July 2022

Reference Data Management:
Reference 360 Cloud-Native MDM

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Informatica Professional Services

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Agenda

Reference Data Management
Reference 360 Terminology
Reference Architecture
Reference Data Modeling
Data Quality Rules
Approval Workflows / Security
Application Integration: REST API
Best Practices

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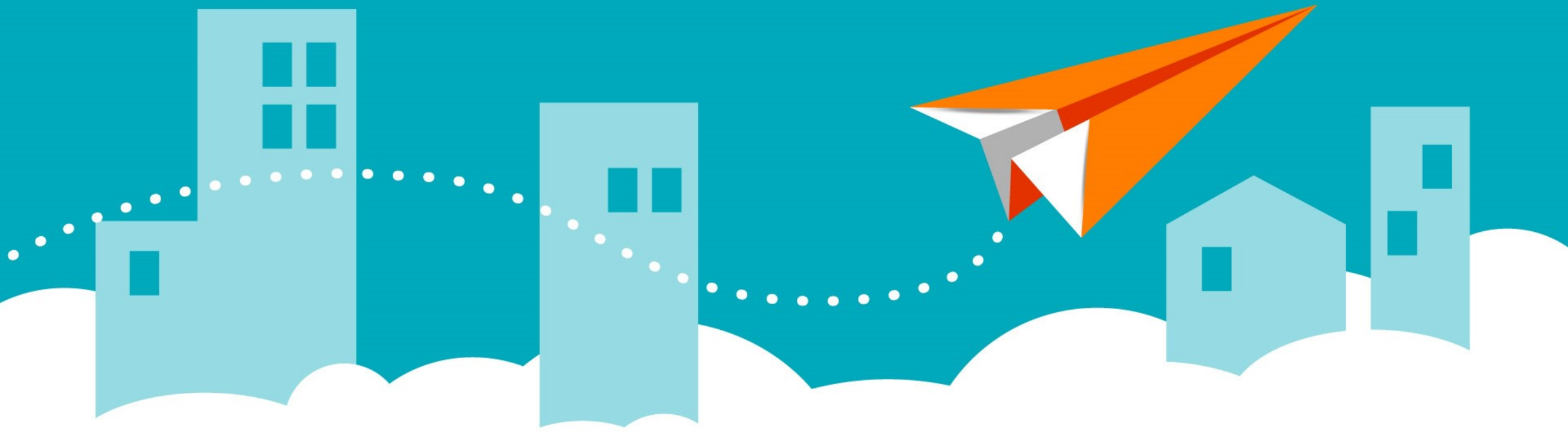
Reference Data Management



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Types of Enterprise Data

Actions & Events,
Operations

Analysis, Reporting
& Visualization

Standards, Lookups,
Classifications,
Categorization,
Cross-References

People, Places
& Things

Structure, Security,
Sizing, Dictionaries

Documents, Videos, Images,
Contracts, Invoices, SOP,
Supplier Qualifications

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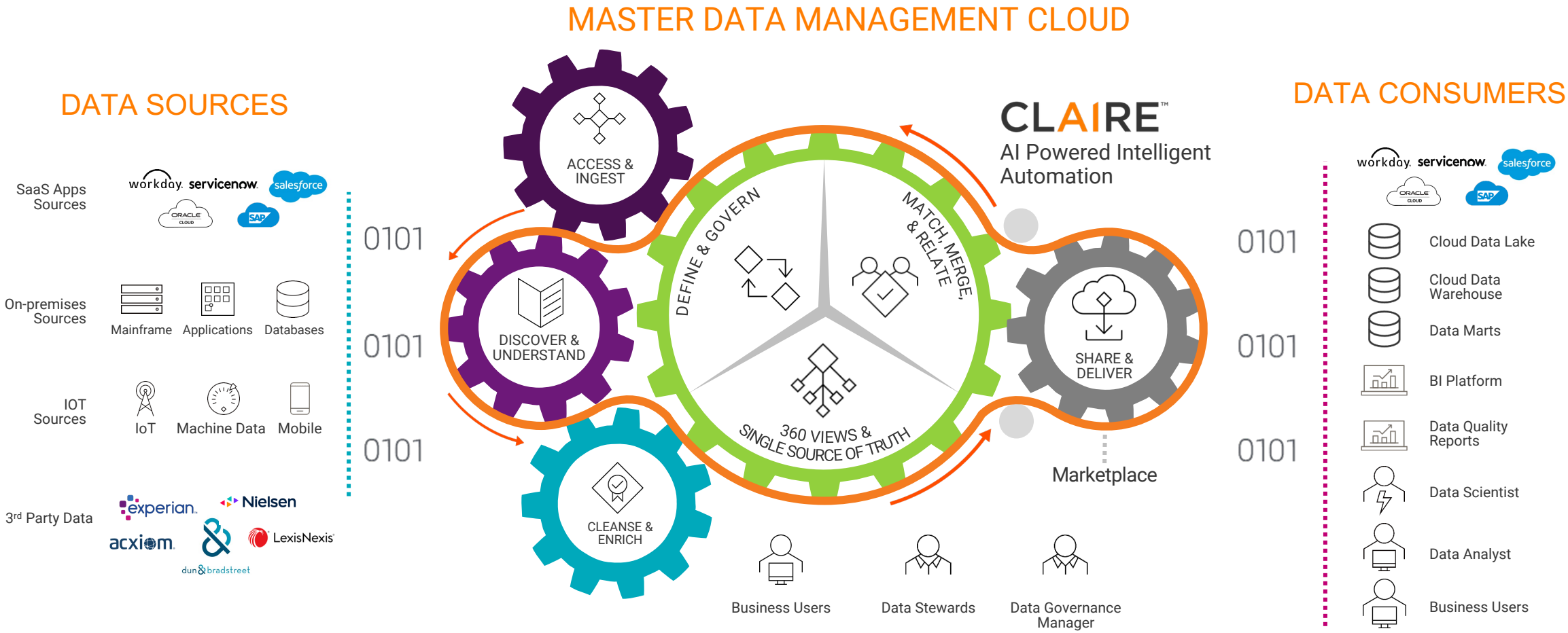
Establish a Data Management Platform

A holistic data management platform makes trustworthy and actionable data easily available to support operational and analytical activities.



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Reference Data vs. Master Data

- Examples of **Reference** Data:
  - Countries, States, Geographical Regions, Regulatory Jurisdictions
  - Company Brands, Sub-brands, Types, Form Factors, UOM
  - Material Classifications, Product Lines, Product Groups
  - Marketing Segment, Industry Sectors, Distribution Channels

- Examples of **Master** Data:
  - Customers, Suppliers
  - Products
  - Employees and Contractors
  - Assets, Equipment
  - Offices, Facilities, Warehouse Locations

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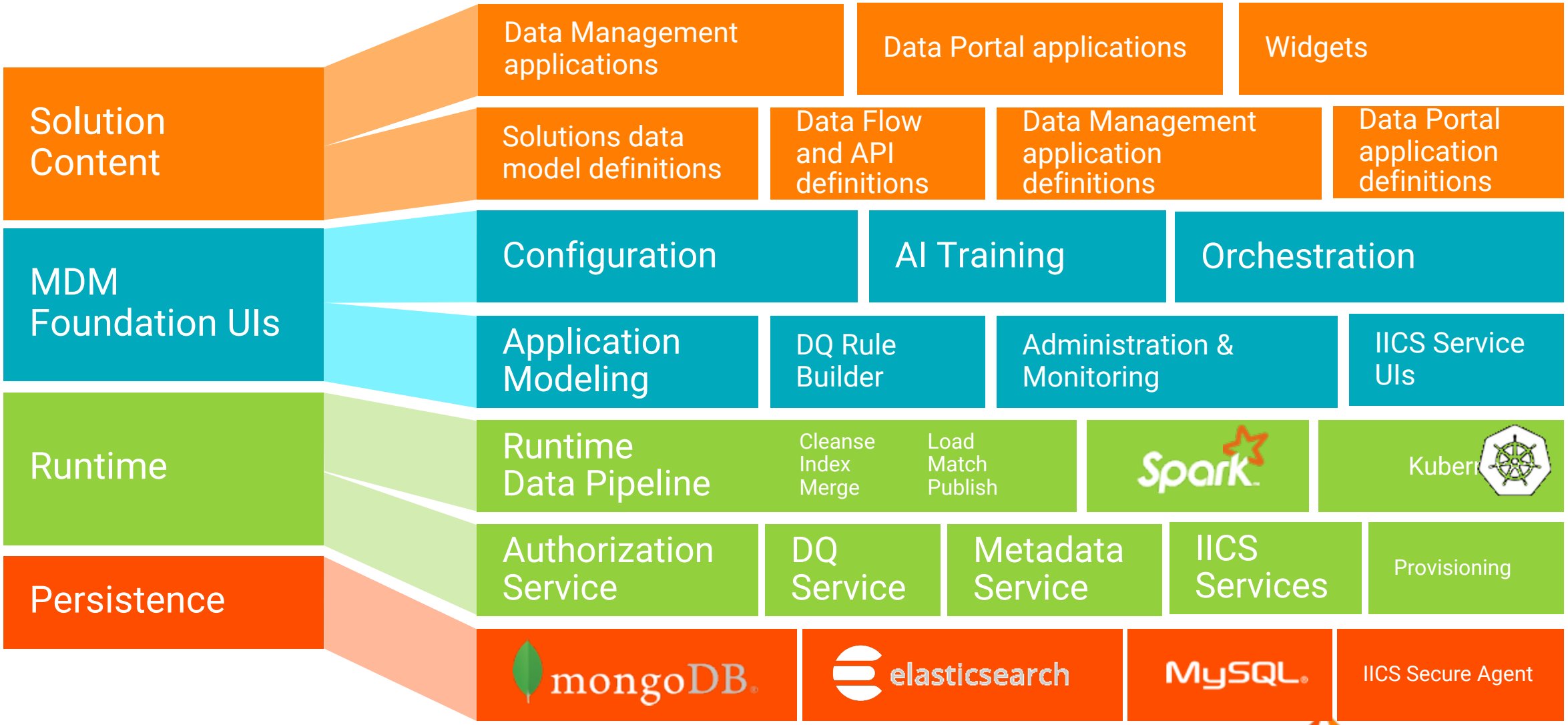
The Most Modern Microservices Architecture

Delivers unmatched flexibility and scalability



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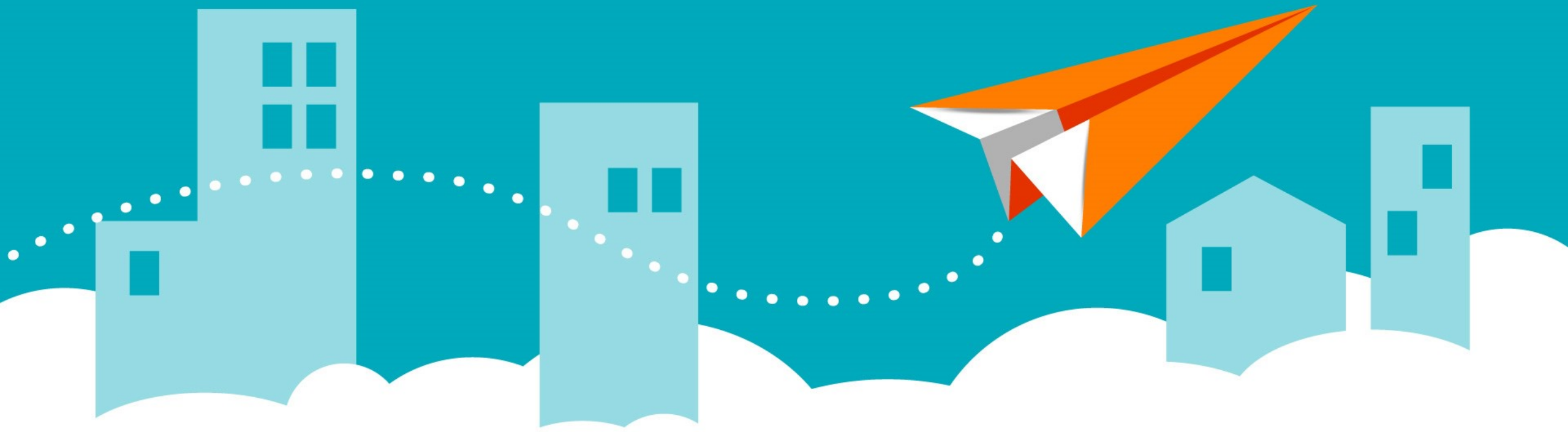
Reference 360 Terminology



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Reference 360 Terminology

- **Reference Data Sets** - contain a category of reference data, such as country codes or currency codes. May be hierarchical or flat structure. May be dependent on other reference data sets.
- **Code Lists** - a set of code values for a particular application, within a reference data set
- **Code Values** - a unique value, such as a business term, code, or lookup value, within a code list
- **Attributes** – component of a code value, such as a Code, Name, Description

- **Crosswalks** - a one-way relationship between code values in a pair of code lists; provides a way to translate between the code lists, such as different ERP systems or from legacy codes

- **Hierarchies** - show how code values are related to other code values in a hierarchy or higher-level categorization, such as World, Region, Country, Sales Area, State
- **Workflows** – create a draft to propose changes to a code list, submit your proposed changes for approval. This creates a task and initiates an approval workflow
- **Enums** – customizable static values within R360, such as Status, Confidentiality, Applications

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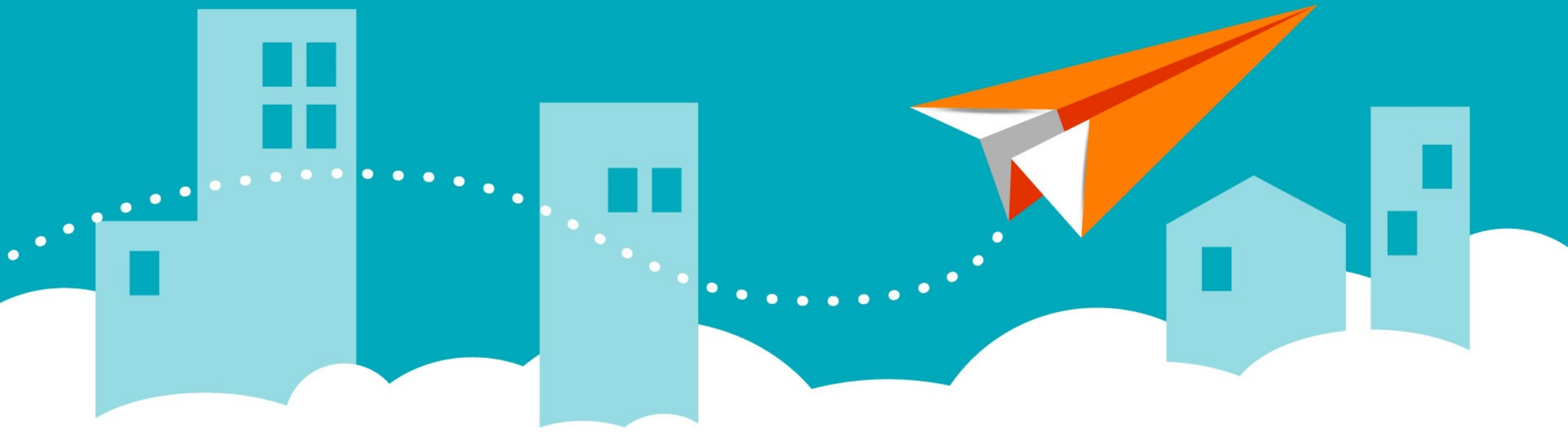
Reference 360 Demo



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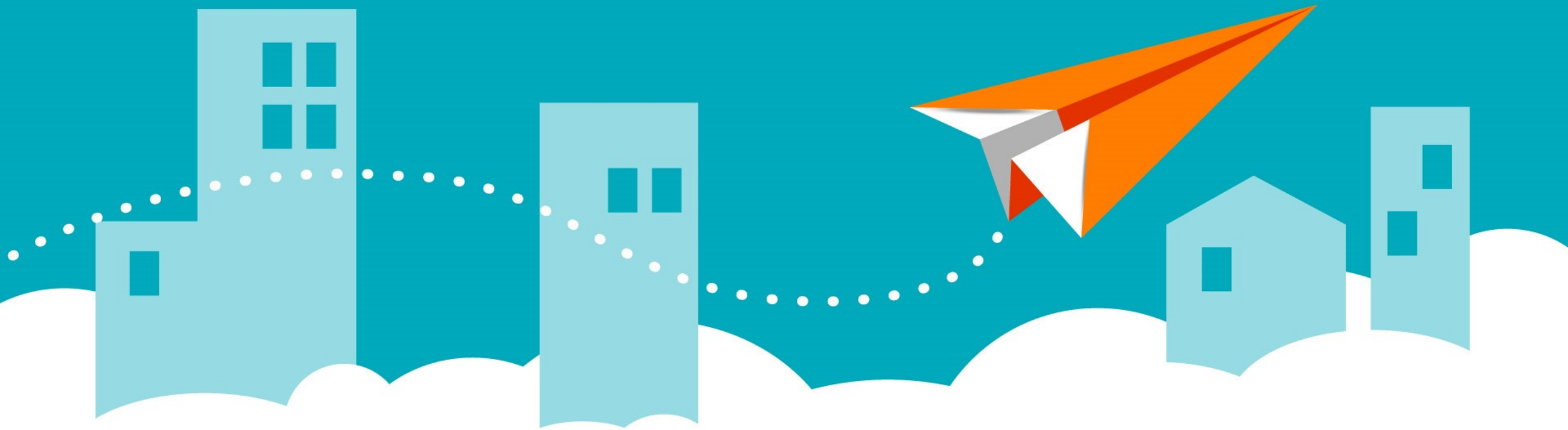
Reference Architecture



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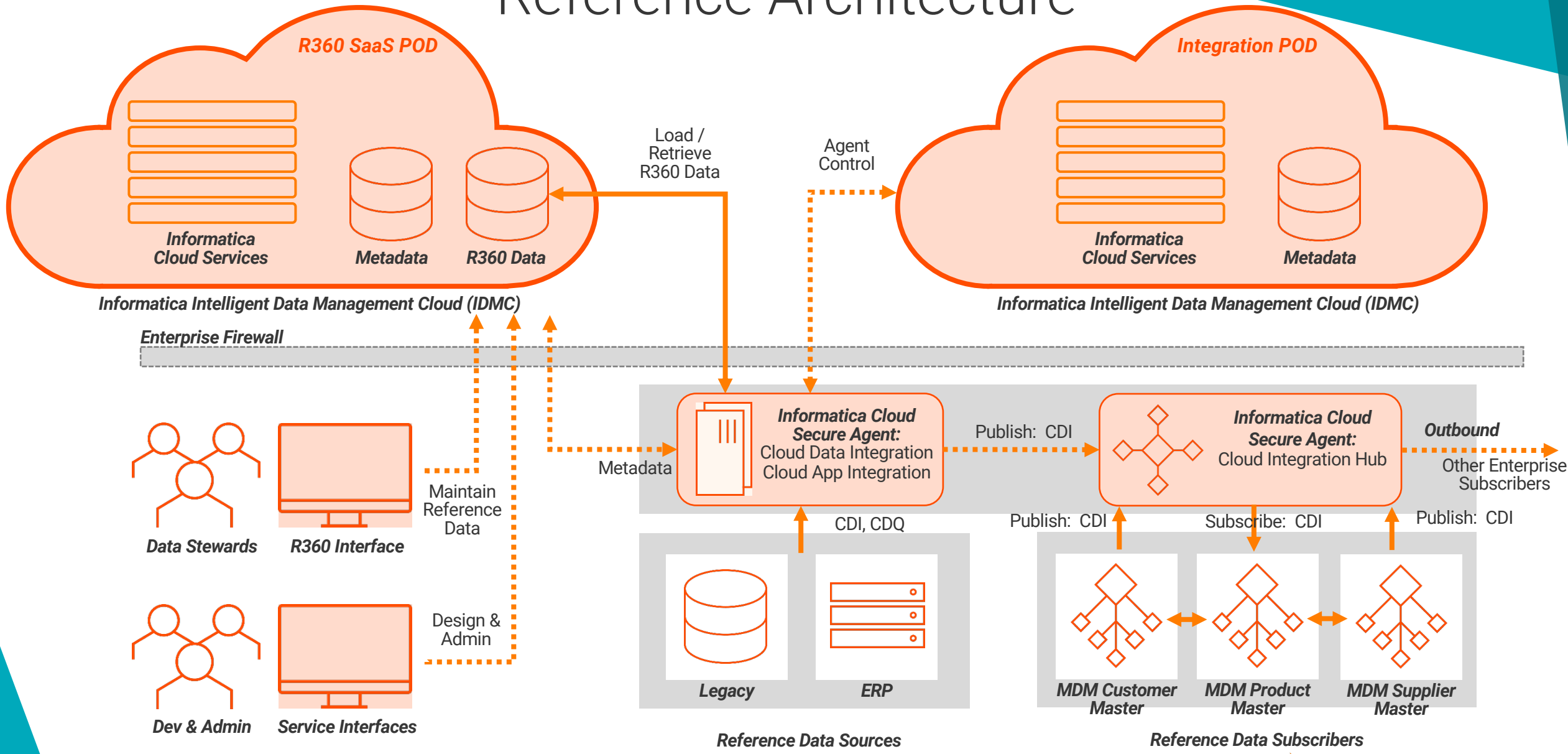
Reference Architecture



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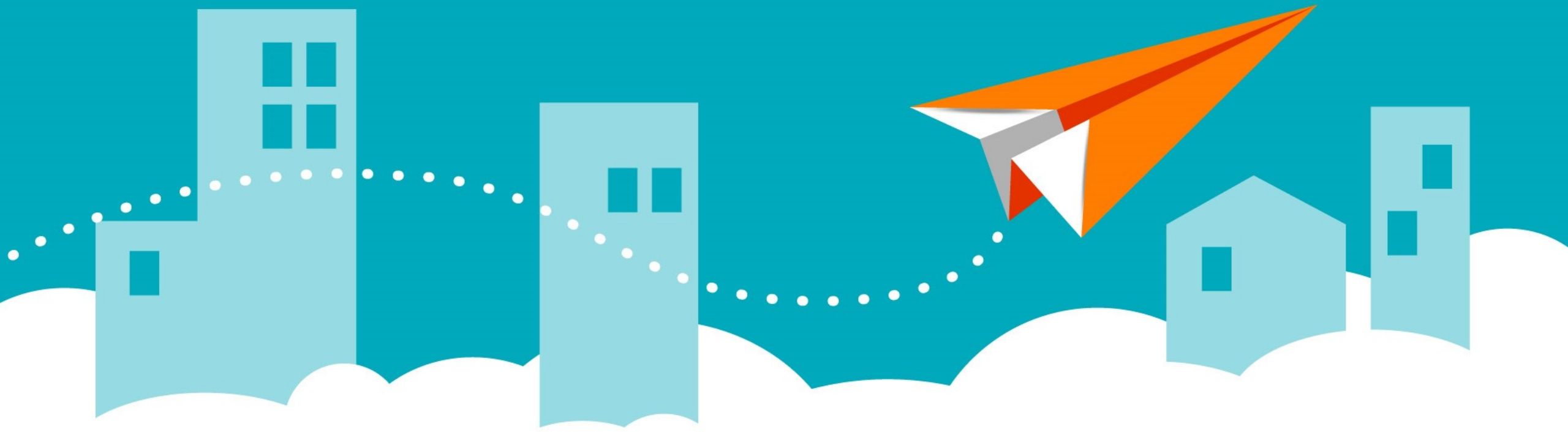
Reference Data Modeling



