



Extend Oracle Applications Using Mobile Cloud Service (MCS)



Presented by: John Jay King

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Session Objectives



- Know Oracle's many options for mobilizing SaaS and on-premise applications.
- Understand how Oracle Mobile Cloud Service supports development of mobile back-ends.
- Learn the features of Oracle JET, MAF, and MAX and how they may be best used.

Who Am I?



- John King – Partner, King Training Resources
- Oracle Ace Director 
- Member Oak Table Network 
- I help customers use technology through training and consulting in Oracle and other topics (<http://www.kingtraining.com>)
- “Techie” who knows Oracle, ADF, SQL, Java, and PL/SQL pretty well (along with many other topics)
- Member of AZORA, ODTUG, IOUG, and RMOUG
- One of those “dog-spoiling” people 



- Providing customized training solutions since 1988 in the US and internationally
- Oracle topics include: SQL, PL/SQL, Cloud, APEX, ADF, MAF, Forms, Pro*C/Pro*COBOL
- Non-Oracle topics include: UX, Web Services, IoT, Cloud Foundry, REST, Blockchain, Java, JavaScript, HTML5, CSS, jQuery, COBOL, .NET, SQL Server, DB2, Business Analyst, and more
- Visit us at www.kingtraining.com for information and free downloads of presentations and code
- Contact Peggy at 1.303.798.5727 to schedule training today (email: peggy@kingtraining.com)

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ORACLE®
Developer
Community

Nominate yourself or someone you know: acenomination.oracle.com

Where We Are Going



- I. Reviewing MCS and its Features
- II. Creating Mobile Cloud Service
- III. MCS Works With Everything
- IV. MCS and SaaS or On-Premise
- V. Extending Oracle Cloud SaaS

Reviewing MCS



- Oracle Mobile Cloud Service is a cloud-based service to manage mobile apps and resources



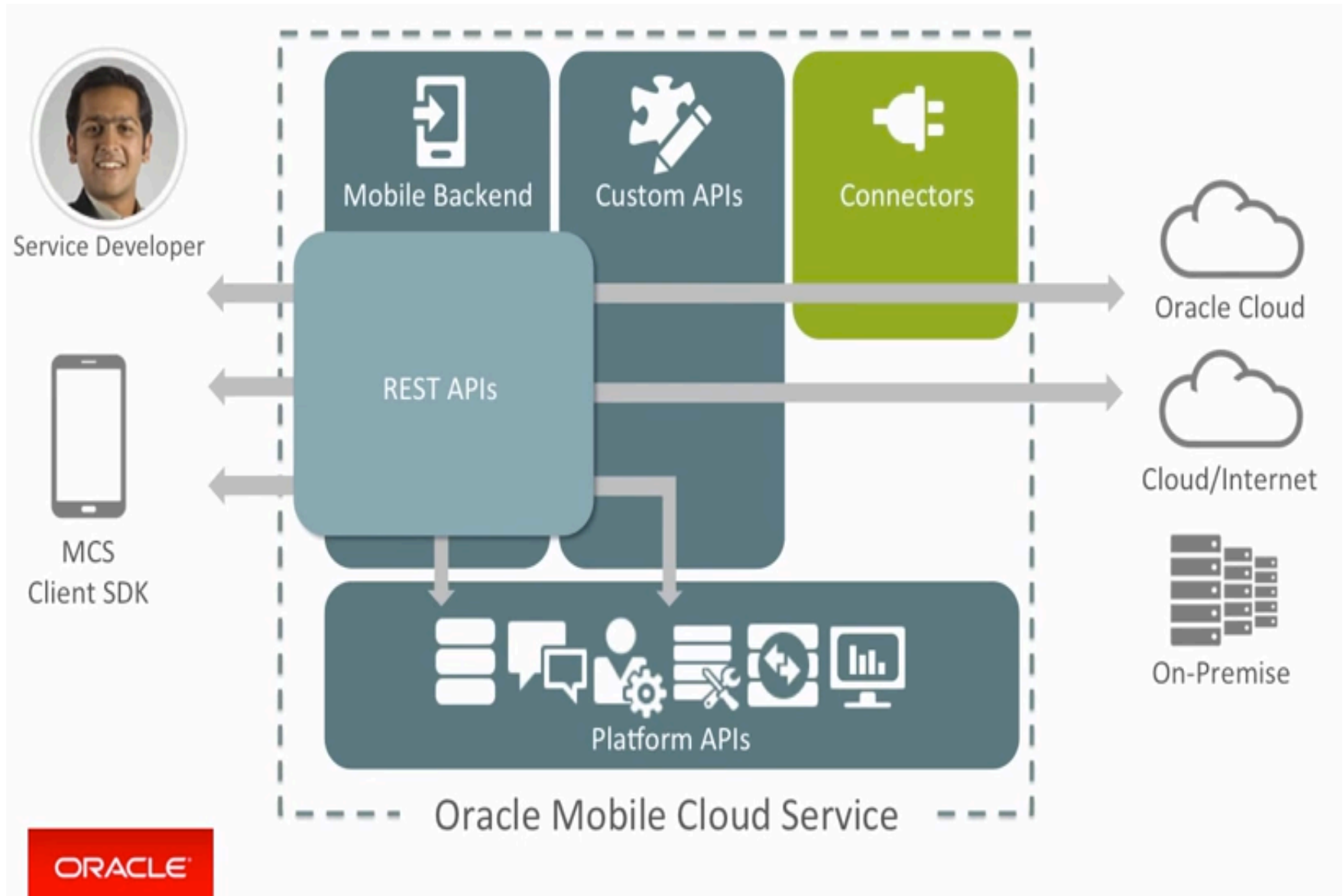


- MCS used differently depending upon role



- Developers connect resources to APIs
- Service Developers create code to support custom APIs and connectors
- Architects identify data needs, required functionality, and security requirements
- MCS team managers use Analytics to track usage/issues

MCS Role In Action



Mobile Cloud Service

- Mobile Cloud Service (MCS) / Mobile Cloud Enterprise eases interface to mobile apps
 - MCS Mobile BackEnd (MBE)
 - MCS Security: Realms, Users, and Roles
 - MCS APIs: Platform & Custom



MCS Options



[Home](#) / [Cloud](#) / [Platform as a Service \(PaaS\)](#) / [Mobile Cloud Service](#)

Oracle Mobile Cloud Service

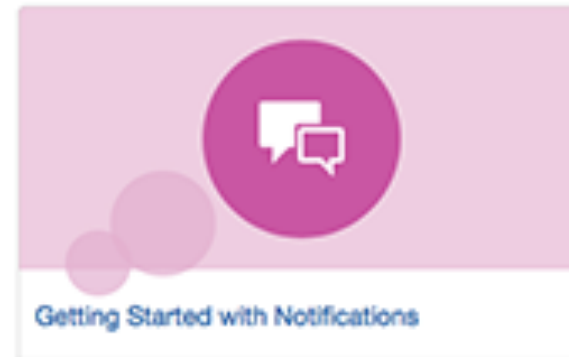


Get Started

Oracle Mobile Cloud Service provides everything you need to build out your mobile strategy—not just your mobile apps. Get started with these short tutorials, or [jump straight to the user guide](#).

