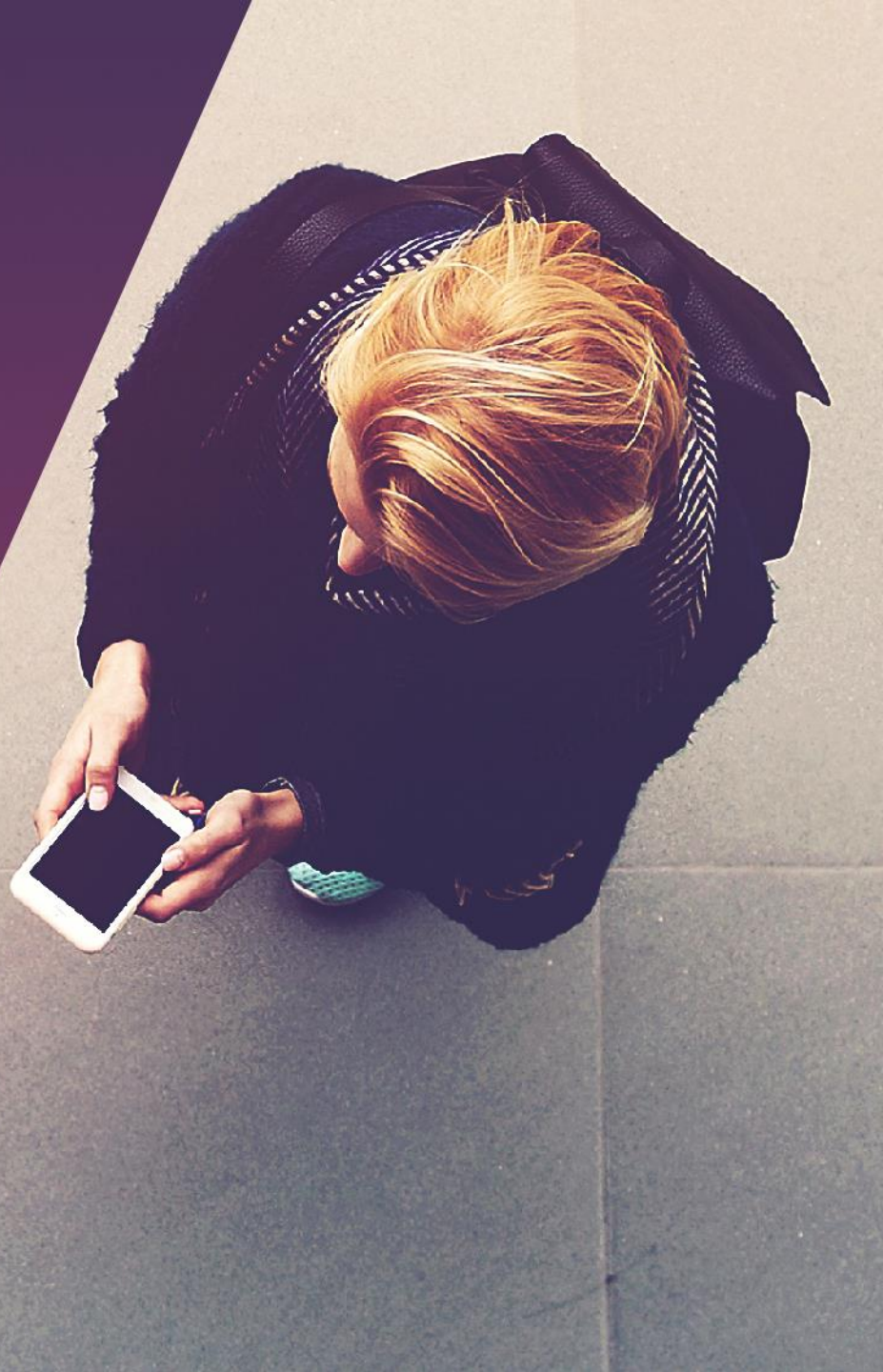
IEL(Interface Expression Language) Tables

AGENDA

- IEL Table overview
- How to create IEL table and things to be considered before creation
- Significance of System Column
- Significance of User Defined Column
- Import and Export of IEL
- Customer Maintained table
- Add, Modify, Expire, Delete records of IEL Table
- Indexes in IEL table
- Database(Metadata) tables related to IEL table
- Do’s and Don’ts in IEL Table



IEL tables

- Policy application is heavily dependent on Master data needed for business. Master data includes factors, drop down values like State and Zip Codes, Cancellation reason etc.
  - For example: ISO data, non-ISO (client specific) master data, data for populating lists, data required for rating, data required for configurations etc.
- To facilitate this requirement Dev studio offers a Plugin called as Tables. This plugin allows configuring new master table.

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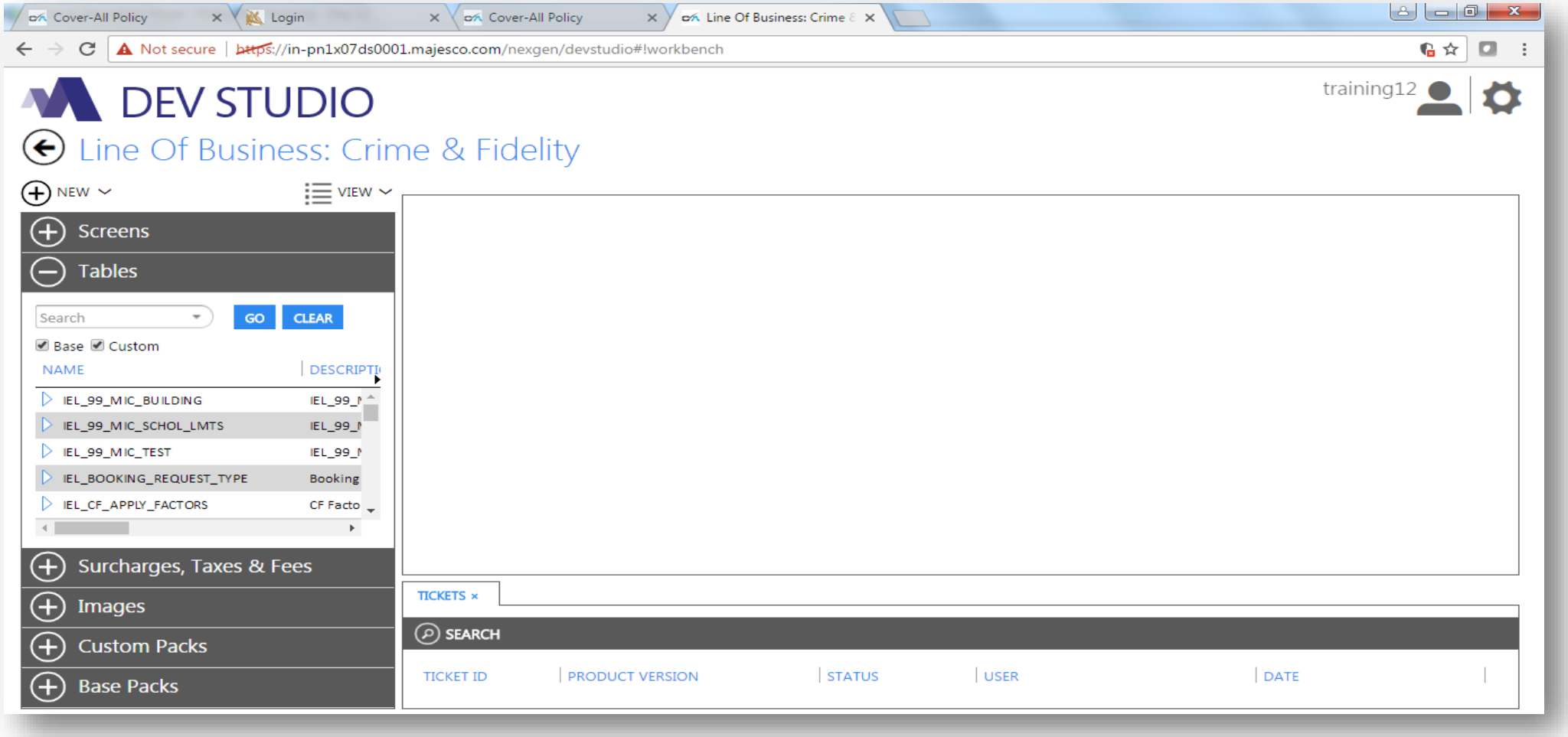
How to create IEL table and things to be considered before creation

IEL tables can be created and existing table can be viewed from “Table” plug-in in Dev Studio.



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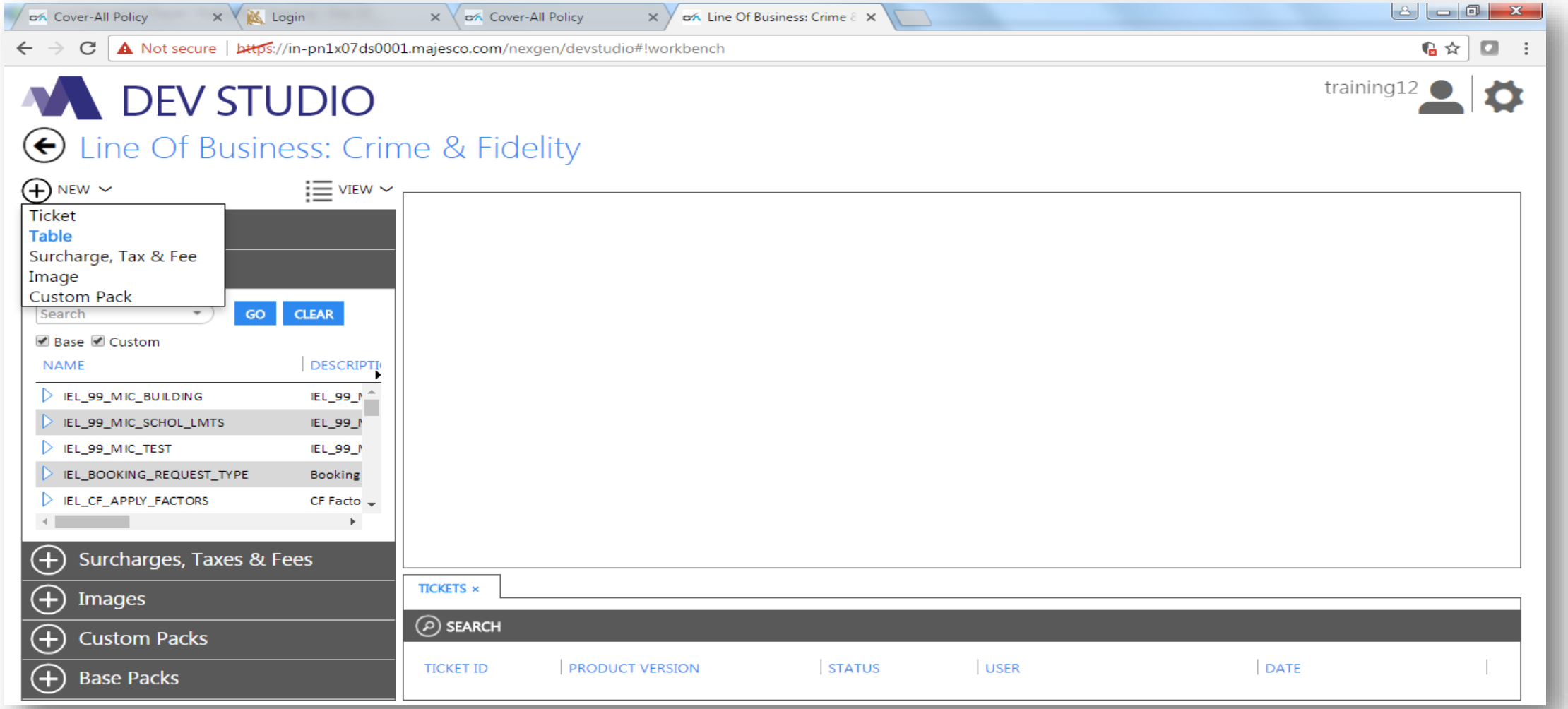
How to create IEL table and things to be considered before creation

