



# RESTFUL APIS

PART 1 / 2

**DEVELOPMENT & EXTENSIBILITY**

IFS CLOUD – 21R1



# AGENDA

**1**

**IFS REST  
APIS**

**2**

**API CLASS AND  
USAGE**

**3**

**API EXPLORER**

**4**

**API  
DOCUMENTATION**



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**1**

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**API EXPLORER**

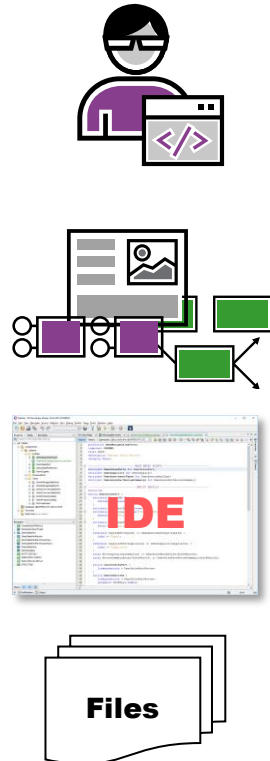
**4**

**API  
DOCUMENTATION**

# TAILOR AND EXTEND CUSTOMER SOLUTION

## CONCEPTS AND TERMINOLOGY

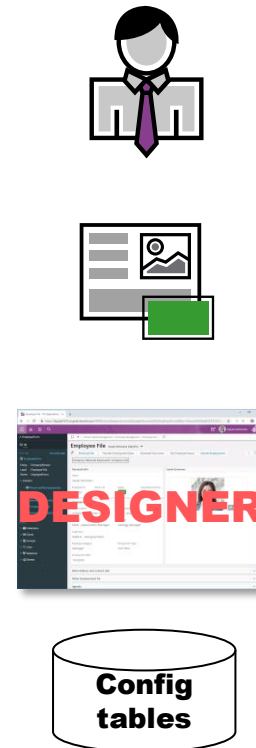
### EXTEND INSIDE



DELIVER  
& INSTALL

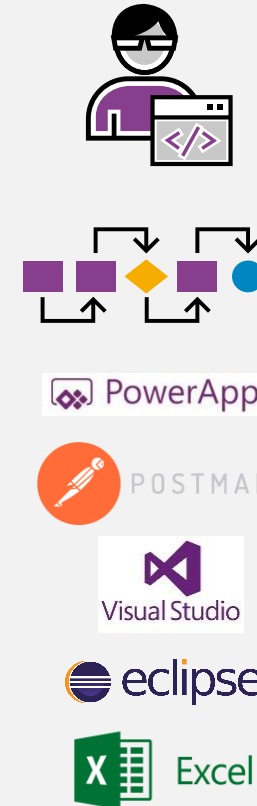
EXPORT  
TO CONTROL

### CONFIGURE



USING APIs

### EXTEND OUTSIDE



CUSTOMER'S ENVIRONMENTS

# RESTFUL APIS

## THE MODERN API FOR THE WEB

- **RE**presentational **St**ate **T**ransfer is an *architectural style* for building applications on the web
- Data and functionality are considered resources and are accessed using **Uniform Resource Identifiers (URIs)**
- Resources are manipulated using standard HTTP verbs
  - GET, POST, PUT, PATCH, DELETE
- Simple, Lightweight, Scalable

# STANDARDIZING REST APIS

## THE ODATA STANDARD



- OData (Open Data Protocol) is a standard approved by OASIS
- Helps focus on business logic while building RESTful APIs
- Provides specific guidance on:
  - URL conventions
  - HTTP methods
  - HTTP headers
  - Status codes
  - Payload formats
  - Query options

```
https://services.odata.org/OData/OData.svc/Category(1)/Products?$top=2&$orderby=name
```

service root URL	resource path	query options

# OPENAPI SPECIFICATION

## IFS IMPLEMENTATION

- “The **OpenAPI Specification (OAS)** defines a standard, language-agnostic interface to RESTful APIs which allows both humans and computers to discover and understand the capabilities of the service without access to source code, documentation, or through network traffic inspection.”
- IFS API documentation is available through **\$openapi** which outputs the documentation according to the **OpenAPI standards (OAS)** in JSON format.
- End point for OpenAPI  
**`https://<Server>:<port>/int/ifsapplications/projection/v1/<name>.svc/$openapi`**





