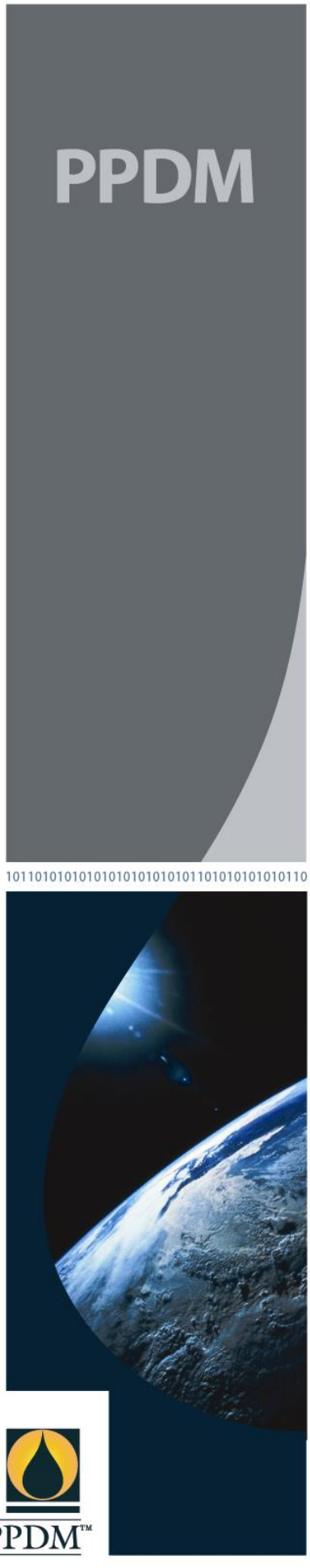
PPDM Association

Business Associates

Reference Guide

Last updated for PPDM 3.8



Developed for the PPDM Association by
Trudy Curtis (PPDM CIO)
Wes Baird (dataMatters)
L. A. McCulloch-Smith, Geowrite Inc)

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About This Document

This reference guide has been prepared to help managers, analysts, database administrators, programmers, data managers, and users understand how to use the Business Associates Module in PPDM 3.7. Readers at many levels, from managerial to technical implementers will benefit from reading various sections of this document. General, high-level business information is contained at the beginning of the document, with each section becoming progressively more technical and detailed.

Sometimes the terms we use in this and other PPDM documents need to be defined. We provide definitions in a separate Glossary, which you can obtain from PPDM.

This reference guide contains the following sections:

- Introduction

  Provides an executive overview of the PPDM Model as it pertains to Seismic.

- Business Process Overview

  Summarizes Business Associates and provides examples of related business processes.

- Integration

  Discusses how Business Associates is integrated with the other PPDM Business Modules and provides information about related references guides.

- Model Overview

  Includes the entity relationship diagram and discusses the use of Business Associates Module tables in the Data Model.

- Tables and Columns – Business Associates

  Identifies the data model tables for the Business Associates Module, how they should be used, what they contain, and recommends how they should be used. This section should be used in conjunction with the PPDM Table Report available for download from the PPDM Web Site (www.ppdm.org).

- Implementation Considerations

  Discusses issues related to implementing the PPDM model, architectural methodologies used in design, or special considerations for implementation that are not related to a specific table.

- Frequently Asked Questions

  Addresses technical and business questions about the Business Associates Module.

- Appendix A – Sample Queries

  Provides example queries with the appropriate SQL scripts that illustrate uses of the model based on the Business Requirements Document.

- Appendix B – Changes to the Model

  Identifies the changes in the Business Associates Module from the latest version to the newest release version of the PPDM model.

Introduction

PPDM Version 3.7 Business Associates is a support module designed to capture information about Business Associates to be captured and made available for sharing among applications, departments and organizations. A Business Associate may be an individual, company, consortium, or jurisdictional body such as a regulatory or government agency.

Business Associates may have provided services to you or be key contacts at another organization you are doing business with. Business Associates may have been involved in your legal disputes in some capacity, such as land right contests. The Business Associates support module may be used simply to provide a directory of companies, people, consortiums, and agencies that provide specific services in your area or to describe the organizational structure at your company.

The Business Associates module is a critical component of every other business and support module in PPDM 3.7; integrating the richness of information that can be stored for your business associates adds value to every aspect of your business. The Business Associates module can be used separately or as a support module for the other business modules within PPDM Version 3.7 where this information needs to be captured.

The PPDM Business Associates module has been encapsulated into an XML schema, available at www.ppdm.org/products/exchange/schemaDocs/index.html. This schema can be used on its own or embedded in other schema to support sharing detailed information about business associates.

Business Process Overview

Purpose

Business Associates are involved in every business process and transaction. Detailed descriptive meta data about who you are doing business with adds value to the information you keep. Properly managing business associate information also can help you ensure that your legal obligations are properly tracked and managed.

Description

Detailed information about business associates can be tracked in the business associates module including:

- Names, including naming history, acquisitions and mergers
- Current and historical addresses and contact information
- Employee (consultant etc) / employer relationships
- Organizational structures
- Levels of authority, including spending limits and authority over specific business objects
- Services provided for wells, seismic, obligations, land rights, contracts and more.
- Permits and licenses to conduct operations, from drivers licenses to permits to handle explosives.
- User preferences such as meeting times and locations or technical preferences for well log access

Key Business Processes

Historical Tracking and Version Control

Business requirements demand that effective systems be able to manage information about business associates as they are structured in the current environment, but that historical information also be available on an as needed basis. This requirement is often driven by legal or regulatory requirements, and care must be taken to ensure that important information is not lost over time.

For example, mergers and buy-outs may not result in the transfer of legal responsibility and liability for wells, facilities or seismic surveys away from the original owner; often the original owner will continue to exist as a legal entity for the purpose of carrying this liability in the long term. In these cases, overwriting an old company name with a new company name may have significant consequences.

