



ORACLE

# Oracle Forms 14c

The Long Awaited Face-Lift

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## Safe harbor statement

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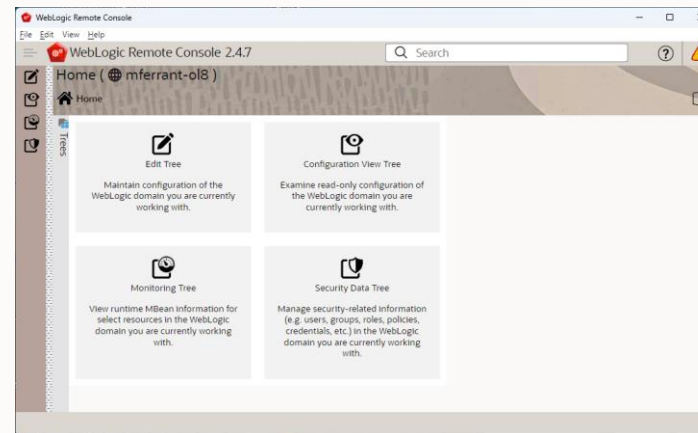
# Oracle Fusion Middleware 14.1.2 with Forms and Reports



# Forms 14c Pre-Planning

- Availability on Oracle Linux, Red Hat Linux, SUSE ES, and MS Windows in 2024.
- Older operating systems (e.g. Win10, Win2019, OL7, etc.) will **not** be certified.
- Requires Oracle Database versions 19.23+ or 23.5+.
- Server requires Oracle Java (JDK) 17.0.12+ or 21 (LTS only).
- Easy application upgrading if starting from a recent release.
- Software upgrading supported from 12.2.1.4 or 12.2.1.19.
- WebLogic Remote Console

<https://github.com/oracle/weblogic-remote-console>



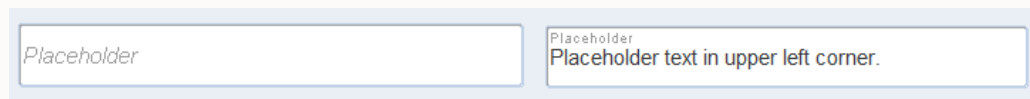
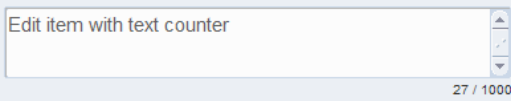
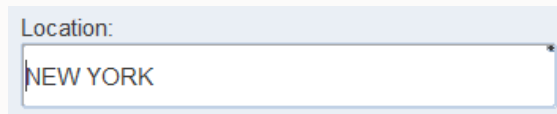
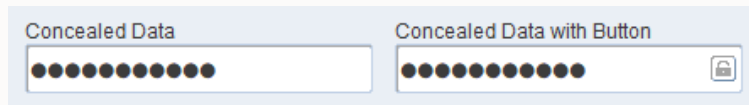
# Forms 14c Features Overview

- Extensive runtime UI widget improvements
- Block level improvements
- Programmatic improvements for interacting with data
- Webutil improvements
- Forms Standalone Launcher improvements
- Design-time (Builder) improvements
- Administration improvements (e.g. FMC, command line utilities, etc.)
- New Domain options
- Miscellaneous FMW improvements



# ITEMS

## Text/Edit



## New Properties\*

- Conceal Data Button
- LOV Button
- Specified Border Sides
- Show Border Color
- Rollover Border Color
- Display Character Counter
- Placeholder
- Persistent Placeholder

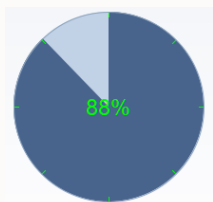
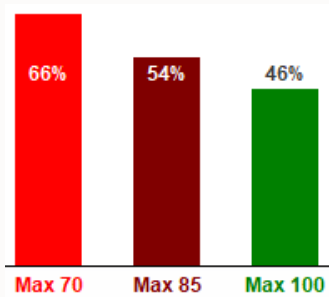
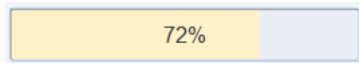
*Some properties include more granular attributes, which are set in Registry.dat.*

*\* Some of these properties are available on most other item types and will not be repeated in this presentation in order to save space.*