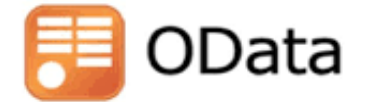
IFS provides application wide **REST APIs** based on the **OData** protocol which are described using the **OpenAPI** specification



# IFS REST APIs

## BASED ON OPEN STANDARDS

- High level of interoperability with other systems
- Availability of many open-source tools and libraries (esp. based on OpenAPI)
- All functionality available in the Aurena client is also available via APIs
- Enables other “clients” access to the same functionality



**100% Coverage on IFS Cloud with RESTful APIs**



# RESTFUL APIS

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# IFS REST APIS

## API USAGE POLICY

<https://docs.ifs.com/policy/APIUsage.pdf>

- Two API Classes:
  - Premium
  - Standard

“applicable to APIs in the **core layer**”

The API class is used to indicate expectations regarding the level of responsibility IFS intends to take for an API over time. This is applicable to APIs in the core layer of the Layered Application Architecture (LAA) only—APIs in other layers are the full responsibility of the customer.

The following API classes are defined:

API class	
Premium	<p>“We intend to provide comprehensive documentation” “strive to maintain compatibility”</p> <p>We intend to provide comprehensive documentation on the appropriate use of the API and maintain that documentation over time. We consider changes to the API carefully, strive to maintain compatibility and aim to provide early warning as well as guidance to customers in moving to new versions of the API.</p>
Standard	<p>“We intend to provide overview of API changes”</p> <p>We intend to provide an overview of API changes in conjunction with updates and releases.</p>

Unless an API is explicitly designated as Premium it is to be considered classified as Standard.

Please note that an API, regardless of class, can also be marked as **Deprecated**. A deprecated API is planned to be removed in a future update or release. You are advised to change to use a different API.

API documentation is  
in future releases and

“A deprecated API is planned to be removed in a future update”



# IFS REST APIS

## CREATING APIS

### 1. PROJECTION MODEL (MARBLE)

```
SurveyAnswerHandling.projection X
Source History Connection: FI_GREENHOUSE

1
2  -- Date      Sign      History
3  -- 181115    SgPeLEK    HREUXK-22846, Fixed employee name visibility issue
4  -- 180714    HasRLK     HREUXK-19196, Uniformity Changes.
5
6
7  projection SurveyAnswersHandling:
8  component RMPSRV:
9  layer Core:
10 description "This tab is used to view the answers received for all questions published on each employee survey";
11 category Users:
12 include fragment LovEmployeeSelector;
13 include fragment LovCompanySelector;
14
15
16 ----- MAIN ENTRY POINTS -----
17 entityset Surveys for Survey;
18 entityset SurveyAnswers for SurveyAnswer;
19 entityset SurveyAlternatives for SurveyAlternative;
20 entityset SurveyAltItems for SurveyAltItem;
21 entityset CompanyPersons for CompanyPerson;
22
23 ----- ENTITY DETAILS -----
24 @Override
25 entity SurveyAnswer {
26   crud = Read;
27   where = "Survey_Util_API.Has_Full_Access_To_Survey(survey_id) = 'TRUE'";
28   attribute AnsSet Text {
29     fetch = "Survey_Answer_API.Get_Answer_Set(Answer_Id)";
30   }
31   attribute RouteActionNo Number {
32     fetch = "Survey_Answer_API.Get_Round_Action_Seq(Answer_Id)";
33   }
34   attribute TempAnswer Text {
35     fetch = "Survey_Answer_API.Get_Temp_Answer(Answer_Id)";
36   }
37   attribute AnswerTime Time;
38   attribute EmployeeName Text {
39     fetch = "Pers_API.Get_Internal_Display_Name(Company_Pers_API.Get_Person_Id(Company_Id, Emp_No))";
40   }
41   attribute EmployeePersonId Text {
42     fetch = "Company_Pers_API.Get_Person_Id(Company_Id, Emp_No)";
```

