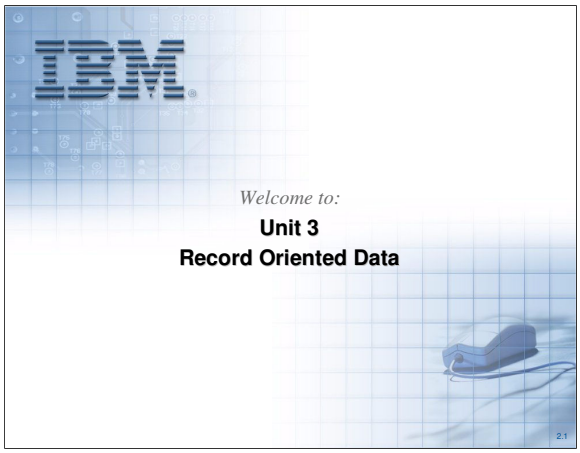
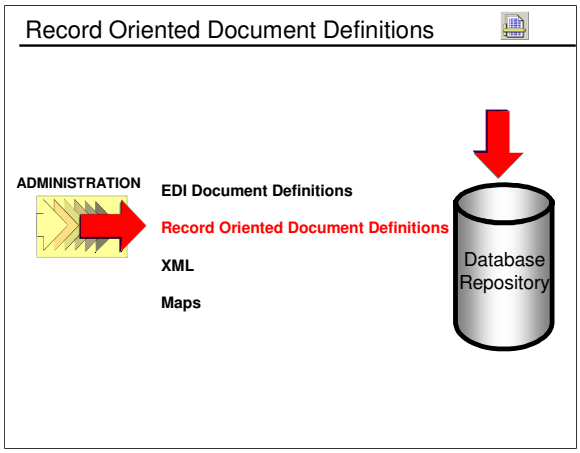


Define the layout of Record Oriented data.

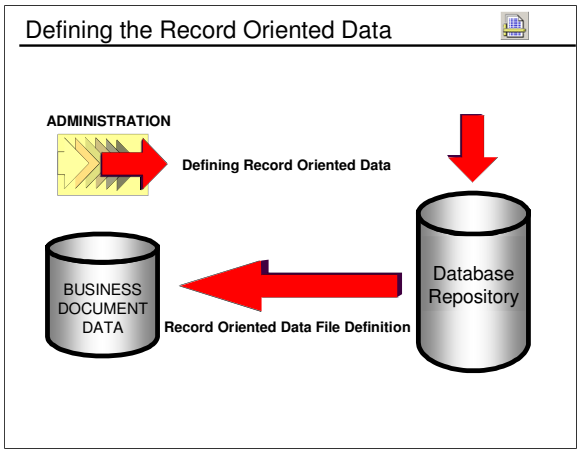
Unit Objectives

- Define Record Oriented Data (ROD)
- Create a ROD dictionary
- Define Record ID Information Objects
- Define ROD documents
- Define Loops and repeating records
- Define Records
- Define Structures
- Define Fields and specify field attributes

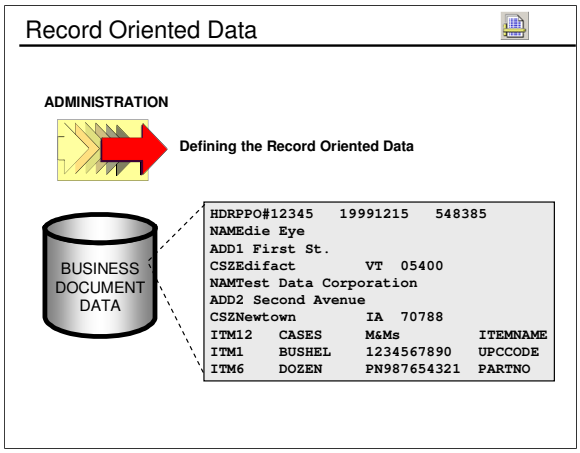
Each of these objectives are addressed in this module.



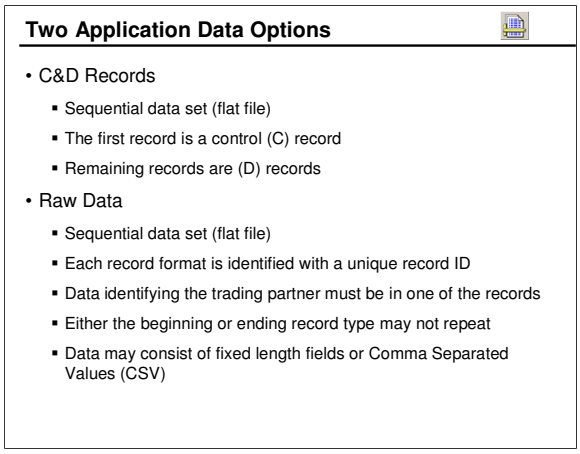
Record Oriented Data objects are defined in Data Interchange Services and placed in the selected database.



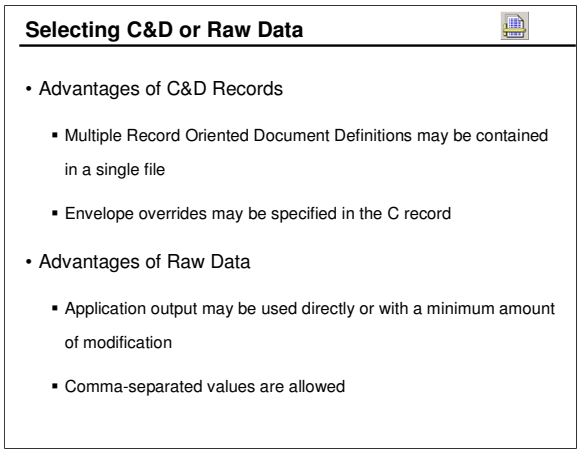
As an EDI document definition defines the layout of an EDI document and an XML DTD or Schema defines the layout of an XML document, Record Oriented Document Definitions are required to define the layout of fixed-length field and comma-separated data.



