

Oracle Argus Interchange

ICSR Extensibility Guide



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The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

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Preface

This preface contains the following sections:

- [Documentation accessibility](#)
- [Related resources](#)
- [Access to Oracle Support](#)

Documentation accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Related resources

For information about Oracle Argus patches, see [My Oracle Support](#).

All documentation and other supporting materials are available on the [Oracle Help Center](#).

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1

Overview

This document describes the steps taken to extend the ICSR R3 import and export functionality and make it flexible enough to adapt to evolving regulations.

The XML, DTD and HL7 representation guidelines must match agency specifications.

For more information, see:

- [Assumptions](#)
- [Best Practices](#)

Assumptions

Before this document was created, the following assumptions were made:

1. The user is familiar with the Argus application and Database.
2. The environment is a working Argus Environment with ESM module enabled.
3. The user has access to the ESM Owner schema to execute some of the scripts and to verify the mapping queries.
4. It is possible to provide required access to all the database objects created for the extended or customized mapping.
5. The user is proficient in PL/SQL.
6. The common code list used by R2 and R3 is synchronized with flex bucketing.
Specific to (R2)
7. (If R2 profiles contain extension elements) The DTD path or reference is synchronized with the partner where the file is consumed.
8. The user is proficient in XML and familiar with DTD.
Specific (R3)
9. The user is proficient in XML, XSLT and HL7.
10. (If changes are expected to HL7) The user is familiar with the expected output of the final HL7report.
11. All the customization and extension done in the profile will be validated.

Note:

The person extending the ICSR profile will manage all the technical aspects and will validate the extensions and customizations before applying them into the system.

Best Practices

1. Perform extension or customization on copied profiles.
2. Provide the mapping for newly added elements, as well as for neighboring elements (i.e., if the mapping is provided at the parent element, include the logic in the parent element query.
Alternatively, if the mapping is provided at the child element, include the logic in the new element).
3. Do not change the data type of existing standard elements, or of the ESM schema table field associated with the respective elements.
4. Add extended elements to Batch and Message header.
5. Add new nodes only at the level of the existing hierarchy.

2

ICSR E2B R3 Extension Approach

In this chapter:

- [General ICSR Extensibility](#)
- [Export Specific Extensibility](#)
- [Import Specific Extensibility](#)

General ICSR Extensibility

For ICSR reports where the customization is limited to changes in the mapping logic or in the HL7 representation logic, follow the next steps:

1. Copy the standard profile based on the business need. The copied profile will be available on CFG_PROFILE. The profile can be extended as follows:
 - a. Navigate to **Console > System Configuration > Interchange Mapping > Manage Profile**.
 - b. Select a Profile from the drop-down list.
For example, ICH-ICSR V3.0 MESSAGE TEMPLATE- EMA.
 - c. Click the **Copy** button.
 - d. Enter the **Extension Profile** name.
 - e. Click the **Save** button, and **OK**.
 - f. Select the newly created profile from the drop-down list.
 - g. Click to modify or review the existing mapping query for required elements.

The copied profile will be available on CFG_PROFILE. Review the field values and updated fields.

Field	Description
PROFILE	Name of the profile as entered.
PROFILE_VERSION	Version of DTD as specified in the ICH document. Oracle recommends to keep as populated by the UI.
PROFILE_TYPE	Type of Profile. The options are MSG_TEMPLATE and ACK_TEMPLATE. If a user copies a profile containing MSG_TEMPLATE or ACK_TEMPLATE, the value will be set to ACK_DEFINED or MSG_DEFINED. Oracle recommends to keep the value as populated by UI.
PROFILE_RELEASE	Release version of the DTD as specified in the ICH document. Oracle recommends to keep as populated by UI.

Field	Description
PROFILE_DTD	File name of the Message DTD / XSD used to validate a message. If the file is modified then the same name has to be updated and made available in the appropriate location under the installation path.
PROFILE_ACTIVE	Indication of which profile is active.
ROOT_ELEMENT	Top element of the profile. Oracle recommends to keep as populated by UI.
AUTHORITY_ID	Identifier for the Regulatory Authority Profile (EMA, FDA, MHLW, and ICH) and foreign key to CFG_AUTHORITY.AUTHORITY_ID. Oracle recommends to keep as populated by UI.
PROFILE_LENGTH_CHECK	Indication that the profile was to check the length of each DTD element. Value 1 => Should be used and 0 => Should not be used. Not applicable for profiles with APPLY_CONF_RULE = 1.
IMPORT_POST_SAVE	Flag used after E2b import to run the POST SAVE Procedure. Applicable only if the profile is supported for import. If the value is 1, the POST SAVE procedure is executed.
EXTENSION	Value 1 in this column indicates that this profile is used for E2B extensions. Extended profiles must have the value 1.
UPDATE_BEFORE_TRANS	Value 1 indicates that the transmission date and the message date are updated in an ICHICSR message before the message is transmitted. 0 represents the opposite.
HL7_PROFILE	Identifier for the HL7 profile type.
CREATE_REPOSITORY	Value 1 populates the ESM staging tables. Value 0 does not populate the tables.
REPORT_FORM	Report form supported by the Profile.
APPLY_CONF_RULE	Flag that determines whether the conformance rule applies or not.

2. To modify the mapping query:
 - a. Navigate to the customized profile using **Console > System Configuration > Interchange Mapping > Manage Profile**.
 - b. Based on whether the mapping is provided at the level of the element itself or its parent, modify the mapping query of the respective element.
 - c. Verify the mapping for correctness.

The modified query can be saved from **Manage Profile** or can be updated to CFG_MAPPING_SQLS field using the upgrade script. The upgrade script should be element and profile specific.

 **Note:**

In the case of R2, if the element has to be updated in the nullification report as well, then CFG_E2B.UPDATE_FOR_NULLIFICATION should be set to 1 and CFG_E2B.CHILD_ONLY_SQL should be populated with the mapping query that is specific to that particular element. In the same scenario, if the element has the mapping logic at the element level (i.e., CFG_E2B.AE_SELECT_STMT), the population of CFG_E2B.CHILD_ONLY_SQL is not required.

3. Modifying HL7 reports applies only to R3 / HL7 based reports (ICH & PMDA E2BR3, eVAERS and eMDR). Oracle recommends that you modify the respective XSLT templates based on the business need. To modify HL7 reports, follow the next steps:
 - a. Back up the existing templates.
 - b. Modify the templates based on the element added in the respective parent node.
 - c. Navigate to the desired XSLT template and modify the XSLT as per the HL7 representation provided.
For Null Flavor support, refer the other sections of this document.
 - d. If the new templates address a specific requirement, specify the mode so that the templates are uniquely identified across the reports.
 - e. If any new variable is specific to a report, verify that the respective variable is uniquely named.
 - f. Replace the modified XSLTs on all the servers (Web Server, AG Server & Interchange Server).

Export Specific Extensibility

For ICSR reports where the customization is limited to extending the existing structure of the HL7 representation, follow the next steps:

1. **Copy profile:**
 - Refer to the [General ICSR Extensibility](#) section.
2. **Add New Elements:** You can add an element to the custom profile using the SQL script.
 - Prepare the script for the sample element as follows:

Field	Description
PROFILE	Name of the custom profile and foreign key to CFG_PROFILE.PROFILE.
DTD_ELEMENT	Name of the new element. Oracle recommends that the length does not exceed 30 characters.
HIE_LEVEL	Hierarchy level of each ICH ICSR element. The level should be same as for the neighboring element.

Field	Description
DTD_TYPE	Values are Template or User Defined. Should be same as for the neighboring element.
DTD_LENGTH	Length of the element value. In the case of R3, if the element is required to support NF, the length of the element should be increased by +2. Also, NF will be wrapped in [] to identify it as a NF.
LANGUAGE	Language of each ICH ICSR element and foreign key to CFG_LANGUAGE.LANGUAGE.
MANDATORY_DTD_ELEMENT	Values are 'Y' (Yes) or 'N' (No). If the value is 'Y', the element should have sufficient data for the report to generate successfully; alternatively, the system will throw a validation error.
MANDATORY	Reference for the ICH ICSR element. Values are 'M' (Mandatory), 'MO' (Mandatory Optional) and Blank. If the value is set to 'MO' for a parent element, the elements that exist under the parent are also marked as 'MO'. MO works only for elements under the single parent. If MANDATORY_DTD_ELEMENT is set to 'Y' and MANDATORY is set to 'MO' for the same element, MANDATORY_DTD_ELEMENT takes the priority.
ORDER_OF_EXECUTION	Order of each element in order to build the E2B report. For a new customized element, the order should be the order of execution of the previous element + 0.01. This order can be changed based on number custom elements expected.
AE_SELECT_STMT_ELEMENT_ASSOC	Values depend on the level at which the query is written for the element. If the query is written at the parent element level, the value should be the name of the parent element. Alternatively, if the query is written at the level of the element itself, the value should be null. Queries written at the element level should return a single column value and row. Oracle recommends that the elements under a parent refer either to the parent element query or to individual queries for values. Opting for a hybrid approach may return incorrect results.
AE_SELECT_STMT_COL_POSITION	Position of the element column to be populated, if the query is written on a parent element for its child elements. The data type should be synchronized with the query column, DTD element type, and staging table field.
PARENT_ELEMENT	Name of the parent element.

Field	Description
DATA_ELEMENT	ICH DTD element reference number.
AE_SELECT_STMT	SQL Statement for Transmit logic.
AE_CASE_FORM_GUI	Storage for the GUI Case Form Screen Name and Field Name.
DTD_ELEMENT_TITLE	Title for the element as displayed in Decoded view.
REPEATABLE	Indicator of whether the element is part of a repeatable node. Values are '1' if true, and '-1' if not.
AE_USER_PROC	PL/SQL block for Import logic.
DTD_ELEMENT_TYPE	<p>It contains type of DTD Element as described in the CFG_DTD_ELEMENT_TYPE table. This column is foreign key to CFG_DTD_ELEMENT_TYPE.ID.</p> <ol style="list-style-type: none"> Text (Alpha Numeric) E2B Code (Allowed values) Period Unit (Not recommended to use, use E2B Code) Yes No (Not recommended to use, use E2B Code) Country (Alpha Numeric) Date Format (Number) Date/Time (Number) MedDRA Version MedDRA Term/Code
UPDATE_FOR_NULLIFICATION	<p>Flag to indicate that the DTD element is modified during the nullification report. This applies only for E2BR2.</p>

 **Note:**

- Oracle recommends that Type ID, 2, 5, 6 have values in CFG_M2.
- For R2, Oracle recommends that Date, Date Format, MedDRA Version, and MedDRA Term/Code are transmitted together and that Date Format and MedDRA Version are placed before MedDRA Term/Code in the XML.