Standard

### 2. PROJECTION CONFIGURATION

● > Solution Manager > Application Configurations > Manage Projections > New Projection Configuration

#### New Projection Configuration

Select Configuration Type — Create New Projection — Select Entities — [ Model Associations ] — [ Add Actions ] — [ Publish Projection ]

Custom Projection Name	Category	Description
AcmeCustomerHandling	Integration	Test

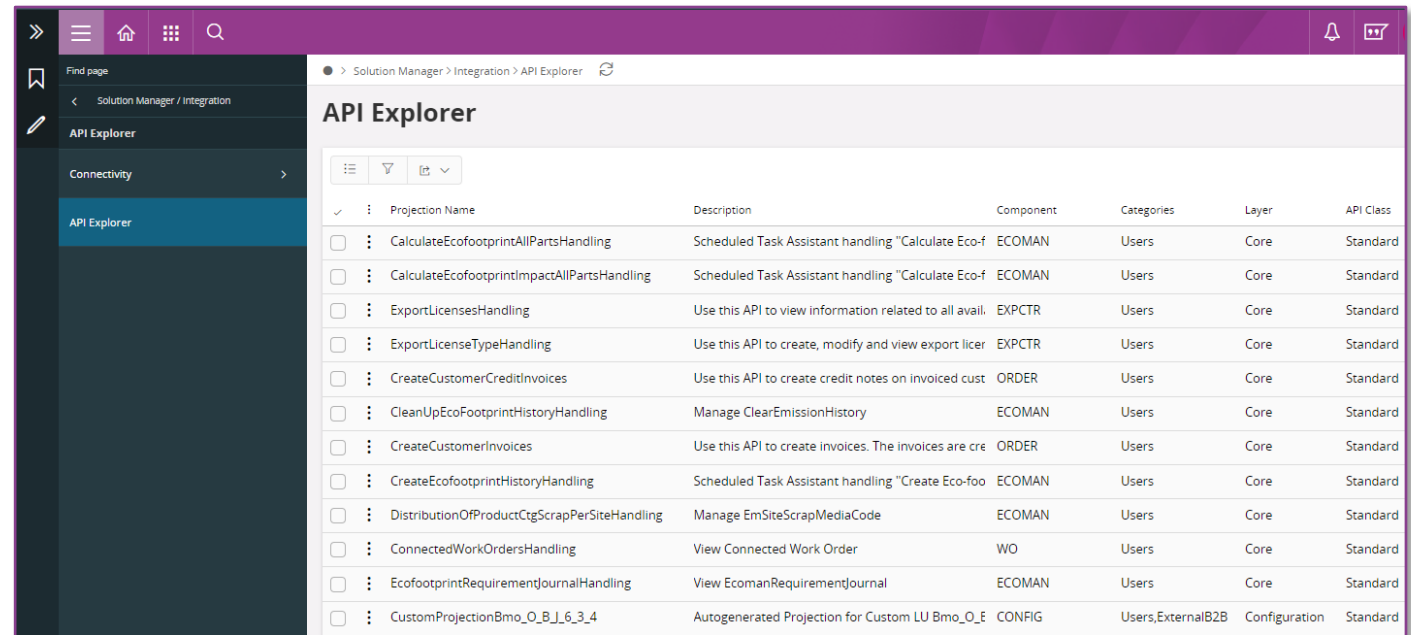
◀ Previous ▶ Next Finish Cancel

Configuration

# DISCOVERING IFS REST APIS

## API EXPLORER

- Helps find APIs in the system
- Easy access to following specifications
  - OpenAPI V2, V3 specs
  - OData service document.
- API Documentation for detailed information on each API content, specially IFS Premium APIs.