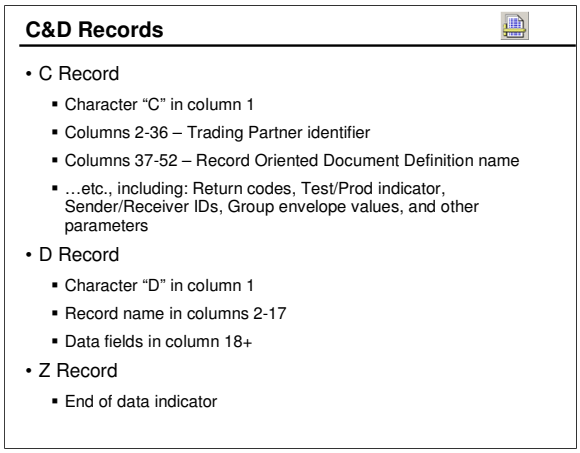
Record Oriented Data must be a flat file with fixed-length fields or comma separated values.



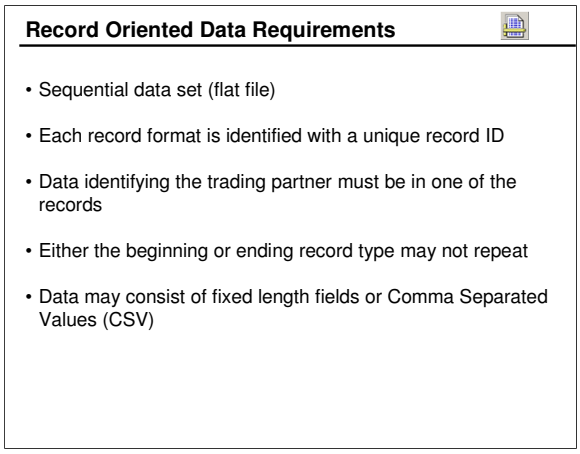
The original format for application data was C&D records. Most implementations today use raw data as it is a more flexible format. C&D record formats are the original format for application data for the DataInterchange product. They are maintained for backward compatibility.



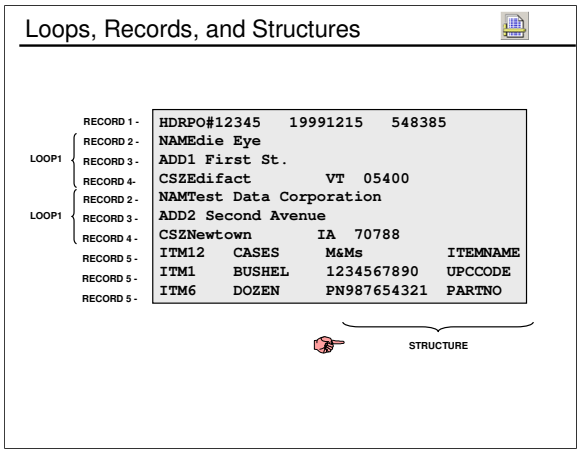
Some companies prefer C&D records as the C record identifies the Record Oriented Document Definition, allowing mixed document types to be processed within a single input file.



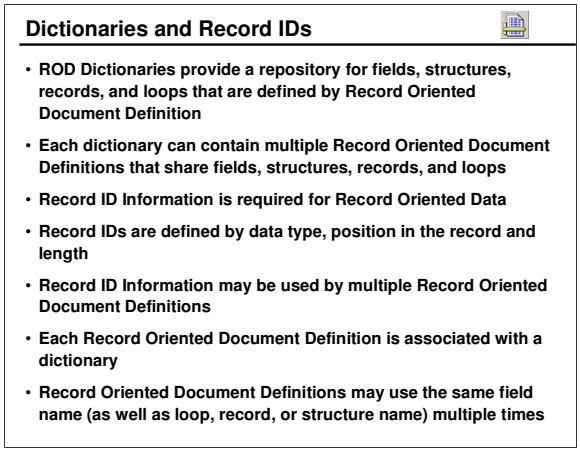
C and D record formats are pre-defined by IBM. The “D” records or data records use columns 1 through 17 as the record ID. With raw data, you define the position and length of the record ID field. Chapter 3 of the Programmer’s Reference provides full details regarding the layout of C and D records.



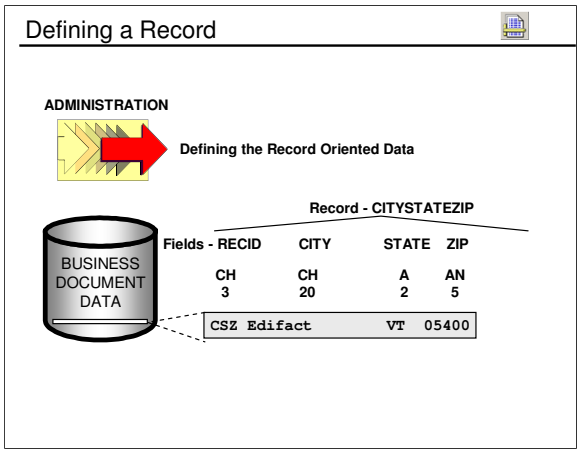
Record Oriented Data must conform to the criteria identified in the slide.



