Multidomain MDM SaaS Best Practices

10th Aug 2023

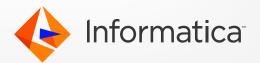
Prashant Gupta Adhish Mahajan



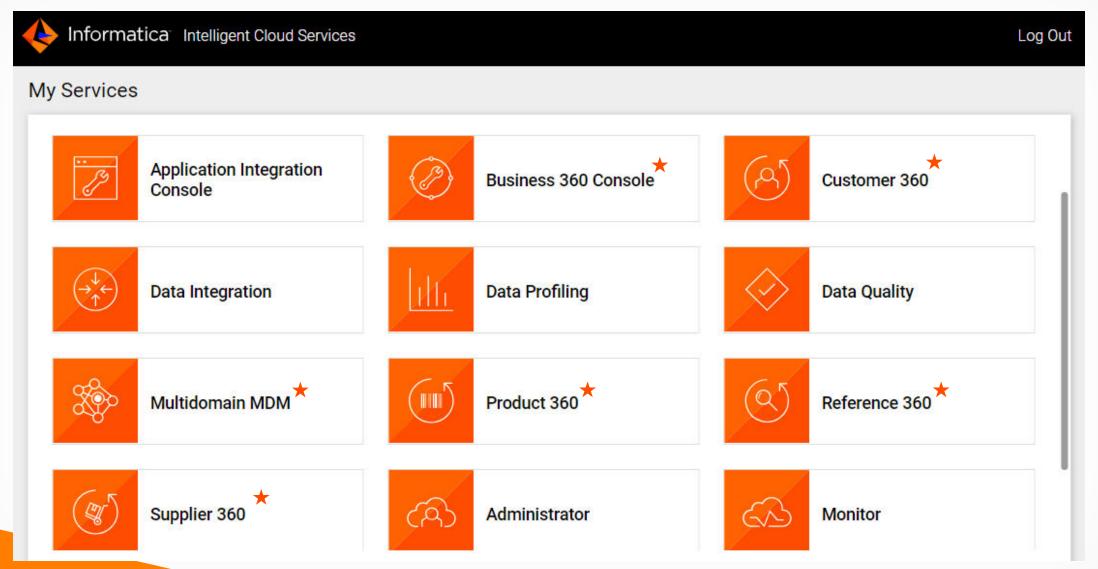
Agenda

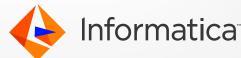
Best Practices For:

- Set up Applications
- Data Modelling
- SDLC Asset Migration
- Secure Agent Best Practices
- Ingress (FEP Mapping, DQ rules)
- Egress Job
- Relationship & Hierarchies
- Business UI Configurations (Application & Pages)
- Reports
- Reference 360 SDLC
- Reference 360 Data Import and Export



IICS Services

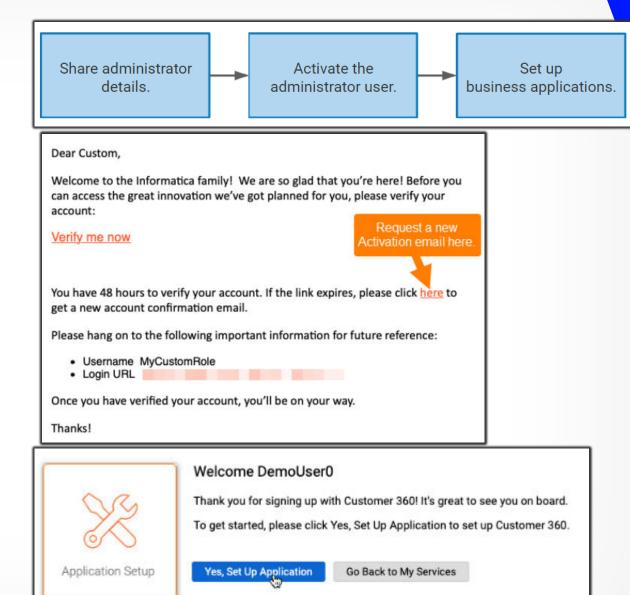




Set up Business Applications

For any New Org activation – It's a 3 Step process.

- A Customer Success Manager (CSM) will reach out to customer to get the administrator user details. (Email, First Name, Last Name, Phone no, Address).
- After the Shipping team creates org account, administrator user will receive an email to confirm your account. The account confirmation link is valid for 48 hours.
- After you activate the account, customer should log in to Informatica Intelligent Cloud Services and set up the business applications.





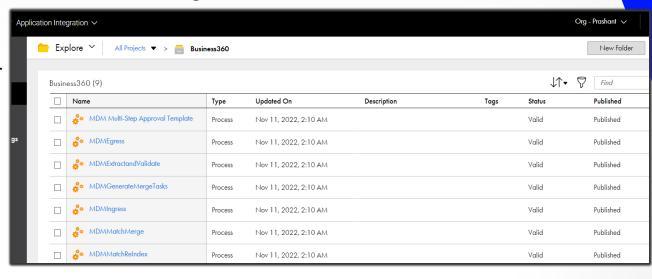


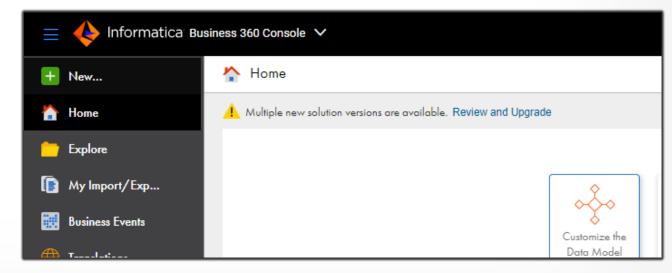
Set up Business Applications Key Points

- User should have "Admin" + MDM Designer + Deployer role in Administrator – Users.
- All Business 360 processes in the Application Integration chicklet, should be in Published State.
- Org should be upgraded to latest release from Business 360 before performing Set up Applications.

