Oracle Data Profiling and Oracle Data Quality for Data Integrator

Getting Started Guide

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Contents

Preface v

Intended Audience vi
Related Documentation vi

1 Introducing the Oracle Data Quality Products

Introduction 1-2
Oracle Data Profiling and Oracle Data Quality for Data Integrator Architecture 1-2
Three Feature Sets - Two Products - One Interface 1-4
Oracle Data Profiling 1-4
Time Series 1-4
Quality 1-5
Methodology 1-9
Getting Started with Oracle Data Profiling and Quality 1-10
Step 1: Verify Your Metabase and Connection Setup 1-11
Step 2: Log on to Oracle Data Profiling and Quality 1-11
Step 3: Prepare for Data Import 1-11
Step 4: Create an Entity 1-11
Step 5: Create a Project 1-12
Step 6: Open a Project and Start to Work 1-12
Logging on to the Oracle Data Profiling and Quality User Interface 1-12
Before You Begin 1-13
Opening the Oracle Data Profiling and Quality User Interface 1-13
Exiting the Oracle Data Profiling and Quality User Interface 1-13
Next Step 1-13

2 Touring the Oracle Data Profiling and Quality User Interface

Oracle Data Quality User Interface 2-2
Main Menu 2-3
Main Toolbar 2-3
Metabase Explorer 2-3
About Metabases 2-5
Entities 2-5
Attributes 2-6
Rows 2-6
About List Views 2-7
About Project Views 2-7
Navigating the Explorer 2-8
Opening and Closing the Explorer 2-9
Viewing Metabase Objects in the Explorer 2-9
Using the Explorer Tabs 2-10
Projects Tab 2-10
Oracle Data Profiling Projects 2-11
Time Series Projects 2-12
Quality Projects 2-12
Entities Tab 2-13
Analysis Tab 2-14
Dependencies 2-14
Keys 2-15
Joins 2-15
Findings Tab 2-15
Project Notes 2-16
Private and Public Bookmarks 2-16
Event Logs 2-16
Navigating List Views 2-17
Opening Multiple List Views 2-17
Organizing List Views 2-17
Filtering Information in List Views 2-18
Refreshing the Oracle Data Profiling and Quality User Interface 2-18
Monitoring Metabase Activities 2-19
Viewing Background Tasks 2-19

Viewing Event Logs 2-19
Viewing Messages 2-20
Printing 2-20
Next Step 2-20

3 Importing Data and Creating Entities

Types of Sources for Entity Creation 3-2
Before You Begin 3-2
About Importing Sample Data Files 3-3
Customizing Data During Entity Creation 3-4
Selecting a Subset of Fields (Columns) to Import 3-4
Creating an Entity 3-4
Using the Create Entity Wizard 3-4
Monitoring the Entity Creation Process 3-18
About Verifying New Entities 3-18
About DSD Failures 3-19
About Overflow 3-20
About Metabase Clean-Up Tasks 3-22
Next Steps 3-23

4 Setting Up Projects

About Oracle Data Profiling and Quality Project Types 4-2
Viewing Projects in the Explorer 4-2
About Oracle Data Profiling Projects 4-3
About Setting Up Oracle Data Profiling Projects 4-3
Creating an Oracle Data Profiling Project 4-4
About Time Series Projects 4-5
Creating a Time Series Project 4-5
About Quality Projects 4-7
Selecting a Process Workflow 4-8
Creating a Quality Project 4-9
Opening a Quality Project 4-11
Modifying Process Workflow 4-11
About Quality Project Workflows 4-12
Adding Quality Processes 4-16

Deleting Quality Processes 4-17
Managing Projects 4-17
Editing Projects 4-17
Deleting Projects 4-18
Adding Notes to a Project 4-18
Managing Quality Projects 4-19
Running a Quality Project Job 4-19
Next Steps 4-20

A Menu and Toolbar

Main Menu A-1
Toolbar A-4

Index

Preface

This Preface contains these topics:

- **Intended Audience**
- **Related Documentation**

Intended Audience

This guide is a resource for anyone who wants to learn about the Oracle Data Quality products. It contains essential information about Oracle Data Profiling and Quality user interface elements and provides instructions for how to identify and import data as Entities and set up Projects.

Both Administrators and Users will find the information in this guide essential to understanding fundamental tasks and concepts required for getting started with the Oracle Data Quality products.

Related Documentation

For more information, see this resource:

- *Oracle Data Integrator Installation Guide*

1

Introducing the Oracle Data Quality Products

This chapter provides an overview of the data quality and data profiling products from Oracle, the architecture of these products and methodology for analyzing data and enhancing data quality. It also describes steps to getting started and logging on to the Oracle Data Profiling and Quality user interface.

For more information about the Oracle Data Profiling and Quality user interface and tasks, go to Online Help by selecting **Help > Manuals** from the main menu bar.

For a more detailed tutorial for how to get started with your first data quality project, refer to *Oracle Data Profiling and Quality Getting Started Guide*.