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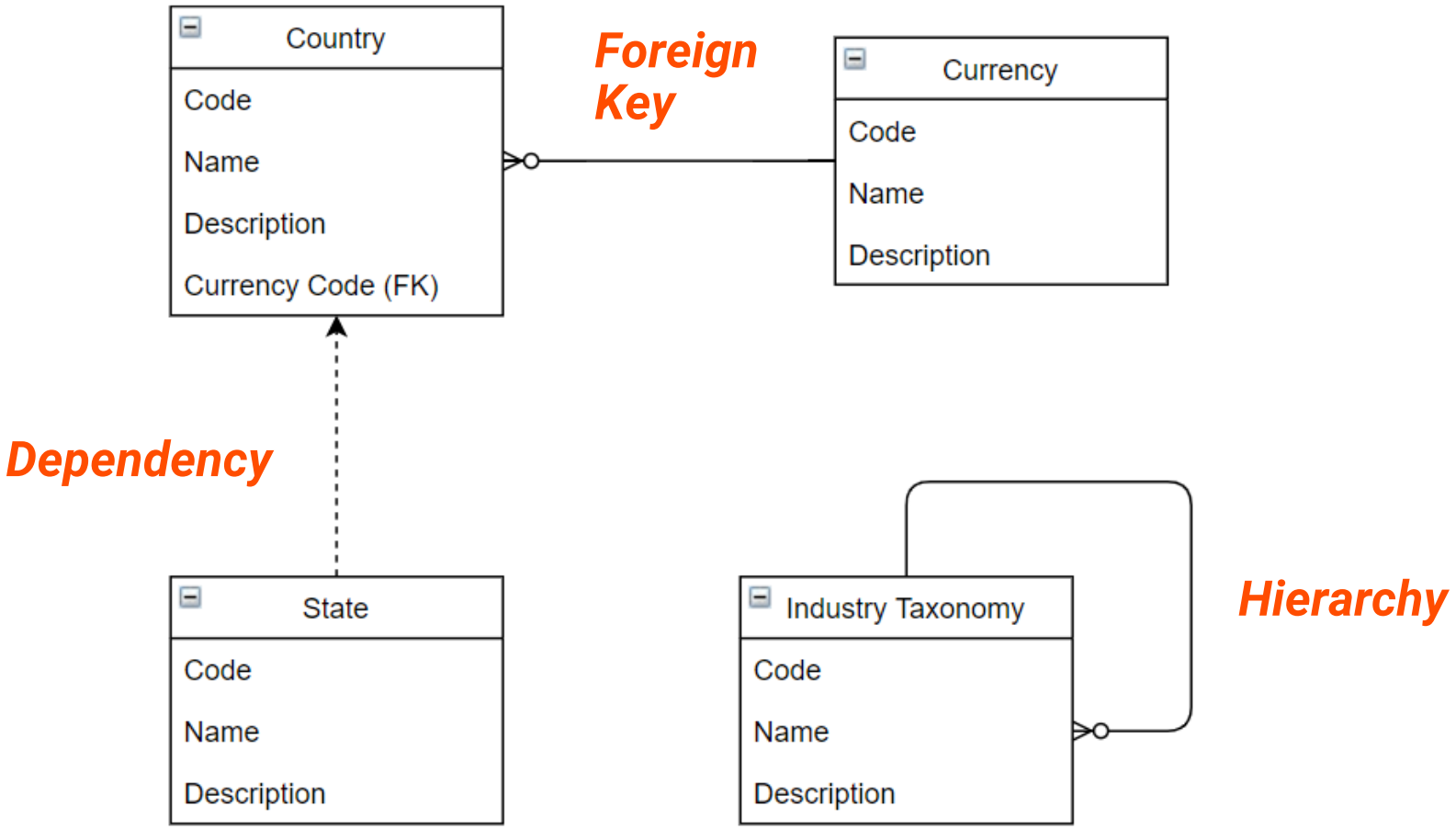
Reference Data Modeling



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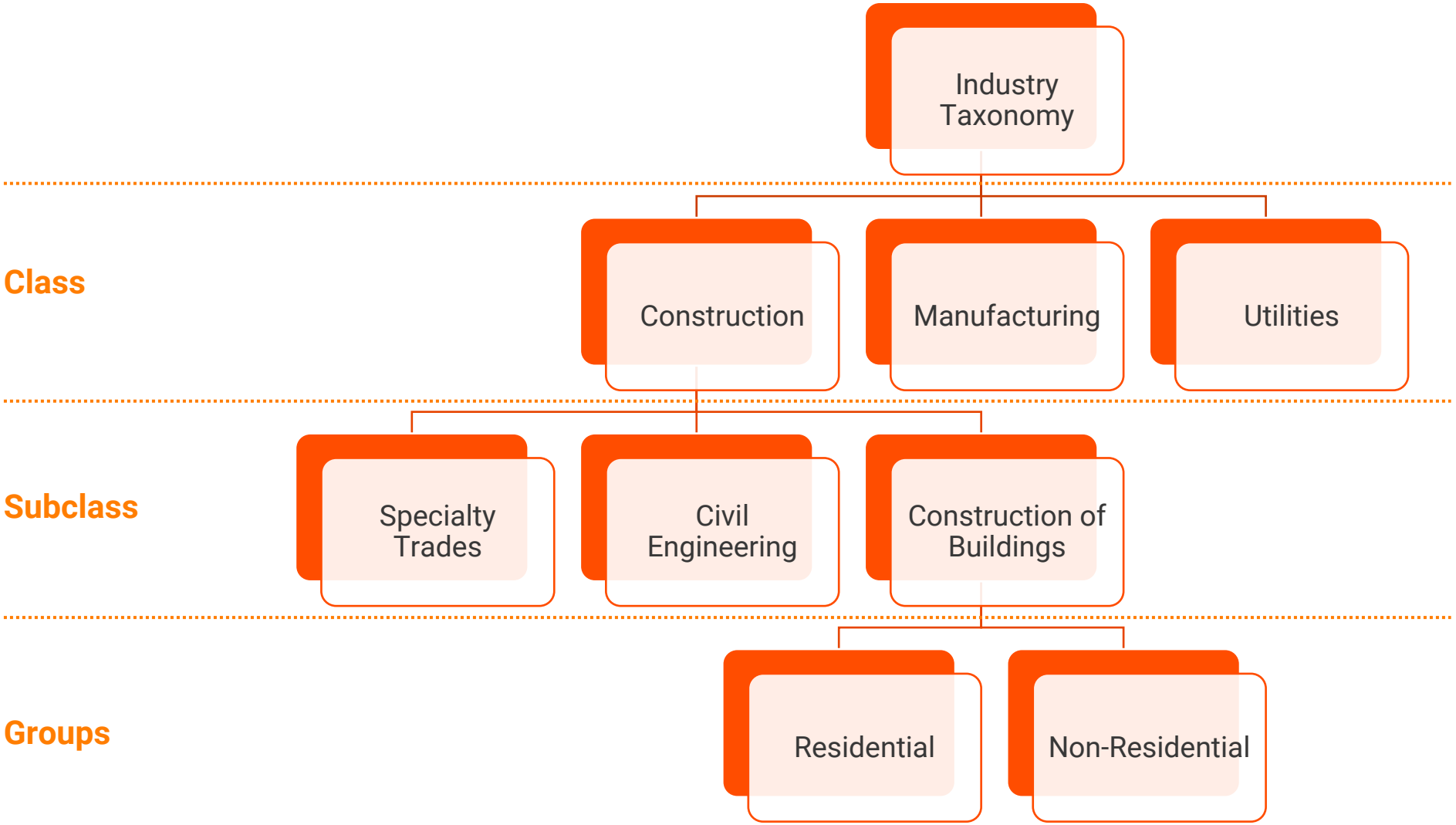
Example: Hierarchies



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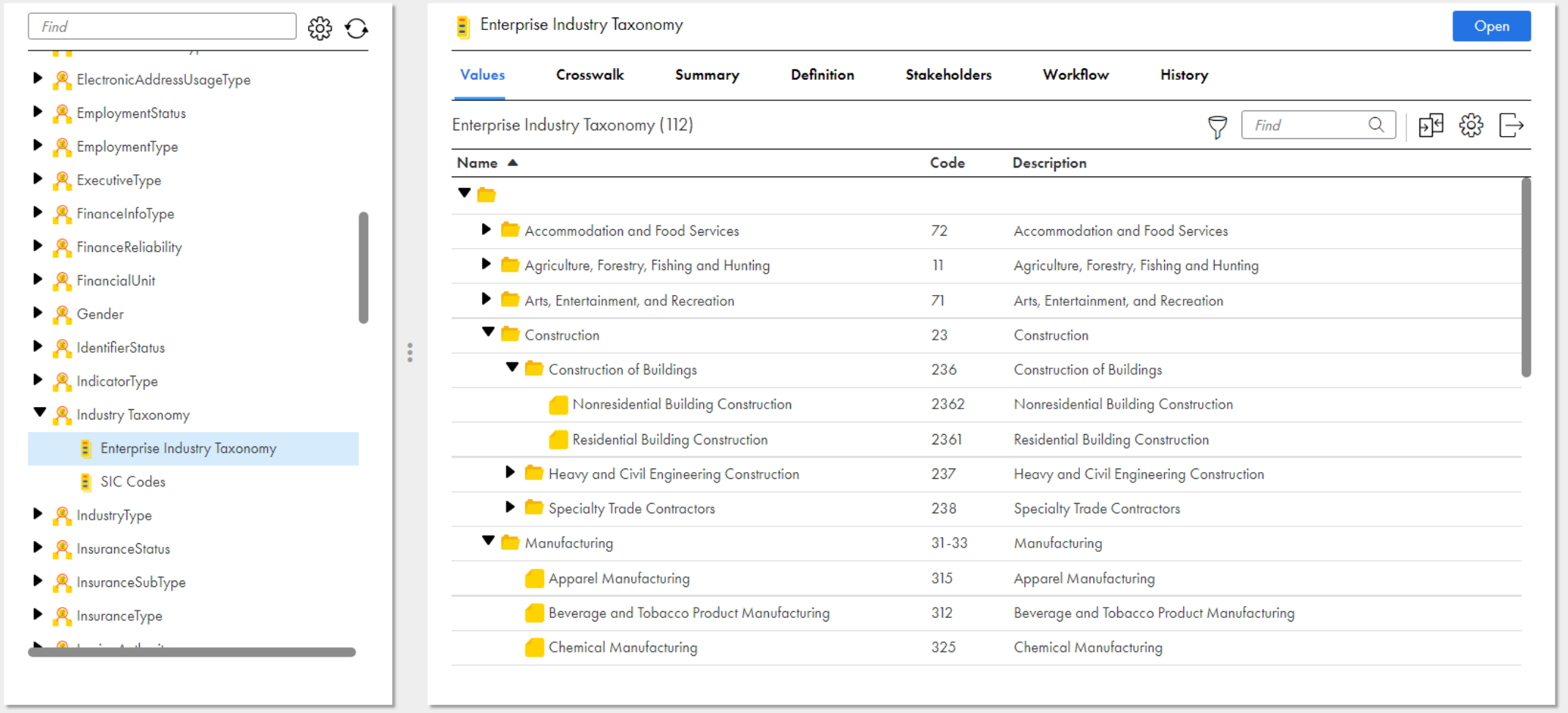
Example: Hierarchies

Explore



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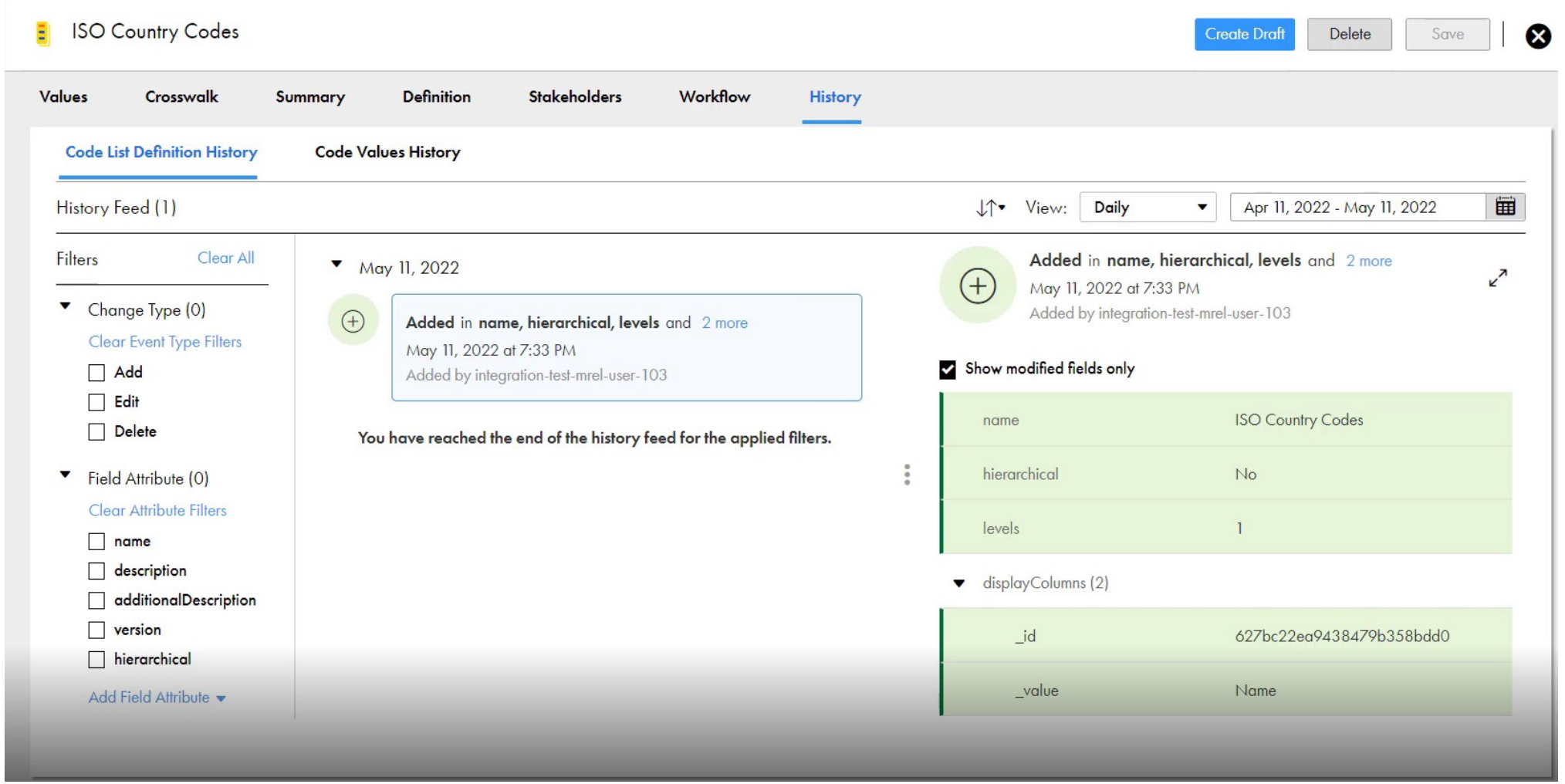
History of Code Lists (☆New Interface!)



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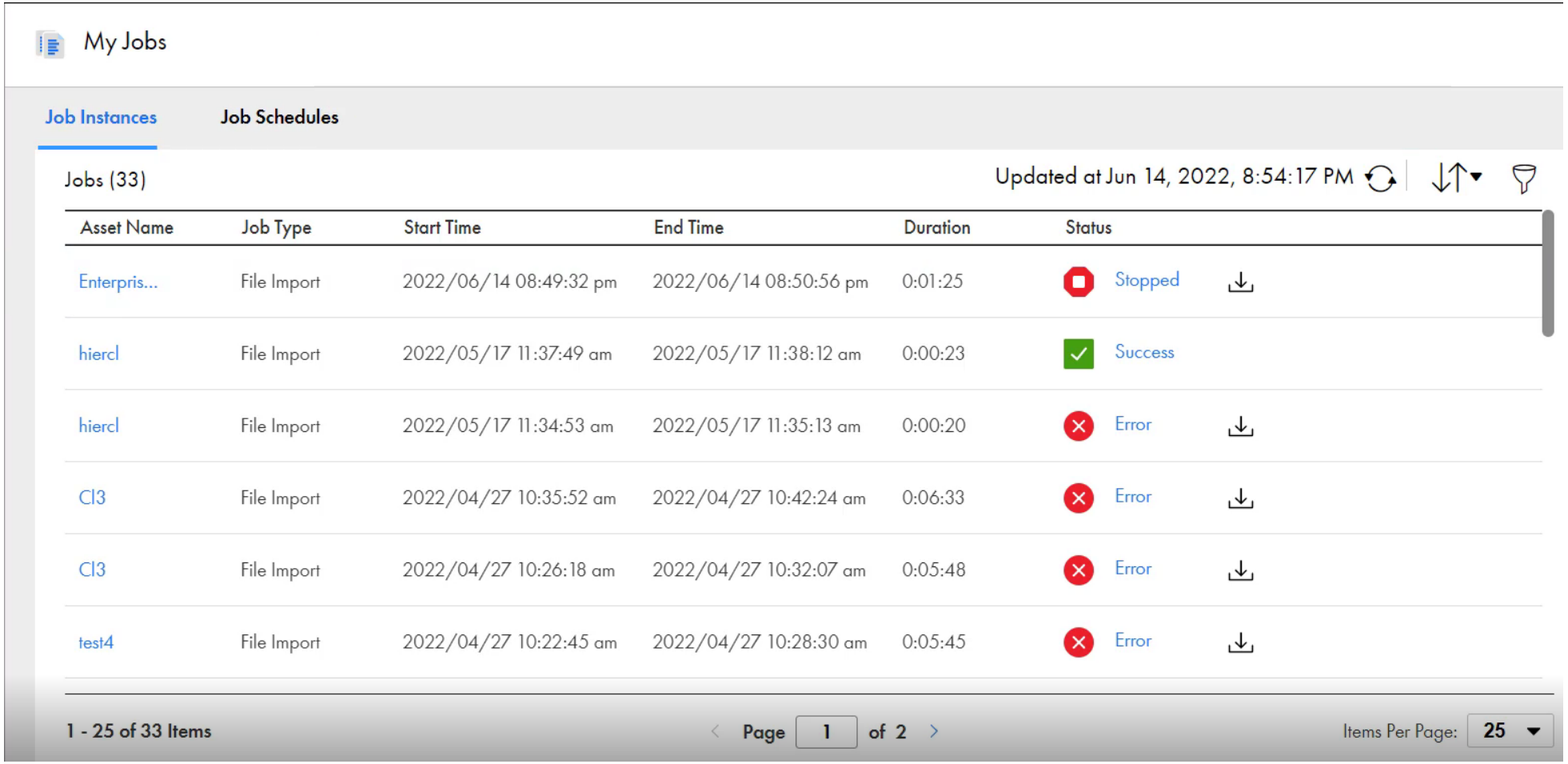
Stop Load Jobs, Download Log Files (☆New!)



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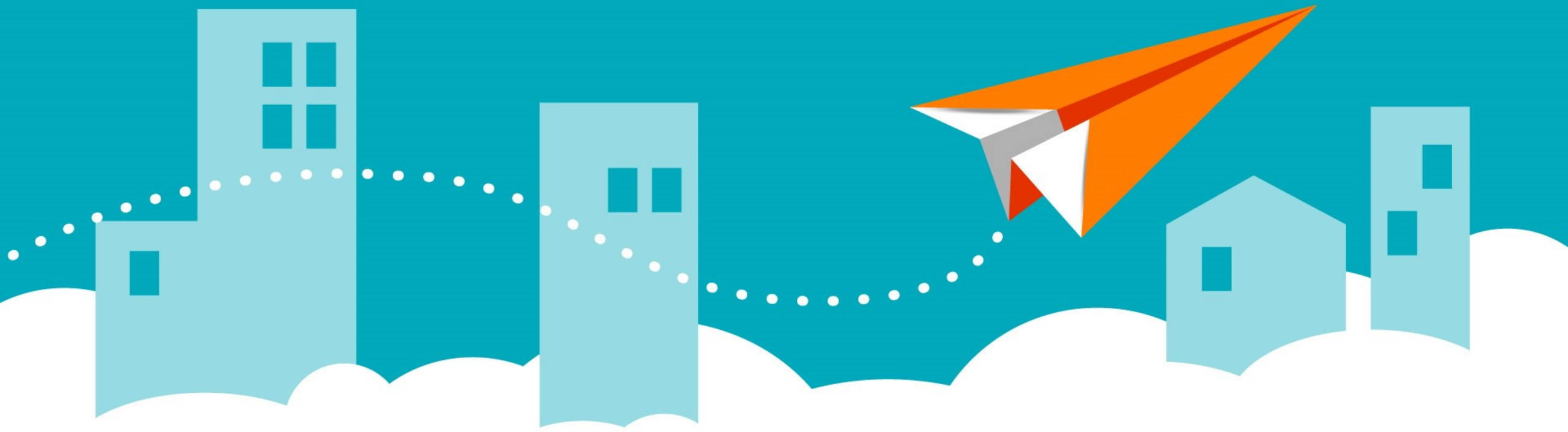
Data Quality Rules



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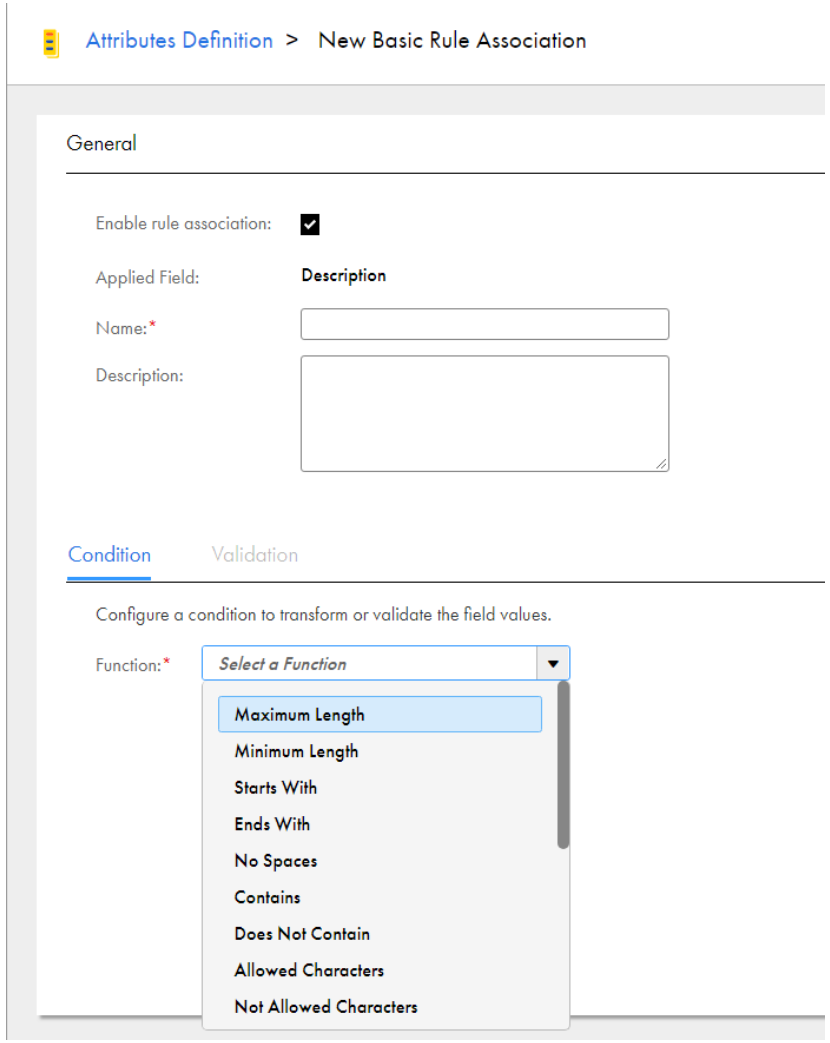
Reference 360 Data Quality Rules



- Basic Rules for data entry are quite simple, and are not applied when Importing data.
- For this reason, it is suggested to use Informatica CDQ (Cloud Data Quality) to design more complex rules.
- The CDQ (Cloud Data Quality) rules can then be used for both:
  - CDI (Cloud Data Integration)
  - Data validation in R360, using an Advanced Rule (☆New!)