Business 360 Console -> About -> Org Version.

 User should perform the Set-up Applications before doing any code migration of any asset in org.

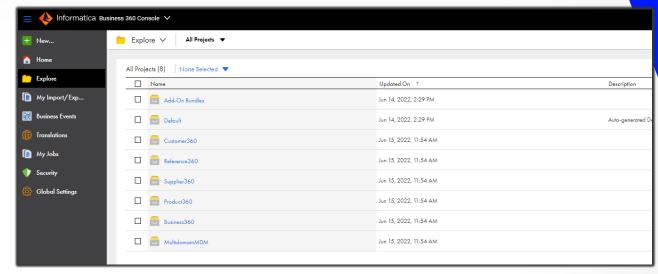


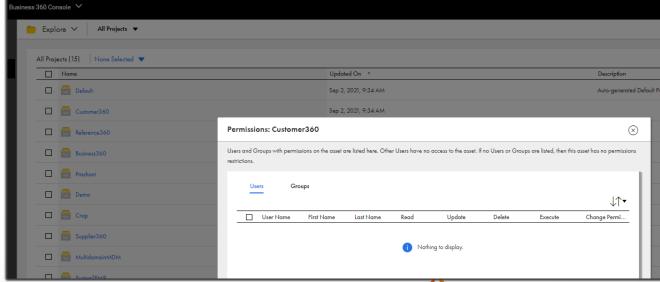




Set up Business Applications Contd...

- Create other projects for all additional required assets such as mappings, mapping tasks, task flows or even other MDM SaaS assets and avoid using OOTB (Business 360, Customer 360, MultiDomain MDM, Reference 360, Supplier 360, Product 360) projects for these assets.
- There should not be any permissions set on the OOTB folders in Explorer Tab in B360. (Business 360, Customer 360, MultiDomain MDM, Reference 360, Supplier 360, Product 360).
- Source control version for OOTB & Custom folders containing MDM assets currently not supported.

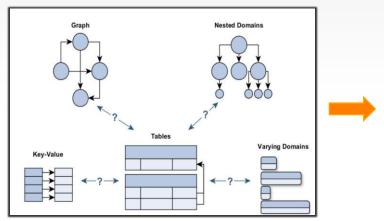






Data Modelling

- Pivoted data modelling strategy from relational database modelling to more advanced Document database style modelling
- Providing "Out of the Box" Data Models for easier modelling experience – Person & Organization
- Introducing "Smart Fields" to provide low effort enjoyable modelling experience. Smart fields are building blocks for common fields, such as address, email, and phone
 - Add or delete fields from a smart field is not supported.
 - Disable the fields that are part of the default search layout is not supported.
- Enhanced Basic Fields of different data types & Field Groups to provide better flexibility
- Bringing in Reference Data Assets for easy Lookups



From Traditional "Relational Database style"

customer collection:

{
 _id: "4d0ad975bb30"
 sName:"Karl"
 fName:"Meier"
 bankAccounts:[
 {accNo:395382},
 {accNo:824432}

],
 addresses: [
 {city:"Berlin"},
 {city:"Leipzig"}
]

}

To Advanced "Document Database style"

Smart fields Available in GA



Postal Address



eMail



Phone



123 Integer







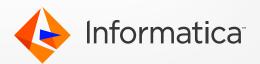














Data Modelling Key Points

- Once we have the Data Model finalized and we create respective Assets in the ORG, for any new Business use cases, we recommend to create a new Assets in new Project under Explore as part of Data Model.
- Field names: try to give a smallest field name as possible, as this contributes to the overall document size of the record being created.

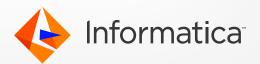
For example: Field Group: AlternateIdentifier:

Fields: AlternateIdentifierValue, AlternatiIdentifierType

Changing this to: AltId: Fields: value, type. And if I have 1K alternative identifier It is saving 40K characters.

- The more the number of Advanced DQ rule, performance will be impacted.
- Currently delete/remove any existing Assets (Business Entity, FieldGroup, Attributes) from Data Model is not supported. Please use disable for now.

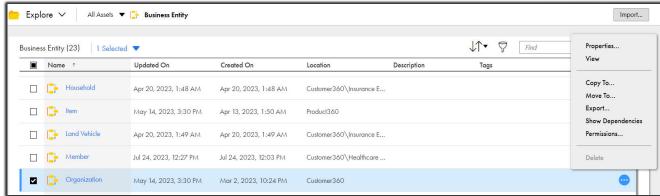
FAQ KB: https://knowledge.informatica.com/s/article/FAQ-SAAS-Data-Model-for-OOTB-BE-s?language=en US

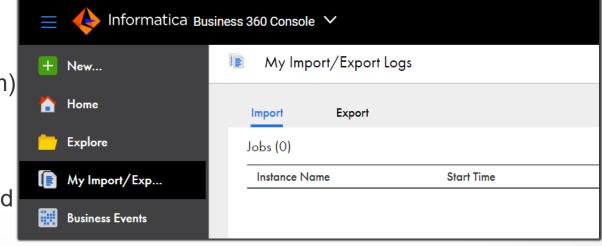


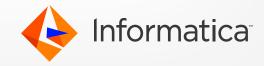
SDLC Asset Migration

Assets list are as follows:

- 1. Business Entity and all customizations within it which includes
 - Custom fields, field groups, smart fieldgroup instances
 - Light weight DQ rules, Advanced DQ rules, DaaS
 - Match Rules and Configurations
 - Survivorship Configurations
 - Search Configurations
- 2. Business Application
- 3. Pages
- 4. Components
- 5. Job definitions
- 6. Source System
- 7. Business Event definitions
- 8. Reference Data Set (Code Lists- Enterprise and Custom)
- 9. Hierarchies
- 10. Custom BE
- 11. Relationships
- 12. Authorization Configuration (Custom Roles with IICS and Privileges)
 - ** Process & Job Schedulers are not supported.