Certain Business Associates' information may change from time to time, such as their roles, contact information, addresses, the services they provide, etc. Changes in the corporate environment, such as mergers, buy-outs, personnel changes, or the formation of consortiums may also occur.

Proper historical maintenance of Business Associates will ensure that you can associate your business objects with the corporate environment as it is today, or as it was a decade ago. Understanding these and other business realities is critical to properly managing business associates over time.

Sharing Information

Unlike many types of core data, Business Associate information is often managed independently by many groups and organizations within a company. Industry wide, there are thousands of separate, unconnected Business Associate databases in existence today. Managing and sharing this information in a meaningful way is a complex, time consuming process. Whenever possible, it is desirable to create a centralized repository of business associate information that can be distributed to various organizations and software applications as needed through database links or XML. Both can be supported with PPDM 3.7.

Model Overview

Integration

The PPDM Business Associates module is a critical component of every PPDM module, the depth and richness of this module add substantially to the capability and value of the entire model.

Support Modules

AFE: Application for Expenditure or Cost Center. Capture information about the cost centers or AFE's used through the life cycle.

Areas: business, regional or project areas associated with a Business Associates set

Business Associates: track detailed information about partners, service providers and other people, companies and regulatory agencies that you do business with.

Entitlements: information about the rights that you have to any type of data and what you are able to do with it.

PPDM Units of Measure: capture the default stored unit of measure for any measured value in the database.

Work Order: captures requests for work to be completed with some summary information about what was done and the data affected by the work order.

Business Modules

a) BA Interest Sets: describe partnership information for the ownership of seismic sets or products of those sets.

b) Contracts: contracts formed to support acquisition, processing, interpretation, data storage etc.

c) Geodetic and spatial: use this module to reference any positional information to geodetic or cartographic information.

d) Land Rights: capture surface access rights for seismic field acquisition.

e) Stratigraphy: make use of subsurface stratigraphic definitions that can be shared among all modules.

f) Obligations: especially useful to ensure that surface access requirements or conditions are met.

g) Projects: track work projects, such as for field acquisition, interpretation, or processing.

- Records Management: track the physical location of digital and hard copy products, circulation, retention, etc.

- Restriction: capture details about environmentally sensitive areas where access is limited.
- Support facility: describe marine vessels used for marine acquisition.
- Wells: describe in details wells that are used for VSP recording.

Contact PPDM to inquire about the status and availability of reference guides for these modules.

Data Diagrams

The diagram on this page is the legend for the tables discussed later in this document. Note that some or all of these elements may be present in data diagrams provided by the Association. Some elements are removed from final products to reduce file size:

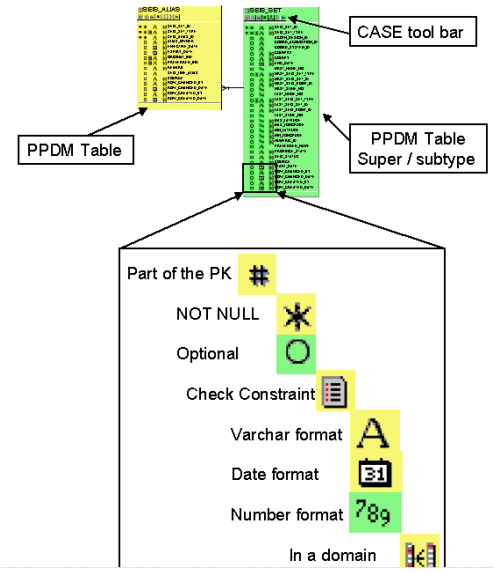

Figure 6: *This illustration shows the functions of each icon used in the data diagrams provided with PPDM version 3.7.*

The data diagrams for the Business Associates Module diagrams are not provided in this reference guide because of their very large size. Data diagrams can be obtained from the PPDM Association as part of the final model documentation or as a set of PowerPoint diagrams. The PowerPoint diagrams will provide the best resolution for printed quality.

Tables and Columns: Business Associates

The following tables exist in the Business Associates module of PPDM version 3.7. Each table is described in the following section; you can jump to a table description by clicking on the hyper-linked table name below. Note that for detailed content descriptions for each table, you should refer to the PPDM version 3.7 table documentation.

Business Associates

BUSINESS_ASSOCIATE

A Business Associate may be a person, company, regulatory agency, or consortium. Business associates may be classified using the columns BA_TYPE (validated by check constraint) may be one of the valid types of business associate) and BA_CATEGORY (validated by a reference table). Credit information may be placed in this table along with the current status of the business associate.

Once a company has been inserted into the database and validated as a correct data entry, we recommend that this entry remain in the database permanently. In the case of a merger or acquisition, the tables should be configured so that the originating companies remain in the table (perhaps with the ACTIVE_IND = 'N') and the new company is added as a new row. Relationships between originating companies and the new company are handled in BA_XREF. Information about which business objects are owned by which company should be updated by someone with information about any obligations remaining on the originating companies (don't assume that the new company will take over ownership of every business object owned by the originating company).

Identification information such as codes and names may be denormalized into this table from BA_NAME_ALIAS if desired. Some key contact information

(MAIN_PHONE_NUM, MAIN_FAX_NUM, MAIL_WEB_URL, MAIN_EMAIL_ADDRESS) has been denormalized from the BA_CONTACT_INFO table.

Reciprocating constraints, present for the denormalized contact information columns, may pose problems for data loading and maintenance. Use these columns if needed for query performance. For details on how to load and manage reciprocating constraints, refer to the PPDM Constraints User Guide.

Back to the list of table names

BA_ADDRESS

This table contains address information for Business Associates. Each business associate may have one or more addresses; each address could be a physical address, mailing address, post office address etc. Information about the quality of service provided at each address may be useful as a metric for some functions; users should be aware of how privacy legislation may affect their use of this information.