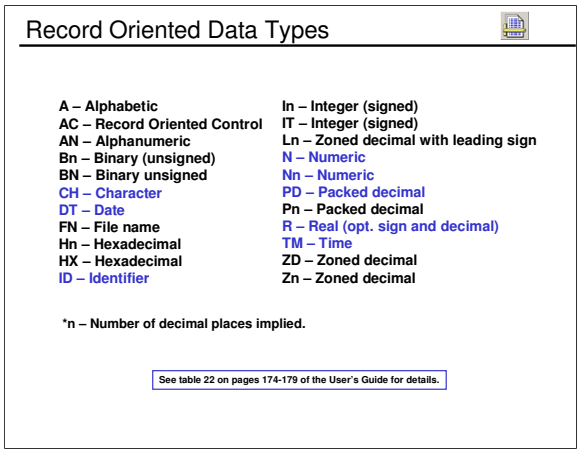
Record Oriented data allows you to define the positions of the record IDs and fields. The PERFORM statement provides the name of the Record Oriented Document definition. The keyword used in the TRANSFORM command is "DOCUMENT".



A Record Oriented Data Dictionary essentially is a name within which other components are grouped. A Record Oriented Data Dictionary allows you to build a library of Record Oriented Data building blocks for specific Record Oriented Document Definitions. For instance, you could create a Record Oriented Document Dictionary for your purchasing system with the idea that many purchasing Record Oriented Document Definitions would use the same components, all of which could be stored in a single Record Oriented Document Dictionary. Those components include Loop, Record, Structure, and Field definitions.



Each record is named in the Record Oriented Document definition. Records contain field definitions and may contain structures identifying groups of fields. Each field is identified as to data type and length. Data Interchange Services calculates the offset position of each field. Therefore if there is unused space, dummy fields must be created as place-holders.



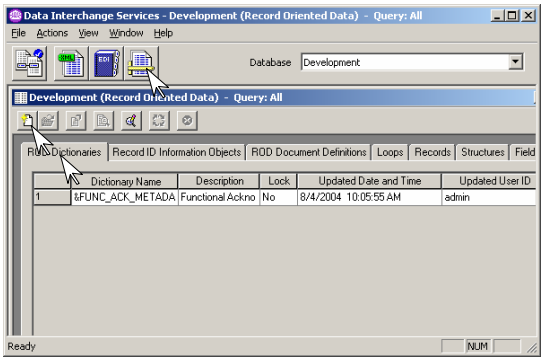
The translator will automatically convert source to target data types when possible. The most commonly used data types include CH, DT, ID, N, Nn, PD, R, and TM.

Creating a New ROD Document Definition

- Obtain the definition of the file layout
- Identify an existing Record Oriented Data Dictionary or create a new one
- Identify an existing Record ID Information object or create a new one
- Define the Record Oriented Data, identifying loops, records, structures, and fields, specifying loop and record repetitions and field types and length

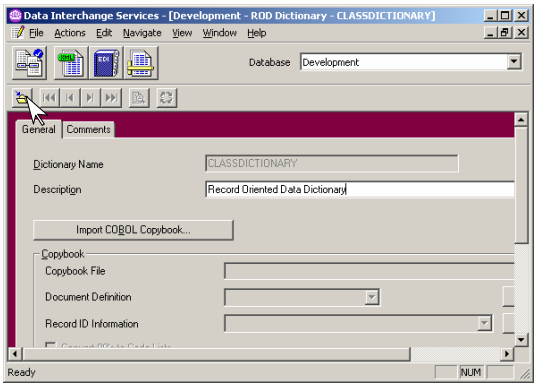
If a Cobol copybook is available, the Record Oriented Document definition may be able to be produced automatically.

Defining a New Dictionary



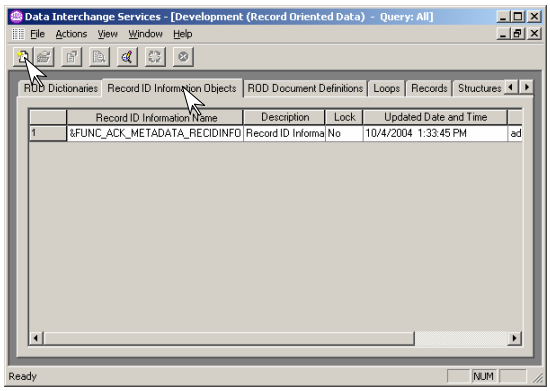
Defining a dictionary does not require defining loops, records, structures, and fields. These are all automatically added to the dictionary as the Record Oriented Document definition is created. Loops, records, structures and fields may be defined manually or modified. Modify these with caution as any change to a field will affect any containing loop, record, or structure as well as any Record Oriented Document definition and associated map using any of these dictionary entries.

New Dictionary Creation

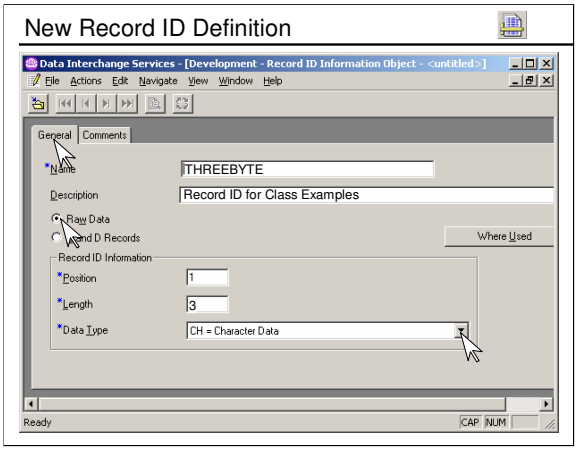


Initially you only need to create an empty Dictionary. Here you assign it a name and optionally a description. Once you save the empty Dictionary, you can identify for use in a Record Oriented Document definition definition. Note that it is at the dictionary tab that a Cobol copybook may imported. The import steps will allow you to create the Record Oriented Document definition during this process. This will be covered later.