Field	Description
CHILD_ONLY_SQL	List of SQL for DTD elements that are part of a parent element SQL, when UPDATE_FOR_NULLIFICATION set to '1'.
ALWAYS_IMPORT	Indication of whether the element is optional for import through difference report. Value '0' represents the default and marks the element as optional, so users may decide to import it or not. Value '1' denotes that the element is always imported. Value '2' denotes that the Always Import option is disabled on the SM Mapping Utility at the element level. This indicator applies only to ICHICSR and ICHICSRMessageHeader (including its child) elements where the user has no option to check or uncheck the Always Import checkbox.
DTD_ELEMENT_TITLE_J	Element title in Japanese.
ALLOW_JAPANESE_CHARACTERS	This column indicates whether Japanese characters are allowed for the E2B element. Possible values are: '1' d 'Yes', '0' representing 'No', and '-1' representing 'N/A'.
FIELD_LOCATION	Field location in Japanese.
FIELD_LABEL	Name of the field.
IS_ALLOWED_VAL_CHK	On population 1, denotes that it has allowed values in CFG_M2. This is applicable only for R3 reports with new validation framework enabled.
DEPENDENT_ON	Name of the element to be transmitted along with this element under the same parent. This is applicable only for R3 reports with new validation framework enabled.
BLIND_PMDA_AE_PAPER_RPT	N/A
IS_BLIND_PMDA_DTD_ELEMENT	N/A

Sample: Add an element to transmit reporter email (REPORTEREMAIL) under the parent element PRIMARYSOURCE after QUALIFICATION for the EMA custom profile EMA-21-CUSTOM.

- a. Identify the HIE_LEVEL – Get HIE_LEVEL of QUALIFICATION using the following query and add 0.01.
For example if the HIE_LEVEL for QUALIFICATION is 57, then HIE_LEVEL for REPORTEREMAIL is 57.01.

 **Note:**

The decimal can change based on number of elements after that element.

```
Select * from cfg_e2b where profile = 'EMA-21-CUSTOM' and
AE_SELECT_STMT_ELEMENT_ASSOC = 'PRIMARYSOURCE' order by
order_of_execution
```

- b. If the association is at the parent level, add the column for REPORTEREMAIL as the last field in the query. Alternatively, write a separate query to retrieve the data.
 - c. Update/Insert the mapping SQL in transmit_mapping_sql_id and in receipt_mapping_sql_id. The fields should match those explained in the aforementioned table.
3. **Update the Mapping:** If the mapping query exists at the parent level, Oracle recommends that you add the column value (mapping column / function for the new element) at the end of the query. Alternatively, use a separate query to retrieve the value at the element level itself.

The following represent the bind variables that can be used to achieve the required results.

Bind Variable Name	Description
:REPORT_ID	Refers to SAFETYREPORT.REPORT_ID.
:AWARE_DATE%	Refers to CMN_REG_REPORTS.AWARE_DATE. This variable is available only to the mapping queries present for the nodes that are located directly under the safety report.
:LICENSE_ID	Refers to the scheduled report license id (CMN_REG_REPORTS.LICENSE_ID)
:PROD_SEQ_NUM	Refers to the product sequence number for the scheduled report (CMN_REG_REPORTS.PROD_SEQ_NUM)
:NULLIFICATION	Refers to CMN_REG_REPORTS.NULLIFICATION. Indicates whether a report is nullification or not. This variable is available only to the mapping queries present for the nodes that are located directly under the safety report.
:FOLLOWUP	Refers to the follow-up number of the report. For J reports, this variable represents the number of reports previously submitted. For Non-J, the variable refers directly to CMN_REG_REPORTS.FOLLOWUP_NUM.
:CRR_CONFIDENTIALITY	Refers to the report level that is confidentially populated (i.e. CMN_REG_REPORTS.PROTECT). The variable is available only to the mapping queries present for the nodes that are located directly under the safety report.
:COUNTRY_ID	Refers to the Country of Incidence.
:AGENCY_ID	Refers to the Agency for which report is scheduled.
:RPT_CATEGORY	Refers to the reporting category for the license for which the report is scheduled. The variable is applicable only to PMDA transmission.
:CASE_ID	Refers to the Case ID.
:DRAFT	Refers to the draft or final report.

Bind Variable Name	Description
:PREV_REPORT	Refers to the ID of the ESM report that was previously submitted (CMN_REG_REPORTS.ESM_REPORT_ID)
:MODULE	Possible values are '1' for E2B Generation and '0' for E2B check.

- Execute the query in SQL Developer. Then, update the query through the mapping utility or prepare an update statement on top of the base query that already exists for the element.
4. **Add Extension Elements to DTD:** This applies only to R2 profiles. Verify that the base DTD is the same as the parent profile from which the profile was copied. Oracle recommends that you change the name of the DTD file.

The steps in this section will add the Extension element in the DTD file.

- Take the DTD file corresponding to the base profile chosen in the previous section of this document from the <Interchange InstallationDirectory>\Argus\InterchangeService\DTDFiles folder and make a copy of that profile. For example, copy the EMA-ICSR-V2.1.dtd profile and name it EMA-ICSR-V2.1-Extension.dtd.
- Open the file EMA-ICSR-V2.1-Extension.dtd and include the extension DTD Element "reporteremail?". To do so, add the element details in the header row, as highlighted in the following image:

```

EMAICSRV21Extension.dtd
310 <!--ATTLIST reportduplicate
311 >
312 <!--
313 <!--
314 Entity ref:
315 Entity title: LINKED REPORT
316 Entity name: linkedreport
317 -->
318 <!--ELEMENT linkedreport (linkreportnum?)>
319 <!--ATTLIST linkedreport
320 >
321 <!--
322 <!-- A.2 Primary source(s) of information -->
323 <!--
324 Entity ref: A.2
325 Entity title: PRIMARY SOURCE
326 Entity name: primarysource
327 Comment : The following fields must be populated:
328 A.2.1.1d reporterfamilyname
329 A.2.1.2d reporterorganisation
330 A.2.1.2d reportersex
331 A.2.1.3 reportercommunity
332 A.2.1.4 reporterqualification
333 -->
334 <!--ELEMENT primarysource (reportertitle?, reporterusername?, reportermiddleinitial?, reporterfamilyname?, reporterorganisation?, reporterdepartment?, reporterstatus?,
335 reportersex?, reporteremail?, reporterreportcode?, reportercommunity?, qualification?, reporterfamilyname?, reporterorganisation?, reporterdepartment?, reporterstatus?)>
336 <!--ATTLIST primarysource
337 >
338 <!--
EMAICSRV21Extension.dtd
1066 >
1067 <!-- A.2.1.4 Qualification -->
1068 <!--
1069 Field ref: A.2.1.4
1070 Field title: Reporter's qualification
1071 Field name: qualification
1072 Field length: 3H
1073 Field values:
1074 1=Physician?
1075 2=Pharmacist
1076 3=Other Health Professional
1077 4=Lawyer
1078 5=Consumer or other non health professional
1079 -->
1080 <!--ELEMENT qualification (#PCDATA)>
1081 <!--ATTLIST qualification
1082 >
1083 <!--
1084 <!-- Reporter Email -->
1085 <!--
1086 Field ref:
1087 Field title: Reporter's Email
1088 Field name: reporteremail
1089 Field length: 100AN
1090 -->
1091 <!--ELEMENT reporteremail (#PCDATA)>
1092 <!--ATTLIST reporteremail
1093 >
1094 <!--
1095 >
1096

```

- Save the updated DTD file in the same folder where all other DTD files exist on the ESM Server.
- Update the CFG_PROFILE.PROFILE_DTD field of the extended profile with the new DTD file name.

 **Note:**

A quantifier (+,*,? or nothing) is a single character that immediately follows the element to which it applies, to restrict the number of successive occurrences of these items at the specified position in the element hierarchy. The quantifier may be either:

+ — for one or more occurrences of the item. The effective content of each occurrence may differ.

*— for zero or any number of occurrences allowed. The item is optional and the effective content of each occurrence may differ.

? — for no more than one occurrence. The item is optional.

If there is no quantifier, the specified item must occur exactly one time at the specified position in the content of the element.

5. **Configure Reporting Destination for Extension Profile:** Perform the following steps to configure the extension profile in Reporting Destination using Oracle Argus Safety Console.
 - a. Log on to **Argus Safety**.
 - b. Open the **Console** and click **Code List | Reporting Destination**.
 - c. Select the agency name to modify and click the **EDI** tab.
 - d. Select the extension profile from the message profile drop-down. For example: "EXTENDED E2B PROFILE"
 - e. Enter the extension DTD file with full path into URL of **Message DTD** field. For example:
`C:\Program Files\Oracle\InterchangeService\DTD\EMA-ICSR-V2.1-Extension.dtd`
This step does not apply to R3 profiles.
 - f. Click Save button to save the changes.
Oracle Argus Safety is configured for E2B extension for the selected agency.

 **Note:**

The **Message DTD** field is used only for the transmission of E2B extension. The field is not used for import, since the DTD path is already embedded in the E2B file.

6. **Add Extension Elements Field in ESM Staging Schema Tables:** This applies only to profiles where CFG_PROFILE.CREATE_REPOSITORY is set to 1. As a result, data is stored into the ESM Schema tables.
Add a field with the same name and with appropriate data type and length under the respective table or view where the parent node name matches the table name. Additionally, perform the following configuration:
 - a. If the name of the element exceeds 30 characters, abbreviate the column name and add an entry in the COLUMN_DTD_LKUP table.

Field	Description
TABLE_NAME	Table name
COLUMN_NAME	Abbreviated column name
DTD_ELEMENT	Actual DTD element name

Sample:

```
INSERT INTO COLUMN_DTD_LKUP (TABLE_NAME, COLUMN_NAME,
TD_ELEMENT) VALUES ('TABLE_NAME', 'COLUMN_NAME',
'ELEMENT_NAME');
```

- b. Create an entry in the ESM_TAB_COLUMNS table for each column added in following table:

Field	Description
TABLE_NAME	Primary Key 1. Table Name
COLUMN_NAME	Primary Key 2. Column name
DATA_TYPE	Data Type of the column
DATA_LENGTH	Data length of the column
NULLABLE	Whether the column can be null ('Y' or 'N')
COLUMN_ID	COLUMN_ID of the newly added column. Find the max number for that table name in ESM_TAB_COLUMNS table and increment by 1.
DATA_PRECISION	N/A
DATA_SCALE	N/A

A new node is added and CFG_PROFILE.CREATE_REPOSITORY is set to '1'.

- c. Create the new table with appropriate access and add a corresponding sequence in the name of PK of that table. If the table has FK from its parent, include the FK too. Make an entry in the ESM_PK_COLUMNS table.

Field	Description
TABLE_NAME	Table name
COLUMN_NAME	Column name
POSITION	Identifier for the ordering of the primary key
SEQUENCE_TYPE	Indicator of what type of Sequence is used. 'C' denotes 'CurrVal', which is used mostly for the FK's, whereas 'N' denotes 'NextVal' for the PK.

Sample:

```
Select MAX(COLUMN_ID) + 1 from ESM_TAB_COLUMNS where
TABLE_NAME = 'PRIMARYSOURCE' order by column_id desc.
```

```
Insert into ESM_TAB_COLUMNS (TABLE_NAME, COLUMN_NAME,
DATA_TYPE, DATA_LENGTH, DATA_PRECISION, DATA_SCALE,
NULLABLE, COLUMN_ID) Values ('PRIMARYSOURCE', 'REPORTEREMAIL',
'VARCHAR2', 100, NULL, NULL, 'Y', 23);
```

 **Note:**

Irrespective of whether CFG_PROFILE.CREATE_REPOSITORY is set to '1' or not, any elements added under 'SAFETYREPORT' and 'MHLWADMINITEMSICSR' nodes should have the respective fields under the above mentioned tables.

7. Modify HL7 reports:
 - Refer to the [General ICSR Extensibility](#) section.
8. **Verify the Report Generation:**
 - Log on to Oracle Argus Safety book-in compliance case for the respective custom profile. Schedule and generate the report and verify the final report in the out folder.

