etc.
- Work against a Fusion Apps sandbox to iterate APEX UI for pending data model extensions
- Delegate filtering, sorting, and bulk operations to FA REST endpoint
 - Select only required data & get total row count without fetching all (e.g. 1-10 of 200)
- See validation errors from backend business objects like regular APEX validation errors
- Build parent/child select lists, popup LOVs, all region types & QBE screens w/ filter params

Caveats & Other Tips

- Faceted Search
 - Works well, but the APEX engine still computes the ***filtered counts***
 - Requires fetching all matching rows from FA REST to the APEX database
 - Most effective when use case lets initial data to filter be a reasonable set of rows
- Credentials Tip
 - Create the REST DS using basic auth and prime the explorer
 - Then switch credential to OAuth-based credential for runtime use

ā'pěks alpe adria

Thank You! Questions?



steve.muench@oracle.com

diveintoapex.com



[@stevemuench](https://twitter.com/stevemuench)



[@stevemuench@mastodon.online](https://mstdn.social/@stevemuench)