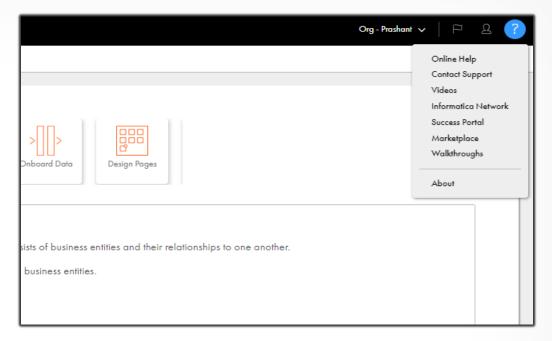


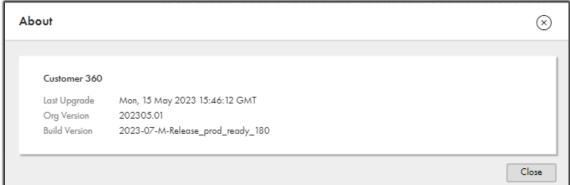




SDLC Key Points

- Before any SDLC, please make sure "Set Up Applications" is completed in all applications.
- SDLC to be performed between same modelled versioned orgs.
- To perform, we need MDM Designer role.
- Before import of assets into target org, take an export of target assets which in turn can be used to import back during any failures.
- Move assets into target org through SDLC (export & import).
- Currently move/copy of assets from one folder to another is not supported in same org.

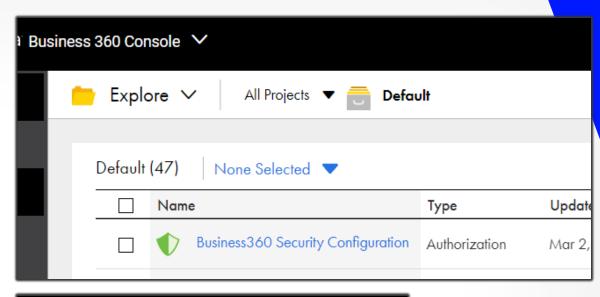


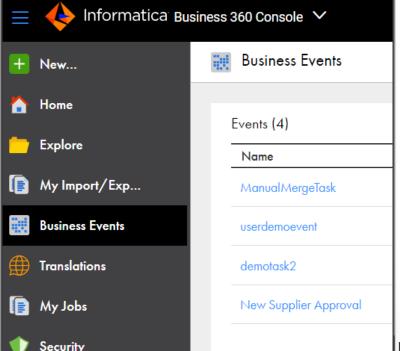




SDLC Contd...

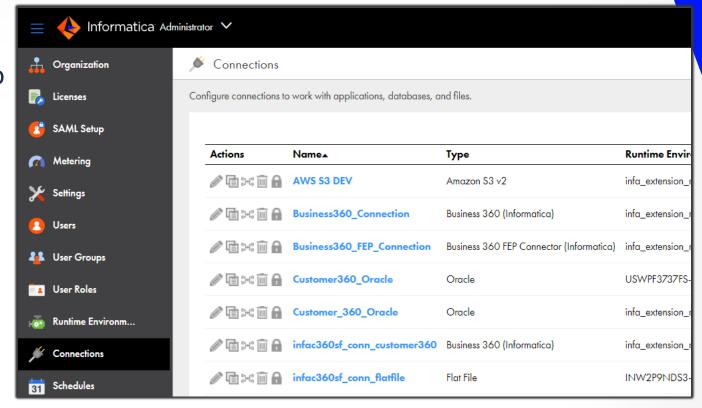
- Admin Role to be used for SDLC of Authorization asset which will export roles and associated IICS and MDM privileges.
- If Designer and MDM Designer roles are used make sure all assets are exported and imported first excluding Authorization asset and Business Events. Post successful import of other assets Authorization asset can be exported and imported using Admin role.
- Use same level of roles to make changes in source and to perform SDLC.
 - For ex: If user with Admin role is being used to make changes, make sure user with Admin role is used to do SDLC. Same goes with user mapped with Designer + MDM Designer roles. When changes are done with Admin and for SDLC if Designer +MDM Designer roles get used very high probability of hitting into errors like "protected metadata."

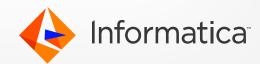




SDLC Contd...

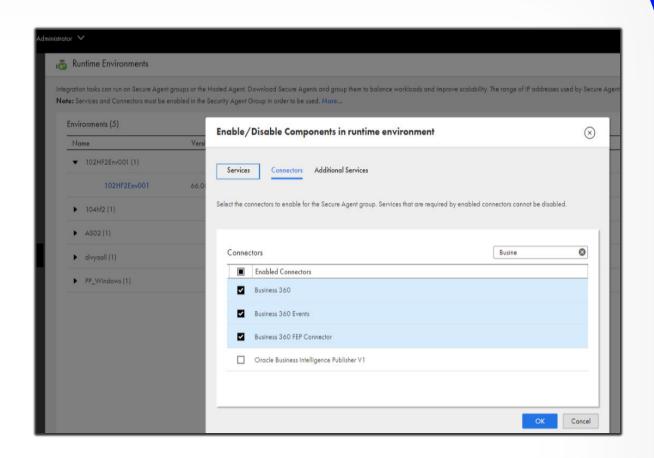
- Make sure connections are created in target before DI assets (Taskflows) are imported into target.
- License check will not be done through SDLC, so we must make sure only licensed solution assets are imported into target orgs to avoid any errors.