Import Specific Extensibility

Follow the next steps for ICSR reports where the customization is limited to extending existing structure in HL7 representation for export and import.

For more information, see:

- [New Child Element](#)
- [New Repeater Child Element](#)

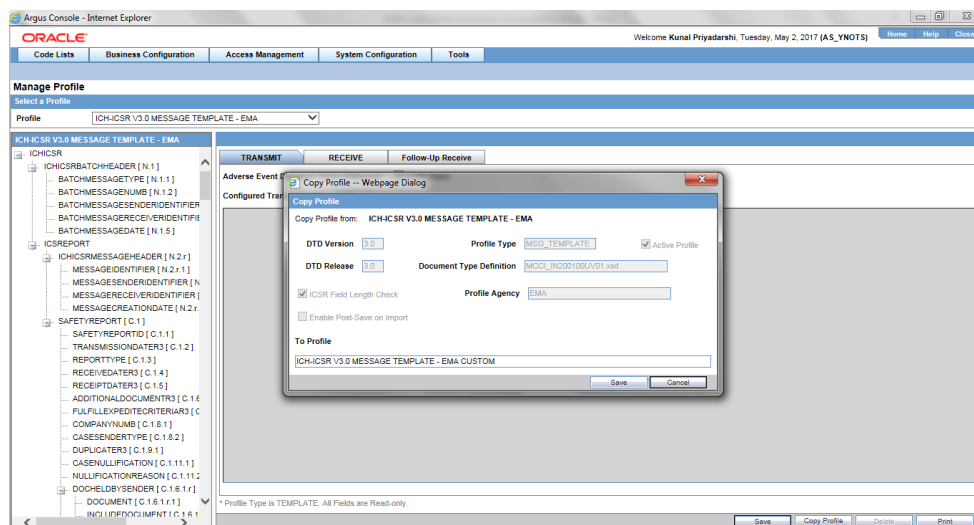
New Child Element

To add a new child element and add its mapping logic:

1. Copy the standard OOTB profile and create a copy of the profile from **Console > System Configuration > Interchange Mapping > Manage Profile**.

For example:

A copy of the R3 EMA profile and a new ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA CUSTOM profile.



- From CFG_E2B, add an element in the table to transmit it in the HL7 report.

For example:

A <custom_sibling> DTD element in the newly created EMA profile - ICH-ICSR V3.0MESSAGE TEMPLATE - EMA CUSTOM. The Custom_Sibling field is mapped to UD fieldUD_TEXT_1 in table CASE_PAT_INFO.

Field Name	Field Form Label	Hidden	Read Only	Device	Vaccine
*Patient Postal Code	Postal Code	No	No	No	No
*Patient Pregnancy	Pregnant	No	No	No	No
*Patient Product Confidentiality	Product Confidentiality	No	No	No	No
*Patient Randomization Number	Randomization #	No	No	No	No
*Patient Sponsor Identifier	Sponsor Identifier	No	No	No	No
*Patient State	State	No	No	No	No
*Patient State (J)	State	No	No	No	No
*Patient Subject #	Pat. ID	No	No	No	No
*Patient Title	Title	No	No	No	No
*Patient Title (J)	Title	No	No	No	No
*Patient Weight Iq	Weight	No	No	No	No
User Defined Date 1	No. of Siblings	Yes	No	Yes	Yes
User Defined Date 10	UD Date 10	No	No	Yes	Yes
User Defined Date 11	UD Date 11	No	No	Yes	Yes
User Defined Date 12	UD Date 12	No	No	Yes	Yes
User Defined Date 2	UD Date 2	No	No	Yes	Yes
User Defined Date 3	UD Date 3	No	No	Yes	Yes
User Defined Date 4	UD Date 4	No	No	Yes	Yes
User Defined Date 5	UD Date 5	No	No	Yes	Yes
User Defined Date 6	UD Date 6	No	No	Yes	Yes
User Defined Date 7	UD Date 7	No	No	Yes	Yes
User Defined Date 8	UD Date 8	No	No	Yes	Yes
User Defined Date 9	UD Date 9	No	No	Yes	Yes
User Defined Number 1	UD Number 1	No	No	Yes	Yes
User Defined Number 10	UD Number 10	No	No	Yes	Yes
User Defined Number 11	UD Number 11	No	No	Yes	Yes

- To add the element in the CFG_E2B table, use a query that resembles the following script sample.

Note:

The script is only for reference purpose and has not been validated against the system.

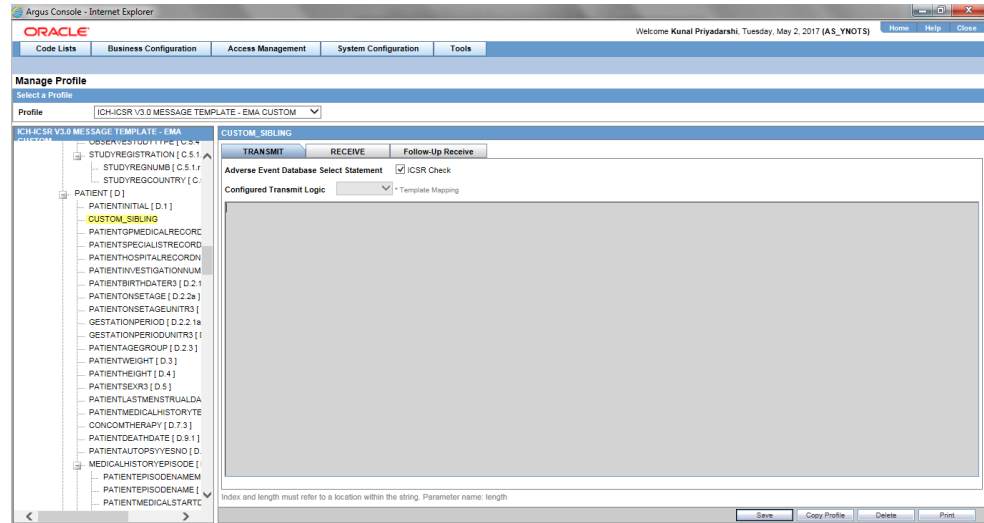
```

1  Insert into CFG_E2B (PROFILE,DTD_ELEMENT,HIE_LEVEL,DTD_TYPE,DELETED,
   DTD_LENGTH,LANGUAGE,MANDATORY_DTD_ELEMENT,MANDATORY,ORDER_OF_EXECUTION,
   AE_SELECT_STMT_ELEMENT_ASSOC,AE_SELECT_STMT_COL_POSITION,PARENT_ELEMENT,
   DATA_ELEMENT,AE_CASE_FORM_GUI,DTD_ELEMENT_TITLE,REPEATABLE,ALLOW_USER_PROC,
   DTD_ELEMENT_TYPE,UPDATE_FOR_NULLIFICATION,ALWAYS_IMPORT,
   DTD_ELEMENT_TITLE_J,ALLOW_JAPANESE_CHARACTERS,FIELD_LOCATION,FIELD_LABEL,
   ENTERPRISE_ID,IS_ALLOWED_VAL_CHK,DEPENDENT_ON,BLIND_PMDA_AE_PAPER_RPT,
   IS_BLIND_PMDA_DTD_ELEMENT,RECEIPT_MAPPING_SQL_ID,TRANSMIT_MAPPING_SQL_ID)
   values ('ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA CUSTOM','CUSTOM_SIBLING',9,
   'DEFINED',null,5,'en',null,null,156.01,'PATIENT',20,'PATIENT',null,'Case
   Form/Patient/Patient Information/No. of Siblings','Patient No. of
   Siblings',-1,null,1,null,0,'No. of Siblings J',null,'Case Form / Patient
   / Patient Information / No. of Siblings',null,1,null,null,null,null,
   null);

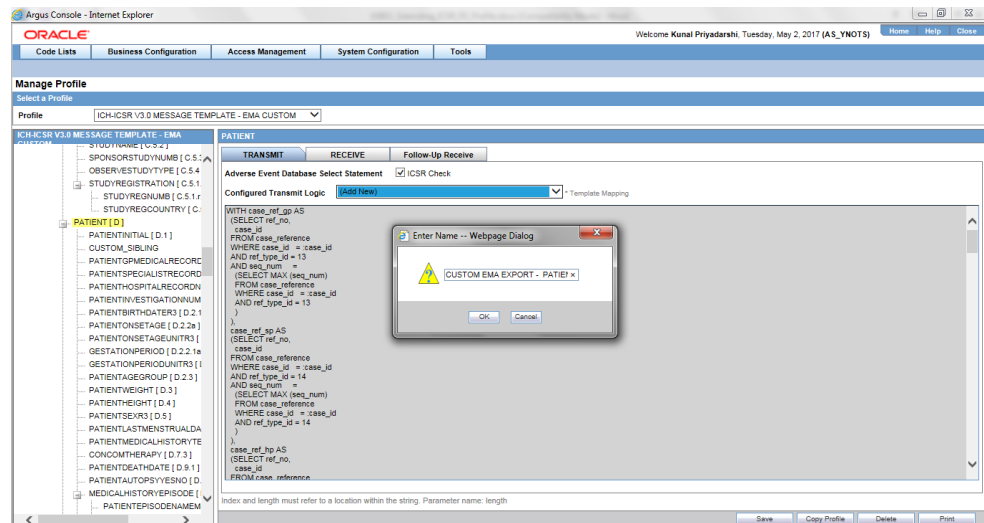
```

- Open the **Console > System Configuration > Interchange Mapping > Manage Profile** screen.

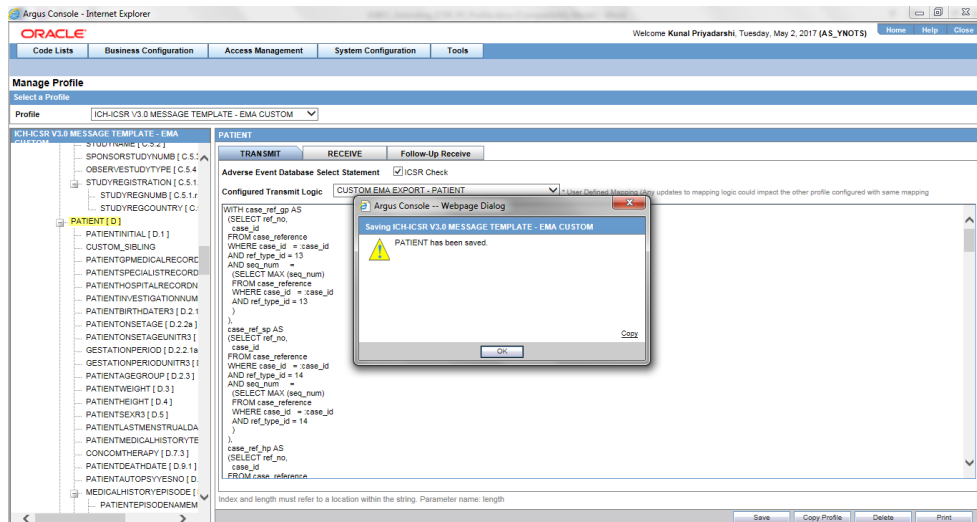
The newly added custom DTD appears in the left side pane.



