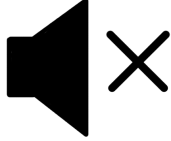


Nov 2, 2021

MDM External Calls

Prashant Gupta, Lead SME

Housekeeping Tips



- Today's Webinar is scheduled for **1 hour**
- The session will include a webcast and then your questions will be answered live at the end of the presentation
- All dial-in participants will be muted to enable the speakers to present without interruption
- Questions can be submitted to "All Panelists" via the **Q&A option** and we will respond at the end of the presentation
- The webinar is **being recorded** and will be available on our **INFASupport YouTube channel** and **Success Portal** - where you can download the **slide deck** for the presentation. The link to the recording will be emailed as well.
- Please take time to complete the **post-webinar survey** and provide your feedback and suggestions for upcoming topics.

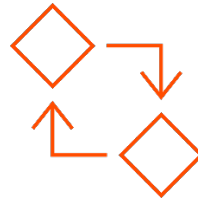
Feature Rich Success Portal



Bootstrap trial and
POC Customers



Enriched Customer
Onboarding
experience



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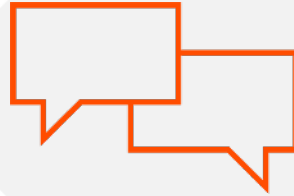
Tailored training and
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More Information



Success Portal

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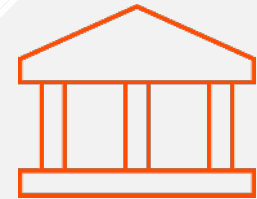
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Multidomain MDM 10.4.x

External Calls

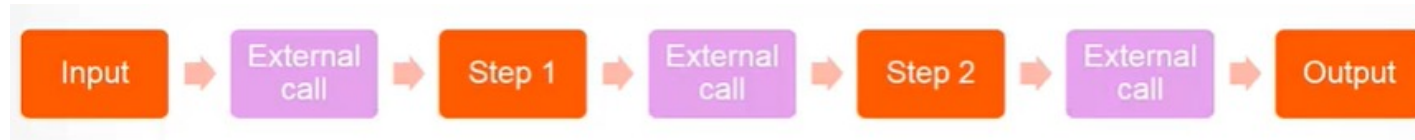
Prashant Gupta

Agenda

- Overview
- Architecture Flow
- Business Use Case
- Configuring External Calls
- External Calls – Read/Write
- Gotchas
- MDM 10.4 HF2 Features
- Performance & Best Practices
- Q&A