This chapter includes the following topics:

- **Introduction**
- **Oracle Data Profiling and Oracle Data Quality for Data Integrator Architecture**
- **Oracle Data Profiling and Oracle Data Quality for Data Integrator Architecture**
- **Methodology**
- **Getting Started with Oracle Data Profiling and Quality**
- **Logging on to the Oracle Data Profiling and Quality User Interface**
- **Next Step**

Introduction

Oracle Data Profiling and Oracle Data Quality for Data Integrator provide a single data quality management interface from which you can evaluate and manage the data assets and operations critical to your business. When integrated with your business strategy for data governance, the Oracle Data Quality products allow you to monitor and improve data quality throughout your enterprise, regardless of where it is located, and track your data quality improvements over time.

Oracle Data Profiling and Oracle Data Quality for Data Integrator let you:

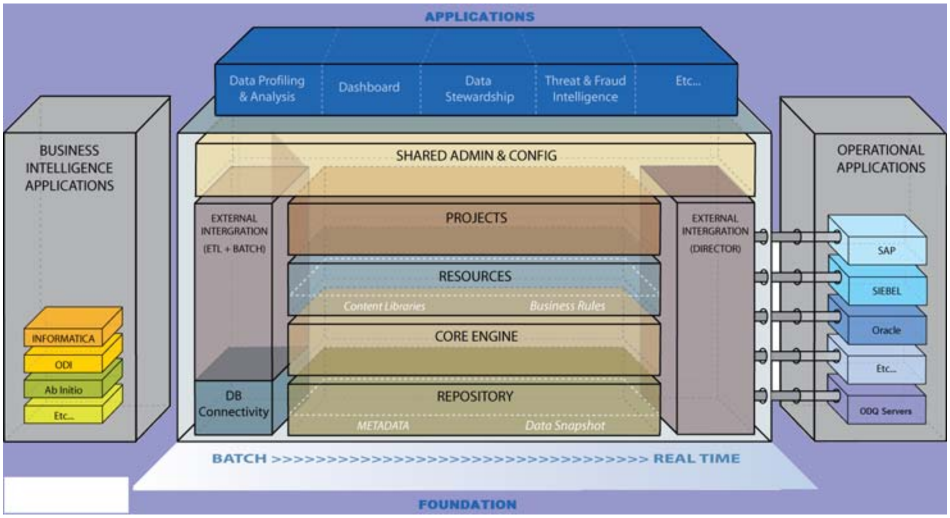
- Identify mismatches and inconsistencies between metadata and actual data content.
- Create a centralized repository of data, metadata, statistics, and documentation.
- Analyze and report on data values, statistics, frequencies, and ranges.
- Detect poor data conditions and anomalies with proactive "no assumption" analysis of an entire data set.
- Continually monitor data conditions.
- Export reports to formats such as HTML, XML, and CSV, or copy them into any Windows application such as Word or Excel for presentation to business decision makers.
- E-mail notification of tasks and conditions to key Data Management personnel for fast response and resolution.
- Create and validate data rules and user-defined business rules.
- Track and monitor trends in data over time.

Oracle Data Profiling and Oracle Data Quality for Data Integrator Architecture

Oracle Data Profiling and Quality is an extensible system of total data quality applications that can be configured to work independently or in tandem with the existing data management applications used by your business.

Oracle Data Profiling and Quality is an integrated solution that enables you to discover, monitor, repair, and manage the enterprise data stored in relational databases and data files on your network. It can also be configured to communicate with external Customer Relationship Management (CRM) and Enterprise Risk Management (ERM) applications to ensure data accuracy and reliability.

Figure 1–1 Oracle Data Quality Architecture



Oracle Data Profiling and Quality share a single user interface through which you can monitor and manage:

- Data resources and connections
- Core data functions and services
- User-defined projects
- Data business and governance rules
- Repository data objects
- Batch and real-time data process results

Oracle Data Profiling and Quality are available with geographic-specific resources for countries around the globe. Global capabilities include country templates and country-specific business rules, with address reconstruction at the country level. Most global languages are supported, and language support includes Asian character systems, such as Chinese, Japanese, and Korean.

Three Feature Sets - Two Products - One Interface

The Oracle Data Quality products provide three key feature sets - Profiling, Time Series, and Quality. Profiling and Time Series are sold together as a single product, Oracle Data Profiling, while the Quality feature set is delivered as Oracle Data Quality for Data Integrator. These data quality products together share a single user interface. Each application is able to access data sources and any Metabases you create. Using the common Oracle Data Profiling and Quality user interface, you apply, view, monitor, and control the multiple data quality and governance tasks you select to manage and report your data, and gradually develop a process that ensures the reliability and improvement of data assets across all your data sources.

Oracle Data Profiling

Oracle Data Profiling is an automated profiling application that lets you evaluate and understand the current structure and properties of your data assets. It discovers the structure and relationships inherent in your data and analyzes your data to reveal statistics and other information that otherwise might remain hidden to you.

By using Oracle Data Profiling, you can increase your data profiling efficiency by 90% or more over manual methods, and eliminate the need to design data samples or build queries and run analyses on production systems.

Oracle Data Profiling assesses data without the assumptions inherent in query-based profiling and can show you detailed information about data content, non-compliance, and other statistics that manual profiling can miss. If you choose, you can connect directly to a database by creating a Dynamic Entity and analyze your data in real time, or you can import a copy of your data to a Metabase and create an Entity, also referred to as a 'real' Entity. By creating an Oracle Data Profiling Project, you can then view and analyze the Entities you create.