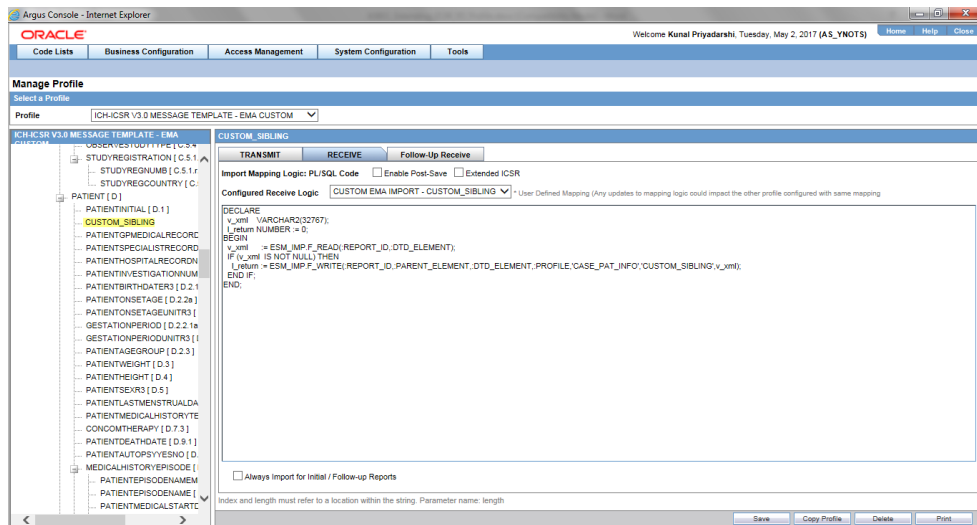
5. Click the parent node of the CUSTOM_SIBLING DTD element.
6. In the **Transmit** tab on the right side of the screen, add a new transmit logic for the newly added field.



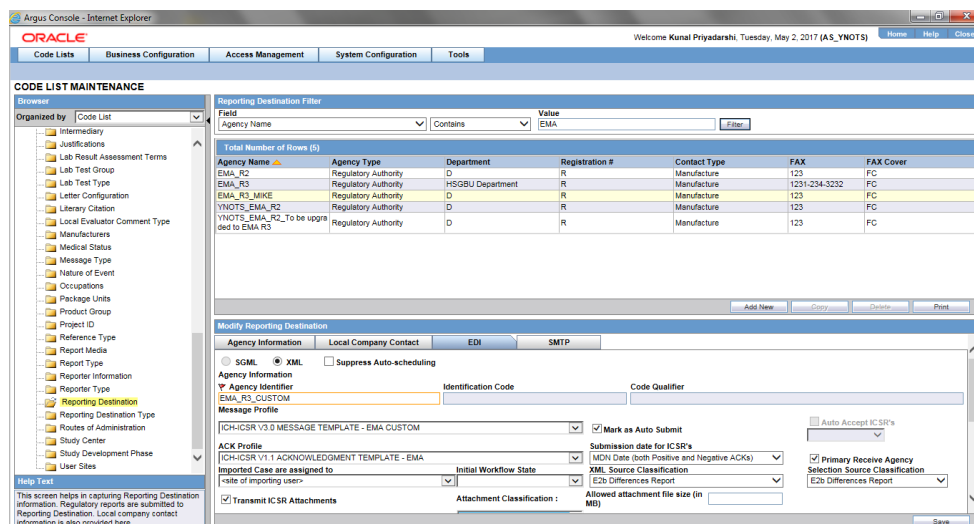
7. Add the SQL for the transmit logic.



8. Add the SQL for the transmit logic.
9. Click the **Receive** tab and add a new custom logic for the import.



10. Save the profile.
11. Create a reporting destination for this newly added message profile.



12. Log in to the web server and open the XSLT templates for the profile that you want to customize.

- a. Back up the existing templates.
- b. Modify the templates based on the element added in the respective parent node.
- c. Navigate to the desired XSLT template and modify the XSLT as per the HL7 representation provided.

For Null Flavor support, refer to the other sections of this document.

- d. If the new templates address a specific requirement, specify the mode so that the templates are uniquely identified across the reports.
- e. If any new variable is specific to a report, verify that the respective variable is uniquely named.
- f. Replace the modified XSLTs in all the servers (Web Server, AG Server & Interchange Server).

For example, to modify the EMA XSLT template if changes have been made only in the patient node, update the following templates:

- EMA_E2BR3_TO_HL7_PATIENT.XSL
- EMA_HL7_TO_E2BR3_PATIENT.XSL
- HL7_TO_EMA_PATIENT.XSL

 **Note:**

The following script is only for reference purpose and has not been validated against the system.

```

HL7_TO_EMA_PATIENT.XSL - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="UTF-8"?>
<!--
          Conversion Style-Sheet (HL7 To EMA - Patient
Part)
-->
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
  xmlns:fo="http://www.w3.org/1999/XSL/Format"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:h17="urn:h17-org:v3" xmlns:mif="urn:h17-
org:v3/mif"
  exclude-result-prefixes="xsl fo xsi h17 mif">

  <!--PATIENT-->
  <xsl:template match="h17:player1" mode="pat-
characteristics">
    <patient>
      <patientinitial>
        <xsl:apply-templates select="h17:name"
mode="element-mask"/>
      </patientinitial>
      <custom_sibling>
        <xsl:apply-templates select="h17:name"
mode="element-mask"/>
      </custom_sibling>
      <patientgomedicalrecordnumb>
        <xsl:apply-templates select="h17:asIdentifiedEntity
[h17:code/@code=$GPMrnCode]/h17:id" mode="element-mask">
          <xsl:with-param
name="attributeName">extension</xsl:with-param>
        </xsl:apply-templates>
      </patientgomedicalrecordnumb>
      <patientspecialistrecordnumb>
        <xsl:apply-templates select="h17:asIdentifiedEntity
  
```

```

EMA_HL7_TO_E2BR3_PATIENT.XSL - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="UTF-8"?>
<!--
          Conversion Style-Sheet (HL7 To EMA - Patient
Part)
-->
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
  xmlns:fo="http://www.w3.org/1999/XSL/Format"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:h17="urn:h17-org:v3" xmlns:mif="urn:h17-
org:v3/mif"
  exclude-result-prefixes="xsl fo xsi h17 mif">

  <!--PATIENT-->
  <xsl:template match="h17:player1" mode="EMA-imp-pat-
characteristics">
    <patient>
      <patientinitial>
        <xsl:apply-templates select="h17:name" mode="EMA-
imp-element-mask"/>
      </patientinitial>
      <custom_sibling>
        <xsl:apply-templates select="h17:name" mode="EMA-
imp-element-mask"/>
      </custom_sibling>
      <patientgomedicalrecordnumb>
        <xsl:apply-templates select="h17:asIdentifiedEntity
[h17:code/@code=$GPMrnCode]/h17:id" mode="EMA-imp-element-
mask">
          <xsl:with-param
name="attributeName">extension</xsl:with-param>
        </xsl:apply-templates>
      </patientgomedicalrecordnumb>
      <patientspecialistrecordnumb>
  
```



```

EMA_E2BR3_TO_HL7_PATIENT.XSL - Notepad
File Edit Format View Help
moodCode="EVN">
  <subject1 typeCode="SBJ">
    <primaryRole classCode="INVSBJ">
      <player1 classCode="PSN"
determinerCode="INSTANCE">
      <!-- D.1 Patient (name or initials) -->
      <xsl:if test="string-length(patientinitial) >
0">
        <xsl:comment>D.1: Patient (name or initials)
</xsl:comment>
        <xsl:call-template name="field-or-mask">
          <xsl:with-param
name="element">name</xsl:with-param>
          <xsl:with-param name="value"
select="patientinitial"/>
        </xsl:call-template>
      </xsl:if>
      <!-- Custom Elements:
custom_sibling -->
      <xsl:if test="string-length(custom_sibling) >
0">
        <xsl:comment>Custom Elements:
custom_sibling</xsl:comment>
        <xsl:call-template name="field-or-mask">
          <xsl:with-param
name="element">custom_sibling</xsl:with-param>
          <xsl:with-param name="value"
select="custom_sibling"/>
        </xsl:call-template>
      </xsl:if>
      <!-- D.5 Patient Sex -->
      <xsl:if test="string-length(patientsexr3) > 0">
        <xsl:comment>D.5: Patient Sex</xsl:comment>
        <xsl:call-template name="gender">
          <xsl:with-param name="value"

```

- Open the `cfg_imp_staging_xml` file and update the `INSERT_SQL` for the newly added field in the custom profile that you previously created.

 **Note:**

The following script is only for reference purpose and has not been validated against the system.

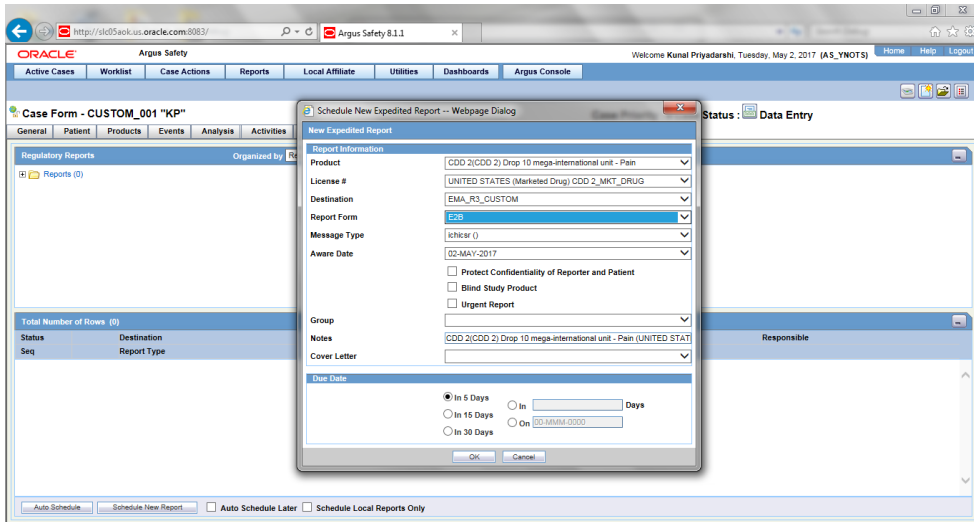
For example, for the newly added field in `patient table_name` and ICH-ICSR V3.0 MESSAGETEMPLATE - EMA CUSTOM profile, update the `INSERT_SQL` to:

```

1 SELECT idl,
2 concomtherapy,
3 gestationperiod,
4 gestationperiodunit3,
5 patientagegroup,
6 patientautopsyyesno,
7 patientbirthdater3,
8 patientdeathdate,
9 patientgpmedicalrecordnumb,
10 patientheight,
11 patienthospitalrecordnumb,
12 patientinitial,
13 patientinvestigationnumb,
14 patientlastmenstrualdater3,
15 patientmedicalhistorytext,
16 patientonsetage,
17 patientonsetageunit3,
18 patientsex3,
19 patientspecialistrecordnumb,
20 patientweight,
21 custom_sibling
22 FROM safetyreport A,
23 xmltable ( '/loc/report/safetyreport/patient/passing XMLTYPE.createXML(a.e2b) column idl FOR ordinality, patient XMLTYPE path '/' ) t1,
24 xmltable ( 'patient' passing t1.patient column concomtherapy VARCHAR2(16) path 'concomtherapy', gestationperiod NUMBER path 'gestationperiod',
gestationperiodunit3 VARCHAR2(200) path 'gestationperiodunit3', patientagegroup NUMBER path 'patientagegroup', patientautopsyyesno VARCHAR2(24) path
'patientautopsyyesno', patientbirthdater3 VARCHAR2(88) path 'patientbirthdater3', patientdeathdate VARCHAR2(88) path 'patientdeathdate',
patientgpmedicalrecordnumb VARCHAR2(80) path 'patientgpmedicalrecordnumb', patientheight NUMBER path 'patientheight', patienthospitalrecordnumb VARCHAR2(80)
path 'patienthospitalrecordnumb', patientinitial VARCHAR2(240) path 'patientinitial', patientinvestigationnumb VARCHAR2(80) path 'patientinvestigationnumb',
patientlastmenstrualdater3 VARCHAR2(88) path 'patientlastmenstrualdater3', patientmedicalhistorytext CLOB path 'patientmedicalhistorytext', patientonsetage
NUMBER path 'patientonsetage', patientonsetageunit3 VARCHAR2(200) path
'patientonsetageunit3', patientsex3 VARCHAR2(24) path 'patientsex3', patientspecialistrecordnumb VARCHAR2(80) path
'patientspecialistrecordnumb', patientweight NUMBER path 'patientweight', custom_sibling VARCHAR2(5) path 'custom_sibling') t2
25 WHERE a.report_id = :p_report_id
26

```

14. Create a new case and schedule a report for the newly created agency.



15. From the Bulk Reporting screen, transmit the report.

16. Import the report on the receiver side.

New Repeater Child Element

Follow the next steps to add a new repeater child element and a parent element.