Select New->Table



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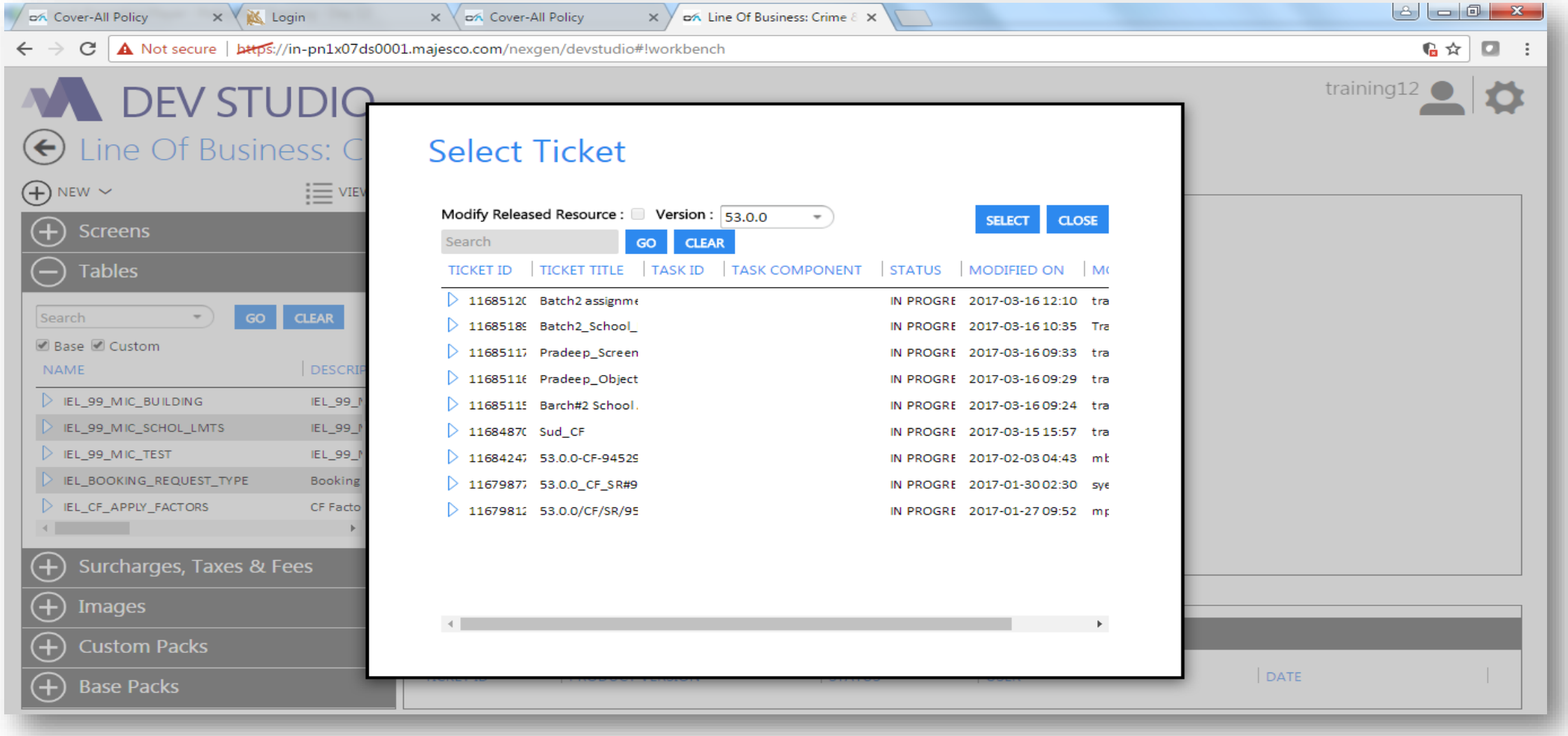
How to create IEL table and things to be considered before creation

Select ticket for creating table



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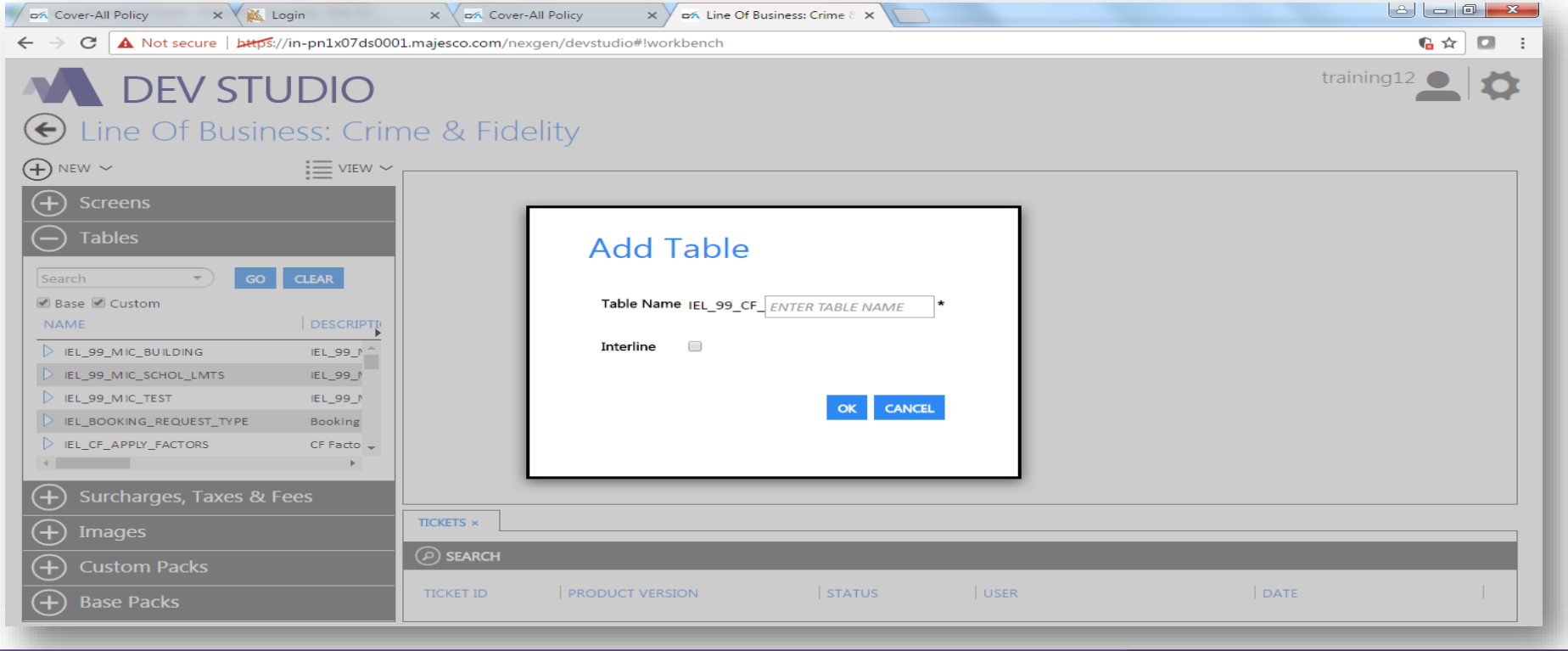
How to create IEL table and things to be considered before creation

Add a table .. LOB specific table. This type of table would have LOB code contained in the table name. For e.g. CF for crime and fidelity. Also the name would contain customer code for the login through which table is created. In below mentioned case the customer code is 99(Internal customer of Majesco).



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How to create IEL table and things to be considered before creation

- LOB specific IEL table would have scope limited to the mentioned LOB. For e.g. Consider an IEL table created for configuring a factor ‘Loss cost’.
- Let’s assume a field by name ‘loss cost’ on one of the coverage screen(Under Crime and fidelity) getting populated with a value from this IEL table.
- If the IEL table was created exclusively for Crime and Fidelity LOB then only Policies or Quotes for Crime and fidelity would be able to fetch value from this IEL table.

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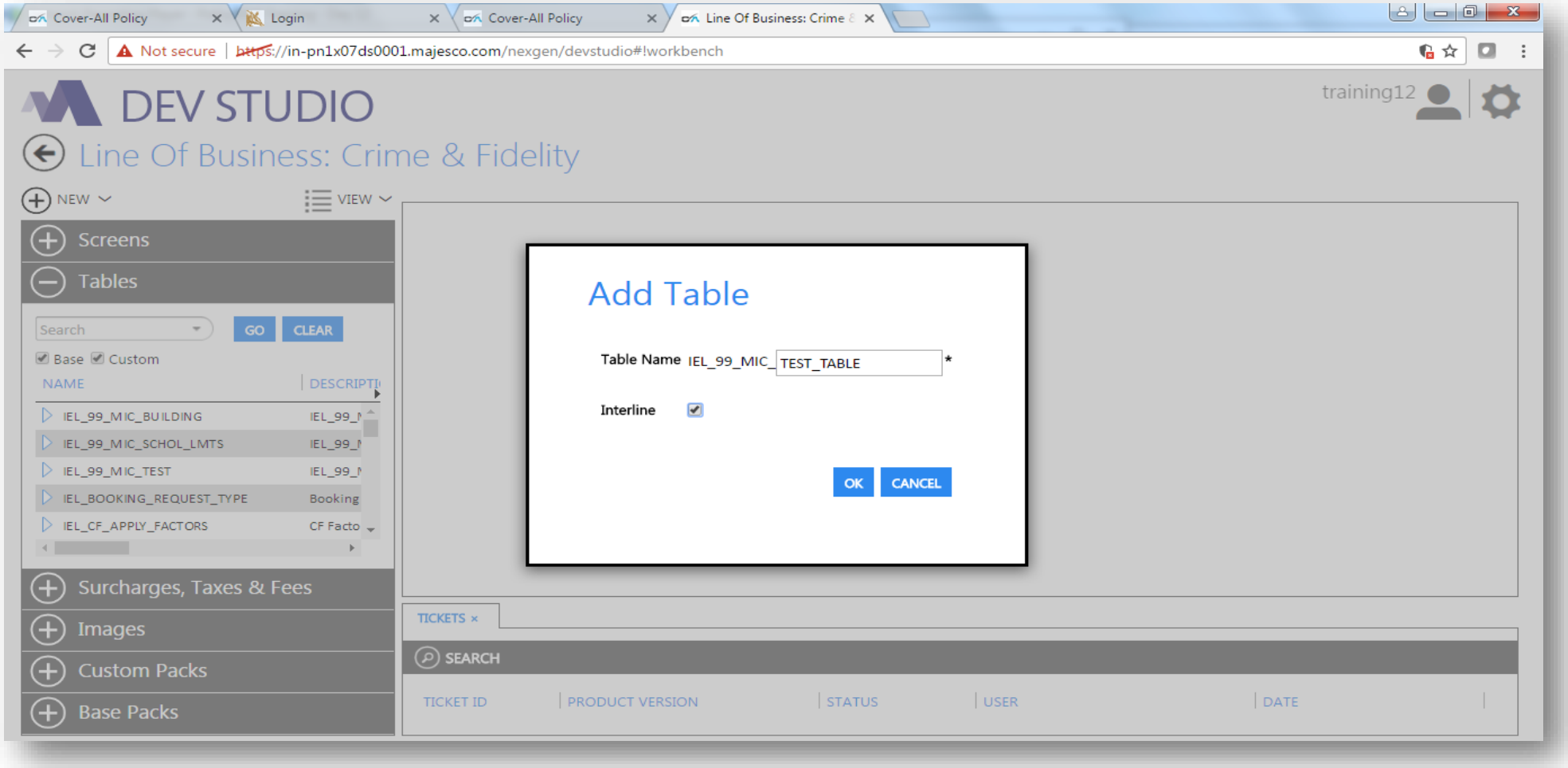
How to create IEL table and things to be considered before creation