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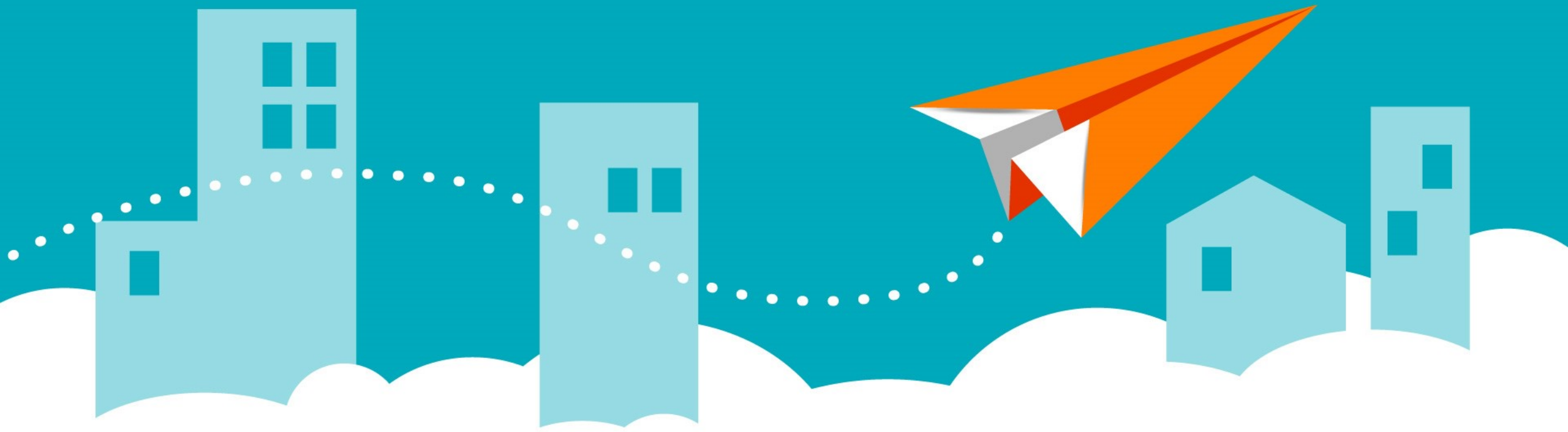
Data Integration



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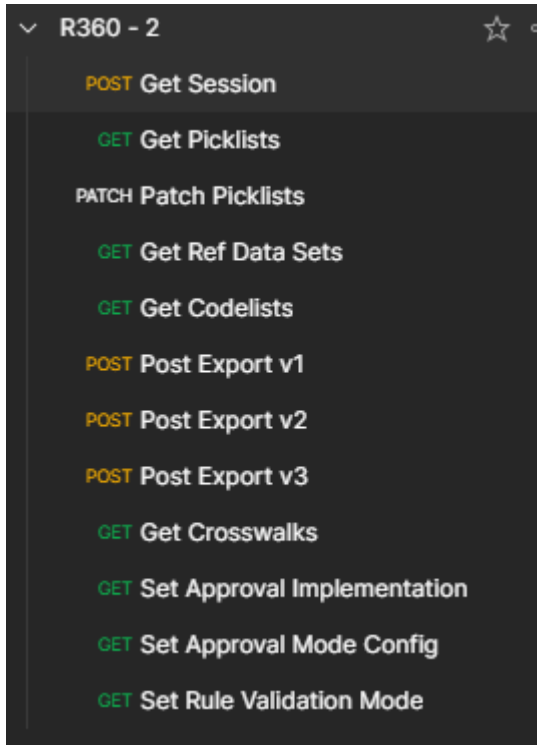
R360 Integration: API Example



- Reference 360 uses a REST API
  - Similar to the IICS Platform REST API
  - Platform Independent
- An example flow might be:
  - Get Session (token)
  - Get Picklists
  - Patch Picklists

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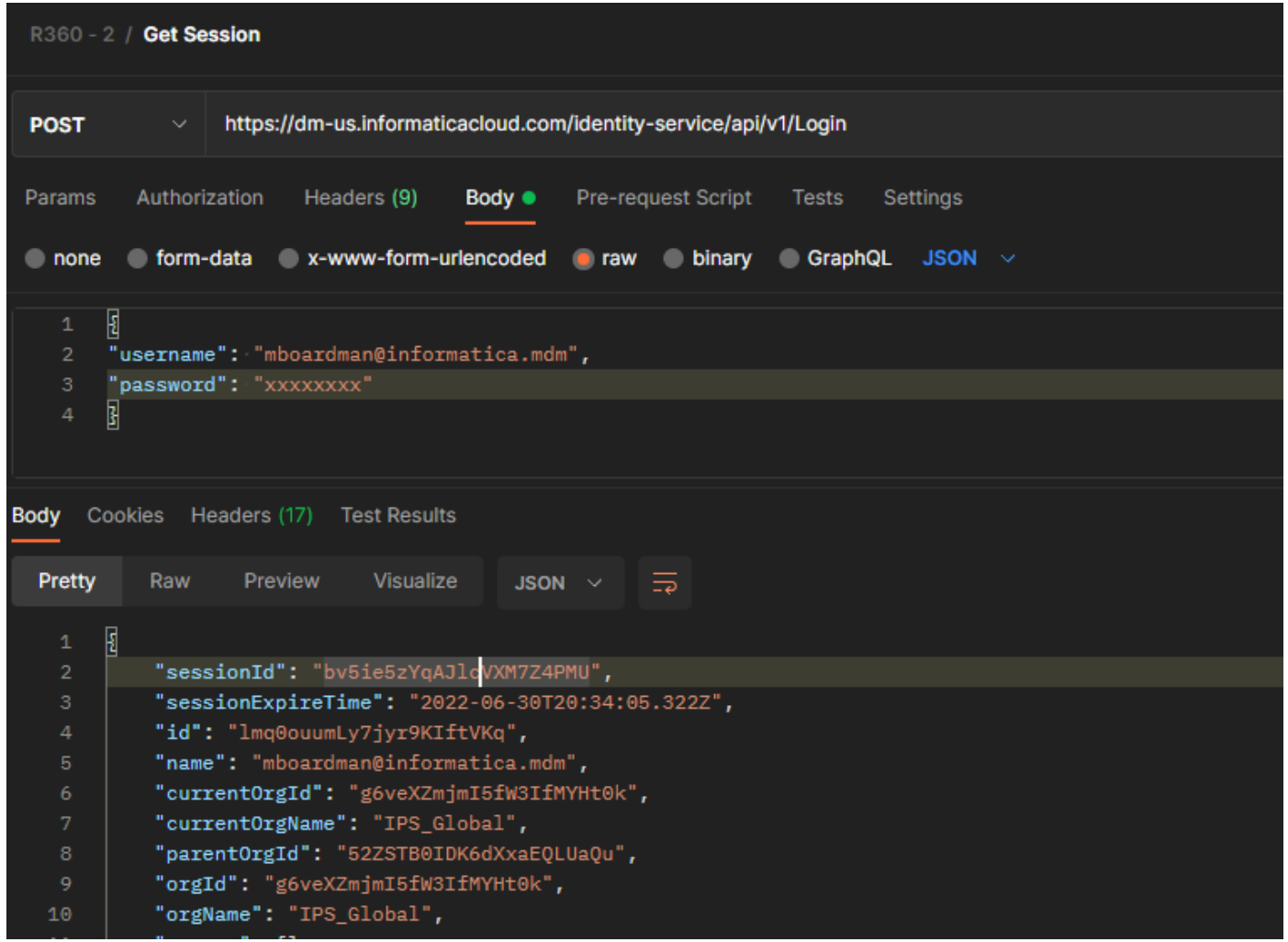
R360 Integration: API Example



- Get Session Token
  - Login with a Native account (not SAML) and password
  - “sessionId” token is returned in JSON response

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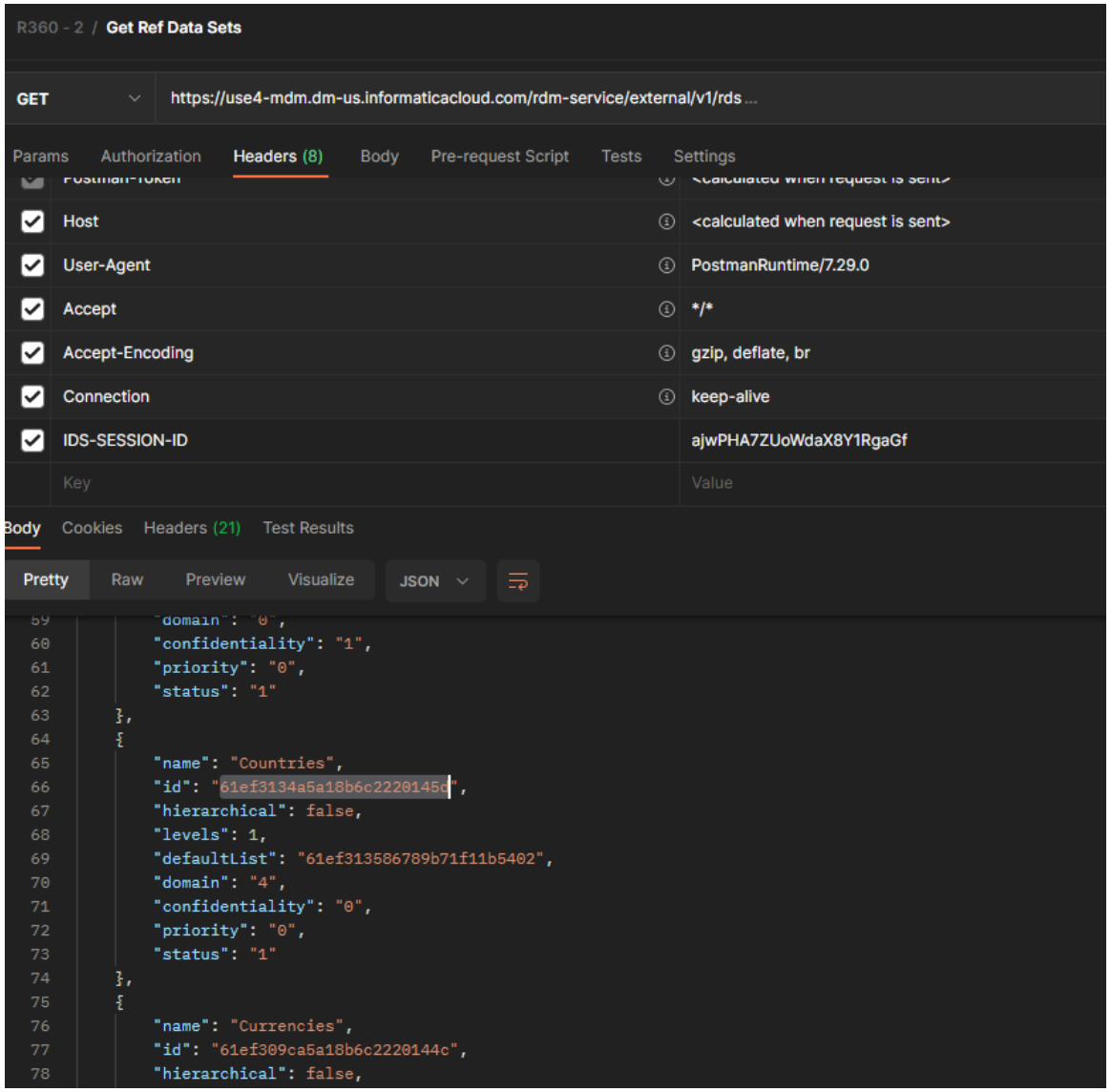
R360 Integration: API Example



- Get Reference Data Sets
  - Session token is entered as a new header: “IDS-SESSION-ID”
  - JSON response contains the list of all reference data sets, each with an “id” and default code list

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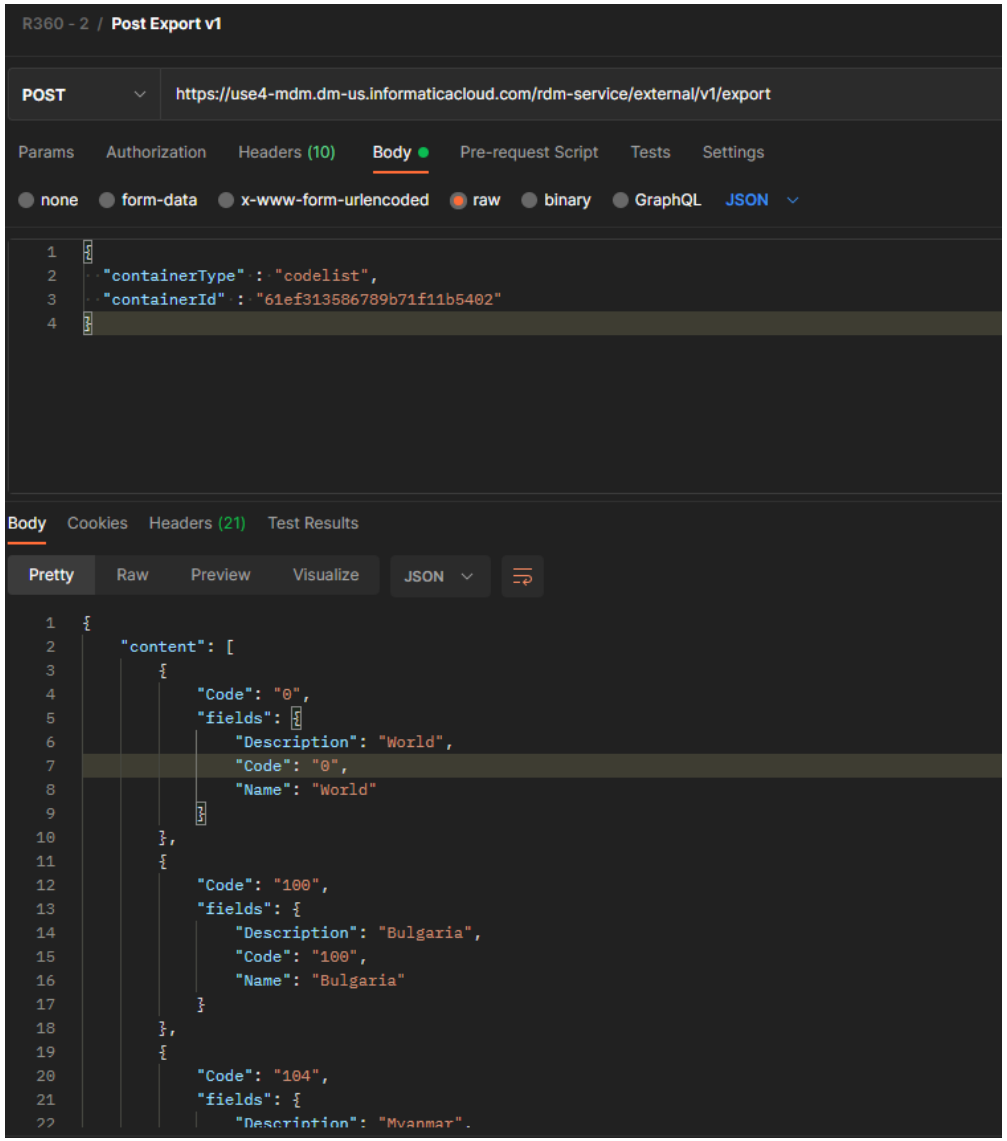
R360 Integration: API Example



- Export v1
  - Session token is entered as a new header: “IDS-SESSION-ID”
  - Body contains the container type (“codelist”) and the id of the container you want to export
  - JSON response contains the list of all values in the code list

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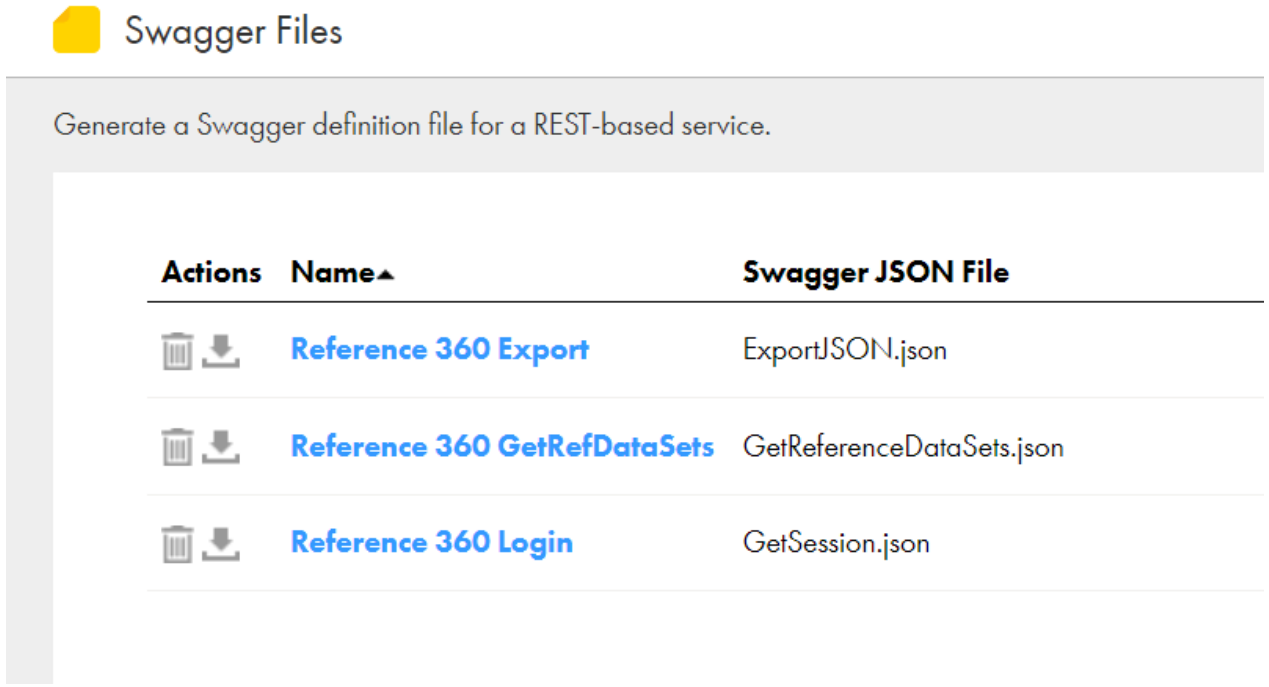
R360 Integration: CDI Example



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R360 Integration: CDI Example

Connections

Configure connections to work with applications, databases, and files.

Actions	Name▲	Type	Runtime Environment	Service URL
	cnct_Files_Temp	Flat File	Informatica Virtual DNU	/data/temp
	cnct_R360_ExportJSON	REST V2 (Informatica Cloud)	Informatica Virtual DNU	
	cnct_REST_GetReferenceDataSets	REST V2 (Informatica Cloud)	Informatica Virtual DNU	
	cnct_REST_GetSession	REST V2 (Informatica Cloud)	Informatica Virtual DNU	

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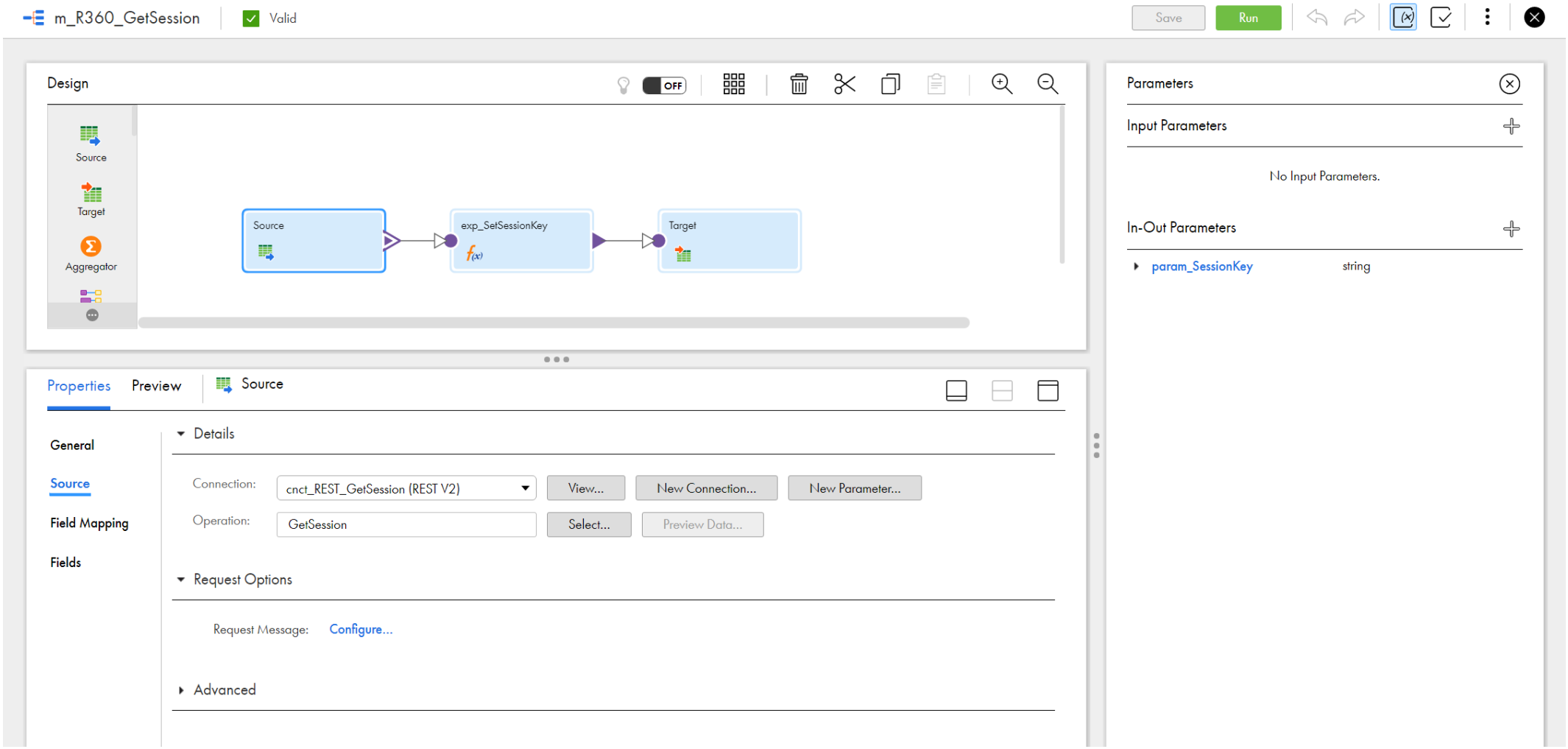
R360 Integration: CDI Example



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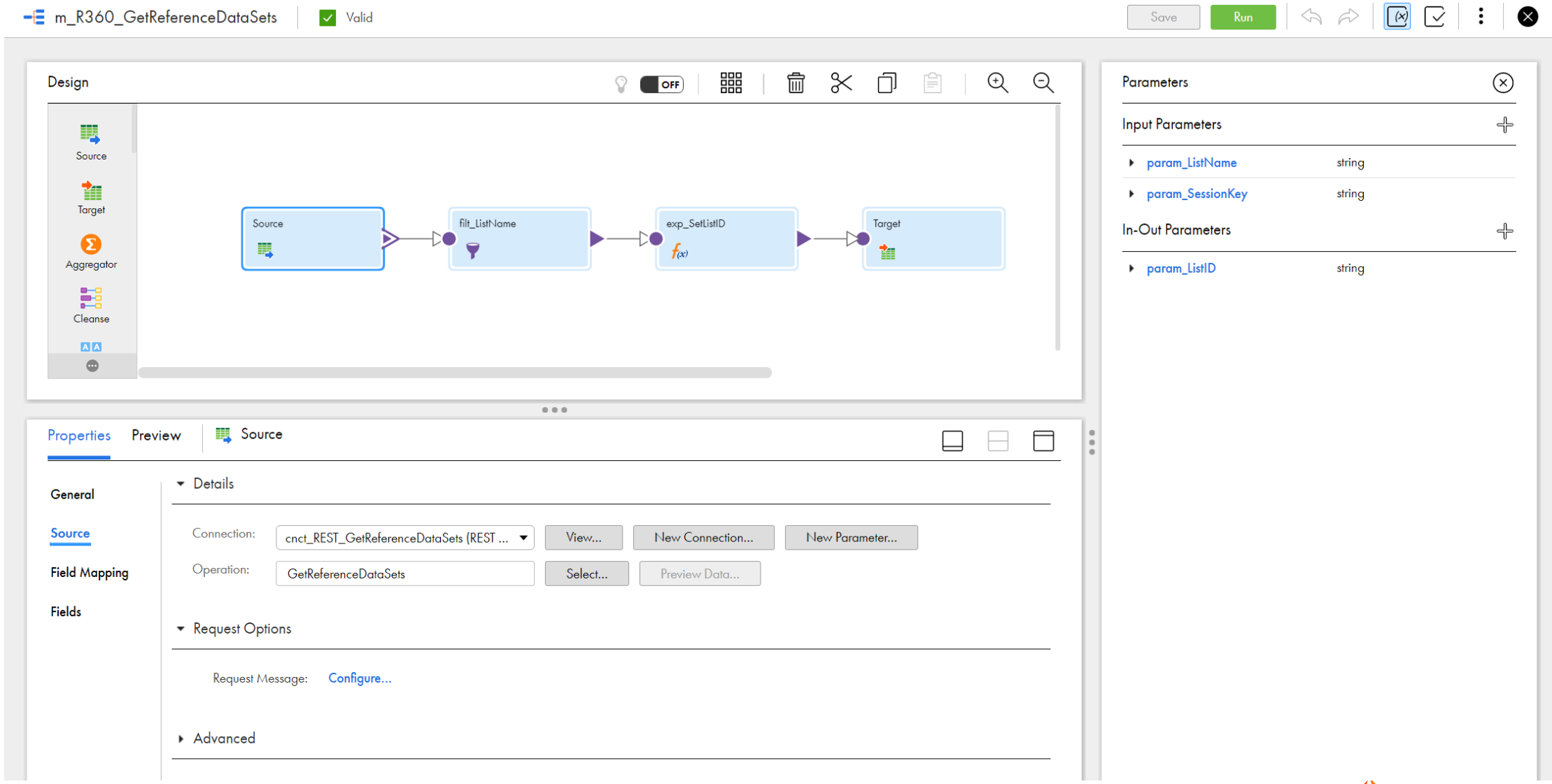
R360 Integration: CDI Example



