IBM® Emptoris® Contract Management Advanced Reporting guide

This guide contains information about how tables are joined together and other advanced topics for experienced Cognos report developers using IBM® Emptoris® Contract Management Reporting. Version 1 January 2015

Report Developer

IBM® EMPTORIS® CONTRACT MANAGEMENT 10.0.2.6

**What this guide contains**

IBM® Emptoris® Contract Management uses IBM Cognos® Business Intelligence Platform for reporting. This document contains information regarding the underlying database structure used by the IBM Cognos® Business Intelligence Platform tool framework manager. This guide also contains information on advanced reporting concepts.

Do not use this document if your setup does not contain IBM® Emptoris® Contract Management, or you do not intend to use reporting for IBM® Emptoris® Contract Management.

**Audience**

This guide is meant for advanced report writers and data modelers who are looking for more information on the underlying reporting data base logical model. To fully understand this document the reader should have experience with IBM® Emptoris® Contract Management and IBM Cognos® Business Intelligence. It would also be helpful to have an understanding of star schemas and modeling for dimensional data.

**Disclaimer**

This is intended as an overview document of how the database table structure in relation to the framework manager model is used in IBM® Emptoris® Contract Management Reporting. The database tables do not represent the fully executed model for reporting since much of the business logic is captured in the IBM Cognos® Business Intelligence Platform tool framework manager model. This tool is not included as part of the basic reporting delivery.

**The database tables are not designed to be reported off of directly.**

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There are some items to be aware of when looking directly at the database tables as these tables **do not** represent the full data model used in the reporting solution.

The basic database model is enhanced with business rules and security via the IBM Cognos® Business Intelligence Platform framework manager tool (not included in the basic reporting license provided with the IBM® Emptoris® Contract Management application).

The Date fields in the model are stored in the time zone of the server and converted to the time zone of the user in the Cognos model using a database function. The function name is ‘TO\_USERTIMEZONE’. This conversion occurs in the Cognos model.

Table and item names in the Database layer are not the exact names displayed for report authors. These names are modified in the IBM Cognos® Business Intelligence Platform tool framework manager.

Security tables are included in the database model. These tables link permissions to read data to the specific ids that the user is authorized to see. The SQL generated by the reporting tool includes this security imbedded in the reporting model that links the security tables to the secured objects. The security matches security in the IBM® Emptoris® Contract Management system. The general rule of thumb is that if you can see the information in contract management you should be able to see it in reporting.

Item name / folder name translations are handled in the IBM Cognos® Business Intelligence Platform framework manager model. Data value translations for internal code tables are handled though linked tables suffixed with ‘\_I18N’. Fields that can be modified by a user of the IBM® Emptoris® Contract Management system are only stored in the language entered into the field by the user.

Fields that are stored as more than 1000 characters in the IBM® EMPTORIS® CONTRACT MANAGEMENT database are truncated to 1000 characters in the reporting database.

The core model described in this document is for the use of the IBM® Emptoris® Contract Management reporting team and is intended for delivering the IBM® Emptoris® Contract Management reporting solution via the IBM Cognos® Business Intelligence Platform. Changes to this model are not announced in advance.

IBM may, without notice to you, at any time revise these table structures. IBM may also make improvements or changes in the products, services, or programs described in this document at any time without notice.

This guide was developed as part of the IBM® EMPTORIS® CONTRACT MANAGEMENT 10.0.2.5 release. Some features may not be available in previous versions of IBM® EMPTORIS® CONTRACT MANAGEMENT.

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Review of reporting.

IBM® Emptoris® Contract Management ships with Cognos reporting. The IBM® Emptoris® Contract Management reporting module is designed to let you create reports that address specific business questions related to the information contained within the Emptoris contract management system. It is not intended to be used to create a data dump to be transferred to other systems or programs. IBM® Emptoris® Contract Management provides a facility to assist with the transfer of large amounts of data (See the IBM® EMPTORIS® CONTRACT MANAGEMENT Administration Guide for more information).

In general reports are intended to be delivered either via HTML or PDF (although excel, XML, and CSV output is also available). Reports should be created that reasonably fit into this format.

To create an effective report, consider the following points about the report:

* The target audience for the report.
* The business process supported.
* The information that is required to make the business decisions.
* The best way to present the information so that the business user can easily identify the critical information.

Reporting Portal

The Cognos Connection portal opens when you first sign-in to reporting by clicking on the link from Contract Management.

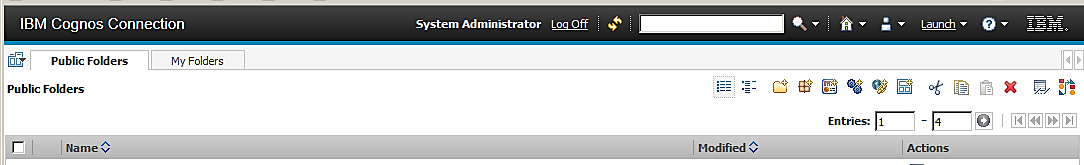


Figure Contract Management reporting starting page

* Cognos Connection allows you to manage Cognos content, schedule / run reports, and launch tools to develop new reports.
* Click Launch to access the reporting tool.
  + Note: Access to reporting tools (Report Studio, Business Workspace Advanced, and Business Workspace) is controlled via roles which limit capabilities within the interface. You must be a member of one of these roles in IBM® EMPTORIS® CONTRACT MANAGEMENT to use reporting (Get list from IBM® EMPTORIS® CONTRACT MANAGEMENT )
* You can access existing content via the two tabs. “Public Folders” and “My Folders”.
* Content is divided into two tabs “My Folders” and “Public Folders”.

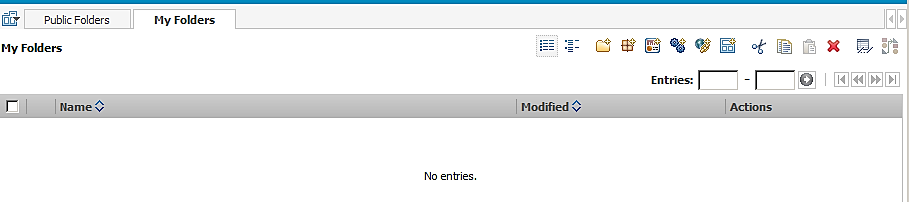


Figure Reporting tabs

* + “My Folders” for content that is just for you
    - My folders content can only be viewed by you and the system administrator.

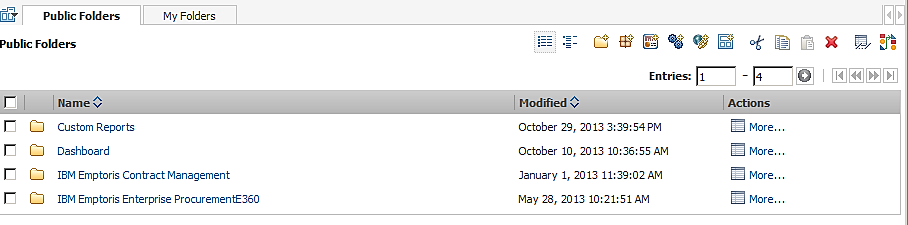


Figure Public folders

* + “Public Folders” for content that is shared between people
    - One Folder for each system delivered by IBM
    - IBM® Emptoris® Contract Management (When installed)
    - IBM® Emptoris® Spend (When installed)
    - Additional Folders can be created by the customer to further control access to reports.
    - Public Folders content is controlled via roles which limit visibility of folders. By default, for Contract Management you will have the IBM® EMPTORIS® CONTRACT MANAGEMENT folder.

## Reporting Tools: Report Studio

Intended Audience is for professional report developer

Most Complex and most feature rich report creation tool

This is the tool most users end up using in the long run as it provides the most capabilities. Report Studio has a slightly higher learning curve in initial use. For this advanced report writer this is the tool of choice. Report studio also includes the ability to create active reports (see next section).

Report studio can be started in the following three ways:

* From the Launch menu in IBM Cognos Connection
* From the Welcome page (Author Business Reports) to create new reports or edit existing reports.
* From an existing report by clicking on the Report Studio icon

## Reporting Tools: Report Studio Active reports

“The features of IBM Cognos Active Report make it a flexible and portable solution whose benefits can be leveraged across an entire organization and beyond. In order to ensure a successful deployment, it is important to apply the technology to the proper use cases. Some of the ideal use cases for IBM Cognos Active Report include:

* Enabling the Mobile Workforce
* Managed Dashboards
* Extending BI to External Customers or Partners”

IBM Business Analytics Proven Practices: IBM Cognos Active Report 10.2 Cookbook

IBM Business Analytics Proven Practices: IBM Cognos Active Report 10.2 Cookbook

### Managed Dashboards

“Business users expect visually appealing, high performance and interactive dashboards that are able to communicate key business information. IBM Cognos Active Report allows the professional report author to create managed dashboards that can be distributed to a broad audience. The wide array of IBM Cognos Active Report controls ensures that the desired functionality can be achieved and an engaging end user experience can be delivered to business users. The reporting applications are high performance stand-alone files and by leveraging drill through technology, business users can seamlessly connect to more detailed data without losing context. “ IBM Business Analytics Proven Practices: IBM Cognos Active Report 10.2 Cookbook

### Extending BI to External Customers or Partners

“Businesses can improve their relationships with customers and increase synergies with partners by improving the flow of information to external users. IBM Cognos Active Report technology allows interactive reports to be distributed outside the organization without having to worry about granting those users access to the IBM Cognos server. The solution provides a scalable and secure way of sharing information outside the organization without creating an increased support burden.”

IBM Business Analytics Proven Practices: IBM Cognos Active Report 10.2 Cookbook

## Reporting Tools: New Tools

New Tools

* Workspace Advanced
* Workspace

Two product components are renamed in this release to avoid confusion with the names of other components. IBM Cognos Business Insight is now IBM Cognos Workspace. IBM Cognos Business Insight Advanced is now IBM Cognos Workspace Advanced.

## Reporting Tools: Workspace Advanced

Intended audience is for business user report writers.

Workspace Advanced is designed to be used by a business user who wants to develop their own reports. This is the most recently rereleased reporting tool which combines features from the other reporting tools. Workspace advanced contains a simpler interface than report studio yet it is fully compatible with Report Studio

* Reports authored in Workspace advanced can be opened and saved in Report Studio
* Reports created in Report Studio can be opened and saved in Workspace advanced.
  + Some Report studio elements cannot be edited in Workspace advanced.

You can open Cognos Workspace Advanced in the following four ways:

* From a workspace in IBM Cognos Workspace to perform advanced editing or to create a new report (Do More)
* From the Launch menu in IBM Cognos Connection
* From the Welcome page (Author Business Reports) to create new reports or edit existing reports.
* From an existing report by clicking on the Workspace Advanced icon

## Reporting Tools: Workspace

Intended audience is executive report consumers

“IBM Cognos Workspace is a web-based tool that allows you to use IBM Cognos content and external data sources to build sophisticated interactive workspaces that provide insight and facilitate collaborative decision making.”

Cognos 10.2.1 User Manual

Cognos Workspace is a tool to create dashboards from pre-existing content. Report authors create content and this content can then be used by dashboard creators.

Working with Contracts data

As a report developer you will be using the presentation layer that is exposed to report developers via the reporting tools (Report Studio, Workspace Advanced).

**Summary of items that can be confusing.**

There are a number of items that can be difficult to work with if you do not understand how they are used and stored in the contract management system. In this section we will review these items and how they are represented in the reporting database

* Custom items
  + Term Definitions
    - Terms as Rows
    - Terms as Columns
    - Term Names as columns truncated at 28 characters
  + User-Defined Properties
  + Custom Properties

# Custom items

Each customer can define custom items that are unique to their installation of the Contract Management system. In general these custom items are stored as rows of data in the reporting database.

## Term Definitions

Client Term Definitions are created under Administration🡪 Term Definitions and then assigned to either contracts or contract templates. There are two types of Terms system and client created. System Terms are pre-supplied with Emptoris Contract Management. System term definitions also include any custom property term definitions created while defining an external organization custom property during the Contract Management set-up process. Client created terms are created by the client administrator to meet the clients individual needs. Client created terms are unique to each installation. Terms assigned to contracts are stored in two ways for reporting.

### Terms Assigned to contracts

The terms are found in two folders, under the “Contracts” folder, representing the two different ways we work with terms. The first is the full set of terms both system and client created. In this folder terms are stored as rows with each row representing information about the term. These term definitions stored as rows are located in the “Contract Term” folder under the “Contracts” folder. The second is the list of terms that have the “Available for Reporting” checkbox checked in the Contract Management application. In this folder terms that are marked “Available for Reporting” have been pivoted into columns with one column per term selected (up to 300 terms may be selected). These term definitions stored as columns are located in the “Contract Custom Terms” folder under the “Contracts” folder.

**Note:** for terms assigned to contracts: Terms are moved to the reporting database by the ETL jobs. The ETL must run before the terms will be visible in reporting. The term values are not visible in reporting until they are assigned to a contract.

### Term names truncated at 28 characters when moved to column names in Custom Terms table

|  |  |  |
| --- | --- | --- |
| Term Label | Term Name | Reporting Name |
| Global-Strat Sourcing\_Sub Category\_1 | **strat\_sourcing\_sub\_cat\_1** | **strat\_sourcing\_sub\_cat\_1** |
| Global-Strat Sourcing\_Sub Category\_2 | **strat\_sourcing\_sub\_category\_2** | **strat\_sourcing\_sub\_category\_** |
| Global-Strat Sourcing\_Sub Category\_3 | **strat\_sourcing\_sub\_category\_3** | **strat\_sourcing\_sub\_category\_1** |

For reporting we are writing these names to a column name in the database. We are limited in column name maximum length by the database so we are truncating the column at 28 characters and appending "\_" , and if needed <version number>, so that the names will always be unique and fit in the database column length. In this case two of the variables exceeded this length and were truncated. In Addition the term name included an ( \_ ) underscore at the end of the name. This can lead to confusing results as in the below example. Our recommendation would be to keep the Term Name as simple and short as possible.

### Terms assigned to Contract Templates

Client created terms can be assigned to a contract template. This names of terms assigned to templates can be found in the “Contract template Terms” folder in the “Contract Template” folder. In this folder contract template terms are stored as rows with each row representing information about the term.

Note for terms assigned to templates: The term names are visible if they are assigned to a template. However, the term values are not visible in the terms at the template level.

## User-Defined Properties

User defined properties are used in the creation of Custom Properties. They are only available at the Contract template level currently. You can only report on User-Defined Properties as they are assigned to contract templates. The full reporting on User-Defined Properties for contracts is scheduled for a future release.

## Custom Properties

Custom Properties are only available at the contract level. Custom Properties are stored as rows of data.

Reviewing the Data Structure

## The reporting presentation layer a summary.

As a report developer you will be using the presentation layer that is exposed to report developers via the reporting tools (Report Studio, Workspace Advanced).

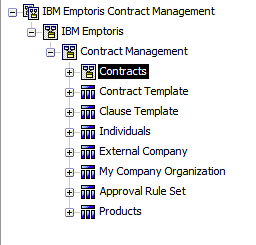
As you open the presentation layer folders the first Level shows subject areas that are independent. Data from within them makes sense on their own or combined with other subject areas. The only exception is Approval Rule set which is not linked to any other subject area. 

Figure Presentation layer

As you open up the first level query subjects (indicated by this icon ) you will see a set of subfolders. These are data items that make the most sense to display with other data items within that subject area.

The model is built around contracts so contracts are included in their own “Namespace” (indicated by this icon ). The “namespace” in Cognos uniquely identifies items. This is a visual cue that the model centers on this set of objects. In our model “Contracts” is its own “namespace”. Since this is the central item of the model, let’s look at the “Contracts” folder first.

The “Contracts” area has 21 query subjects.

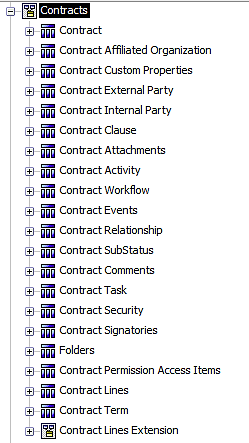


Figure Contracts query subject

The first query subject is contract and contains all the data items that are in a one to one relationship with a contract. There are 52 data items available in this query subject representing all the “Dimensions” or descriptive fields about a contract. You can think of these “Dimensions” as describing who, what, and when of a contract. In addition the query subject has two “Fact” items or “measures”. These are “Contract Total” and “Number of Contracts”. Fact items are used to measure things (How many, how much) and can be rolled up.

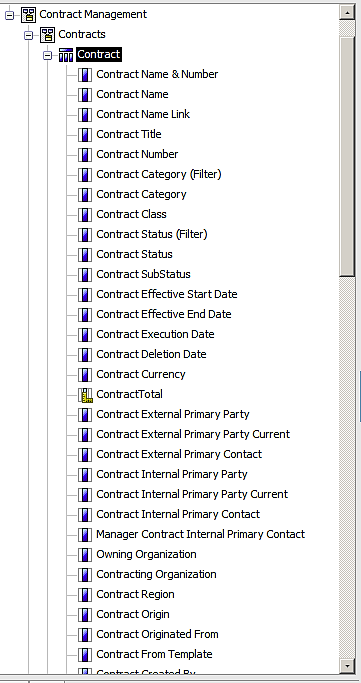


Figure Contract query subject data items (1)

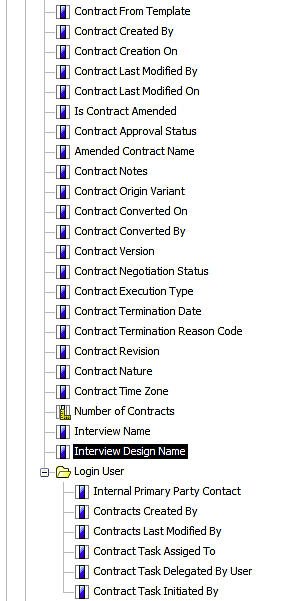


Figure Contract query subject data items (2)

Below the contract query subject each subsequent query subject represents a one to many relationships with a contract. So for example, a contract can have many Affiliated Organizations, Custom Properties, External Party, Internal Party, Clause, Attachments, etc…

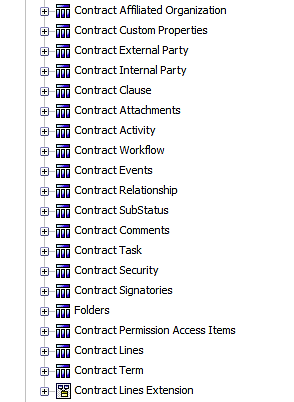


Figure additional query subjects

Each query subject may contain additional subfolders. These subfolders again indicate additional one to many relationships with the folder above it. So for example if you open the “Contract External Party” folder you will see two subfolders “Contract External Party Contact” and “Contract External Party Address”. This tells you that you can have multiple external party contacts and in addition you can have multiple addresses for each external party.

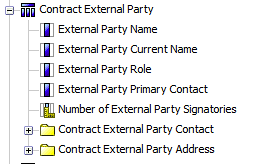


Figure External party query subject

Custom line information for each customer is stored in the “Contract Lines Extension” folder. This folder is generated dynamically and reflects custom fields added by the customer to lines. See Appendix C for more information.

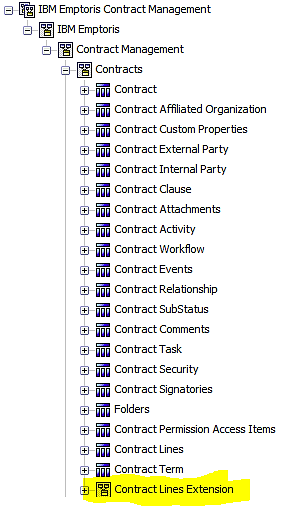


Figure Contract Lines Extension (Line items as columns)

Custom Term information for each customer is stored in the “Contract Terms Extension” folder. This folder is generated dynamically and reflects custom fields added by the customer to Terms. See Appendix A and Appendix B for more information.

## Review of database logical Model a summary

This section of the document describes the Database logical model as modeled in Framework manager. This is how the database tables and joins are represented in the database layer of IBM Cognos® Business Intelligence Platform framework manager tool. The database physical model does not directly represent the reporting model. The database model is enhanced with business rules, translations, and security via the IBM Cognos® Business Intelligence Platform framework manager tool (not included in the basic reporting license provided with the IBM® Emptoris® Contract Management application). In addition there is a separate companion document representing the database physical model showing the details of every join used in the model (See the “Joins in the IBM® Emptoris® Contract Management Reporting Data Base Layer document”).

The data from the IBM® Emptoris® Contract Management database has been transformed into a dimensional model optimized for reporting. We have modeled the data as a series of “Fact” and “Dimension” tables. This enables better reporting performance and yields a more understandable data model.

This transformation is accomplished using the ETL tool Data Stage. Using Data Stage we “E” extract the data from Contract Management. Next we “T” transform the data into a relational structure. Finally we “L” load the data into the reporting database.