As with the BUSINESS_ASSOCIATE table, primary contact information for each address has been denormalized into this table; these columns should only be used if necessary for performance. For details on how to load and manage reciprocating constraints, refer to the PPDM Constraints User Guide.

Back to the list of table names

BA_AUTHORITY

Levels of spending authorization or signing authority can be tracked in this table. Spending limits are noted here. Details about which business objects a business associate has authority over can be tracked in the subordinate table BA_AUTHORITY_COMP.

Back to the list of table names

BA_AUTHORITY_COMP

Links to specific business objects (land rights, wells, facilities or projects) enable levels of authority to be directly associated with business operations. This table provides flexible relationships to many business objects. If a foreign key to a necessary business object is not provided, you can extend this table by adding the relationship and columns to the end of the table using the PPDM Architectural Principles for extending PPDM version 3.7.

Back to the list of table names

BA_CONTACT_INFO

Any type contact information for a Business Associate can be stored in this table, including phone numbers, fax numbers, e-mail addresses, website URLs, etc.

Certain types of contact information have been denormalized from this table into BUSINESS_ASSOCIATE and BA_ADDRESS.

Your business rules should determine whether using these denormalized columns is useful to your organization. If you choose to denormalize this data, we recommend that you use BA_CONTACT_INFO as the master store for the information, using stored procedures or triggers to update the denormalized values.

Because reciprocating constraints pose problems for data loading and maintenance, it is advisable that you only use these columns if needed for query performance. For details on how to load and manage reciprocating constraints, refer to the PPDM Constraints User Guide and the FAQ section in this reference guide.

Back to the list of table names

BA_EMPLOYEE

Relationships between employers and employees, or consultants and clients can be tracked in this table. This table allows a single business associate to have relationships with one or more employers at any given time. It also allows historical relationships to be tracked as an employee leaves one company to join another, or as the position held by an individual changes with time. The ability to track historical relationships can be critical for some business operations, particularly in surface and mineral land rights operations.

Back to the list of table names

BA_NAME_ALIAS

This table stores alternate alias names, codes or identifiers for a given Business Associate. Several practical uses exist for this table. In some cases, a company may be assigned identifiers within a software application. Some companies like to keep track of the Dunn and Bradstreet codes for a registered company, or their stock ticker symbol. In some cases, it's necessary to track the specific identification code assigned to a company by a partner or regulatory agency.

Storing alternate spellings or incorrect spellings of a company name can support automatic business associate identification during data loads.

Back to the list of table names

BA_ORGANIZATION

This table allows the corporate structure of a Business Associate to be tracked at whatever level is appropriate to the user site. For example, relationships between department and corporations or companies and consortiums can be tracked in this table.

Use the column BA_ORGANIZATION_SEQ_NO to version the structure of an organization over time. This will allow you to reconstruct organizations over time when necessary.

Connections to this table are not generally provided in PPDM but can be made as extensions at user sites based on business needs at each site. To provide extensions from this table into other PPDM tables based on your requirements, refer to the section on Subsetting and Extending PPDM in the PPDM Architectural Principles Guide.

Back to the list of table names

BA_PERMIT

Permits are assigned by regulatory agencies and licensing organizations to indicate authority that a Business Associate has to perform certain functions, such as driving a car or using explosives for seismic operations. Permit numbers, information about who issued them and when they come into effect and expire can be managed in this table.

Back to the list of table names

BA_PREFERENCE

User and business associate preferences may be tracked in this table. This table provides early functionality in a business area that may grow over time.

Two types of preference are presently managed:

- Business associate preferences related to day-to-day operations, such as meeting times or places.
- Business associate preferences for the type of well log or curve that a user prefers to access.

Back to the list of table names

BA_PREFERENCE_LEVEL

The order in which preferences should be selected can be stored here. For example, a business associate may prefer meetings between 10 am and noon, but if that is not possible, meetings after 4 pm would be the next choice. Alternatively, users may select the specific curves they would like to obtain when selecting a well log. It is possible, but not always desirable, to assign more than one preference to the same level.

Back to the list of table names

BA_SERVICE

This table provides a list of services provided by a Business Associate, e.g., drilling company, logging company, seismic broker, etc. This list may be used to

thin the selection list presented to a user for certain applications. For example, when the company who performed logging services is selected, only companies who provide that service may be presented. The table BA_SERVICE_ADDRESS may be used to further fine tune this selection geographically.

Back to the list of table names

BA_SERVICE_ADDRESS

This cross-reference table allows a connection between the services provided by a Business Associate and the addresses at which the service is provided.

This table is designed for use by application developers to deliver sub-sets of the BUSINESS_ASSOCIATE table to selection lists. For example, if a developer is writing windows to input information about well logging contractors in Indonesia, a drop down menu to select the name of the logging company can be limited to only companies that provide this specific service in Indonesia.

Back to the list of table names

BA_XREF

This table is used to capture details about companies that are merged or acquired over time. We recommend that the originating companies and new company should both be stored in BUSINESS_ASSOCIATE, with the relationships between all the companies stored in BA_XREF.

Back to the list of table names

Business Associate Services

BA_CONSORTIUM_SERVICE

This table can be used to track services provided to a consortium by another Business Associate. These services can range from legal representation to brokerage or third party operator services. This table should not be used to track partners.

Back to the list of table names

CONT_BA_SERVICE

This cross-reference table tracks services provided by a Business Associate for management or maintenance of a contract. This table should not be used to track partners.

Back to the list of table names

FACILITY_BA_SERVICE

This table may be used to track services provided for a facility, such as maintenance, inspections, supplies, etc. This table should not be used to track partners.

Back to the list of table names

LAND_BA_SERVICE

This table tracks services provided for a land right by a Business Associate, such as mineral title search, brokerage service, etc. This table should not be used to track partners.

Back to the list of table names

SEIS_BA_SERVICE

This table can be used to track the Business Associates with whom you do business for seismic data. At present, you can track who was involved with seismic acquisition; roles and relevant dates can be tracked. This table should not be used to track partners.