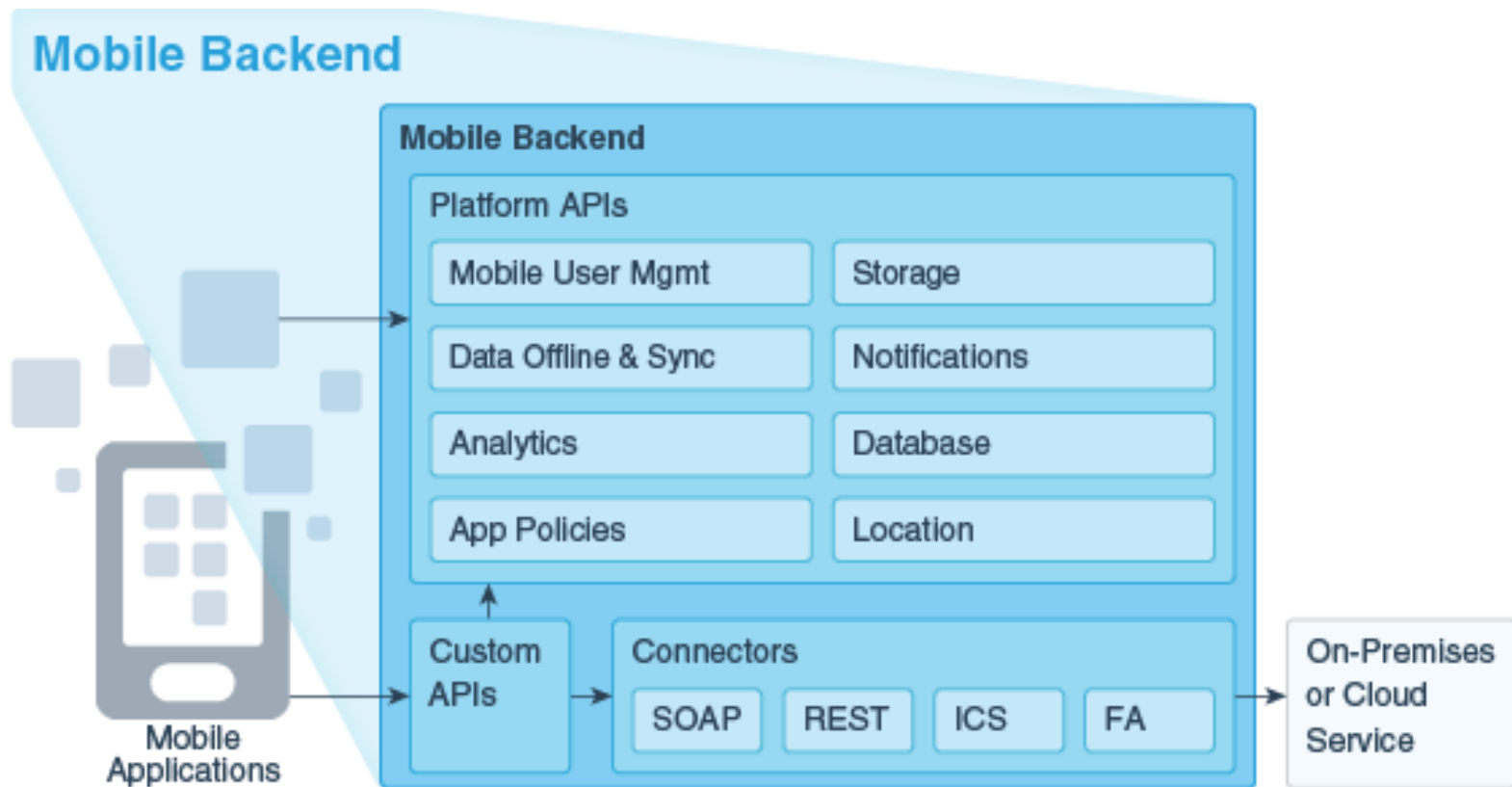
Tell us who you are:

Developer





- The Mobile BackEnd is the key to accessing applications through MCS



MCS Connector APIs



- Connector APIs connect MCS to external REST services
- Connectors may be configured so that when a MBE references them the data is sent and/or received as desired
- Connectors allow the MCS MBE to “hide” the complexity of multiple API calls whether they be REST, SOAP, or something else
- Connectors also “hide” the security work behind the connector configuration



Configure REST API: GoogleDirections1 1.0

Cancel

General

Descriptor

Rules

Security

Test

Save

Save and Close



General Configuration

Provide a name and description for your new REST Connector API, and the path to the remote service it will expose.

* Display API Name GoogleDirections1 1.0

* API Name GoogleDirections1

/mobile/connector/GoogleDirections1

* Short Description demo

96 characters left

Remote Service Connection Settings

HTTP Read Timeout Milliseconds

HTTP Connection Timeout Milliseconds



Configure REST API: GoogleDirections1 1.0

<
Cancel

General
Descriptor
Rules
Security
Test

Save
Save and Close
>

Create Rules

You can create rules that automatically add default parameters when calling specific resources on this service.

If you don't need rules, click '>' to pass through all API calls unchanged. [Tell me more about rules](#)

+ New Rule

For **ALL METHODS** to `https://maps.googleapis.com/maps/api/directions/json` available at `/mobile/connector/GoogleDirections1`. Include **query:origin=San Carlos, CA** **query:destination=Redwood City, CA**

▲ Default Parameters
 These parameters will be included when this rule is triggered
 Add Parameter

×
Query
origin
San Carlos, CA

×
Query
destination
Redwood City, CA

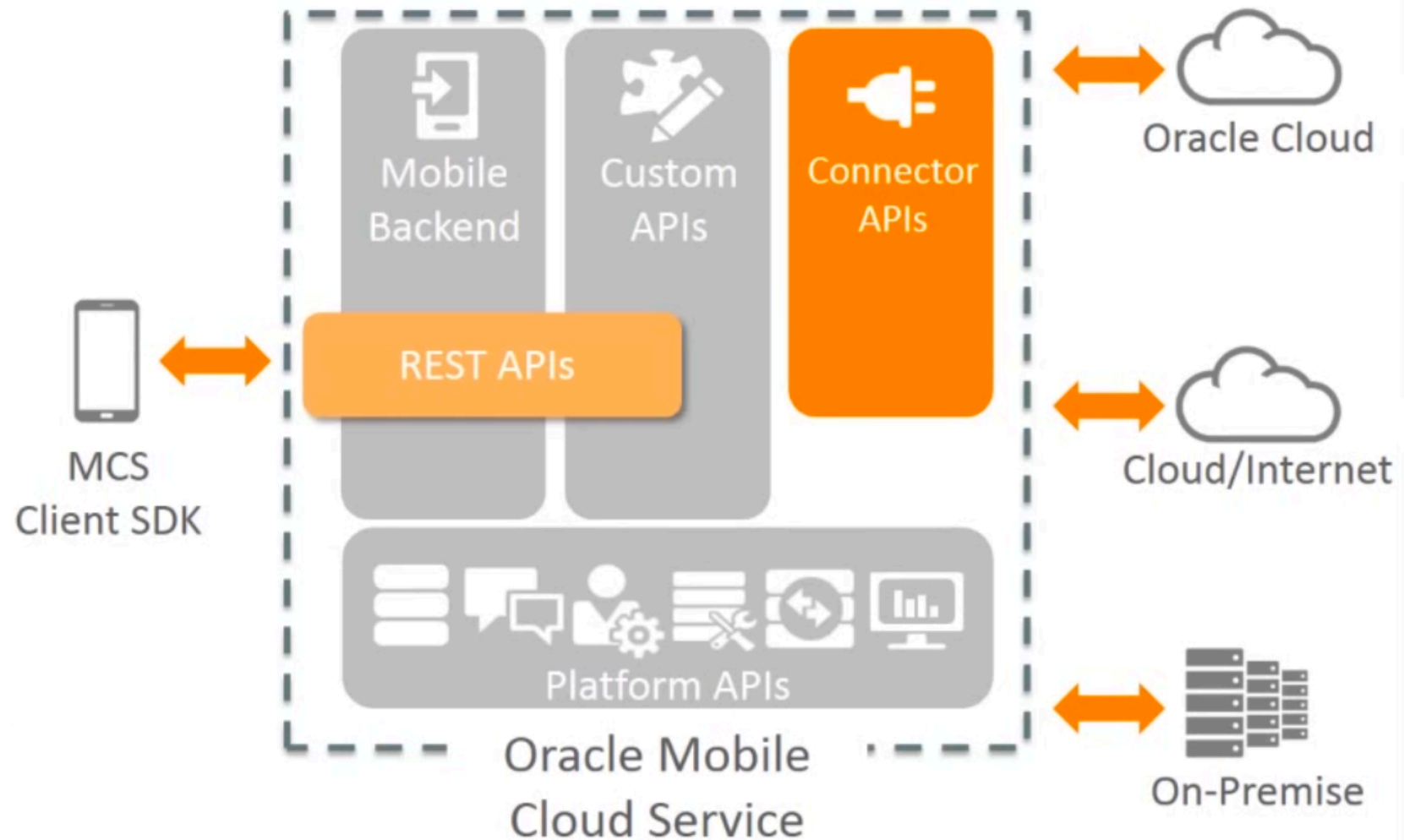
☒ Resource
 This rule will apply to all resources.