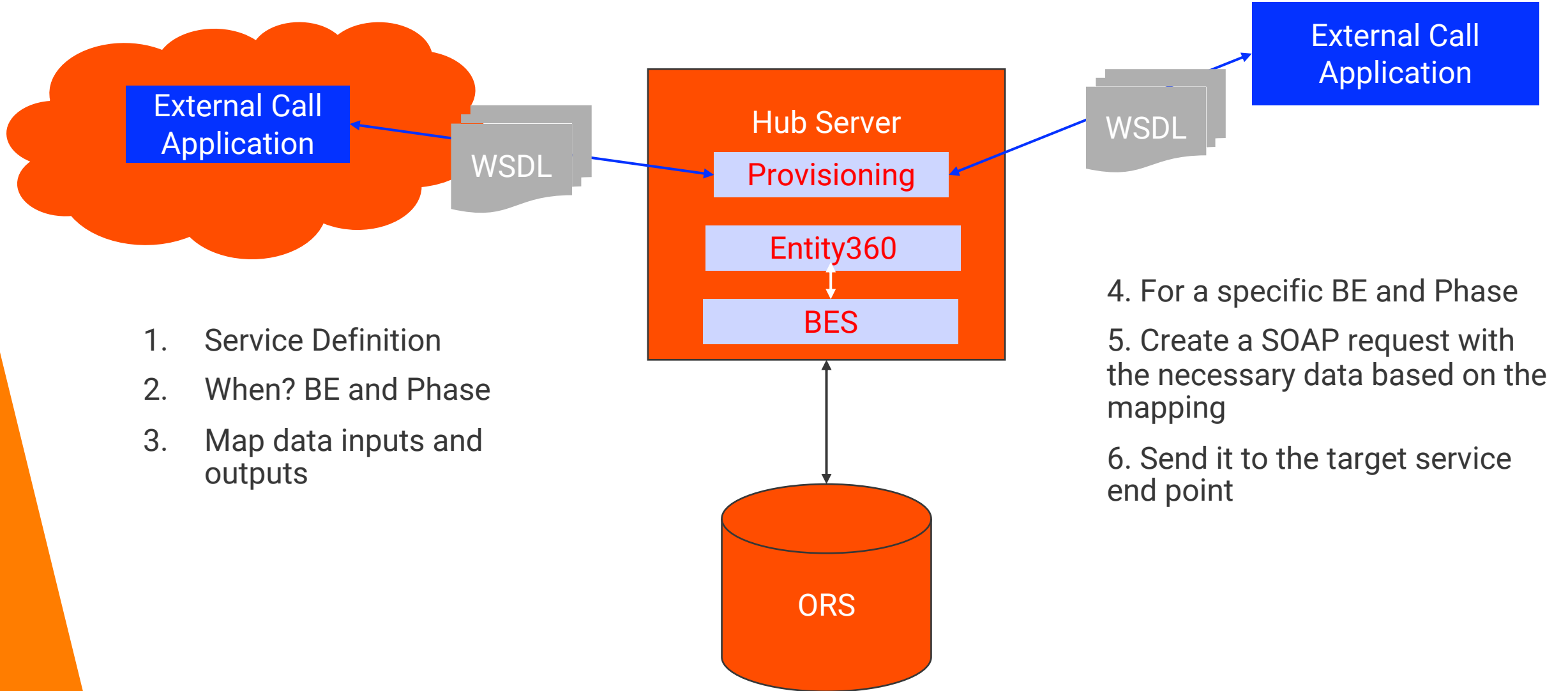
Overview

- External calls are a way to configure additional code to be executed as part of a business entity service call. This allows organizations to:
 - Perform additional validations on the code based on complex logic
 - Perform Service calls to other systems to gather/validate/insert data
 - Modify the incoming data to influence how the data is persisted in MDM
- It was introduced starting MDM 10.2.x release.
- Configure calls to the external web services for certain steps in the business entity execution custom logic



- Loosely integration with MDM through SOAP services
- Easy configuration through provisioning tool

External Calls – SOAP based Application



Business Use Case

- Our company uses a webservice that consolidates all notes related to a customer via a webservice. MDM must display the default notes as a child whenever a record is read.
- If a customer has multiple billing address set a flag on the customer level to indicate the billing address needs to be validated
- Do not allow saving a record with multiple shipping address
- Do not allow saving a record without primary address

* Refer KB 000169853 for generic Business use case Implementation

Configuring External Calls

- Start from sample which is available at resource kit installer at `<resourcekit_install>\sample\BESEExternalCall`
- Implement External call
- Update CustomLogicFactoryImpl.java to add the class instantiation for external call
- Build
- Deploy
- Register WSDL and SOAP services in provisioning tool
- Register External Calls for Business Entities
- Run and test

** Refer KB 514801

** For Websphere, need to add explicit property 'use.source.based.invoker=true' in cmxserver+cmxcleanse prop from 10.4 HF1 onwards

Service Phases in BES External Calls

- External calls are available Business Entity and Business Entity View level
- Business Entity transformations are called after WriteCO.BeforeValidate and before WriteCO.AfterValidate.
- List of External Call phases are :

ReadCO.BeforeEverything
ReadCO.AfterEverything

ReadView.BeforeEverything
ReadView.AfterEverything

WriteCO.BeforeEverything
WriteCO.BeforeValidate
WriteCO.AfterValidate
WriteCO.AfterEverything

WriteView.BeforeEverything
WriteView.BeforeValidate
WriteView.AfterValidate
WriteView.AfterEverything

PreviewMergeCO.BeforeEverything
PreviewMergeCO.AfterEverything

MergeCO.BeforeEverything
MergeCO.AfterEverything

External Call – During Read

MDM Sample

Query

< Organization

Save Run

Organization - Public
Query Type: Basic

DUNS Number :

Display Name :

Search Results for Organization(1211)

Party Type	Display Name	DUNS Number
Organization	New Line Television, Inc.	883442576
Organization	Time Distribution Services Inc	178915765
Organization	Media Networks, Inc	072225290
Organization	HYPON SERVICE AGENCY	
Organization	XENIUM PRODUCTIX	
Organization	MANERCUBRY SOLUTIONS	
Organization	MUSTONA RAGON MARICAN COMPANY	
Organization	GOODING HENSON CABLE	
Organization	SUCCENT INSURANCE CORPORATION	
Organization	Time Warner Cable Inc	148615859
Organization	GOODING INC	
Organization	XENIUM PRODUCTIX TECHNICAL SERVICES	
Organization	XENIUM PRODUCTIX AIR TRAFFIC MGMT	
Organization	NORTHERN SALES COMPANY	
Organization	SPURST BOTTUNG	
Organization	Time Warner Entertainment Company, L P	604557389