- Add a table .. With “Interline” checked it signifies that the table is applicable for multiple line of Business



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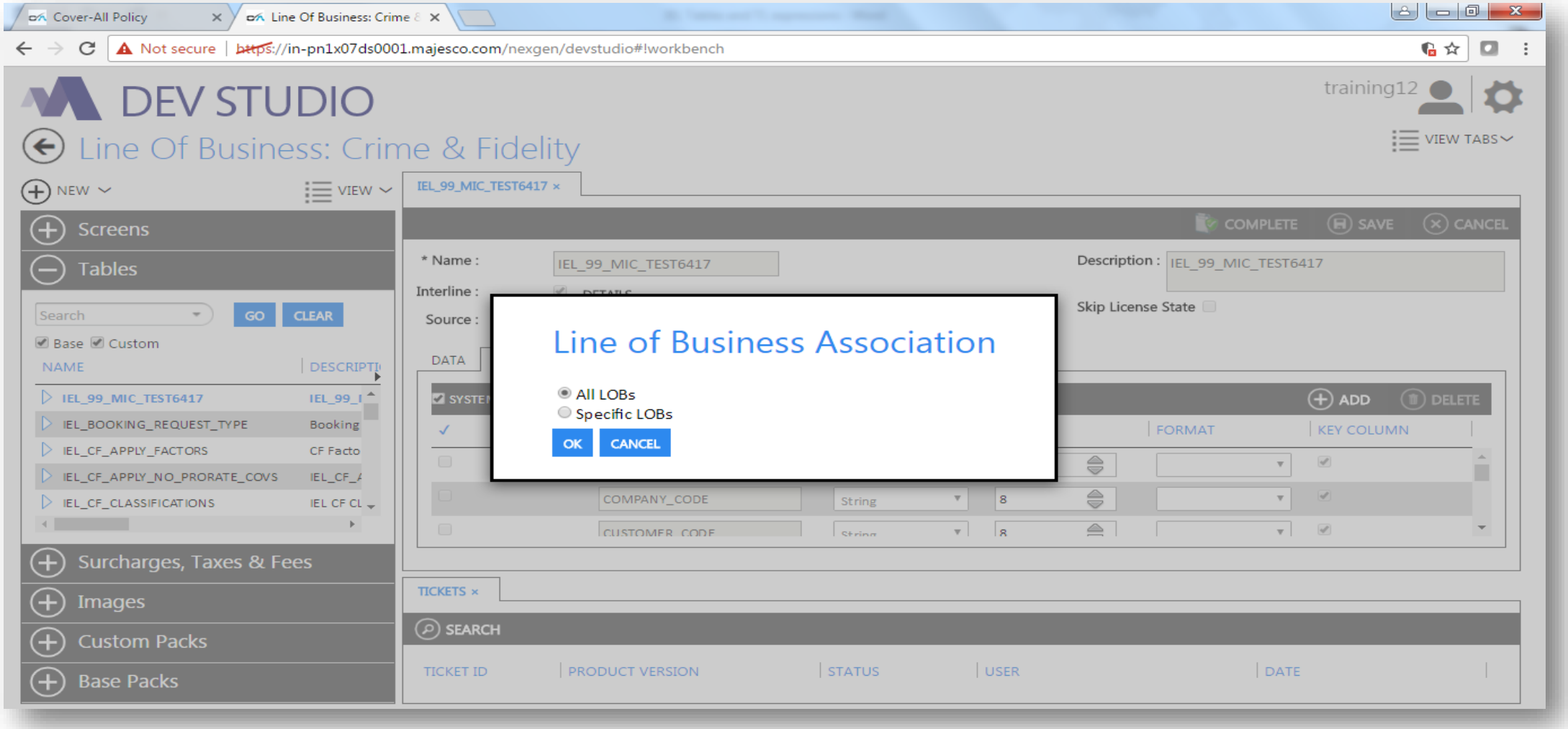
How to create IEL table and things to be considered before creation

- Either we can IEL applicable for all LOB or for more than one LOB



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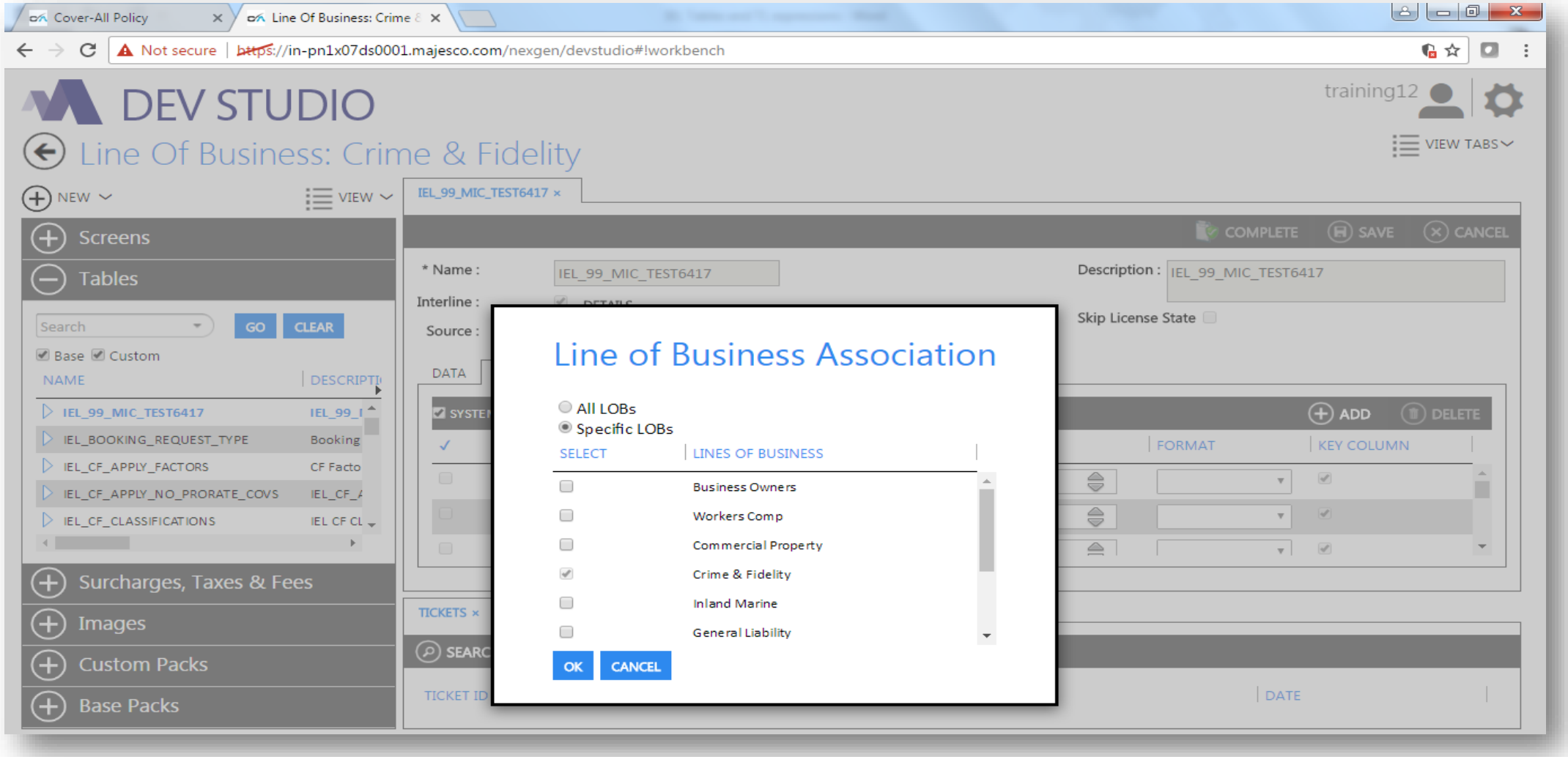
How to create IEL table and things to be considered before creation

- Selecting specific LOB's:



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How to create IEL table and things to be considered before creation

- IEL table specified as Interline can be used in all LOBs or specific LOBs as mentioned during creation.
- Consider an IEL table created for configuring a factor ‘Loss cost’.
- Let’s assume a field by name ‘loss cost’ on one of the coverage screen(Under any LOB) getting populated with a value from this IEL table.
- If the IEL table was specified as Interline then Policies or Quotes for any LOB can be populated with a value from this IEL table.
- Or If the IEL table was specified as Interline(specified for Crime and Fidelity and Commercial Auto) then Policies or Quotes for Crime and Fidelity and Commercial Auto can be populated with a value from this IEL table.

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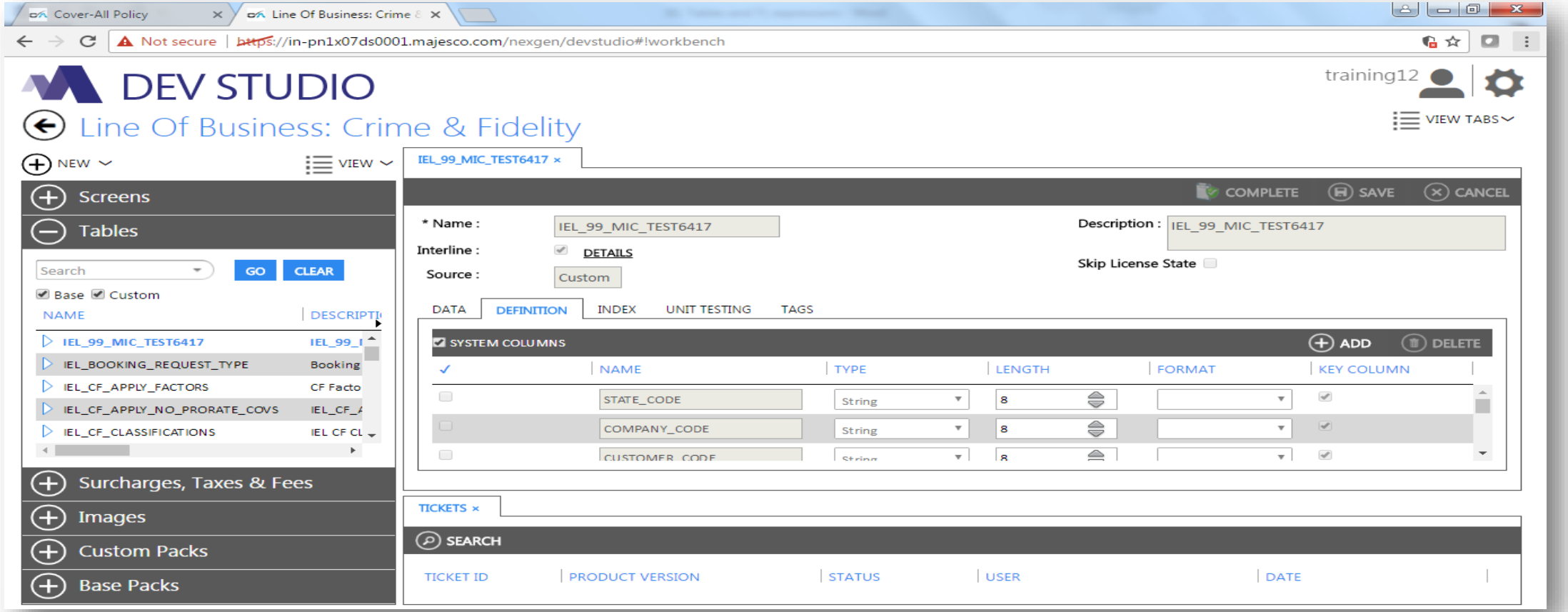
How to create IEL table and things to be considered before creation