The heart of the IBM® Emptoris® Contract Management reporting model is the contract. In the reporting model we have set things up so that as soon as you include an item from the contract folder all additional data is brought back associated to a contract.

This is represented in the database layer by the contract fact table. The contract fact table is used to connect the contract with all of the information that is a one to one relationship with the contract. In the diagram below you can see the contract fact in the middle of the diagram with all the “Dimension” tables surrounding it. Each of these “Dimension” tables represents a grouping of data and is linked to the contract fact via a dimensional id number and the contract dimension table is used to link a contract to its dimensions and other fact groupings.

## Contract Fact Table

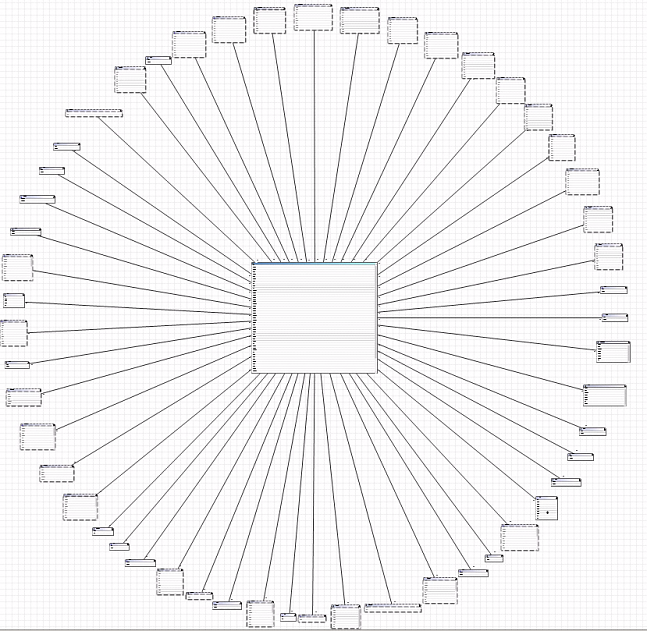
The contact fact table contains information about your contracts. It tracks the total amount of the contract, and the time it took to get the contract through various stages (draft, approval, clause approval, contract approval). It links this information to all the descriptive tables (Dimensions) so that you can answer a wide variety of business questions. This layout is called a star schema. The contract fact table is in the middle with all of the descriptive tables arrayed around it. The contract fact table consists of a series of id fields used to link to the dimensions (descriptive information) and the facts (quantitative data) about your contract. The ids are generated by the reporting ETL process and are not related to the ‘Contract Management’ application. They are not exposed to the report developer at this time.

Figure Contract Fact Star

The fact tables hold the information used to create a ‘count’ or ‘sum’ of information about your contract, answering the business questions about how much, how many, and how long, etc. These items are usually numeric and are referred to as facts. In addition to the fact fields the fact table contains a series of ID fields that are used to link to dimension tables. The dimension tables are used to hold information that describe the contract, answering who created it, what is the contract status, where is the location in which the contract was executed, etc. These dimension tables are linked to the contract fact via an inner join with missing records linking to a record 0 (zero) so that no records are dropped. Currently there are 42 dimension tables.

The contract fact contains the following fact items. These first two items are presented to the report developer in the Contract folder and the other items are presented in the Workflow subfolder under the contracts folder.

* TOTAL\_COST from the contract amount
* NUM\_CONTRACTS constant always set to 1 used to count number of contracts when grouping.
* DRAFT\_DURATION(calculated)
* APPROVAL\_DURATION (calculated)
* CLAUSE\_APPROVAL\_DURATION (calculated)
* CONTRACT\_APPROVAL\_DURATION (calculated)
* INTERNAL\_NEGOTIATION\_DURATION (calculated)
* EXTERNAL\_NEGOTIATION\_DURATION (Calculated)
* CREATION\_TO\_EXEC\_DURATION (Calculated)
* NUM\_CONTRACT\_APPRV\_PROCESSES (Calculated)
* NUM\_CLAUSE\_APPRV\_PROCESSES (Calculated)
* NUM\_EXTERNAL\_NEGOTIATIONS (Calculated)

The contract fact table links to 42 dimension tables, each one describing a different aspect of the contract. Some tables are maintained internal to the application, and therefore link to a fixed translation table with suffix I18N. The I18N tables have a ‘locale’ field that contains a code representing the languages that the field has been translated into. The second field appends a prefix of ‘local\_’ to the original field name. In the reporting model, the tables are filtered based on the language associated to the login of the user and then use the ‘local\_’ field value for display. This results in a single record being returned with the value of the field changing to the local language of the user when the report is run. One example of this is in the contract status table.

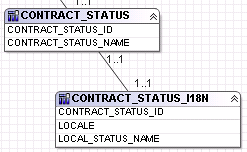


Figure Translation table structure

Since these item values change (to the appropriate local language equivalent) each time the language of the user changes, they are not reliable for creating filters or calculations that have to be evaluated. In these cases the data item is included twice. The first item is the standard data item; it is followed by a ‘(filter)’ version that is always in English. Using the same example from above of contract status, two items are available. ‘Contract Status (Filter)’ is the English-only version which should be used to create calculations that need to be evaluated and filters. The data item ‘Contract Status’ is used for displaying the value in the appropriate language.



Figure Translated items for filtering and reporting

All tables are fetched using ‘select \* from [IBMConnection].<Reporting Database Table Name>’. This allows Cognos to use its minimized SQL feature. In practice this results in only the data items used in the report being included in the query.

[IBMConnection] is a placeholder that is replaced with the database connection information provided on the administrative console of the reporting application for the connection named ‘IBMConnection’ at run time. The set-up of [IBMConnection] connection information is done as part of the normal installation and configuration of the IBM® Emptoris® Contract Management reporting system.

The information in these dimension tables are used to populate the presentation layer contract folder that is displayed for report authors in the reporting tools.

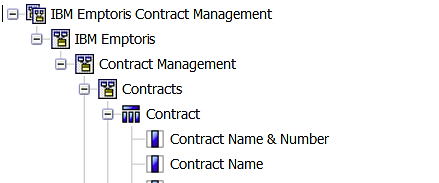


Figure Presentation layer structure

In addition to the basic dimensions there are 20 additional fact tables that are linked to contract through the Contract Dimension. These tables represent one to many linkages to the contract.



Figure 15 Additional fact groupings

These tables are used to populate the data items in the folders underneath the ‘contract’ folder in the report authoring tools. Each one of these folders represents data that can be repeated many times for each contract.

For example, a contract can have multiple clauses associated with it. The linkage between multiple clauses and contract is tracked in the contract\_clause\_fact table with an outer join between the contract dimension and the contract\_clause\_fact table. So if you select the field ‘Contract Name & Number’ and add it to a report you will get one row of data per contract. This will be true for any item you add from the contract folder. These items can be combined in any way and you will still only get one row of data per contract.

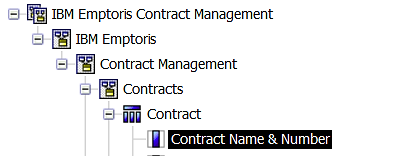


Figure Data items in Contract fact table

If you then go to the clause folder (indicating a one to many relationship) and add ‘Clause Name’ you will get many rows per contract, each line representing a clause for that contract. The data from the ‘Contract’ folder will be repeated on each clause line with only the clause name changing until all clause rows have been displayed.

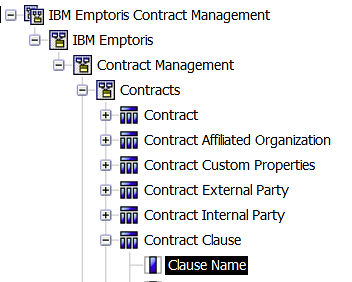


Figure Data items in clause fact table

(See the following section entitled “Additional Facts included in the Contract Data Grouping” for a listing of these 20 additional fact tables)

## Review of database logical model table contract fact details

This list of tables represents the core dimension of the IBM® Emptoris® Contract Management contract fact model. The following sections will list the ID fields from the contract fact table and the dimension table the ID field links to.

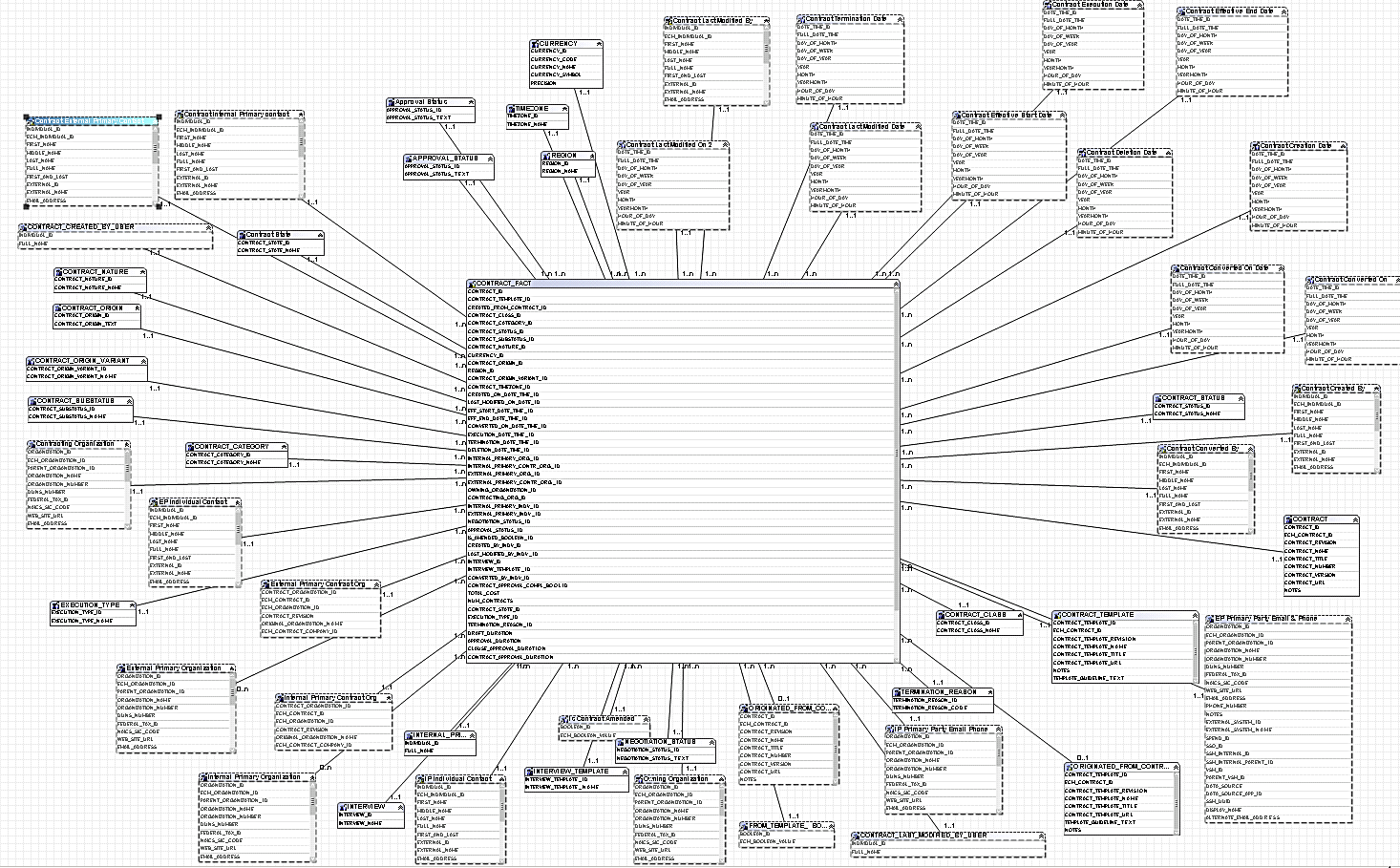


Figure Contract fact table with dimensions

Each ID in the fact table is linked in a one to many relationship with corresponding dimension tables. The Dimension tables contain the details about that dimension. In the presentation layer that is available to report developers we only show the descriptive fields and not the ID’s. All ID fields are indexed to provide fast access to the model. In addition see Appendix D for a full list of all indexed non-id fields.

The following section contains a list of all the contract dimensions and how they are connected to the contract fact table. The table fields are listed along with the table name from the database for reference.

Joins to dimensional tables are all inner joins. Missing dimensional information is represented by a link to a record “0” to prevent data from being dropped by the model.

## Contract Dimensions

### CONTRACT\_ID

Select \* From [IBM Connection].CONTRACT

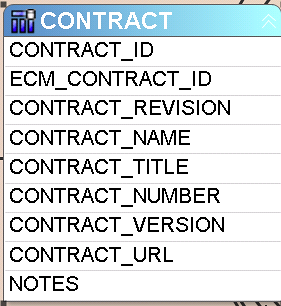


Figure Contract dimension

### CONTRACT\_TEMPLATE\_ID

Select \* from [IBM Connection].CONTRACT\_TEMPLATE

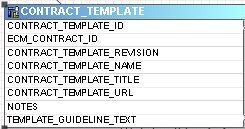


Figure Contract template dimension

### CREATED\_FROM\_CONTRACT\_ID (Links to an alias of the contract template table)

Select \* from [IBM Connection].CONTRACT\_TEMPLATE

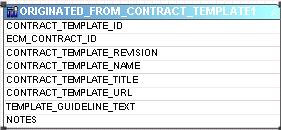


Figure Contract created from dimension

### 

### CONTRACT\_CLASS\_ID

Select \* from [IBM Connection].CONTRACT\_CLASS



Figure Contract class dimension

### CONTRACT\_STATUS\_ID

(This is an IBM® Emptoris® Contract Management standard field so it has an attached translation table with the I18N suffix. The value from the I18N table [value in local language of the user] is presented as the field and will change based on the local language of the user running the report and the untranslated version is presented with a suffix of “(Filter)”).

Select \* from [IBM Connection].CONTRACT\_STATUS

Select \* from [IBM Connection].CONTRACT\_STATUS\_I18N

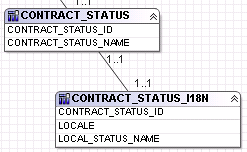


Figure Contract status dimension

### CONTRACT\_SUBSTATUS\_ID

Select \* from [IBM Connection].CONTRACT\_SUBSTATUS



Figure Contract sub-status dimension

### CONTRACT\_NATURE\_ID

Select \* from [IBM Connection].CONTRACT\_NATURE



Figure Contract nature dimension

### CURRENCY\_ID

Select \* from [IBM Connection].CURRENCY

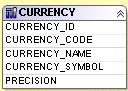


Figure Contract currency dimension

### CONTRACT\_ORIGIN\_ID

(This is an IBM® Emptoris® Contract Management standard field so it has an attached translation table with the I18N suffix. The value from the I18N table [value in local language of the user] is presented as the field and will change based on the local language of the user running the report and the untranslated version is presented with a suffix of “(Filter)”)

Select \* from [IBM Connection].CONTRACT\_ORIGIN

Select \* from [IBM Connection].CONTRACT\_ORIGIN\_I18N

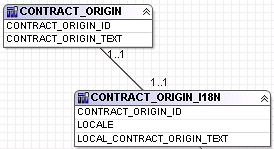


Figure Contract origin dimension

### REGION\_ID

Select \* from [IBM Connection].REGION



Figure Contract region dimension

### CONTRACT\_ORIGIN\_VARIANT\_ID

Select \* from [IBM Connection].CONTRACT\_ORIGIN\_VARIANT



Figure 29 Contract origin variant dimension

### CONTRACT\_TIMEZONE\_ID

Select \* from [IBM Connection].TIMEZONE



Figure Contract timezone dimension

#### Links to alias of Date Time Dimension

##### CREATED\_ON\_DATE\_TIME\_ID

##### LAST\_MODIFIED\_ON\_DATE\_ID

##### EFF\_START\_DATE\_TIME\_ID

##### EFF\_END\_DATE\_TIME\_ID

##### CONVERTED\_ON\_DATE\_TIME\_ID

##### EXECUTION\_DATE\_TIME\_ID

##### TERMINATION\_DATE\_TIME\_ID

##### DELETION\_DATE\_TIME\_ID

Select \* from [IBM Connection].DATE\_TIME



Figure Contract dates

#### Links to alias of Organization Dimension

##### INTERNAL\_PRIMARY\_ORG\_ID

##### INTERNAL\_PRIMARY\_CONTR\_ORG\_ID

##### EXTERNAL\_PRIMARY\_ORG\_ID

##### EXTERNAL\_PRIMARY\_CONTR\_ORG\_ID

##### OWNING\_ORGANIZATION\_ID

##### CONTRACTING\_ORG\_ID

Select \* from [IBM Connection].ORGANIZATION

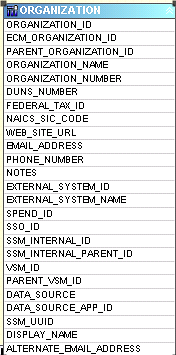


Figure Organization dimension

### INTERNAL\_PRIMARY\_INDV\_ID (alias links to Primary internal individual with Primary Phone and Address)

Select \* from [IBM Connection].INDIVIDUAL

Select \* from [IBM Connection].INDIVIDUAL\_ADDRESS

Select \* from [IBM Connection].INDIVIDUAL\_PHONE

Select \* from [IBM Connection]."BOOLEAN"

Select \* from [IBM Connection].BOOLEAN\_I18N (This is an IBM® Emptoris® Contract Management standard field so it has an attached translation table with the I18N suffix. The value from the I18N table [value in local language of the user] is presented as the field and will change based on the local language of the user running the report and the untranslated version is presented with a suffix of “(Filter)”)

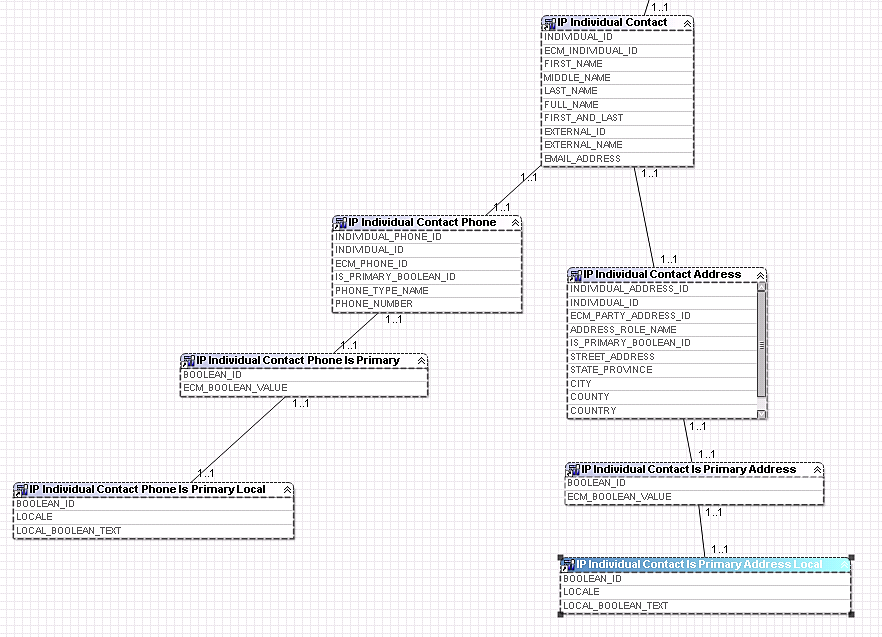


Figure Individual dimension

### EXTERNAL\_PRIMARY\_INDV\_ID (alias links to Primary external individual with Primary Phone and Address)

Select \* from [IBM Connection].INDIVIDUAL

Select \* from [IBM Connection].INDIVIDUAL\_ADDRESS

Select \* from [IBM Connection].INDIVIDUAL\_PHONE

Select \* from [IBM Connection]."BOOLEAN"

Select \* from [IBM Connection].BOOLEAN\_I18N (This is an IBM® Emptoris® Contract Management standard field so it has an attached translation table with the I18N suffix. The value from the I18N table [value in local language of the user] is presented as the field and will change based on the local language of the user running the report and the untranslated version is presented with a suffix of “(Filter)”)

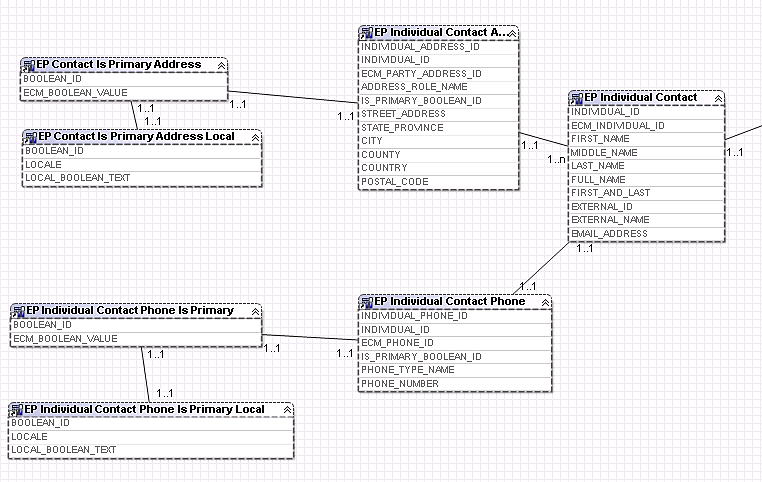


Figure 34 External primary contact

### NEGOTIATION\_STATUS\_ID

Select \* from [IBM Connection].NEGOTIATION\_STATUS



Figure 35 Contract Negotiation Status

### APPROVAL\_STATUS\_ID

Select \* from [IBM Connection].APPROVAL\_STATUS



Figure 36 Contract approval status

### IS\_AMENDED\_BOOLEAN\_ID (links to alias of Boolean)

Select \* from [IBM Connection]."BOOLEAN"



Figure Boolean

### CREATED\_BY\_INDV\_ID

Select INDIVIDUAL.FULL\_NAME, INDIVIDUAL.INDIVIDUAL\_ID from INDIVIDUAL



Figure Contract created by dimension

### LAST\_MODIFIED\_BY\_INDV\_ID

Select INDIVIDUAL.FULL\_NAME, INDIVIDUAL.INDIVIDUAL\_ID from INDIVIDUAL



Figure Contract modified by dimension

### INTERVIEW\_ID

Select \* from [IBM Connection].INTERVIEW



Figure Contract interview dimension

### INTERVIEW\_TEMPLATE\_ID

Select \* from [IBM Connection].INTERVIEW\_TEMPLATE



Figure Contract interview template dmension

### CONVERTED\_BY\_INDV\_ID

Select \* from [IBM Connection].INDIVIDUAL

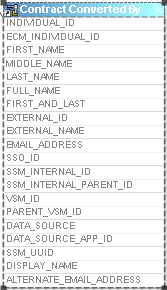


Figure Contract converted by dimension

### CONTRACT\_STATE\_ID

Select \* from [IBM Connection].CONTRACT\_STATE



Figure 43 Contract state dimension

### EXECUTION\_TYPE\_ID

Select \* from [IBM Connection].EXECUTION\_TYPE



Figure 44 Contract execution state dimension

### TERMINATION\_REASON\_ID

Select \* from [IBM Connection].TERMINATION\_REASON



Figure Contract termination reason dimension

### IS\_CREATED\_FROM\_TEMPLATE

Select \* from [IBM Connection]."BOOLEAN"

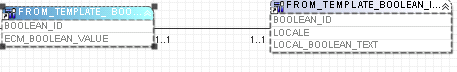


Figure Contract created from template dimension

## Additional data groupings

In addition to the contract fact and its associated dimensions we have included seven additional groups of data that can be queried independently of contract.

