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Introduction to Data Models

Objectives

Upon successful completion of this chapter, you will be able to:

- Explain the naming conventions for the tables, their purpose in the database, and their requirements
- Discuss the important columns of the major tables
- Explain the requirement between a dependent and an independent table
- Explain the difference between a Primary and Foreign key

What is a Data Model?

What is a Data Model?



► **Data Model**

- Logical collection of tables
- Organized into specific areas

► **Table collections define business requirement**

- Adding rules
- Establishing processes

► **Facets Data Models organized into Domains**

► **Each domain includes**

- Data objects
- Associations between the objects
- Rules that govern transactions on objects

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A Data Model is a logical collection of tables organized into specific areas.

Each collection of tables defines a business requirement, adding rules, and establishing processes.

Facets Data Models consist of domains:

- Accounting
- Billing
- Claims
- Member/Subscriber
- Provider

Each domain includes data objects, the associations between the objects, and the rules that govern the transactions on the objects.

What is a Data Model?



► Domain change has direct effect on other tables (e.g. when a claim is submitted)

- Subscriber must
 - Have valid record on Subscriber table
 - Have valid record on Eligibility table
 - Be in active Plan of Benefits
- Servicing Provider must
 - Have valid record on Practitioner table
 - Have agreement with the MCO
 - Have valid network record
- Claim must
 - Have valid service dates
 - Have procedure/diagnosis codes

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A change to a row in a table to any of the above domains impacts the other tables in that domain, as well as tables in other domains. For example, during claims adjudication:

- The subscriber on that claim has to have a valid record in the **Subscriber** table.
- The subscriber must have a valid record in the **Eligibility** table and must be linked to an active plan of benefits.
- The servicing provider must also have a valid record in the **Practitioner** table and an agreement with the MCO, as well as a valid network record.
- The claim must have valid service dates and procedure/diagnosis codes.

What is a Data Model?



► **Claim spanned four domains**

- Subscriber/Member
- Provider
- Plan
- Claims

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The claim just spanned four domains:

- Subscriber/Member
- Provider
- Plan
- Claims

Data Model Definitions

Data Model Definitions



► Common relational database definitions

- Entity
- Instance
- Attribute
- Attribute Type
- Relationship

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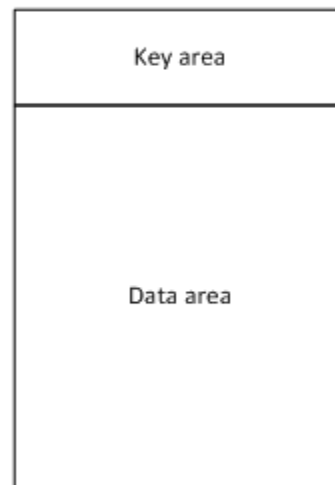
Database	Definition
Entity	This is the main object about which information is collected, e.g., the tables.
Instance	This is a unique occurrence of an entity, e.g., rows within the tables.
Attribute	This describes the entity and accords values to the entity, e.g., the columns in the table.
Attribute Type	This is the type of data that exists in the column, e.g., char, integer, and datetime.
Relationship	This is the association between two or more entities, or an entity and itself.

Tables and Keys

Tables and Keys



The Horizontal Line
in the Table divides;
Keys and Non-Keys



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The technical architect at TriZetto creates the ErWin diagrams in the ErWin Data Modeler software package. TriZetto is currently using version 7.2.8.

The basic layout of a table is a rectangular shape divided into two sections by a horizontal line. The area above the line is the key area and is where the primary key of the table is established. The primary key identifies the purpose of the table within the database. The area below the line is the data area, which contains columns that support the primary key.

Default Attribute Types in Facets

Default Attribute Types in Facets



- ▶ **Char or Varchar**
 - “ ” or NULL
- ▶ **Integer or Smallint**
 - “0”
- ▶ **Datetime (MM/DD/CCYY HH:MM:SS.000)**
 - Examples of default datetimes
 - 01/01/1753 00:00:00.000
 - 12/31/9999 00:00:00.000
 - 01/01/1920 00:00:00.000
 - 12/31/2199 00:00:00.000

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TriZetto designed and developed Facets on a single instance Sybase database. Today Facets supports three database platforms: Sybase, Oracle, and SQL Server. No matter which platform you are using, the database defaults will always be the Sybase defaults.

In Facets, there are two sets of default datetime formats. The most common datetime formats are:

- 01/01/1753 00:00:00.000
- 12/31/9999 00:00:00.000

The main eligibility table, **CMC_MEPE_PRCs_ELIG**, displays the second datetime format.