1. Copy the standard OOTB profile and create a copy of the profile from **Console > System Configuration > Interchange Mapping > Manage Profile**.

For example, the newly created profile ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA CUSTOM.

2. Identify the UD field and refer to [New Child Element](#) section of this document (Point 2) to add it in the new mapping SQL.
3. Add the parent element <custom_parent> in the CFG_E2B for ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA CUSTOM profile.

 **Note:**

Verify that the following apply to the parent element:

- a. ORDER_OF_EXECUTION is +0.1 from the previous element.
- b. HIE_LEVEL is the same for each ICH ICSR element and for the neighboring element.
- c. REPEATABLE is set to 1.

For details on other columns, refer to the [Export Specific Extensibility](#) section of this document (Point b).

4. Add the child element <custom_child> in CFG_E2B for ICH-ICSR V3.0 MESSAGE TEMPLATE -EMA CUSTOM profile, setting the parent_element to <custom_parent>.
5. Open the **Console > System Configuration > Interchange Mapping > Manage Profile** screen.
The newly added custom parent and custom child DTD appear in the left side pane.
6. Click the <custom_parent> DTD element. In the **Transmit** tab on right side of the screen, add a new transmit logic for this newly added <custom_child> DTD element.
7. Click the <custom_child> DTD element. In the **Receiver** tab on the right side of the screen, add a new import logic for this newly added field.
8. Save the profile.
9. Create a reporting destination for this newly added message profile.
10. Log in to the web server and open the XSLT templates for the profile to customize.
 - a. Back up the existing templates.
 - b. Modify the templates based on the element added in the respective parent node.
 - c. Navigate to the desired XSLT template and modify the XSLT as per the HL7 representation provided.
For Null Flavor support, refer to the other sections of this document.
 - d. If the new templates address a specific requirement, specify the mode so that the templates are uniquely identified across the reports.
 - e. If any new variable is specific to a report, verify that the respective variable is uniquely named.
 - f. Replace the modified XSLTs in all the servers (Web Server, AG Server & Interchange Server).
11. Open the cfg_imp_staging_xml and insert a new row for each of the following items:
 - a. CUSTOM_PROFILE = ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA CUSTOM
 - b. TABLE_NAME = <custom_parent>

- c. INSERT_SQL = New logic for importing <custom_parent> and <custom_child>
 - d. SORT_ID = Sort ID for the table execution
 - e. SORT_ID2 = Sort ID for child repeater
 - f. SORT_ID3 = Sort for third level repeater
12. Create a new case and schedule a report for the newly created agency.
 13. From the Bulk Reporting screen, transmit the report.
 14. Import the report on the receiver side.

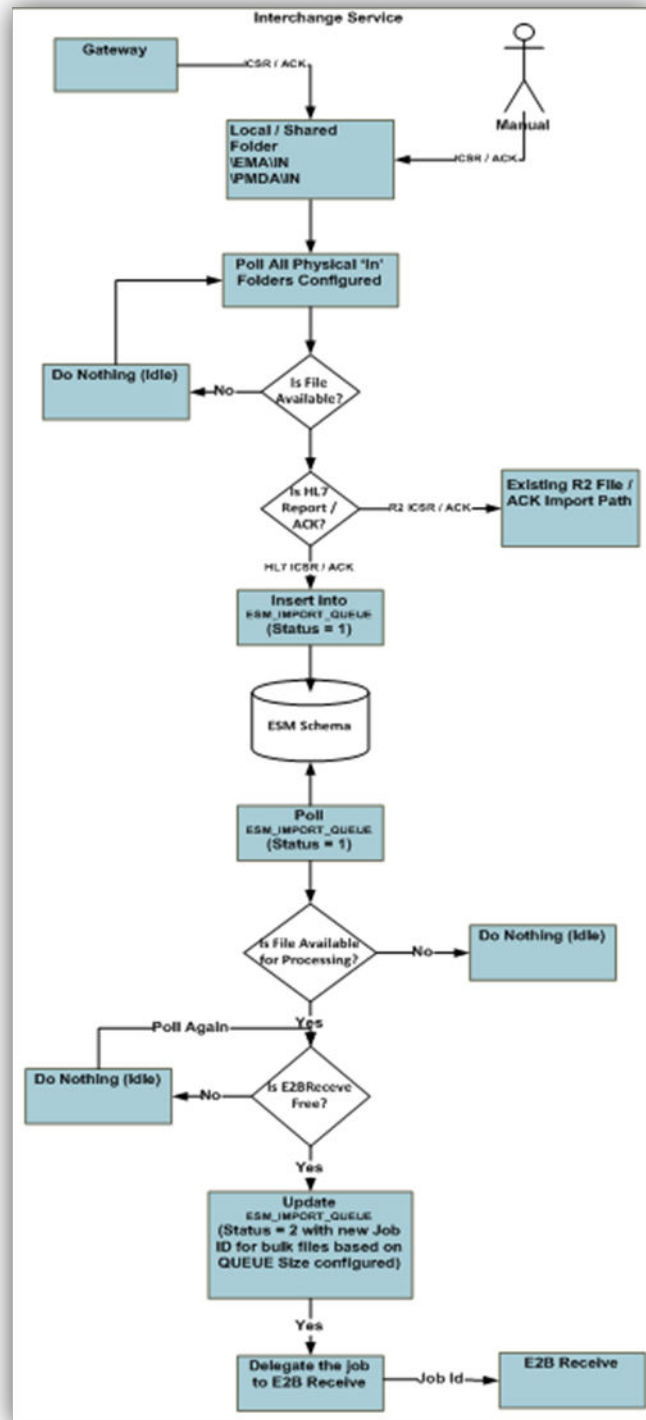
3

ICSR E2B Import Approach

The ICSR Import framework is used to import the new HL7 based E2B R3 ICSR reports. The stakeholders who use Oracle Argus Safety as their drug safety application use this framework as an importing platform to pull the information from various sources into their safety database and then process it for various regulatory and non-regulatory purposes using Oracle Argus Safety.

The new ICSR E2B R3 import framework validates the ICSR file using XSD validation, and by executing minimum case creation validations. The architecture of the Import framework is designed to import the ICSR file without any data loss. The framework also allows you to extend any custom profile (For more information, refer to the [Appendix](#) section).

As described in the *Follow-up specific Import features ICSR Mapping Utility* section, the framework provides flexibility to the user to map the incoming E2B as Follow-up to an existing case. It also allows the user to import Follow-up on a non-E2B compliant case.



4

Adding ICSR Validations (Import/Export)

The following sections describe all the ICSR Validations for export and import:

- [Conformance Rules Tab](#)
- [Export and Import Validations](#)

Conformance Rules Tab

All the validation rules (Transmit and Receive) for ICSR elements appear in the **Conformance Rules** tab.

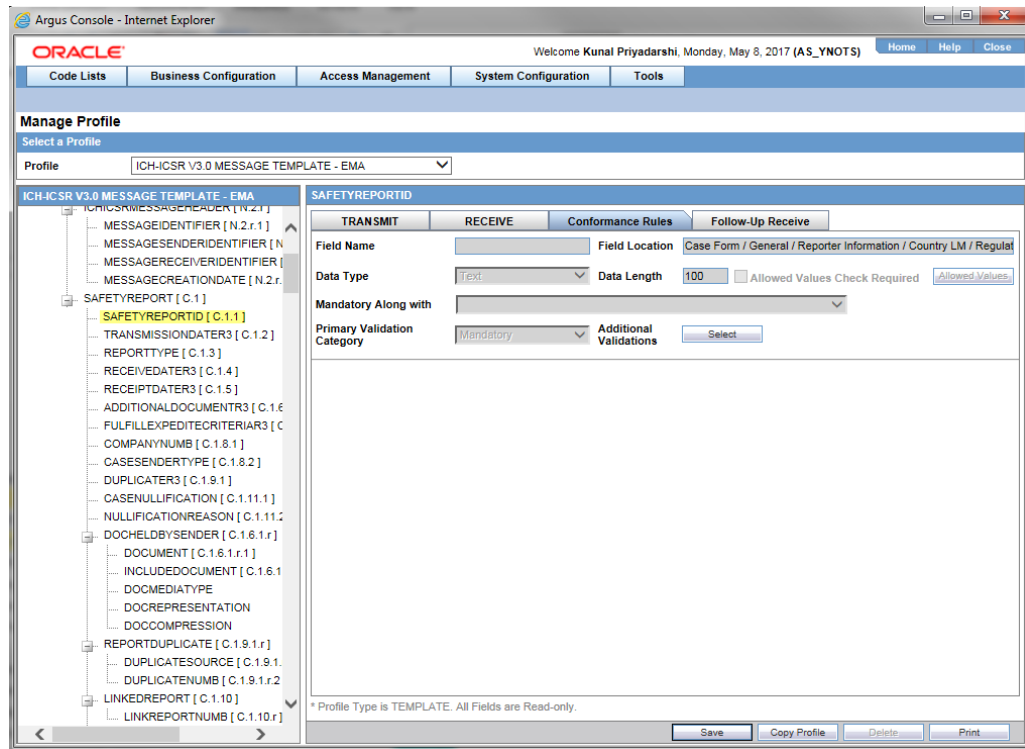
The Validations related to data elements that are sent along with another data elements are selected from the **Mandatory Along with** drop-down.

The Primary Validation Category for any conformance rule is selected in the **Primary Validation Category** drop-down.

Both the existing conformance rules and the new conformance rules can be configured from the Additional Validations screen.

Note:

- **Receive Tab** of the ICSR mapping utility allows the user to configure the import SQL under the Receive Tab for the mapping utility.
- **Transmit Tab** of the ICSR mapping utility allows the user to configure the export SQL under the Transmit Tab for the mapping utility.
- These tabs are available only for R3 profiles.



Export and Import Validations

Use the following approach to determine if the incoming E2B is valid and can be accepted.

Failure of any of these validations will be logged in the ERROR_LOG table.

Hard-validations

In case of a validation error under this category, the Interchange accept process rejects the incoming message and generates a negative ACK with a corresponding error message.