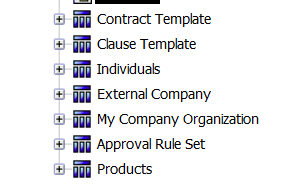


Figure Independent subject areas

This is done to facilitate searches which are not contract centered. For example, if you wanted to see the primary external contact for a particular contract you would start in the contracts folder and use the “primary external contact” data item. However if you want a list of all external contacts you would go to the individuals table since this table represents all individuals created in the contract management system. The contract query subject contains the primary contact while the individuals table contains all contacts.

Another example is the Contract Template folder. The contract template folder contains records for all templates created in the contract management system. The contract template data item in the “contract” query subject only contains those templates that have been associated with a contract.

### Contract Template

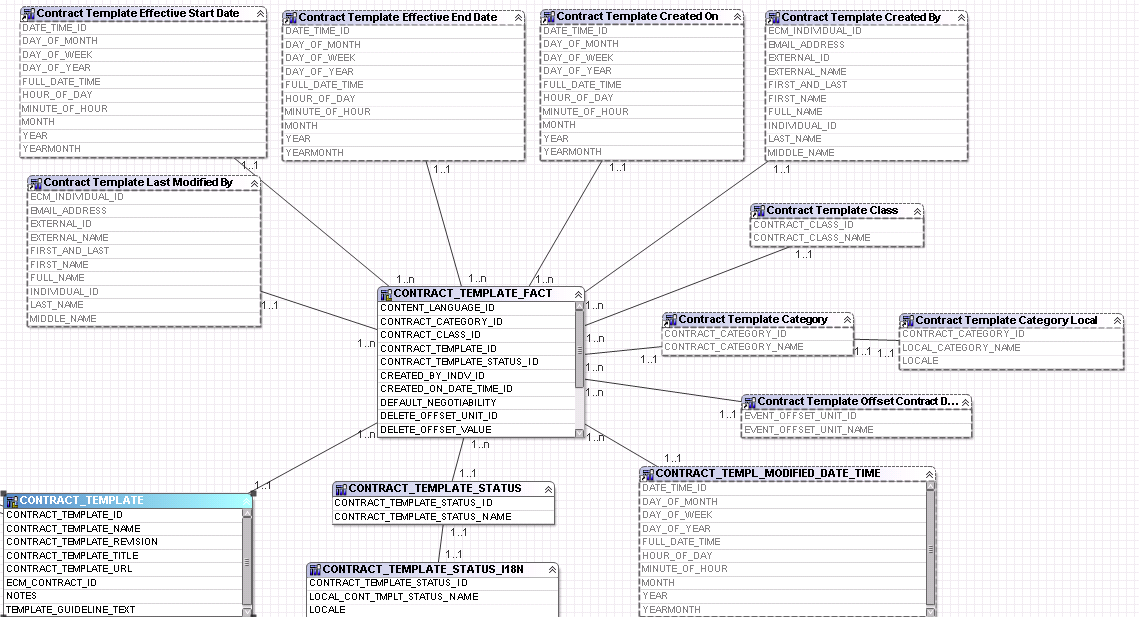
The contract template fact table contains information about the templates you have created. It tracks all the templates you have created in the IBM® Emptoris® Contract Management system.

Figure Contract Template Database layer

Dimensions are linked to the fact table via an inner join. Missing dimensional information is represented by a link to a record “0” to prevent data from being dropped by the model.

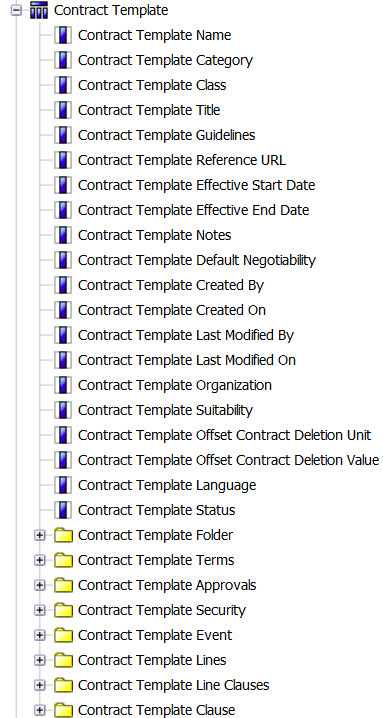
In the Cognos presentation (reporting) layer it is set up very similar to contracts. The first set of items is all at the contract template level and result in one row of data per contract template.

Figure Contract Template

These items correspond to the items that are in the contract record when it is created from this template. So just like a contract, a contract template has one category, class, title, etc…

These data items are followed by 8 folders. The folders represent data that is in a ‘one to many’ relationship with the contract template. Adding data items from these folders will return multiple rows of data per contract template. So just like a contract a contract template can have multiple default folders, default terms, default approvals, etc…

Each of the folders contains multiple data items associated with this subject area.

### Clause Template

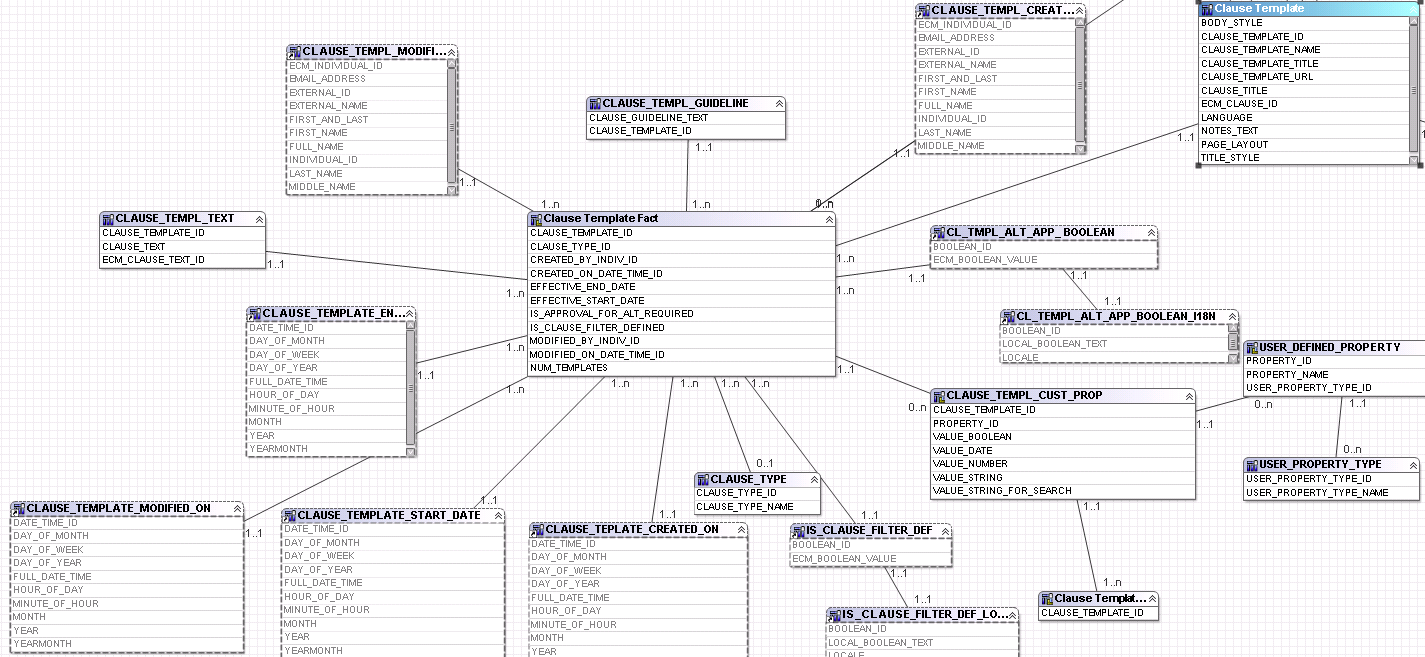


Figure Clause Template Database layer

The clause template fact table contains information about the templates you have created. It tracks all the templates you have created in the IBM® Emptoris® Contract Management system.

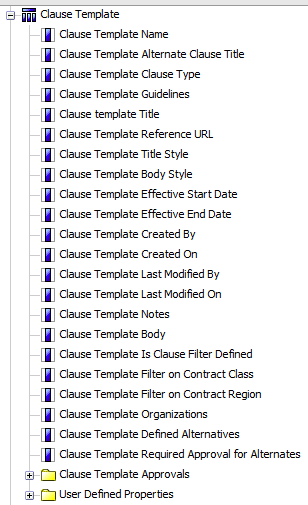
Dimensions are linked to the fact table via an inner join. Missing dimensional information is represented by a link to a record “0” to prevent data from being dropped by the model.

Figure Clause Template

In the Cognos presentation (reporting) layer it is set up very similar to the clause query subject contracts. The first set of items is all at the contract clause level and result in one row of data per contract clause template.

These items correspond to the items that are in the contract clause record when it is created from this template. So just like a contract clause, a contract clause template has one Name, Alternative Clause title, type, etc…

These data items are followed by 2 folders. The folders represent data that is in a ‘one to many’ relationship with the contract template. Adding data items from these folders will return multiple rows of data per contract template. So just like a contract clause a contract clause template can have multiple default folders, default terms, default approvals, etc… Each of the folders contains multiple data items associated with this subject area.

### Individuals

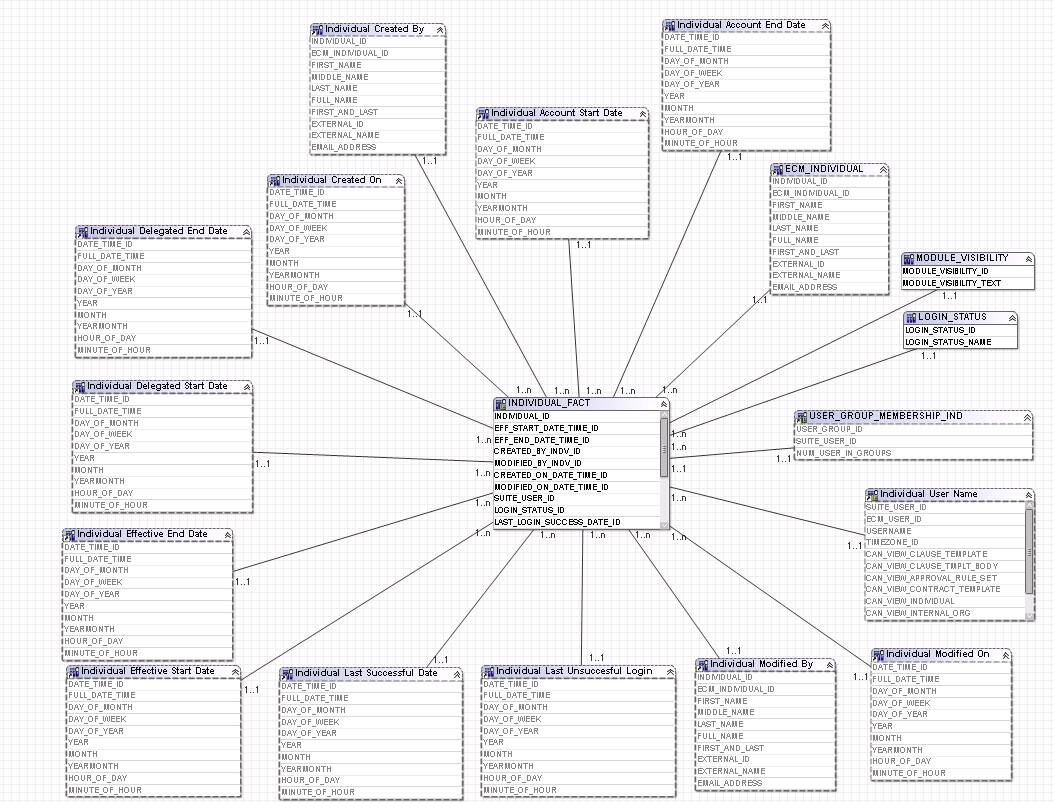


Figure Individuals database layer

The INDIVIDUAL\_FACT table looks at people who have any role on a contract. All individuals entered into the contract management system are listed in this table.

Dimensions are linked to the fact table via an inner join. Missing dimensional information is represented by a link to a record “0” to prevent data from being dropped by the model.

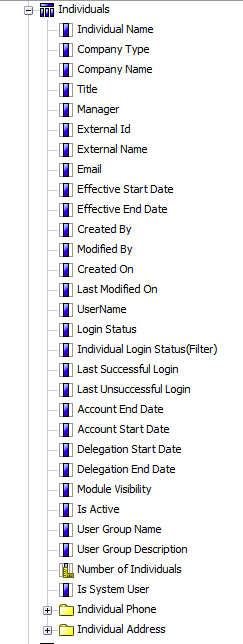
In the Cognos presentation (reporting) layer it the first set of items are all at the individual level and result in one row of data per contract clause template.

Figure Individuals

These items represent detailed information that was entered about an individual. Not all fields are filled for every individual but any “un-entered” data is represented by a 0 record for “missing”. These items are all in a one to many relationships with the individual. An individual can only have one Name, Company type, Company name, Title, etc associated with them.

These data items are followed by 2 folders (Phone, Address). The folders represent data that is in a ‘one to many’ relationship with the individual. Adding data items from these folders will return multiple rows of data per individual. Each of the folders contains multiple data items associated with this subject area.

### External Company

### My Company Organization

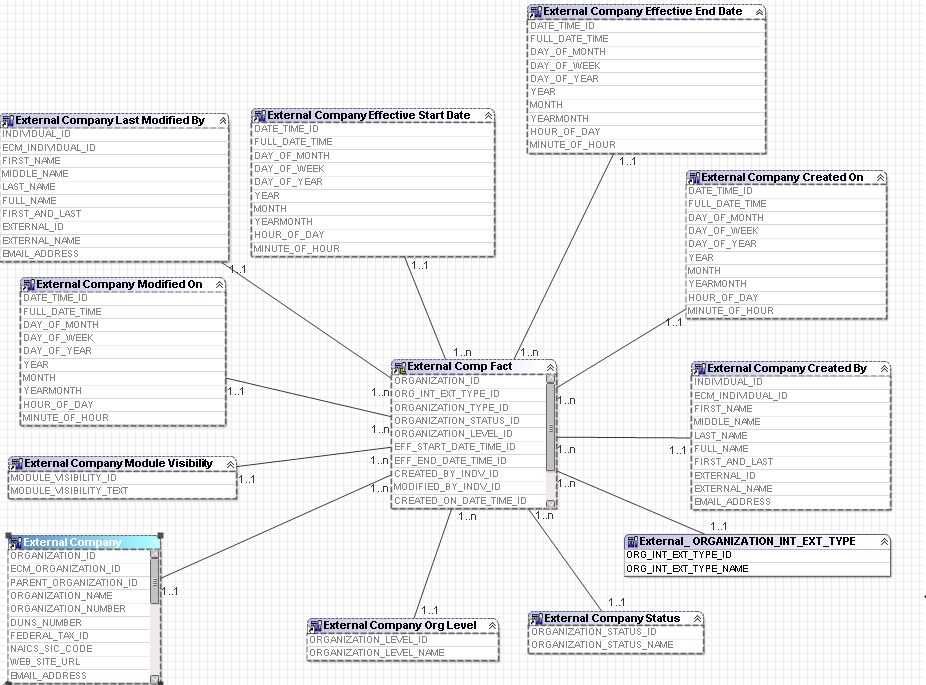


Figure External Company database layer

These fact groupings are alias of Organization fact. In the database layer we only maintain one set of tables for organizations. For reporting, the organization tables are logically separated into Internal and External organizational entities. External organizations are presented via the External Company Folders and internal organizations are represented in the “My Company Organization” folder. The database field ORG\_INT\_EXT\_TYPE\_ID is used to differentiate between internal and external organizations.

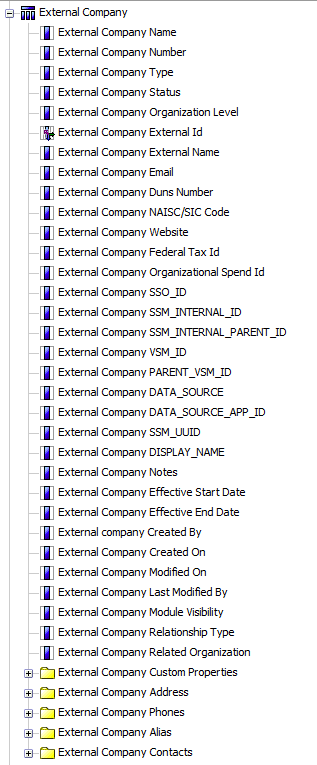


Figure External Company

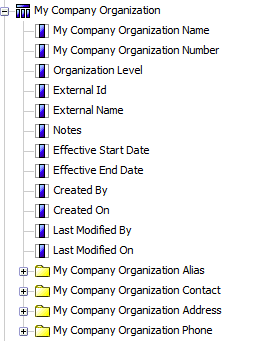


Figure My Company

### Approval Rule Set

The approval rule set tables are not connected to any other tables they sit independent in the model. They are not intended to be linked to any other tables. These tables store the information used to set up the interview questions and approval rules.

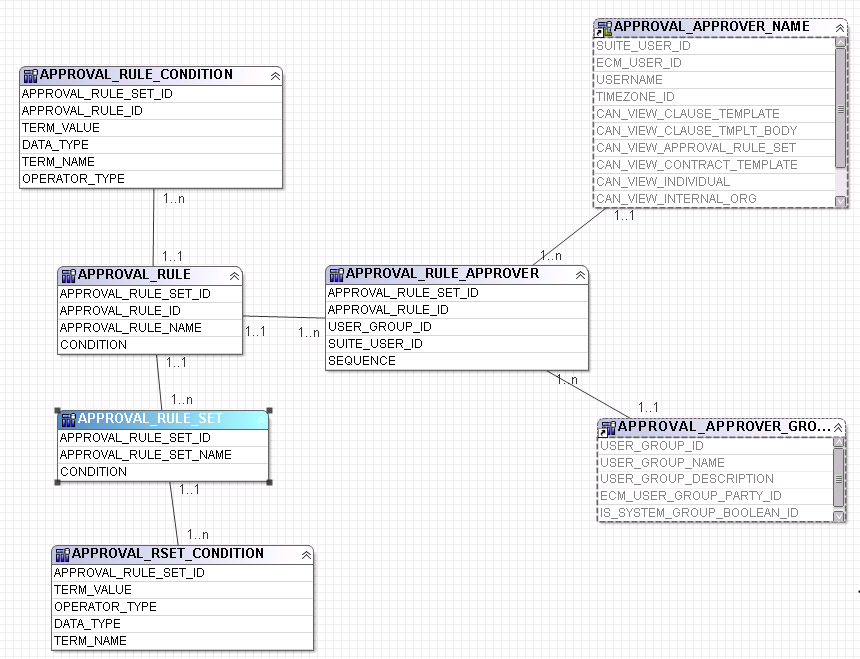


Figure Approval Rule Set Database layer

Presentation layer

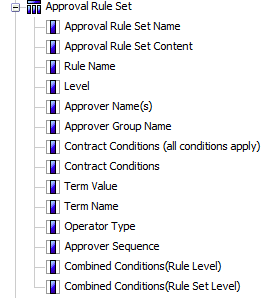


Figure Approval Rule Set

### Products

Products are linked to Line definitions.