Creating a New Record ID

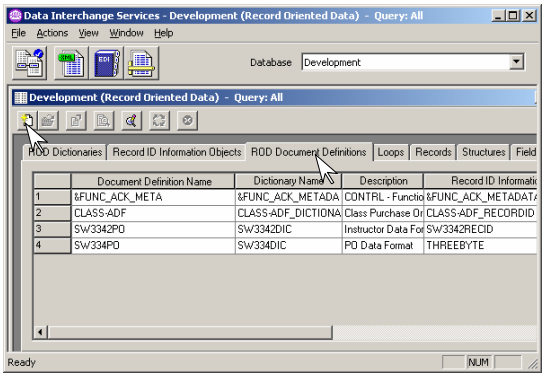


Space for the record ID will need to be reserved in each record, however, the same field name may be used to define each occurrence of the record ID.

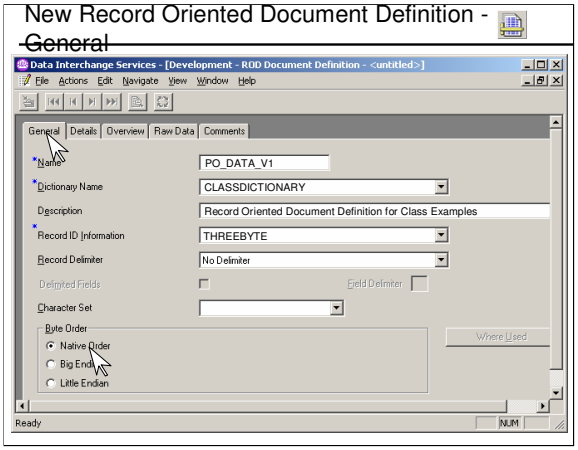


The Record ID data type is almost always CH.

Creating a New Record Oriented Document Definition



The Record Oriented Document definition tab in the Record Oriented Data functional area holds all Record Oriented Document Definitions for all dictionaries. Before a Record Oriented Document definition can be created, a Dictionary and Record ID Information must be available.

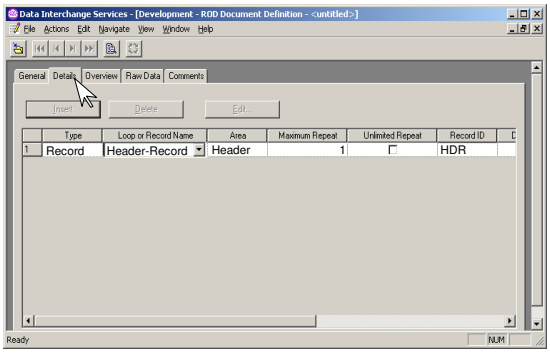


Fields may be fixed-length or comma delimited. In comma-delimited format strings are placed in quotes, numeric values are not. Record Delimiters include: New Line or Carriage Return / Line Feed. Records must be terminated with a record delimiter to support comma delimited fields.

If a code page other than the system default code page is used when reading or writing to a file defined by this Record Oriented Document Definition, select the alternate code page that is to be used.

The character set field allows you to select or enter an alternate code page to use if a code page other than the system default code page is

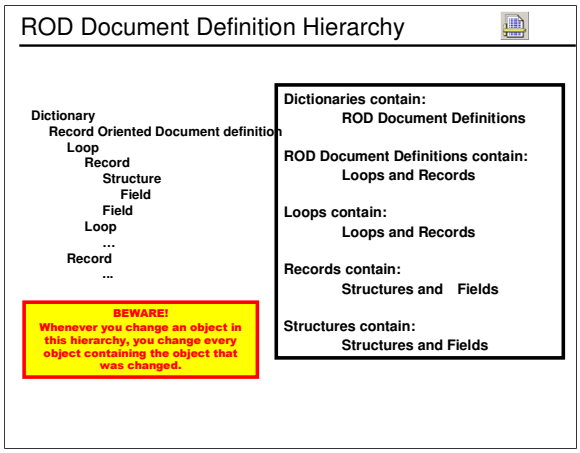
Record Oriented Document definition Details



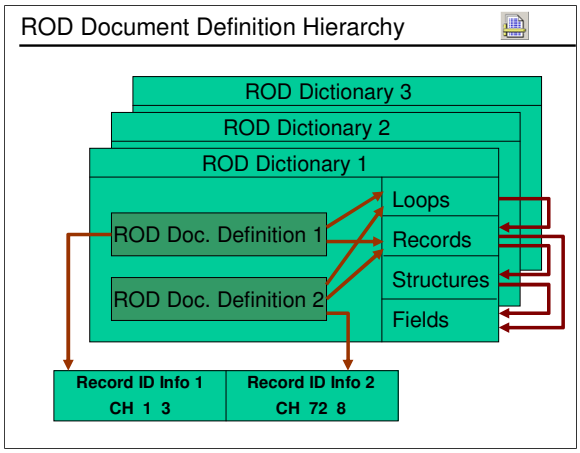
You can create a Record Oriented Document definition by first defining all the highest level objects (Records and Loops) and then open each record or loop to define its contents. Alternatively you can define each record or loop and, after saving it, define its contents before proceeding with the next record or loop definition.

The document area may be specified as “Header”, “Detail”, or “Trailer”. This information is not used during mapping or translation.

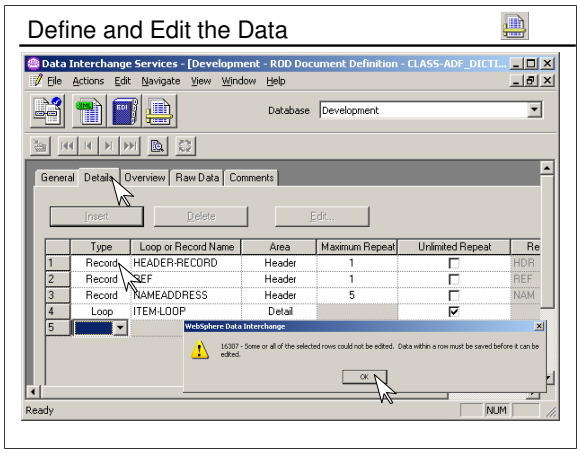
The Record ID is case sensitive and identifies data in the record being defined. This field is identified in the Record ID Information object.