The screenshot shows the IFS API Explorer interface. The left sidebar contains navigation links: Find page, Solution Manager / Integration, API Explorer, Connectivity, and API Explorer (selected). The main area displays a table of APIs with columns: Projection Name, Description, Component, Categories, Layer, and API Class. The table lists various APIs such as CalculateEcofootprintAllPartsHandling, ExportLicensesHandling, and CreateCustomerCreditInvoices.

Projection Name	Description	Component	Categories	Layer	API Class
CalculateEcofootprintAllPartsHandling	Scheduled Task Assistant handling "Calculate Eco-f	ECOMAN	Users	Core	Standard
CalculateEcofootprintImpactAllPartsHandling	Scheduled Task Assistant handling "Calculate Eco-f	ECOMAN	Users	Core	Standard
ExportLicensesHandling	Use this API to view information related to all avail.	EXPCTR	Users	Core	Standard
ExportLicenseTypeHandling	Use this API to create, modify and view export licer	EXPCTR	Users	Core	Standard
CreateCustomerCreditInvoices	Use this API to create credit notes on invoiced cust	ORDER	Users	Core	Standard
CleanUpEcoFootprintHistoryHandling	Manage ClearEmissionHistory	ECOMAN	Users	Core	Standard
CreateCustomerInvoices	Use this API to create invoices. The invoices are cre	ORDER	Users	Core	Standard
CreateEcofootprintHistoryHandling	Scheduled Task Assistant handling "Create Eco-foo	ECOMAN	Users	Core	Standard
DistributionOfProductCtgScrapPerSiteHandling	Manage EmSiteScrapMediaCode	ECOMAN	Users	Core	Standard
ConnectedWorkOrdersHandling	View Connected Work Order	WO	Users	Core	Standard
EcofootprintRequirementJournalHandling	View EcomanRequirementJournal	ECOMAN	Users	Core	Standard
CustomProjectionBmo_O_B_I_6_3_4	Autogenerated Projection for Custom LU Bmo_O_E	CONFIG	Users,ExternalB2B	Configuration	Standard



# API DOCUMENTATION

## DETAILED API END POINTS

- Invoke API Documentation for any API found in API Explorer
- API Documentation provides more user-friendly interface to explore end points in each API
- Documentation is based on openAPI specification of the given API.

The screenshot displays the 'REST API Documentation' interface for the IFS system. The left sidebar contains a search bar and a list of API categories: Authentication, Lookup\_IsoCountry\_EntitySet, Lookup\_IsoCurrency\_EntitySet, Lookup\_IsoUnit\_EntitySet, Service Operations - Actions, Service Operations - Functions, Reference\_HeaderAttribute, Reference\_LineAttribute, Reference\_CustomerOrderAd..., and Reference\_HeaderAddress. The main content area is titled 'Invoke action CreateCustomerOrder' and describes the action: 'Creates customer order based on the values given in parameter OrderRequest'. It lists the authorization as 'OpenId AND basicAuth' and the request body schema as 'application/json'. The request body is an object of type 'OrderRequest' containing 'OrderNo', 'Site', and 'Info'. The 'Responses' section shows a '200' status code with a response body of type 'OrderResponseStructure'. The right sidebar shows 'Request samples' for the 'POST /CreateCustomerOrder' endpoint, with a 'Payload' button and a 'Content type' of 'application/json'. The payload is a JSON object with various fields like 'OrderNo', 'DeliveryTerms', 'LanguageCode', 'CustomerPoiNo', 'TaxLiability', 'InternalPoiNo', 'AgreementId', 'Priority', 'AdditionalDiscount', 'PayTermBaseDate', 'CaseId', 'TaskId', 'ConfirmDeliveries', 'SalesContractNo', 'ProposedPrepaymentAmount', 'TaxIdValidatedDate', 'ClassificationStandard', 'CurrencyRateType', and 'DelTermsLocation'.



**DEMO**

API EXPLORER/API DOCUMENTATION





**#forthechallengers**