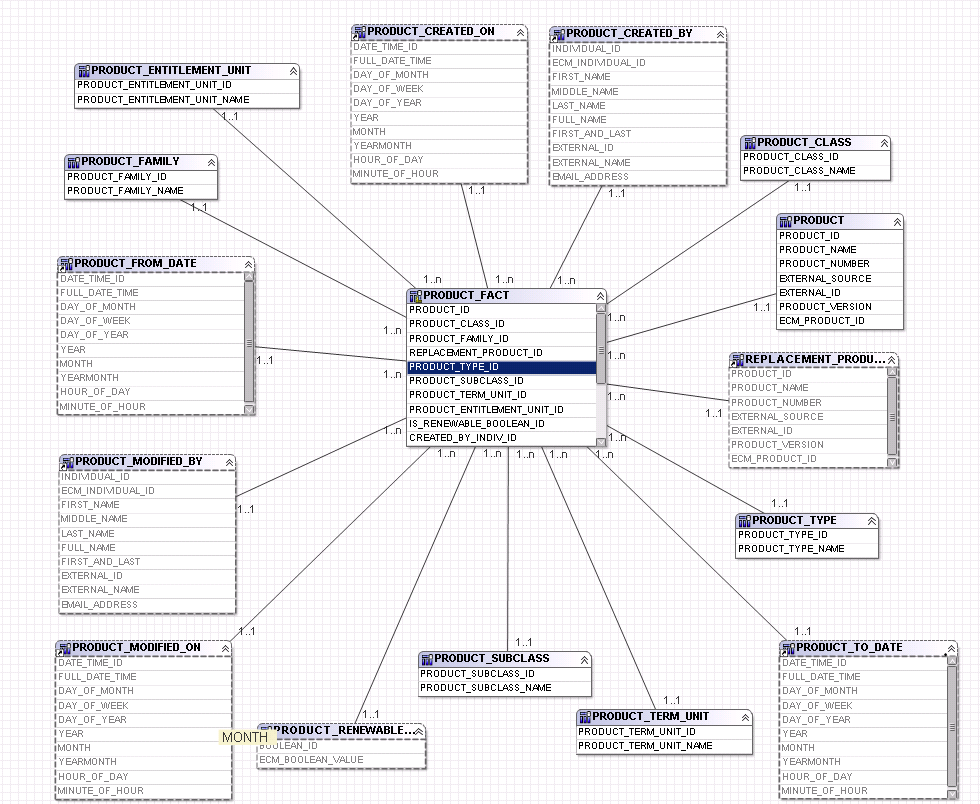


Figure Products Database Layer

Products presentation layer

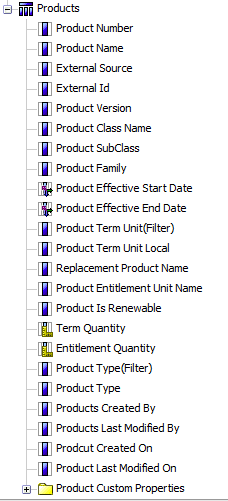


Figure Products

## Additional fact tables included in the basic Contracts model

These 20 facts are represented to report developers by folders at the same level as the ‘Contract’ folder. This data represents items that are in a ‘one to many’ relationship with a contract. For each contract, there are multiple rows in the fact table. These table groupings link to contract\_fact **via the contract dimension**.

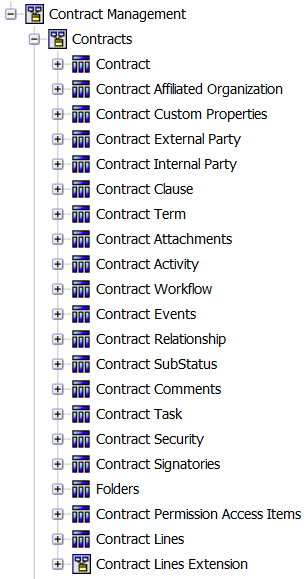


Figure < Insert caption text here>

### Affiliated Orgs - Alias of Contract\_organization\_fact

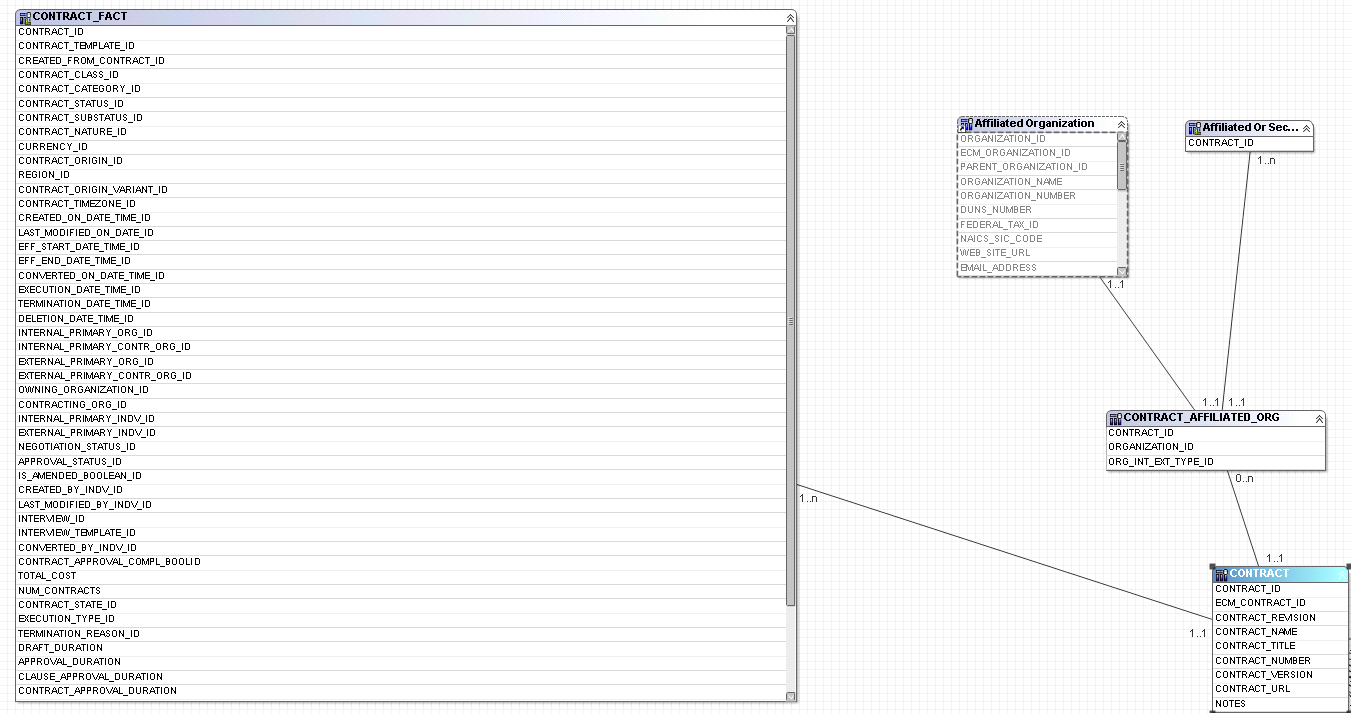


Figure Affiliated Organization Database layer

Presentation Layer

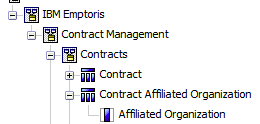


Figure 63 Affiliated Organization

### Custom Properties

The custom properties fact table represents custom properties as one row of data per custom property attribute.

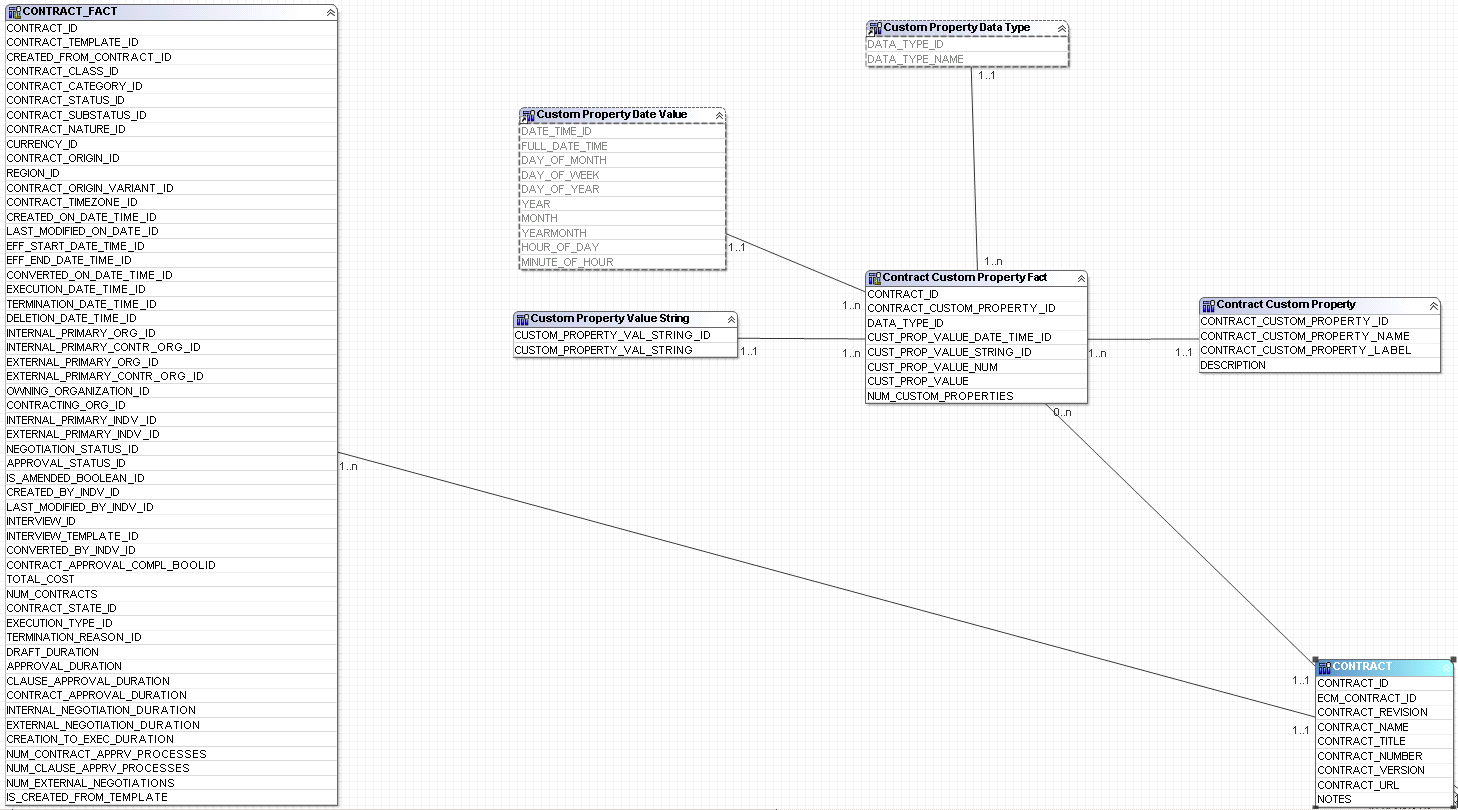


Figure Custom Properties Database layer

Presentation layer

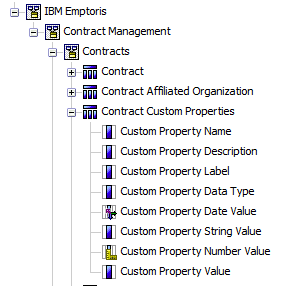


Figure Custom properties

### Contract External Party

### Contract Internal Party

Contract External Party and Contract Internal Party are both an alias of the Organization fact table filtered for External / Internal organizations. The filter is applied using the ORG\_INT\_EXT\_TYPE\_ID field.

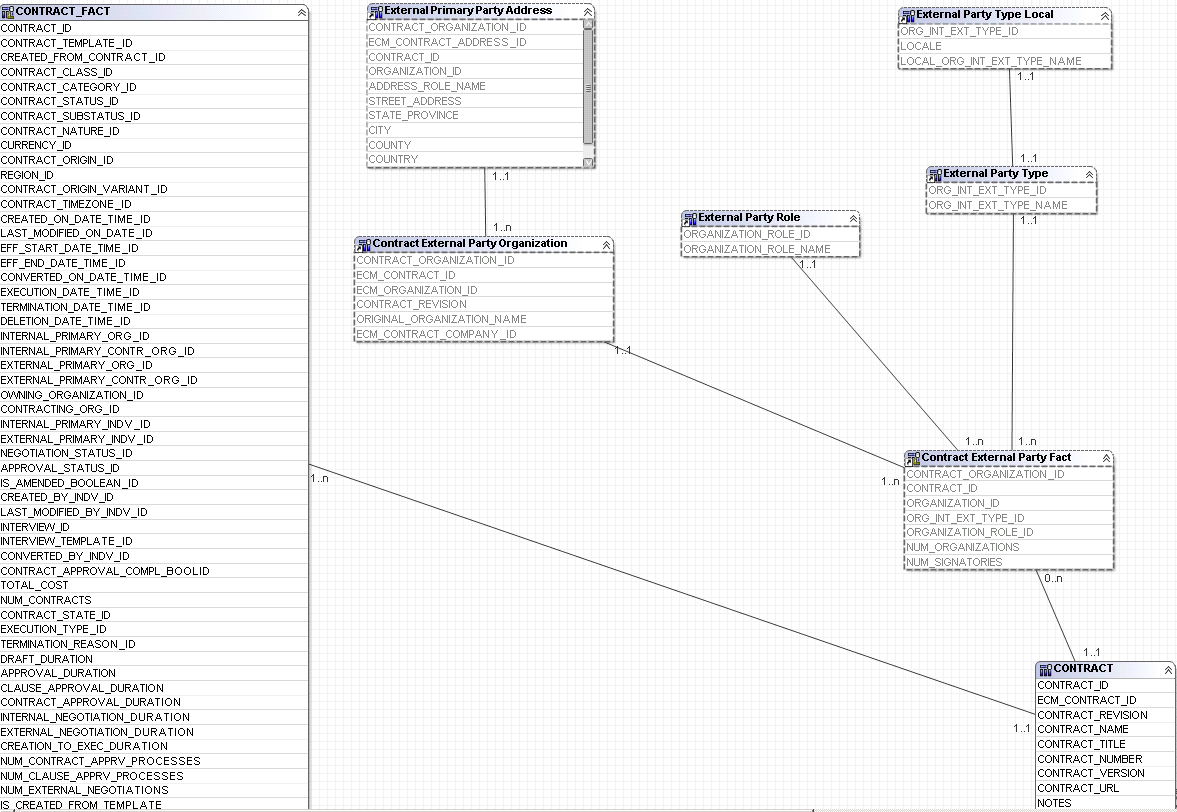


Figure Organization fact database layer

Presentation layer

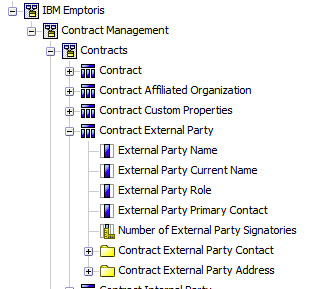
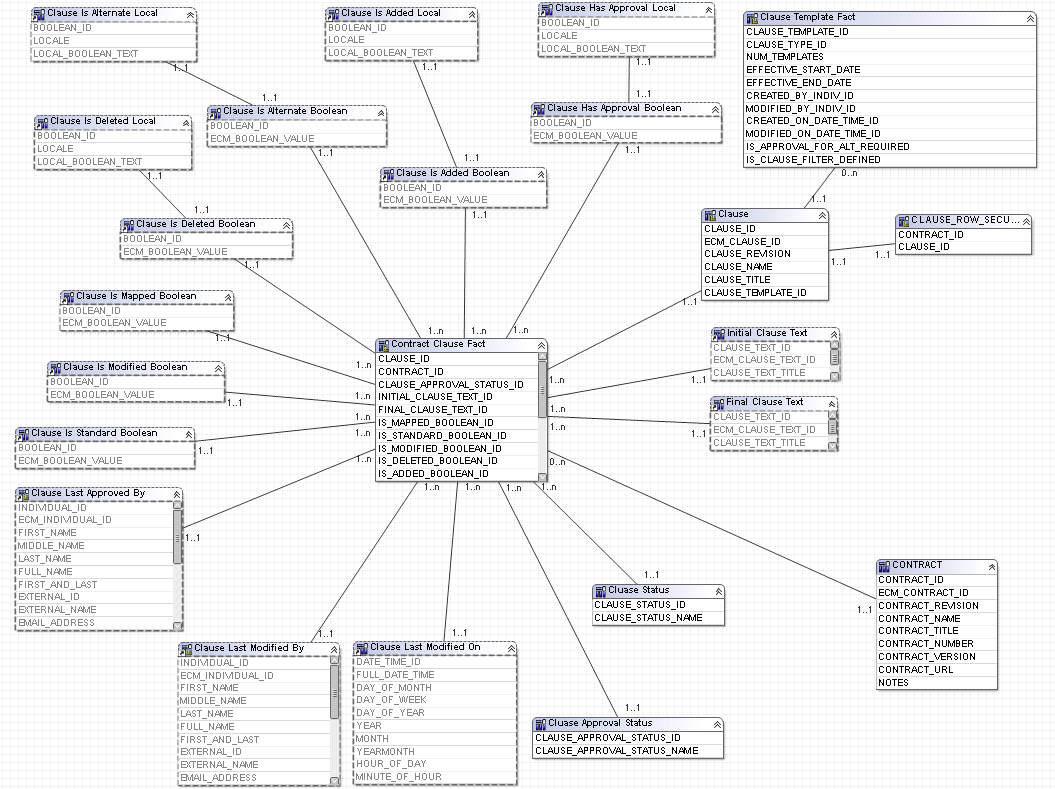