ReadCO.BeforeEverything
ReadCO.AfterEverything

ReadCO.BeforeEverything
ReadCO.AfterEverything

ReadCO.BeforeEverything
ReadCO.AfterEverything

* ReadCO external phases gets called in Query search, Smart Search, Read call

External Call – During Write

MDM Sample

New Person

Quickly scroll to:

- Person
- Emails
- PhoneNumbers
- Addresses
- Person Details

Overview

Party Type: Person Middle Name: First Name: Prashant
Last Name: Gupta Birthdate: Gender Cd:
Display Name:

Emails (1)

Is Valid Ind	Opt In Ind	Electronic Address	Electronic Address Type
Y		prasgupta@informatica....	EMAIL

PhoneNumbers (1)

Do Not Call Ind	Phone Ext Number	Phone Number	Phone Country Cd	Phone Type
1		(123)456-7890	+1	FAX

Addresses (1)

Address Type
BUSINESS

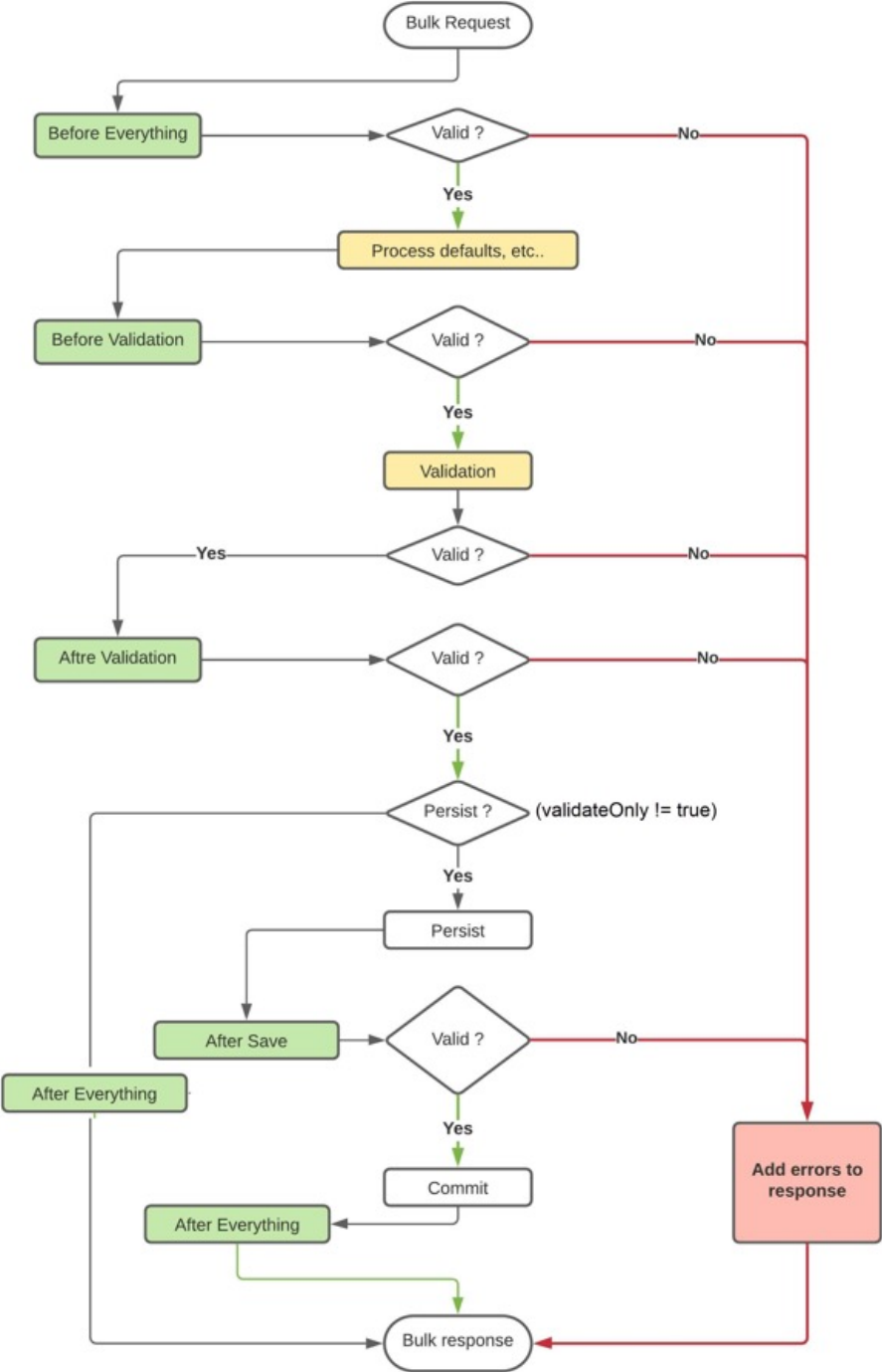
Address (0)