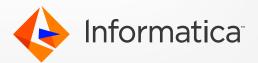




Secure Agent Overview

- Secure agent(SA):
 - Lightweight
 - Self-upgrading program
 - Runs inside customer network
- § Move Data Source --> Target.
- IICS SA runs and executes different tasks.
- Enables secure communication between your organization and Informatica Cloud.
- Business 360(Hierarchical), Business 360 FEP and Optionally Business 360 Publish Event connector to be enabled.

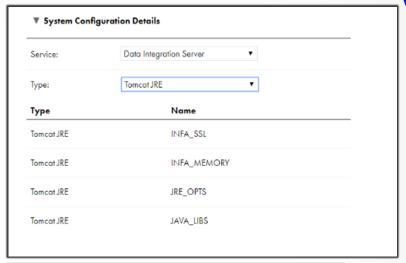


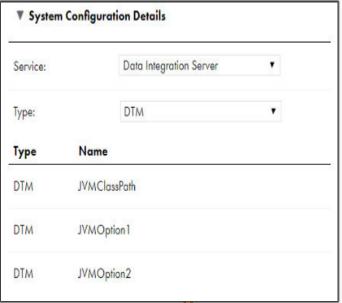




Secure Agent Key Points

- **DIS** service heap space. Need to increase if we see java heap space related message in:
 - Test connection
 - Metadata fetch
 - Agent logs(tomcat logs or tomcat out)
 - Designing mapping
 - Recommended value 4192 MB
- **DTM** If you hit java out of memory or java heap error messages at run time of a mapping task execution(observed in session log), then memory attributes need to be defined as JVMOptions under DTM.
 - Need to defined under JVMOption like under JVMOption1, JVMOption2 and so on.
 - Each JVMOption parameter accepts one JVM parameter only.
 - JVMOption5 is the last default one, custom property under Type DTM and subtype INFO can be added to add further JVM parameter.
 - -Xmx****m. 2048m is enough.





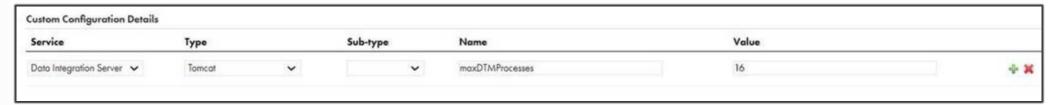


Secure Agent Contd...

maxDTMProcesses Custom Property

Background:

- By default, a SA schedule only two mapping tasks for execution.
- Additional tasks are Queued and becomes eligible for execution when slot is free.



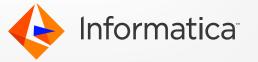
Configuring maxDTMProcesses results in :

- Better CPU utilization
- Higher degree of concurrency

Recommended value = 0.75 of the No. of CPU cores on SA machine.

Guidelines:

- Do not exceed the terms of your license agreement (from compliance perspective).
- Setting property value > No. of CPU can increase parallelism but can cause performance bottlenecks in execution time.



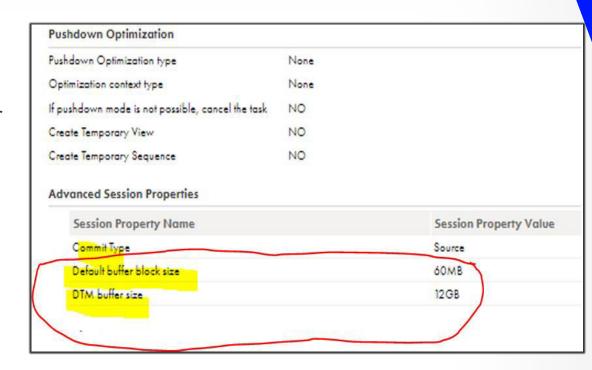
Secure Agent Contd...

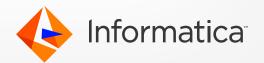
DTM Buffer Size

- DTM Buffer size holds the actual data in blocks for processing.
- DTM Buffer size is automatically calculated based on Buffer block size.
- DTM Buffer Size = (DTM Buffer Block Size) * 10* N, where N is the number of partitions.
- Can be increased to increase number of blocks.

DTM Buffer Block Size

Generally calculated as 2*X, where X is the maximum row size of any transformation.





Secure Agent Contd..

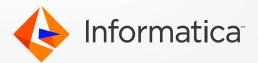
- Use SA Group is recommended.
 - High availability.
 - Load Balancing.
- SA behind proxy, below JVM parameters needs to set :

```
JVMOption1= -Dhttps.proxySet=True
```

- JVMOption2= -Dhttps.proxyHost=<proxy_server_hostname>
- JVMOption3= -Dhttps.proxyPort=proxy_server_portnumber>
- JVMOption4= -Dhttps.proxyUser=<user name>
- JVMOption5= -Dhttps.proxyPassword=<password>
- JVMOption6= -Db360.datastore.useProxy=true