Time Series

The Time Series feature set is delivered as part of Oracle Data Profiling. Time Series is a monitoring application that lets you evaluate and monitor changes to your data over a period of time. It utilizes the Profiling data analysis features and compares snapshots of your data over successive inquiries. Time Series Projects enable you to see trends in your data usage and identify anomalies, as well as areas for improvement. When you create a Time Series Project, you identify the Entities you want to track and set the parameters for monitoring changes within these Entities.

Quality

Oracle Data Quality for Data Integrator is a total data quality and governance product that gives you a powerful tool set for repairing and correcting fields, values and records across multiple business contexts and applications, including data with country-specific origins. Oracle Data Quality enables data processing for standardization, cleansing and enrichment, tuning capabilities for customization, and the ability to view your results in real time.

Table 1-1 describes all quality processes available in Oracle Data Quality for Data Integrator.

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Table 1–1 Quality Data Processes

Process Name	Description
Business Data Parser	Identifies and standardizes business data (non-name and address) and is driven by business rules that you can customize to meet specific data requirements. The process uses pattern-recognition to identify, verify, and standardize components of free-form text. It performs these functions: ■ Identifies words and phrases in free-form text by their values or masks. ■ Produces standardized output in useful formats. ■ Uses customized user-defined Attributes. ■ Uses business rules tables that can be customized. ■ Corrects misspellings. ■ Enables recoding of words or phrases using external tables.
Commonizer	Lets you select the "best" record of a matched set of records, called the *survivor*, and then copies that record to a field in another record, across a matched set of records. The selection process is defined by *decision routines*. This process has two major functions that you can select:

Table 1–1 Quality Data Processes

Process Name	Description
	■ *Commonization*--copies data in one field to other fields in records linked by a match key. You can commonize data in an existing field or a new field, using data records that originate in another field. ■ *Survivorship*--selects a user-defined "survivor" among a group of records by using the survivor selection rules. It flags a single selection at any level, indicating the best record of a linked set.
Customer Data Parser	Identifies freeform name and address data. It performs these functions: ■ Identifies elements of data from the input data file. ■ Uses country-specific tables to verify and identify data according to each country's postal rules and idioms. ■ Allows users to customize name and address identification for specific business requirements. ■ Uses Word Pattern Definition files to define word and phrase patterns (tokens) for a given country. ■ Uses City Directory files to define state and city names, and postal codes for a given country.
Data Reconstructor	Reconstructs addresses from a combination of data, elements, and postal matcher output fields. It performs these functions: ■ Uses a rich scripting language with conditional IF/ELSE capabilities and text manipulation, allowing you to apply rule-based logic as data reconstruction rules at any point in a project job stream or real-time process. ■ Combines existing data elements and literal values to create new data elements.
Data Router	Scans an input file that contains record data from more than one country, identifies the country-specific data, and then creates one output file per country that contains *only* the data specific to the country you select. It performs these functions:

Table 1–1 Quality Data Processes

Process Name	Description
	■ Uses Rules files that contain country-related word definitions and tables. ■ Specifies how many output files to generate and which countries are identified. ■ Uses a country code field to identify and score country of origin. ■ Uses field settings to determine which fields to inspect when there is no valid country code or the country code is suspect.
File Update	Updates a master file with the data from another file, referred to as the transaction file.
Merge/Split	Manipulates files using merge keys (merges multiple files into a single file) and rules files (specifies how to split a data file into multiple output files).
Postal Matcher	Relies on the output from the Parsing process. It verifies and enriches address data by matching the data to directories and appropriate fields populated with Postal Geocoded data. It performs these functions: ■ Collects lists of possible streets in a city as potential matches for the parsed data. ■ Compares name and address components of the parsed data to the list of potential matches. ■ Weights the results of the comparisons. ■ Populates the parsed output area with the acceptable result. ■ Uses postal matching rules that correspond to a country's postal rules. **Note:** *Postal Geocode data is not available from Oracle but must be purchased separately from Trillium Software in order to enable this feature.*

Table 1–1 Quality Data Processes

Process Name	Description
Reference Matcher	Compares records in an input file to an existing *reference file*. Use this process to update new records within an existing master file (also called a *reference file*) in the database. For example, after running an initial linking process, you can compare new records in an input file with the initial matched records as your reference file. By comparing the input file to the reference file, you can then verify new records in the reference file and update the file if necessary. The process performs these functions: ■ Updates a reference file. ■ For matches, copies a matching key number from the reference record to the input record. ■ For no matches, generates a new key number and appends it to the input record.
Relationship Linker	Identifies the relationship between records in a file at the *business* and *consumer* level. It performs these functions: ■ Identifies whether duplicate records exist in several files. ■ Uses comparison routines to determine the level of similarity between records. Results are categorized as *Pass*, *Suspect*, or *Fail*, depending on the similarity of data elements. ■ Uses window keys to match records, and attempts to match records in the same window key set so that it does not need to compare every record in the database to every other record.
Resolve	Resolves transitivity where two records are linked together indirectly by a third record. The process creates a relationship among the records that can then be used to represent the entire matched record set.
Set Selection	Selects data from an input file and then, based on match keys and select or bypass record directives, the process skips, selects, and reformats data when it creates the output file.
Sort for Linking	Reads records from input files and sorts them to produce a single output file that is ready for input to the Relationship Linker process in a workflow.