- By default there are system columns created for every IEL table. Other than that user defined columns can be created for configuring master data



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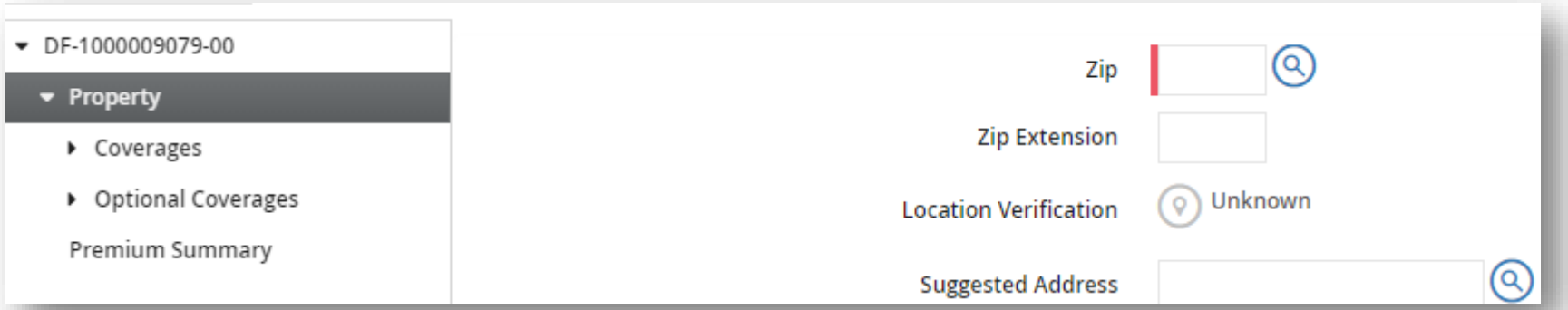
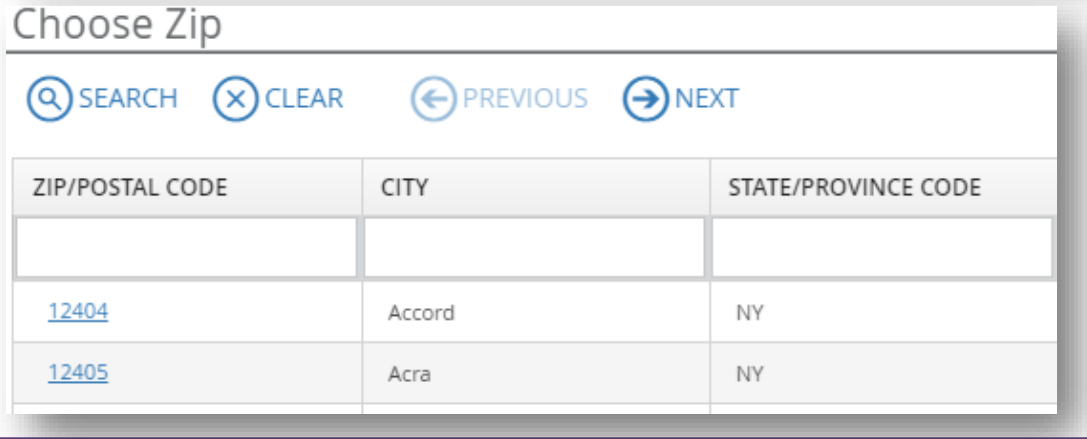
How to create IEL table and things to be considered before creation

- Things to be considered before creating IEL table
  - IEL table should be configured in below mentioned scenario
    - When there is huge number of master data to be configured. For e.g configuring Zip codes for all states.





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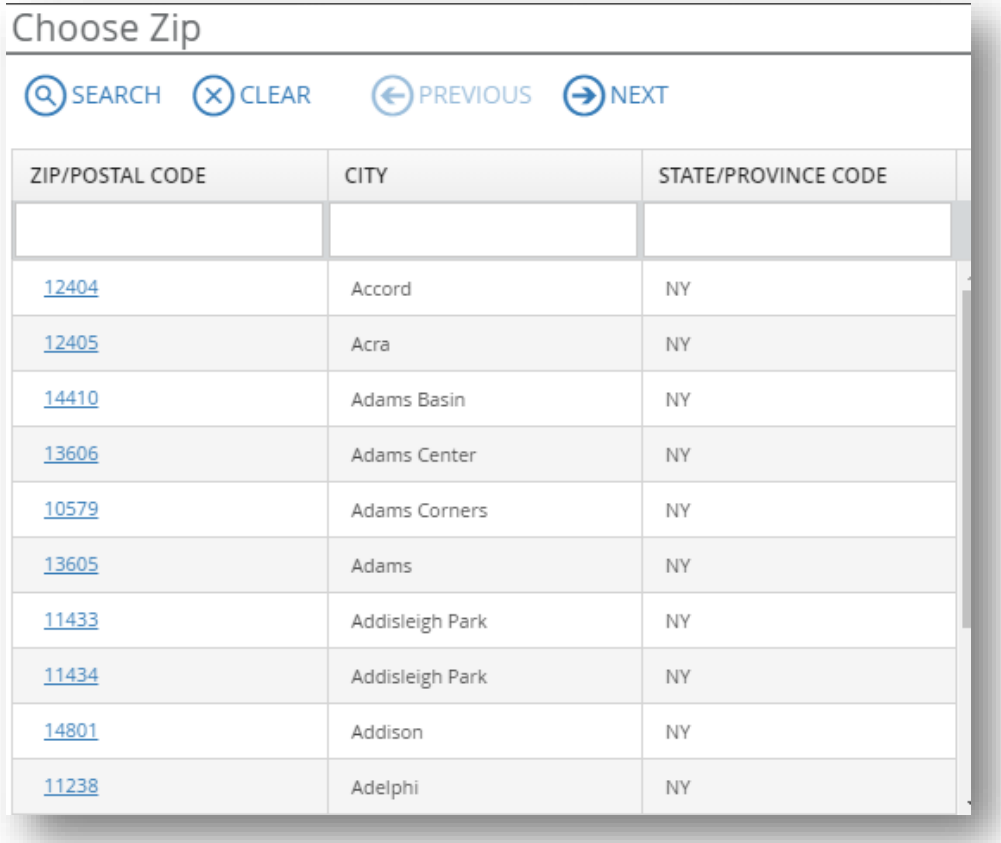
How to create IEL table and things to be considered before creation

- When master data is dependent upon other data
- For e.g : In below mentioned scenario value of Zip code is dependent upon state. If value of state is ‘New York’ then zip code field should show values belonging to New York.



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How to create IEL table and things to be considered before creation

- IEL table for factors Requirement:
  - When master data for factors of coverage needs to be configured. And this data is dependent upon Policy attributes like LOB, State, Company etc.

  (Here Policy attributes corresponds to system column of IEL table). And also in case if it is dependent upon any other user – defined columns
  - Assume a field by name 'Additional Lost cost factor' on screen. This field is dependent upon Policy attributes like LOB, State code, Customer code etc. And also it is dependent upon one another field named 'Class Code'.
  - Example : Let say Additional cost factor should have value as 0.4 if Policy is created for LOB 'General Ledger' (LOB code : GL), Customer for which Policy is to be created is '99', if state of Policy is 'New York' and Class code is '0074'.

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How to create IEL table and things to be considered before creation

- Approach for creating IEL table
  - Developer needs to create an IEL table to meet this requirement. As this factor is applicable only for General Ledger LOB hence table should be LOB specific table and not an Interline Table.

  - Below mentioned system columns would be automatically created
    - PRODUCT_VERSION
    - ADOPTION_TYPE
    - EFFECTIVE_DATE
    - LOB_CODE
    - PRODUCT_CODE
    - STATE_CODE
    - MARKET_SEGMENT_CODE
    - COMPANY_CODE
    - MULTISTATE_VERSION
    - CIRCULAR_NO
    - EXPIRATION_DATE
    - PROGRAM_CODE
    - EXP_MULTISTATE_VERSION
    - CUSTOMER_CODE
    - EXP_PRODUCT_VERSION

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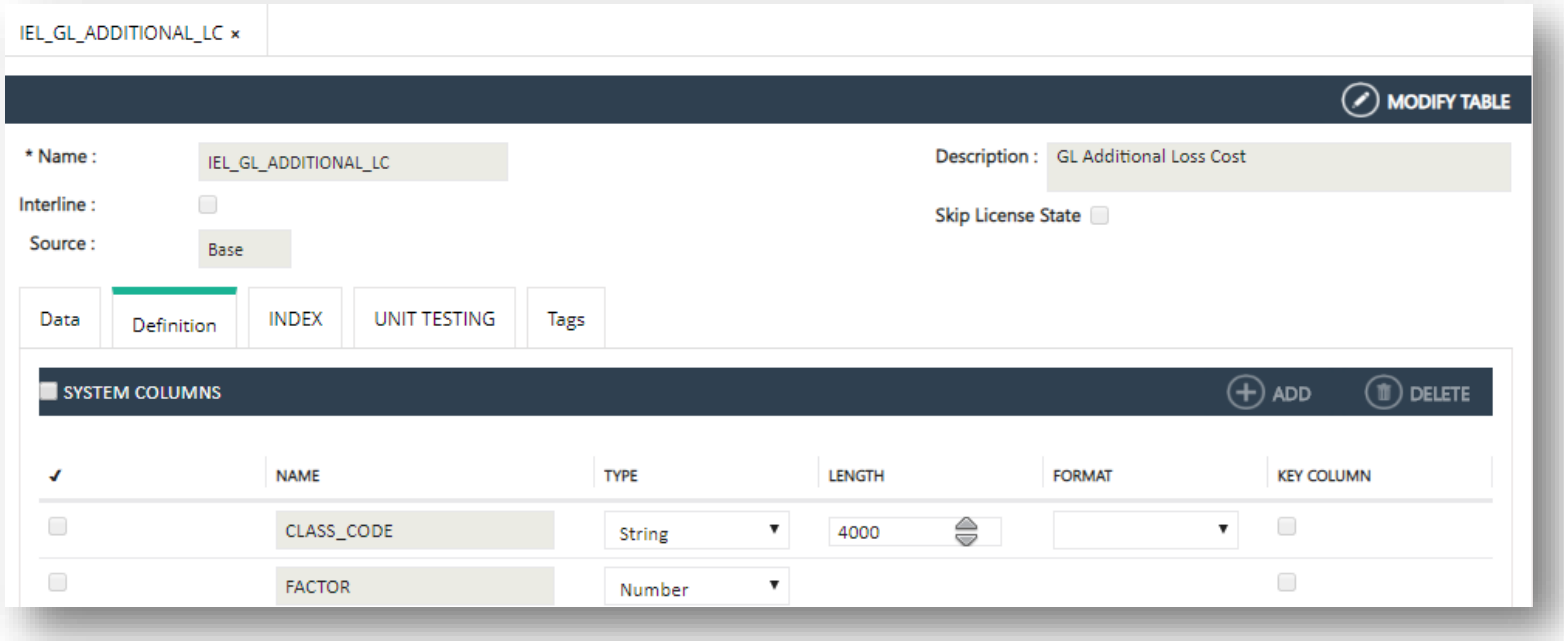
How to create IEL table and things to be considered before creation

- User defined column:
  - As from requirement we can understand that ‘Additional Lost cost factor’ value is dependent upon ‘Class Code’ as well.
  - But this value is not a policy attribute (System Column). Refer previous slide to see list of system define column
  - Hence for ‘Class code’ a user defined column needs to be created. Along with this a column for Additional Lost cost factor also needs to be created.