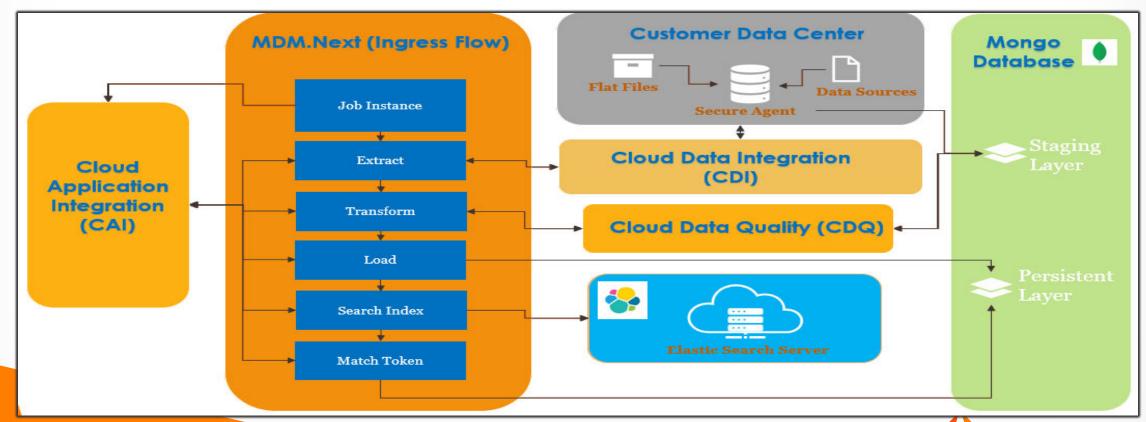
Administrator -> Runtime Environment -> System Configuration Details -> DTM Type -> JVMOptions

For each org, we need to have separate Secure agent server. It cannot be shared.



Ingress Overview

- Ingress Flow is the process of moving the data from Customer Data Sources into the MDM SaaS Cloud application using MDM Connectors.
- CAI is used to orchestrate all the microservices which are used in the Ingress Flow.
- Ingress flow consists of 5 main steps.





Ingress Key Points

Business 360 FEP connector:

- Less computing requirement at SA machine.
- Simplified logic of mapping.
- Parallel execution.
- Joining parent and child data complexity handled at Cloud layer.
- Ideal if data is being loaded from RDBMS.
- Recommended connector.

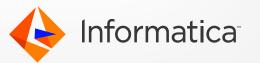
Business 360 Hierarchal connector : (B360 Connector)

- Ideal if source already has the complete document structure.
- Else not recommended due to:
 - More computing requirements at SA machine.
 - Requires joining parent and child data at SA side in mapping logic.
 - Not scalable for higher data loads.

Refer KB Difference Between Business 360 and Business 360 FEP

Whitelist MDM Service Static IP's

Should be done if domain specific whitelisting not allowed.



Ingress Contd...

Multibyte data:

- Set the *INFA_CODEPAGENAME* = *UTF-8* in the Custom Configuration Details of the Secure Agent.
- Source and Target connection code page is set to UTF-8.
- LC LOCALE, LC ALL to en US.UTF-8 for Unix machine.
- INFA_CODEPAGENAME=UTF-8 environment variable Windows machine.

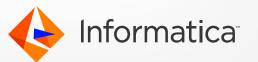
Refer KB: Multibyte character loading Ingress



SourcePkey

- Alphanumeric characters.
- Allowed special characters:

- Length should not exceed 255 bytes.
- Control characters like \u001A i.e. SUB etc. and other non printable characters should not be part of sourcePkey. Cleanup such characters.



Ingress Contd...

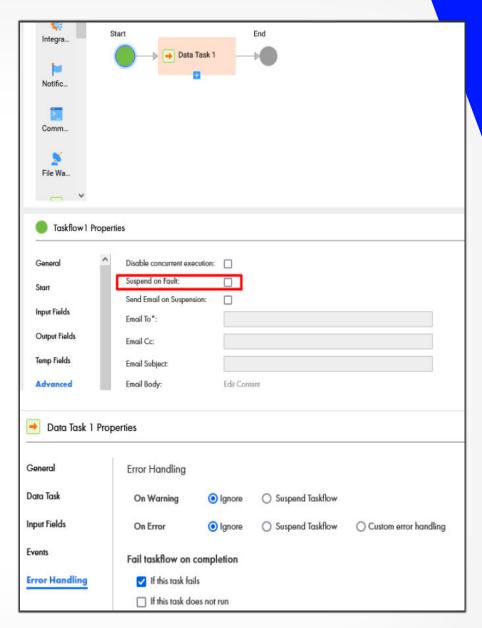
Best Practices to deal with failed mapping task failure.

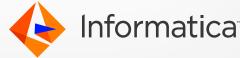
Outcome: Fail the CDI task flow when underlying data task fails.

Two options available:

1. First Option:

- Under Data Task -> Advanced -> "Suspend on Fault" checkbox should be unchecked.
- Under Error Handling -> On Error "Ignore" option -> Fail task on completion "if this task fails".
- This option allows all other Data tasks in taskflow to be executed before marking taskflow as failed.

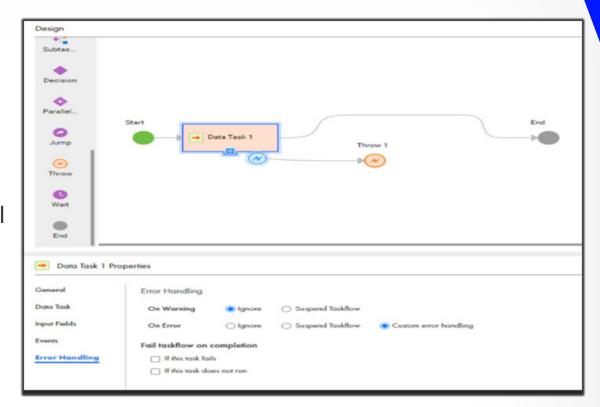


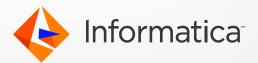


Ingress Contd...