Back to the list of table names

SF_BA_SERVICE

This table is used to track services that are provided for the management of support facilities, such as legal representation, maintenance etc.

Back to the list of table names

WELL_BA_SERVICE

This table is used to track services provided for a well, including the production string and completions.

Back to the list of table names

Implementation Considerations

Constraints in PPDM

It is essential that anyone who is considering using PPDM version 3.7 review the Constraints Reference Guide first. Improper use or population of constrained columns in PPDM can compromise the quality of your data and the reliability of your queries. This document may be obtained from the PPDM Association or downloaded from the PPDM web site at www.ppdm.org.

Check Constraints

PPDM Version 3.7 makes use of check constraints in rare cases where the values that may be input for a column are known at design time and will not change over time. Two types of uses are observed in PPDM 3.7.

- Where the column name is %_IND, the column is an indicator field, and the values may only be Y, N, or null.
- Super-sub type implementations use check constraints to enforce the integrity of the super-sub type relationship. Currently these relationships are in use for Seismic, Business Associates, Records Management, Support Facilities, Production Entities and Land Rights.

  Let's use Seismic Sets as an example. This structure consists of a parent table (SEIS_SET) and several sub-type tables (SEIS_3D, SEIS_ACQTN_SURVEY, SEIS_INTERP_SET, SEIS_LINE, SEIS_PROC_SET, SEIS_SEGMENT, SEIS_SET_PLAN and SEIS_WELL). Each of the tables has a two-part primary key: SEIS_SET_ID and SEIS_SET_TYPE.

  SEIS_SET_ID is assigned by the user and can have any value as long as it is unique for that type of seismic set. SEIS_SET_TYPE was designed to maintain the integrity of the super-sub type structure and can only have the values assigned to it by check constraints; these values are the table names of the eight valid sub-types. In SEIS_SET, the SEIS_SET _TYPE can have any of the table names, but in each of the sub-types, it can only have the name of the table it is owned by.

Currencies in PPDM

Costs in PPDM may originate in any valid Unit of Measure (UOM), such as USD, $CDN, YEN, etc. However, to ensure that queries for retrieval and reporting are efficient, it is desirable to convert all original currencies to a standard unit of measure for storage in the database. PPDM supports the requirement to restore the original value in the following way:

- Convert all stored currencies to a single currency type, such as US dollars.

- CURRENCY_OUOM stores the currency in which the funds were initially received. When the stored currency is multiplied by the CURRENCY_CONVERSION, the value of the transaction in the original currency is obtained.

- CURRENCY_CONVERSION stores the rate applied to convert the currency to its original monetary UOM from the stored UOM. This value is valid for this row in this table at the time of conversion only. When this value is multiplied by the stored currency value, the original value of the transaction in the original currency is restored.

Units of Measure

Relational databases, powerful as they are, are not good at certain types of query and retrieval. Any query that requires the database to retrieve all the rows in a large table and perform some calculations on the data before returning results to a user is likely to perform very poorly. This assumes, of course, that the person constructing the query is aware that a calculation is necessary when writing the query. Data management strategies for such tables recommend that requirements for on-line conversions such as this be eliminated if at all possible. The PPDM strategy for handling units of measure falls into this category.

Every column in the data model that references a Unit of Measure (such as a depth, temperature, length etc.) should be stored using a single, common unit of measure. For example, in one PPDM instance, all the total well depths should be stores as meters or as feet. Storing some depths as meters and the rest as feet creates problems for the data base and adds confusion to the user (who may not be aware that the numbers in the depth column are not all meters).

The original unit of measure (the unit in which the data was originally received) can be stored in the data table. For example, the WELL table captures FINAL_TD and FINAL_TD_OUOM. These columns capture the value of the final total depth of the well and the units that the depth was originally captured in.

The ***stored unit of measure*** is captured in the PPDM meta model, PPDM_COLUMN. This table captures the default unit of measure for a column and the name of the column where the original unit of measure is stored. The following illustration provides an example:

WELL

UWI	DRILL_TD	DRILL_TD_OUOM
SMITH12F	1250	FEET
JONES44	1560	METERS
12345	1400	FEET

PPDM_COLUMN

TABLE_ NAME	COLUMN_ NAME	UOM_ COLUMN	OUOM_ COLUMN	DEFAULT _ OUM_ SYMBOL
WELL	UWI			
WELL	DRILL_TD		DRILL_TD_OUOM	M
WELL	DRILL_TD_OUOM			
WELL_CEMENT	CEMENT_AMOUNT	CEMENT_AMOUNT_UOM	CEMENT_AMOUNT_OUOM	

Figure 9: *The method for storing and tracking units of measure is illustrated here.*

Note that in the example, the Drilling TD is stored in meters, but was originally received as feet.

In some cases, it is not possible to ensure that all the rows in a column are stored as a single unit of measure – this is common in cases where the unit of measure is dependent on some other factor. For example, substance measurements may depend on the substance being measured; gases are stored as MCF, liquids as BBL etc. In these cases, the unit of measure is stored directly in the business table.

PPDM GUID

The Global Unique Identifier (GUID) has been added to every table in PPDM. Applications that are designed to take advantage of this column should implement the DDL set PPDM37.GUID. This procedure will alter the PPDM_GUID column to be NOT NULL and to add a Unique Index to each column.

Audit Columns

Each table contains five columns: SOURCE, ROW_CHANGED_BY, ROW_CHANGED_DATE, ROW_CREATED_BY, and ROW_CHANGED_DATE. These columns satisfy a data-auditing requirement to identify the user and date of database transactions.

Use the “CREATED” columns when you are inserting new data rows and the “CHANGED” columns when you are updating a data row. The

ROW_CHANGED / CREATED_BY columns are usually populated using the system login id in use. ROW_CHANGED / CREATED_DATE is usually set to the system date of the insert or update operation.