# ITEMS

## Display



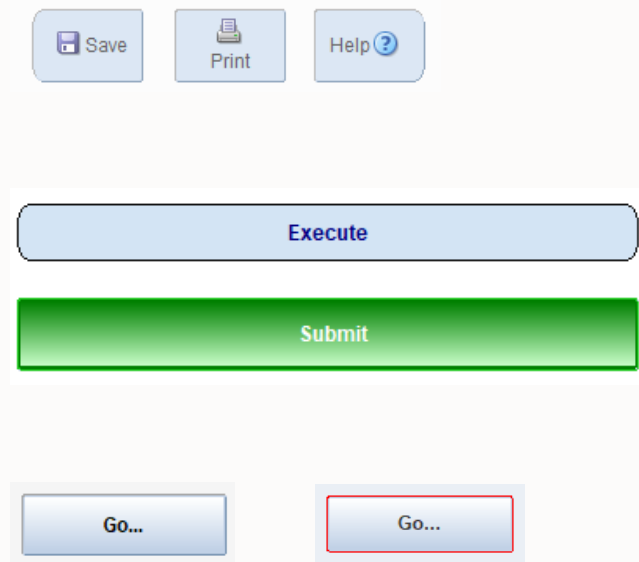
## New Properties

- Display Item UI Style
  - Standard
  - Progress Bar
  - Gauge
  - Half Gauge
- Minimum UI Value
- Maximum UI Value
- Display as Percentage
- Animated
- Progress Bar Orientation
- Foreground Color Mode



# ITEMS

## Buttons



## New Properties

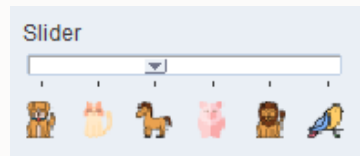
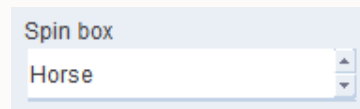
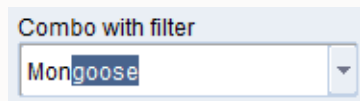
- Label on Iconic Button
- Rollover Color Swap
- Rounded Corner End
- Show Border Color
- Rollover Border Color
- Gradient Start Side





# ITEMS

## Lists



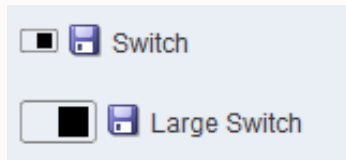
## New Properties

- List Style
  - Poplist
  - Tlist
  - Combo Box
  - Spinlist
  - Slider
- Automatic Completion
- Minimum UI Value
- Maximum UI Value
- UI Increment



# ITEMS

## Boolean Items (Radio buttons / Check boxes)



## New Properties

- UI Style
  - Standard
  - Toggle Button
  - Switch
  - Large Switch
- Icon Filename

# Blocks

## New Properties

- Maximum Records Displayed
- Autosize Block
- Records per Tile Group
- Tile Group Distance
- Pinstripe Color1 & Pinstripe Color2 (pl/sql only)



# Stacked Canvas Splitter

Provides a divider or “splitter” control between two stacked canvases, allowing one canvas to appear on top of the other. The user can control which canvas is visible and how much of it. This can also be programmatically controlled.

## SET\_VIEW\_PROPERTY

Options:

- Position one stacked canvas on top of another
- Programmatically control position
- Programmatically enable/disable
- User can manually position slider



Empno	Ename	Job	Mgr	Hiredate	Sal	Comm	Deptno
7839	ELLISON	PRESIDENT		17-NOV-1981	50.25	4567	10
7698	BLAKE	MANAGER	7839	01-MAY-1981	2850	999	30
7782	CLARK	CPA	7839	09-JUN-1981	2450	999	10
7566	JONES	MANAGER	7839	02-APR-1981	2975	1212	20
7654	MARTIN	SALESMAN	7698	28-SEP-1981	1250	1400	30
7499	ALLEN	SALESMAN	7698	20-FEB-1981	2500	300	30
7844	TURNER	SALESMAN	7698	08-SEP-1981	1500	2121	30
7900	JAMES	ACCOUNTING	7698	03-DEC-1981	950		30
7521	WARD	SALESMAN	7698	22-FEB-1981	1250	500	30
7902	FORD	ANALYST	7566	03-DEC-1981	3000		20
7369	SMITH	CLERK	7902	17-DEC-1980	800		20
7788	SCOTT	ANALYST	7566	09-DEC-1982	3000		20
7876	ADAMS	CLERK	7788	12-JAN-1983	1100		20
7934	MILLER	CLERK	7782	23-JAN-1982	1300	0	10
9999	THOMAS	ADMIN	9876	10-DEC-2019	4444	0	10
9989	SANDS	PAYABLE	7839	01-JAN-2020	894.25	0	10
8887	DEAN	TRAINER	7698	01-JUN-2019	1234	222	30
5555	JONES	DEV	7839	15-DEC-2018	7777.77	0	25
4444	ANDERSON	QA	5555	01-FEB-2020	3333.33	0	25