Table 1–1 Quality Data Processes

Process Name	Description
Sort for Postal Matcher	Reads records from input files and sorts them to produce a single output file that is ready for input to the Postal Matcher process in a workflow.
Transformer	Converts data from one or more Entities and formats to a single output Entity. It performs these functions: ▪ Scans data records for defined shapes (masks) and literal values, and then moves, recodes, or deletes the data. ▪ Applies conditional logic to perform an unlimited number of data transformations. ▪ Recodes character fields, based on a user-defined external table.
User Defined Process	User-customized version of a process. A user must specify the path to the parameter file and executable.
User Defined Sort	Reads records from input files and sorts them to produce a single output file that is ready for input to the next process in a workflow as defined by the user.
Window Key Generator	Lets you create window keys used to match records in the Relationship Linker. It performs these functions: ▪ Constructs window key from the elements of input fields. For example, a window key might use the first character of a business name and first five characters from a postal code field.

Methodology

The Oracle Data Quality products incorporate a data quality methodology that supports a consistent, repeatable process for these five steps:

- **Investigate**—Uncover information that determines how well your enterprise data conforms to rules that govern acceptable limits and requirements for your business. The resulting statistics help you understand next steps and determine which quality data processes to include in your Oracle Data Profiling and Quality data Projects.

- **Standardize**—Identify, verify, and normalize all organizational data, both customer and business. These processes are performed by Oracle Data Quality using the Transformer and Business and Customer Data Parsers.
- **Link**—Recognize relationships within data based on commonalities in data content. These processes are performed by Oracle Data Quality using the Relationship Linker.
- **Enrich**—Increase the value of data by augmenting and correcting records using external data sources. These processes are performed by Oracle Data Quality using the Postal Matcher and Reference Matcher.
- **Monitor**—Provides information you need for fine tuning processes and continued improvements. Use the trending and series features in Time Series to monitor changes and trends in your data sources. You can also monitor processes and other activities by viewing background tasks and log events in Oracle Data Profiling and Quality.

Getting Started with Oracle Data Profiling and Quality

Follow the steps in Table 1–2 to get started with Oracle Data Profiling and Quality. These steps are described in this guide.

Table 1–2 Steps for Getting Started with Oracle Data Profiling and Quality

Step	Task
Step 1	Verify your Metabase and Load Connections with your Administrator.
Step 2	Log on to the Oracle Data Profiling and Quality user interface and familiarize yourself with the user interface.
Step 3	(Optional) Prepare for importing your data by deciding whether all or only part of the data source will be imported. Also determine whether you want to customize the Entity creation.
Step 4	Create an Entity.
Step 5	Create a Project.
Step 6	Open a Project and start to work.

Step 1: Verify Your Metabase and Connection Setup

If you do not have Metabase Manager privileges, verify that your Oracle Data Profiling and Quality Administrator has set up a Metabase for you to use and ask for the Metabase name. You'll need this to log on to the Oracle Data Profiling and Quality user interface.

Also verify that a Load Connection to your data source has been created. You'll need this when you create an Entity. See "Before You Begin" on page 3-2.

Step 2: Log on to Oracle Data Profiling and Quality

Next, log on to the Oracle Data Profiling and Quality user interface and familiarize yourself with the user interface

See "Logging on to the Oracle Data Profiling and Quality User Interface" on page 1-12 for instructions.

Use Chapter 2, Touring the Oracle Data Profiling and Quality User Interface, to learn about the Oracle Data Quality products and the components of the Oracle Data Profiling and Quality UI. As you begin to work with data, you can refer back to Chapter 2 to learn how to manipulate List View data and resize window panes.

Step 3: Prepare for Data Import

Chapter 3, Importing Data and Creating Entities, describes a number of options you may want to consider prior to creating an Entity. These include:

- Importing sample data files
- Customizing data during Entity creation
- Configuring compliance standards using Data Standard Definitions (DSDs) and business rules

If you are interested in setting up business rules and DSDs prior to importing data, refer to the Oracle Data Profiling and Oracle Data Quality for Data Integrator Help.

Also see "About Importing Sample Data Files" on page 3-3 and "Selecting a Subset of Fields (Columns) to Import" on page 3-4.

Step 4: Create an Entity

An Entity is an object stored in a Metabase as a virtual image of the data table or file with which you want to work. When you work with an Entity you are not

overwriting any data that physically exists in your data source, but instead working with a copy of it.

You can create a Dynamic Entity, however, which links directly to an external data source and allows you to profile your data in real time. When you create an Entity, you must choose to create a 'real' Entity or a Dynamic Entity.

You'll find information about creating Entities in Chapter 3, Importing Data and Creating Entities.

Step 5: Create a Project

Each of the three data quality feature sets has its own Project type. You must first select the feature set with which you want to work—Profiling, Time Series, or Quality—and then create a Project. Next, you identify the Entities you want to include in the Project, and then you can begin working with the Entity data.