To populate the SOURCE column, specify where you obtained the data. If you receive the data from Vendor A, and Vendor A received the data from Regulatory B, you should set the SOURCE to Vendor A. In some cases (such as for interpreted picks), data is created by an application. In this case, the source may be set to identify the application that created the data.

Identifying Rows Of Data That Are Active

Maintaining information about how a business object has changed over time is an important business requirement for all these modules. To support this, mechanisms for allowing versioning have been added to many tables.

Every table in PPDM version 3.7 contains a column called ACTIVE_IND. The values for this column may be one of Y, N, or null. When more than one row of data (such as a spatial description or a status) has been created for a business object, use the ACTIVE_IND to indicate which row is currently active (note that in some cases, more than one row may be active simultaneously).

This provides implementers with two benefits. First, when populating EFFECTIVE_DATE and EXPIRY_DATE it will not be necessary to populate EXPIRY_DATE with a false future date to indicate that the row of data has not expired yet. Second, queries can explicitly search only for rows that are active.

If this column is used for queries, as recommended (such as “find me the currently active status for this land right”), you should implement procedures to ensure that this column is always populated as either Y or N and maintained appropriately. If the column is left blank (NULL), the query will not be consistent or reliable.

For example, you could default the value to N if the expiry date is filled in and has already happened. Make it Y if the expiry date is empty *or* if the expiry date contains a future date.

Modifying PPDM 3.7

Subsetting PPDM

The PPDM data model is designed to allow users to implement portions that support their business without needing to manage modules that are not required. Good data management practices are also supported; this means that data redundancy is reduced in the Model whenever possible.

All information about Seismic will be found in the seismic module; information about contracts is stored in the Contracts module, details about objects that are retained for long term use are stored in the Records Management module and so

on. Depending on your business requirements, you can implement all or some of the modules.

PPDM version 3.7 is released with a dataset that is populated with information grouping tables into modules (PPDM_TABLE_GROUP). You can use this information to create a subset DDL if you wish.

In general, it is usually simplest to install the entire PPDM data model and simply restrict usage to the portions that are useful to you. Additional tables can be implemented as your business requirements expand, or as your data and processes are able to support capture in a data model. Architectural guidelines for subsetting PPDM are contained in the PPDM Architectural Principles Document. This document can be obtained from the PPDM Association or downloaded from the PPDM web site at www.ppdm.org.

Expanding PPDM

As a consequence of the PPDM Design process, which actively solicits and incorporates business requirements from Industry, many users find that the model is quite complete. However, individual implementations may find that additional columns are needed, or that some denormalization will help their performance.

The Association provides documentation about how to expand the data model to accommodate your specific requirements. This document can be obtained from the PPDM Association or downloaded from the PPDM web site at www.ppdm.org. Tables or columns that have been added should be so marked in PPDM_TABLE.EXTENSION_IND, PPDM_COLUMN.EXTENSION_IND or PPDM_CONSTRAINT.EXTENSION_IND.

Feedback to PPDM

Much of the growth of the PPDM model can be attributed to Industry feedback. All implementers are requested and encouraged to provide feedback to the Association about changes they have made for implementation. Feedback can be submitted to changes@ppdm.org.

Frequently Asked Questions (FAQ)

What is a Business Associate in PPDM version 3.7?

Business Associates can be companies, organizations, people, regulatory bodies, governments, consortiums, or other kinds of people or groups of people that you do business with. Four sub-types of Business Associate are defined—every kind of Business Associate we can think of fits into one of these categories: Person, Company, Jurisdiction, and Consortium.

How do I show my users a list of Business Associates that provide a specific service in an area?

The data model provides you with capability to list all the addresses of a Business Associate and a complete list of all the services that a Business Associate provides. Use the BA_SERVICE_ADDRESS table to list which services are provided at each office.

There are many denormalized columns for contact information in BUSINESS_ASSOCIATE, BA_ORGANIZATION and BA_ADDRESS. How should I populate and use these columns?

These columns are denormalized from BA_CONTACT_INFO to provide you with a quick query path for phone numbers, fax numbers, e-mail addresses, and Web URLs. You should only populate these columns if you feel that you need improved query performance. If queries that join to the BA_CONTACT_INFO table do not pose a problem for you, don't bother populating or querying the denormalized columns.

Populating denormalized columns in a relational model with constraints enabled is a bit tricky. For details, consult the PPDM Constraints Reference Guide. Briefly, start by populating the BUSINESS_ASSOCIATE, BA_ORGANIZATION, or BA_ADDRESS tables. Leave the second column of the BA_CONTACT_INFO constraint (PHONE_NUMBER, FAX_NUMBER, EMAIL_ADDRESS, and WEB_URL) null for now.

Next, populate BA_CONTACT_INFO with the information you require. Ideally, you should have stored procedures or triggers associated with the BA_CONTACT_INFO for insert, update, and delete that will subsequently

populate the denormalized columns that you want to populate in BUSINESS_ASSOCIATE, BA_ORGANIZATION, or BA_ADDRESS.

How do I track buyouts, mergers, name changes, and acquisitions between Business Associates?

The BA_XREF table is used to track this information. Queries to this table usually require an Oracle CONNECT BY syntax or another procedure that is capable of working up and down the complex series of relationships that may exist.

How do I keep track of who works for a company and what their position is?

You will find all this information in the table BA_EMPLOYEE. Note that the relationships does not have to be formal employee / employer in order to work. You can track consultants, contractors, preferred service vendors and so on.

I need to know who will have signing authority on my project. How do I keep track of that information?

Use the table BA_AUTHORITY and its child table BA_AUTHORITY_COMP for this information.

Appendix A: Sample Queries

These sample queries have been developed based on a subset of the requirements defined and captured in the Business Requirements Document. Note that there are many ways to address the questions posed here, but we have tried to provide useful examples that illustrate the use of the data model.