Example:

```
SET_VIEW_PROPERTY ('SPLIT_CAN1', SPLITTERBAR_POS, 0, 2);
```

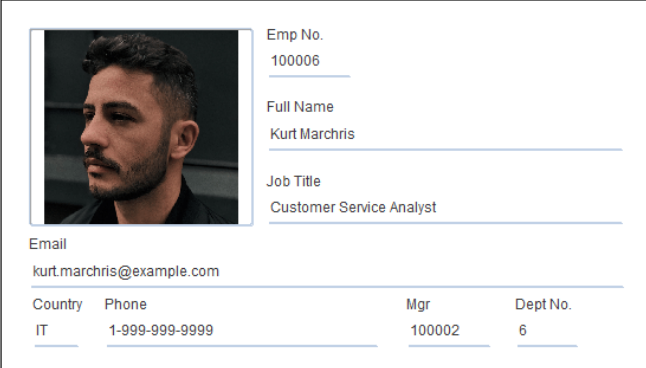


# Record Tiling

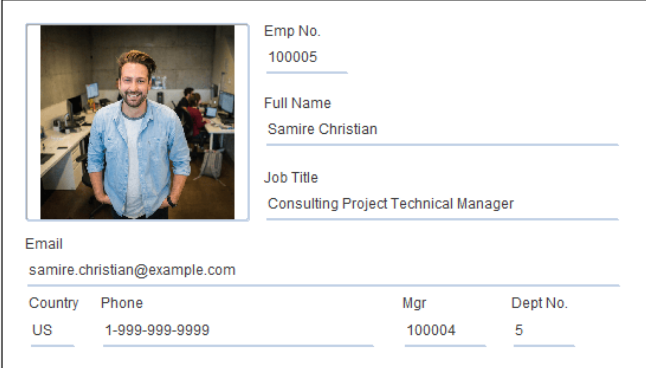
Employee Profiles




Emp No. 100004  
Full Name Christopher Johnson  
Job Title Vice-President HCM Application Development  
Email christopher.johnson@example.com  
Country Phone Mgr Dept No.  
DE 1-999-999-9999 4



Emp No. 100006  
Full Name Kurt Marchris  
Job Title Customer Service Analyst  
Email kurt.marchris@example.com  
Country Phone Mgr Dept No.  
IT 1-999-999-9999 100002 6