How you create and manage the Projects in Oracle Data Profiling and Quality depends on your business needs and data quality management setup. Chapter 4 describes the different types of Projects and how to set up each Project type: Profiling, Time Series, or Quality.

Step 6: Open a Project and Start to Work

You'll find Oracle Data Profiling, Time Series, and Quality Projects described separately in Chapter 4. Go to these sections to find the detailed information you'll need to get started.

Logging on to the Oracle Data Profiling and Quality User Interface

Before you log on to the Oracle Data Profiling and Quality user interface, verify that the Metabase administrator has completed the following:

- **Created a Metabase**—contains the data that is designated for your use.
- **Created a Loader Connection**—connects to the data source with which you want to work.
- **Added you as a Metabase User**—creates the user name and password unique to your user account.

These tasks are described in the *Oracle Data Integrator Installation Guide*, and must be completed before you can begin your work.

Before You Begin

Before you begin to work with Oracle Data Profiling and Quality, make sure you have the following information:

- Name of the Metabase that contains your data
- Name of the Repository where it is located
- Name of the Loader Connector used to connect to your data
- User name and Password required to log on to Oracle Data Profiling and Quality

Opening the Oracle Data Profiling and Quality User Interface

Follow these steps to open the Oracle Data Profiling and Quality user interface.

1. On your desktop, double-click the Oracle Data Quality icon to start the application, or select **Start > All Programs > Oracle > Oracle Data Profiling and Quality > Oracle Data Profiling and Quality**.
2. The **Metabase Connection** dialog opens. Use the pull-down menu to select the server **Repository** that contains the Metabase with which you want to work.
3. Type the **Metabase** name and your **Username** and **Password** for the selected Metabase.
4. Click **OK**. The Oracle Data Profiling and Quality user interface opens.

Exiting the Oracle Data Profiling and Quality User Interface

To exit the Oracle Data Profiling and Quality user interface, select **File > Exit**.

Next Step

You have learned about how the Oracle Data Quality products work and the steps you will need to take to get started. The next step is to become familiar with the elements of the Oracle Data Profiling and Quality user interface. You will find information about the Oracle Data Profiling and Quality user interface in Chapter 2.

2

Touring the Oracle Data Profiling and Quality User Interface

This chapter describes the Oracle® Data Profiling and Quality user interface and describes concepts and terminology you will encounter when performing tasks. Use the topics in this Tour to become familiar with navigation features, views, menus, and toolbars.

For additional information, be sure to use the ***Oracle Data Profiling and Data Quality for Data Integrator Help*** which contains an online ***Tour of the User Interface***. You can access Help from the main menu by selecting **Help > Manuals**.

This chapter includes the following topics:

- **Oracle Data Quality User Interface**
- **Navigating the Explorer**
- **Using the Explorer Tabs**
- **Navigating List Views**
- **Refreshing the Oracle Data Profiling and Quality User Interface**
- **Monitoring Metabase Activities**
- **Next Step**