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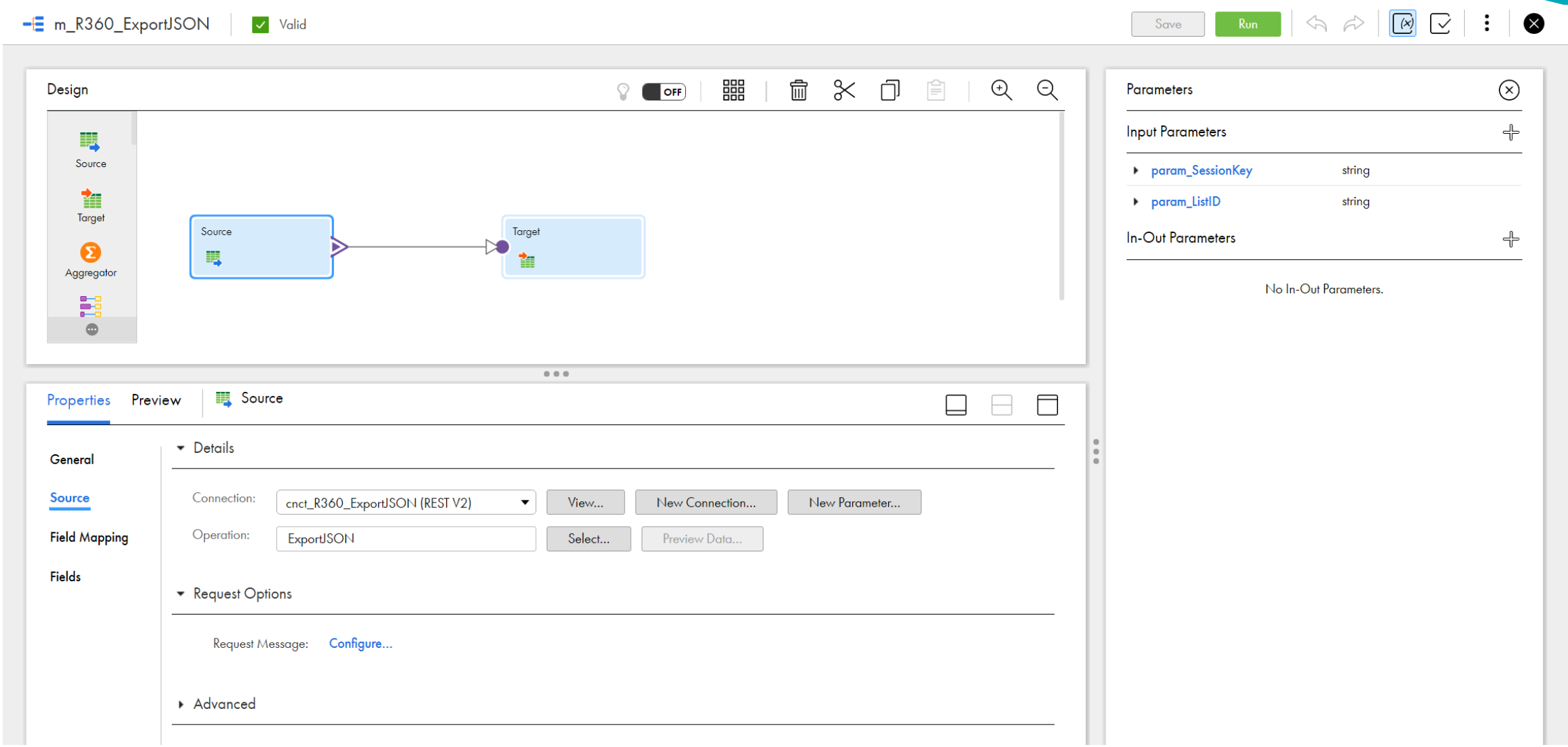
R360 Integration: CDI Example



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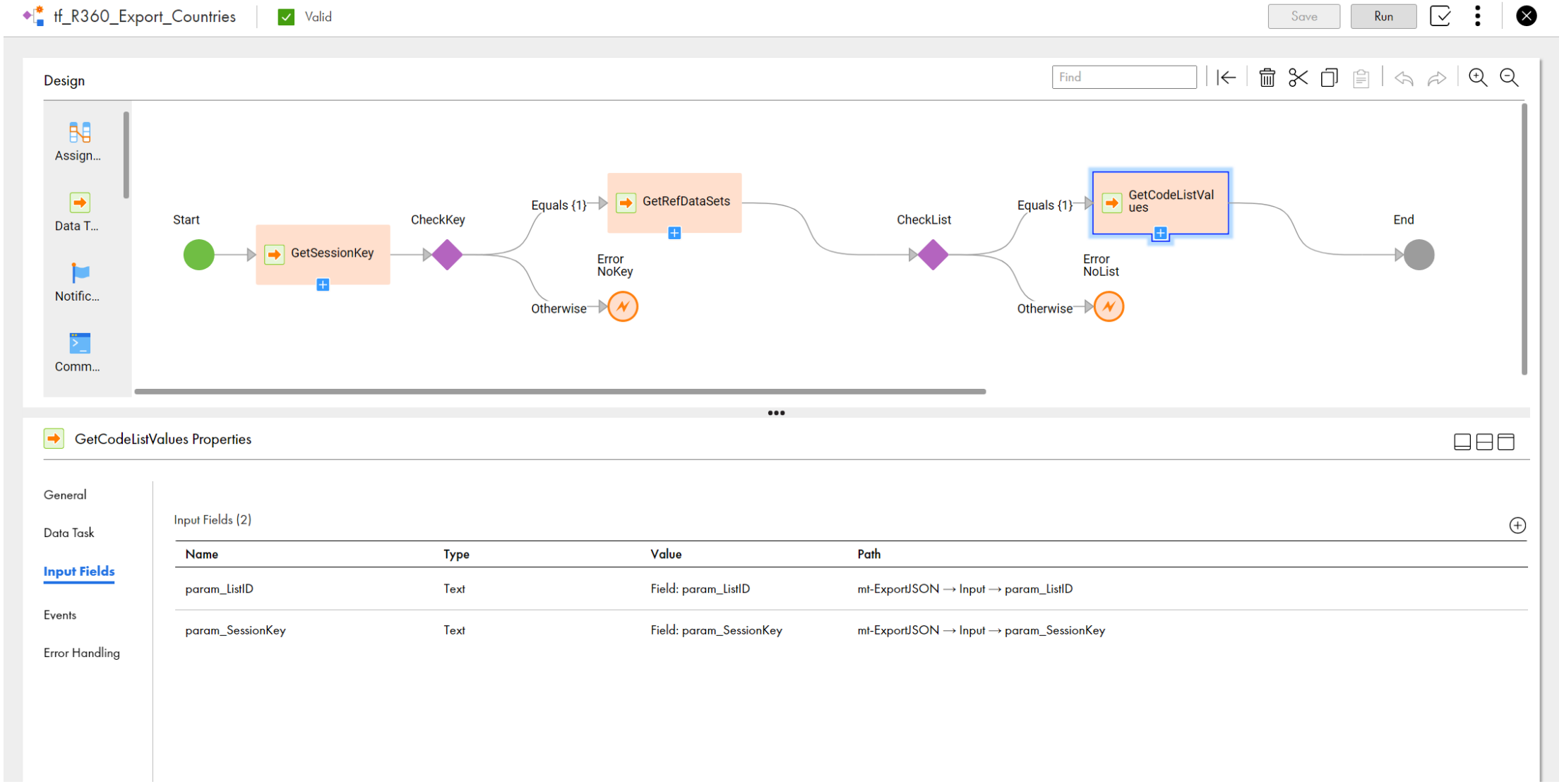
R360 Integration: CDI Example



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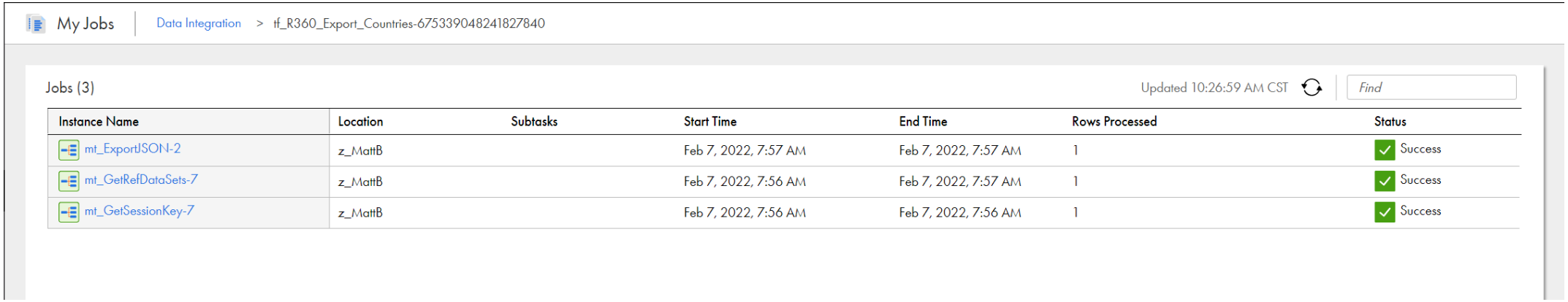
R360 Integration: CDI Example



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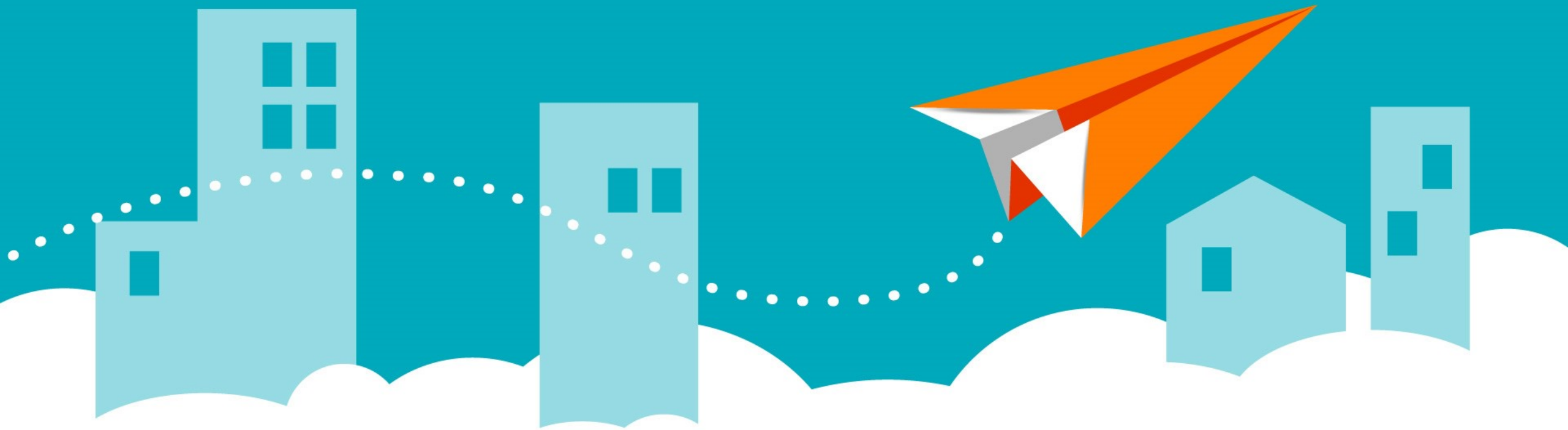
Users, Groups and Roles



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Users, Groups, Roles

- A ***user*** is an individual account (unique email) in Informatica Intelligent Cloud Services.
  - Reference 360 users must have an Informatica Intelligent Cloud Services user account
  - You create and manage users in the Administrator applet
- A ***group*** is a **collection of users** who have something in common, such as working on the same team.
  - Add users to groups to efficiently manage privileges for a collection of users
  - User groups in Reference 360 may map 1-to-1 with your AD user groups
- A ***role*** is a **collection of privileges** that you assign to users or groups, to allow access and provide various privileges in Reference 360.
  - Start with built-in roles, create custom roles where you need to fine-tune access

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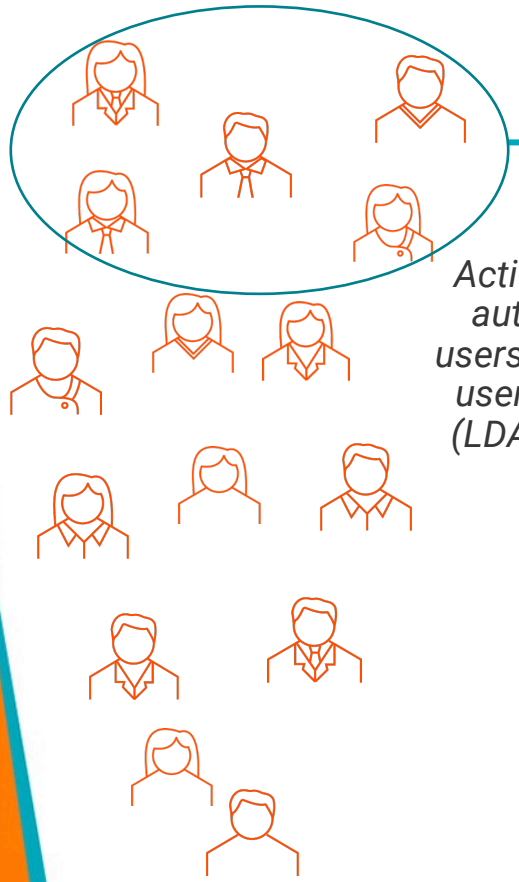
Users

Groups

Roles

Privileges



Active Directory authenticates users and assigns users to groups (LDAP and SSO)

Sales

Marketing

Operations

Informatica Administrator assigns roles to user groups

Manager Approver

Data Steward

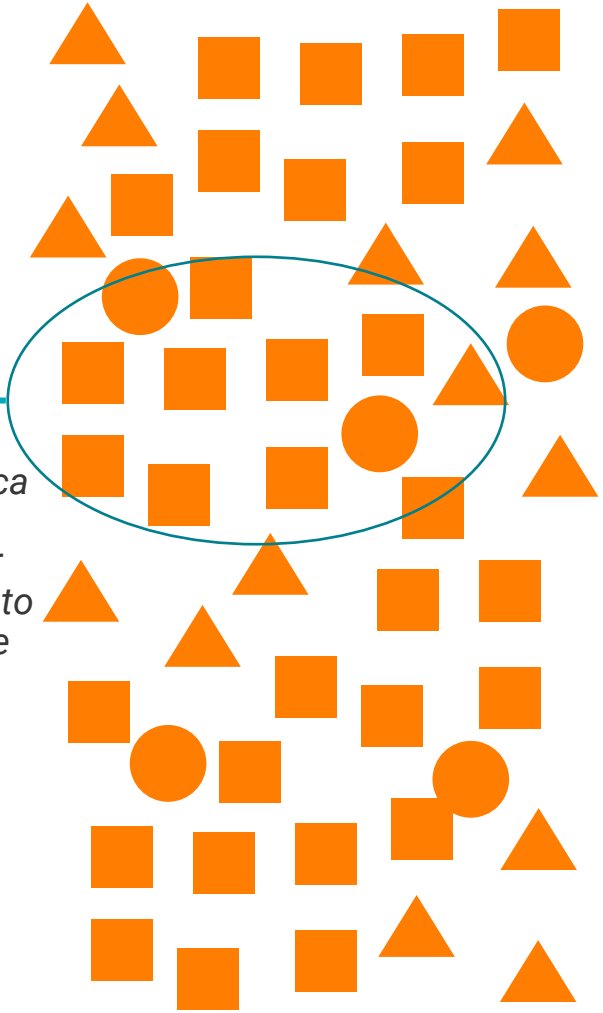
Read Only

Operations

Developer

Administrator

Informatica assigns granular privileges to each role



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Reference 360 Roles

Primary Data Owner

- Create Reference Dataset and structure
- **Create** Codelists, custom attributes, assign stake holders, define workflows

Business Data Steward

- SME for assigned reference dataset and codelist.
- Create and manage code values within code lists. Manage cross-walk within code lists.
- **Approve** changes in code values and cross walks proposed by other users.
- Self Publish own changes

Stake Holder

- Propose changes in existing code values
- **Propose** new code values

Business Analyst

- Access Reference data values, cross walks, hierarchies for data analysis
- **Read-only** access is provisioned
- Cannot propose changes

Planner

- Designs and manages the **hierarchies** between reference data sets.

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Guidelines for Assigning Roles

- To provide users with access to MDM - Reference 360, **administrators** must assign at least one Reference 360 role to users or groups to which the users belong.
- **Primary owners** can assign **stakeholder** roles for assets to users.
- Role privileges are **cumulative**.
- Users who have multiple roles or who belong to groups receive the **combined privileges** associated with each role.
- When administrators assign Reference 360 roles to users or groups, assign the role with the **minimum number of privileges** that are required for each user to work with Reference 360.
- Assign **stakeholder** roles only to those users or groups that work with an asset.

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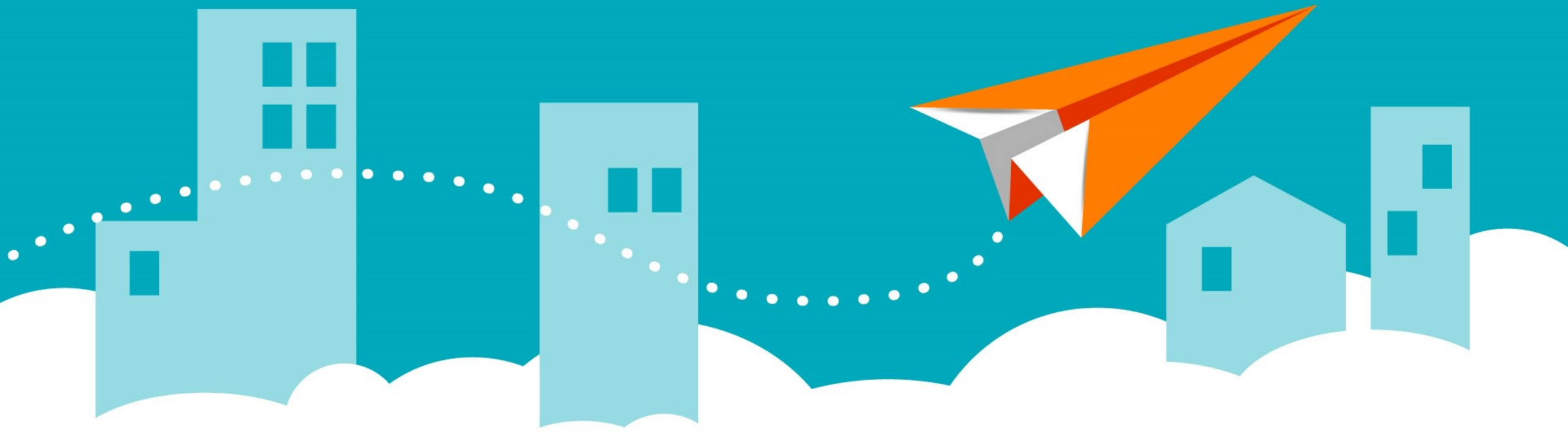
Approval Workflows



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Workflows in Reference 360

Approval Workflow	Description	Activity
One-step	One-step approval workflows contain one approval task. This workflow is the default approval workflow for all code lists.	An approver can approve the changes, reject the changes, or send the changes back to the originator. If the changes are approved, the changes become part of the active version of the code list.
Multi-step	Multi-step approval workflows contain multiple approval tasks.	The first approver can approve the changes or send back the changes to the originator. If the first approver approves the changes, the next approver can approve the changes or send the changes back to the originator. The next approver can also approve the changes or send the changes back to the originator. After the task reaches the final approver, the final approver can approve the changes, reject the changes, or send the changes back to the originator. If the changes are approved, the changes become part of the active version of the code list.

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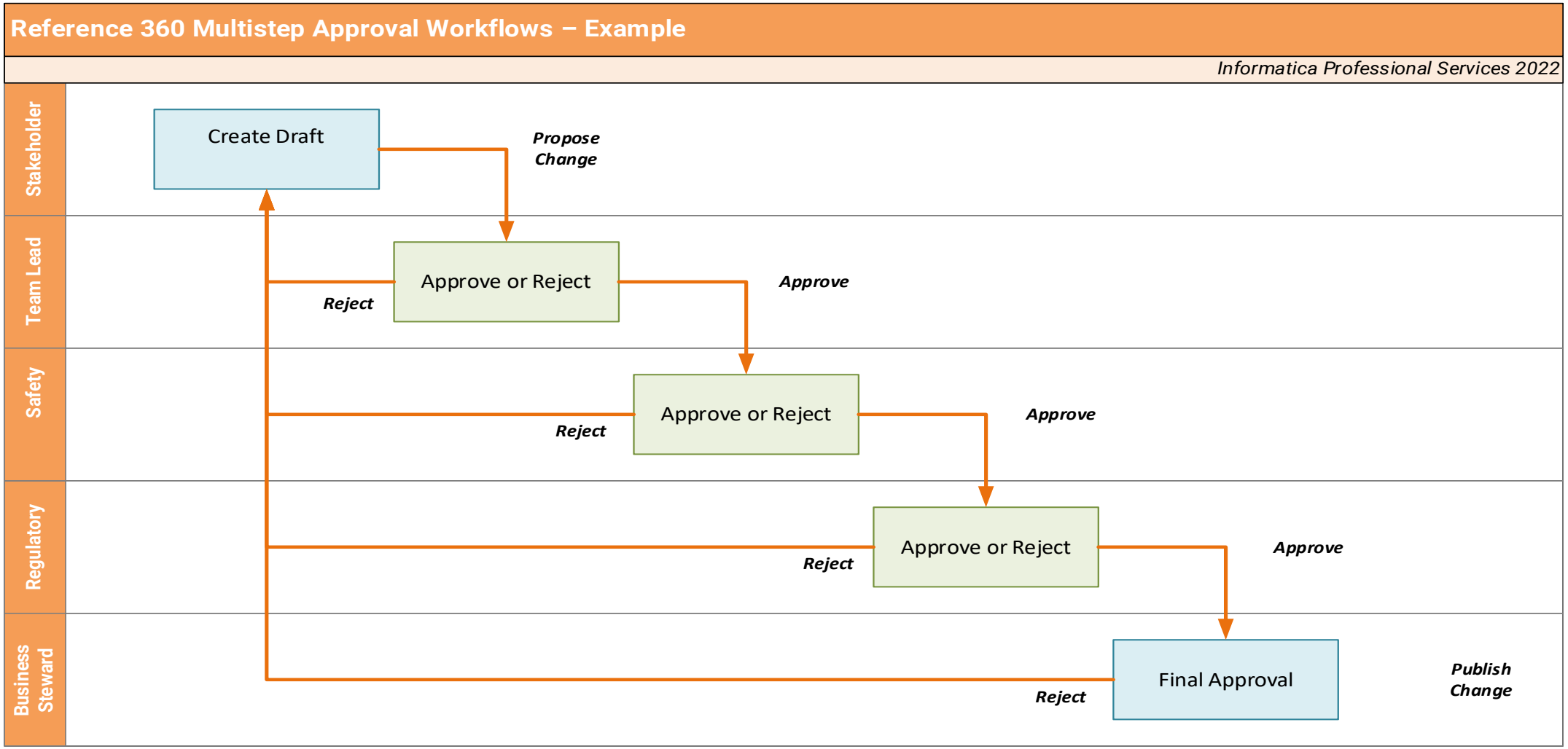
Multistep Workflows