The first level of the document layout can contain Loops and Records. Loops in turn contain Records and other Loops. Records contain Structures and Fields. Structures contain Fields and other Structures. A Field describes a single simple element of data that contains a value. Loops, Records and Structures are considered to be compound elements. A Record defines a complete unit of related information. Records can repeat consecutively. A Loop defines a set of related Records and Loops that repeat as a group.



The first level of the document layout can contain Loops and Records. Loops in turn contain Records and other Loops. Records contain Structures and Fields. Structures contain Fields and other Structures. A Field describes a single simple element of data that contains a value. Loops, Records and Structures are considered to be compound elements. A Record defines a complete unit of related information. Records can repeat consecutively. A Loop defines a set of related Records and Loops that repeat as a group. Loops may contain loops and structures may contain structures.

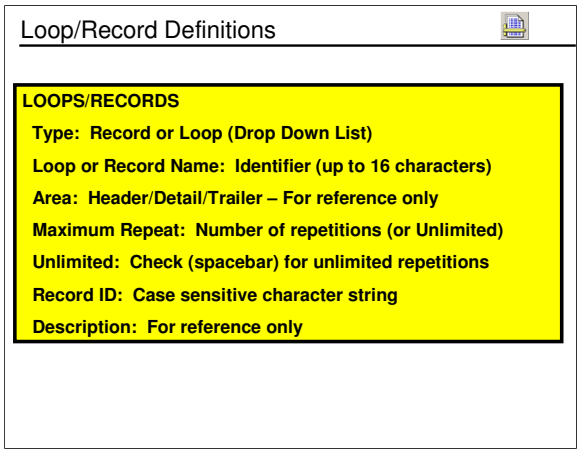


Here you see three records and one loop defined. No content has yet been defined for these records and loop.

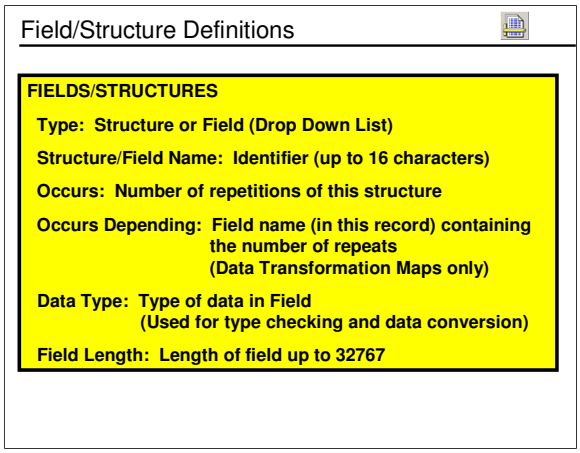
The “Type” column will provide a drop-down list with “Record” and “Loop” available as selections.

The “Loop or Record Name” column will provide a drop-down list with Record and Loop definitions from the dictionary. You can select one from the list or define a new object. If a Record or Loop is selected from the Dictionary, the attributes will be filled in automatically. To change them, the Dictionary entry would need to be redefined.

The “Area” column will provide a drop-down list with “Header”, “Detail”, and “Trailer” available as selections.

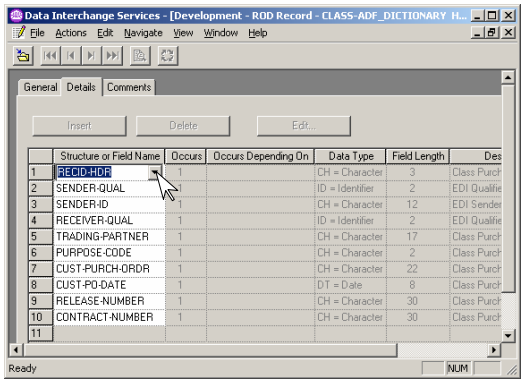


Attributes of the Record Oriented Data Loop are specified in the ROD Document Definition Editor. The first level of the Loop definition (or layout) is specified. The first level of the Record Oriented Data Loop consists of Records and Loops. Those, in turn, define the remainder of that section of the document. A Record's layout is specified in the ROD Record Editor. Use the ROD Structure Editor to specify the layout of a Structure. The attributes of a Field are specified in the ROD Field Editor.



Use the ROD Field Editor to enter new Record Oriented Data Fields into a Record Oriented Data Dictionary or to edit existing Record Oriented Data Fields. From the Field Editor, you can set up WebSphere Data Interchange literals and mapping commands to map data into fields that do not exist in your Record Oriented. Fields are fundamental pieces of data, such as prices or item numbers or first names. In COBOL records, they are stored in a single variable.

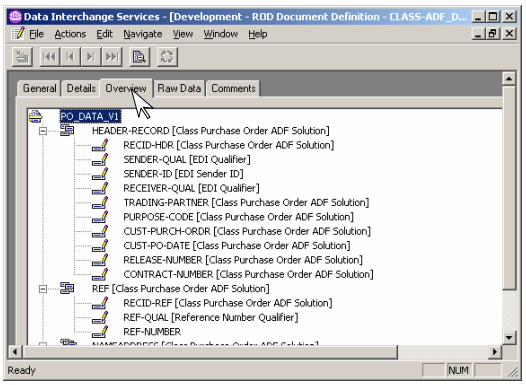
Defining Fields



Selections are available from a drop-down list for all columns except comments. The "Structure or Field Name" column will provide a drop-down list with Structure and Field definitions from the dictionary. You can select one from the list or define a new object. If a Structure or Field is selected from the Dictionary, the attributes will be filled in automatically. To change them, the Dictionary entry would need to be redefined.