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How to create IEL table and things to be considered before creation

- Inserting records in IEL table:
  - As per requirement(Refer slide no 15) the 'Additional Lost cost factor' has value 0.4 for LOB → GL, Customer Code → 99, State → NY and Class Code → 0074.
  - Hence record would be inserted as mentioned below:

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How to create IEL table and things to be considered before creation

- Relation between Policy creation and IEL Table:
  - Now when a Policy would be created from Policy application for Customer 99, General Ledger Line of Business, state of Policy is New York and the field Class code having value as ‘0074’ then a query can be configured on Additional Lost Cost factor field which would select value as 0.4 from respective IEL table.

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Significance of System Column

- Below mentioned are the system columns created for every IEL Table
  - PRODUCT_VERSION
  - ADOPTION_TYPE
  - EFFECTIVE_DATE
  - LOB_CODE
  - PRODUCT_CODE
  - STATE_CODE
  - MARKET_SEGMENT_CODE
  - COMPANY_CODE
  - MULTISTATE_VERSION
  - CIRCULAR_NO
  - EXPIRATION_DATE
  - PROGRAM_CODE
  - EXP_MULTISTATE_VERSION
  - CUSTOMER_CODE
  - EXP_PRODUCT_VERSION

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Significance of System Column

- System Column corresponds to major Policy attributes
  - For e.g LOB_CODE corresponds to LOB for which Policy is being created.
- System column plays a vital role in deciding the most appropriate data (from User defined column) to be fetched from IEL table.
- If we refer previous example of configuring Additional Loss cost factor then the system Columns were populated with values depending upon which the value of Additional Loss cost factor needs to be fetched.
- Hence we can term System columns as decision making column assisting in selecting best match record as per policy attributes.
- The values in system column can be termed as conditions depending upon which master data needs to be fetched

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Significance of User defined Column

- User defined Columns are of two types
  - Used in filtering of records.
  - Used to configure master data
- Filtering of records :
  - User defined column can be configure to play a role in filtering of data. This would be needed in the case where actual master data is dependent on data other than that of system column
  - If we refer previous example then Additional Loss cost factor was dependent on system Columns like LOB, STATE, CUSTOMER but in addition to this it was also dependent upon CLASS CODE which is not a system column. So it needs to be configured as user defined column.
  - Hence in this case user defined column in conjunction with System columns helps in selecting best match record.
- Configuring Master data :
  - Once of the most important use of user defined column is to configure master data that would be actual used to set value on field of user interface.

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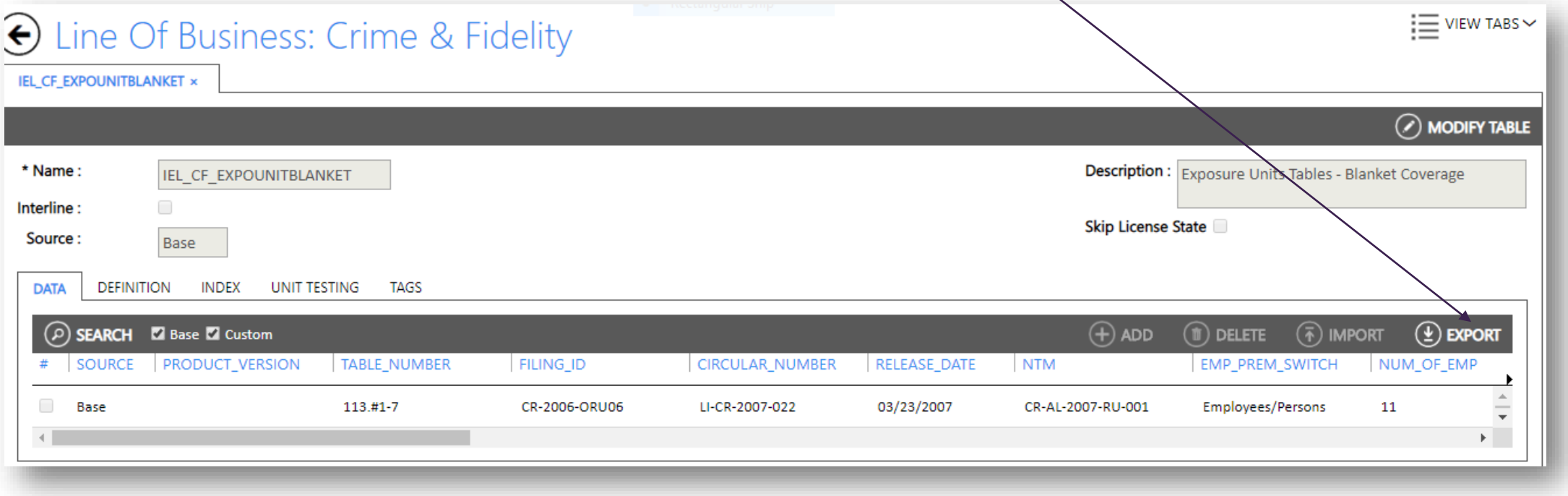
Export and Import of data in IEL Table

- Export and Import feature of IEL table is to provide ease of inserting, updating, deleting of record through excel worksheet.
- IEL table editor provides a user friendly interface to down the template with data(If data is present) and then do the operation and then upload the template with data.
- It is mandatory to use the existing template of IEL for export and import feature. Any other template is not allowed.



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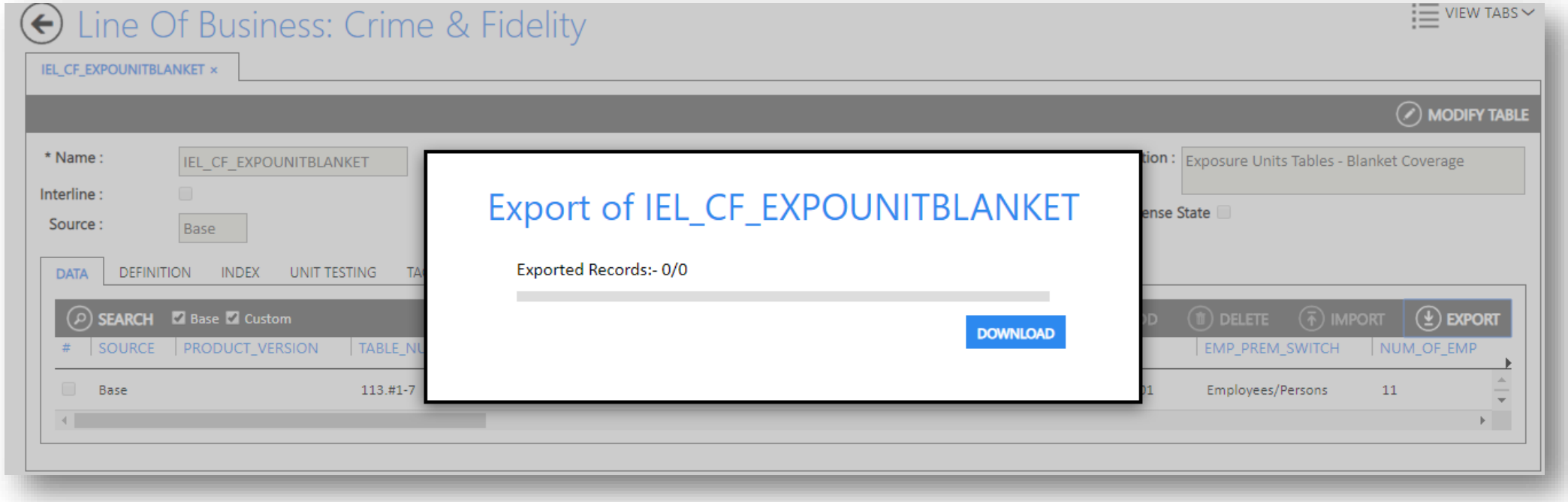
Import and Export of data in IEL Table



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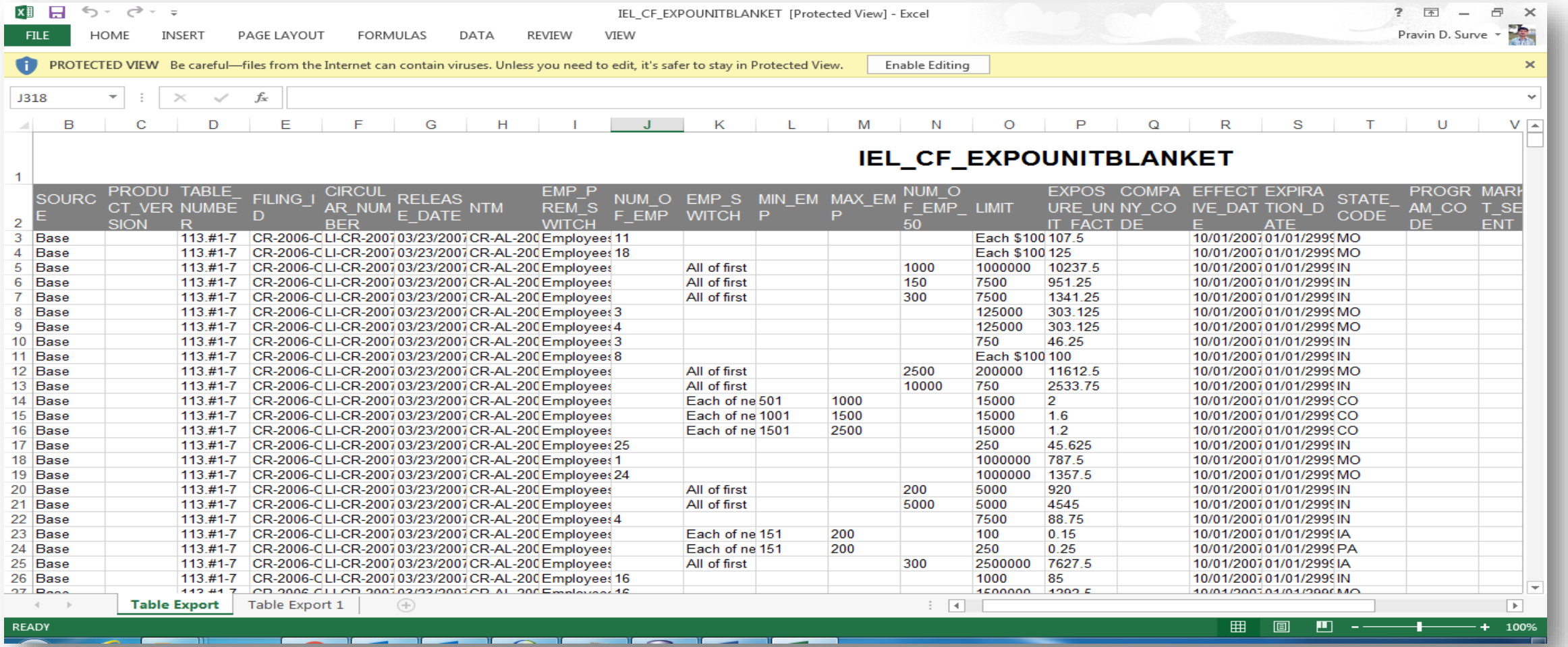
Import and Export of data in IEL Table