? Remote URL
 `https://maps.googleapis.com/maps/api/directions/json`
Resource URI

☐ Do not apply to lower level resources

▶ HTTP Methods
 All methods will trigger this rule

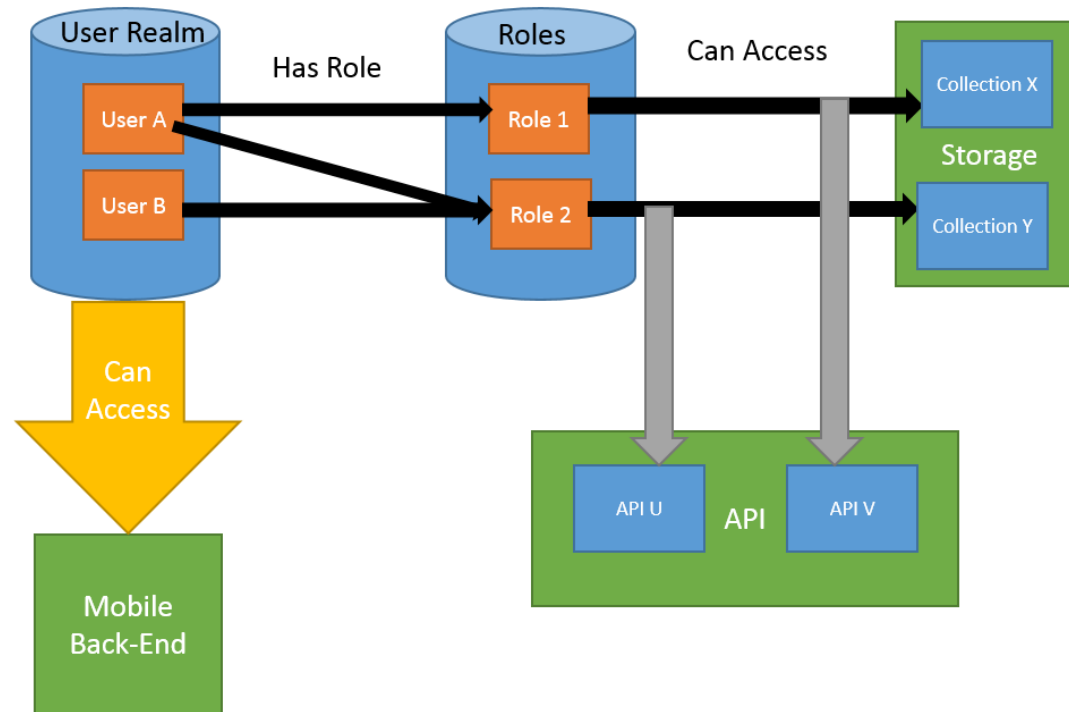
MBE and Connectors



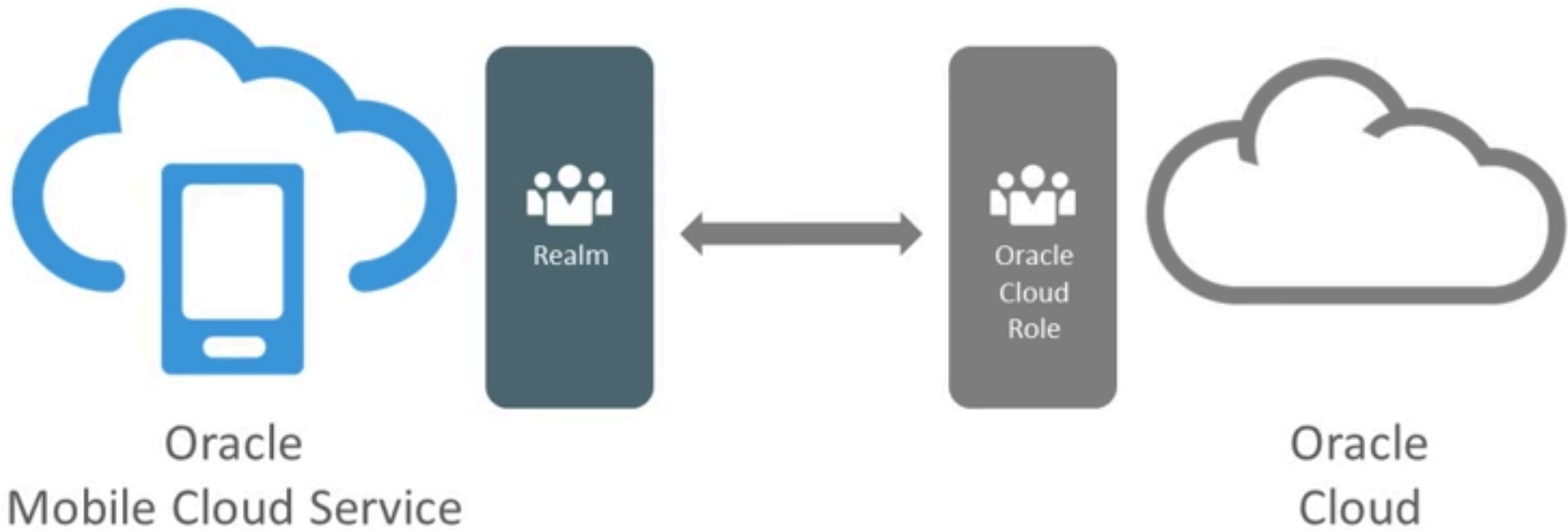


MCS Security

- MCS Security uses Realms, Users, and Roles to interact with security providers

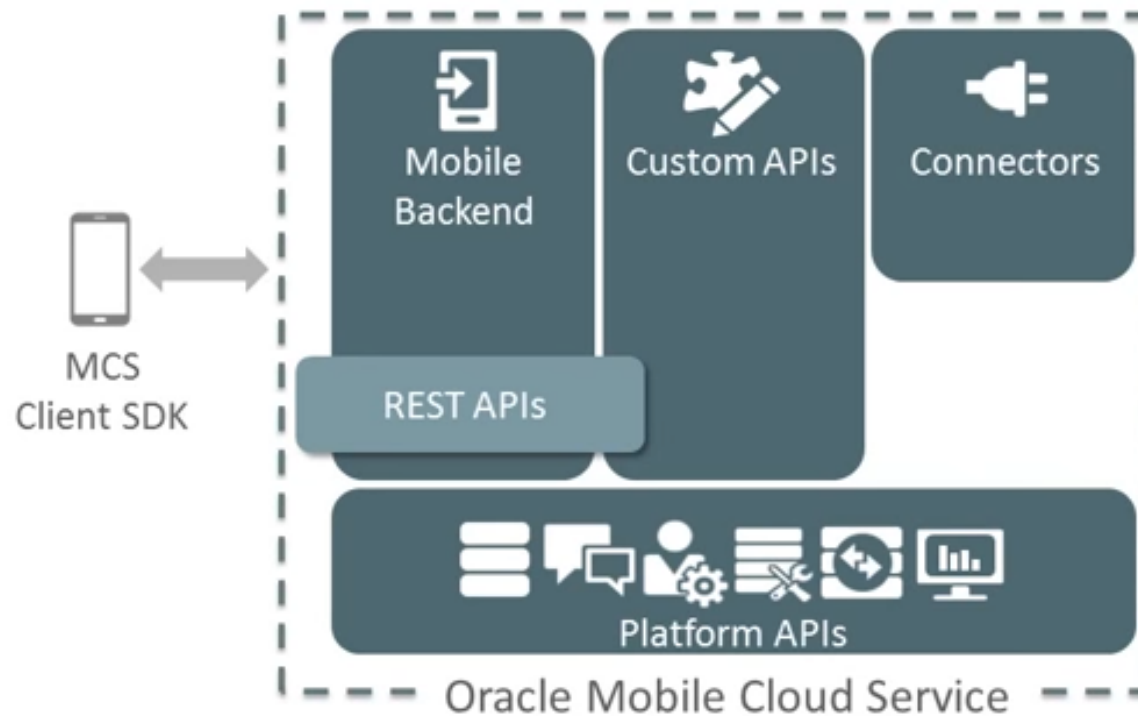


MCS Realms & Oracle Identity





- MCS simplifies mobile access using APIs
 - Platform APIs Provided with MCS
 - Custom APIs Created by application team



MCS Platform APIs



- | | |
|------------------------|---------------------------------|
| – Analytics Collector | Process analytic events |
| – Analytics Export | Get Event and API data |
| – App Policies | Get App policies |
| – Database Access | Add, read, delete rows |
| Database Mgmt. | Create/Drop tables |
| – Devices | Register/deregister client |
| – Location | Device, place, asset locations |
| – Location Mgmt. | Manipulate Asset, Device, Place |
| – Mobile Users | Get/Update user information |
| – Mobile Users Ext Ops | Get extended user info |
| – Notifications | Manipulate notifications |
| – Storage | Return/Store objects |
| – Tools | Upload custom API |

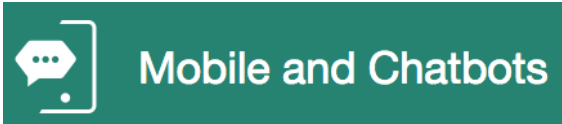
MCS Interactions



- MCS and Chatbots
- MCS and MAF
- MCS and JET
- MCS and MAX
- MCS and non-Oracle software (node.js, React, angular 2, etc.)

MCS and Chatbots



- Today's user expects to interact instantly from anywhere using whatever device is handy; phone, tablet, computer, Amazon Echo, Google Home, who knows what???
- MCS makes it easy to connect Intelligent Bots (chatbots) to back-end data
- Recently announced Intelligent Bot interfaces in Oracle Mobile Cloud that make this even easier The icon is a green rectangular button with a white speech bubble icon on the left and the text "Mobile and Chatbots" in white on the right.
- Use a simple RESTful API to build your bot

MCS and MAF



- MAF (Mobile Application Framework) is the tool used to create most of Oracle's existing SaaS mobile apps
- MAF is a hybrid mobile app creation tool using a single code base but generating native apps for both Android and Apple
- MCS connectors work directly with MAF and promote the creation of mobile apps simply and easily

MCS and JET



- JET (Java Enterprise Toolkit) is Oracle's industry-standard HTML, CSS, and JavaScript tool kit
- JET applications will work on any industry-standard browser (device operating system does not matter)