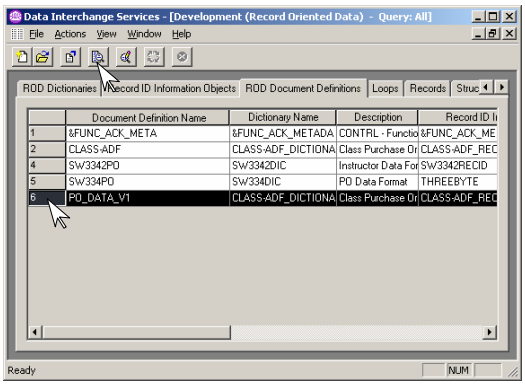
"Occurs Depending" may be used in Data Transformation maps to indicate the number of times a structure repeats is dependent upon the value of one of other fields in that record.

Record Oriented Data Document Overview



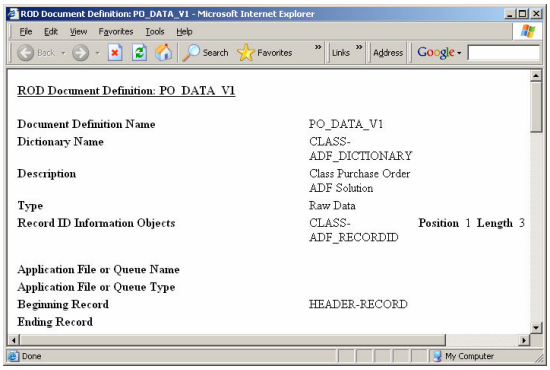
It is good practice to review the Overview of the Record Oriented Data Document.

Printing the ROD Document Definition

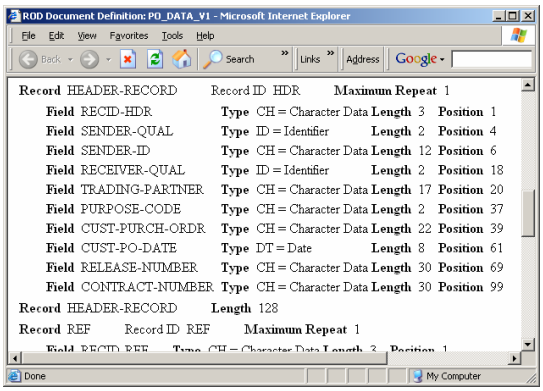


You can produce an HTML report of the ROD Document Definition by selecting the document from the list and then selecting the Report icon or selecting *File/Report*.

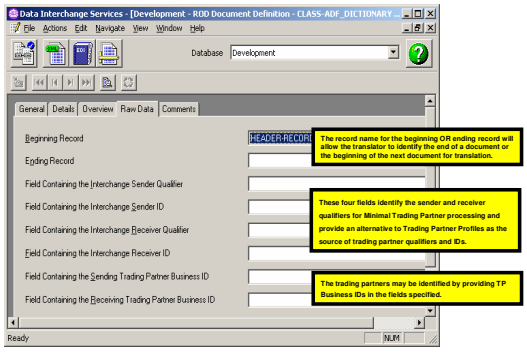
HTML Report


ROD Document Definition: PO_DATA_V1 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Links Address Google
ROD Document Definition: PO_DATA_V1
Document Definition Name PO_DATA_V1
Dictionary Name CLASS-ADF_DICTIONARY
Description Class Purchase Order ADF Solution
Type Raw Data
Record ID Information Objects CLASS-ADF_RECORDID Position 1 Length 3
Application File or Queue Name
Application File or Queue Type
Beginning Record HEADER-RECORD
Ending Record
Done
My Computer

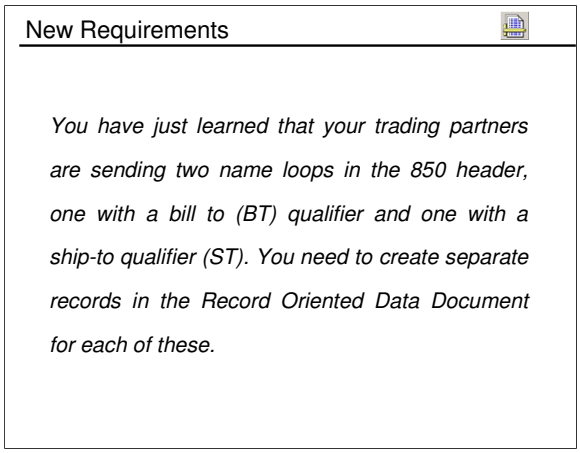
HTML Report (cont.)