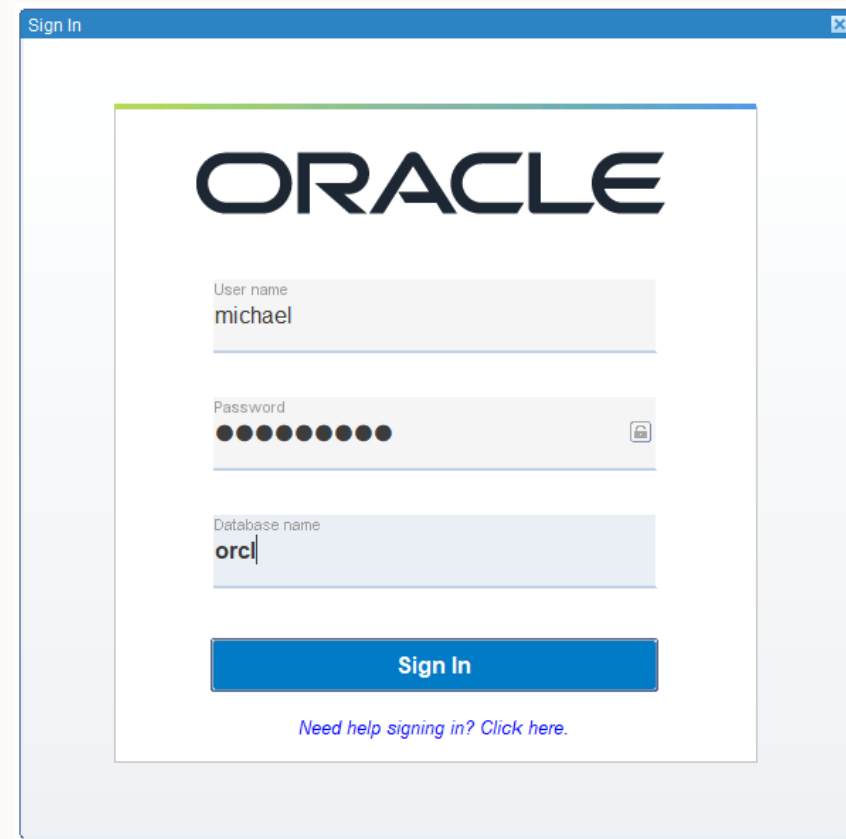
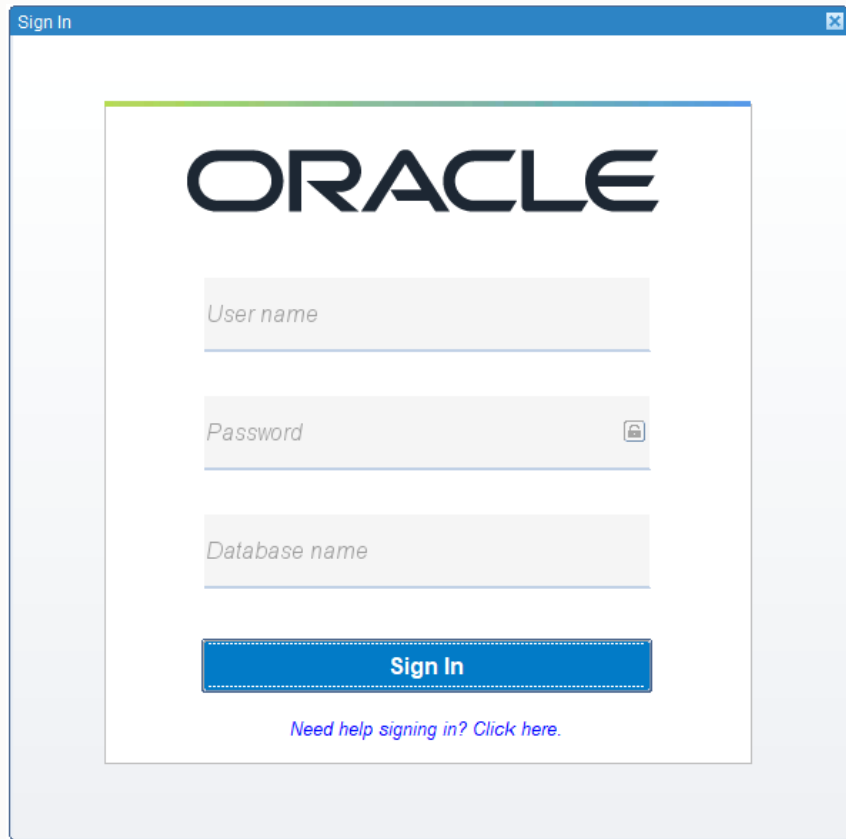
Emp No. 100005  
Full Name Samire Christian  
Job Title Consulting Project Technical Manager  
Email samire.christian@example.com  
Country Phone Mgr Dept No.  
US 1-999-999-9999 100004 5



Emp No. 100007  
Full Name Zelda Christian Cooperman  
Job Title Senior Principal Escalation Manager  
Email zelda.c.cooperman@example.com  
Country Phone Mgr Dept No.  
US 1-999-999-9999 100002 7



# Create a Modern Custom Logon Dialog



*\*This is a custom form and NOT the Forms' logon dialog.*



# REST

- Access remote data via REST.
- Calls to REST made from mid-tier.
- Create Forms Program Units automatically with Swagger/OpenAPI supported endpoints.
- Supports JSON only.