The following list describes the hard validations categories:

1. **Length Validation:**
If the length of the element in the incoming message exceeds the prescribed length for that element in the profile configuration for that element, the application generates an error
2. **Code list data validations:**
If the data element is configured to have an “Allowed Value” set in the particular profile, the incoming data in the file is validated against the configured allowed value for that profile. If the incoming value doesn't belong to the allowed set, the application generates an error.
3. **Minimum case creation validation:**
set of validations that are required to register a case. In order to process the report for an incoming message, the message should contain the required valid data for these elements. The minimum case validations are stored in the CFG_E2B_IMPORT_VALIDATION table.

Soft-validations

In case of a validation error under this category, the Interchange accept process does not reject the incoming message. The process keeps a log of the error under this category for future reference in the ICSR Pending screen and in Case Attachment.

The following list describes the soft validations categories:

1. Element Conformance Validation:

If the conformance of the element in the incoming message does not satisfy the element level conformance defined in the respective profile, an error is logged for the element.

2. Mandatory along with Validation:

If an element is configured as Mandatory Along with another element, and either of them are missing in the incoming report, an error is logged for the element.

3. Additional Validation:

The validations that are executed under this category are the same as those executed during the EMA E2B R3 Export

5

Follow-up specific Import features ICSR Mapping Utility

The next sections describe the follow-up specific import features.

For more information, see:

- [Follow-up Identification SQL](#)
- [Deletion of Unwanted Data after Follow-up](#)
- [Flexibility in Primary Key Identification for Follow-up Records](#)
- [Custom Comparison](#)

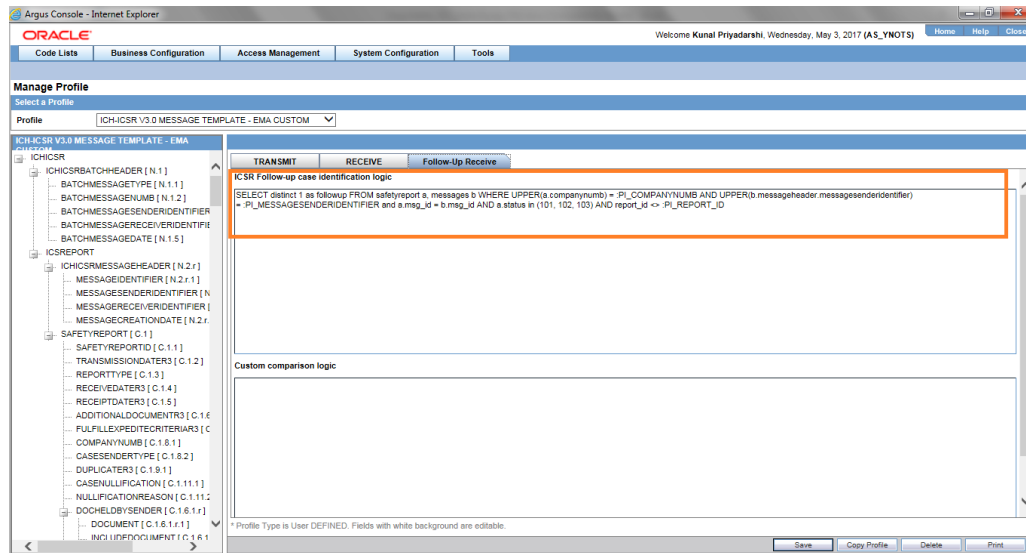
Follow-up Identification SQL

Oracle Argus Safety provides flexibility to change the logic for identification of Follow-up records. The identification of Follow-up records can be configured in the **Follow-up Receive** tab and is available for R3 based ICSR profiles that support the import.

The SQL mapping logic for the identification of Follow-up records is the Profile level logic to identify the Follow-up case against the incoming ICSR. For the OOTB, the default logic is the current Oracle Argus Safety embedded logic.

The following list details the bind variables that are available.

- PI_INCOMING_RPT_ID
- PI_CASE_RPT_ID
- PI_USER_ID
- PI_CASE_ID



Deletion of Unwanted Data after Follow-up

Oracle Argus Safety has introduced the concept of default delete of data for accepting follow-up reports based on the matching of primary keys between the incoming XML and the accepted case.

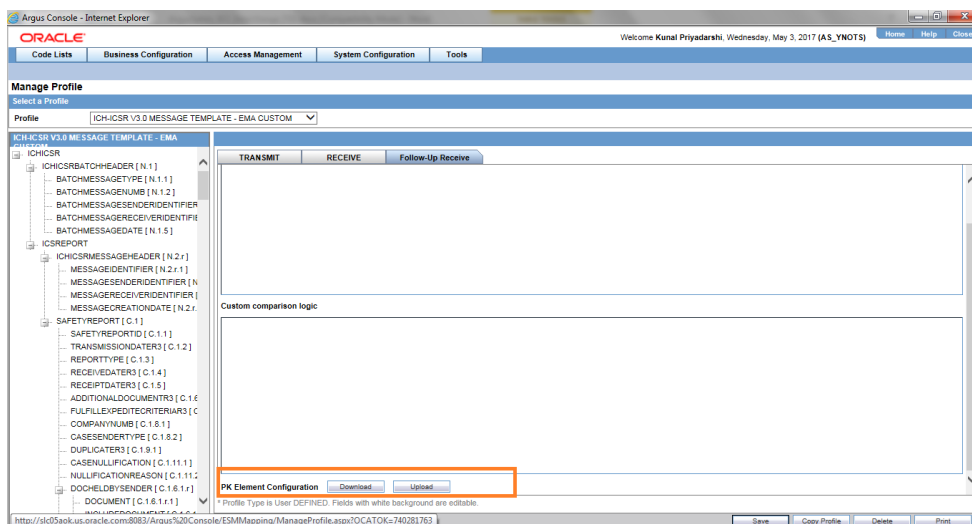
The default delete functionality only applies to repeater elements in HL7 reports.

If when importing the Follow-up, the data of the primary keys does not match the data of the primary keys in the accepted case, the non-matching values are deleted from the accepted case by default and the new data is entered as per the follow-up XML.

These primary keys are also configurable and can be modified as per business need. For steps to modify the primary key, refer to the [Flexibility in Primary Key Identification for Follow-up Records](#) section.

Flexibility in Primary Key Identification for Follow-up Records

1. Configure the Primary Keys from System Configuration > Interchange Mapping > Manage Profile > Follow-up Receive tab.



2. To change the primary key for a profile:
 - a. Select the profile.
 - b. Go to the profile's **Follow-up Receive** tab and click the **Download** button.

This downloads a CSV file with all the PKs for the profile.

	A	B	C	D	E	F
1	Profile	PARENT_ELEMENT	DTD_ELEMENT	DEFAULT_DELETE	Val_Error	
2	ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA	DRUG	DRUG	Y		
3	ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA	DRUG	DRUGAUTHORIZATIONHOLDER	Y		
4	ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA	DRUG	DRUGCHARACTERIZATION	Y		
5	ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA	DRUGINDICATIONR3	DRUGINDICATIONPRIMARYSOURCE	N		
6	ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA	DRUGINDICATIONR3	DRUGINDICATIONMEDDRACODE	N		
7	ICH-ICSR V3.0 MESSAGE TEMPLATE - EMA	DRUG	OBTAINDRUGCOUNTRY	Y		
8						
9						

3. Modify the CSV file as per the following logic:

Column Name	Description
PROFILE	The name of the profile for which file is uploaded. In case of a mismatch, an error is pushed into the Val_Error column.
PARENT_ELEMENT	The elements that have child elements in the current profile. In case of an incorrect entry, an error is pushed into the Val_Error column.
DTD_ELEMENT	The elements that are true child elements (i.e. they are the exact root node of the XML). In case of an incorrect entry, an error is pushed into the Val_Error column.

Column Name	Description
DEFAULT_DELETE	Contains “Y” or “N” values. The “Y” value denotes that the repeater element is marked for Deletion in case it mismatches the incoming file. The “N” value denotes that the repeater block is not marked for deletion. In case of any other value exists in the column, an error is pushed to the VAL_Error column.
VAL_ERROR	Present only in CSV files and if there are errors in the file upload.

 **Note:**

Verify that none of the columns contains blank rows. If so, an error is pushed to the VAL_ERROR column.

- After making changes in the CSV file, upload the file using the **Upload** button.

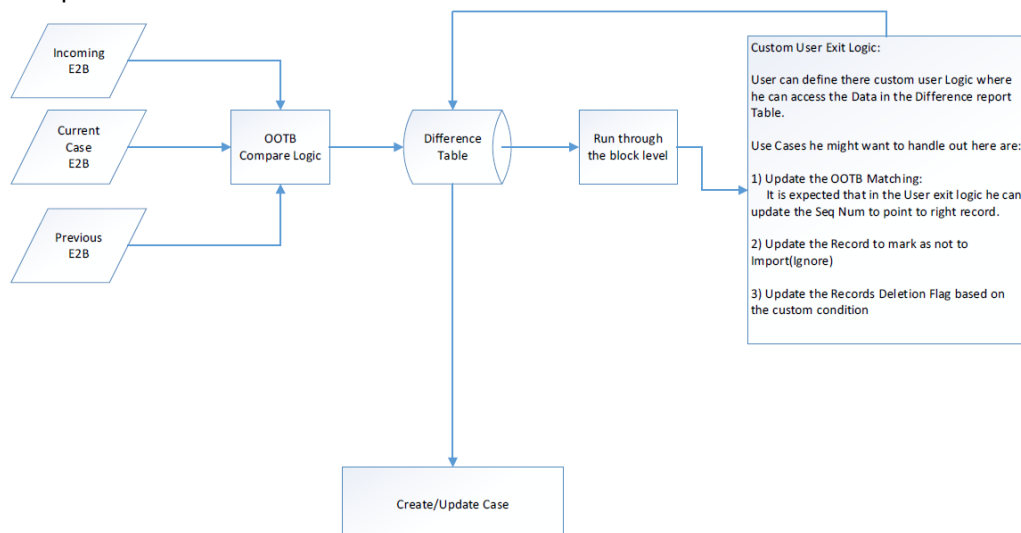
All the validations are executed. If there are any errors, the file that contains the error in the VAL_ERROR column is pushed back to user from the browser. Additionally, the uploaded file data is not reflected into the database configurations (i.e., only a file without any validation errors is committed to the database).

 **Note:**

All these operations are performed during the upload user action.

Custom Comparison

As part of the newly enhanced upon ICSR import Framework, a customization capability has been introduced in the Difference report building logic. As a result, a user can define their own custom logic over the OOTB difference report to control the comparison. The following flow chart depicts the functional flow for the Custom Comparison:



Since this comparison is a customizable logic, there can be several use cases.

The following is an example that describes some of the sample logics at a high level:

 **Note:**

While defining the custom comparison logic over the `esm_difference_report` table, you can use the following Input parameters:

- `PI_INCOMING_RPT_ID` — Report ID of the Incoming File.
- `PI_CASE_ID` — Case ID of the case on which Follow-up is accepted.
- `PI_CASE_RPT_ID` — Report ID of the report generated on the current case data for comparison.
- `PI_USER_ID` — User ID of the current user.

For column descriptions, refer to the **Table** definition.