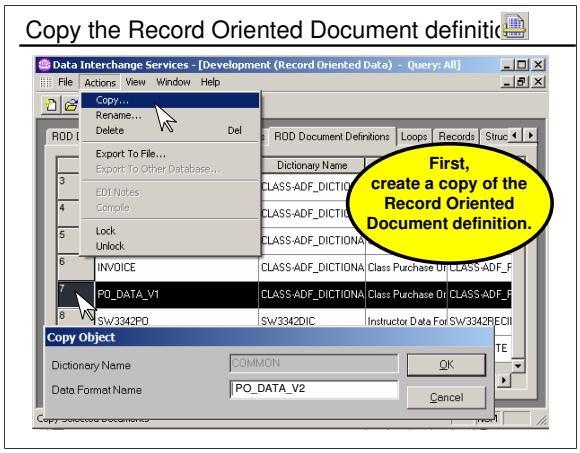
Raw Data Parameters



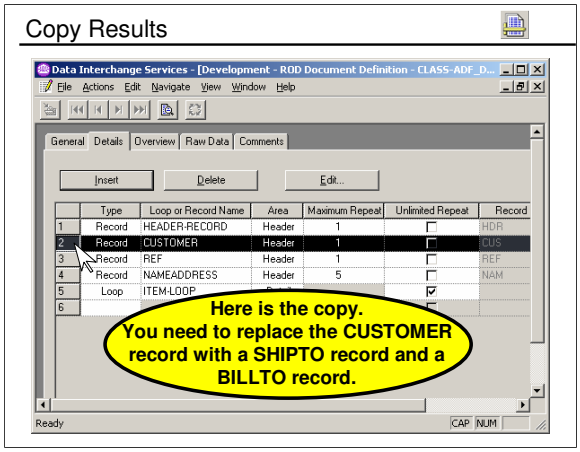
The Raw Data parameters are all based on drop-down lists. Note that information on this tab is used only when Raw Data is selected (as opposed to C&D records). The trading partner must be identified as either the sender or receiver. The comments tab can be used provide valuable information. You will find comments tabs throughout Data Interchange Services.



Once a Record Oriented Data Document Definition is created, it is not unusual to have a requirement to modify that Record Oriented Document definition. The next few slides will review an example and look of some considerations in performing an update to a Record Oriented Document definition.

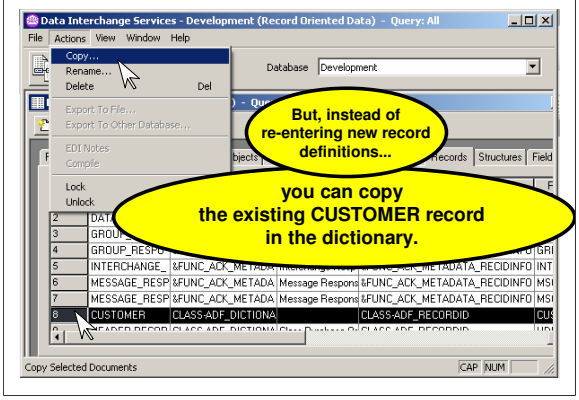


It is a good practice to always create a copy of an object before modifying it.

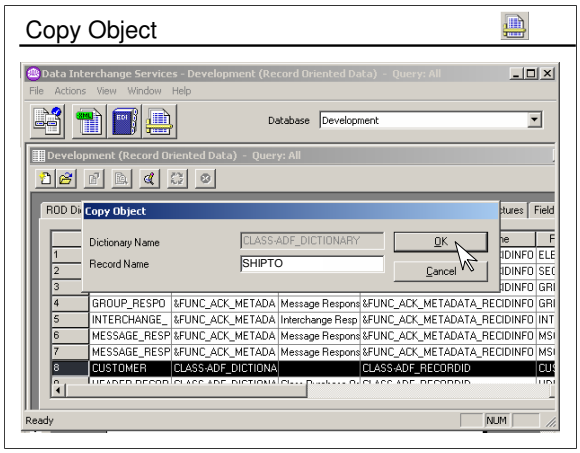


Before deleting the original record, make a copy of it. This eliminates the need to reenter the fields defined for that record.

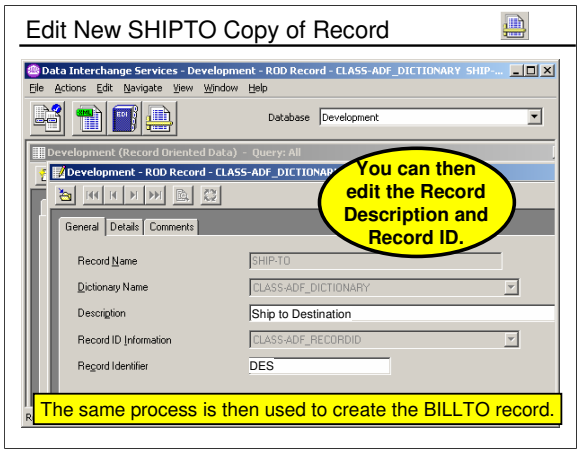
Copying a ROD Document Definition Record



To copy a record, select it (single click), then select Actions/Copy.

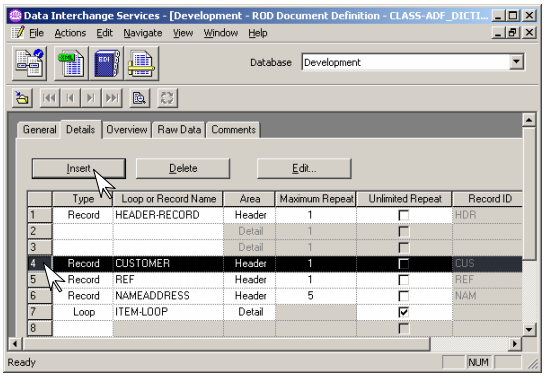


Provide the new name for the copied object.



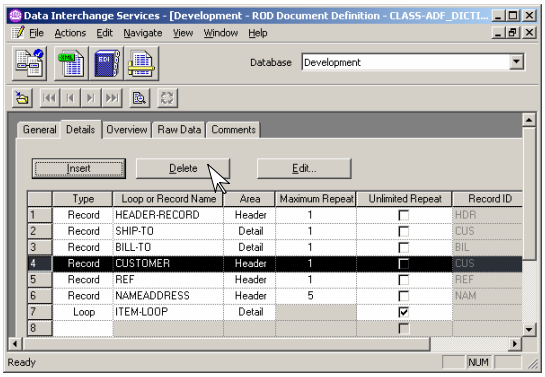
Be aware of any changes that might need to be made to the definition of the new copies object. Here you need to change the Record ID.