Overall, there are a few fundamental issues related to queries that are relevant to nearly every Business Area:

- **Spatial or GIS queries:** Spatial queries are not thoroughly addressed in this section of the reference guide; how you deal with these queries depends on the spatial engine you are using. In many cases, we have avoided using spatial queries because the number of query lines needed obscures the rest of the query and makes it more difficult to read. Sometimes, we have provided a connection to a NAMED AREA, rather than a lat/long box.

- **Versioning over time:** Many aspects of the oil and gas business have a strong time component. Users require information about how a business object was configured in the past, what it looks like now, and what it is expected to look like in the future (i.e., if a project is not active now, when was it in the past). If your queries need to address the situation as it is now, use the ACTIVE_IND you will find in many versioned tables. Using this flag helps ensure that you do not return data that is out of date.

Ten years ago, I signed a contract with Unicorn Oil. What happened to that company?

```
select      BX.BUSINESS_ASSOCIATE, BX.NEW_BA_ID,BX.BA_XREF_TYPE
  from      BA_XREF BX
connect by prior  BX.NEW_BA_ID = BX.BUSINESS_ASSOCIATE
start with        BX.BUSINESS_ASSOCIATE = 'UNICORN OIL'
```

Which company(s) are service companies for my oil sand lease agreements and what services do they provide?

```
select     DISTINCT LBS.PROVIDED_BY, BA_SERVICE_TYPE
  from     LAND_BA_SERVICE LBS, LAND_AREA LA,LAND_RIGHT LR,AREA A
 where     LA.land_right_ID  =  lbs.land_right_id
   and     LA.LAND_RIGHT_ID  =  LR.LAND_RIGHT_ID
   and     LA.AREA_ID  =  A.AREA_ID
   and     LA.LAND_RIGHT_TYPE  = LBS.LAND_RIGHT_TYPE
   and     LA.LAND_RIGHT_TYPE  =  LR.LAND_RIGHT_TYPE
   and     LR.ACTIVE_IND   =   'Y'
   and     A.PREFERRED_NAME = 'MOOSE MOUNTAIN'
   and     LR.GRANTED_RIGHT_TYPE   =   'OIL SAND LEASE'
```

Comments: Since a company can provide the same service to more than one agreement, the use of DISTINCT is necessary.

What companies have currently invested in facilities in an area and when did they invest in it?

```
select      DISTINCT ISP.PARTNER_BA_ID, INS.EFFECTIVE_DATE
  from      FACILITY F, INT_SET_COMPONENT ISC, AREA A,
            INTEREST_SET INS, INT_SET_PARTNER ISP,
            SP_COMPONENT SC, SPATIAL_DESCRIPTION SD
 where      F.FACILITY_ID  =  ISC.FACILITY_ID
   and      F.FACILITY_TYPE  =  ISC.FACILITY_TYPE
   and      INS.INTEREST_SET_ID  =  ISC.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISC.INTEREST_SET_SEQ_NO
   and      INS.INTEREST_SET_ID  =  ISP.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISP.INTEREST_SET_SEQ_NO
   and      F.FACILITY_ID  =  SC.FACILITY_ID
   and      F.FACILITY_TYPE  =  SC.FACILITY_TYPE
   and      SC.SPATIAL_DESCRIPTION_ID = SD.SPATIAL_DESCRIPTION_ID
   and      SC.SPATIAL_OBS_NO = SD.SPATIAL_OBS_NO
   and      UPPER(INS.ACTIVE_IND)   =   'Y'
   and      (((AREA_MIN_LATITUDE BETWEEN FIRST_LATITUDE AND
            SECOND_LATITUDE)
   and      (AREA_MIN_LONGITUDE BETWEEN SECOND_LONGITUDE AND
            FIRST_LONGITUDE))
    or      ((AREA_MAX_LATITUDE BETWEEN FIRST_LATITUDE AND
            SECOND_LATITUDE)
   and      (AREA_MAX_LONGITUDE BETWEEN SECOND_LONGITUDE AND
            FIRST_LONGITUDE)))
```

What is the main phone number for Unicorn Oil?

```
select      BUSINESS_ASSOCIATE, MAIN_PHONE_NUM
  from      BUSINESS_ASSOCIATE
 where      BUSINESS_ASSOCIATE = 'UNICORN OIL'
```

Note: without the denormalized columns in use, the query becomes:

```
select      B.BUSINESS_ASSOCIATE, BCI.LOCATION_ID,
            BCI.CONTACT_LOC_TYPE
  from      BUSINESS_ASSOCIATE B, BA_CONTACT_INFO BCI
 where      B.BUSINESS_ASSOCIATE = 'UNICORN OIL'
   and      B.BUSINESS_ASSOCIATE = BCI.BUSINESS_ASSOCIATE
   and      BCI.CONTACT_LOC_TYPE = 'PHONE'
```

Who owns these facilities?

```
select      F.FACILITY_NAME, F.FACILITY_TYPE, ISP.PARTNER_BA_ID,
            ISC.ACTIVE_IND, ISP.INTEREST_SET_ROLE,
            ISP.EFFECTIVE_DATE, ISP.EXPIRY_DATE,
            ISP.GROSS_PERCENT_INTEREST, ISP.NET_PERCENT_INTEREST
  from      FACILITY F, INTEREST_SET INS, INT_SET_COMPONENT ISC,
            INT_SET_PARTNER ISP
 where      F.FACILITY_ID  =  ISC.FACILITY_ID
   and      F.FACILITY_TYPE  =  ISC.FACILITY_TYPE
   and      ISC.INTEREST_SET_ID  =  INS.INTEREST_SET_ID
   and      ISC.INTEREST_SET_SEQ_NO  =  INS.INTEREST_SET_SEQ_NO
   and      INS.INTEREST_SET_ID  =  ISP.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISP.INTEREST_SET_SEQ_NO
   and      UPPER(INS.ACTIVE_IND)   =   'Y'
```

Comments: If you wish, you can add other criteria to discriminate between facilities, such as area, dates, substances handled, etc.