- Use the simplified RESTful API provided by MCS to work with complex security and data stores via MCS's RESTful services



MCS and MAX

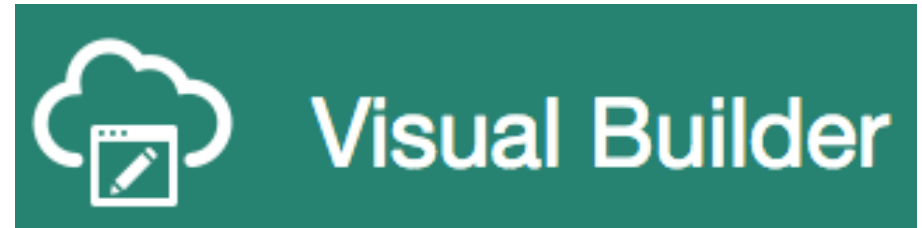


- Oracle MAX (Mobile Application Accelerator) provide a low-code tool for generation of Mobile applications
- The MCS RESTful API simplifies use of Oracle resources minimizing the amount of coded required

MCS and VBCS



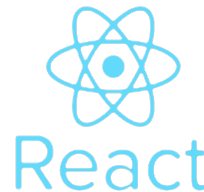
- Oracle Virtual Builder Cloud Service (formerly ABCS) provides a low-code application development tool
- The MCS RESTful API simplifies use of Oracle resources minimizing the amount of coded required



Non-Oracle Software



- MCS works with any non-Oracle software that can call RESTful APIs such as:
 - node.js
 - React
 - Angular 2
 - more... (pretty much anything that can consume RESTful APIs)

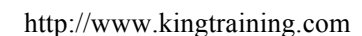




- Using MCS may connect to anything with APIs that MCS can reach including:
 - MCS and SaaS or On-Premise Applications
 - Oracle Cloud Applications
 - Oracle E-Business Suite & JD Edwards
 - Other Oracle ERPs
 - Non-Oracle software



- Oracle Human Resources Cloud R12
 - Employee Resources: emps, grades, jobs, jobFamilies, locations, organizations, positions, scheduleRequests, timeEventRequests, wellnessActivities
 - Schedule Requests: scheduleRequests, scheduleEvents, scheduleShiftAttributes
 - Time Event Resource: timeEvents, timeEventRequests, timeEventAttributes
 - Wellness Activities Resource: wellnessActivities





[Home](#)

REST API for Common Features in Oracle Applications Cloud Release 13 (update 17C)





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About the REST APIs

All REST Endpoints



Get Started

Overview

Accessing REST APIs

Authentication and Authorization

Resource Methods

Working with REST APIs

Use Cases

Reference

Tasks

Audit Report

Bulk

Resource Types

Roles

Schemas

User Requests

Users

About the REST APIs

This document applies to R13 (Update 17C).
Previous version: [R13 \(Update 17B\)](#)

Representational State Transfer (REST) APIs and Atom feeds are available to support integration requirements for the common features in Oracle Applications Cloud. The REST APIs enable easy integration of data into new and existing business process flows. Atom feeds enable easy tracking of changes made to feed-enabled resources.

APIs

> Audit Report

> Bulk

> Resource Types

> Roles

> Schemas

> User Requests

> Users

You can view a list of all [REST Endpoints](#).