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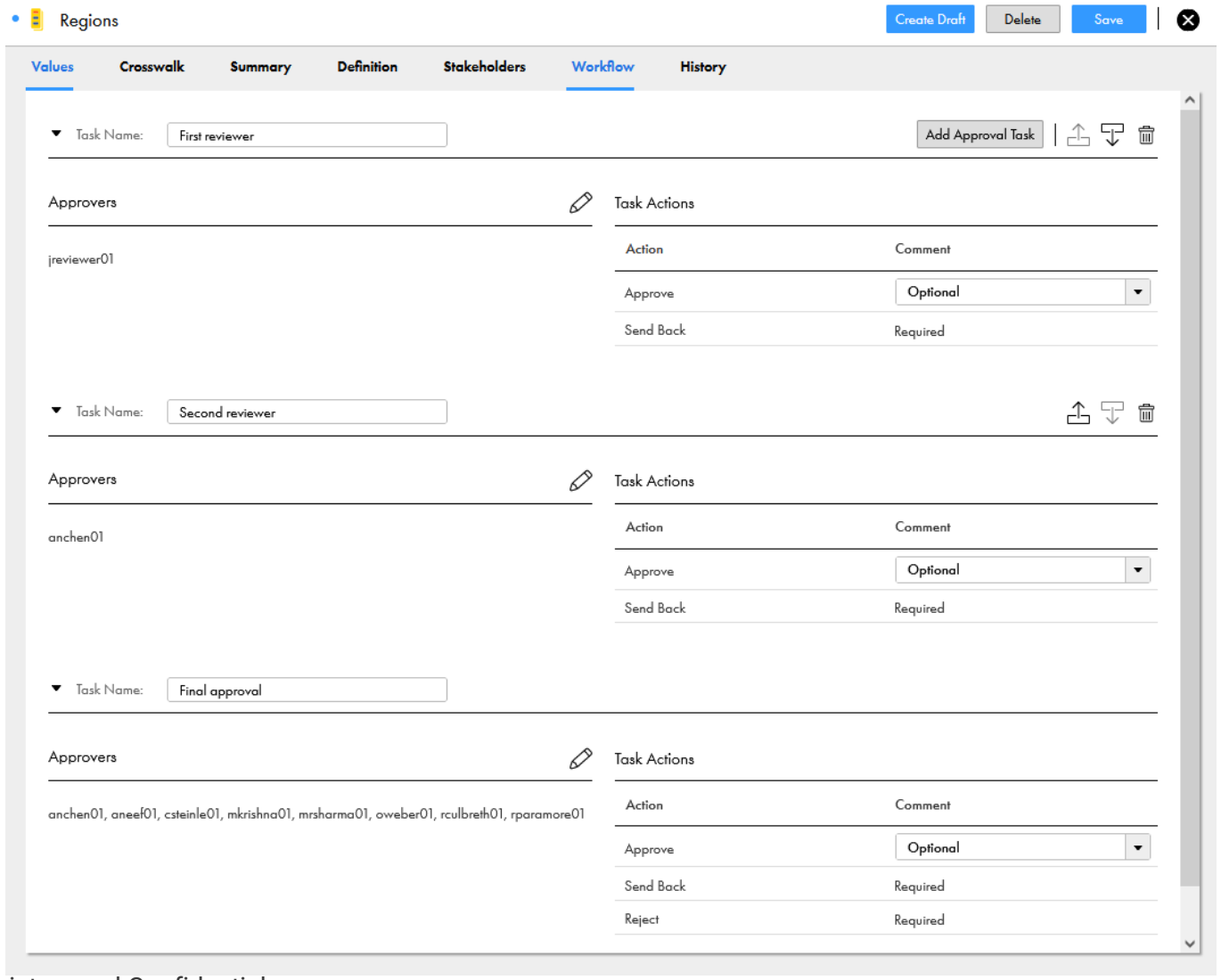
Example of a Multistep Workflow



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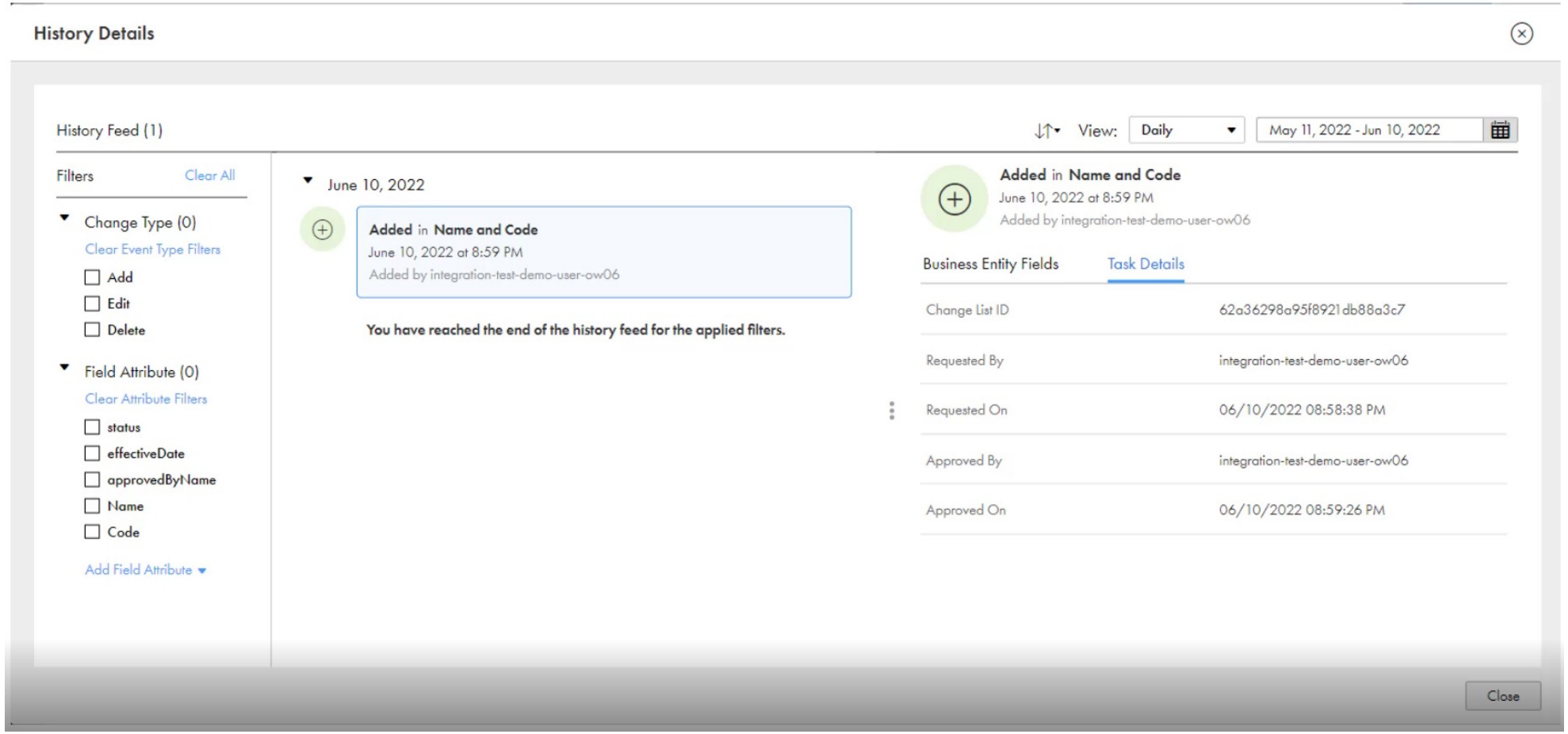
Viewing the History of a Task (☆New!)



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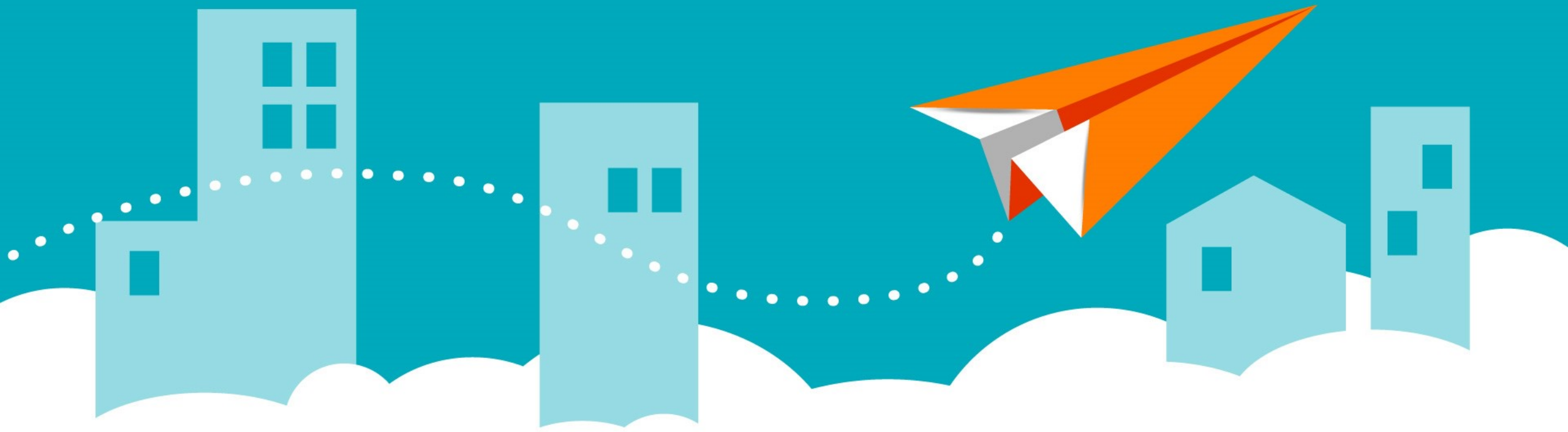
Workflow Demo



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Example: Create User Groups from R360 Roles

User Group	Test User	Primary Owner Role	Stakeholder Role	Business Steward Role	Business Analyst Role
R360_DataOwner (Create)	R360_Owen	X			
R360_Contributor (Propose Change)	R360_Conrad		X		
R360_Steward (Final Approval)	R360_Stew			X	
R360_ReadOnly (Analyze)	R360_Ramona				X
R360_Regulatory (Approve)	R360_Reggie				X
R360_FoodSafety (Approve)	R360_Frank				X

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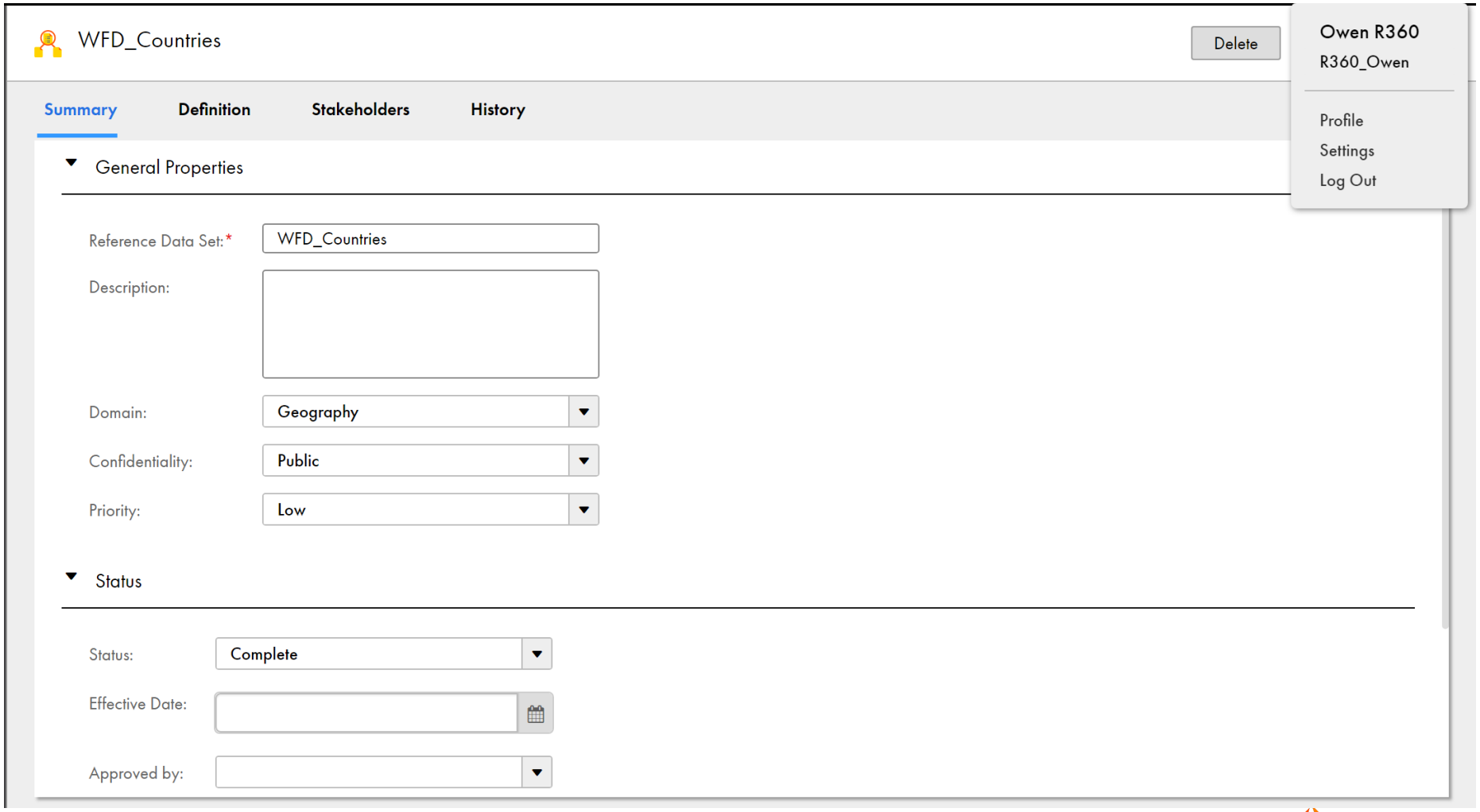
Owen logs in to create a new Reference Data Set



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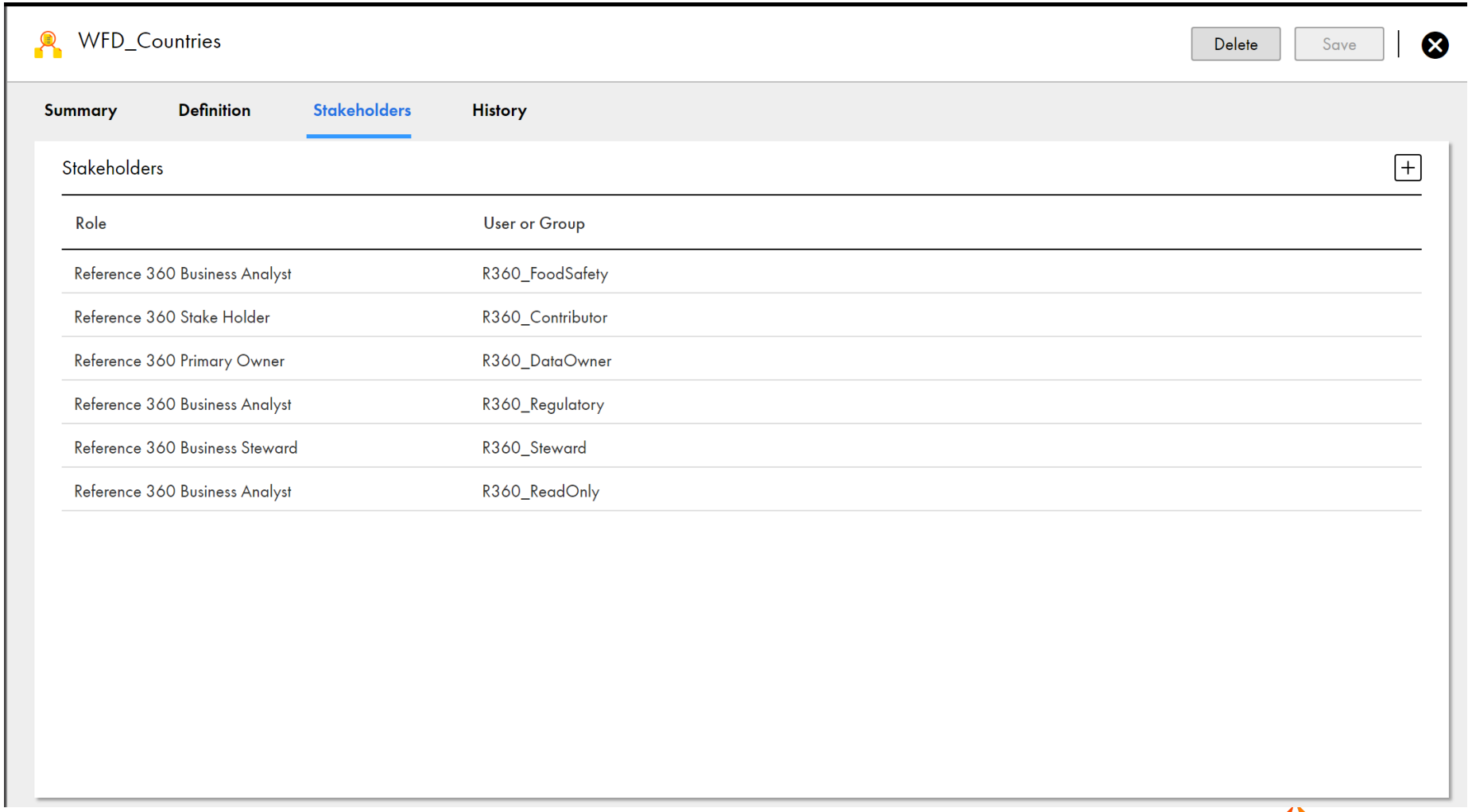
Owen assigns the following stakeholders



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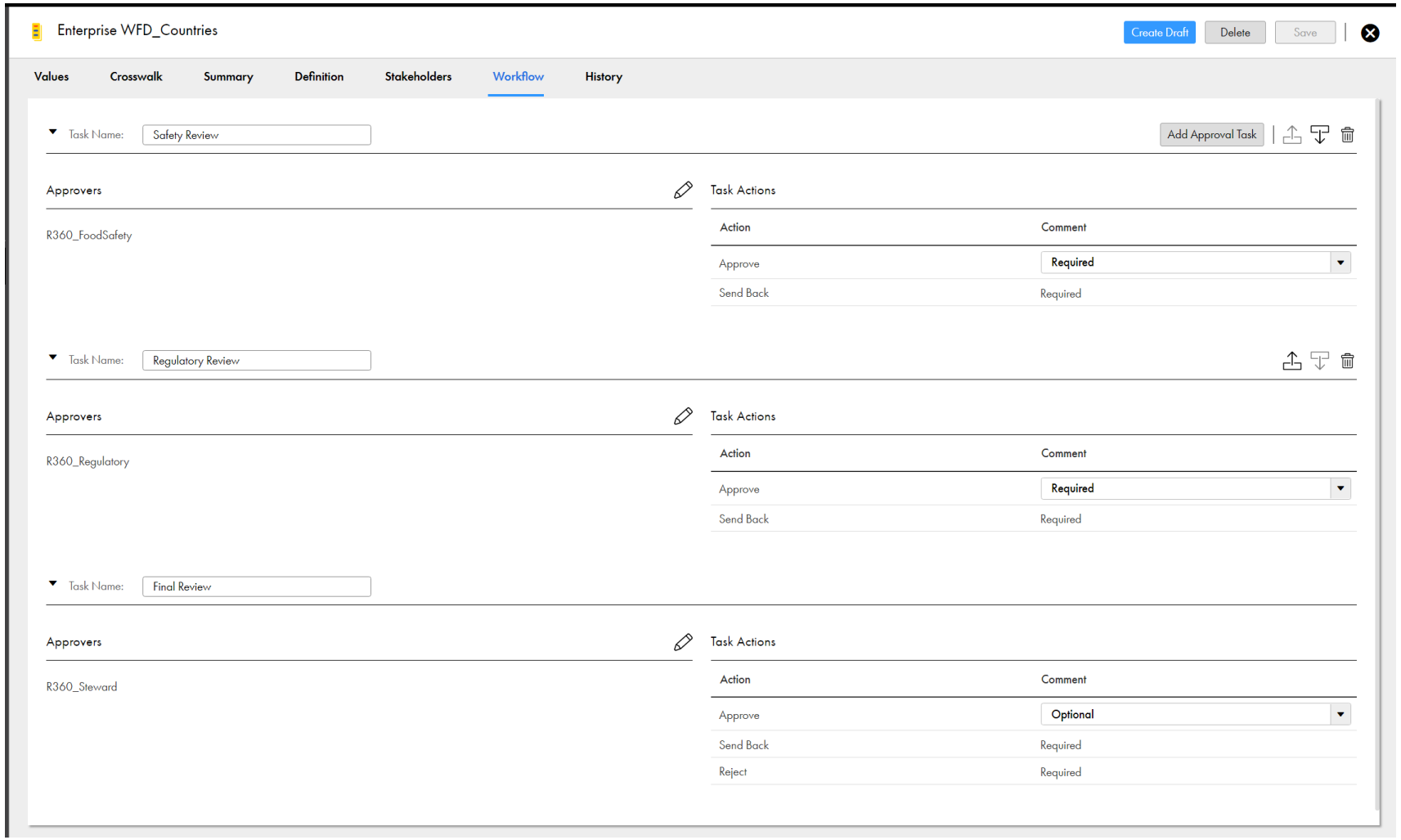
Owen assigns the following workflow approval steps



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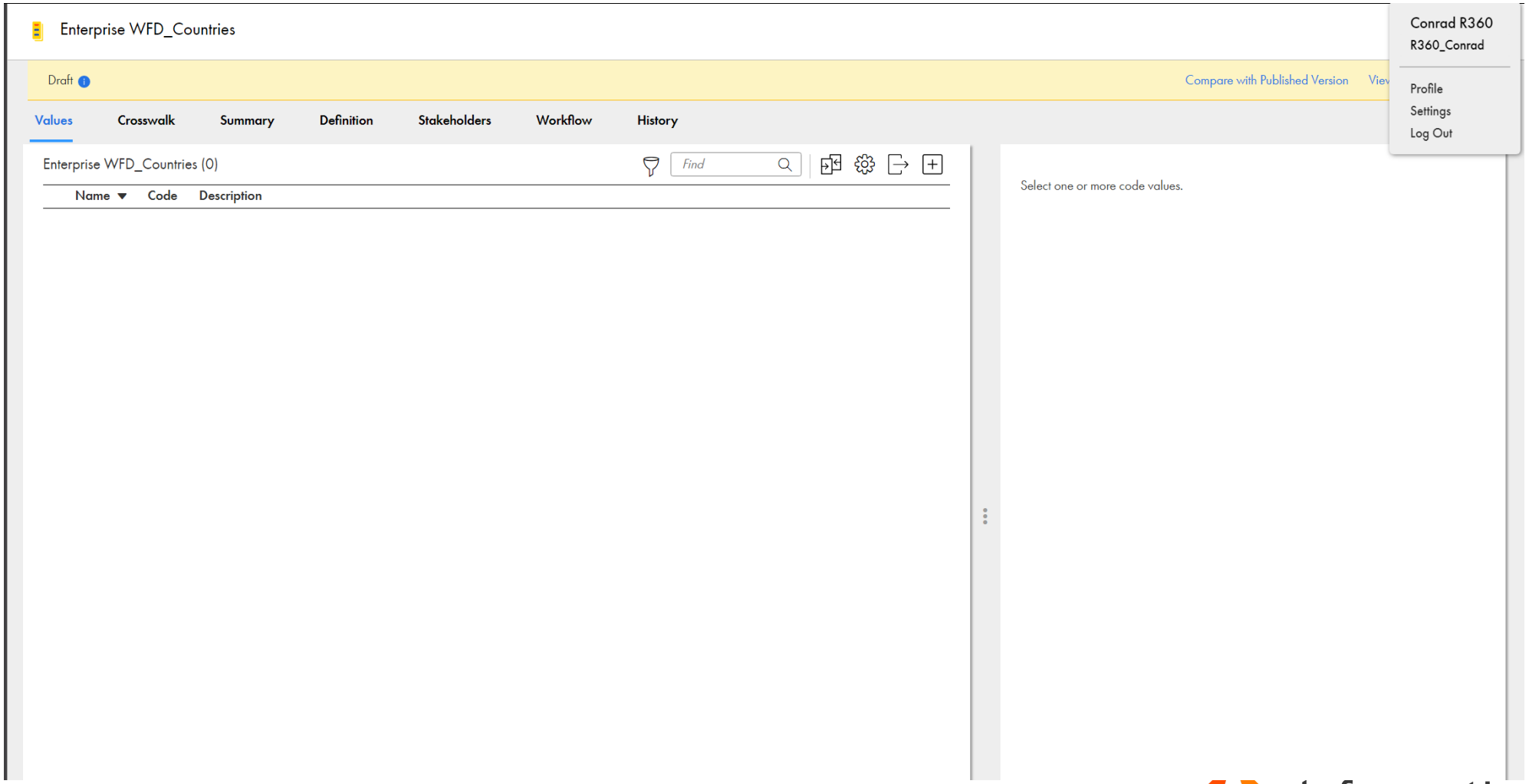
Conrad logs in and creates a first draft