Figure External party

### Contract Clause



Presentation layer

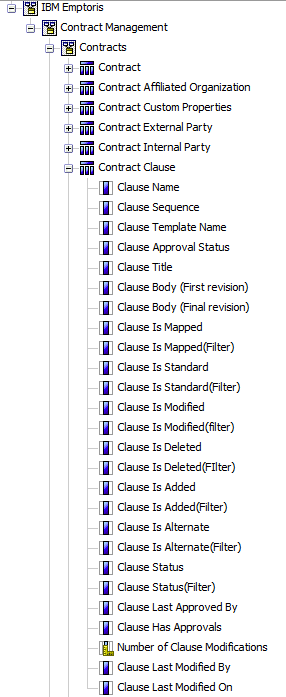


Figure Contract Clause

### Contract Term

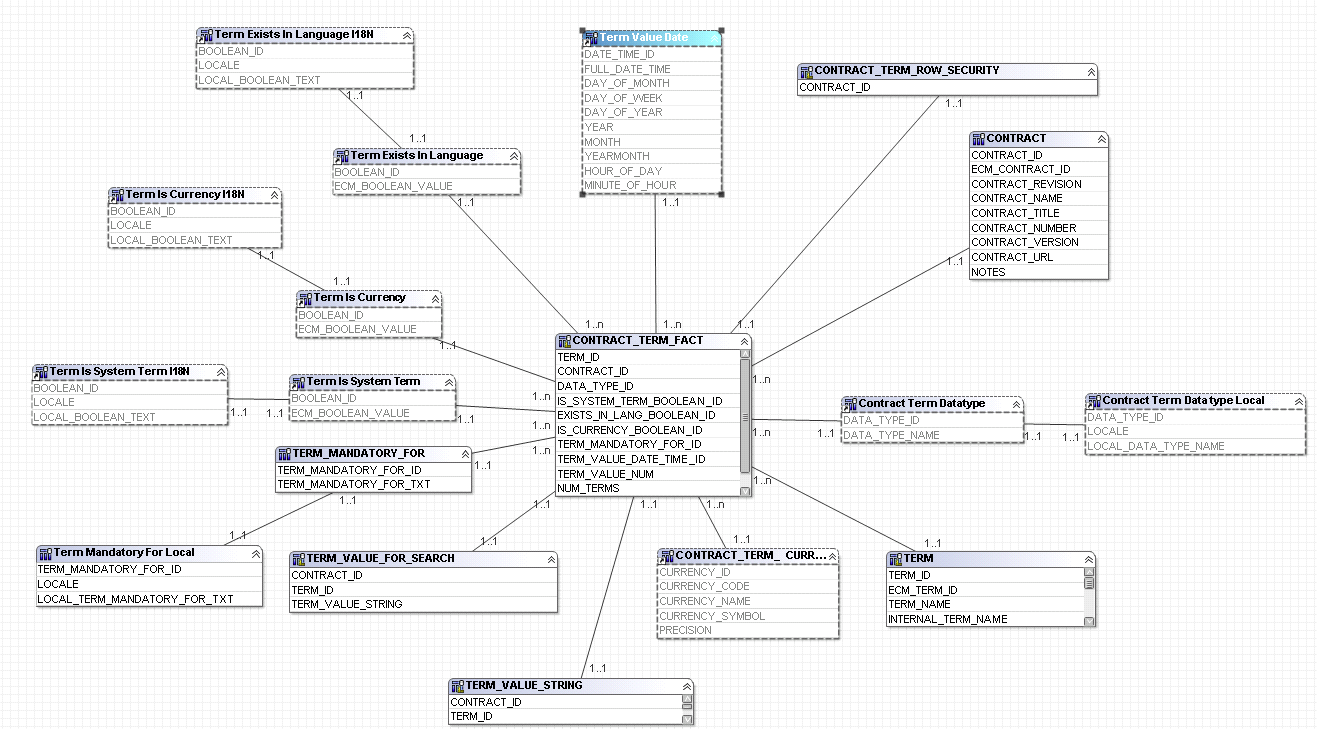


Figure Contract term database layer

Presentation layer

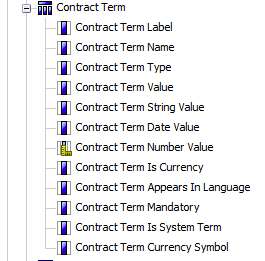


Figure Contract term

### Contract Attachments

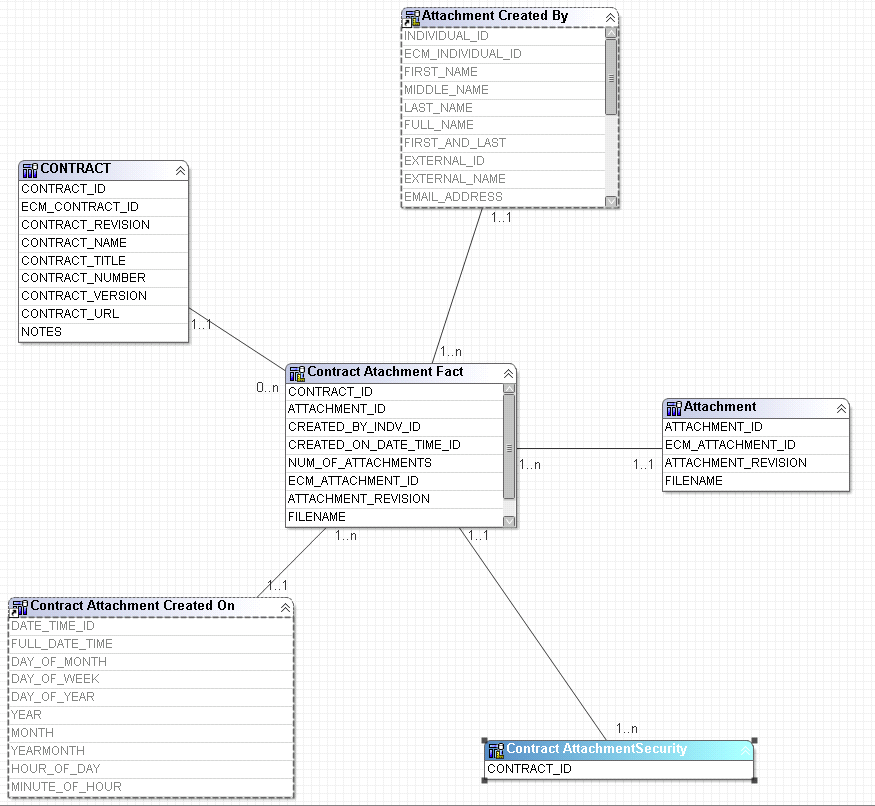


Figure Contract Attachment database layer

Presentation Layer

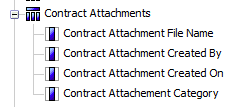


Figure Contract attachment

### Contract Activity

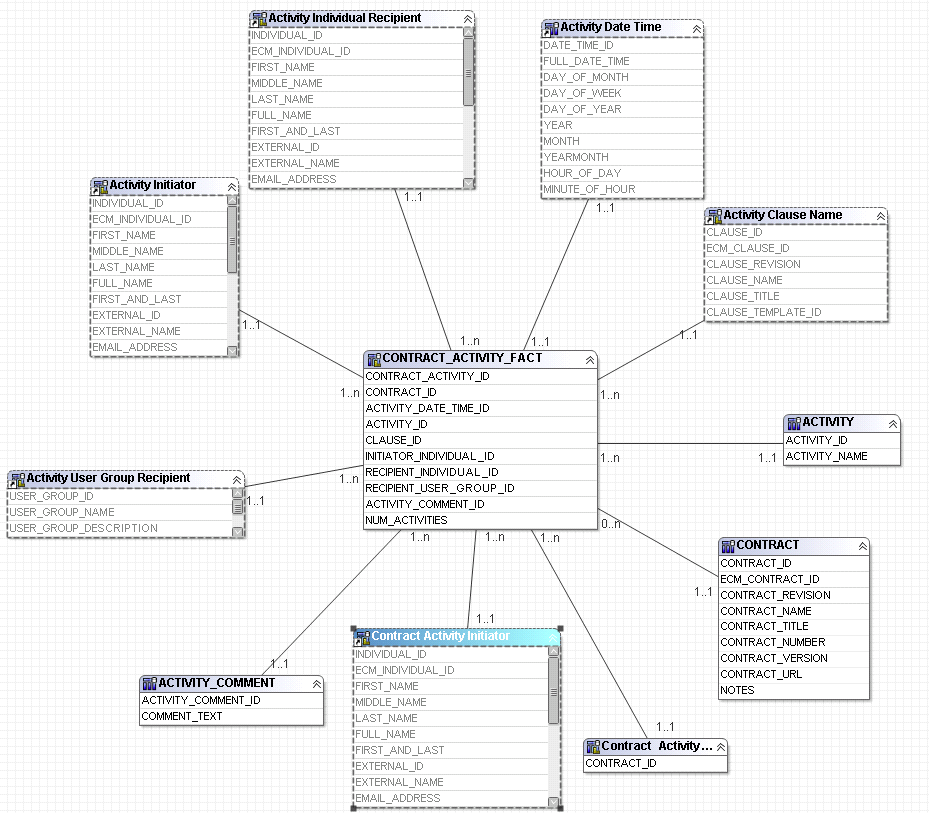


Figure Contract Activity database layer

Presentation Layer

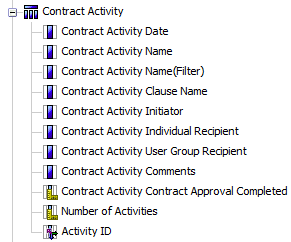


Figure Contract Activity

### Contract Workflow

This folder contains the workflow activity tracking items from contract fact. These items are calculated.

Contract workflow items are calculated based on activity records created during the creation and processing of a contract.

**Note: Contracts that are bulk loaded with not have valid calculations for these items due to the fact that processing took place outside of the IBM® Emptoris® Contract Management system.**

1. DRAFT\_DURATION(calculated)
2. APPROVAL\_DURATION (calculated)
3. CLAUSE\_APPROVAL\_DURATION (calculated)
4. CONTRACT\_APPROVAL\_DURATION (calculated)
5. INTERNAL\_NEGOTIATION\_DURATION (calculated)
6. EXTERNAL\_NEGOTIATION\_DURATION (Calculated)
7. CREATION\_TO\_EXEC\_DURATION (Calculated)
8. NUM\_CONTRACT\_APPRV\_PROCESSES (Calculated)
9. NUM\_CLAUSE\_APPRV\_PROCESSES (Calculated)
10. NUM\_EXTERNAL\_NEGOTIATIONS (Calculated)

Presentation layer

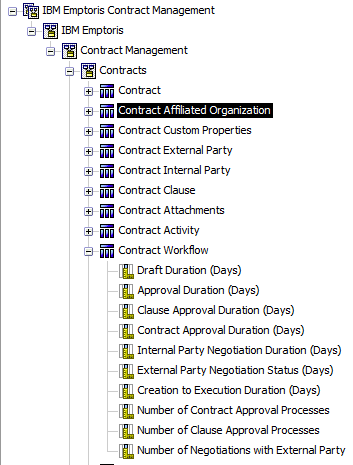


Figure Contract workflow

### Contract Events

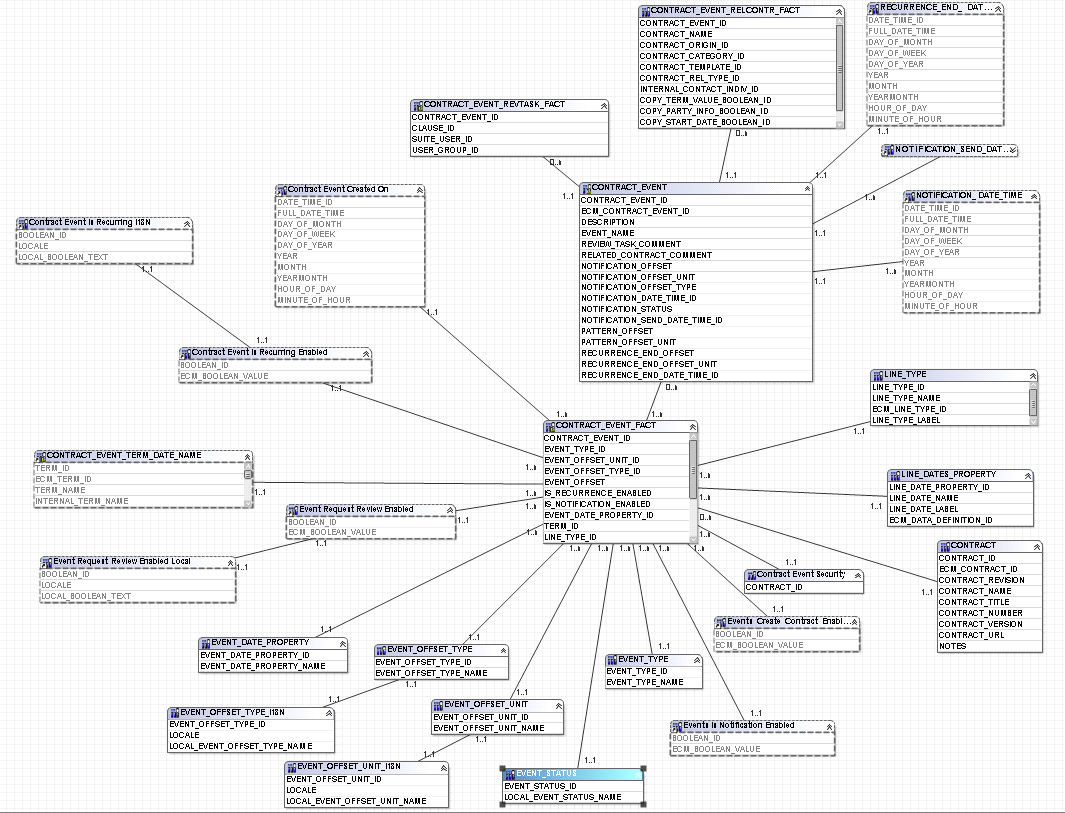


Figure Contract Events database layer

Contract Events Presentation Layer

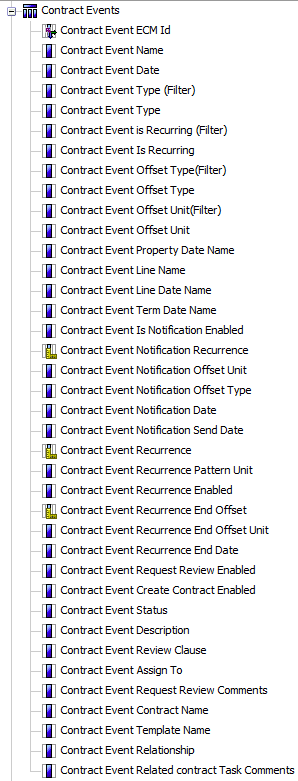


Figure Contract events

### Contract Relationship

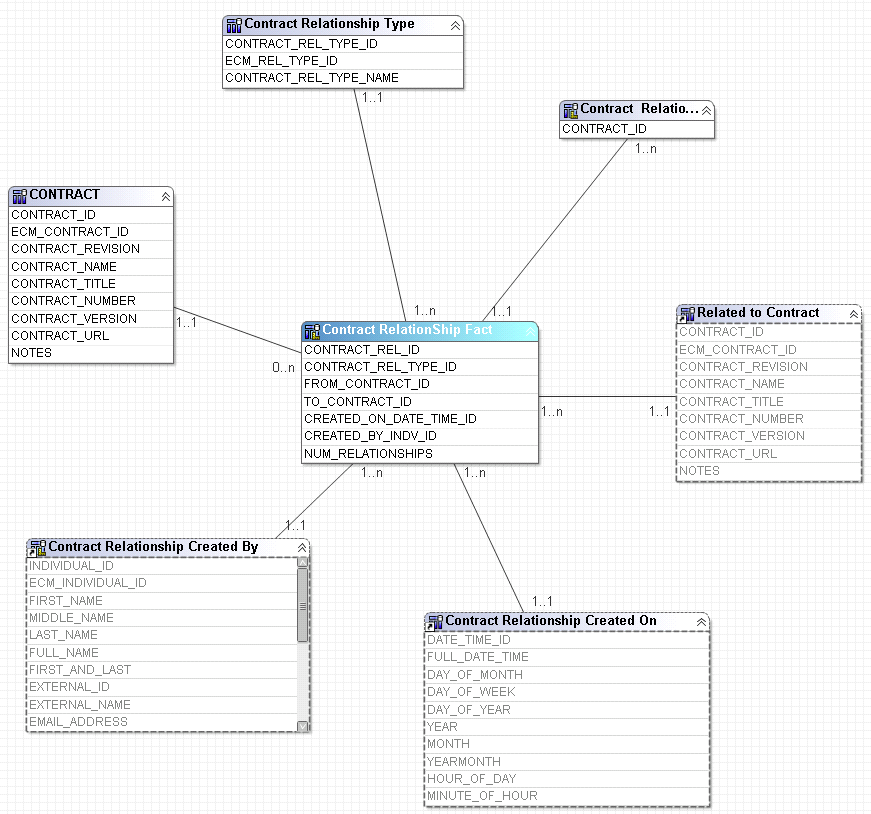


Figure Contract Relationship database layer

Presentation Layer

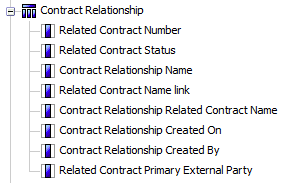


Figure Contract relationship

### Contract Substatus

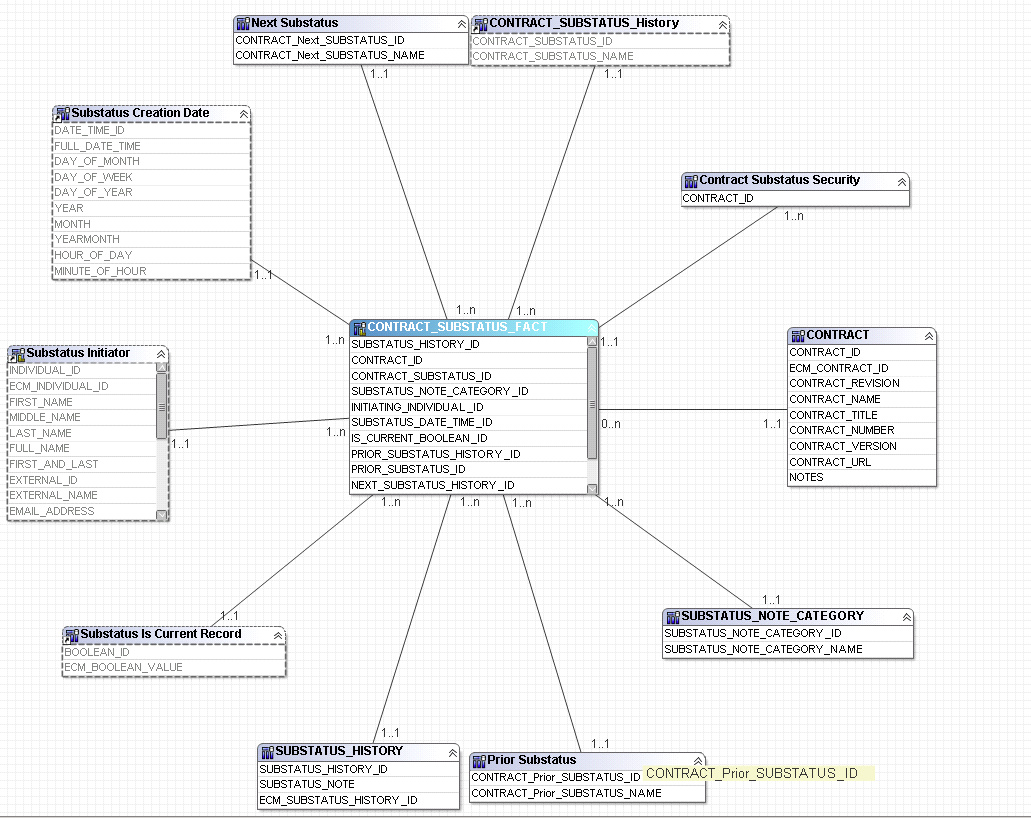


Figure Contract sub-status database layer

Presentation Layer

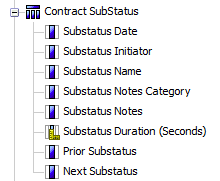


Figure Contract substatus

### Contract Comments

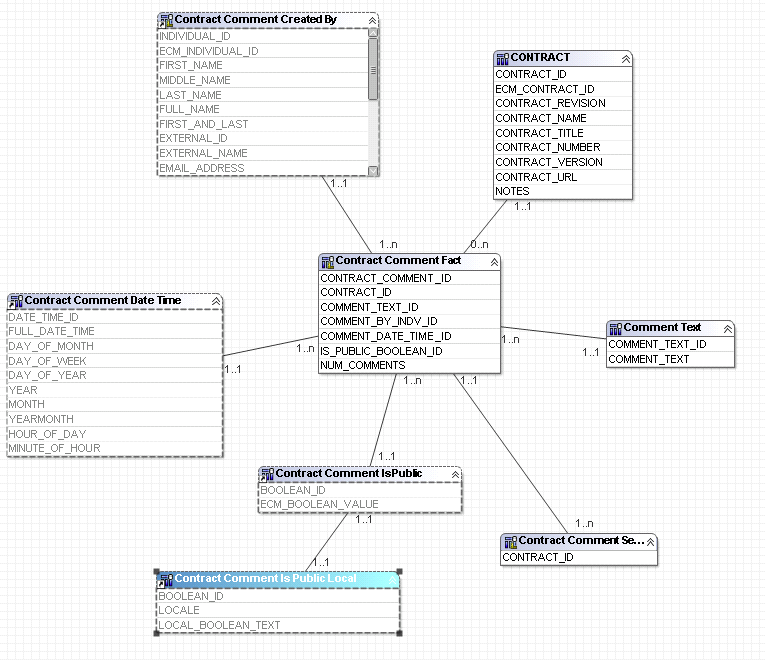


Figure Contract Comments database layer

Presentation Layer

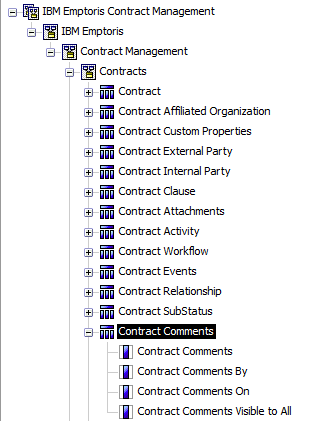


Figure Contract Comments

### Contact Task

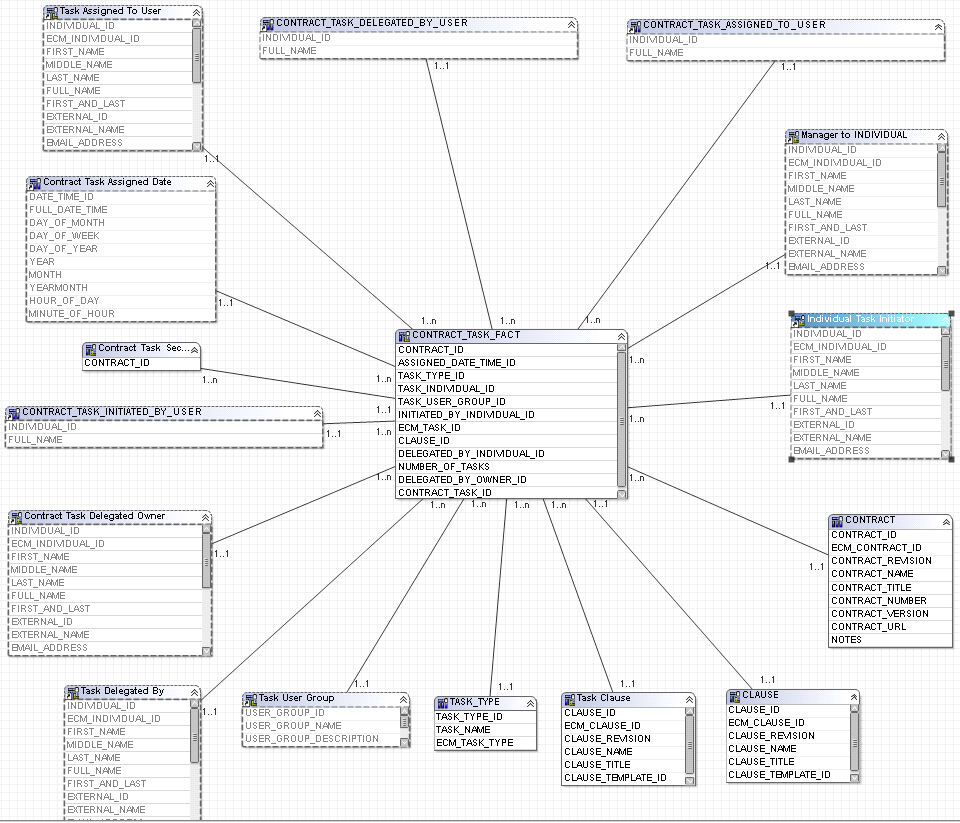


Figure Contract task database layer

Presentation Layer

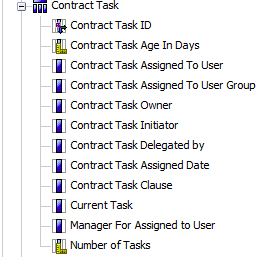


Figure Contract task

### Contract Security

The contract security tables are used for reporting on the security within contract management.