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- Oracle Cloud Applications are now on generation 13; they provide a variety of APIs easily accessed using the Oracle API Catalog



(Experienced users report some REST APIs not available publically at this point despite the documentation (SOAP ok) – they might be referring to version 12)



- API Catalog Cloud Service
 - CX
 - ERP
 - HCM
 - IoT
 - SCM
 - IaaS
 - PaaS
 - more





Infrastructure

Platform

Applications

Industry Solutions

Infrastructure

[Archive Storage in Oracle Storage](#)

[Compute Cloud Service \(IaaS\)](#)

[Container](#)

[Identity in Oracle Storage](#)

[Monitoring](#)

[Standard Storage in Oracle Storage](#)

API Catalog: Platform



ORACLE® API Catalog Cloud Service

Search the API Catalog

REST APIs [Public APIs](#) [My APIs](#)

[Infrastructure](#) [Platform](#) [Applications](#) [Industry Solutions](#)

Application Development

- API Catalog
- Cloud Stack Manager
- Java
- Managing Application Caches
- Managing Applications
- Messaging
- Using Caches in Applications

Business Analytics

- BI
- Big Data Preparation
- Data Visualization
- Internet of Things

Integration

- Integration Cloud Service, Version 1
- Integration Cloud Service, Version 2
- Managed File Transfer Cloud Service 12.2.1
- Managed File Transfer Cloud Service 12.2.1.2
- Real-Time Integration Business Insight
- SOA

Content and Collaboration

- Collaboration
- Content Management 1.1
- Content Management 1.2
- Process Cloud Service, Version 4.0

Security

- Identity Cloud Service [16.3.6]
- Identity Cloud Service [16.4.6]
- Identity Cloud Service [17.2.2]
- Identity Cloud Service [17.2.6]
- Identity Cloud Service [17.3.2]

Data Management

- Big Data Cloud Service - Compute Edition
- Database
- Database Exadata
- Event Hub Cloud Service - Platform
- Managing Oracle Big Data Cloud Service - Compute Edition
- MySQL



ORACLE® API Catalog Cloud Service

REST APIs

[Infrastructure](#)
[Platform](#)
[Applications](#)
[Industry Solutions](#)

Adaptive Intelligent Apps

- Adaptive Intelligent Offers

Data

- Address Verification
- Application Mangement 12c
- Social Data and Insight

Enterprise Resource Planning

- Common Features for Oracle Project Portfolio Management Cloud Release 12 [11.12.0.0]
- Common Features for Oracle Project Portfolio Management Cloud Release 12 [11.12.1.0]
- Common Features for Oracle Project Portfolio Management Cloud Release 13
- Project Portfolio Management Cloud Release 11
- Project Portfolio Management Cloud Release 12 [11.12.0.0]
- Project Portfolio Management Cloud Release 12 [11.12.1.0]
- Project Portfolio Management Cloud Release 13

Human Capital Management

- Common Features for Oracle Global Human Resources Cloud Release 12 [11.12.0.0]

Customer Experience

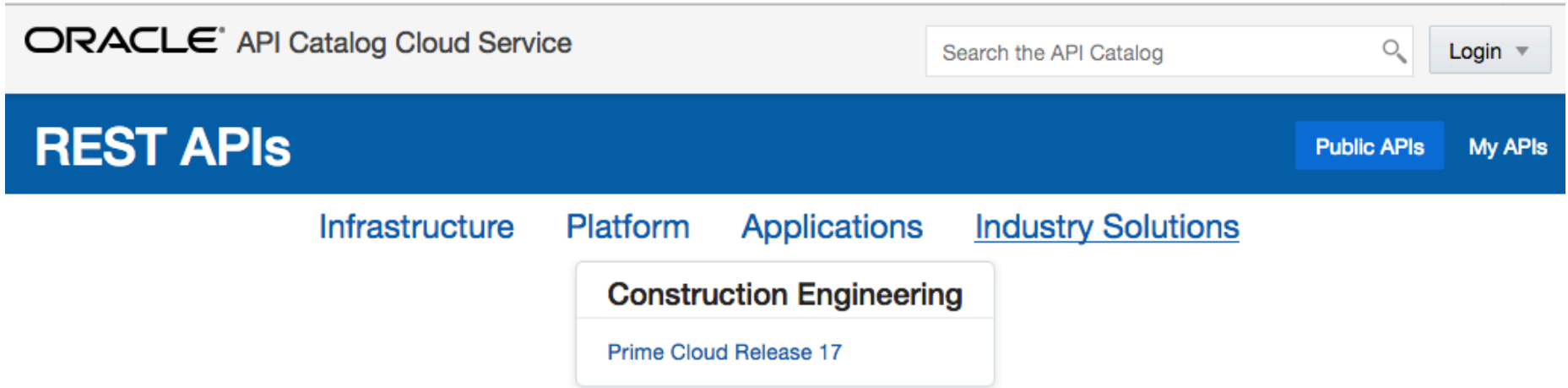
- Cloud Marketplace Publisher
- Commerce Cloud Service 16.4
- Commerce Cloud Service 16.5
- Commerce Cloud Service 16.6
- Commerce Cloud Service 17.3
- Common Features for Oracle Loyalty Cloud Release 13
- Common Features for Oracle Sales Cloud Release 12 [11.12.0.0]
- Common Features for Oracle Sales Cloud Release 12 [11.12.1.0]
- Common Features for Oracle Sales Cloud Release 13
- Core API for Field Service
- Eloqua Marketing
- Field Service Cloud Service August 2016
- Field Service Cloud Service February 2017
- Knowledge in Oracle Engagement Cloud R13 (update 17C)
- Loyalty Cloud Release 13 - August, 2017
- Maxymiser REST API
- Metadata API for Field Service

Internet of Things Applications


- IoT Asset Monitoring
- IoT Fleet Monitoring
- IoT Production Monitoring

Supply Chain Management

- Common Features for Oracle Supply Chain Management Cloud Release 12 [11.12.0.0]
- Common Features for Oracle Supply Chain Management Cloud Release 12 [11.12.1.0]
- Common Features for Oracle Supply Chain Management Cloud Release 13
- Supply Chain Management Cloud Release 12 [11.12.0.0]
- Supply Chain Management Cloud Release 12 [11.12.1.0]
- Supply Chain Management Cloud Release 13