Insert Two Records



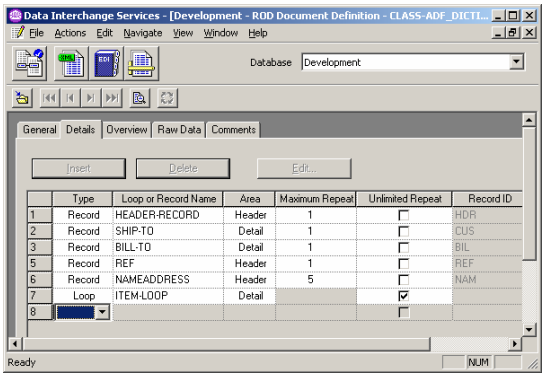
The “Insert” button causes a line to be inserted above the currently selected line. Here you see that two lines have been inserted by clicking “Insert” twice.

Delete the CUSTOMER Record



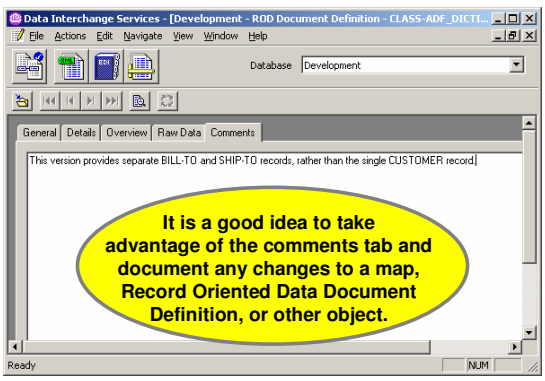
An object may be deleted by clicking the “Delete” button, pressing the Delete key, or selecting Actions/Delete.

Final Updated ROD Document Definition



This is the modified Record Oriented Document definition with separate SHIP-TO and BILL-TO records replacing the single CUSTOMER record.

Use Comments



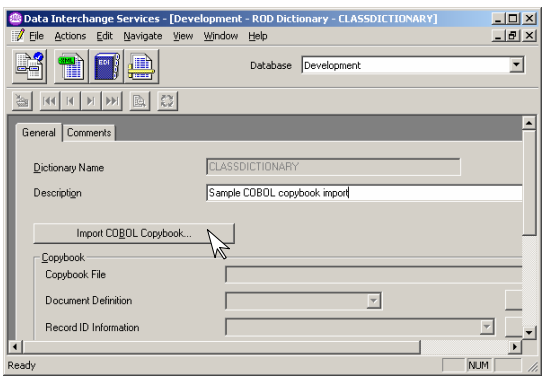
Comments are especially important when changes are made to existing objects.

Importing a Cobol Copybook

- A Cobol Copybook may be imported into a Record Oriented Data Document definition dictionary to create a Record Oriented Document Definition corresponding to the Copybook
- The Copybook may require some editing prior to importing
- Records must be defined as level 01 in the Copybook
- Following import record IDs will need to be defined for Record Oriented data
- The Record Oriented Document definition produced should be reviewed carefully and manually modified as necessary

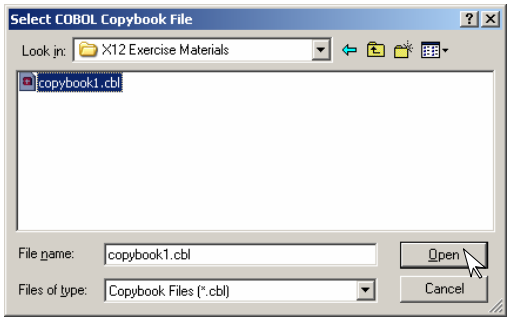
Note that Cobol copybooks are imported under the Dictionary tab, not the Record Oriented Document definition tab.

Cobol Copybook Import

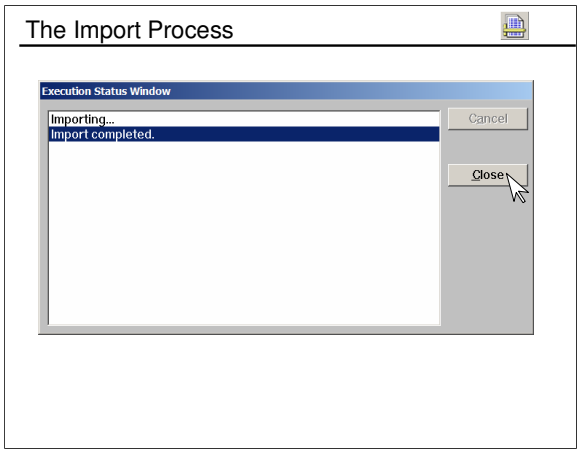


When a Cobol copybook is imported, initially only the dictionary entries are created. The dictionary must be saved, then a new Record Oriented Document definition created using that dictionary.

Selecting the Copybook



If a copybook has been edited, it may have an extension other than “cbl”. This is not a problem for the import process, but you may need to change “Files of type” to browse files with other extensions.



Although it appears that the import is complete, only the dictionary loop, record, structure, and field definitions have been created. You still need to create the Record Oriented Document definition. This is done by selecting “New” for Record Oriented Document Definitions, naming the Record Oriented Document definition, identifying the Record ID Information, and saving the Record Oriented Document definition.

Unit Summary

- Record Oriented Document definition layouts include Raw Data and C&D records
- Record Oriented Data Dictionaries define all loops, records, structures and fields for one or more Record Oriented Document Definitions
- Record ID Information defines the column, length, and data type of the record identifiers
- Record Oriented Document Definitions are created by defining the loops, records, structures and fields in the data or by importing a Cobol copybook
- Records are defined by identifying the structures and fields in the record
- Structures contain two or more (typically repeating) fields
- Fields are identified as to data type and length

Each of these objectives has been addressed in this unit.