Common Columns on Tables

Common Columns on Tables



► Two most common columns in the database

- XXXX_LOCK_TOKEN
 - Where XXXX = tablename
- ATXR_SOURCE_ID

► Table columns being added

- SYS_USUS_ID
- SYS_DBUSER_ID
- SYS_LAST_UPT_DTM

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The two most common columns in the database are XXXX_LOCK_TOKEN and ATXR_SOURCE_ID.

The XXXX section of the first column listed is a placeholder for the tablename.

The ATXR_SOURCE_ID column is a unique key in datetime format for letters, notes, and memos. For example, 3053_03_01 00:00:00.356

Architects added the following columns to track changes:

- SYS_USUS_ID
- SYS_DBUSER_ID
- SYS_LAST_UPT_DTM

A visual basic script runs and enables the trigger on a table. The new columns populate as follows:

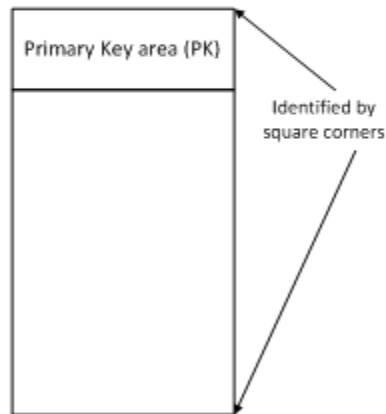
- **SYS_LAST_UPT_DTM**
 - This updates via the DBMS function to ascertain the current date/time
- **SYS_DBUSER_ID**
 - This updates via the DMBS function to ascertain the current database user
- **SYS_USUS_ID**
 - Each database connection via Facets contains a row in the **SGN0** table that the DBMS connection ID keys. The system stores the Facets USUS_ID database connection on the SGN0 row. In order to determine the USUS_ID, the trigger joins to the **SGN0** table based on the database connection ID. In cases where the database server makes this connection outside of a Facets process, the join will fail and the column populates with the default value, EXTERNAL.

Table Types

Table Types



Independent or Parent Table



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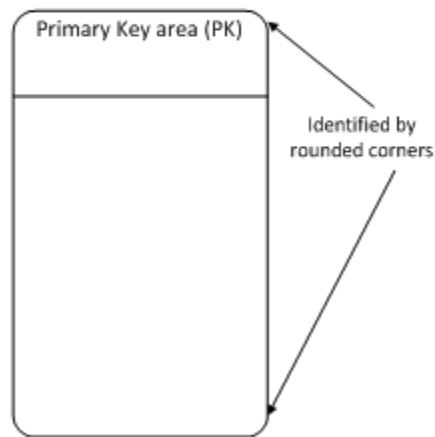
An independent table, also known as a parent table, does not need another table to define it, and it can stand alone in the database. It also establishes the primary keys for all dependent tables to which it links.

Term	Definition
Primary Key (PK)	This establishes a unique ID.
Foreign Key (FK)	This is a piece of related data, usually from another table.

Table Types



Dependent or Child Table



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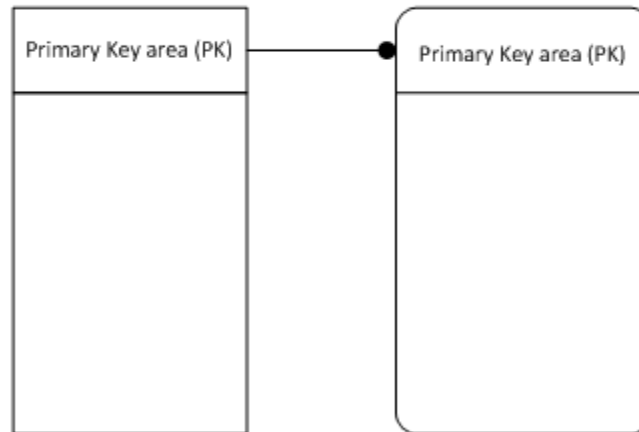
A dependent table, also known as a child table, needs the independent table for definition. Therefore, the dependent table shares the Primary Key of the parent table.

Table Relationship Types

Table Relationship Types



Identifying Relationship (Required)



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There are two types of relationships between tables.