ORACLE® API Catalog Cloud Service

Search the API Catalog 

Login ▾

REST APIs

Public APIs My APIs

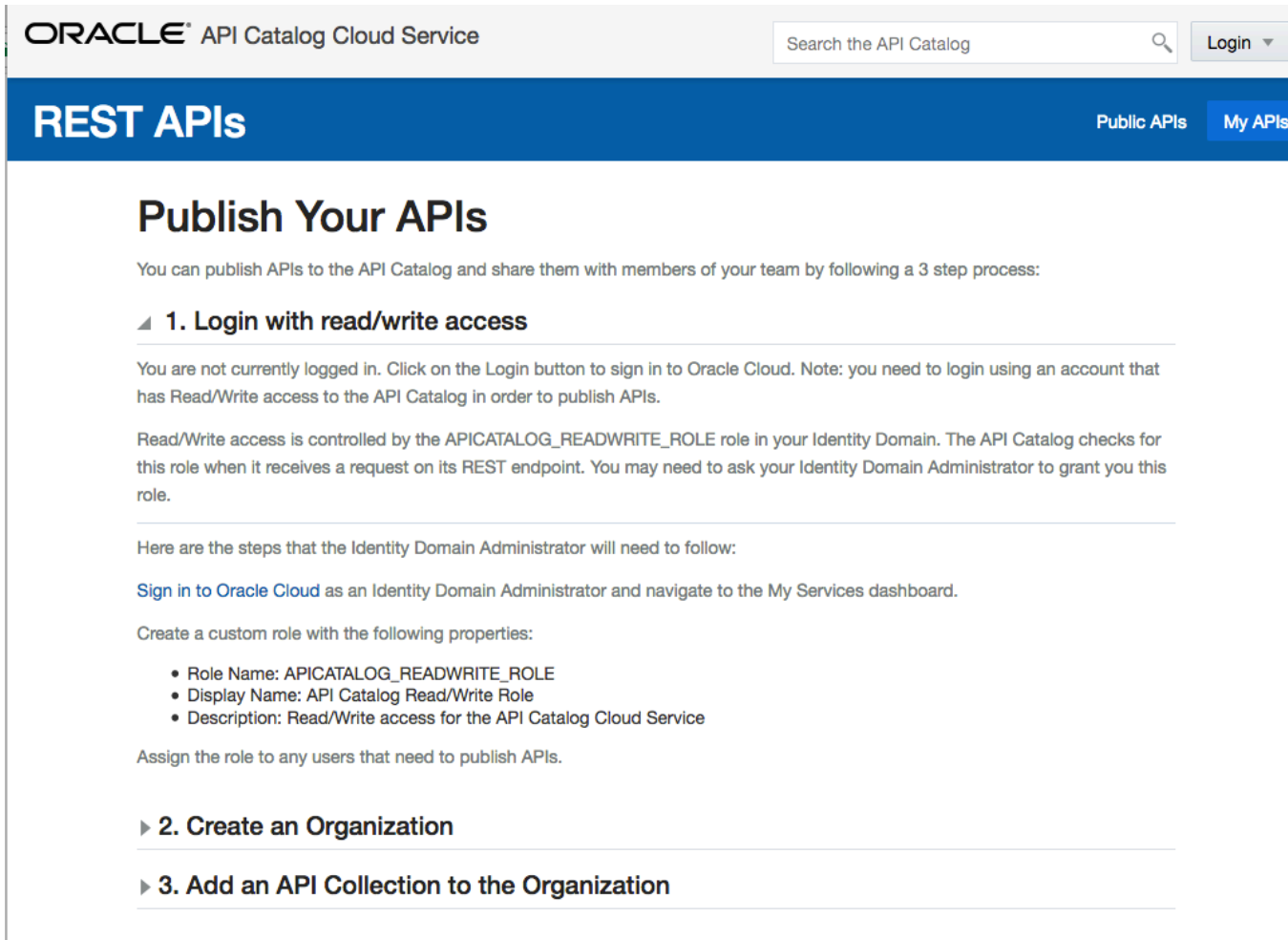
Infrastructure Platform Applications Industry Solutions

Construction Engineering

Prime Cloud Release 17



- The API catalog also allows creation of custom APIs

A screenshot of the Oracle API Catalog Cloud Service web interface. The header shows "ORACLE API Catalog Cloud Service" on the left, a search bar "Search the API Catalog" in the center, and a "Login" button on the right. Below the header is a blue navigation bar with "REST APIs" on the left and "Public APIs" and "My APIs" on the right. The main content area is titled "Publish Your APIs" and contains a 3-step process for publishing APIs. Step 1, "Login with read/write access", is expanded and shows instructions for logging in and creating a custom role. Steps 2 and 3 are partially visible below.

ORACLE API Catalog Cloud Service

Search the API Catalog Login

REST APIs Public APIs My APIs

Publish Your APIs

You can publish APIs to the API Catalog and share them with members of your team by following a 3 step process:

1. Login with read/write access

You are not currently logged in. Click on the Login button to sign in to Oracle Cloud. Note: you need to login using an account that has Read/Write access to the API Catalog in order to publish APIs.

Read/Write access is controlled by the APICATALOG_READWRITE_ROLE role in your Identity Domain. The API Catalog checks for this role when it receives a request on its REST endpoint. You may need to ask your Identity Domain Administrator to grant you this role.

Here are the steps that the Identity Domain Administrator will need to follow:

[Sign in to Oracle Cloud](#) as an Identity Domain Administrator and navigate to the My Services dashboard.

Create a custom role with the following properties:

- Role Name: APICATALOG_READWRITE_ROLE
- Display Name: API Catalog Read/Write Role
- Description: Read/Write access for the API Catalog Cloud Service

Assign the role to any users that need to publish APIs.

2. Create an Organization

3. Add an API Collection to the Organization



Single Sign On Manager - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://frep11i10.oracle.com/OA_HTML

ORACLE Integration Repository

View Product Family

- Advanced Planning
- Applications Technology
 - Application Object Library
 - Applications Message Dictionary
 - Applications Security Context
 - Function Security
 - Key Flexfield
 - OATM
 - Object-Tablespace Classification
 - Oracle Applications
 - Tablespace Model
 - Tablespace
 - Single Sign On Manager**
 - User
 - User Profile
 - CRM Data Model

Single Sign On Manager

Search

Export

Name	Internal Name	Product	Type	Status	Description
SSO Manager	FND_SSO_MANAGER	Application Object Library	PL/SQL	Active	This package provides APIs for central Login/Logout Management features.
SSO Manager	oracle.apps.fnd.sso.SSOManager	Application Object Library	Java	Active	This class provides methods for central login, logout, password management and some generic methods that abstracts applications from the Single Sign-On (SSO) and Oracle Internet Directory (OID) integration.

Done

Adblock Proxy:www-proxy.us.oracle.com:80



← → ↻ Secure | https://docs.oracle.com/cd/E53430_01/EOTRS/rest-endpoints.html

ORACLE Help Center

Home

REST API for JD Edwards EnterpriseOne AIS Server

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- About the REST APIs
- All REST Endpoints

Get Started

- Quick Start
- Authentication
- Use cURL

Tasks

- Application Stack Service
- Batch Form Service
- Data Service
- Default Config Service
- Form Service
- Jargon Service
- Logging Service
- Media Object Service
- Message Service
- Orchestration Discovery Service
- Orchestrator Service

All REST Endpoints

Sort by Task Path Method ☒ Group by API

Application Stack Service

Execute stateful calls to applications including flows from one form to another.

Execute Forms Keeping State v1

Method: **POST**

Path: /appstack

Execute Forms Keeping State v2

Method: **POST**

Path: /v2/appstack

Execute Next Record Request v2

Method: **GET**

Path: /v2/appstack/next

Execute Next Record Request v2

Method: **POST**



← → ↻ Secure | https://docs.oracle.com/cd/E53430_01/EOTRS/rest-endpoints.html

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Orchestrator Service

All REST Endpoints

Sort by **Task** Path Method ☒ Group by API

Application Stack Service

Execute stateful calls to applications including flows from one form to another.