The screenshot shows the USPS address verification interface. The header includes the USPS logo and the text "United States Postal Service". The form contains the following fields and values:

- Street address: 2300 ORACLE WAY
- Street address line 2: (empty)
- City: AUSTIN
- State: Texas
- Urbanization (applies to Puerto Rico only): (empty)
- Zipcode: 78741
- Zipcode+4: 1400

Buttons for "Verify address", "Get zipcode", and "Get city/state" are visible. A map on the right shows the location of 2300 Oracle Way in Austin, Texas, with labels for "Mobile Bicycle Workshop", "Lakeshore Park", and "ORACLE ATX23 EXEC GARAGE E2".

The JSON output at the bottom of the form is:

```
{ "firm": null, "address": { "streetAddress": "2300 ORACLE WAY", "streetAddressAbbreviation": null, "secondaryAddress": null, "city": "AUSTIN", "cityAbbreviation": null, "state": "TX", "postalCode": null, "province": null, "ZIPCode": "78741", "ZIPPlus4": "1400", "urbanization": null, "country": null, "countryISOCode": null } }
```



# Sorting

**Block column sorting allows available records to be sorted locally, therefore no extra overhead of calling the database.**

## SORT\_BLOCK

Options:

- Ascending/Descending
- NULLS first/last
- Case sensitive/insensitive
- Binary order
- Linguistic order

Empno	Ename	Job
7876	ADAM	CLERK
7499	ALLEN	SALESMAN
8000	ANDERSON	ADMIN
8888	ANDERSON	LEAD
9654	ANDERSON	MANAGER
7698	BLAKE	MANAGER
7782	CLARK	ACCOUNTANT
9990	DAVIS	RECORDS
9876	DEAN	MANAGER

Example:

```
SORT_BLOCK ('emp.ename', ASCENDING, CASE_INSENSITIVE);
```





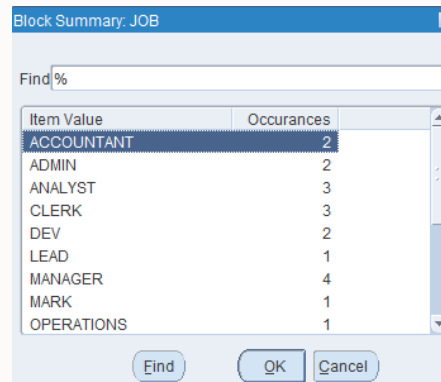
# Filter Block Summary

Provides a summary count of the unique values in the selected item for the records currently in the block. Returns the results to a record group.

## FILTER\_BLOCK\_SUMMARY

Options:

- Ascending/Descending
- NULLS first/last
- Case sensitive/insensitive
- Binary order
- Linguistic order



The screenshot shows a dialog box titled 'Block Summary: JOB'. It contains a search field labeled 'Find%' and a table with two columns: 'Item Value' and 'Occurrences'. The table lists the following job titles and their counts: ACCOUNTANT (2), ADMIN (2), ANALYST (3), CLERK (3), DEV (2), LEAD (1), MANAGER (4), MARK (1), and OPERATIONS (1). The 'ACCOUNTANT' row is highlighted. At the bottom of the dialog are buttons for 'Find', 'OK', and 'Cancel'.

Item Value	Occurrences
ACCOUNTANT	2
ADMIN	2
ANALYST	3
CLERK	3
DEV	2
LEAD	1
MANAGER	4
MARK	1
OPERATIONS	1

Example:

```
FILTER_BLOCK_SUMMARY ('emp.job', 'RG_FILTER', CASE_SENSITIVE);
```

\* LOV shown is only to provide example of how the FILTER\_BLOCK\_SUMMARY record group might be used.



# Continuous Query Notification

- Allow Forms data-blocks to monitor either specific query results or an entire table/object.
  - Query Result Change Notification (QRCN)
  - Object Change Notification (OCN)
- Take action from within WHEN-EVENT-RAISED trigger.