2. Second Option:

- Under Data Task -> Error Handling -> Custom Error Handling.
 - This will create a new pipeline in that step.
- Add Throw step to that pipeline. This will cause no other Data tasks to be executed and immediately fail the taskflow.
- If Throw step is not added, connect pipeline to End step. In such case, Select checkbox Fail task on completion "if this task fails" checkbox.

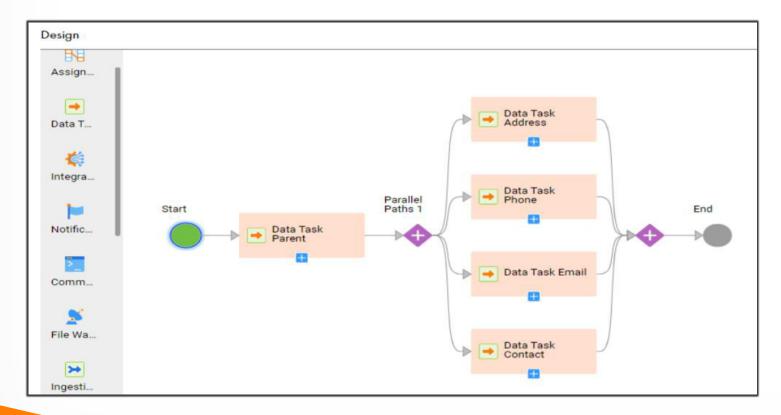


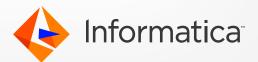


Ingress Contd..

Parallel Data Tasks in Taskflow

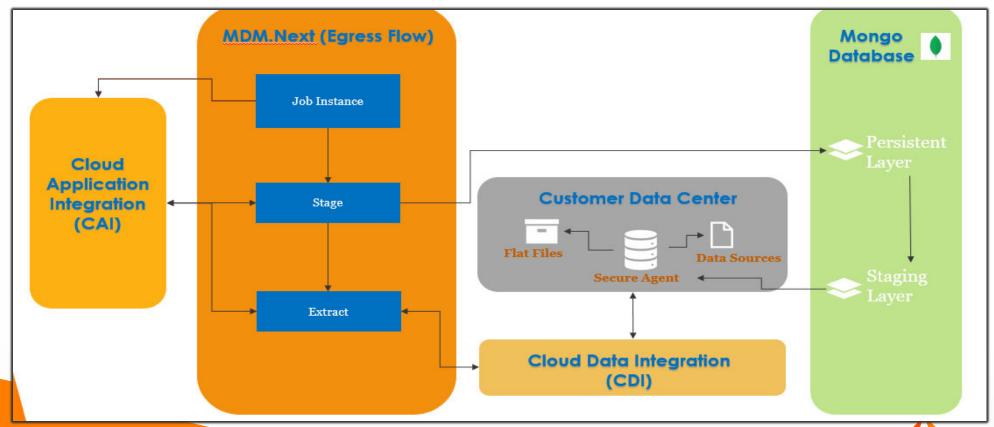
- Parallel processing.
- Better resource utilization.





Egress Overview

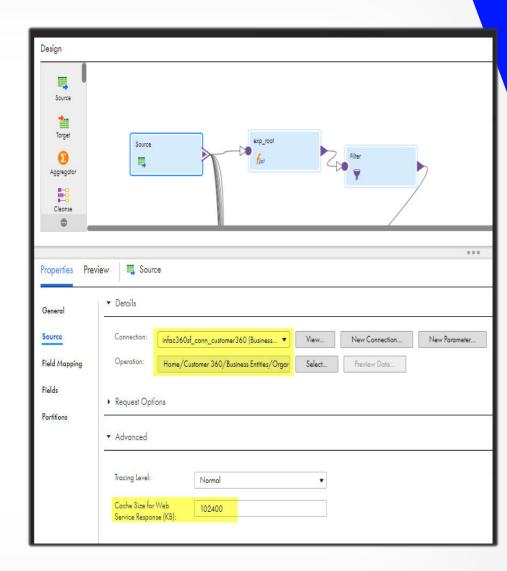
- Egress flow is the process of retrieving the data from the Mongo DB persistent layers and placing it in the target system of customer's choice.
- Egress Flow consists of 2 main steps. Stage and Extract.

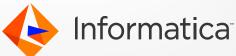




Egress Key Points

- Web Service response Cache size. Value should be set to maximum record size document available.
 - Setting it too low value can result in Data Truncation.
 - Setting it too high → impact buffer size calculation, performance and memory utilization.
 - Request GCS Team to get the document size once data is ingressed to get approx value.
- Joiner and Aggregator if used in Egress mapping logic, please consider using sorted input.
- Sorter transformation should be used before Joiner and Aggregator tranformation.
 - Sorting should be based on keys used in Joiner and Aggregator.
 - Implicit Sorting logic in Joiner and Aggregator is not efficient for large data set.





Egress Contd...

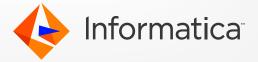
- During mapping design, check precision of input ports.
- The default length if not set for a column is 255. Users need to change it and set length based on actual data.
- Maximum allowed length of text field is 4000.
- Consider mapping of only required input fields to further transformation.