Save Cancel

validateOnly is null
WriteCO.BeforeEverything
WriteCo.BeforeValidate
WriteCO.AfterValidate
Actual Save Happens
WriteCO.AfterEverything

validateOnly=true
WriteCO.BeforeEverything
WriteCo.BeforeValidate
Cleanse/Transformation
WriteCO.AfterValidate
Save doesn't happen
WriteCO.AfterEverything

Write CO Flow (Save)



Gotchas

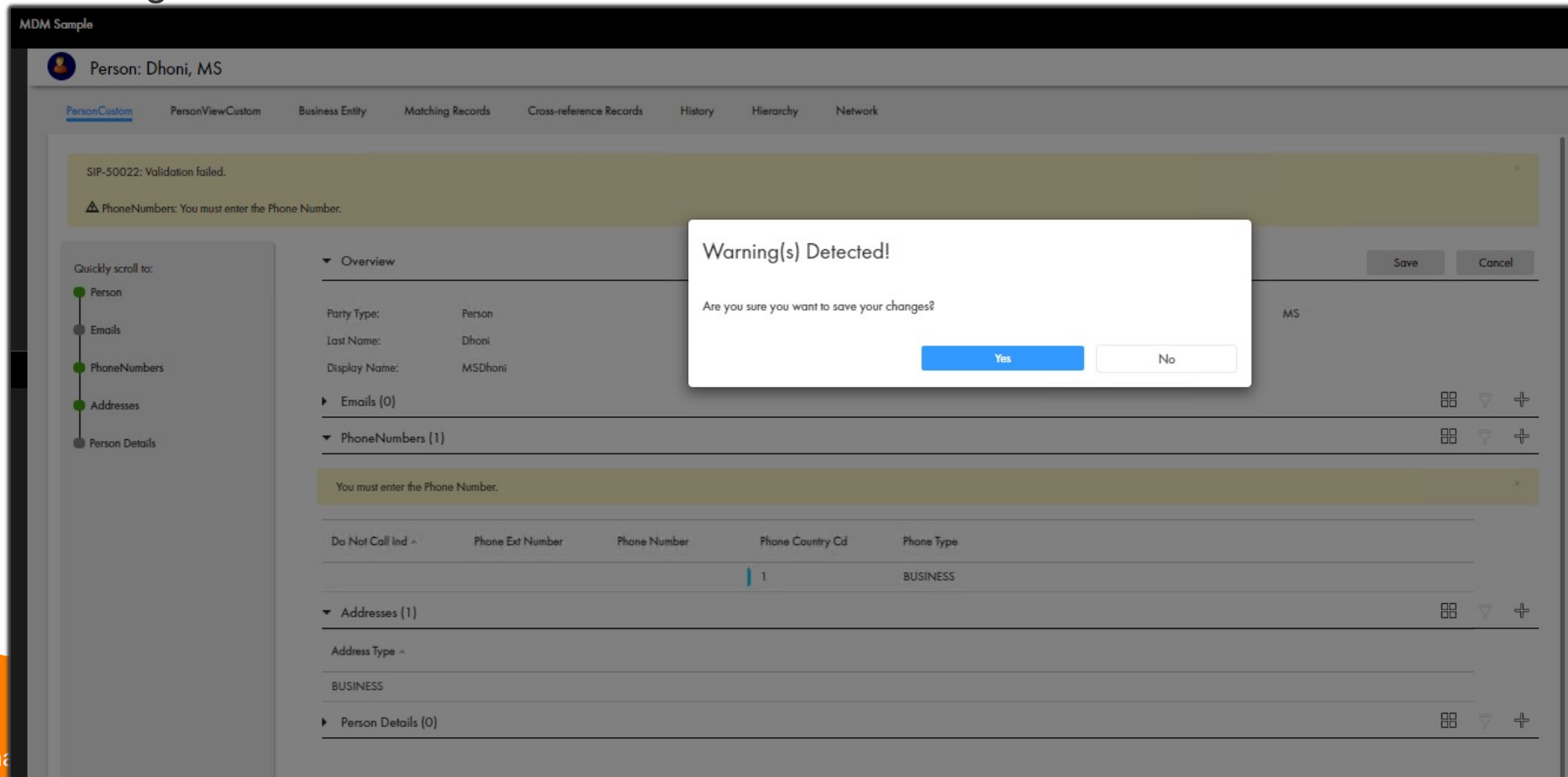
- WSDL, SOAP, External call gets stored in C_REPOS_CO_CS_CONFIG table under 'Extensions'
- All API calls issued by an External Call service are executed outside the transaction of a BES that initiated the External Call. For E.g.
 - > In IDD if we perform a SIF call in UE, it participates in same transaction as user action.
 - > In External call if we perform SIF/BES call save, it is independent transaction.
- Each call is a HTTP request, hence if calling BES call from external call be aware of the thread configuration required to handle such requests
- If using BES calls from external calls, the first request would take time, as it must generate the SDO on the client side (in this case the external call)
- Service Driven for all BES Calls, including UI.
- Can be deployed in different machine/location independent from MDM.
- While deploying external call ear in same JVM as MDM in a multi node, use 'localhost' in WSDL URL.