Execute Forms Keeping State v1

Method: **POST**

Path: /appstack

Execute Forms Keeping State v2

Method: **POST**

Path: /v2/appstack

Execute Next Record Request v2

Method: **GET**

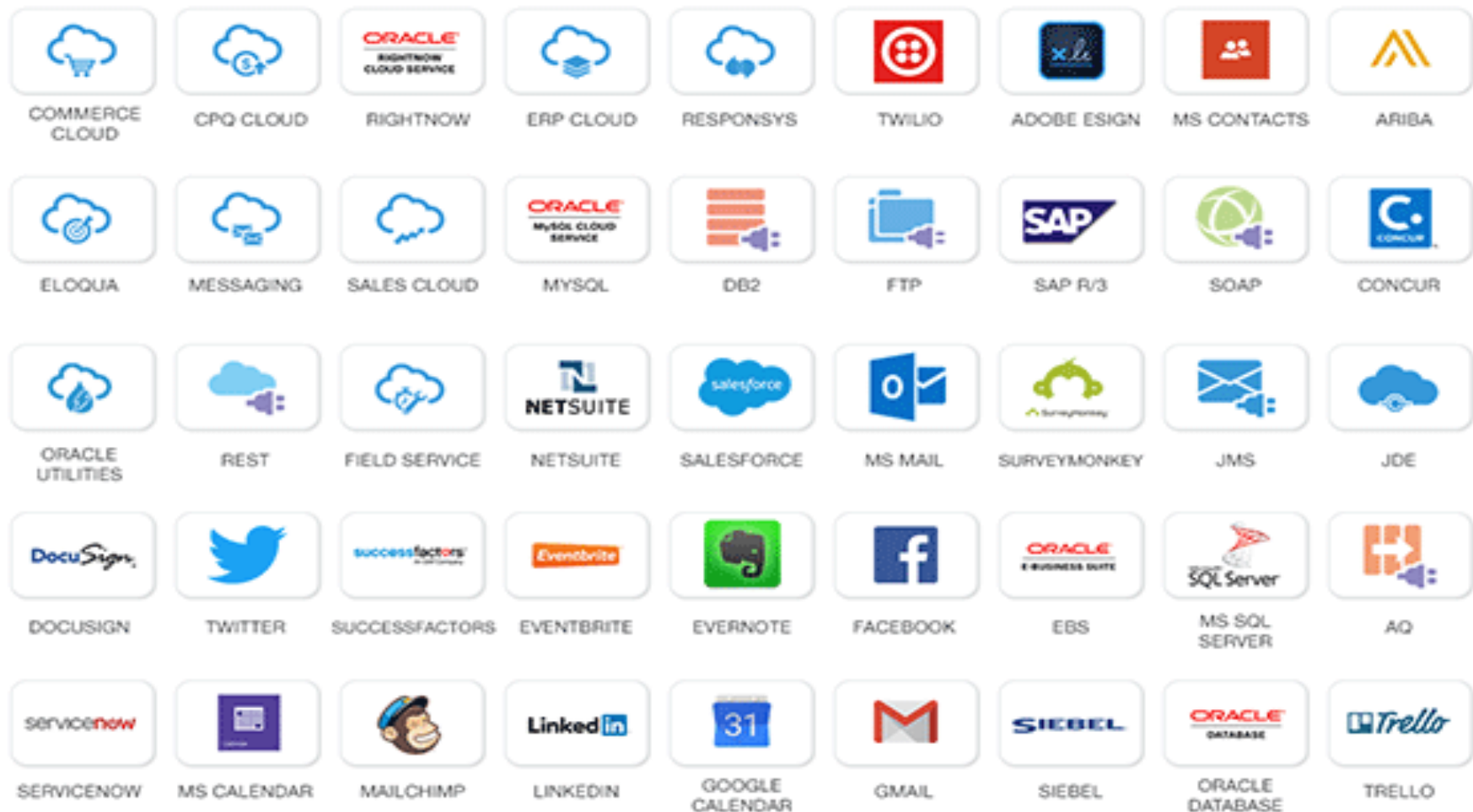
Path: /v2/appstack/next

Execute Next Record Request v2

Method: **POST**



- Oracle Integrated Cloud Service (ICS) provides another source of APIs



Other Oracle ERPs



- Peoplesoft currently has many SOAP based web services and custom REST services may be created
- Siebel has both SOAP and REST APIs

Non-Oracle Cloud



- Believe it or not, Oracle is not the only cloud provider!
- APIs are available for most of the more-popular non-Oracle clouds too:
 - SAP
 - Salesforce
 - AWS
 - Microsoft 365
 - Microsoft Azure
 - Many, many, more...

Fusion Apps Connectors



- MCS allows the use of various APIs (SaaS, HCM, SCM, CRM, custom, and more) by means of Connectors
- Connector developers can incorporate various API calls to REST, SOAP, and other services

Connection Creation Steps



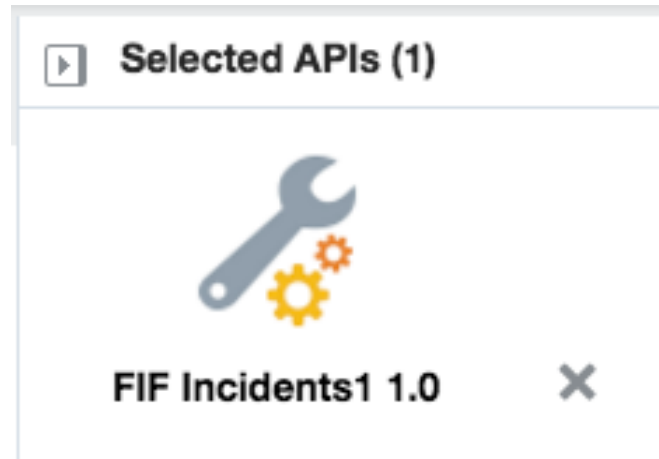
1. Create connector API
2. Authenticate with Cloud Applications instance (design time)
3. Connect to Cloud Applications instance
4. Discover and enable resources
5. Set resource attributes
6. Set security policies
7. Test connector APIs

Connector Run-Time



1. Application needs connector resources
2. Cloud apps connector API
3. Cloud resources accessed
4. Runtime security checks credentials
5. Cloud application provides resources

Add Connector(s) to MBE



Oracle Supplied Apps

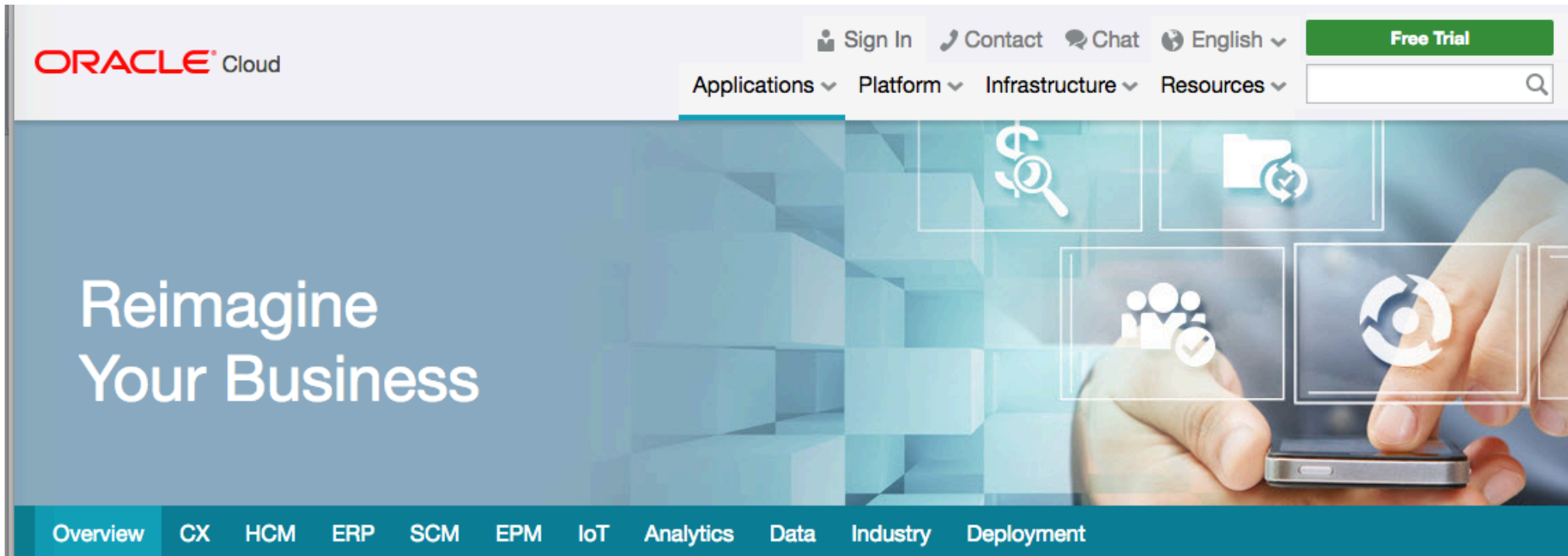


- Oracle's SaaS provides several mobile apps out of the box (but maybe not the one you want)