Ids: (218 of 218 displayed)								
	Name	Туре	Precision	Scale	Origin			
root .								
1	PK_root	bigint	19	0	Home/Customer 360/Business Entities/Organization			
2	sourcePKey	string	25	٥	Home/Customer 360/Business Entities/Organization			
3	businessId	string	20	0	Home/Customer 360/Business Entities/Organization			
4	sourceSystem	string	40	0	Home/Customer 360/Business Entities/Organizati			
5	creation Date	string	30	0	Home/Customer 360/Business Entitles/Organizati			
6	lastUpdateDate	string	30	0	Home/Customer 360/Business Entities/Organization			
7	state	string	25	0	Home/Customer 360/Business Entitles/Organization			
8	createdBy	string	30	0	Home/Customer 360/Business Entitles/Organization			
Ģ.	updatedBy	string	30	0	Home/Customer 360/Business Entities/Organizati			
10	original BusinessI d	string	25	0	Home/Customer 360/Business Entities/Organizati			
11	merged Business I d	string	25	0	Home/Customer 360/Business Entitles/Organizati			
12	populationName	string	25	0	Home/Customer 360/Business Entities/Organization			
13	notReadyForMatch	string	25	0	Home/Customer 360/Business Entities/Organizati			
1.4	name	string	255	0	Home/Customer 360/Business Entitles/Organizati			
15	numberOfEmployees	string	10	0	Home/Customer 360/Business Entitles/Organizati			



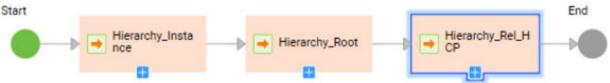
Egress Contd..

- Enough disk space(on SA) should be available. At least 250GB.
- Business360 Hierarchal connector is only available for Egress.
 - FEP connector is not available.
 - Active development is progress to support FEP in near Future (Tentative Oct end).
- Logic to filter based on data to be implemented in CDI mapping logic.
 - Egress filtering based on data at source is currently not supported.
- Decide Full Egress carefully.
 - As long as possible all functional solutions should be using delta Egress for performance purpose.



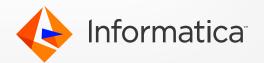
Relationships & Hierarchies

Separate mapping task to create Hierarchy Instance, Root Record and relationships respectively using FEP connector.



- Unique Relationship pkey used for creating relationship between 2 entities.
- Relationship create(using CDI and File import Batch) between entity records should use SourcePkey(for Parent and child).
 - Currently Batch Import using BusinessID(of Parent and child) is not supported.
- Use CDI Ingress to create relationship between 2 Entities across different source system.
 - IFI currently support creating relationship between 2 entities only from same source system.
- Hierarchy asset name length should not exceed 50 characters.
 - Long asset name causes limit of 75 field length to exceed at CDI side.

KB - https://knowledge.informatica.com/s/article/000205063?language=en US

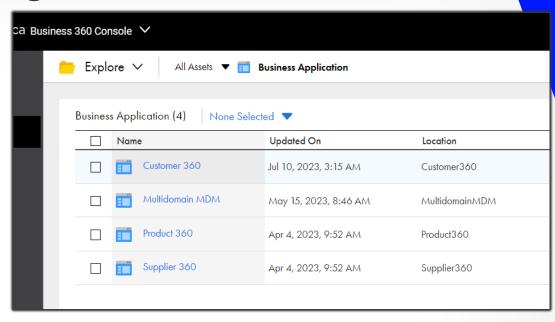


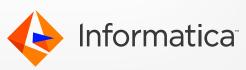
UI Configuration - Application & Pages

- Applications include Customer 360, Product 360, Supplier 360, Multidomain MDM etc.
- Same BE can be assigned to multiple applications if needed.
- Pages created can be tied to Roles.
- Supports till 1000 drop down picklist values.
- Use INFA domain URL for images to be shown in UI.

Key Points

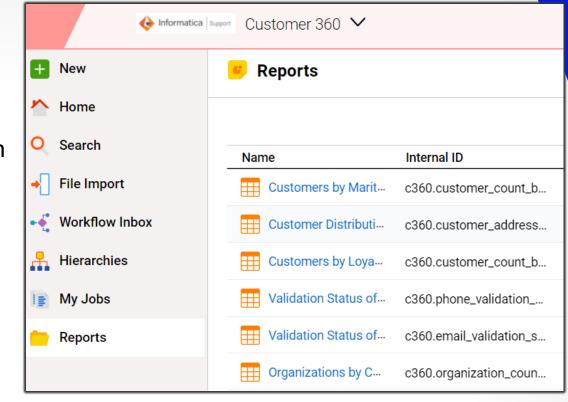
- Not to disable the OOTB field's & its search configuration as it impacts the UI application.
- Don't disable the Custom field if used in Search Result Layout/Page.
 - -> Remove the field first from layout and then disable.
- Custom fields created in BE doesn't get added to auto generated pages by default. Custom page needs to be created and assigned to BE in application.
- To protect the data from security point of view, use Role Based Access Control (RBAC) & Attribute Based Access Control (ABAC). [Business 360 Console -> Security -> User Roles/Data Access Rules]

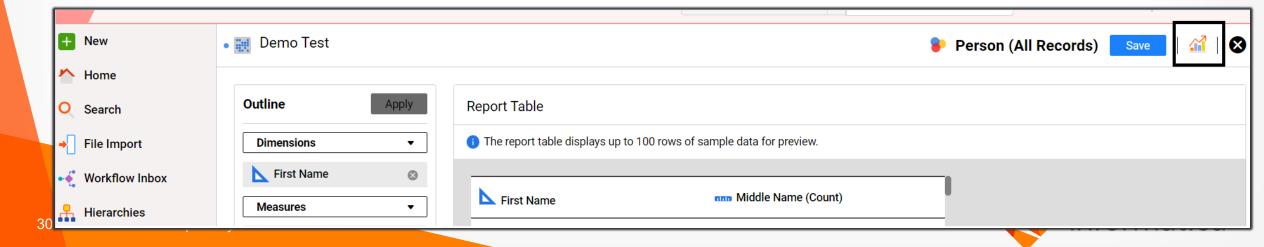




Reports

- User creating the report should have the mentioned X360 Data Steward role.
- If the user won't select configure Chart and directly click on save, then the user can't add a report to the dashboard it will be added in the reports table.
- Only Admin role user can Schedule Reports.
- User can create a maximum of 100 Reports per solution.