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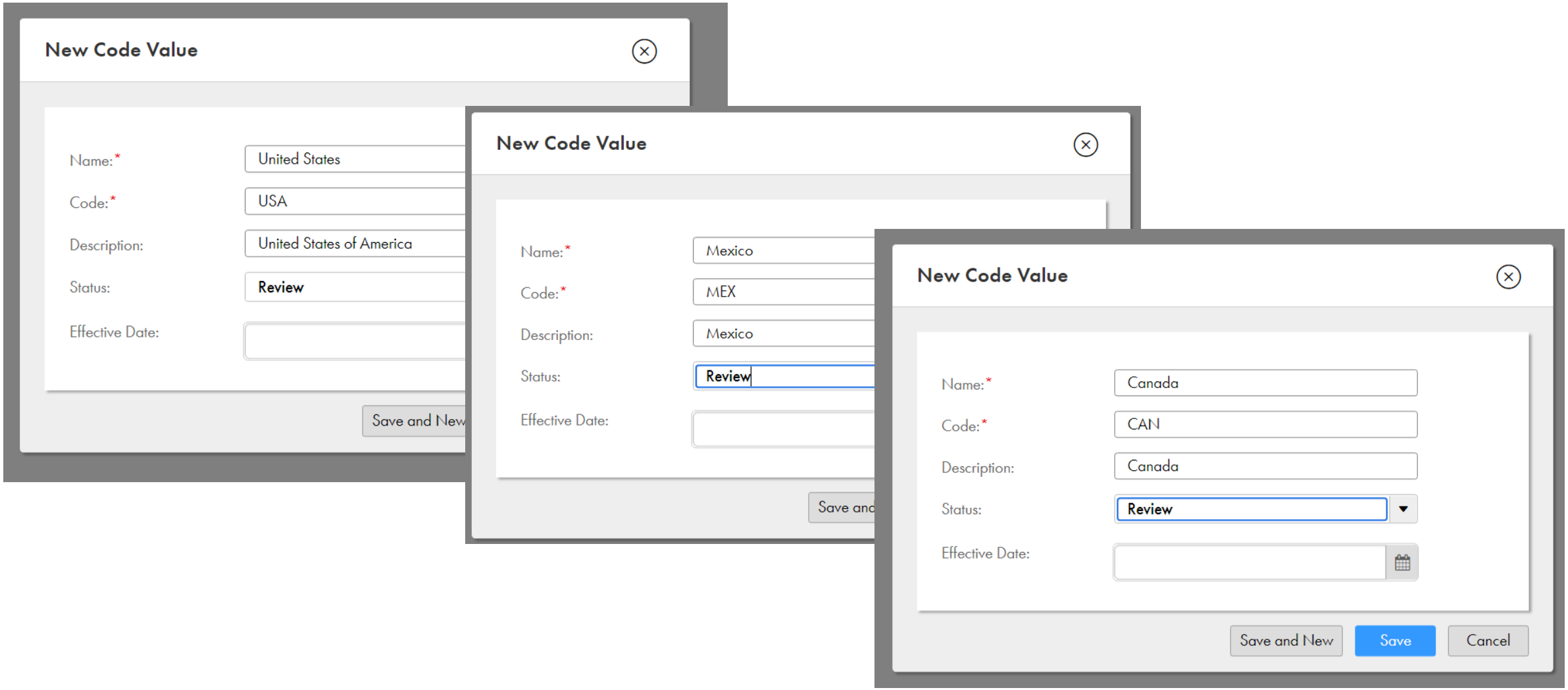
Conrad adds some new countries for review



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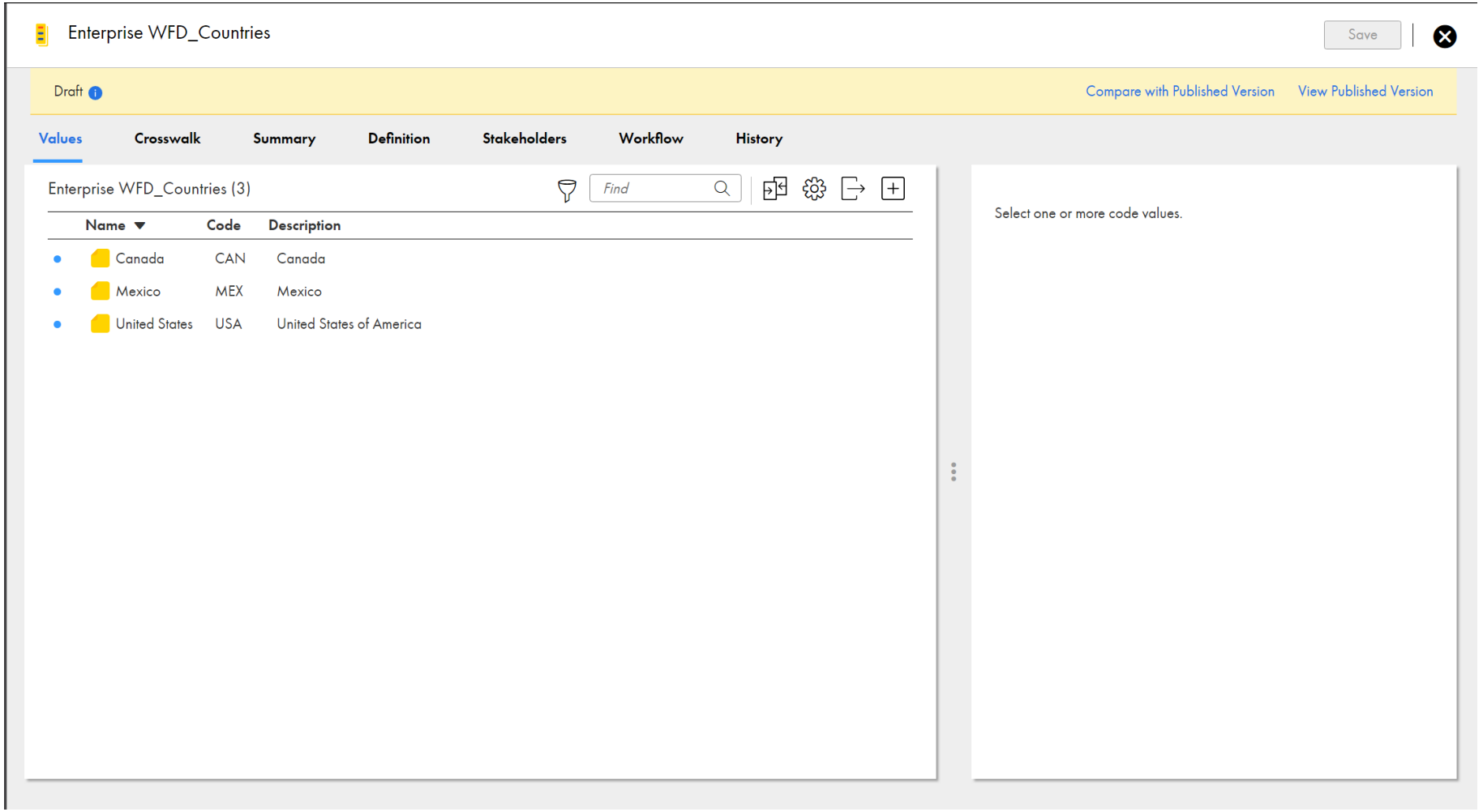
Conrad saves his changes and sees the new values



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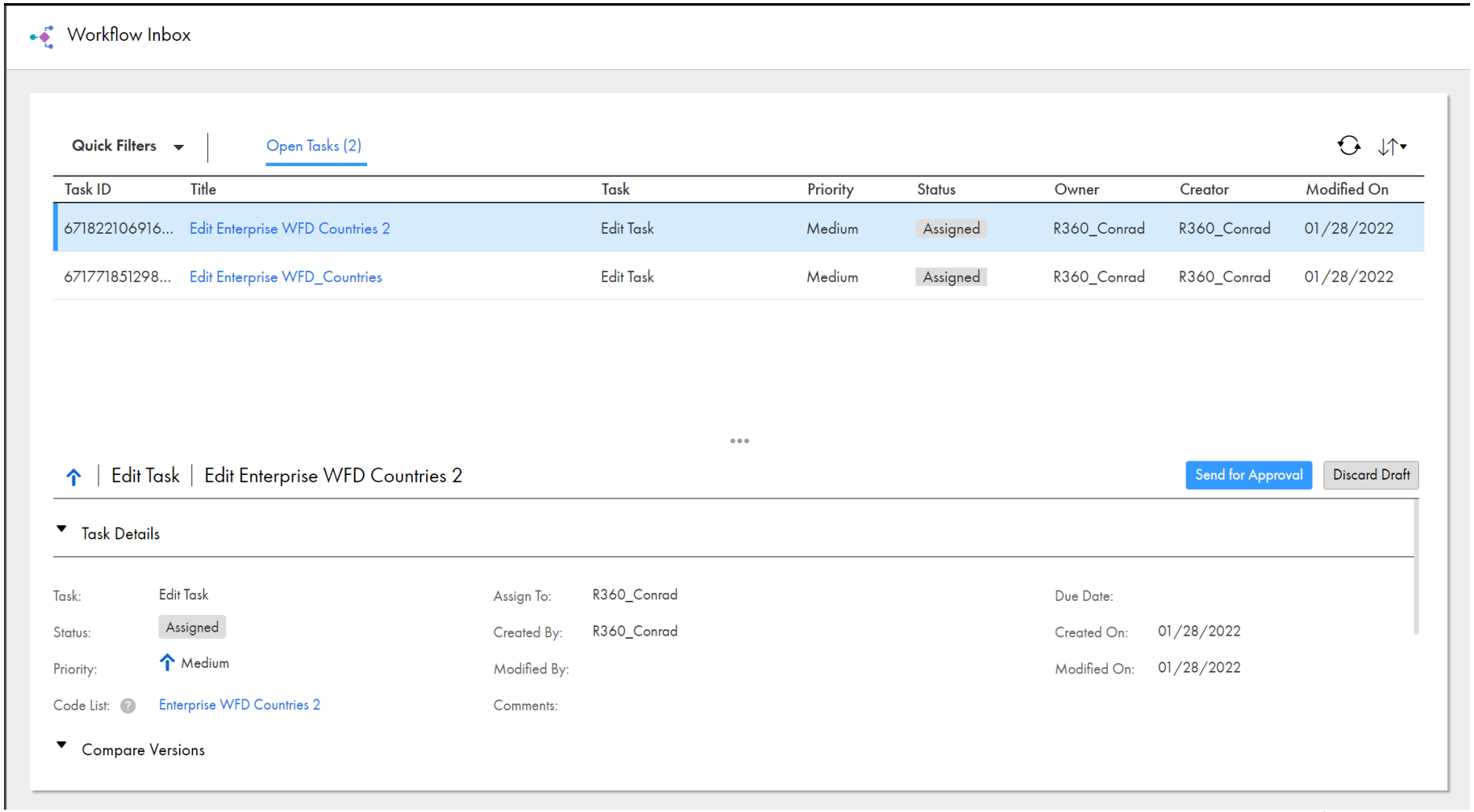
Informatica

A new task is created for Conrad to submit for approval



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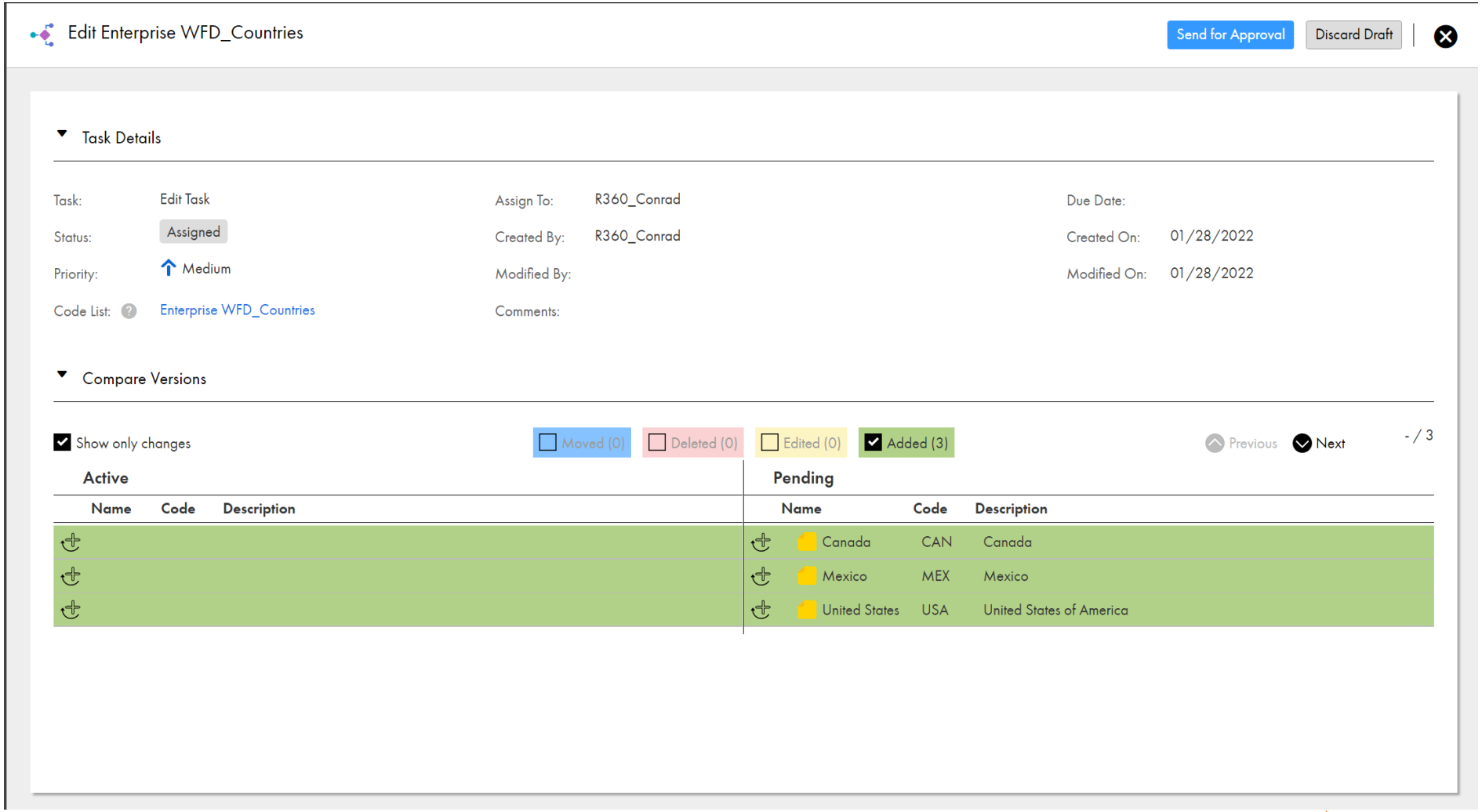
Conrad checks that the draft is correct



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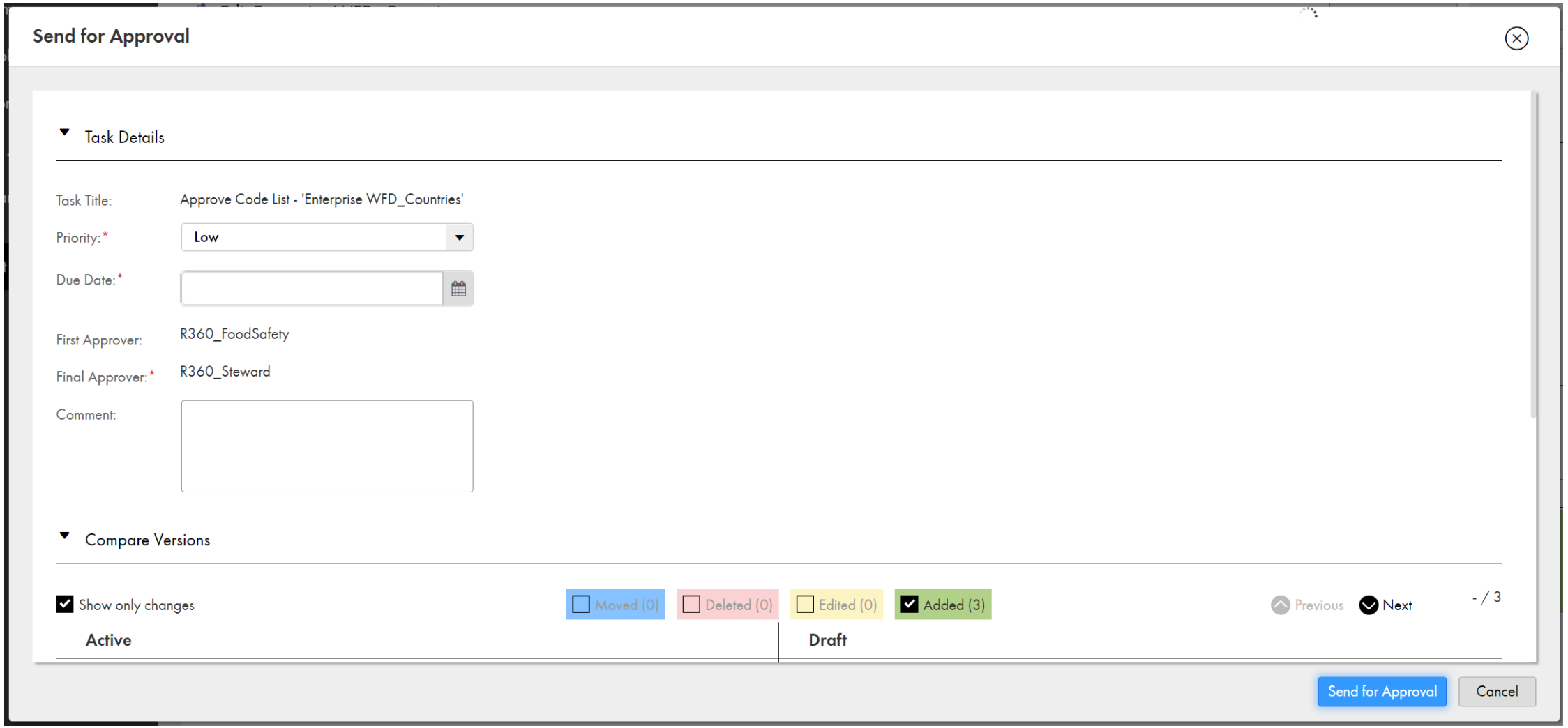
Informatica

Conrad submits to Food Safety for approval



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Informatica

Conrad gets an email confirmation

- The confirmation email includes the approver that the task has been sent to

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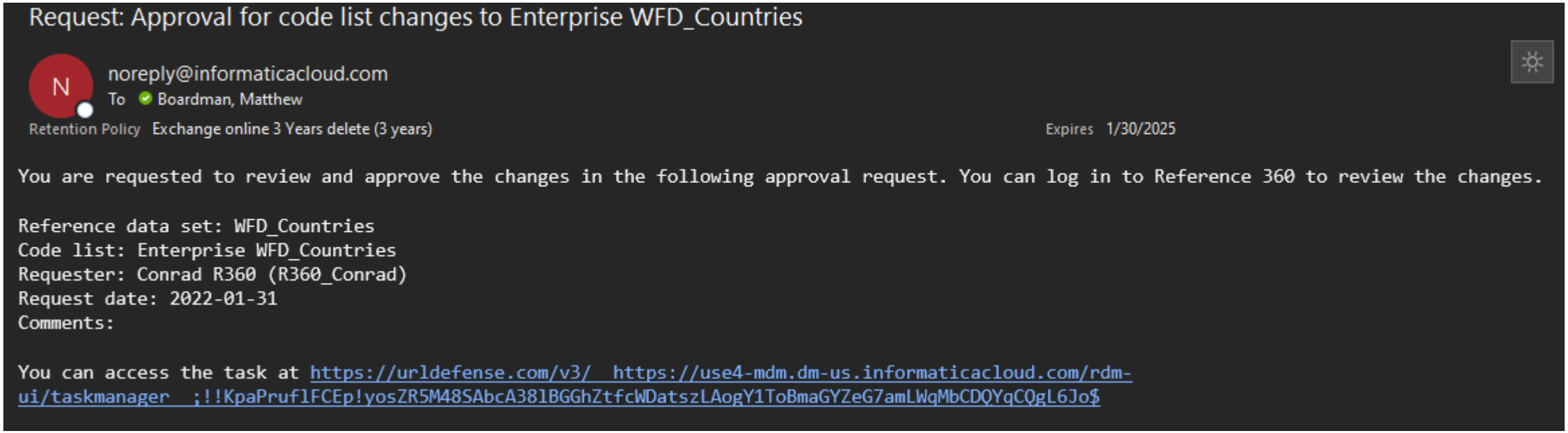
Frank in Food Safety gets an email alert



Request: Approval for code list changes to Enterprise WFD_Countries

N

noreply@informaticacloud.com

To Boardman, Matthew

Retention Policy Exchange online 3 Years delete (3 years) Expires 1/30/2025

You are requested to review and approve the changes in the following approval request. You can log in to Reference 360 to review the changes.

Reference data set: WFD_Countries
Code list: Enterprise WFD_Countries
Requester: Conrad R360 (R360_Conrad)
Request date: 2022-01-31
Comments:

You can access the task at https://urldefense.com/v3/__https://use4-mdm.dm-us.informaticacloud.com/rdm-ui/taskmanager__;!!KpaPruflFCEp!yosZR5M48SAbcA38lBGGhZtfcWDatszLAogY1ToBmaGYZeG7amLWqMbCDQYqCQgL6Jo$

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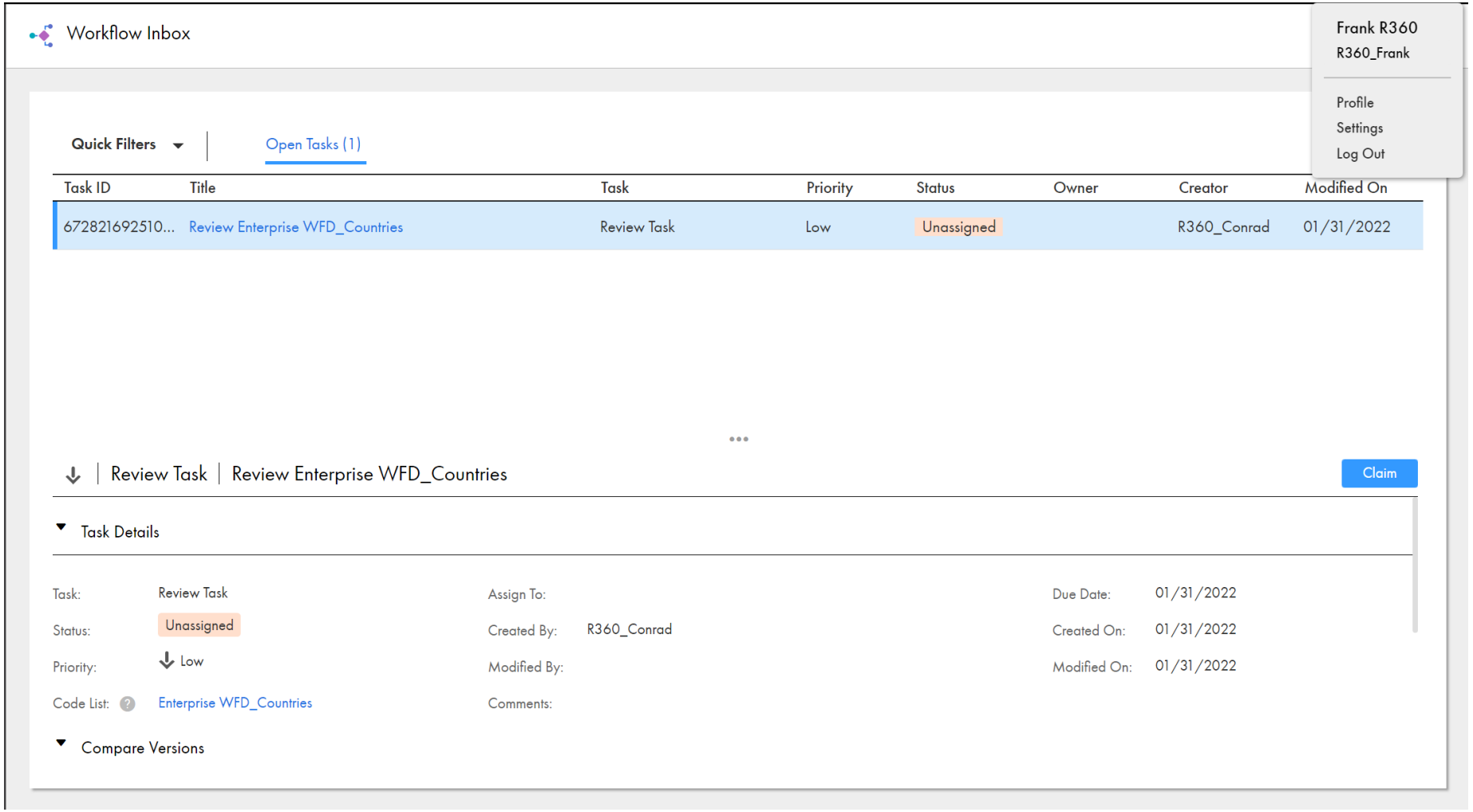
Informatica