- Sample excel downloaded



SOURCE	PRODUCT_VERSION	TABLE_NUMBER	FILING_ID	CIRCULAR_NUMBER	RELEASE_DATE	NTM	EMP_PREM_SWITCH	NUM_OF_EMP	EMP_SWITCH	MIN_EMP	MAX_EMP	NUM_OF_EMP_50	LIMIT	EXPOSURE_UNIT_FACT	COMPANY_CODE	EFFECTIVE_DATE	EXPIRATION_DATE	STATE_CODE	PROGRAM_CODE	MARKET_SEGMENT
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	11					Each $100	107.5		10/01/2007	01/01/2999	MO		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	18					Each $100	125		10/01/2007	01/01/2999	MO		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		All of first			1000	1000000	10237.5		10/01/2007	01/01/2999	IN		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		All of first			150	7500	951.25		10/01/2007	01/01/2999	IN		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		All of first			300	7500	1341.25		10/01/2007	01/01/2999	IN		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	3					125000	303.125		10/01/2007	01/01/2999	MO		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	4					125000	303.125		10/01/2007	01/01/2999	MO		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	3					750	46.25		10/01/2007	01/01/2999	IN		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	8					Each $100	100		10/01/2007	01/01/2999	IN		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		All of first			2500	200000	11612.5		10/01/2007	01/01/2999	MO		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		All of first			10000	750	2533.75		10/01/2007	01/01/2999	IN		
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Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		Each of ne	1001	1500		15000	1.6		10/01/2007	01/01/2999	CO		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		Each of ne	1501	2500		15000	1.2		10/01/2007	01/01/2999	CO		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	25					250	45.625		10/01/2007	01/01/2999	IN		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	1					1000000	787.5		10/01/2007	01/01/2999	MO		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	24					1000000	1357.5		10/01/2007	01/01/2999	MO		
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Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		All of first			5000	5000	4545		10/01/2007	01/01/2999	IN		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	4					7500	88.75		10/01/2007	01/01/2999	IN		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		Each of ne	151	200		100	0.15		10/01/2007	01/01/2999	IA		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		Each of ne	151	200		250	0.25		10/01/2007	01/01/2999	PA		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees		All of first			300	2500000	7627.5		10/01/2007	01/01/2999	IA		
Base		113.#1-7	CR-2006-C	LI-CR-2007	03/23/2007	CR-AL-200	Employees	16					1000	85		10/01/2007	01/01/2999	IN		

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Best practices during Import and Export of data in IEL Table

- Things to be noted in Export and Import:
  - Use single Quote(') while importing Varchar field which contains number value . Ex Class Code , territory code
  - Export IEL table Data (Having large data) With Adding Filters so that the total count of records exported in less.
  - While adding data through UI specify Product version as 15.00.00 but While using Import Functionality, inside Excel sheet specify product version as (150000) in a text format.
  - Clearing content of entire row and then adding data in same row would update the existing record of IEL table. If new record needs to be added then it is recommended to add new row and fill the values and then import the excel.
  - Use single Quote(') while importing Varchar field which contains Date value .

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Customer Maintained table

- The consistent work done on IEL table is to add new records, expire existing records.
- To perform this activity the user needs to login into Dev Studio and do the necessary changes and then take a Build and Install. After this the data gets available on Policy application for use.
- In order to make this process more efficient the IEL are made available in Policy application itself. On Policy application it is known by name Customer Maintained table.
- To open Customer Maintained table Navigate to Administration → Set up → Customer Maintained Tables
- In order to make Customer maintained table created in Policy application the developers need to communicate with Policy custom Team to do the necessary configuration
- Ideally a user with admin role on policy application is given rights on Customer maintained table because the released records can be deleted from this screen.

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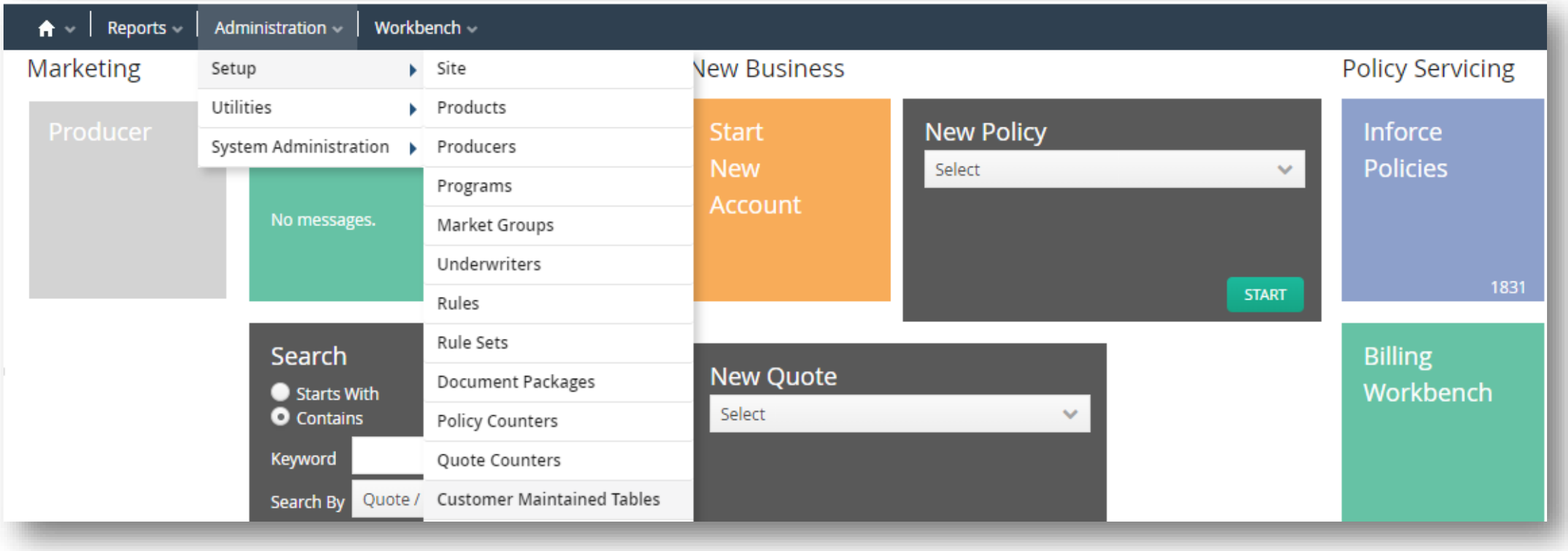
Customer Maintained table



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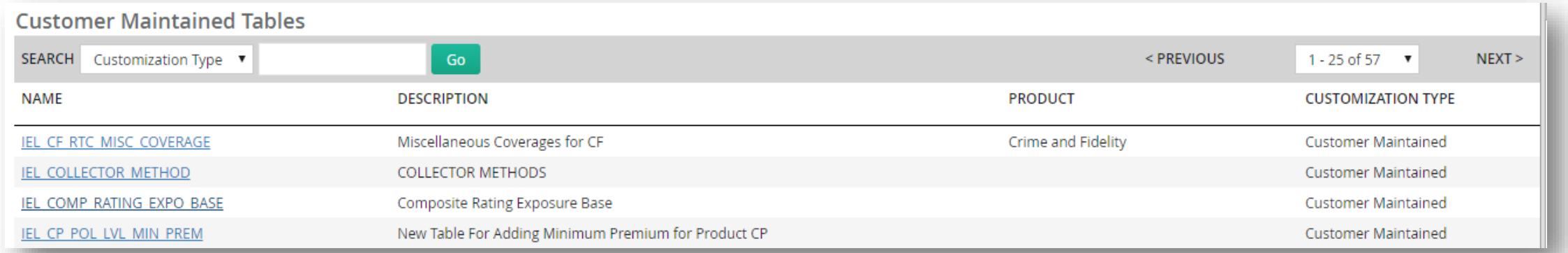
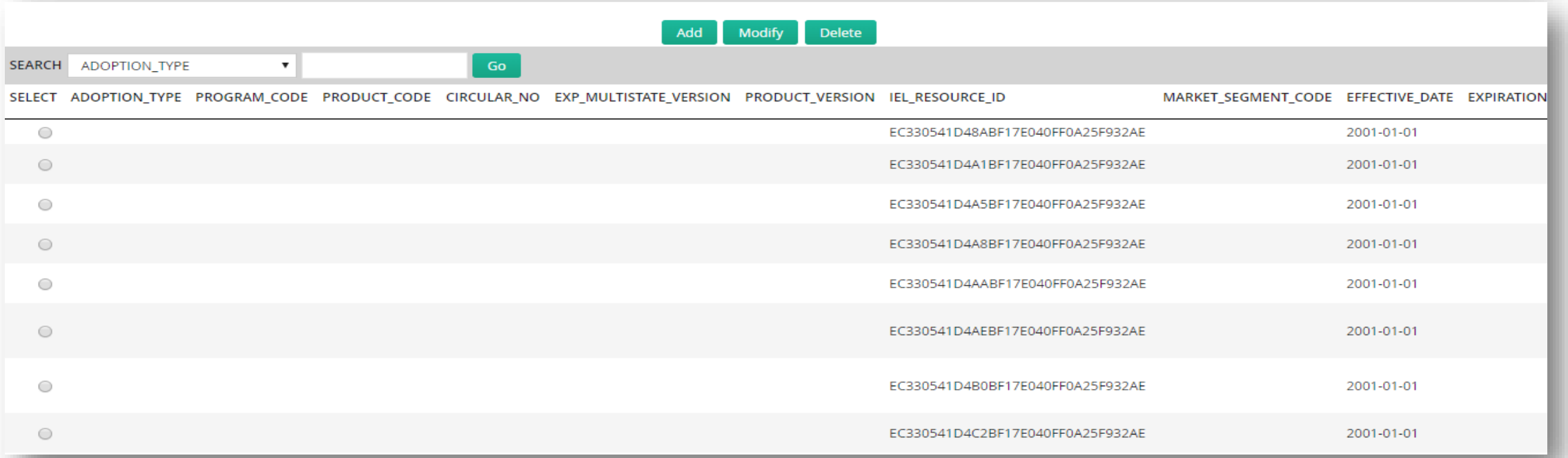
Customer Maintained table





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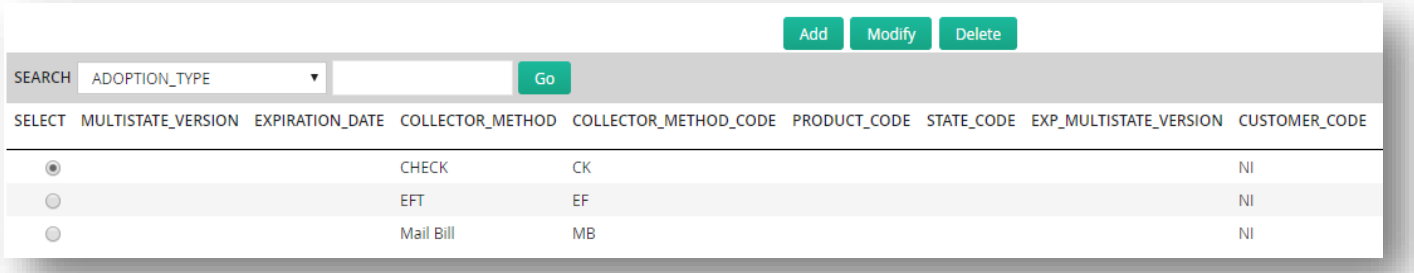
Customer Maintained table

- There are three operations allowed on records :
  - Add
    - Adding a new record in IEL table
  - Modify
    - Modifying an existing record by changing values of columns
  - Delete
    - Deleting an existing record. User needs to take utmost care while deleting any record from table because It may impact policies/Quotes where the data of record may be used.
    - Deletion of record should be done only when the business is very much sure that the data of record which is being deleted is no where going to be used. For e.g If a Business have decided to stop using check payment method for policies then they can delete the master data for check.