Reference 360

Reference 360 License

Basic Edition

Licensing										
Editions (10)		Features (197)								
Edition Name	License	Start Date	Expiration Date	Feature Name	Category					
Data Governance Enterprise Trial	Trial	Jul 10, 2	Jul 10, 2024	REST V2	Connectors					
Data Governance and Catalog	Subscription	Jan 6, 20	Jul 10, 2024	RESTSwaggerGenerator	Packages					
Data Integration Advanced Trial	Trial	Jun 14, 2	Jul 10, 2024	Reference Data Management Basic Edition						
Integration Components for Business 360	Subscription	Jun 15, 2	Jul 10, 2024	Runtime Environment Selections						
Platform Advanced Trial	Trial	Jun 14, 2	Jul 10, 2024	SAML based Single Sign-On						
SaaS Edition - Customer 360	Subscription	Jun 15, 2	Jul 10, 2024	SAP BW BEx Query	Connectors					

Full License

- Adding additional attributes in RDA/codelists requires the full Reference360 license
- Workflow Inbox, Stakeholders, Hierarchies process requires full license.

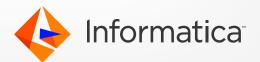
litions (10)	Features (1)			
Edition Name	License	Start Date	Expiration Date	Feature Name
Data Governance Enterprise Trial	Trial	Jul 10, 2	Jul 10, 2024	Reference data management
Data Governance and Catalog	Subscription	Jan 6, 20	Jul 10, 2024	
Data Integration Advanced Trial	Trial	Jun 14, 2	Jul 10, 2024	
Integration Components for Business 360	Subscription	Jun 15, 2	Jul 10, 2024	
Platform Advanced Trial	Trial	Jun 14, 2	Jul 10, 2024	
SaaS Edition - Customer 360	Subscription	Jun 15, 2	Jul 10, 2024	
SaaS Edition - Product 360	Subscription	Jun 15, 2	Jul 10, 2024	
SaaS Edition - Reference 360	Trial	Jun 15, 2	Jul 10, 2024	
SaaS Edition - Supplier 360	Subscription	Jun 15, 2	Jul 10, 2024	
SaaS Edition – Multidomain MDM	Subscription	Jun 15, 2	Jul 10, 2024	

Reference 360 SDLC

- Reference Data Asset/Codelist to be used within BE data model can be created in SaaS MDM (B360) console) or Reference360 UI.
- Extending the reference data asset/codelist (along with any other subsequent metadata changes) such as creating additional attributes within RDA/Codelist, adding description etc. should be done via Reference360 UI.
- With SDLC we are just importing metadata, so code values will not be exported/imported.

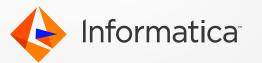
Steps

- Import the dependency from source org i.e., DQ rule, CAI process or any Mapplets/Mapping.
- Export the Reference Data Asset/Codelist used in SaaS MDM via B360 console a.k.a. SDLC from source Org and import into Target Org (B360 console). Note that there is no specific step is needed to export Codelist metadata, Exporting BE and its dependencies will be sufficient.
- Once import is done, for Custom attributes created in R360 to be imported into Target Org we need to use V3 Import APIs.



Reference 360 Data Import & Export

- Loading/Addition of RDA (codelist) values (Lookup values) can be done from
 - Via API to add data into RDA values
 - Via Reference360 UI
 - Via Batch Import Job via Reference360 UI via CDI Mapping
 - Via File Import in R360 with source system "rdm.system.default" selected
- Export code values from a source Env
 - Via Reference360 UI
 - Via Export job from Reference360 UI via CDI Mapping
 - Via API can take export
- Import Code values into a target Env in bulk
 - Via Reference360 UI
 - Via Batch Import Job via Reference360 UI via CDI Mapping
 - Via File Import in R360 with source system "rdm.system.default" selected

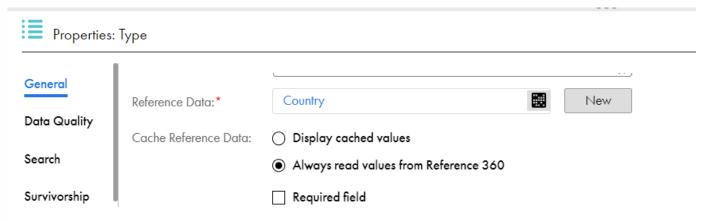




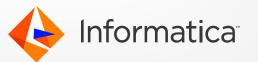
Reference 360 Data Key Points

Updates to Reference data (Code values) will showcase updated values for MDM BE records data when we open the record in UI only if below configuration is set on Picklist Field.

For new MDM BE records and updated MDM BE records will see updated lookup data.



- To Load data in R360 Code values, please use "rdm.system.default" source system only.
- Should not rename the codelists specially when we have mapping being created for CDI export/import.
- Deletion can be done from UI one by one or in chunks using API (max 50), but we prevent deletion if the code value is used as a lookup.







Thank You