Frank logs in to see the new approval task



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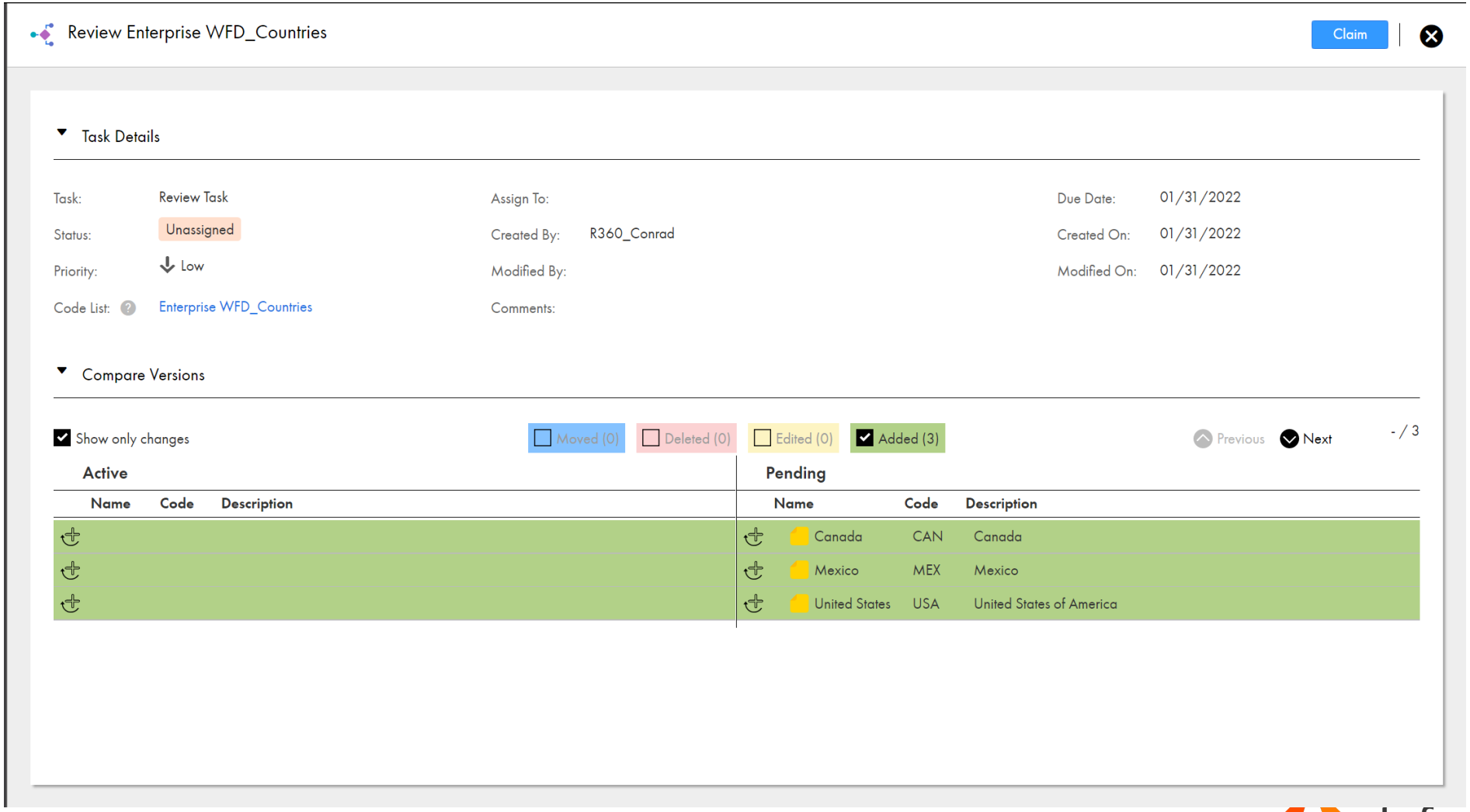
Frank looks at the changes and claims the task



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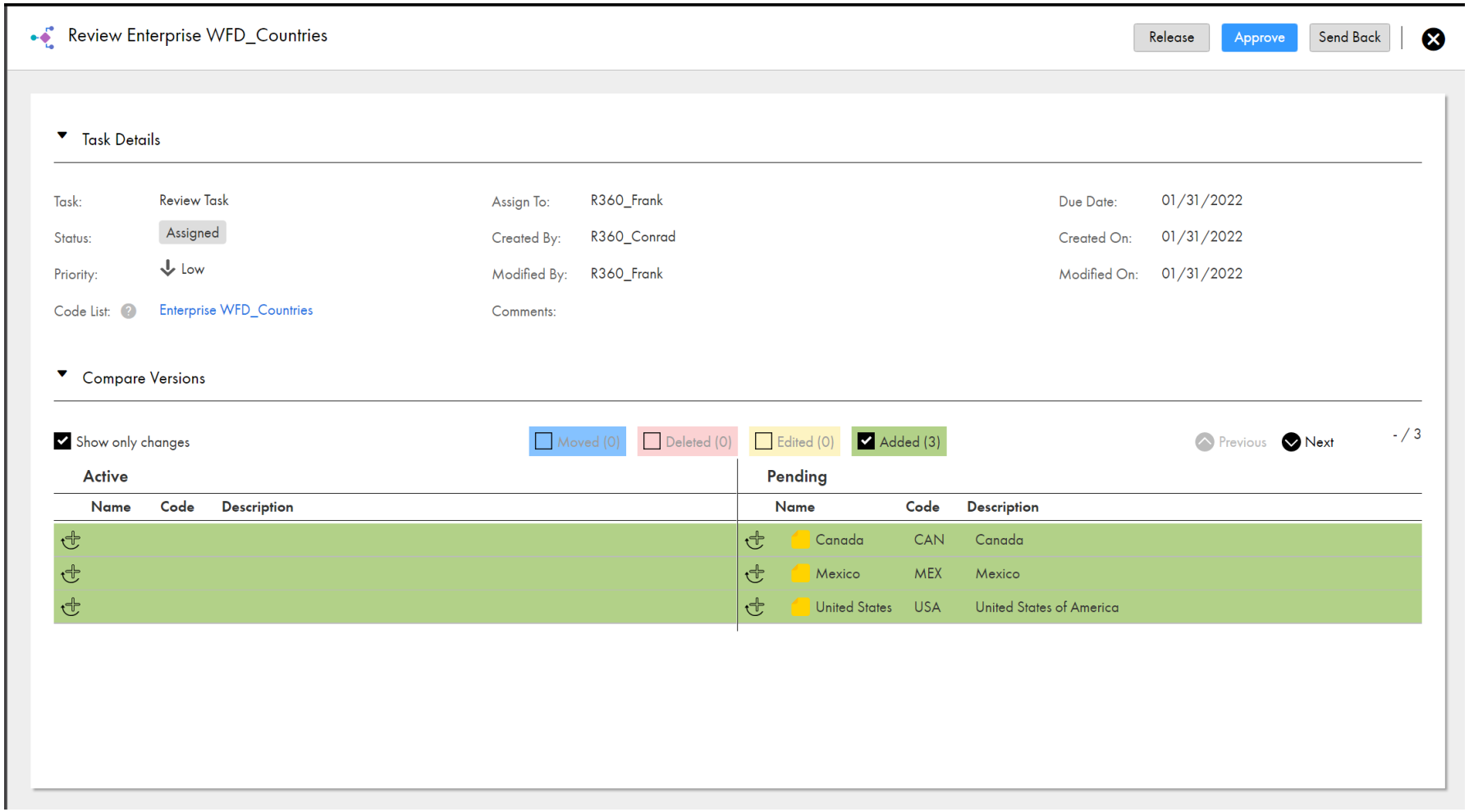
Frank can approve, send back to Conrad, or release task



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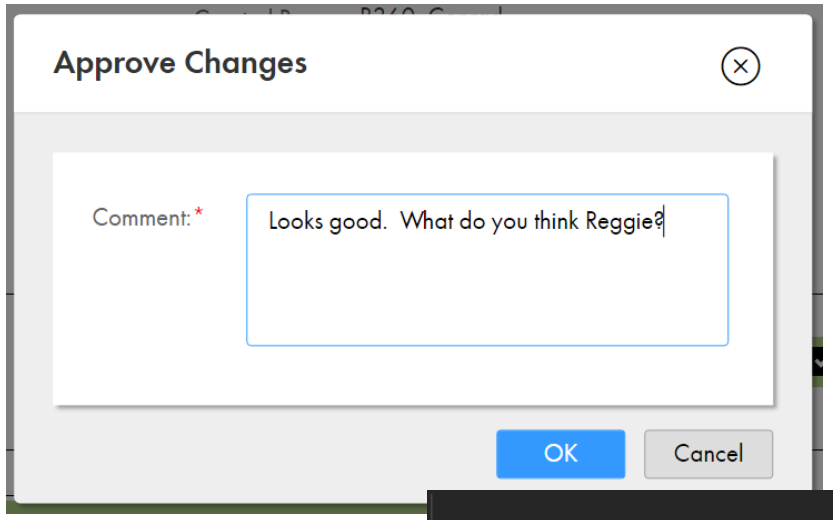
Frank agrees with the changes, and approves



Approved: Code list changes to Enterprise WFD_Countries

N

noreply@informaticacloud.com

To Boardman, Matthew

Retention Policy Exchange online 3 Years delete (3 years) Expires 1/30/2025

You successfully approved the changes in the following approval request. The request will be sent for next approval.

Reference data set: WFD_Countries
Code list: Enterprise WFD_Countries
Requester: Conrad R360 (R360_Conrad)
Approvers: Frank R360 (R360_Frank)
Approval date: 2022-01-31
Comments: Looks good. What do you think Reggie?

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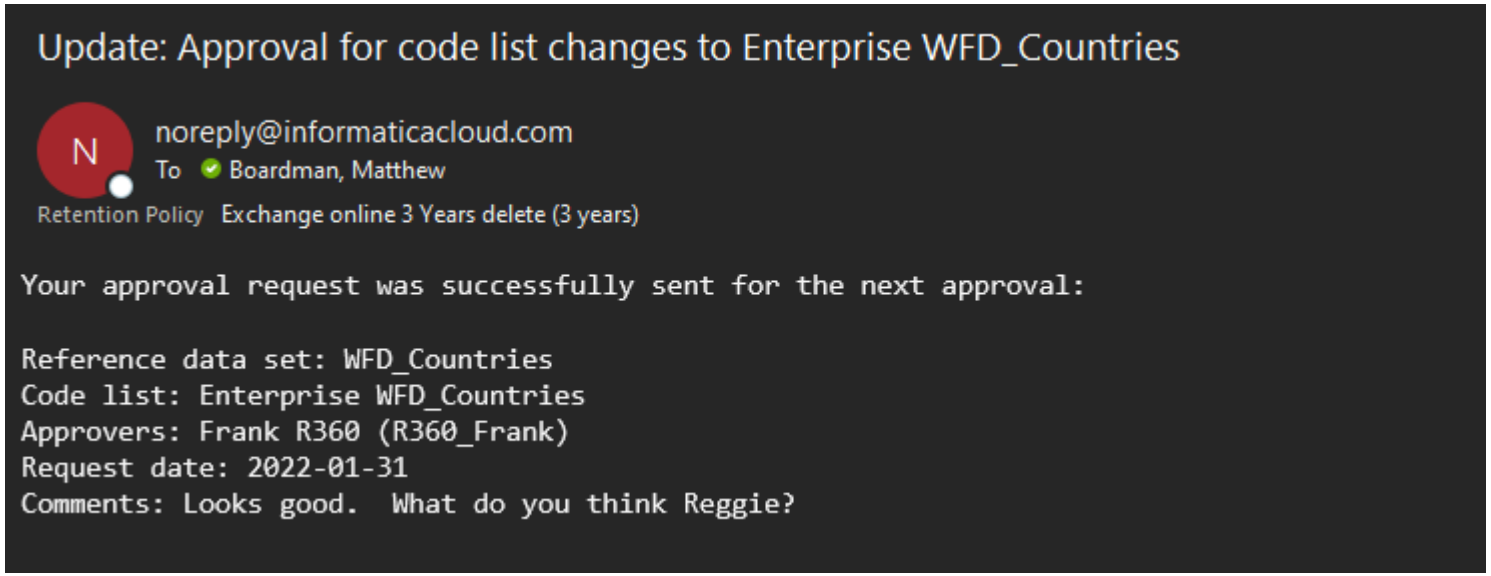
Conrad also gets an email confirmation



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Reggie in Regulatory gets an email alert

Request: Approval for code list changes to Enterprise WFD_Countries

N

noreply@informaticacloud.com
To Boardman, Matthew

Retention Policy Exchange online 3 Years delete (3 years) Expires 1/30/2025

We removed extra line breaks from this message.

You are requested to review and approve the changes in the following approval request. You can log in to Reference 360 to review the changes.

Reference data set: WFD_Countries
Code list: Enterprise WFD_Countries
Requester: Conrad R360 (R360_Conrad)
Previous reviewer: Frank R360 (R360_Frank) Request date: 2022-01-31
Comments: Looks good. What do you think Reggie?

You can access the task at https://urldefense.com/v3/__https://use4-mdm.dm-us.informaticacloud.com/rdm-ui/taskmanager__;!!KpaPruflFCEp!3Eo-iYSD2Pkir_sdFoThGjhzqMduaLE3U7Nr69PdQVd1c50F1HEUOycQRnNL5gDfv8M$

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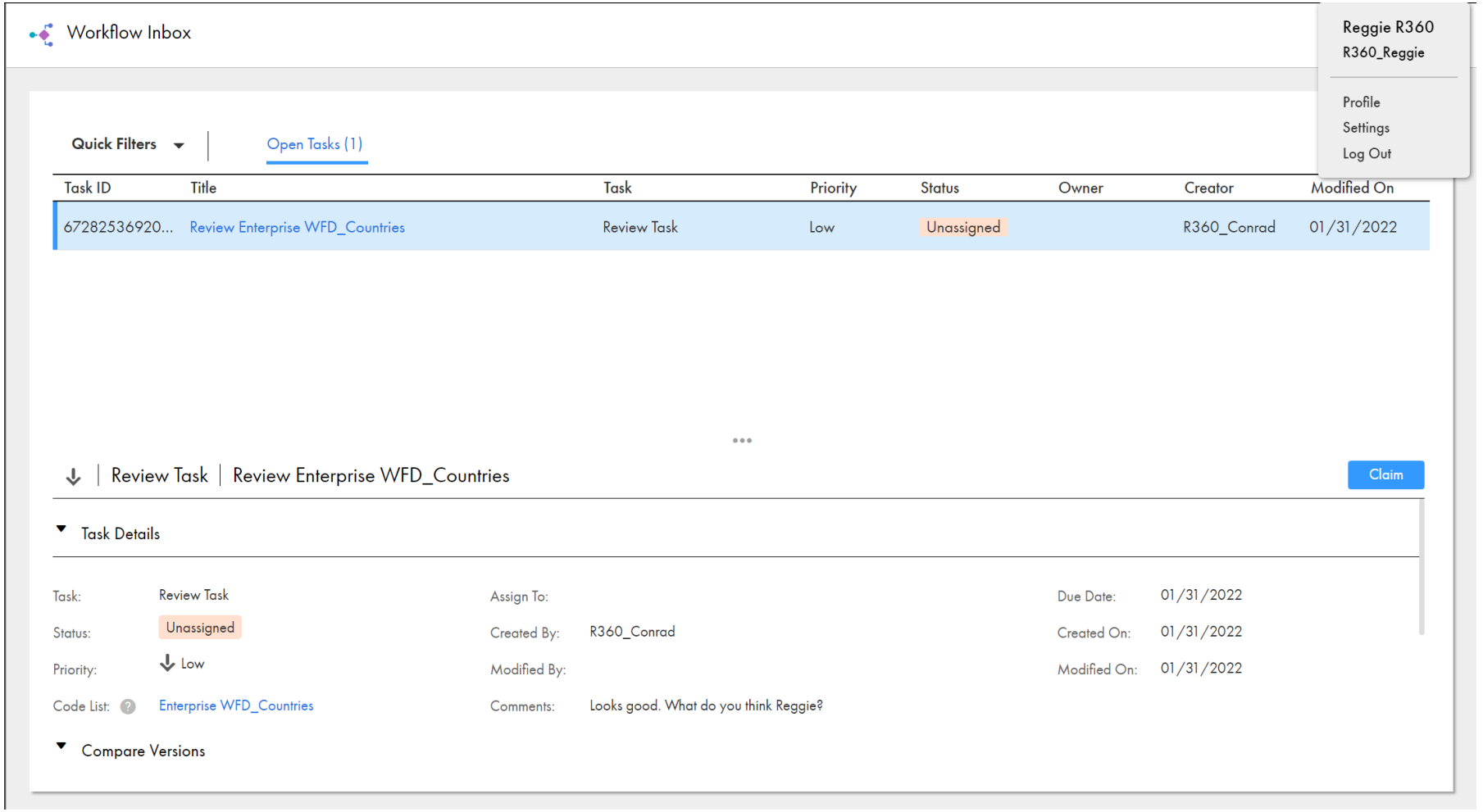
Reggie logs in to see the new approval task



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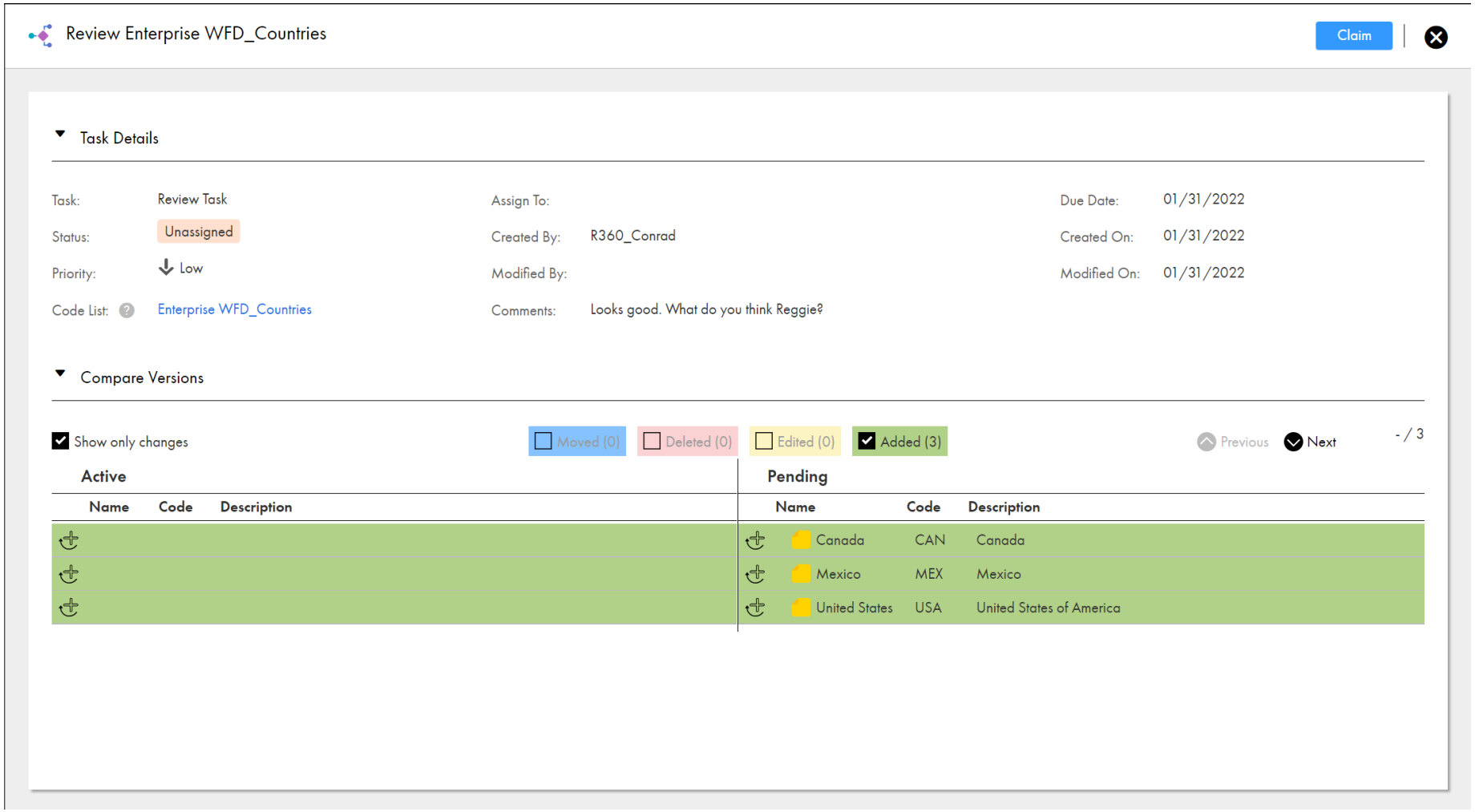
Reggie looks at the changes and claims the task



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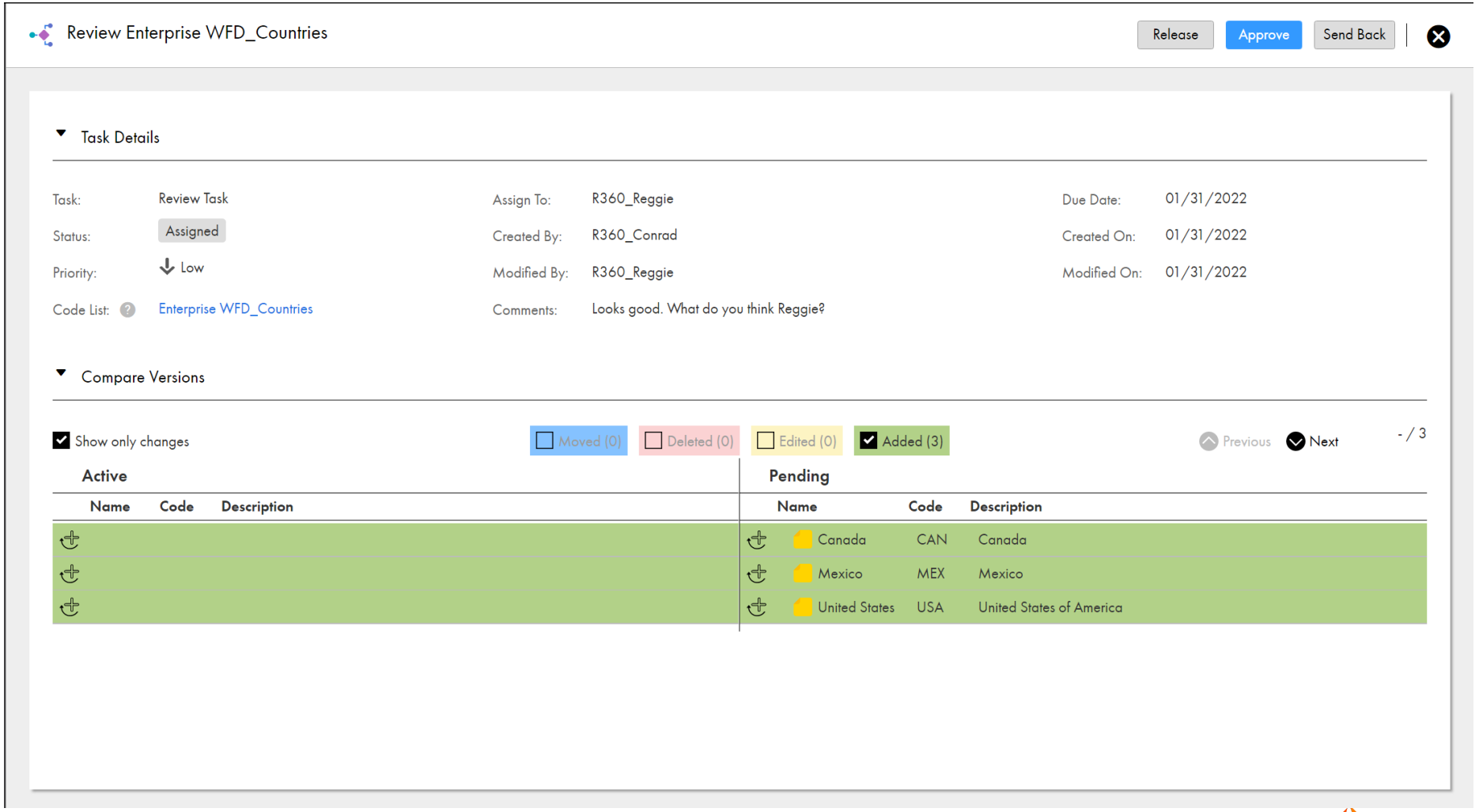
Reggie can approve, send back to Conrad, or release task



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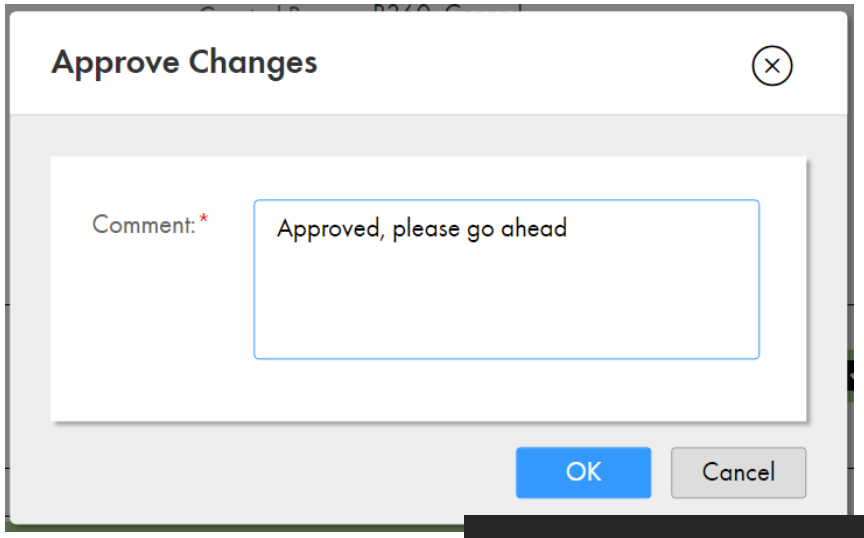
Reggie agrees with the changes, and approves



Approved: Code list changes to Enterprise WFD_Countries

N

noreply@informaticacloud.com

To Boardman, Matthew

Retention Policy Exchange online 3 Years delete (3 years) Expires 1/30/2025

You successfully approved the changes in the following approval request. The request will be sent for next approval.