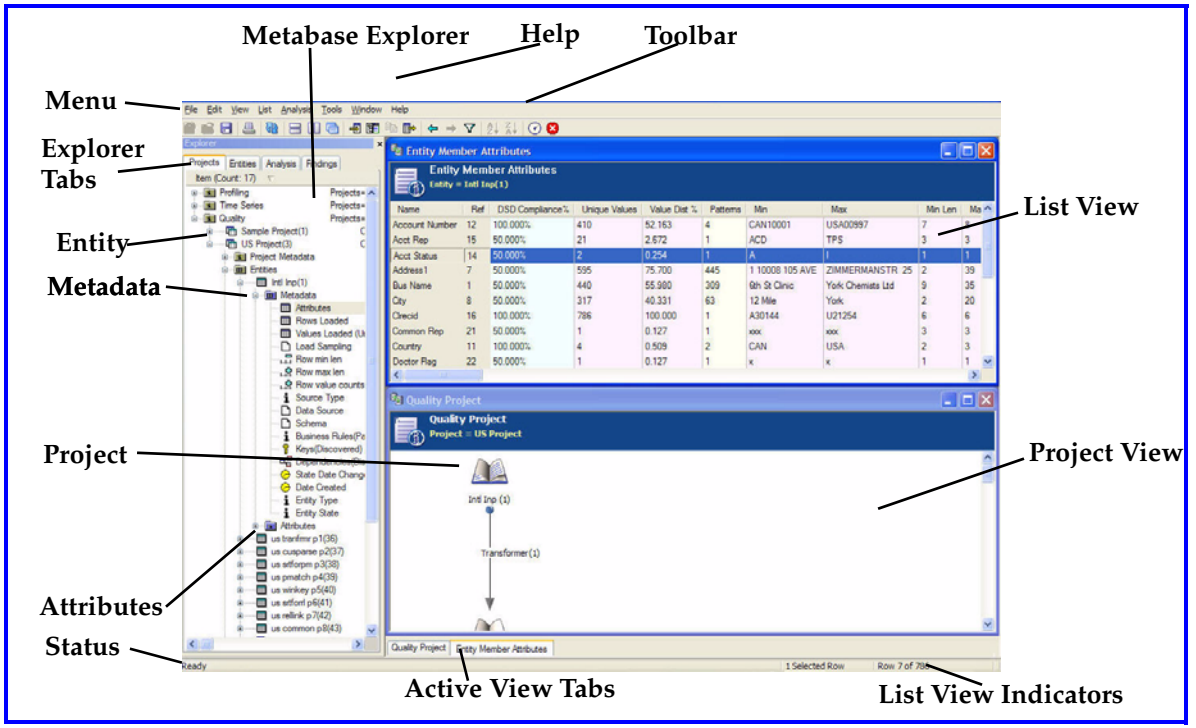
Oracle Data Quality User Interface

The Oracle Data Profiling and Quality user interface provides a single data quality management interface from which you can profile, evaluate, and manage your data assets. The interface includes:

- **Metabase Explorer**—use to explore the contents of your Metabase. Metabases contain the data you want to analyze or process in the Oracle Data Quality products.
- **List Views**—multiple List Views display data details.
- **Project Views**—help you manage data projects and quality processes.

The main elements of the Oracle Data Profiling and Quality user interface are shown in Figure 2–1.

Figure 2–1 Main Elements of Oracle Data Profiling and Quality User Interface



Main Menu

The main menu bar at the top of the program window provides the primary functions for managing the user interface and performing data-related tasks. Refer to Appendix A for a detailed description of menu options.

Main Toolbar

Main frequently used functions are available in the Oracle Data Quality main toolbar at the top of the program window.

Toolbar actions are each represented by an icon. To select an action, such as Save or Create Entity, click the appropriate icon. For a detailed description of all toolbar tasks, see Appendix A.

Metabase Explorer

The Metabase Explorer provides a hierarchical view of your data assets. You can choose to see information about your data from a Project, Entities, Analysis, or Findings perspective by selecting the tabs at the top of the Explorer pane.

You can use the Explorer to:

- Navigate and view data assets managed in the Oracle Data Quality user interface
- Discover data relationships and content structures
- View lists of projects, metabase objects, and data statistics
- View data statistics for Entities and Attributes
- Find potential duplications and other issues in your data
- View process flow lists (for Quality Projects only)

Each object shown in the Explorer represents an object in your Metabase.

Table 2–1 lists the Oracle Data Profiling and Quality Metabase objects that you will see when you begin exploring your data. If you want to find a certain type of object,

find and click the Explorer tab indicated in the last column. For example, to find information about Joins in your Metabase, click the **Analysis** tab.

Table 2–1 Metabase Objects

Object	Description	Explorer tab
Attribute	Field/column of data stored in a Metabase. Each Attribute has Metadata associated with it.	Projects Entities
Attribute Metadata	Statistics and properties associated with an Attribute.	Projects Entities
Dependency	Data relationship in which one or more Attributes (fields/columns) determine the value in another Attribute.	Analysis
Entity	File or table stored in your Metabase and associated with a data source.	Projects Entities
Finding	Documented results of an Oracle Data Profiling Project or data profiling activity. Findings include notes, bookmarks, and event logs.	Findings
Join	Intersection of identical data between two Entities.	Analysis
Key	Attribute that can uniquely identify and associate data, binding the data together.	Analysis
Metadata	Information about your data generated when that data is imported to Oracle Data Profiling and Quality as Entities. Metadata includes calculations such as value uniqueness, soundexes and metaphones, and findings such as duplicate rows and data conflicts.	Projects Entities
Project	References a set of data and the data quality activities you perform. It includes information about metadata and workflow tasks.	Projects

The Explorer tabs along the top give you access to your data Projects, Entity metadata, data analysis results for Joins, Keys, and Dependencies, reports, notes and bookmarks as Findings, and other information. For more detail, see the ***Oracle Data Profiling and Data Quality for Data Integrator Help*** available from the main menu.

About Metabases

A **Metabase** stores data objects. It also stores any information related to the stored data, called **Metadata**. The type of information you can discover about your data includes:

- Data structures, contents, and relationships
- Data compliance with business rules and Data Standard Definitions (DSD)
- Data statistics, drill-down details, and data patterns
- Data trends and changes over time
- Data quality processing and results
- Documentation of data observations, compliance issues, and more

Initially, when you create a Metabase, it is empty. Only when you create a "real" Entity will it contain a copy of your data source. Or, if you do not wish to import a copy of your data, you can create a "dynamic" Entity. Dynamic Entities show you the data in your data source without importing that data to a Metabase.

When you import data from a data source to a Metabase, Oracle Data Quality creates data objects that correspond to the tables, columns, and rows in the imported data. The data objects in a Metabase are:

Metabase Object	Original data type
Entity	data tables and files
Attribute	fields in columns
Row	records in rows

The data object that corresponds to a data table or file is called an **Entity**; data in columns are **Attributes**, and data in rows are **Rows**.

All Metabase objects are viewed through the **Metabase Explorer**, often referred to as **Explorer**, in the Oracle Data Quality user interface.

Entities

Depending on the structure of your source data, an Entity can represent the following data sources:

- If the data source is a relational database, an Entity represents a physical table.