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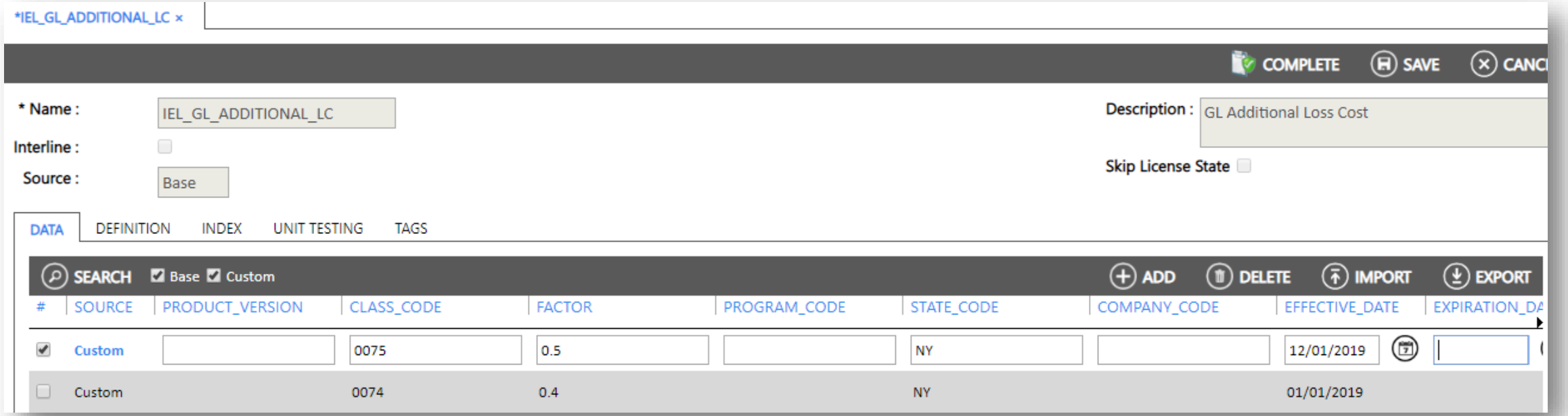
Add, Modify, Delete columns in IEL Table

- Addition of records:
  - Depending upon Business scenario there may be requirement of adding new master data to the IEL table. Mostly it is in case where Bureau(like ISO, NCCI) release change in increase in value of factor, or a new payment method to be allowed in business
  - As factors are configured using IEL table the newly mentioned factor can be added as a new record.



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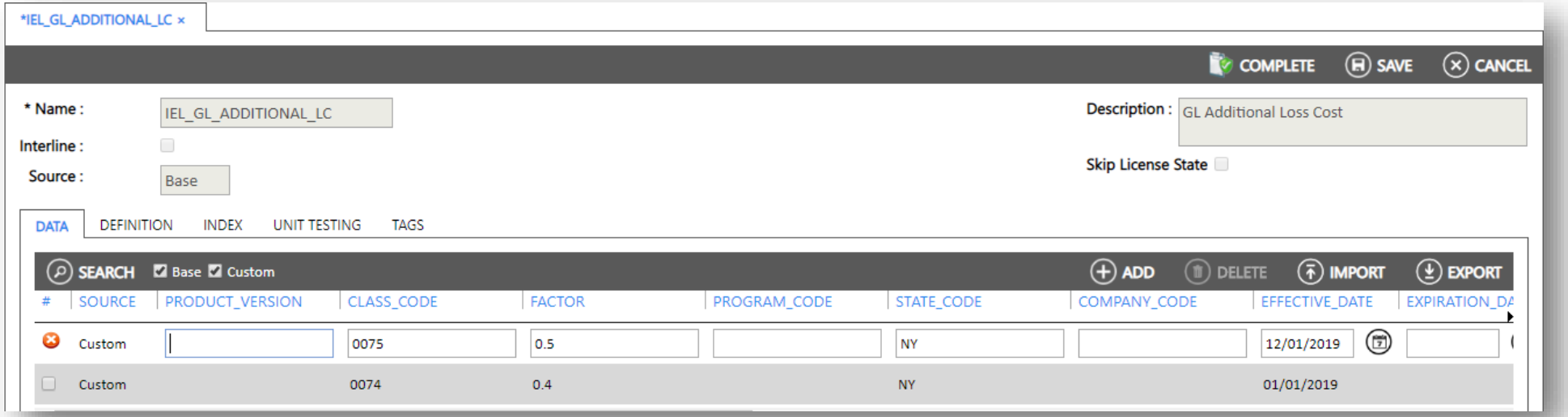
Add, Modify, Delete columns in IEL Table

- Modifying/Deleting of records:
  - The developers would be able to modify or delete an existing record from IEL table only till the changes are not released. Once the changes are released then the developers would not be allowed to modify or delete the value/record except that of mentioning expiration date for record.
  - But if business needs a new value of factor to be added. For e.g for class Code 0074 the factor should be 0.6 then a new record would be added with effective date as greater than of previous record. So once this changes are deployed on Policy application than all the policies having control date >= Effective date of newly added record should have the factors applied



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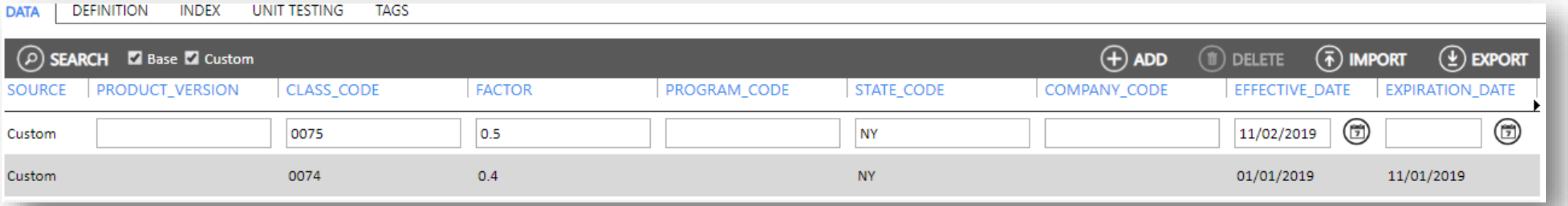
Add, Modify, Delete columns in IEL Table

- Expiration of records:
  - The developers can expire the released record.
  - But they need to analyze the impact of this activity. Because after expiring a record all the Policies having control Date > Expiry Date of record would not have corresponding master data available for it.



  - In above mentioned scenario all the Policies having control date between 1-Jan-19 and 1-Nov-19 would have factor applied as 0.4
  - But all Policies having control date >= 2-Nov-19 would have factor applied as 0.5

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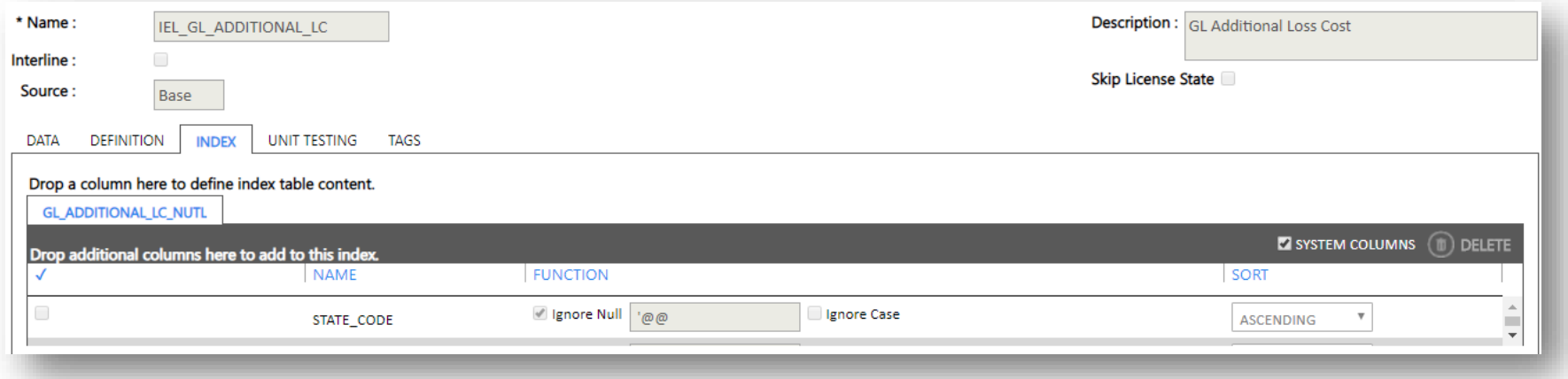
Indexes in IEL table

- As indexes are mainly used to provide quick access to rows in a table, the IEL tables already have an in-built Index created on all system columns.
- This is because system column plays an important role in filtering out the required master data.
- For e.g if LOB → GL, Customer Code → 99, State → NY and then Factor should be fetched as 0.4
- In above mentioned example the user defined column 'Factor' is dependent upon system columns LOB, Customer Code, State and like this most of the master data is dependent upon system column hence Indexes are automatically created on system columns



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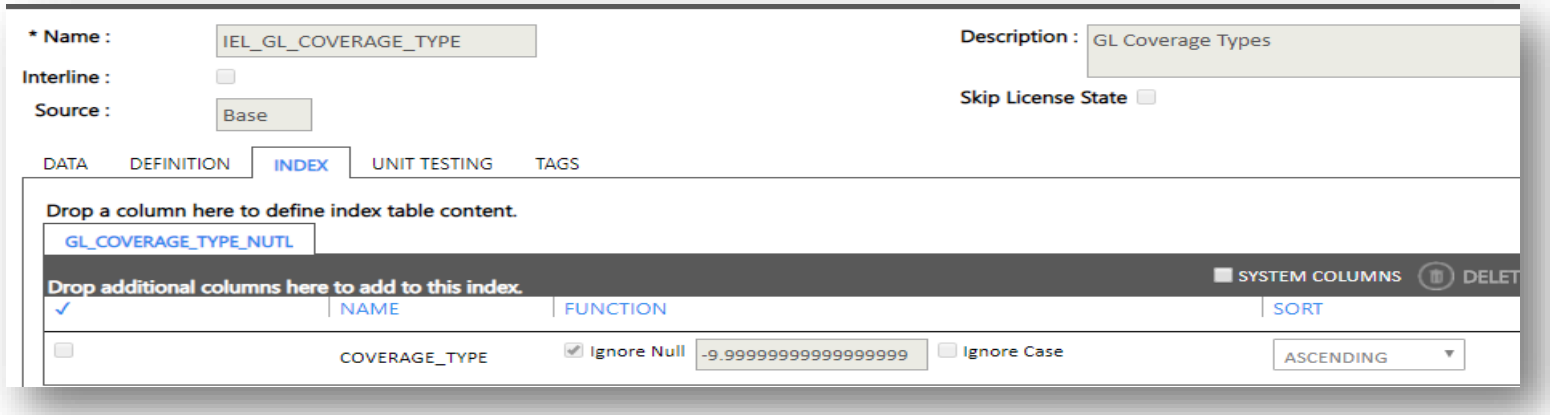
Indexes in IEL table

- Factor is also dependent upon a user defined column(class code) along with the system column.
- In such scenario if user defined column also plays a role in filtering along with System column then user defined column also needs to be part of Index.
- This can be done by marking the column as key column while adding column in definition section of editor.
- Or the column can be drag and dropped to Index section.
- Please refer below mentioned screenshot where user defined column **COVERAGE_TYPE** is part of index.