Requires:

*Grant execute on DBMS\_CQ\_NOTIFICATION to <user>*

*Grant CHANGE NOTIFICATION to <user>*

*Refer to GET\_EVENT\_OBJECT\_PROPERTY in Builder Help for a list of helpful properties.*

# WebUtil

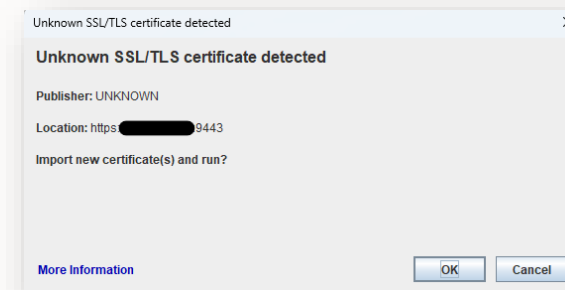
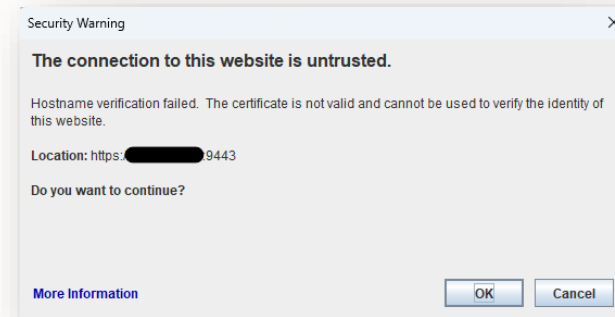
- Improved file download rate when using `WEBUTIL_FILE_TRANSFER.URL_TO_CLIENT`.
- Increase return string length from 4k to 32767 for `WEBUTIL_FILE.FILE_MULTI_SELECTION_DIALOG`.
- Increase `CLIENT_TEXT_IO` maximum line size from 4k to 32767.
- Improved support for IPv6 addresses when calling `getClientInfo*`.
- JAR signing script removed. Self-generated scripts not recommended. Use Java documentation if you choose to self-generate your certificates.

\* *Returning the expected IP address may not be possible on machines with multiple addresses.*



# Forms Standalone Launcher

- Auto-update within same major release.
- Clear cache flag
- Bypass hostname verification (for testing purposes)
  
- v14 enhancements backported to 12.2.1.19
  - Set/configure required Java version
  - Custom protocol handlers
  - SSL Cert importer
  - Additional flags for “-showDetails”
  - Language support



# Builder

- REST Package Designer (RPD)
- MFU increased 3 to 9
- Object List Report allows for naming target path and file
- DB connection name shown in message bar
- New preference; “Create XML After Saving”
- Expose showDetails (0-99) levels when FORMS\_BUILDER\_FSAL\_LOGGING
- Faster startup (not enabled by default) `TK2_DELAY_WIDTH_CALC=0`



# REST Package Designer

REST Package Designer: file:D:\download\1412\postoffice\_address\_verify.json

Default REST Server URL or ID: \_\_\_\_\_

Connect Timeout: 30000    Read Timeout: 30000

Operation Packages

- USPS\_GET\_ADDRESS
- USPS\_GET\_CITY\_STATE
- USPS\_GET\_ZIPCODE

REST Server URL or ID:  Path:  Method: GET

Request Body: None

Parameters

Parameter	Location	Type
streetAddress	Query	String
secondaryAddress		
city		
state		

Acceptable Status Codes: 200,400,401,403,404,429,503

Acceptable Content Types: application/json, application/xml

Automatically parse JSON responses:

Parsed Status Codes: 200

Required Authorizations [Alternative 1 of 2]: USPS\_OAUTH#0 addresses

Authorization Packages

- USPS\_OAUTH#0
- USPS\_OAUTH#2

Credential ID: usps    Authorization Type: OAuth2 Client Credentials

Client Authentication: Form Parameters    Access Token Location: Bearer Token

OAuth2 Token URL: /oauth2/v3/token    Available OAuth2 Scopes: addresses

Buttons: Update, Cancel, Help

Default REST server URL, or key used to look up REST server URL

Object Navigator

REST\_USPS    Find: \_\_\_\_\_

- Forms
  - REST\_USPS
    - Triggers
    - Alerts
    - Attached Libraries
    - Data Blocks
    - Canvases
    - Editors
    - Events
    - LOVs
    - Object Groups
    - Parameters
    - Popup Menus
    - Program Units
      - USPS\_GET\_ADDRESS\* (REST Package Spec)
      - USPS\_GET\_ADDRESS\* (REST Package Body)
      - USPS\_GET\_CITY\_STATE\* (REST Package Spec)
      - USPS\_GET\_CITY\_STATE\* (REST Package Body)
      - USPS\_GET\_ZIPCODE\* (REST Package Spec)
      - USPS\_GET\_ZIPCODE\* (REST Package Body)
      - USPS\_OAUTH#0\* (REST Package Spec)
      - USPS\_OAUTH#0\* (REST Package Body)
      - USPS\_OAUTH#2\* (REST Package Spec)
      - USPS\_OAUTH#2\* (REST Package Body)
    - Property Classes
    - Record Groups
    - Reports
    - Visual Attributes
    - Windows
  - Menu
  - PL/SQL Libraries
  - Object Libraries
  - Built-in Packages
  - Database Objects