Example 5-1 User defined logic to not import any of the Reporter details in the system:

```
UPDATE esm_difference_report
SET imp_check = 0
WHERE (parent_element='PRIMARYSOURCE'
or dtd_element = 'PRIMARYSOURCE')
AND report_id1 = :PI_INCOMING_RPT_ID
AND user_id = :PI_USER_ID
AND REC_ACTION = 1
```

Example 5-2 User define logic to update the Reporter comparison to overwrite the OOTB comparison:

```
DECLARE
n_parentid_del VARCHAR2(1000 CHAR):='0';
n_parentid_ins VARCHAR2(1000 CHAR):='0';
n_parentid_delete VARCHAR2(1000 CHAR):='0';
30
N_CASE_ID number :=:PI_CASE_ID ;
N_USER_ID number := :PI_USER_ID;
N_RPT_ID1 NUMBER := :PI_INCOMING_RPT_ID;
N_RPT_ID2 NUMBER := :PI_CASE_RPT_ID ;
--Fetch all the Reporter that are marked to Insert as New Reporter
during F-u
Cursor c1 is
select * from ESM_DIFFERENCE_REPORT where case_xref = N_CASE_ID and
user_id = N_USER_ID and
PARENT_ELEMENT = 'PRIMARYSOURCE' and REC_ACTION = 3 and report_id2 =
N_RPT_ID2;
BEGIN
FOR c_row in c1
LOOP
--Run the cursor on the reports that are to be inserted
if c_row.dtd_element = 'REPORTERGIVENAME' then
```

```

--This query run as custom check on the reporter recors to see if there
exists a record to be deleted under the cutom condition
--If this qery fetches a record then it will Update the deletion record
as and update record
select parent_pk into n_parentid_ins from ESM_DIFFERENCE_REPORT where
case_xref = N_CASE_ID and
user_id = N_USER_ID and PARENT_ELEMENT = 'PRIMARYSOURCE' and REC_ACTION
= 1 and report_id1 = N_RPT_ID1
and dtd_element = 'REPORTERGIVENAME';
n_parentid_del := c_row.parent_pk;
end if;
end loop;
IF n_parentid_del <> '0' Then
--Sample Update query to update the reporter record in Difference
report Table
Update ESM_DIFFERENCE_REPORT EDR_INS
Set
EDR_INS.DIFF_VALUE2 = (SELECT EDR_DEL.DIFF_VALUE2 from
ESM_DIFFERENCE_REPORT EDR_DEL where EDR_DEL.parent_pk =
n_parentid_del AND EDR_INS.dtd_element = EDR_DEL.dtd_element AND
EDR_INS.PARENT_ELEMENT = EDR_DEL.PARENT_ELEMENT),
EDR_INS.ID2 = (SELECT EDR_DEL.ID2 from ESM_DIFFERENCE_REPORT
EDR_DEL where EDR_DEL.parent_pk = n_parentid_del AND
EDR_INS.dtd_element = EDR_DEL.dtd_element AND EDR_INS.PARENT_ELEMENT =
EDR_DEL.PARENT_ELEMENT),
EDR_INS.DECODED_VALUE2 = (SELECT EDR_DEL.DECODED_VALUE2 from
ESM_DIFFERENCE_REPORT EDR_DEL where EDR_DEL.parent_pk =
n_parentid_del AND EDR_INS.dtd_element = EDR_DEL.dtd_element AND
EDR_INS.PARENT_ELEMENT = EDR_DEL.PARENT_ELEMENT),
EDR_INS.REC_ACTION = 2 ,
EDR_INS.IMP_CHECK = 1,
EDR_INS.DIFF_CODE1 = 0,
EDR_INS.DIFF_CODE2=0
where
EDR_INS.parent_pk = n_parentid_ins or seq_num = n_parentid_ins ;
Update ESM_DIFFERENCE_REPORT
Set REC_ACTION = 2 where seq_num = n_parentid_ins ;
31
END IF;
DELETE from ESM_DIFFERENCE_REPORT where parent_pk =n_parentid_del;
DELETE from ESM_DIFFERENCE_REPORT where seq_num =n_parentid_del;
END;

```

Example 5-3 Custom Comparison logic to forcefully match the Drug block by comparing the WHO Drug Codes:

```

DECLARE
n_parentid_del VARCHAR2(1000 CHAR):='0';
n_parentid_ins VARCHAR2(1000 CHAR):='0';
n_parentid_delete VARCHAR2(1000 CHAR):='0';
n_group_id_del number:=-1;
N_CASE_ID number := :PI_CASE_ID ;
N_USER_ID number := :PI_USER_ID;
N_RPT_ID1 NUMBER := :PI_INCOMING_RPT_ID;

```

```
N_RPT_ID2 NUMBER := :PI_CASE_RPT_ID ;
--Fetch all the DRUG's that are marked to be newly inserted by the
Difference report Logic
Cursor c1 is
select * from ESM_DIFFERENCE_REPORT where case_xref = N_CASE_ID and
user_id = N_USER_ID and
PARENT_ELEMENT = 'DRUG' and REC_ACTION = 1 and report_id1 = N_RPT_ID1;
--Fetch all the Repeater records under the Drug Node
cursor c2(groupid number) is
select * from ESM_DIFFERENCE_REPORT where data_element like 'G.k%' and
parent = 1 and group1=groupid and case_xref = N_CASE_ID
and user_id = N_USER_ID and report_id1 = N_RPT_ID1;
--Fetch all the deatils each Repeater record under the Drug Node -
Section Wise
cursor c3(in_parentid VARCHAR2(100), in_dtd_element VARCHAR2(100)) is
SELECT * from ESM_DIFFERENCE_REPORT EDR_DEL WHERE parent_pk =
in_parentid and dtd_element = in_dtd_element;
BEGIN
FOR c_row in c1
LOOP
--Run the cursor on the Drug Record that are makred for insertion
if c_row.dtd_element = 'MEDICINALPRODUCT' then
--Execute a custom check to see if the MEDICINALPRODUCT tag contains
the WHO or J Drug Code of the Product
--Then also treat it to be same product in the Difference Report
--General Guidance to be followed while updating the records
-- If the new Record matches with the already existing records : Update
the record mark for Deletion
-- If the New Record Doesnot Matches with Any Existing Record : Update
the New Entrant and link it to Exisitng Drug Node
-- Delete any unwanted records from Existing or the new Drug Node
BEGIN
32
select parent_pk, group1 into n_parentid_delete, n_group_id_del from
ESM_DIFFERENCE_REPORT where case_xref = N_CASE_ID and
user_id = N_USER_ID and PARENT_ELEMENT = 'DRUG' and REC_ACTION = 3 and
report_id2 = N_RPT_ID2
and dtd_element = 'MEDICINALPRODUCT' and dbms_lob.substr(DIFF_VALUE2)
in (
SELECT ll.trade_name FROM LM_PRODUCT LP, lm_license ll, lm_lic_products
llp
WHERE
lp.product_id = llp.product_id
and llp.license_id = ll.license_id
and (lp.drl_id = dbms_lob.substr(c_row.DIFF_VALUE1) or lp.drl_id_j =
dbms_lob.substr(c_row.DIFF_VALUE1))
and ll.country_id = 223
and ll.deleted is null
and lp.deleted is null
and llp.deleted is null);
EXCEPTION
WHEN OTHERS THEN
dbms_output.put_line(SUBSTR(SQLERRM,1,3950));
n_parentid_delete := '0';
END;
```



```
dbms_output.put_line(n_parentid_delete);
dbms_output.put_line(n_group_id_del);
if n_parentid_delete <> '0' then
n_parentid_ins := c_row.parent_pk;
end if;
dbms_output.put_line(n_parentid_ins);
end if;
end loop;
IF n_parentid_delete <> '0' Then
FOR c_row2 in c2(n_group_id_del)
LOOP
if c_row2.dtd_element = 'DRUGEVENTMATRIX' then
-- For event Matrix delete the current records and bring in the new
records
for c_row3 in c3(n_parentid_ins, 'DRUGEVENTMATRIX' )
Loop
-- Loop into the Assessment Data and mark the appropriate falgs/data
fields
End loop;
if c_row2.dtd_element = 'DOSAGEINFORMATION' then
for c_row3 in c3(n_parentid_ins, 'DOSAGEINFORMATION' )
Loop
-- Loop into the Dosage Data and mark the appropriate falgs/data fields
End loop;
-- Like wise loop into all the Child elements in the
ESM_DIFFERENCE_REPORT Table
Else
Update ESM_DIFFERENCE_REPORT EDR_INS
Set
33
EDR_INS.DIFF_VALUE1 = (SELECT EDR_DEL.DIFF_VALUE1 from
ESM_DIFFERENCE_REPORT EDR_DEL where EDR_DEL.parent_pk =
to_char(c_row2.seq_num) AND EDR_INS.dtd_element = EDR_DEL.dtd_element
AND EDR_INS.PARENT_ELEMENT = c_row2.DTD_ELEMENT ),
EDR_INS.DECODED_VALUE1 = (SELECT EDR_DEL.DECODED_VALUE1 from
ESM_DIFFERENCE_REPORT EDR_DEL where EDR_DEL.parent_pk =
to_char(c_row2.seq_num) AND EDR_INS.dtd_element = EDR_DEL.dtd_element
AND EDR_INS.PARENT_ELEMENT = c_row2.DTD_ELEMENT),
EDR_INS.REC_ACTION = 2,
EDR_INS.DIFF_CODE1 = 0,
EDR_INS.DIFF_CODE2=0
where
EDR_INS.parent = 0 and
(EDR_INS.parent_pk = to_char(c_row2.seq_num) or seq_num =
c_row2.seq_num) ;
Update ESM_DIFFERENCE_REPORT
Set
REC_ACTION = 2 where seq_num = c_row2.seq_num ;
END IF;
end loop;
END IF;
-- Delete the unwanted record that was marked for insertion
update ESM_DIFFERENCE_REPORT set deleted = sysdate where parent_pk
=n_parentid_ins ;
update ESM_DIFFERENCE_REPORT set deleted = sysdate where seq_num
```

```
=n_parentid_ins;  
END;
```

 **Note:**

The following script is only for reference purpose and has not been validated against the system.

6

Appendix

The aforementioned guidelines have been prepared regarding the extensibility of the Import framework for the following use case:

Extensible ICSR Profile Framework

When used with the current ICSR R2 framework, E2B+ allows the user to extend profile elements. However, extending a profile using the existing Framework includes some limitations such as:

- **Linking of extended child with the Parent:** If the element is added to a node that is lower in the report hierarchy, the linking of the extended node to the higher level node becomes difficult.

For example:

- Level 1: SAFETYREPORT
- Level 2: PATIENT
- Level 3: Drug
- Level 4: Dosage

To extend an element at Dosage level using E2B+, the linking of the attribute with Drug becomes complex. As a result, an error may sometimes occur.

- **Cannot add a new Parent/repeater:** It is not feasible to add a new repeater section that is not part of the standard E2B report. For example, ER: 15969640-Multiple Neonates can't be imported into Argus thru E2B+.