Extending Oracle Cloud SaaS

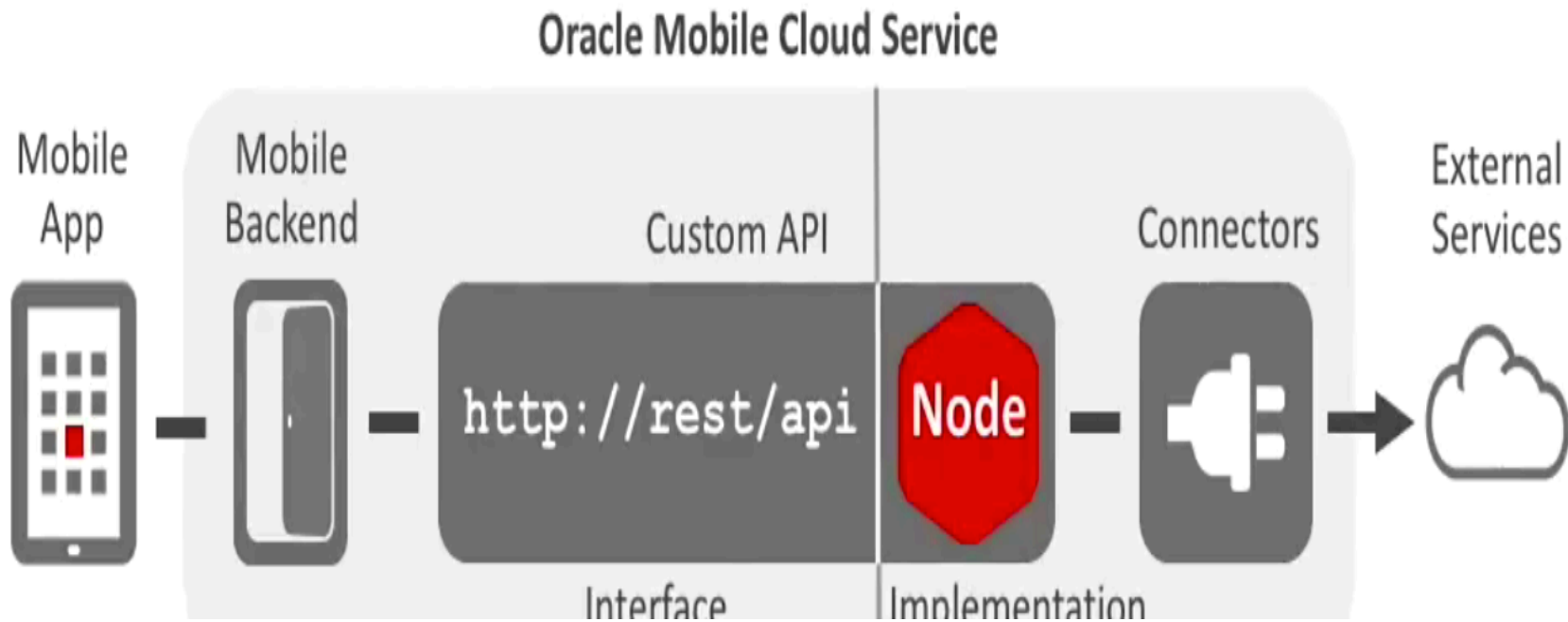
- Extending Oracle Cloud SaaS
 - Oracle supplied Applications
 - Oracle supplied APIs
 - API Catalog Cloud Service
 - Many other options





- Enterprise apps rarely use a single activity
 - We must ensure security protocols are honored
 - We need to connect to disparate sources of data; SaaS, on-prem, databases, more...
 - We might need to manage data for off-line access then "synch-up" when connected
- Developers can manually manage all of this from within the application with lots of calls
- Or, developers can use MCS to encapsulate activities so that the mobile app is as simple and fast as possible

MCS & Mobile Apps



Wrapping it all Up



- Mobile Application development in the Enterprise is complex; often involving SaaS, Security, non-SaaS data, and more
- Mobile Application developers MAY access available services directly providing more-direct access to resources at the cost of duplicating integration effort and security effort over and over again for each app
- Mobile Applications developer MAY ALSO use Oracle Mobile Cloud Services and its Mobile Back Ends and Adapters to greatly simplify creating mobile applications and making mobile back end processing more-reusable

RMOUG Training Days 2018

February 20-22, 2018 (Tuesday-Thursday)

Westin Hotel

10600 Westminster Blvd

Westminster, CO 80020



Tracks

- Application Development
- Business Intelligence
- Database Administration
- DBA Deep Dive
- Database Tools of the Trade
- Hyperion
- Middleware
- Professional Empowerment

PHOTO CREDIT: Mike Landrum, SQL Developer and the "Data Tsunami" from i-Behavior

www.rmoug.org





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TECHNOLOGY AND APPLICATIONS FORUM
FOR THE ORACLE COMMUNITY

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COLLABORATE 18 registration will open on Wednesday, November 8.

Call for Speakers

Submit your session presentation! The Call for Speakers is open until Friday,
October 20

collaborate.ioug.org



Register Now

www.kscope18.odtug.com



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ORLANDO





Extend Oracle Applications Using Mobile Cloud Service (MCS)

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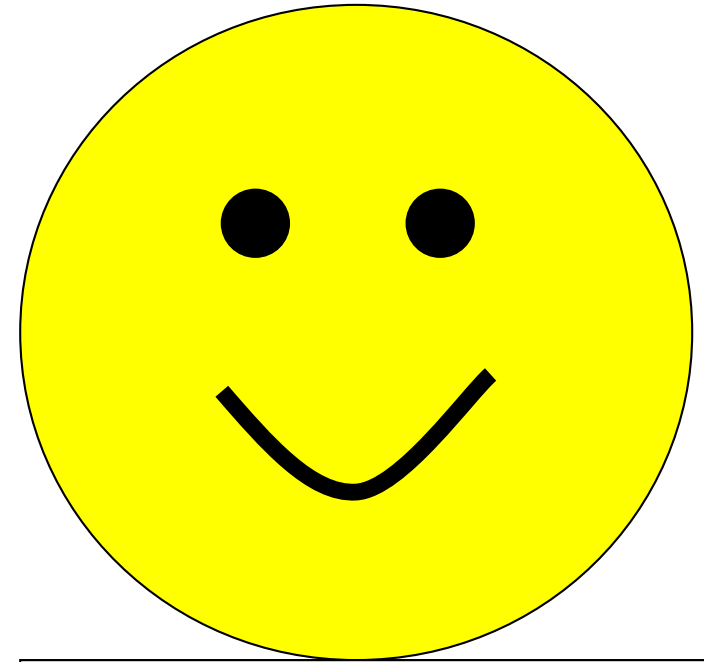
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Twitter: @royaltwit

Linked In: <https://www.linkedin.com/in/john-king-4175603>



Thanks for your attention!

Today's slides are on the web:

<http://www.kingtraining.com>



- End