# Fusion Middleware Control

## User Sessions

- SSO Username
- Event Listener Port (hidden by default)

## OPSS Administration (RADS)

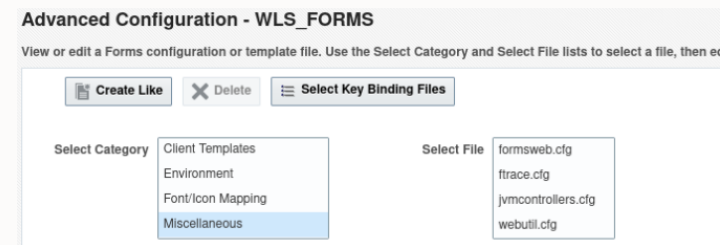
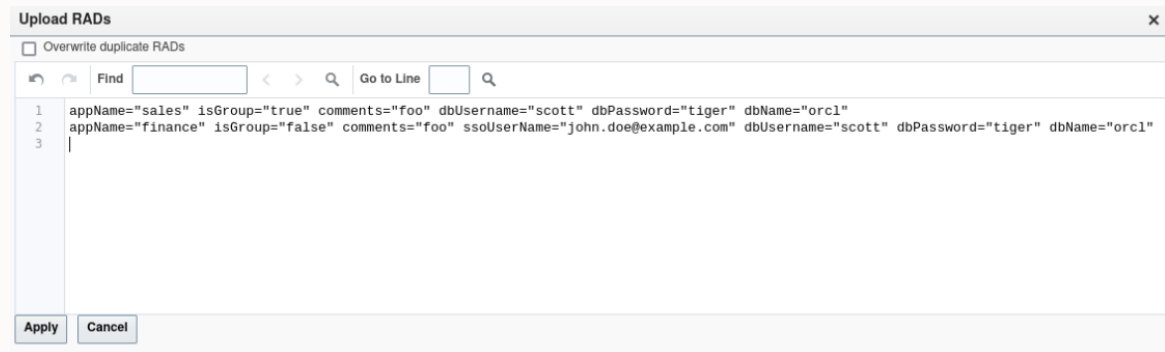
- Bulk upload

## Environment Configuration

- New File (button)

## Advanced Configuration

- Edit all common Forms configurations in full text editor



# Forms Application Deployment Services

- Upload to Archive (no deploy)
- Deploy without DB credentials
- Configuration screen improvements
- Miscellaneous other improvements





# Forms Installation/Configuration Options

## Intended for Runtime or Development

- **Full installation and full domain**
  - Ideal for enterprise environments and/or when granular environment customization is needed (e.g., loadbalancing)
  - Installs full runtime and all design-time tools
  - Requires Repository DB
  - Same option as seen in v12

## Intended for Development

- **Full installation and limited domain\***
  - Ideal for development with lightweight runtime
  - Installs lightweight runtime and all design-time tools
  - No managed servers (only Admin Server)
  - No Repository DB
  - Limitations (e.g. no SSO, FADSUI, or REST auth support)
  - Only supports Restricted JRF components/templates
- **Standalone Form Builder**
  - Ideal for development with a shared remote server
  - Installs all Forms design-time tools.
  - No runtime components
  - Same option as seen in v12

*\* Oracle Reports – Does not support the new config option*



# Miscellaneous FMW Enhancements

- Support FMW 14.1.2 components on Fusion Middleware Infrastructure 14.1.2
- Database 23 embedded client (RSF)
- Oracle Java (JDK) 17 and 21 support
- HTTP/2 support (except OHS)
- TLS1.3 support
- Java Virtual Threads for improved performance

<https://blogs.oracle.com/weblogicserver/post/the-promise-of-using-java-virtual-threads-with-oracle-weblogic-server>

- Fusion Middleware enhancements found in the FMW SOD

<https://www.oracle.com/a/ocom/docs/middleware/fusion-middleware-statement-of-direction.pdf>



# Where Might We Go Next



# Thank you

## **Michael Ferrante**

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