Which companies provide well logging and coring services in Venezuela?

```
select      BSA.BUSINESS_ASSOCIATE, BSA.BA_SERVICE_TYPE, BA.COUNTRY
  from      BA_SERVICE_ADDRESS BSA , BA_ADDRESS BA
 where      BA.COUNTRY = 'VEN'
   and      BA.BUSINESS_ASSOCIATE = BSA.BUSINESS_ASSOCIATE
   and      BSA.BA_SERVICE_TYPE IN ('LOGGING COMP', 'CORE COMP')
```

What is the credit rating for Unicorn Oil? When was the last credit check done, and whose rating do we use?

```
select      CREDIT_RATING, CREDIT_CHECK_SOURCE, CREDIT_RATING_SOURCE
  from      BUSINESS_ASSOCIATE
 where      BUSINESS_ASSOCIATE = 'UNICORN OIL'
```

What subsidiaries does Esso have?

```
select      BA2.BA_NAME PARENT_COMPANY, 'OWNS',
            BA1.BUSINESS_ASSOCIATE, BA1.BA_NAME COMPANY,
            ' AS OF ', BX.EFFECTIVE_DATE
```

```
  from      BUSINESS_ASSOCIATE BA1, BUSINESS_ASSOCIATE BA2,
            BA_XREF BX
 where      BX.BUSINESS_ASSOCIATE=BA1.BUSINESS_ASSOCIATE
   and      BX.NEW_BA_ID=BA2.BUSINESS_ASSOCIATE
   and      BX.BA_XREF_TYPE = 'SUBSIDARY'
```

Comments: This query only goes down one level. For multi-level queries, this SQL will have to be rewritten using a syntax similar to Oracle's "connect by". Other examples illustrate this use.

What name changes have happened as a result of mergers, etc.?

```
select      NEW_BA_ID PARENT, BUSINESS_ASSOCIATE SUBSID
  from      BA_XREF
connect by  NEW_BA_ID = PRIOR BUSINESS_ASSOCIATE
start with  NEW_BA_ID='AP34'
```

Comments: PPDM has methodology for performing this type of query in other RDBMS platforms. Contact PPDM for details.

What is this company's credit rating, and who provided this rating? Is the Business Associate still in operation today?

```
select      CREDIT_RATING, CREDIT_RATING_SOURCE,
            EFFECTIVE_DATE, EXPIRY_DATE
  from      BUSINESS_ASSOCIATE
 where      BUSINESS_ASSOCIATE   =   'ESSO'
```

Which BAs have unacceptable credit ratings?

```
select      BA_NAME, CREDIT_RATING
from        BUSINESS_ASSOCIATE
where       CREDIT_RATING IN ('BAD RISK', 'UNACCEPTABLE')
```

Has anyone been in breach with you relative to any land rights? Which land rights have been affected?

```
select      ISP.PARTNER_BA_ID, LR.LAND_RIGHT_ID
  from      INT_SET_COMPONENT ISC, INTEREST_SET INS,
            LAND_RIGHT LR, INT_SET_PARTNER ISP
 where      LR.LAND_RIGHT_ID  =  ISC.LAND_RIGHT_ID
```

```
   and      LR.LAND_RIGHT_TYPE  =  ISC.LAND_RIGHT_TYPE
   and      ISC.INTEREST_SET_ID  =  INS.INTEREST_SET_ID
   and      ISC.INTEREST_SET_SEQ_NO  =  INS.INTEREST_SET_SEQ_NO
   and      INS.INTEREST_SET_ID  =  ISP.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISP.INTEREST_SET_SEQ_NO
   and      UPPER(ISP.BREACH_IND)   =   'Y'
```

Who are my contacts for this land unit? What role is played by each contact?

```
select      LU.LAND_RIGHT_ID, LU.LAND_RIGHT_TYPE,
            ISP.PARTNER_BA_ID, IPC.CONTACT_BA_ID,
            IPC.CONTACT_ROLE
  from      LAND_UNIT LU, INT_SET_COMPONENT ISC, INT_SET_PARTNER
            ISP, INT_SET_PARTNER_CONT IPC, INTEREST_SET INS
 where      LU.LAND_RIGHT_ID  =  ISC.LAND_RIGHT_ID
   and      LU.LAND_RIGHT_TYPE  =  ISC.LAND_RIGHT_TYPE
   and      INS.INTEREST_SET_ID  =  ISC.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISC.INTEREST_SET_SEQ_NO
   and      INS.INTEREST_SET_ID  =  ISP.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISP.INTEREST_SET_SEQ_NO
   and      ISP.INTEREST_SET_ID  =  IPC.INTEREST_SET_ID
   and      ISP.INTEREST_SET_SEQ_NO  =  IPC.INTEREST_SET_SEQ_NO
   and      UPPER(IPC.ACTIVE_IND)   =   'Y'
   and      LU.LAND_RIGHT_ID  =  '2049875'
```

Who are my partners, and what is their interest in the land right (ID = 2049875) (gross and net)?

```
select      LU.LAND_RIGHT_ID, LU.LAND_RIGHT_TYPE,
            INS.INTEREST_SET_TYPE, ISP.PARTNER_BA_ID,
            ISP.GROSS_PERCENT_INTEREST, ISP.NET_PERCENT_INTEREST
  from      LAND_UNIT LU, INT_SET_COMPONENT ISC,
            INT_SET_PARTNER ISP, INTEREST_SET INS
 where      LU.LAND_RIGHT_ID  =  ISC.LAND_RIGHT_ID
   and      LU.LAND_RIGHT_TYPE  =  ISC.LAND_RIGHT_TYPE
   and      INS.INTEREST_SET_ID  =  ISC.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISC.INTEREST_SET_SEQ_NO
   and      INS.INTEREST_SET_ID  =  ISP.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISP.INTEREST_SET_SEQ_NO
   and      LU.LAND_RIGHT_ID  =  '2049875'
   and      UPPER(INS.ACTIVE_IND)   =   'Y'
```