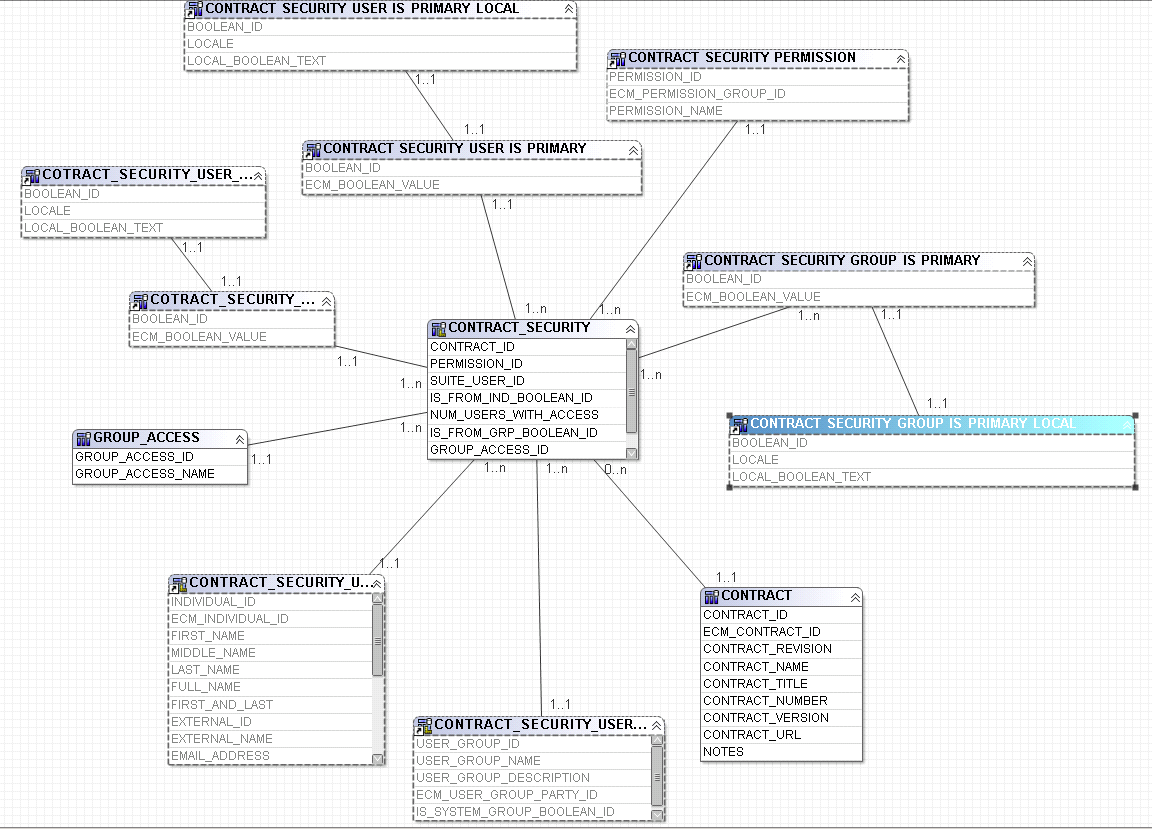


Figure Contract security database layer

Presentation Layer

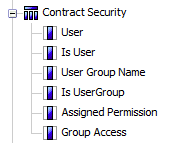


Figure Contract security

### Contract Signatories

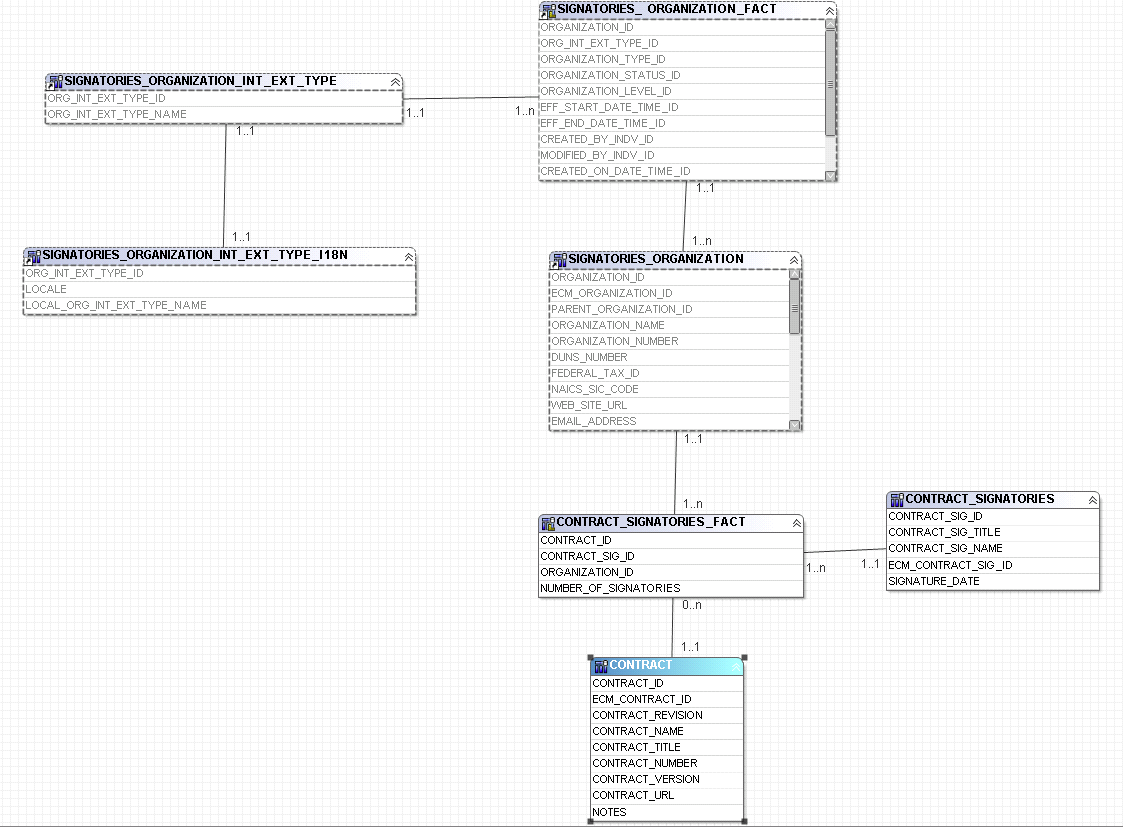


Figure Contract Signatories database layer

Presentation Layer



Figure Contract Signatories

### Folders

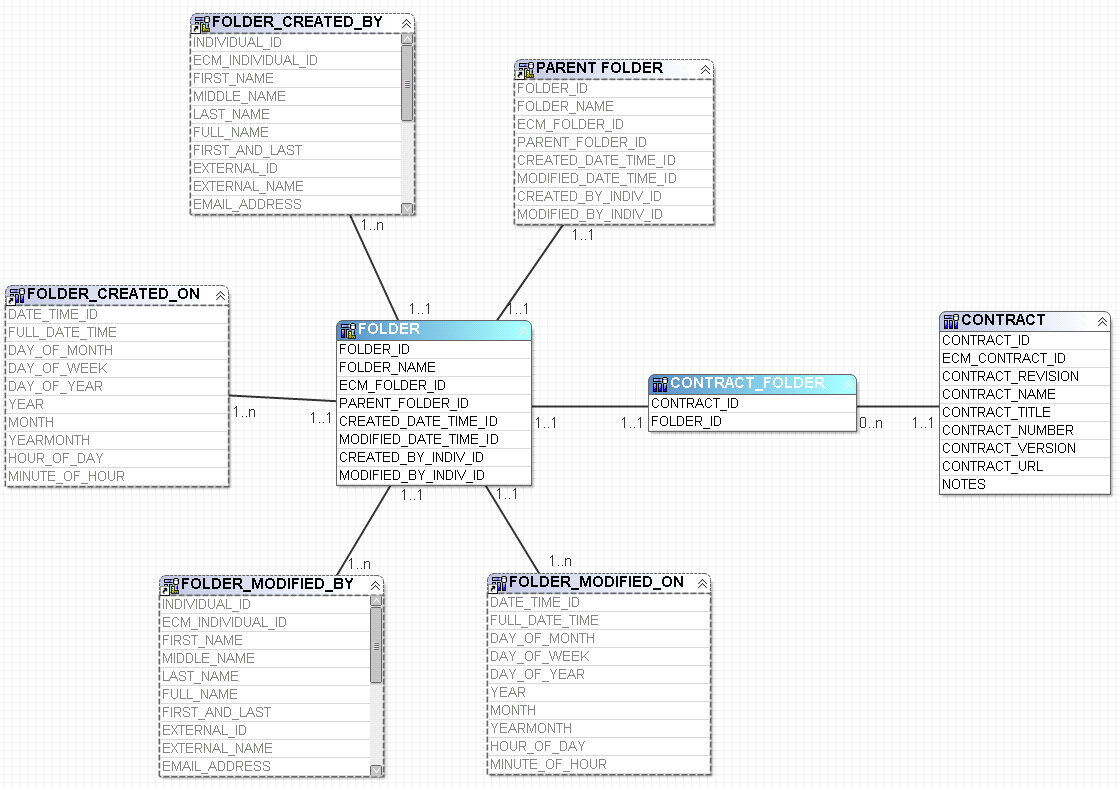


Figure Contract Folders database layer

Presentation layer

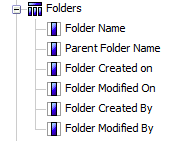


Figure Contract folders

### Contract Lines

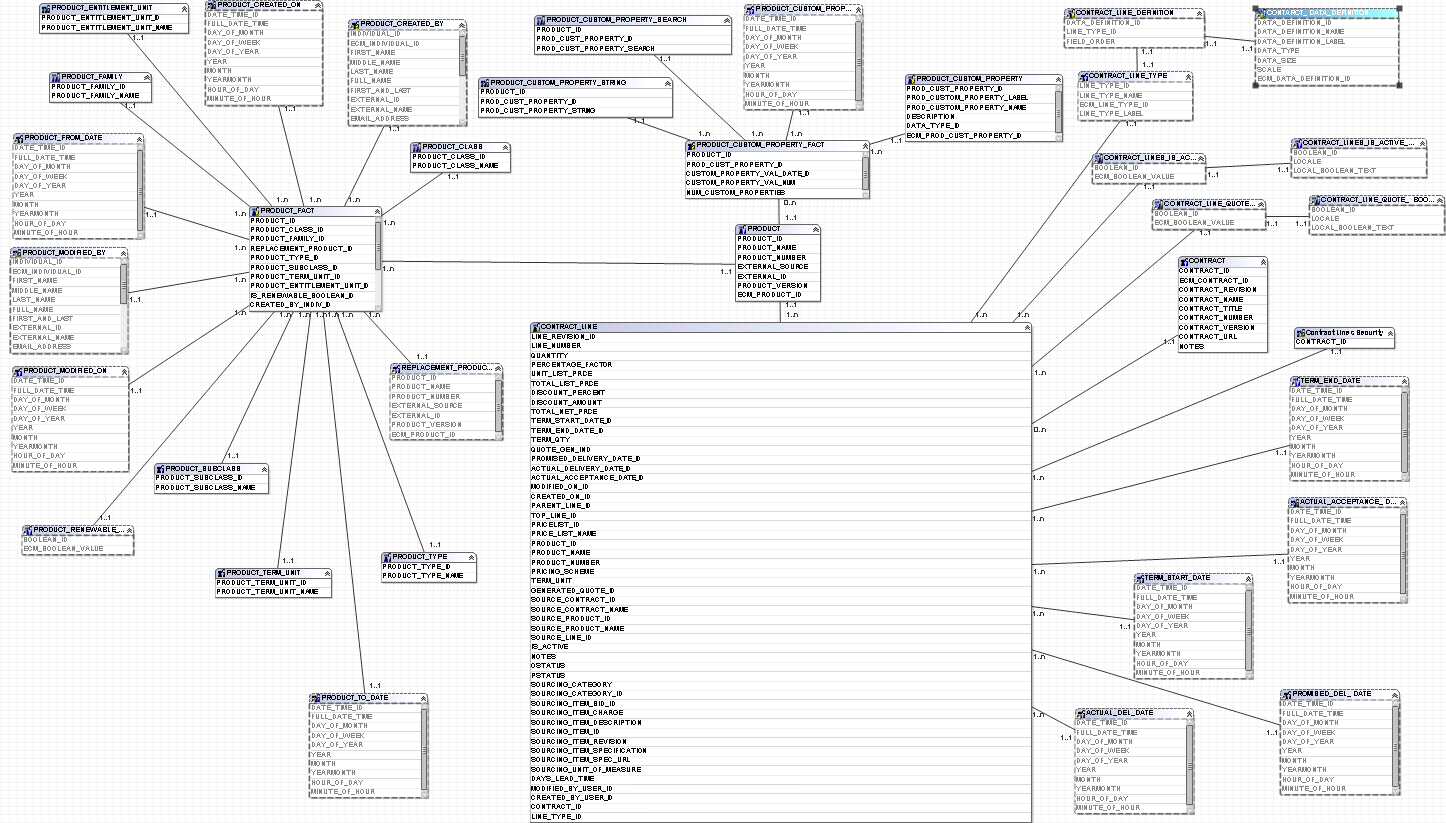


Figure Contract Lines database layer

Presentation layer

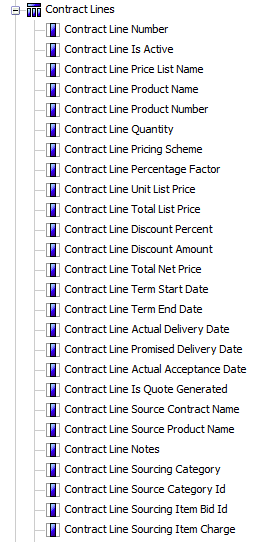


Figure Contract Lines

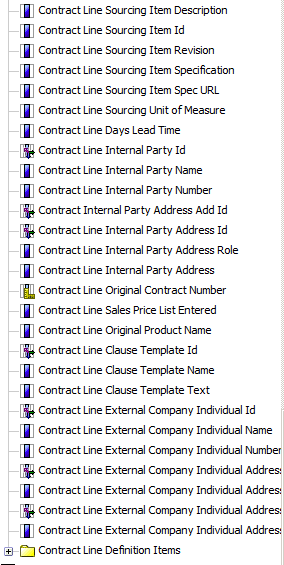


Figure Contract lines (continued)

### Contract Lines Ext

The content of this folder is adjusted based on the line items you have created.

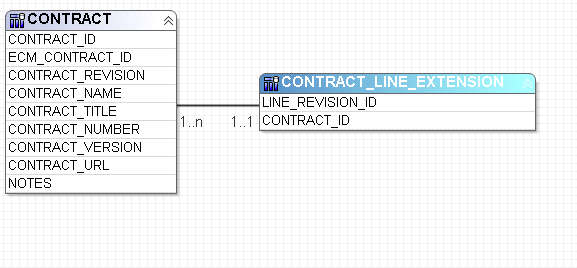


Figure Contract Line extension database layer

Presentation layer

Dynamic

Appendices

# Appendix A: Term reporting extension table

**Starting in version 10.0.2.2 you are able to mark terms as available for reporting. Marking a term “Available for reporting” add this term as a column to a custom table. This table is represented in the presentation layer as “Contract Custom Terms” This table is generated dynamically by the ETL process. You can have up to 300 terms marked for reporting.**

These term definitions stored as columns are located in the “Contract Custom Terms” folder under the “Contracts” folder.

**Note:** Terms are moved to the reporting database by the ETL jobs. The ETL must run before the terms will be visible in reporting. The term values are not visible in reporting until they are assigned to a contract.

# Appendix B: Term Reporting

**For version previous to 10.0.2.2 and for terms not mark “available for reporting”, We have created a sample term report for assisting developers with this type of reporting. The first thing to understand is that terms in the Contract Terms folder are stored as rows of data.**

**Sample Terms Report with Term Filtering**

**About**

Sample terms report with term filtering is a sample report wherein you can add terms as columns and then use those columns in your filters. The report shows how to create three sample terms one Date Type term, One Character type term, and one Numeric Type Term and have a filter.