- If the data source is a flat file, an Entity represents a physical file.
- If the data source is a hierarchical database, an Entity represents an IMS segment or an IDMS record.
- Regardless of the data source, an Entity could represent a schema structure without data (Dynamic Entity).

For information about working with Entities, see Chapter 3 and the ***Oracle Data Profiling and Data Quality for Data Integrator Help*** (**Help > Manuals**).

Attributes

Oracle Data Quality refers to data columns with a standardized term, **Attribute**. The **Entities** tab in the Explorer contains a complete list of all Entities and their associated Attributes in a Metabase. An Attribute cannot exist in the Metabase without an Entity.

Depending on the structure of the source data, an Attribute can represent the following forms:

- If data source is a relational database, Attribute represents a column.
- If data source is a flat file, Attribute represents a field.
- If data source is a COBOL application, Attribute represents a field.

The Metabase uniquely identifies each Attribute with a reference number, allowing for Attributes with duplicate names to exist.

For detailed information about Attributes, see the ***Oracle Data Profiling and Data Quality for Data Integrator Help*** available from the main menu of the user interface (**Help > Manuals**).

Rows

A **Row** is a data record that is associated with a specific Entity. When Oracle Data Quality imports data, it analyzes each data record/row and imports data records as Metabase objects called **Rows**. Statistics about imported Rows are shown in the Explorer.

Using the drill-down features of Oracle Data Quality, you can discover the following information about Rows:

- Number of Rows in an Entity
- Maximum and minimum lengths of Rows in an Entity

- Potential duplicate Rows and how many
- Number of NULL values in Rows
- Data in Rows

There are, however, two types of rows in Oracle Data Quality—Rows that represent data records, and rows in List Views that display detailed statistics and information. In all instances, if you see the word capitalized, the reference is to imported data records. If the word is lower-cased, the reference is to the rows in a List View pane.

About List Views

A **List View** displays metadata and statistical information as data values and rows using a spreadsheet format. When you select an object in the Explorer or a task in the main menu, the information in the List View shows the data details you have requested.

Use the Metabase Explorer and List Views together. Potential issues that you find in the Explorer can be explored and verified in a List View. You can select data details in List View columns and rows for further analysis and inquiry. When you begin to explore List Views and how they work, try drilling down by double-clicking rows or right-clicking and selecting drill-down options.

Use the List View tabs and indicators (see Figure 2–1) at the bottom of the Oracle Data Profiling and Quality user interface window to open active List Views and identify their contents.

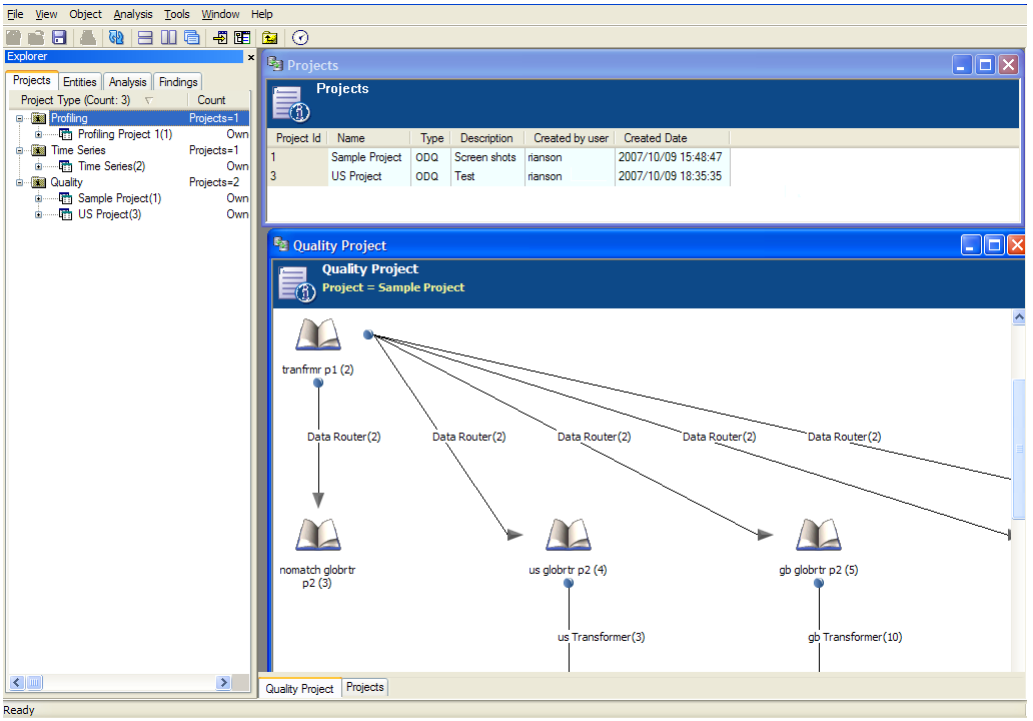
The List View also functions as a report formatter. By displaying the relevant data and customizing the List View, the information can then be saved in XML, HTML, CSV, tab delimited, or ODQ files.

You will find more information about List Views in “Navigating List Views” on page 2-17. You can also refer to the ***Oracle Data Profiling and Data Quality for Data Integrator Help*** for detailed information, available from the main menu of the user interface (**Help > Manuals**).