What BAs are participants in this consortium?

```
select      ISP.PARTNER_BA_ID
```

```
  from      BUSINESS_ASSOCIATE BA, INT_SET_COMPONENT ISC,
            INT_SET_PARTNER ISP, INTEREST_SET INS
 where      INS.INTEREST_SET_ID  =  ISC.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISC.INTEREST_SET_SEQ_NO
   and      INS.INTEREST_SET_ID  =  ISP.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISP.INTEREST_SET_SEQ_NO
   and      ISC.BUSINESS_ASSOCIATE  =  BA.BUSINESS_ASSOCIATE
   and      ISP.PARTNER_BA_ID  =  BA.BUSINESS_ASSOCIATE
   and      BA.BA_TYPE   =   'CONSORTIUM'
   and      UPPER(ISP.ACTIVE_IND)   =   'Y'
   and      ISC.BUSINESS_ASSOCIATE   =   'EAST COAST'
```

What units/leases are operated by this consortium?

```
select      LR.LAND_RIGHT_ID, LR.LAND_RIGHT_TYPE
  from      INT_SET_COMPONENT ISC, LAND_RIGHT LR,
            INT_SET_PARTNER ISP
 where      LR.LAND_RIGHT_ID  =  ISC.LAND_RIGHT_ID
   and      LR.LAND_RIGHT_TYPE  =  ISC.LAND_RIGHT_TYPE
   and      ISC.INTEREST_SET_SEQ_NO  =  ISP.INTEREST_SET_SEQ_NO
   and      ISC.INTEREST_SET_ID  =  ISP.INTEREST_SET_ID
   and      ISP.PARTNER_BA_ID  =  'EAST COAST'
   and      ISP.INTEREST_SET_ROLE  =  'OPERATOR'
   and      UPPER(ISC.ACTIVE_IND)   =   'Y'
```

Comments: This is why BUSINESS_ASSOCIATE is in BA_INT_SET_COMPONENT.

What is the working interest of each partner in the consortium?

```
select      C.CONTRACT_NAME, ISP.PARTNER_BA_ID,
            INS.INTEREST_SET_TYPE, ISP.NET_PERCENT_INTEREST,
            ISP.GROSS_PERCENT_INTEREST
  from      INT_SET_COMPONENT ISC, CONTRACT C,
            INT_SET_PARTNER ISP,  INTEREST_SET INS
 where      C.CONTRACT_ID  =  ISC.CONTRACT_ID
   and      INS.INTEREST_SET_ID  =  ISC.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISC.INTEREST_SET_SEQ_NO
   and      INS.INTEREST_SET_ID  =  ISP.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISP.INTEREST_SET_SEQ_NO
   and      UPPER(ISC.ACTIVE_IND)   =   'Y'
   and      UPPER(INS.ACTIVE_IND)   =   'Y'
   and      ISC.BUSINESS_ASSOCIATE   =   'EAST COAST'
order by    C.CONTRACT_ID
```

Comments: This is why BUSINESS_ASSOCIATE is in BA_INT_SET_COMPONENT.

I am about to buy company ABC, so show me all the contracts I have with them now.

```
select      C.CONTRACT_NAME
  from      CONTRACT C, INT_SET_COMPONENT ISC,
            INT_SET_PARTNER ISP,  INTEREST_SET INS
 where      C.CONTRACT_ID  =  ISC.CONTRACT_ID
   and      INS.INTEREST_SET_ID  =  ISC.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISC.INTEREST_SET_SEQ_NO
   and      INS.INTEREST_SET_ID  =  ISP.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISP.INTEREST_SET_SEQ_NO
   and      ISP.PARTNER_BA_ID  =  'MY COMPANY'
   and      UPPER(C.ACTIVE_IND)   =   'Y'
   and      UPPER(INS.ACTIVE_IND)   =   'Y'
            UNION
select      C.CONTRACT_NAME
  from      CONTRACT C, INT_SET_COMPONENT ISC,
            INT_SET_PARTNER ISP,  INTEREST_SET INS
 where      C.CONTRACT_ID  =  ISC.CONTRACT_ID
   and      INS.INTEREST_SET_ID  =  ISC.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISC.INTEREST_SET_SEQ_NO
   and      INS.INTEREST_SET_ID  =  ISP.INTEREST_SET_ID
   and      INS.INTEREST_SET_SEQ_NO  =  ISP.INTEREST_SET_SEQ_NO
   and      ISP.PARTNER_BA_ID  =  'ABC Company'
   and      UPPER(C.ACTIVE_IND)   =   'Y'
```

Comments: There are many different ways of writing this type of SQL.

Appendix B: Changes to the Model

The PPDM Association has made a concerted effort to reduce the impact of new model development on members who are using other versions of PPDM. However, any new development is accompanied by some changes. Arriving at a model that is sufficiently detailed to meet the business needs of every member and yet flexible or abstract enough to be shielded from the corporate or regulatory variations is complex, but achievable. Every attempt is made to ensure the model complies with, but is relatively independent of, specific jurisdictional requirements, changes in government policy, regulations or structure that may at time invalidate portions of the model. Internal re-engineering business process in industry companies may impact business requirements, which drive the data model. Rapid technological changes may also affect the model structure.

This section is to identify all applicable changes from the latest version to the newest release version to assist the members in an ease of transition to implement the latest version of the PPDM model.

Changes Between Versions 3.6 and 3.7

PPDM version 3.7 adds functionality in the following areas:

- Business Associate authorities
- Business Associate permits
- Business Associate preferences

For details, please refer to the PPDM 3.7 table documentation and model mapping.