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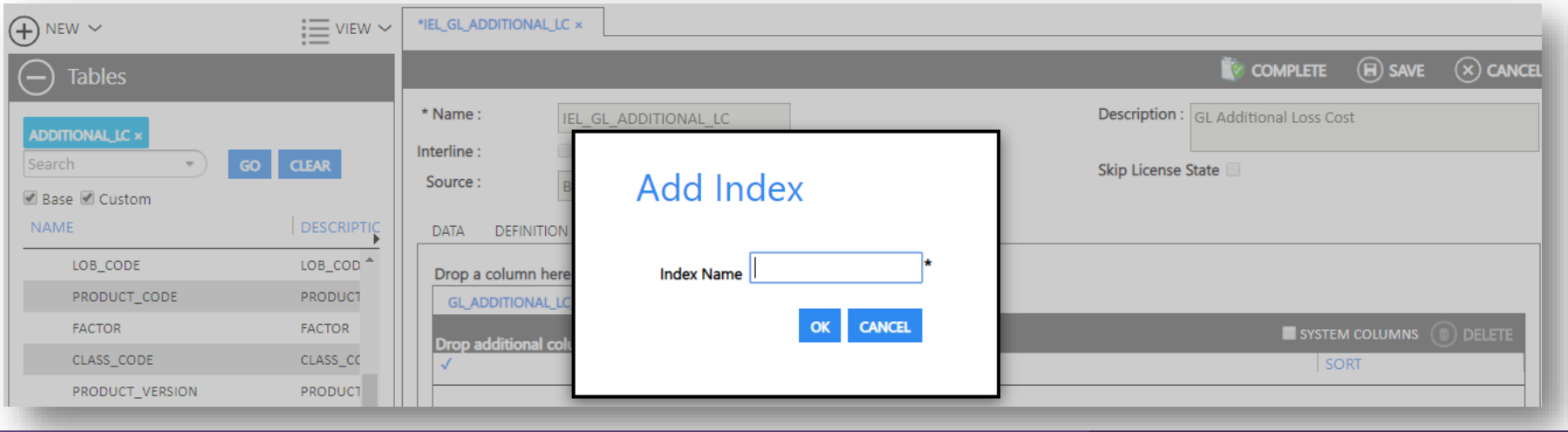
Indexes in IEL table

- If the required master data needs to be filtered out solely depending upon user defined column then a separate index needs to be created having only user defined column
- For e.g if we consider the example where ‘Additional loss cost factor’ should have value as 0.4 if Class Code(User defined Column). In this case ‘Additional loss cost factor’ is solely dependent upon Class code and not dependent upon any system column. In this case we can create a new Index by dragging and dropping Class Code in section “Drop a column here to define index table content”.



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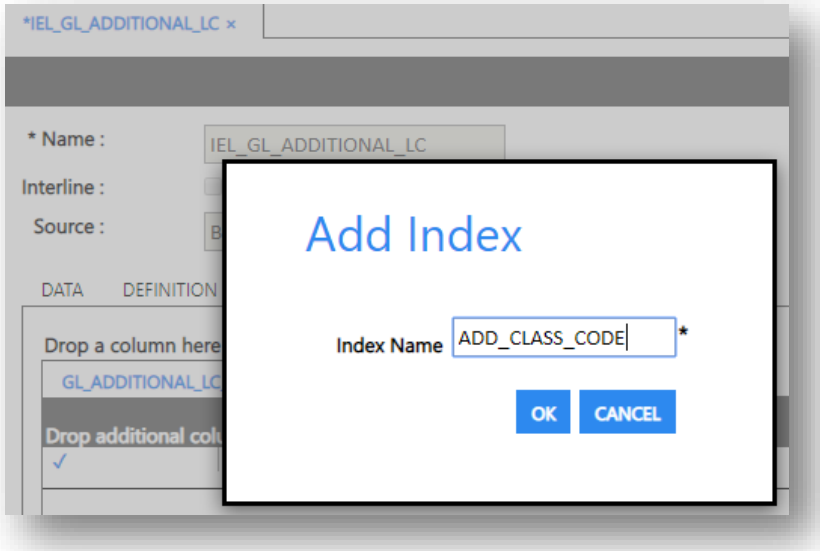
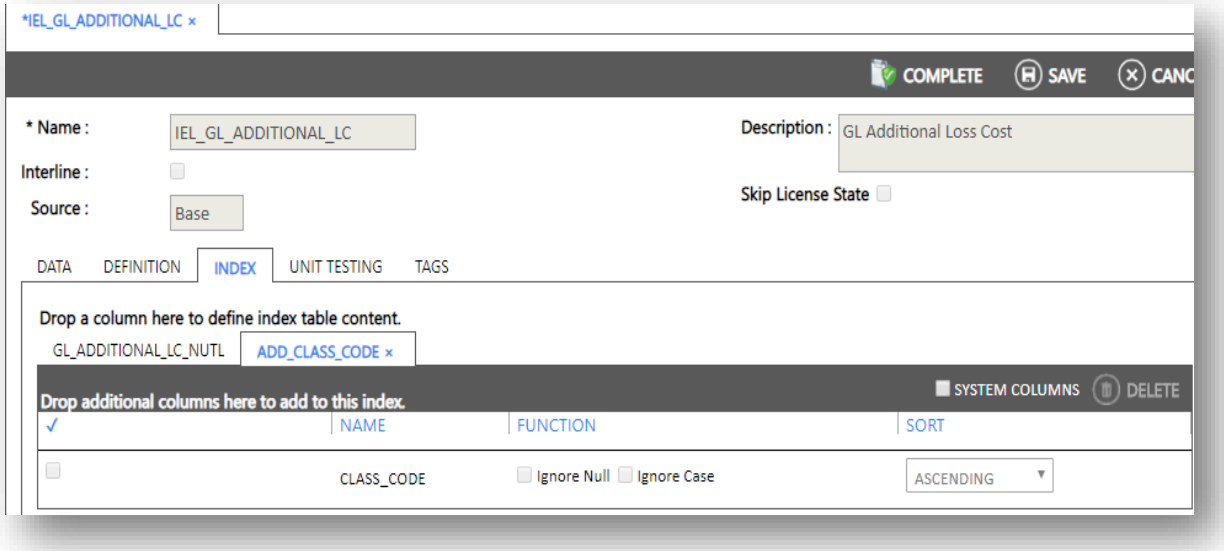
Indexes in IEL table

- Give a name to the index





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Metadata tables for IEL tables

- After creation of table meta data, the data goes in below tables

Table Name	Table Description	Description
1	PS_TABLE	It holds a table name.
2	PS_TABLE_COLUMN	It holds the column names of table.
3	PS_TABLE_INDEX	It holds the table index names.
4	PS_TABLE_INDEX_COLUMN	It holds the column names under index.

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Metadata tables for IEL tables

- Every content/configuration in Dev Studio is a considered as a resource and entry is made into **DS_RESOURCE** table
  - Relation between ps_table and ds_resource
  - **Select * from ps_table, ds_resource where pta_resouce_id = dsr_gid order by 1 desc;**

    DSR_RESOURCE_TYPE = TABLE
    DSR_LOB_CODE = {Code of LOB Selected}
    DSR_PRODUCT_CODE = null
- The DSR_LOB_CODE will have some value if we create table for any LOB, and DSR_PRODUCT_CODE will be null.
- The DSR_PRODUCTCODE will have some value if we create table for any Product, and DSR_LOB_CODE will be null.
- The DSR_LOB_CODE and DSR_PRODUCT_CODE both will be null for common table.

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Metadata tables for IEL tables

- Executing below mentioned query for IEL_GL_ADDITIONAL_LC:

  Select * from ps_table, ds_resource where pta_resource_id = dsr_gid
  and pta_name like 'IEL_GL_ADDITIONAL_LC'
  order by 1 desc;

- Refer below mentioned attachment to see the result of above mentioned query

Microsoft Excel
97-2003 Worksheet

  - **DSR_RESOURCE_OWNER**
    - It will be customer code or base product code.
  - **DSR_RELEASE_NO**
    - It will be null if not released to any customer
  - **DSR_UUID**
    - It an unique ID and it will be used when we are building the media

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Metadata tables for IEL tables

- Relation between **ps_table** and **ps_table_column**
  - Select * from ps_table_column, ps_table where ptc_table_id = pta_resouce_id and pta_name = 'TABLE_NAME' order by 1 desc;
- Relation between **ps_table**, **ps_table_column** and **ps_table_column** and **ds_resource**
  - Select * from ps_table_column, ps_table, ds_resource where ptc_table_id = pta_resouce_id and ptc_resource_id = dsr_gid and pta_name = 'TABLE_NAME' order by 1 desc;
- Table Index
  - There is one default index for every table ends with **'NU_TL'**.
    We can add columns to index by drag and drop from 'Tables' plugin.
  - Select * from ps_table_index, ps_table where pti_table_id = pta_resouce_id and pta_name = 'TABLE_NAME' order by 1 desc;

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Metadata tables for IEL tables

- **Actual Table in Database**
  - The new table is get created with "**TABLE_NAME**" + "_".
    - For e.g if we create a new IEL table '**IEL_GL_ADDITIONAL_LC'** from Dev Studio then in database a table is created by name **IEL_GL_ADDITIONAL_LC_**
  - Two views also get created one with actual name "**TABLE_NAME**" i.e " **IEL_GL_ADDITIONAL_LC** " and other with IEO view i.e "**IEO_GL_ADDITIONAL_LC**"
  - This tables will be available in corresponding schema of DEV STUDIO, and it will be added in Policy application's schema after executing build and install.

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Best practices for IEL Table

- Use single Quote(') while importing Varchar field which contains number value . Ex Class Code , territory code
- While adding a new COLUMN its name must always in CAPITAL letters
- Export IEL table Data (Having large data) With Adding Filters so that the total count of records exported in less.
- Always enter effective date when entering data in IEL tables do not leave it NULL
- Do make sure that your table name does not exceed length of 25 character, as table name gets a prefix as "C_“
- While adding data through UI specify Product version as 15.00.00 but While using Import Functionality, inside Excel sheet specify product version as (150000) in a text format.
- Use single Quote(') while importing Varchar field which contains Date value

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THANK YOU!

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