Reference data set: WFD_Countries
Code list: Enterprise WFD_Countries
Requester: Conrad R360 (R360_Conrad)
Approvers: Reggie R360 (R360_Reggie)
Approval date: 2022-01-31
Comments: Approved, please go ahead

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Conrad also gets an email confirmation

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Stew gets an email alert for final approval

Request: Approval for code list changes to Enterprise WFD_Countries

N

noreply@informaticacloud.com
To Boardman, Matthew

Reply

Retention Policy Exchange online 3 Years delete (3 years) Expires 1/30/2025

We removed extra line breaks from this message.

You are requested to review and approve the changes in the following approval request. You can log in to Reference 360 to review the changes.

Reference data set: WFD_Countries
Code list: Enterprise WFD_Countries
Requester: Conrad R360 (R360_Conrad)
Previous reviewer: Reggie R360 (R360_Reggie) Request date: 2022-01-31
Comments: Approved, please go ahead

You can access the task at https://urldefense.com/v3/__https://use4-mdm.dm-us.informaticacloud.com/rdm-ui/taskmanager__;!!KpaPruflFCEp!2lfTqXRQuVh0P3fP1ZLU-XDHy6HUtcNgl7uhBWTy3IWjdrX1bqAIMcjLReGja11qizk$

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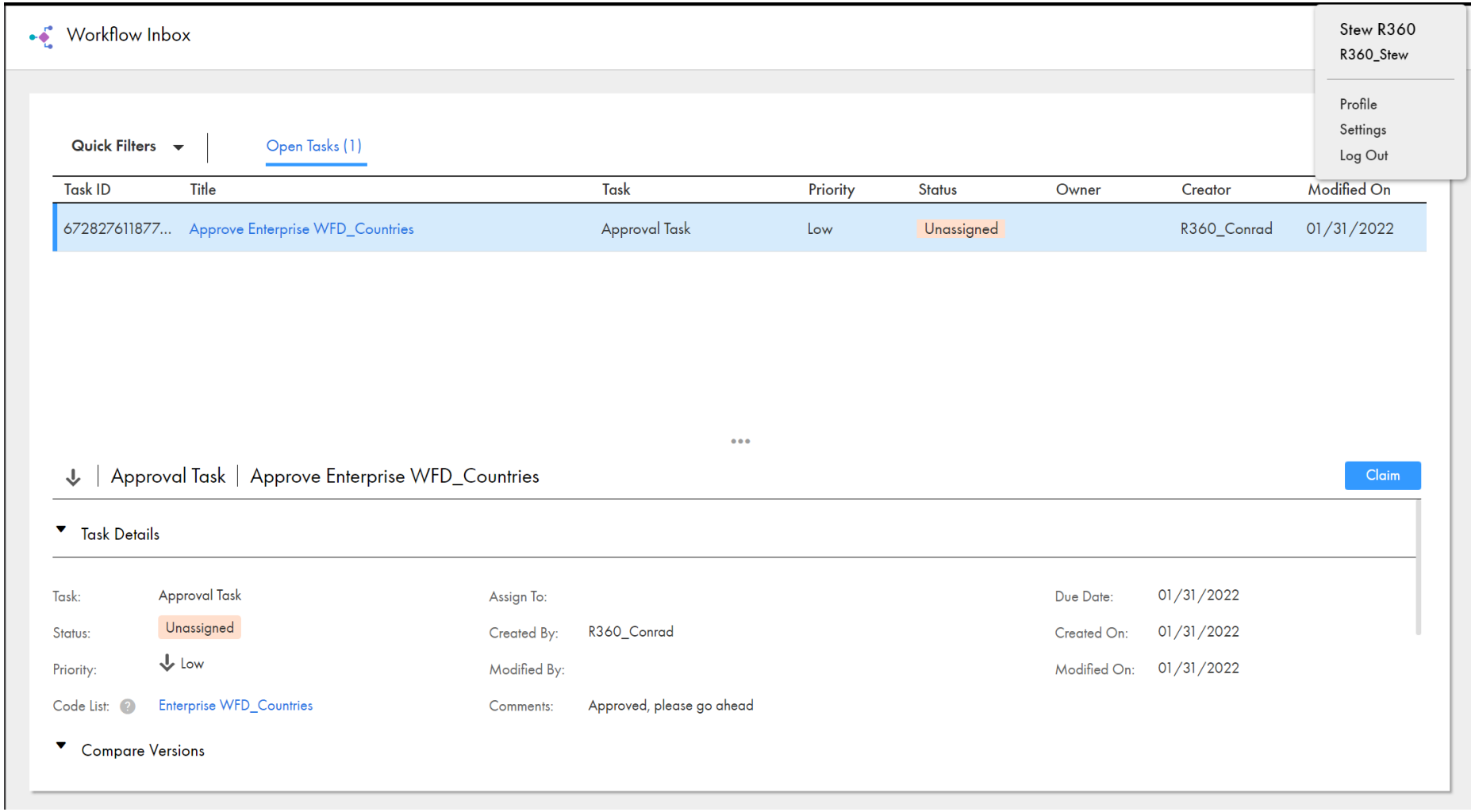
Stew logs in to see the new approval task



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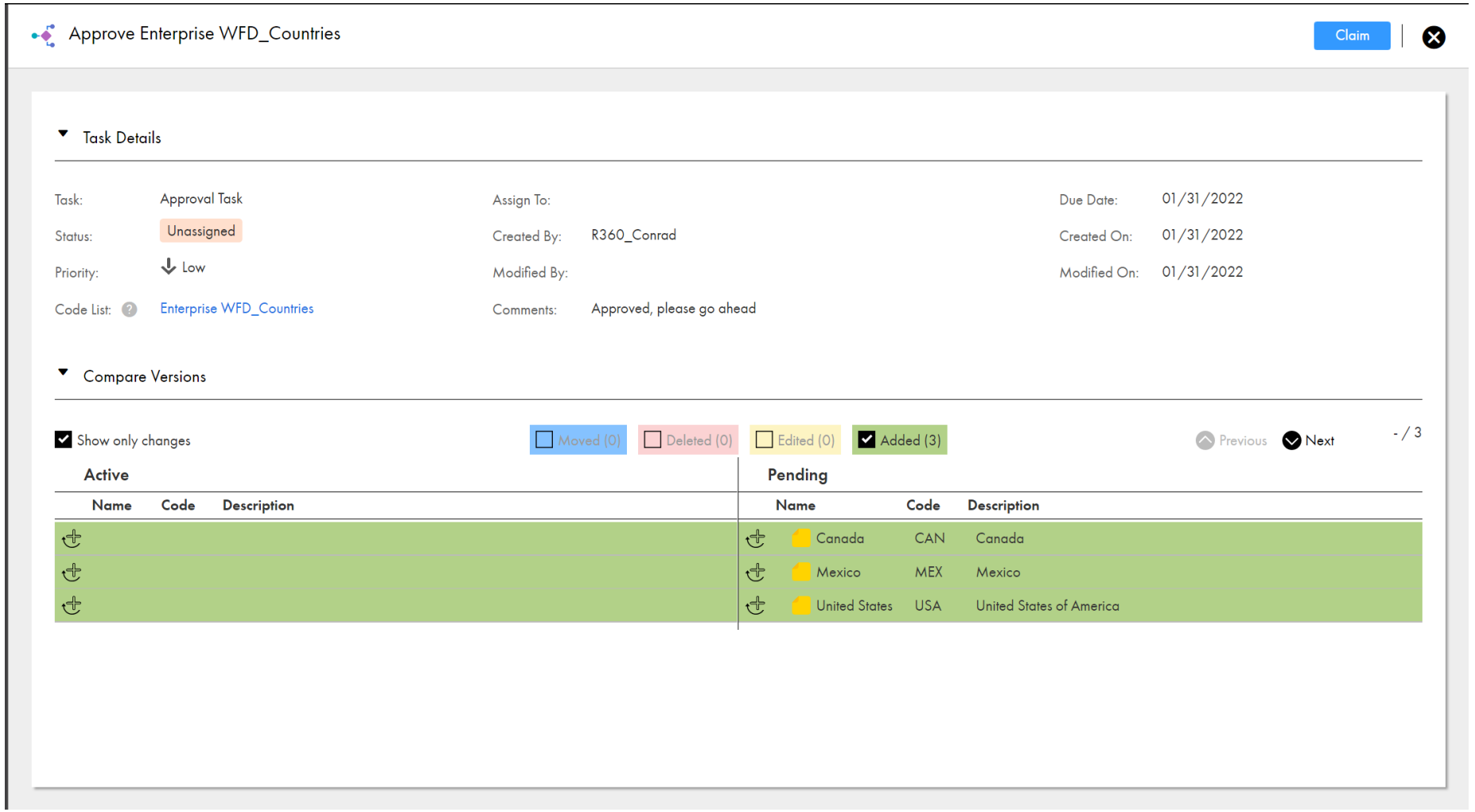
Stew looks at the changes and claims the task



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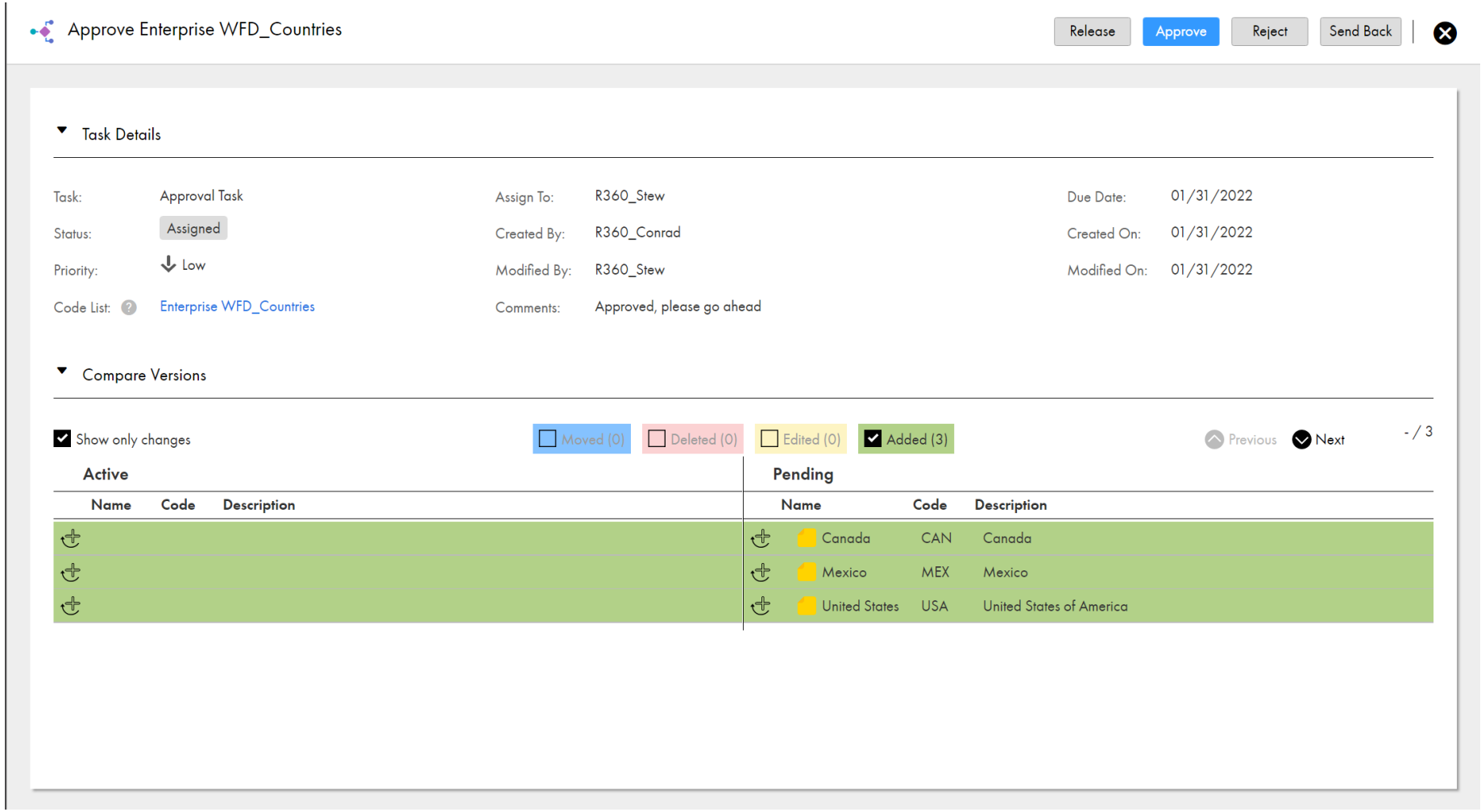
Since Stew is the final approver, he can also Reject task



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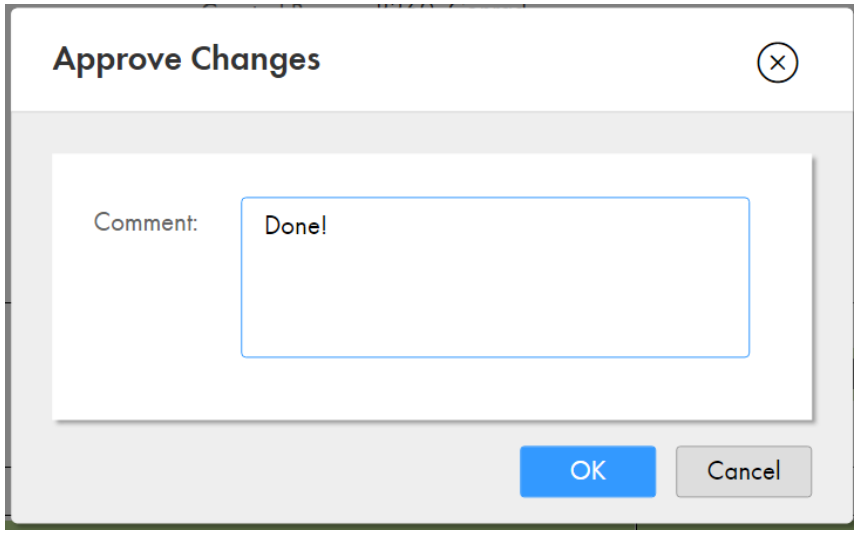
Stew agrees with the changes, and approves



Approved: Code list changes to Enterprise WFD_Countries

N

noreply@informaticacloud.com

To Boardman, Matthew

Retention Policy Exchange online 3 Years delete (3 years)

You successfully approved the changes in the following approval request:

Reference data set: WFD_Countries
Code list: Enterprise WFD_Countries
Requester: Conrad R360 (R360_Conrad)
Approval date: 2022-01-31
Comments: Done!

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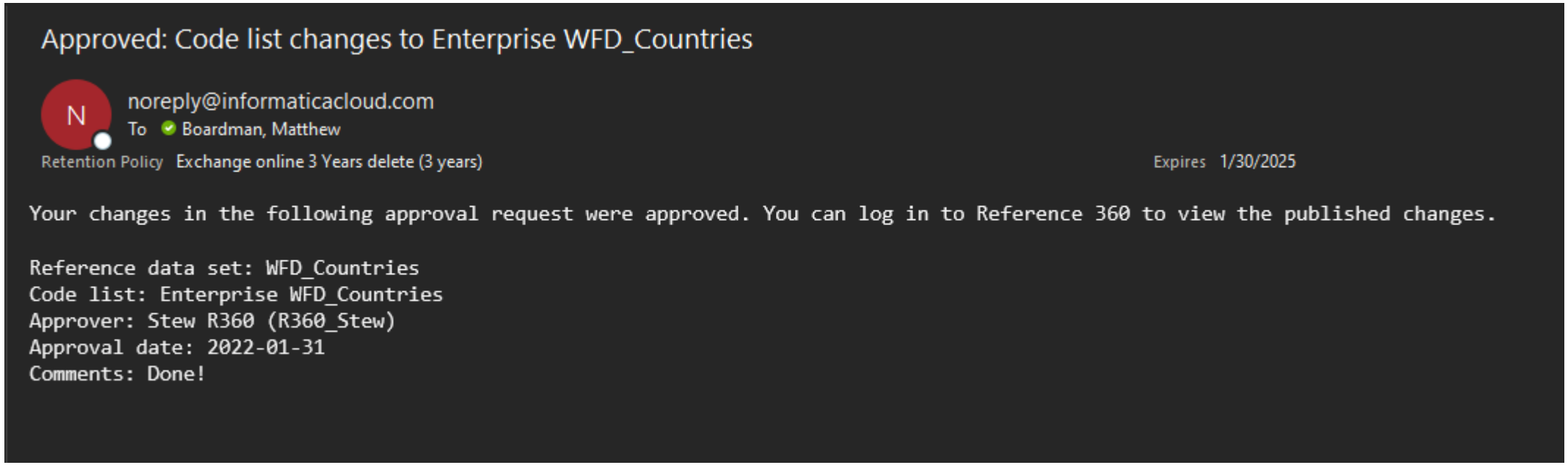
Conrad also gets an email confirmation



- The workflow has completed, so these changes are no longer in a draft state and have been published. The enterprise integrations will publish the changes automatically to subscribing applications.

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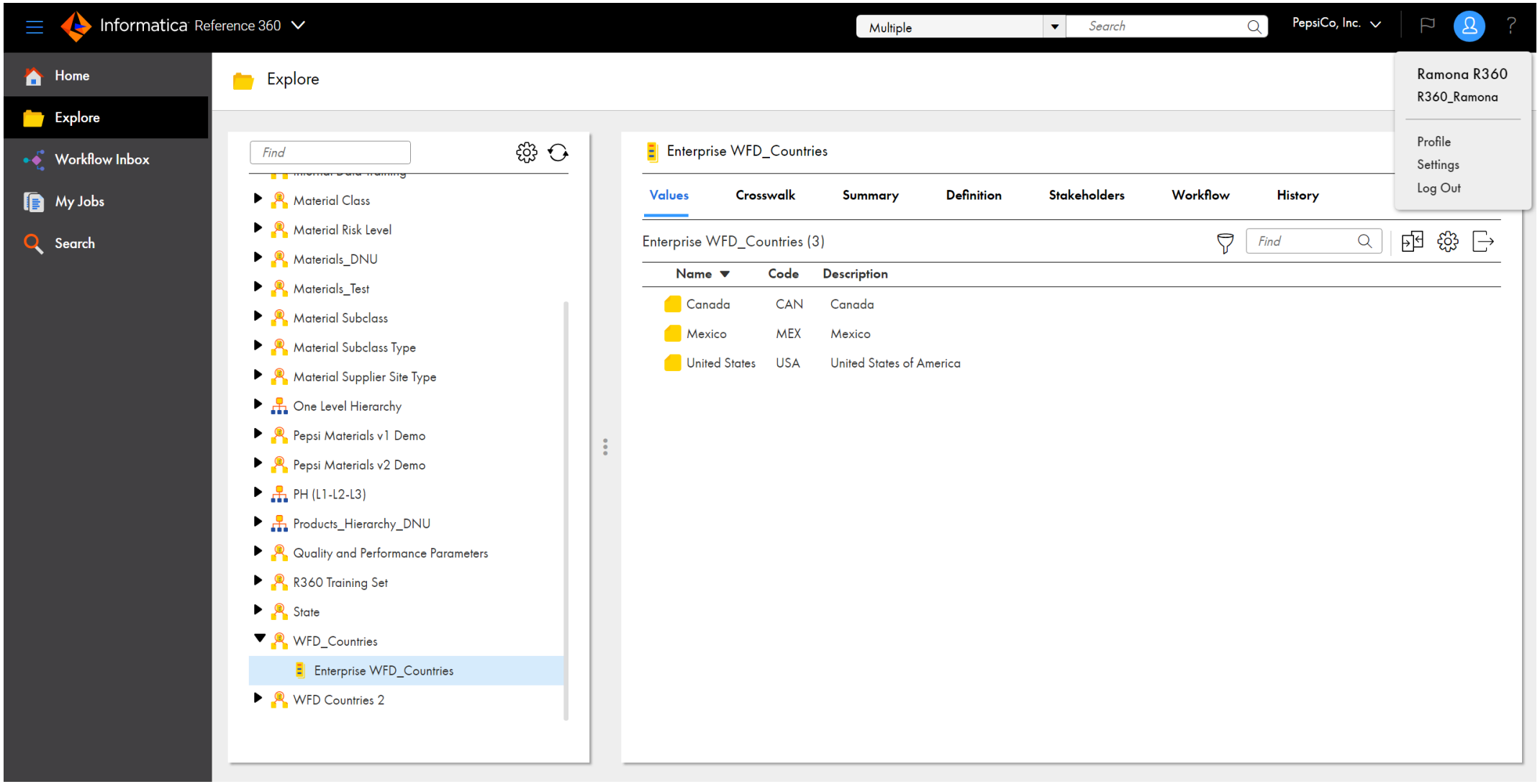
Ramona logs in and sees the new published values



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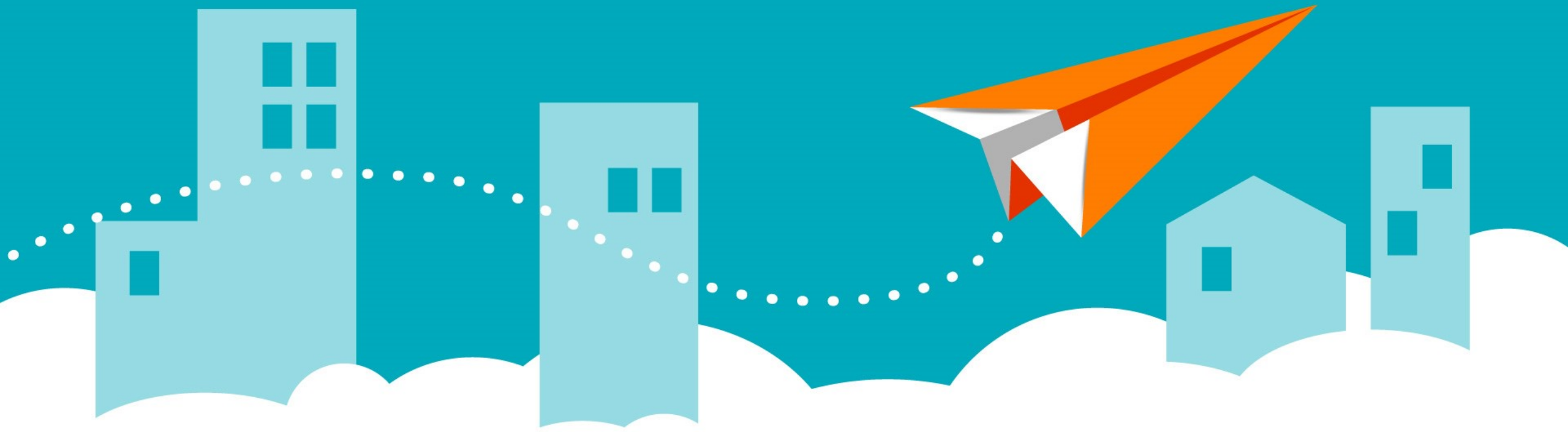
Best Practices



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Reference 360 Best Practices

- **Functional**
  - Types of Master Data / Reference Data
  - Folder Organization
  - Naming Conventions
  - Picklists (Enums)
  - Users / Groups / Roles
  - Multistep Approval Workflows
- **Technical**
  - PODS / Orgs / Sub-Orgs
  - IP Whitelisting
  - SAML SSO
  - Pub / Sub Integration
  - Code Promotion (Dev, Test, Prod)
  - Source Control: GIT integration
  - Log Aggregation

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May 2022 Update: What's New?

- For Business 360 SaaS customers, Reference 360 supports Reference Data Management Basic Edition license.
- Enhanced user interface to show the history of code lists, crosswalks, and code values of a code list.

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June 2022 Update: What's New?

- Add advanced rule associations to code list attributes.
- Stop reference data import and file import jobs.
- On the History tab, view task details of code values of a code list.
- Import code values to a draft code list.
- When you publish or discard a draft code list with a large number of code values, a system-generated Reference 360 Draft job runs.
- Extend a hierarchy model that contains data.

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Thank you!

- Informatica Network: https://network.informatica.com/
- Informatica Product Documentation: https://docs.informatica.com/
- Informatica Velocity: https://velocity.informatica.com/

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