Contd..

- No Task Handler hooks available for External Calls. Can achieve via customizing the AVOS workflow.
- The code written should account for the fact that the incoming SDO contains only changed data and not just the entire structure in case of WriteCO. In case of ReadCO, the data could be different based on the depth and other parameters that were used to filter the data.
- `cmx.e360.submit_all=true` : A global switch `cmx.e360.submit_all` was introduced to `cmxserver.properties`. This switch tells e360 to include all the BE fields loaded to a client into a save payload. So, all the read fields will participate in transformation and cleanse calls.
MDM-37189/EBF = Duplicating the child records, breaking entire user interface post enabling.
- If existing SDO has changes and we are making further changes to the SDO that needs to be picked up by the originating service, we need to use `resume logging()`.
- Currently the external calls are not supported in the Preview Promote service. ReadCO being called from promote preview with MDM-37754/EBF (for customizations related to readCO like behavior in task context)

New Features – per 10.4 HF2

- Capability to display a Warning message while saving a record if not all required information is entered.
- External calls for custom logic and validation of business entity data need to be configured.
- User can ignore the warning message and proceed to save the record or can go back to the record and add the missing information



Differences

Feature	IDD User Exit	BES External Call
Availability	Only for IDD User Interface, not for back-end calls	For all BES service calls, Including UI
Distributed Transaction Support	Transactions are with XA	All methods are NOT in the XA transaction with the service
getConnection()	Connection to the ORS is available for use for SQL statements	Connection must be created or made explicitly to the code
Integration	Tightly integrated with MDM	Loosely integration with MDM through SOAP services
Storage	It gets stored in C_REPOS_DS_CONFIG table along with hub/server/temp/idd/<>	It gets stored in the App server deployments directory
Deployment	Needs to be on same JVM, becomes part of MDM	Can be deployed in different machine/location independent from MDM

Performance & Best Practices

- Don't use External Calls if you don't have to
- Identify which External Call phase is needed
- Have separate class for each External Call
- Identify when you want to use (e.g., while navigating from one child record to another or while clicking save button)
- Check inParams' validateOnly property (Boolean flag)
 - validateOnly should be null or false if it should be run while clicking on Save button.
 - validateOnly should be true if it should be run after making a change in parent or child record and navigating to another child record.
- Final WriteCO.AfterEverything during save returns only rowids for parent and children records. If you need other data, you need to call read BES.
- To add loggers to track the code flow

Contd..

- Validate BE entries through cleanse functions
- Try not to have external call for read operation because read is being called from
 - Smart search
 - Read
 - QueryCO
- If needed make BES or SIF API call from external call like any BES or SIF based external application.
- Use single depth ORS read calls whenever possible. This limits the response to only contain required data. Full root read w/ high depth is a performance concern



Thank You