Use Case:

Flexibility to cope up with the varying regional regulations

The different regulatory agencies across the world are adopting the R3 (HL7) based ICSR reporting framework. This HL7 framework facilitates the different regulatory authorities to extend the standard ICH elements to support their regional data capturing needs. For Example, ICH supports the following attributes for a Drug (G Block):

#	Element	Number
1	G.k.1	DRUGCHARACTERIZATION
2	G.k.2.1.1a	DRUGMPIDVERSION
3	G.k.2.1.1b	DRUGMEDICINALPRODID
4	G.k.2.1.2a	DRUGPHPIDVERSION
5	G.k.2.1.2b	DRUGPHARMAPRODID
6	G.k.2.2	MEDICINALPRODUCT
7	G.k.2.3.r	ACTIVESUBSTANCE
8	G.k.2.4	OBTAINDRUGCOUNTRY
9	G.k.2.5	INVPRODUCTBLINDED

#	Element	Number
10	G.k.3.1	DRUGAUTHORIZATIONNUM B
11	G.k.3.2	DRUGAUTHORIZATIONCOU NTRY
12	G.k.3.3	DRUGAUTHORIZATIONHOL DER
13	G.k.4.r	DOSAGEINFORMATION
14	G.k.5a	DRUGCUMULATIVEDOSAGE NUMB
15	G.k.5b	DRUGCUMULATIVEDOSAGE UNITR3
16	G.k.6a	REACTIONGESTATIONPERI OD
17	G.k.6b	REACTIONGESTATIONPERI ODUNITR3
18	G.k.7.r	DRUGINDICATIONR3
19	G.k.8	ACTIONDRUG
20	G.k.9.i	DRUGEVENTMATRIX
21	G.k.10	DRUGADDITIONALINFO
22	G.k.11	DRUGADDITIONAL

As per the PMDA regulation, the regulatory agencies request support the following regional attribute of DRUG:

#	Element	Name
1	J2.4.k	MHLWSTATUSCATEGORYOF NEWDRUGS
2	J2.5.k	MHLWRISKCATEGORYOFOT CDRUGS
3	J2.6.k	MHLWROUTEFORACQUIRIN GOTCDRUGS

As per the EMA regulation, the regulatory agencies request support the following regional attribute of DRUG:

#	Element	Name
1	G.k.2.2.EU.1	DRUGINVENTEDAME
2	G.k.2.2.EU.2	DRUGSCIENTIFICNAME
3	G.k.2.2.EU.3	DRUGTRADEMARKNAME
4	G.k.2.2.EU.4	DRUGSTRENGTHNAME
5	G.k.2.2.EU.5	DRUGFORMNAME
6	G.k.2.2.EU.6	DRUGCONTAINERNAME
7	G.k.2.2.EU.7	DRUGDEVICENAME
8	G.k.2.2.EU.8	DRUGINTENDEDUSENAME

Flexibility to cope up with evolving regulation

As the regulatory authorities are still trying to adopt the R3 based reporting, there are several cardinality changes they are coming up in the revised guidance. For example, as per the initial eVAERS guidance, the authorities introduced Race of a patient as a regional element, expecting to capture only one Race per patient. However, the Guidance was later revised to support two Races per patient.

System Integration

The ICSR R3 report is based on the HL7 format, which is a standard data exchange platform for Healthcare data exchange. The ICSR R3 importing framework is extended for the user to integrate with different EDC systems such as Inform. In order to do so, it is expected that the regulatory authorities will add new attributes at the different level for the data exchange between the two systems.

Minimum Case Creation Validations on Incoming ICSR

MAH uses Oracle Argus Safety for capturing data from different sources to meet their regulatory and non-regulatory reporting needs. The ICSR Import is one big platform for data capturing from various sources. As a result, MAH are expected to use Oracle Argus Safety as an importing platform to pull the information from various sources in their safety database and then further process it using Oracle Argus Safety.

Since the purpose for the Oracle Argus Safety import is not confined to regulatory import, the OOTB import logic should allow flexibility to the user to control the validation during the import (i.e., to execute minimum case creation validations).

 **Note:**

All the compliance validation will be maintained in the error/warning log so that the user can review the regulatory gaps with the incoming ICSR file.

Import Follow-up on non-E2B Compliant Case

As previously stated, the usage of the ICSR Import framework is not confined to regulatory purpose. For instance, the incoming ICSR file can be used only for data exchange. There can be scenarios in which the case on which the ICSR file is imported might not be regulatory compliant. Despite this, the user still wishes to import the update from the incoming ICSR. As a result, the application shall not execute the ICSR conformance validation check before importing the data from follow-up ICSR.

Provide Flexibility to User to Map Incoming E2B as Follow-up to Existing Case

As previously stated, the usage of the ICSR Import framework is not confined to regulatory purpose. As a result, the logic to link an incoming report to a report with an existing case will be configurable at the profile level in order to address the following use case.

Use Case:

Incoming Report to Case Identifier Linking Logic

Cases coming from Regulatory Authorities:

As per regulations, the MAH is expected to report separate ICSR for Marketed and Investigational licenses. Consequently, for two different reports that are sent from same case but for different license types, the SAFETYREPORTID will be different,

even though the reports belong to same case. In this situation, COMPANYNUM or AUTHORITYNUM would be more appropriate to link the incoming ICSR with the case.

Cases coming from Integrated EDC System:

Since users will be leveraging the ICSR import framework to exchange the information between two systems, they will not be confined to send multiple reports per case. Instead, they would send one report for a particular case. As a result, the linking of the case to the report can be done based on SAFETYREPORTID for the integrating profile.

Comparison and Data Evaluation/Update for an Incoming Follow-up Report

As per the current implementation, the application provides the user with the following difference views for comparing the Incoming ICSR file in the ICSR format:

- The newly imported ICSR message.
- The ICSR message that was generated using the current case data against the ICSR profile for the importing agency.
- The ICSR file that was last imported to the case.

The comparison logic performs a record matching based on the Metadata of the internal table by executing the key based comparison of the elements in the previously stated ICSR files. The comparison logic can be configured by modifying the internal Metadata to a certain extent, with several limitations. The existing comparison and data update logic shall be enhanced for the following:

Support Deletion of Unwanted Data after Follow-up

As per the current comparison and data update logic, if two records are matched based on the key matching, the matching record is updated. In case there is no match found for the existing case record, a new entry is created for the newly incoming record. This leads to stale data in the case.

The ICSR comparison logic will support record level deletion of un-matching case data. Additionally, the deletion logic shall be configurable at the record level.

Flexibility in Primary Key Identification for Follow-up Records

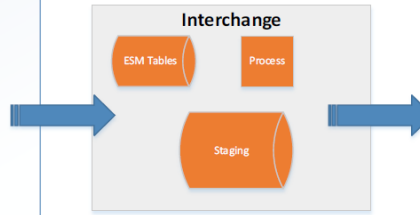
As previously stated, the current comparison logic of incoming ICSR is driven based on the internal Metadata stored in an internal table, with limited flexibility for comparison key configuration. This logic will be made generic enough so that users can update the OOTB keys as per their use case.

Use Case:

Initial E2B Initial Case

```

Initial E2B
<Safetyreport>
<SAFETYREPORTID>
<REPORTTYPE>
.
.
<REPORTER>
<REPORTERGIVENAME> Jhon
<REPORTERMIDDLENAME> M
<REPORTERFAMILYNAME> Cot
<REPORTERDEPARTMENT> LAB
<REPORTERCOUNTRY> US
</REPORTER>
<REPORTER>
<REPORTERGIVENAME> Cres
<REPORTERFAMILYNAME> Ram
<REPORTERDEPARTMENT> ICU
</REPORTER>
.
.
<PATIENT>
<PATENTINITIAL>D.L.
.
.
<DRUG>
<MEDICALPRODUCT> I-Brofin 30 mg (TradeName)
.
.
<DOSAGEINFO>
<STARTDATE>JUN-2016
<ENDDATE>30-JUN-2016
<DOSE> 10
<UNIT> mg
</DOSAGEINFO>
<DOSAGEINFO>
<STARTDATE>1-Jul-2016
<DOSE> 20
<UNIT> mg
</DOSAGEINFO>
<DRUG>
<MEDICALPRODUCT> 123456(WHO-Drug Code)
.
.
</SAFETYREPORT>
    
```



Case form

General-Tab

Reporter:
 1) Fname: Jhon Mname: M Lname: Cot
 Department: LAB Country: United States
 2) Fname: Cres Lname: Ram
 Department: ICU

Patient-Tab

Patient Initial: D.L.

Product-Tab

Drug 1:
 Product Name: I-Brofin
 Strength: 30 MG
 Drug Code: 3322-11-55

Dose 1:
 Start: Jun-2016 END: 30-Jun-2016
 Dose: 10 Unit: Mg
 Dose Desc: 10 mg

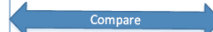
Dose 2:
 Start: 1-Jul-2016
 Dose: 20 Unit: Mg
 Dose Desc: 20 mg

Drug 2:
 Product Name: Paracetamol
 Strength: 20 MG
 WHO Code: 123456

Follow-up E2B Accept as Follow-up

```

F/U E2B
<Safetyreport>
<SAFETYREPORTID>
<REPORTTYPE>
.
.
<REPORTER>
<REPORTERGIVENAME> Jhon
<REPORTERMIDDLENAME> M
<REPORTERFAMILYNAME> Cot
<REPORTERDEPARTMENT> LAB
<REPORTERCOUNTRY> US
</REPORTER>
<REPORTER>
<REPORTERGIVENAME> Cres
<REPORTERFAMILYNAME> Ram
<REPORTERDEPARTMENT> ICU
</REPORTER>
.
.
<PATIENT>
<PATENTINITIAL>D.L.
.
.
<DRUG>
<MEDICALPRODUCT> I-Brofin 30 mg (TradeName)
.
.
<DOSAGEINFO>
<STARTDATE>10-JUN-2016
<ENDDATE>30-JUN-2016
<DOSE> 10
<UNIT> mg
</DOSAGEINFO>
<DOSAGEINFO>
<STARTDATE>1-Jul-2016
<DOSE> 20
<UNIT> mg
</DOSAGEINFO>
<DRUG>
<MEDICALPRODUCT> 123456(WHO-Drug Code)
.
.
</SAFETYREPORT>
    
```



```

Case
<Safetyreport>
<SAFETYREPORTID>
<REPORTTYPE>
.
.
<REPORTER>
<REPORTERGIVENAME> Jhon
<REPORTERMIDDLENAME> M
<REPORTERFAMILYNAME> Cot
<REPORTERDEPARTMENT> LAB
<REPORTERCOUNTRY> US
</REPORTER>
<REPORTER>
<REPORTERGIVENAME> Cres
<REPORTERFAMILYNAME> Ram
<REPORTERDEPARTMENT> ICU
</REPORTER>
.
.
<PATIENT>
<PATENTINITIAL>D.L.
.
.
<DRUG>
<MEDICALPRODUCT> I-Brofin 30 mg
(TradeName)
.
.
<DOSAGEINFO>
<STARTDATE>JUN-2016
<ENDDATE>30-JUN-2016
<DOSE> 10
<UNIT> mg
</DOSAGEINFO>
<DOSAGEINFO>
<STARTDATE>1-Jul-2016
<DOSE> 20
<UNIT> mg
</DOSAGEINFO>
<DRUG>
<MEDICALPRODUCT>
Paracetamo(TradeName)
.
.
</SAFETYREPORT>
    
```

Case form

General-Tab

Reporter:
 1) Fname: Jhon Mname: M Lname: Cot
 Department: LAB Country: United States
 2) Fname: Cres Lname: Ram
 Department: ICU

Patient-Tab

Patient Initial: D.L.

Product-Tab

Drug 1:
 Product Name: I-Brofin
 Strength: 30 MG
 Drug Code: 3322-11-55

Dose 1:
 Start: Jun-2016 END: 30-Jun-2016
 Dose: 10 Unit: Mg
 Dose Desc: 10 mg

Dose 2:
 Start: 1-Jul-2016
 Dose: 20 Unit: Mg
 Dose Desc: 20 mg

Drug 2:
 Product Name: Paracetamol
 Strength: 20 MG
 WHO Code: 123456