**Procedure**

To find a list of all terms those are not system terms:

(System terms are already included in the model and can be used without creating a custom term value)

1. Open report studio and create a list report.

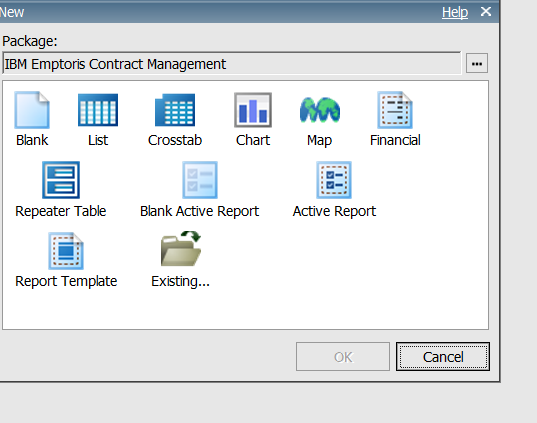


Figure Report studio report types

1. Add 4 data items to your report (Contract Term Label, Contract Term Name, Contract Term Type, Contract Term Is System Term)

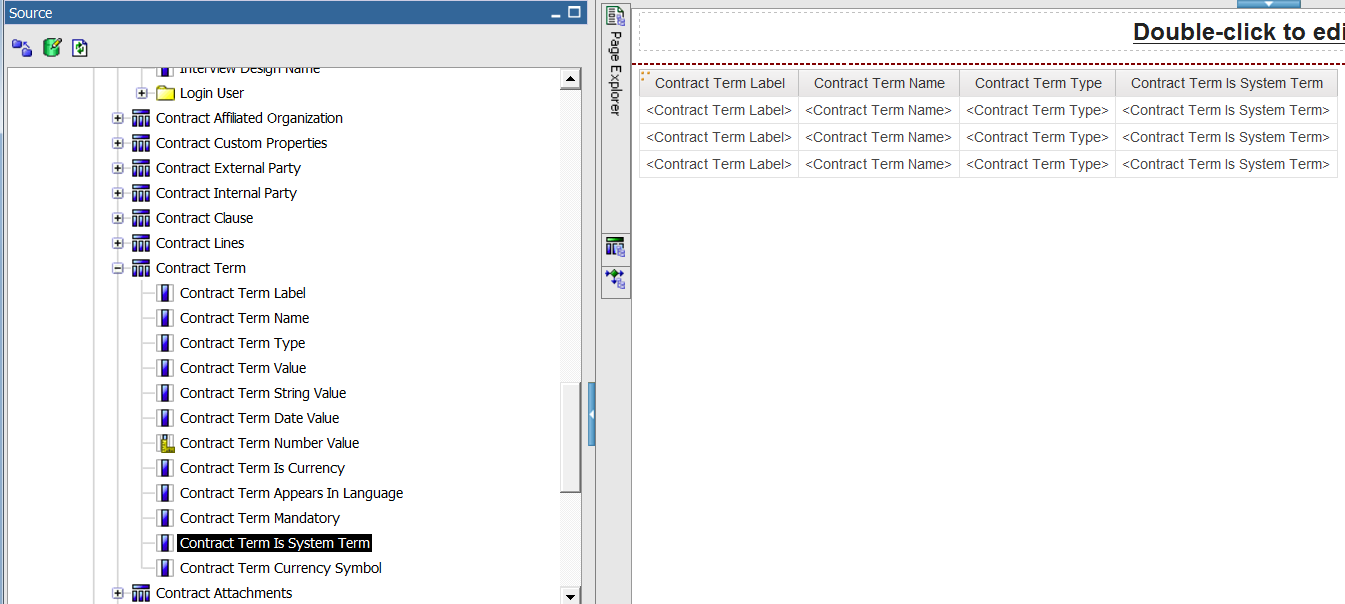


Figure Terms as rows: Selecting term type

1. Add a custom filter for Contract Term is System Term = ‘No’

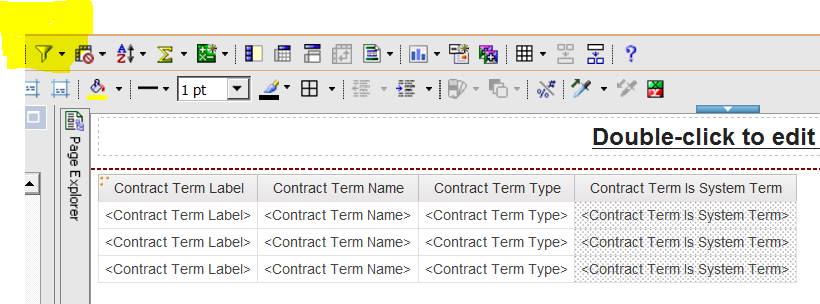


Figure Filter Button

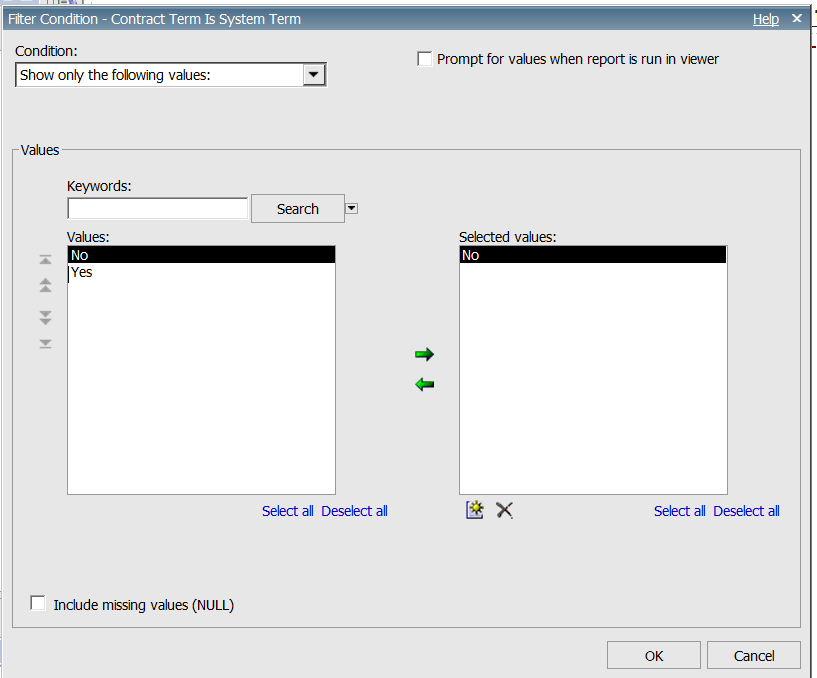


Figure Filter dialog box

1. This will give you a list of all the customer custom terms.
2. Run this report as PDF and print the report.
3. Verify that all custom terms have been created.
4. Save the report in your ‘My Folders’ and then close the report
5. Open the Sample term report.
6. For each item on the report you created above add a new item to the query in the sample term report following the directions below.

To create addition terms as columns, complete the following steps:

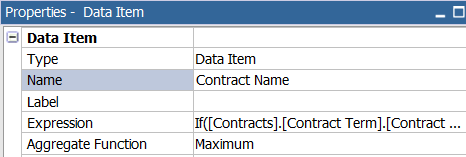
1. Copy the data item that represents the type of data item you wish to add. For our example we will use the term ‘Contract Title’ and replace it with the term ‘Contract Name’.
2. Rename the item to the name of the term. (The new data item with have the same name as the old data item with a ‘1’ after it) For our example change the name from ‘Contract Title1’ to ‘Contract Name’.
3. Open the equation for the data item and replace the term name in the first line of the equation with the term name you would like to use as a column. For example you could replace the ‘Contract Title’ term with ‘Contract Name’
   1. **Replace** If([Contracts].[Contract Term].[Contract Term Name]='Contract Title')
   2. **With** If([Contracts].[Contract Term].[Contract Term Name]='Contract Name')
4. Make sure that the Data Item property ‘Aggregate Function’ is set to Maximum
   1. 

Figure Data Item properties

1. Add the data item to your report as a column.
2. You can now use this data item in a filter value using the “Application” filter property of ‘After Auto Aggregation.

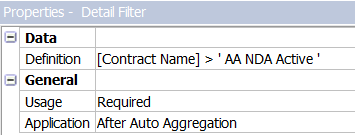


Figure Data Item properties (Continued)

1. Once you have added all the custom terms check to make sure that you have a new query item for every custom term.
2. Save the new Sample term report with a new name ‘ Term report Template (existing terms already added)’

# Appendix C: Custom lines

A major change in the 10.0.2 release was the inclusion of Contract Management user defined custom line items.

### Principal design challenge:

* Dynamic nature of user defined fields;
* IBM® Emptoris® Contract Management data stored as rows, but used in reporting in column-oriented fashion;
* Large number of possible extension fields (hundreds);

### What changed…

* Report Developers can create reports that contain IBM® EMPTORIS® CONTRACT MANAGEMENT user defined contract lines.
* Report Developers have contract lines reporting on ALL line fields.
* Reporting Model now can dynamically change as the IBM® EMPTORIS® CONTRACT MANAGEMENT user adds/removes custom fields.

Using our ETL tool DataStage, we allow the propagation of IBM® EMPTORIS® CONTRACT MANAGEMENT user-defined contract line extension fields from IBM® EMPTORIS® CONTRACT MANAGEMENT Source to the IBM® EMPTORIS® CONTRACT MANAGEMENT Reporting database.

This was accomplished leveraging the Java Integration stage and Cognos SDK, we implemented a mechanism to extend the Cognos model, making available customer-defined contract line extension fields in the Cognos BI reporting system.

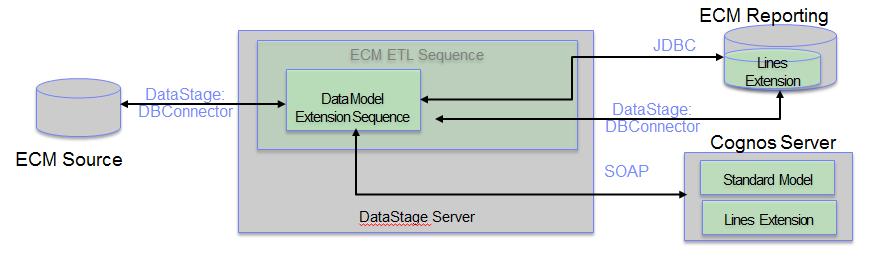


Figure Custom Lines ETL operation diagram

What this means to you the advanced report developer is each time the ETL runs all new fields are available in the Lines Extension folder.

## Converting date fields in Contract Lines to user time zones

We have documented detailed steps on how to achieve this. Here is a snapshot: Create the new data item using the date field and time zone function. Create a new Data Item by going to Toolbox red icon. Functions are located in the fourth tab. Drag the function to the editor. Then provide the macro.

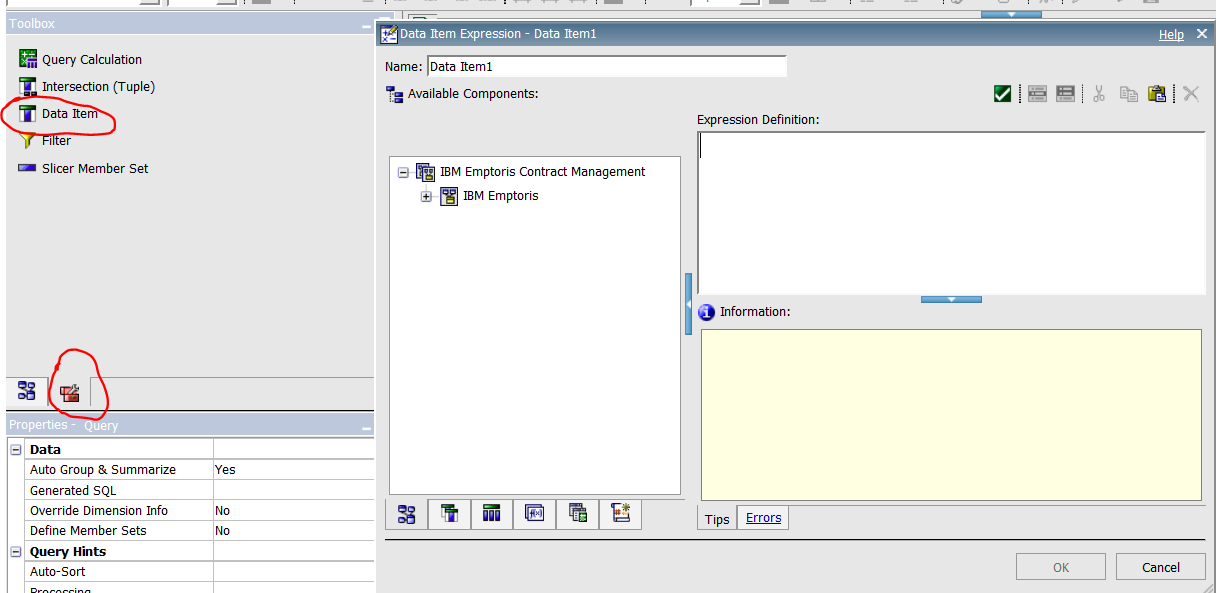


Figure Building new Time item (Step1)

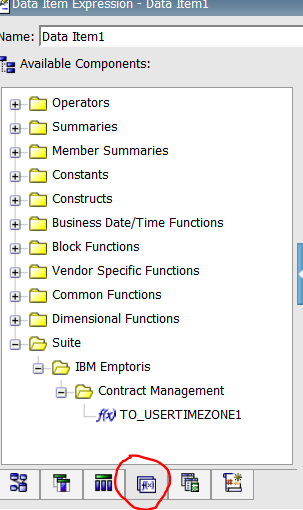


Figure Building new time item (Step 2)

# Appendix D: Indexed Fields

In order to support the dimensional model all ID fields are indexed to increase performance of the model. In addition, the following is a list of all non-ID fields that are indexed. These are especially good candidates for filters.