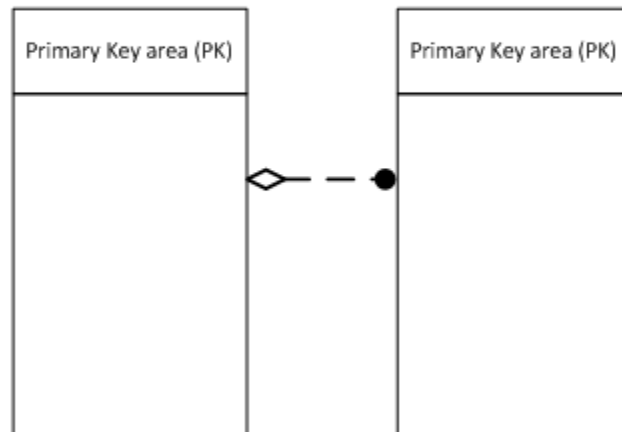
- Identifying
- Non-Identifying, also known as Optional

The identifying relationship indicates a requirement between the tables. If there is data in the parent table, then the child table must contain data. This is the most common relationship between parent and child tables.

Table Relationship Types



Non-Identifying (Optional)



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The non-identifying, also known as optional, relationship does not require sharing of primary keys between tables. This is the most common relationship for a foreign key.

Facets Naming Convention

Facets Naming Convention



- ▶ **Naming conventions begin with prefixes on database objects**
- ▶ **Most common prefixes**
 - CER
 - CMC
 - CDS
- ▶ **Other prefixes**
 - FHD
 - FHP
 - NWX
 - BPA

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Prefix	Meaning
CER	System
CMC	Managed Care (Transactional Data)
CDS	Decision Support (Reporting)
FHD	Facets HIPAA Development
FHP	Facets HIPAA Privacy
NWX	NetworX and Workflow
BPA	Business Process Automation

Facets Naming Convention



► **Prefixes appear on**

- Table
- Triggers
- Indexes
- Stored Procedures
- Views

Facets Naming Convention



- ▶ **Second part of object - unique four character name**
 - SBSB
 - MEME
 - PRPR
- ▶ **Third and sometimes fourth part of name - description**
 - CDS_MMCT_MEM_COUNT
 - CMC_MEPE_PRCES_ELIG
 - CMC_MEME_MEMBER

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Prefix	Meaning
SBSB	Subscriber
MEME	Member
PRPR	Provider

Facets Domains

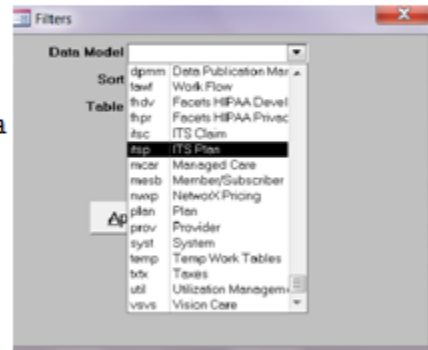
Facets Domains



- ▶ **27 Domains in Facets 5.x**
(includes Vision)

- ▶ **Each Domain Name**

- Unique
- Used to access tables in Data Dictionary



Facets Domains

▶ SYST	▶ COCO
▶ AUDT	▶ CTCT
▶ ACCT	▶ MCMC
▶ BILL	▶ MESB
▶ CLCL	▶ PLPL
▶ CMCM	▶ PROV
▶ CSCS	▶ TEMP
▶ CRCR	▶ UMUM

Domain	Meaning
SYST	System
AUDT	Audit
ACCT	Accounting
BILL	Billing
CLCL	Claims
CMCM	Case Management
CSCS	Customer Service
CRCR	Capitation
COCO	Commissions
CTCT	Criteria
MCMC	Managed Care
MESB	Member/Subscriber
PLPL	Integrated Plan
PROV	Provider/Facility
TEMP	Temporary Work Tables
UMUM	Utilization Management

Facets Domains - continued



- | | |
|---------------|---------------|
| ▶ ITSP | ▶ FAWF |
| ▶ ITSC | ▶ DIDI |
| ▶ FHDV | ▶ DPMM |
| ▶ FHPR | ▶ BPAC |
| ▶ TXTX | ▶ VSVS |
| ▶ NWXP | |

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Domain	Meaning
ITSP	Plan
ITSC	Claim
FHDV	Facets HIPAA Development
FHPR	Facets HIPAA Privacy
TXTX	Tax
NWXP	NetworX ^P ricer
FAWF	Workflow
DIDI	Disability
DPMM	Data Publication Manager
BPAC	Business Process Automation Code
VSVS	Vision Care

Objective Summary

You are now able to:

- Explain the naming conventions for the tables, their purpose in the database, and their requirements
- Discuss the important columns of the major tables
- Explain the requirement between a dependent and an independent table
- Explain the difference between a Primary and Foreign key

Coming Up

Coming Up



Next we will discuss:

- ▶ **Facets Data Dictionary**