|  |  |  |
| --- | --- | --- |
| TABLE\_NAME | COLUMN\_NAME | LIST\_OF\_INDEXES |
| BOOLEAN | ECM\_BOOLEAN\_VALUE | IX\_BOOLEAN\_\_BOOLEAN\_VALUE |
| BOOLEAN\_I18N | LOCALE | BOOLEAN\_I18N\_PK |
| CLAUSE\_APPROVAL\_STATUS\_I18N | LOCALE | CLAUSE\_APPR\_STATUS\_I18N\_PK |
| CLAUSE\_STATUS\_I18N | LOCALE | CLAUSE\_STATUS\_I18N\_PK |
| CLAUSE\_TEMPLATE\_FACT | EFFECTIVE\_END\_DATE | XIF6CLAUSE\_TEMPLATE\_FACT |
| CLAUSE\_TEMPLATE\_FACT | EFFECTIVE\_START\_DATE | XIF5CLAUSE\_TEMPLATE\_FACT |
| CLAUSE\_TEMPLATE\_FACT | IS\_APPROVAL\_FOR\_ALT\_REQUIRED | XIF11CLAUSE\_TEMPLATE\_FACT |
| CLAUSE\_TEMPLATE\_FACT | IS\_CLAUSE\_FILTER\_DEFINED | XIF12CLAUSE\_TEMPLATE\_FACT |
| CLAUSE\_TEMPL\_APPROVER | INCLUDE\_PARENT\_ORG | XIF4CLAUSE\_TEMPL\_APPROVERS |
| CLAUSE\_TEMPL\_CUST\_PROP | VALUE\_BOOLEAN | XIF4CLAUSE\_TEMPL\_CUST\_PROP |
| CLAUSE\_TEMPL\_ORG\_RELATION | IS\_DIRECT\_ASSOCIATION | XIF3CLAUSE\_TEMPL\_ORG\_RELATION,XPKCLAUSE\_TEMPL\_ORG\_RELATION |
| CONTRACT | CONTRACT\_NUMBER | IX\_CONTRACT\_1 |
| CONTRACT | CONTRACT\_REVISION | IX\_CONTRACT\_2 |
| CONTRACT\_ATTACHMENT\_FACT | ATTACHMENT\_REVISION | IX\_CONTRACT\_ATTACHMENT\_FACT\_2 |
| CONTRACT\_ATTACHMENT\_FACT | CATEGORY | IX\_CT\_ATT\_FACT\_CATEGORY |
| CONTRACT\_CATEGORY | CONTRACT\_CATEGORY\_NAME | CONTRACT\_CAT\_U\_NAME |
| CONTRACT\_CATEGORY\_I18N | LOCALE | CONTRACT\_CATEGORY\_I18N\_PK |
| CONTRACT\_CATEGORY\_I18N | LOCAL\_CATEGORY\_NAME |  |
| CONTRACT\_CLASS | CONTRACT\_CLASS\_NAME | CONTRACT\_CLASS\_U\_NAME |
| CONTRACT\_EVENT | NOTIFICATION\_OFFSET | IX\_CONTRACT\_EVENT\_2 |
| CONTRACT\_EVENT | NOTIFICATION\_OFFSET\_TYPE | IX\_CONTRACT\_EVENT\_3 |
| CONTRACT\_EVENT | NOTIFICATION\_OFFSET\_UNIT | IX\_CONTRACT\_EVENT\_4 |
| CONTRACT\_EVENT | NOTIFICATION\_STATUS | IX\_CONTRACT\_EVENT\_6 |
| CONTRACT\_EVENT | PATTERN\_OFFSET | IX\_CONTRACT\_EVENT\_7 |
| CONTRACT\_EVENT | PATTERN\_OFFSET\_UNIT | IX\_CONTRACT\_EVENT\_8 |
| CONTRACT\_EVENT | RECURRENCE\_END\_OFFSET | IX\_CONTRACT\_EVENT\_10 |
| CONTRACT\_EVENT | RECURRENCE\_END\_OFFSET\_UNIT | IX\_CONTRACT\_EVENT\_11 |
| CONTRACT\_EVENT\_FACT | IS\_CREATE\_CONTRACT\_ENABLED | IX\_F15CONTRACT\_EVENT\_FACT2 |
| CONTRACT\_EVENT\_FACT | IS\_NOTIFICATION\_ENABLED | IX\_F8CONTRACT\_EVENT\_FACT2 |
| CONTRACT\_EVENT\_FACT | IS\_RECURRENCE\_ENABLED | IX\_F7CONTRACT\_EVENT\_FACT2 |
| CONTRACT\_EVENT\_FACT | IS\_REQUEST\_REVIEW\_ENABLED | IX\_F14CONTRACT\_EVENT\_FACT2 |
| CONTRACT\_FACT | IS\_AMENDED\_BOOLEAN\_ID | IX\_CONF\_ISAMENDBOOLID |
| CONTRACT\_FACT | IS\_CREATED\_FROM\_TEMPLATE | IX\_CONTRACT\_FACT\_2 |
| CONTRACT\_LINE | IS\_ACTIVE | IX\_CONTRACT\_LINE\_6 |
| CONTRACT\_LINE | LINE\_NUMBER | IX\_CONTRACT\_LINE\_7 |
| CONTRACT\_LINE | PRODUCT\_NAME | IX\_CONTRACT\_LINE\_13 |
| CONTRACT\_NATURE | CONTRACT\_NATURE\_NAME | IX\_CONTRACT\_NATURE\_1 |
| CONTRACT\_ORGANIZATION | CONTRACT\_REVISION | IX\_CONTRACT\_ORGANIZATION\_1 |
| CONTRACT\_ORGANIZATION\_ADDRESS | COUNTRY | IX\_CONTRACT\_ORG\_ADDRESS\_2 |
| CONTRACT\_ORGANIZATION\_ADDRESS | COUNTY | IX\_CONTRACT\_ORG\_ADDRESS\_3 |
| CONTRACT\_ORGANIZATION\_ADDRESS | POSTAL\_CODE | IX\_CONTRACT\_ORG\_ADDRESS\_4 |
| CONTRACT\_ORGANIZATION\_ADDRESS | STATE\_PROVINCE | IX\_CONTRACT\_ORG\_ADDRESS\_5 |
| CONTRACT\_ORGANIZATION\_RELATION | IS\_DIRECT\_ASSOCIATION | XPKCONTRACT\_ORGANIZATION\_RELAT |
| CONTRACT\_ORIGIN\_I18N | LOCALE | XPKCONTRACT\_ORIGNIN\_I18N |
| CONTRACT\_RELATIONSHIP\_TYPE | CONTRACT\_REL\_TYPE\_NAME | IX\_CONTRACT\_REL\_TYPE\_1 |
| CONTRACT\_SIGNATORIES | SIGNATURE\_DATE | IX\_CONTRACT\_SIGNATORIES\_1 |
| CONTRACT\_STATE | CONTRACT\_STATE\_NAME | IX\_CONTRACT\_STATE\_1 |
| CONTRACT\_STATUS | CONTRACT\_STATUS\_NAME | CONTRACT\_STATUS\_U\_NAME |
| CONTRACT\_STATUS\_I18N | LOCALE | CONTRACT\_STATUS\_I18N\_PK |
| CONTRACT\_STATUS\_I18N | LOCAL\_STATUS\_NAME | IX\_CONTRACT\_STATUS\_I18N\_1 |
| CONTRACT\_SUBSTATUS | CONTRACT\_SUBSTATUS\_NAME | CONTRACT\_SUBSTATUS\_U\_NAME |
| CONTRACT\_TEMPLATE | CONTRACT\_TEMPLATE\_NAME | IX\_CONTRACT\_TEMPLATE\_1 |
| CONTRACT\_TEMPLATE\_APPROVAL | CONTRACT\_ORGANIZATION\_TYPE | IX\_CONTRACT\_TEMPL\_APPROVAL\_1 |
| CONTRACT\_TEMPLATE\_APPROVAL | INCLUDE\_PARENT\_ORGANIZATION | XIF4CONTRACT\_TEMPLATE\_APPROVAL |
| CONTRACT\_TEMPLATE\_APP\_I18N | LOCALE | XPKCONTRACT\_TEMPLATE\_APP\_I18N |
| CONTRACT\_TEMPLATE\_APP\_I18N | LOCAL\_APPLICABILITY\_NAME | IX\_CONTRACT\_TEMPL\_APP\_I18N\_1 |
| CONTRACT\_TEMPLATE\_EVENT | NOTIFICATION\_OFFSET | IX\_CONTRACT\_TEMPLATE\_EVENT\_2 |
| CONTRACT\_TEMPLATE\_EVENT | NOTIFICATION\_OFFSET\_TYPE | IX\_CONTRACT\_TEMPLATE\_EVENT\_3 |
| CONTRACT\_TEMPLATE\_EVENT | NOTIFICATION\_OFFSET\_UNIT | IX\_CONTRACT\_TEMPLATE\_EVENT\_4 |
| CONTRACT\_TEMPLATE\_EVENT | PATTERN\_OFFSET | IX\_CONTRACT\_TEMPLATE\_EVENT\_5 |
| CONTRACT\_TEMPLATE\_EVENT | PATTERN\_OFFSET\_UNIT | IX\_CONTRACT\_TEMPLATE\_EVENT\_6 |
| CONTRACT\_TEMPLATE\_EVENT | RECURRENCE\_END\_OFFSET | IX\_CONTRACT\_TEMPLATE\_EVENT\_7 |
| CONTRACT\_TEMPLATE\_EVENT | RECURRENCE\_END\_OFFSET\_UNIT | IX\_CONTRACT\_TEMPLATE\_EVENT\_8 |
| CONTRACT\_TEMPLATE\_EV\_FACT | IS\_CREATE\_CONTRACT\_ENABLED | XIF12CONTRACT\_TEMPLATE\_EV\_FACT |
| CONTRACT\_TEMPLATE\_EV\_FACT | IS\_NOTIFICATION\_ENABLED | XIF6CONTRACT\_TEMPLATE\_EV\_FACT |
| CONTRACT\_TEMPLATE\_EV\_FACT | IS\_RECURRENCE\_ENABLED | XIF5CONTRACT\_TEMPLATE\_EV\_FACT |
| CONTRACT\_TEMPLATE\_EV\_FACT | IS\_REQUEST\_REVIEW\_ENABLED | XIF11CONTRACT\_TEMPLATE\_EV\_FACT |
| CONTRACT\_TEMPLATE\_FACT | DEFAULT\_NEGOTIABILITY | IX\_CONTRACT\_TEMPLATE\_FACT\_2 |
| CONTRACT\_TEMPLATE\_LINE | IS\_SOURCING\_LINE | XIF3CONTRACT\_TEMPLATE\_LINES |
| CONTRACT\_TEMPLATE\_LINE | LINE\_TYPE\_ORDER | IX\_CONTRACT\_TEMPLATE\_LINE\_1 |
| CONTRACT\_TEMPLATE\_STATUS\_I18N | LOCALE | CONTRACT\_TEMPL\_STATUS\_I18N\_PK |
| CONTRACT\_TERM\_FACT | TERM\_VALUE\_NUM | IX\_CONTRACT\_TERM\_FACT\_2 |
| CONTRACT\_TMP\_ORG\_RELATION | IS\_DIRECT\_ASSOCIATION | XIF4CONTRACT\_TMP\_ORG\_RELATION,XPKCONTRACT\_TMP\_ORG\_RELATION |
| CURRENCY | CURRENCY\_CODE | IX\_CURRENCY\_1 |
| CURRENCY | CURRENCY\_NAME | IX\_CURRENCY\_2 |
| CURRENCY | CURRENCY\_SYMBOL | IX\_CURRENCY\_3 |
| DATA\_DEFINITION | DATA\_DEFINITION\_LABEL | IX\_DATA\_DEFINITION\_1 |
| DATA\_DEFINITION | DATA\_DEFINITION\_NAME | IX\_DATA\_DEFINITION\_2 |
| DATA\_TYPE | DATA\_TYPE\_NAME | IX\_DATA\_TYPE\_1 |
| DATA\_TYPE\_I18N | LOCALE | PK\_DATA\_TYPE\_I18N |
| DATA\_TYPE\_I18N | LOCAL\_DATA\_TYPE\_NAME | IX\_DATA\_TYPE\_I18N\_1 |
| DATE\_TIME | FULL\_DATE\_TIME | IX\_DATE\_TIME\_1 |
| EVENT\_DATE\_PROPERTY | EVENT\_DATE\_PROPERTY\_NAME | IX\_EVENT\_DATE\_PROPERTY\_1 |
| EVENT\_DATE\_PROPERTY\_I18N | LOCALE | PK\_EVENT\_DATE\_PROPERTY\_I18N |
| EVENT\_DATE\_PROPERTY\_I18N | LOCAL\_EVENT\_DATE\_PROPERTY | IX\_EVENT\_DATE\_PROPERTY\_I18N\_1 |
| EVENT\_OFFSET\_TYPE | EVENT\_OFFSET\_TYPE\_NAME | IX\_EVENT\_OFFSET\_TYPE\_1 |
| EVENT\_OFFSET\_TYPE\_I18N | LOCALE | XPKEVENT\_OFFSET\_TYPE\_I18N |
| EVENT\_OFFSET\_TYPE\_I18N | LOCAL\_EVENT\_OFFSET\_TYPE\_NAME | IX\_EVENT\_OFFSET\_TYPE\_I18N\_1 |
| EVENT\_OFFSET\_UNIT | EVENT\_OFFSET\_UNIT\_NAME | IX\_EVENT\_OFFSET\_UNIT\_1 |
| EVENT\_OFFSET\_UNIT\_I18N | LOCALE | XPKEVENT\_OFFSET\_UNIT\_I18N |
| EVENT\_OFFSET\_UNIT\_I18N | LOCAL\_EVENT\_OFFSET\_UNIT\_NAME | IX\_EVENT\_OFFSET\_UNIT\_I18N\_1 |
| EVENT\_STATUS | LOCAL\_EVENT\_STATUS\_NAME | IX\_EVENT\_STATUS\_1 |
| EVENT\_STATUS\_I18N | LOCALE | PK\_EVENT\_STATUS\_I18N |
| EVENT\_STATUS\_I18N | LOCAL\_EVENT\_STATUS\_NAME | IX\_EVENT\_STATUS\_I18N\_1 |
| EVENT\_TYPE | EVENT\_TYPE\_NAME | IX\_EVENT\_TYPE\_1 |
| EVENT\_TYPE\_I18N | LOCALE | EVENT\_TYPE\_I18N\_PK |
| EVENT\_TYPE\_I18N | LOCAL\_EVENT\_TYPE\_NAME | IX\_EVENT\_TYPE\_I18N\_1 |
| EXECUTION\_TYPE | EXECUTION\_TYPE\_NAME | IX\_EXECUTION\_TYPE\_1 |
| FOLDER | FOLDER\_NAME | IX\_FOLDER\_2 |
| GROUP\_ACCESS | GROUP\_ACCESS\_NAME | IX\_GROUP\_ACCESS\_1 |
| INDIVIDUAL\_ADDRESS | ADDRESS\_ROLE\_NAME | IX\_INDIVIDUAL\_ADDRESS\_1 |
| INDIVIDUAL\_ADDRESS | CITY | IX\_INDIVIDUAL\_ADDRESS\_2 |
| INDIVIDUAL\_ADDRESS | COUNTRY | IX\_INDIVIDUAL\_ADDRESS\_3 |
| INDIVIDUAL\_ADDRESS | COUNTY | IX\_INDIVIDUAL\_ADDRESS\_4 |
| INDIVIDUAL\_ADDRESS | POSTAL\_CODE | IX\_INDIVIDUAL\_ADDRESS\_6 |
| INDIVIDUAL\_FACT | IS\_SYSTEM | XIF17INDIVIDUAL\_FACT |
| INDIVIDUAL\_PHONE | PHONE\_TYPE\_NAME | IX\_INDIVIDUAL\_PHONE\_1 |
| INTERVIEW | INTERVIEW\_NAME | IX\_INTERVIEW\_1 |
| INTERVIEW\_TEMPLATE | INTERVIEW\_TEMPLATE\_NAME | IX\_INTERVIEW\_TEMPLATE\_1 |
| LINE\_DATES\_PROPERTY | LINE\_DATE\_LABEL | IX\_LINE\_DATES\_PROPERTY\_1 |
| LINE\_DATES\_PROPERTY | LINE\_DATE\_NAME | IX\_LINE\_DATES\_PROPERTY\_2 |
| LINE\_TYPE | LINE\_TYPE\_LABEL | IX\_LINE\_TYPE\_1 |
| LINE\_TYPE | LINE\_TYPE\_NAME | IX\_LINE\_TYPE\_2 |
| LOGIN\_STATUS | LOGIN\_STATUS\_NAME | IX\_LOGIN\_STATUS\_1 |
| LOGIN\_STATUS\_I18N | LOCALE | LOGIN\_STATUS\_I18N\_PK |
| LOGIN\_STATUS\_I18N | LOCAL\_LOGIN\_STATUS\_NAME | IX\_LOGIN\_STATUS\_I18N\_1 |
| MODULE\_VISIBILITY | MODULE\_VISIBILITY\_TEXT | IX\_MODULE\_VISIBILITY\_1 |
| NEGOTIATION\_STATUS | NEGOTIATION\_STATUS\_TEXT | IX\_NEGOTIATION\_STATUS\_1 |
| ORGANIZATION | DATA\_SOURCE | IX\_ORGANIZATION\_1 |
| ORGANIZATION | DUNS\_NUMBER | IX\_ORGANIZATION\_3 |
| ORGANIZATION | EXTERNAL\_SYSTEM\_NAME | IX\_ORGANIZATION\_5 |
| ORGANIZATION | FEDERAL\_TAX\_ID | IX\_ORGANIZATION\_6 |
| ORGANIZATION | NAICS\_SIC\_CODE | IX\_ORGANIZATION\_7 |
| ORGANIZATION | ORGANIZATION\_NAME | IX\_ORGANIZATION\_8 |
| ORGANIZATION | ORGANIZATION\_NUMBER | IX\_ORGANIZATION\_9 |
| ORGANIZATION\_ADDRESS | STATE\_PROVINCE | IX\_ORGANIZATION\_ADDRESS\_5 |
| ORGANIZATION\_ALIAS | ECM\_ORGANIZATION\_ALIAS | ECM\_ORG\_ALIAS\_ID\_IX |
| ORGANIZATION\_CUSTOM\_PROPERTY | ORG\_CUSTOM\_PROPERTY\_LABEL | IX\_ORGANIZATION\_CUSTOM\_P2 |
| ORGANIZATION\_INT\_EXT\_TYPE | ORG\_INT\_EXT\_TYPE\_NAME | IX\_ORGANIZATION\_INT\_ET\_1 |
| ORGANIZATION\_INT\_EXT\_TYPE\_I18N | LOCALE | ORG\_INT\_EXT\_TYPE\_I18N\_PK |
| ORGANIZATION\_INT\_EXT\_TYPE\_I18N | LOCAL\_ORG\_INT\_EXT\_TYPE\_NAME | IX\_ORGANIZATION\_INT\_ET\_I18N\_1 |
| ORGANIZATION\_RELATIONSHIP\_TYPE | ORGANIZATION\_REL\_TYPE\_NAME | IX\_ORGANIZATION\_RELT\_1 |
| ORGANIZATION\_ROLE | ORGANIZATION\_ROLE\_NAME | IX\_ORGANIZATION\_ROLE\_1 |
| ORGANIZATION\_STATUS | ORGANIZATION\_STATUS\_NAME | IX\_ORGANIZATION\_STATUS\_1 |
| PRODUCT | EXTERNAL\_SOURCE | PROD\_EXTERNAL |
| PRODUCT | PRODUCT\_NAME | IX\_PRODUCT\_1 |
| PRODUCT | PRODUCT\_NUMBER | PROD\_PROD\_NUMBER\_IX |
| PRODUCT\_TYPE\_I18N | LOCALE | XPKPRODUCT\_TYPE\_I18N |
| SUITE\_USER | USERNAME | IX\_SUITEUSER\_USERNAME |
| TASK\_TYPE | ECM\_TASK\_TYPE | IX\_TASK\_TYPE\_\_TASK\_TYPE |
| TASK\_TYPE\_I18N | LOCALE | PK\_TASK\_TYPE\_I18N |
| TERM | IS\_MULTI\_VALUE | XIF1TERM |
| TERM | IS\_SYSTEM\_TERM | IX\_TERM\_1 |
| TERM | IS\_USED\_FOR\_REPORTING | IX\_TERM\_2 |
| TERM | TERM\_NAME | IX\_TERM\_NAME |
| TERM | TYPE | IX\_TERM\_TYPE |
| TERMINATION\_REASON | TERMINATION\_REASON\_CODE | IX\_TERMINATION\_REASON\_1 |
| TERM\_MANDATORY\_FOR | TERM\_MANDATORY\_FOR\_TXT | IX\_TERM\_MANDATORY\_FOR\_1 |
| TERM\_MANDATORY\_FOR\_I18N | LOCALE | PK\_TERM\_MANDATORY\_FOR\_I18N |
| TERM\_MANDATORY\_FOR\_I18N | LOCAL\_TERM\_MANDATORY\_FOR\_TXT | IX\_TERM\_MANDATORY\_FOR\_I18N\_1 |
| TIMEZONE | TIMEZONE\_NAME | IX\_TIMEZONE\_1 |
| USER\_DEFINED\_PROPERTY | PROPERTY\_NAME | IX\_USER\_DEFINED\_PROPERTY\_1 |
| USER\_GROUP | USER\_GROUP\_NAME | IX\_USER\_GROUP\_1 |
| USER\_PROPERTY\_TYPE | USER\_PROPERTY\_TYPE\_NAME | IX\_USER\_PROPERTY\_TYPE\_1 |

Figure Indexed items

# Appendix E: Large text fields

A number of fields in the IBM® EMPTORIS® CONTRACT MANAGEMENT database contain very large amounts of text. Any field that contained more than 1000 characters of data was truncated to 1000 characters. The following is a list of large text fields that have been truncated.

|  |  |  |
| --- | --- | --- |
| TABLE\_NAME | COLUMN\_NAME | # Characters |
| ACTIVITY\_COMMENT | COMMENT\_TEXT | 1000 |
| ATTACHMENT | FILENAME | 750 |
| CLAUSE | CLAUSE\_NAME | 750 |
| CLAUSE | CLAUSE\_TITLE | 750 |
| CLAUSE\_TEXT | CLAUSE\_TEXT | 750 |
| CLAUSE\_TEXT | CLAUSE\_TEXT\_TITLE | 1000 |
| COMMENT\_TEXT | COMMENT\_TEXT | 1000 |
| CONTRACT | CONTRACT\_TITLE | 1000 |
| CONTRACT\_ATTACHMENT\_FACT | FILENAME | 750 |
| CONTRACT\_CATEGORY\_I18N | LOCAL\_CATEGORY\_NAME | 1000 |
| CONTRACT\_CUSTOM\_PROPERTY | DESCRIPTION | 750 |
| CONTRACT\_CUSTOM\_PROPERTY\_FACT | CUST\_PROP\_VALUE | 1000 |
| CONTRACT\_EVENT | RELATED\_CONTRACT\_COMMENT | 1000 |
| CONTRACT\_EVENT | REVIEW\_TASK\_COMMENT | 1000 |
| CONTRACT\_LINE | CLAUSE\_TEMPLATE\_NAME | 1000 |
| CONTRACT\_LINE | CLAUSE\_TEMPLATE\_TEXT | 1000 |
| CONTRACT\_LINE | EXTERNAL\_COMP\_IND\_ADDR | 1000 |
| CONTRACT\_LINE | NOTES | 1000 |
| CONTRACT\_ORGANIZATION\_ADDRESS | STREET\_ADDRESS | 1000 |
| CONTRACT\_TEMPLATE\_EVENT | RELATED\_CONTRACT\_COMMENT | 1000 |
| CONTRACT\_TEMPLATE\_EVENT | REVIEW\_TASK\_COMMENT | 1000 |
| CUSTOM\_PROPERTY\_VALUE\_STRING | CUSTOM\_PROPERTY\_VAL\_STRING | 1000 |
| EXECUTION\_TYPE | EXECUTION\_TYPE\_NAME | 1000 |
| INDIVIDUAL\_ADDRESS | STREET\_ADDRESS | 1000 |
| ORGANIZATION | NOTES | 1000 |
| ORGANIZATION\_CUSTOM\_PROPERTY | DESCRIPTION | 750 |
| ORGANIZATION\_CUSTOM\_PROP\_FACT | CUSTOM\_PROPERTY\_VALUE | 1000 |
| ORGANIZATION\_CUST\_PROP\_STRING | ORG\_CUSTOM\_PROPERTY\_VAL\_STRING | 1000 |
| PRODUCT\_CUSTOM\_PROPERTY | DESCRIPTION | 1000 |
| PRODUCT\_CUSTOM\_PROPERTY\_SEARCH | PROD\_CUST\_PROPERTY\_SEARCH | 1000 |
| PRODUCT\_CUSTOM\_PROPERTY\_STRING | PROD\_CUST\_PROPERTY\_STRING | 1000 |
| RELATED\_CONTRACT\_COMMENT | RELATED\_CONTRACT\_COMMENT\_TEXT | 1000 |
| REQUEST\_REVIEW\_COMMENT | REQUEST\_REVIEW\_COMMENT\_TEXT | 1000 |
| SUBSTATUS\_HISTORY | SUBSTATUS\_NOTE | 1000 |
| SUBSTATUS\_NOTE\_CATEGORY | SUBSTATUS\_NOTE\_CATEGORY\_NAME | 1000 |
| TERM\_VALUE\_STRING | TERM\_VALUE\_STRING | 1000 |
| USER\_GROUP | USER\_GROUP\_DESCRIPTION | 1000 |

# Appendix F: Security

## Access to reporting Security

In order to access the reporting application you must be a member of one of three VSM groups. Membership in these groups grants you access to the Reporting Portal. Access to individual contracts is controlled by row level security see below for more information. Thus it is possible to be granted access to create / run reports but not have access to any contracts. In this case reports will generate a report with no data.

* Report Writers
* Reporting Administrators
* Report Viewers

Each installation should only have one or two “Reporting Administrators” and these users will need additional training in administering the Cognos environment.

**Note: Reporting Administrators have the ability to overwrite all default reporting portal settings.**

Report Writers have the ability to run pre-existing reports, create dashboards, and create and save reports in their ‘My Folders’ and in other folders designated by a Reporting Administrator.

Currently Report Viewers is only used for the Spend application.

Note: The simplest way to test basic security is to create a simple list report with only contract name and number. If they don't see the contract in this report it is a contract read permissions issue.

## Row Level Security

Security in Contract Management is very complex and in reporting we have attempted to bring that security model forward to reporting. Permissions can be assigned on both an individual and a Group. When permissions are assigned to a group all members of that group and members of any group that is assigned to that group gain the access granted.

A good rule of thumb is if you can see it in IBM® EMPTORIS® CONTRACT MANAGEMENT you should be able to see it in reporting. If you cannot see it in IBM® EMPTORIS® CONTRACT MANAGEMENT you should not be able to see it in reporting.

The following shows the IBM® EMPTORIS® CONTRACT MANAGEMENT permission(s) that you should have to see each section of data you may receive this permission directly or through inheritance from a group you are a member of. You access may still be limited by class level permissions. (See below for more information on class level security)

**Permissions**

To see a contract you must have Contract> Read or one of its subclasses permission assigned to you directly or to a group you are a member of. In addition the groups you belong to can inherit these permissions. In addition “Contract > Read” is granted to a user when they receive a Review or an Approval request and can be grated when you are assigned tasks via Delegation and Reassignment.

* **Example one**: I give you “Contract > Read” permission on a contract directly.
* **Example two**: I give “Contract > Read” permission to "Assigned and parent" meaning you can read any contracts in your assigned and your child organizations.
* **Example three**: I assign you to Review, or approve a contract or I delegate or reassign a task for a contract to you.

Once you have read access to a contract additional row level security applies. The following permissions are needed to see data in these sections.

Contract> Read (8)

* + Contract > Activity > Read
  + Contract > Attachments > Read
  + Contract > Events > Read
  + Contract > Language > Read
  + Contract > Lines > Read
  + Contract > Terms > Read
  + Contract > Relationships > Read
  + Contract > Security > Read

If you don't these related permission in ECM, then in Cognos Reports you will be able to see the Folder/QuerySubject and the data items, but when you drag those items into the report you will see blank row as the user does not have permissions and row level security kicks in.

## Class Level Security

Once you have contract read permission your view of the individual sections of the contract can be further limited. You must have the following permissions to see the information in the contract related to this permission. Class level security blocks your view of the query subject and data items. If you try to run a report with one of these items in a calculation, for which you do not have access, the report will generate an error if you do not have access to the item.

The following query subjects are coved by this type of security.

* Contract Template
* Contract Clause
* Clause Template
* Individuals
* External Company
* My Company
* Approval Rule Set
* Products
* Individuals
* Contract Template cannot be viewed without one of the following (5)
  + Contract Template > Read
  + Contract Template > Terms > Read
  + Contract Template > Line > Definitions > Read
  + Contract Template > Line > Clause Templates > Read
  + Contract Template > Language > Read
* Contract Clause cannot be viewed without one of the following (2)
  + Contract > Language > Read
  + Clause > Language > Read
* Clause Template cannot be viewed without one of the following (3)
  + Clause Template > Read
  + Clause Template > Approvals > Read
  + Clause Template > User-Defined Properties > Read

You can see the folder highlighted only if you have permissions in ECM

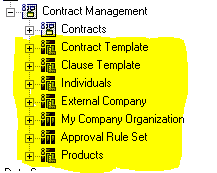


Figure Folders with Role based security

# Appendix G: Date Fields

All date fields are adjusted for the local time zone of the user. This is accomplished via the “USERTIMEZONE” database function. This function is automatically applied to standard date fields in the Cognos model so that they will match the Date / Time stamp seen by the user in IBM® EMPTORIS® CONTRACT MANAGEMENT.

This function is made available in the Cognos model under functions for report developers who want to apply it to custom fields in Terms and Lines.

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