About Project Views

Project Views (Figure 2–2**)** are user interface windows that contain the Project information and process workflows for organizing **Oracle Data Profiling, Time Series** and **Quality** projects. However, before you can display a Project in a Project View, you will need to create an Entity and then create a Project. See Chapters 3 and 4.

Figure 2–2 Project View



Each of the three Project types—Oracle Data Profiling, Time Series, and Quality—have Project Views that are specific for the type of work you will perform in each.

All Project Views display by default in the right pane of the Oracle Data Profiling and Quality user interface. If you choose, you can resize or drag-and-drop the pane to a new position in the user interface.

You will find more information about Project Views in Chapter 4 and in the ***Oracle Data Profiling and Data Quality for Data Integrator Help*** available from the main menu of the user interface (**Help > Manuals**).

Navigating the Explorer

You can expand an object in the Explorer tree to see object metadata or to display details in a List View pane.

Opening and Closing the Explorer

To open the Explorer:

1. From the main menu, select **View > Metabase Explorer** or click the **Metabase Explorer** icon on the toolbar.
2.

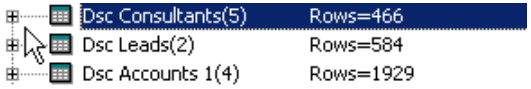
Note: Oracle Data Profiling and Quality displays a high degree of very detailed information, so it is recommended that you use a minimum display resolution of 1024x768 to avoid continual resizing of windows**.**

To close the Explorer:

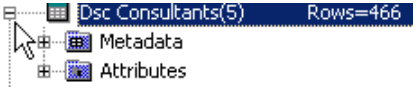
1. From the Explorer window, click the **X**.

Viewing Metabase Objects in the Explorer

To open an object in the Explorer, click the plus sign (+) next to the object. The plus sign indicates that there are more objects in the tree to view.



To close an object in the Explorer, click the minus sign (-) next to the object.



To close all objects in the Explorer, from the Explorer right-click on any tab and select **Collapse**.

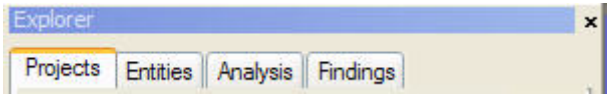
To refresh the view of objects in the Explorer, from the Explorer right-click on any tab and select **Refresh**.

To examine details of Explorer objects (drill down), you can drill down on most information shown in the Explorer to display detailed information in a List View. To do this, double-click an item in the Explorer to see related information display in a List View.

For information about creating Entities, see Chapter 3. For detailed information about Entities, see the ***Oracle Data Profiling and Data Quality for Data Integrator Help*** available from the main menu of the user interface (**Help > Manuals**).

Using the Explorer Tabs

The Explorer shows summary information about your data from several different viewpoints. Tabs along the top of the pane help you to select a view.



- **Project**—contains the data files, metadata, process tasks and other information specific to a data project.
- **Entities**—contains the hierarchy of elements that make up each Entity in the Metabase. These are Attributes, Rows, and metadata.
- **Analysis**—contains information about Joins, Keys, and Dependencies. Joins are potential intersecting areas of identical or related data across two or more Entities. Keys are unique Attributes that identify data relationships that exist with other Attributes within an Entity. Dependencies are data relationships among Attributes within a single Entity.
- **Findings**—contains data findings which are presented as notes, private and public bookmarks, and event logs.

If you want to drill down to more detail, expand a folder or click a Metabase object. The Explorer tree expands to show more information or displays the information in a List View on the right (default location).

Projects Tab

An Oracle Data Profiling and Quality **Project** provides an organized workspace in which you can work with data objects and organize your data quality tasks.

You can create one of three types of Projects, based on the functional area of Oracle Data Profiling and Quality you want to work within:

- **Oracle Data Profiling**—data investigation, profiling and analysis
- **Time Series**—analysis of data trends over time
- **Quality—**data processes for standardization, enrichment, and linking

You can view all Oracle Data Profiling and Quality Projects from the Projects tab in the Explorer. Projects in each area are kept separated, because they perform separate and distinct functions. However, you may include the same Entity in different Projects, depending on your data quality objectives.

For information about how to get started with organizing and creating Projects, see Chapter 4.

Oracle Data Profiling Projects

An Oracle Data Profiling Project contains references to

- Entities
- Attributes
- Permanent Joins

These objects can be referenced by multiple Projects. In other words, it is possible to include the same Entity or Permanent Join object in several Projects. Grouping objects in this way allows analysis activities by all users who are profiling the same Entity for different purposes.

Each Profiling Project has a Metadata folder that displays this information:

Metadata	Description
Ref	Reference number assigned by Oracle Data Quality when Project is created.
Owner	Name of the user who created the Project.
Permanent Joins (Discovered)	Number of Permanent Joins between Entities in the Project. This information is only shown if Permanent Joins are contained in the Project. **Note:** Number in parentheses is the number of Discovered Joins between Entities in the Project.
Created Date	Date on which the Project was created.
Changed By	Name of the user who last edited the Project.
Changed Date	Date that the Project metadata was last edited.

Time Series Projects

A Time Series Project contains references to:

- Metadata
- Attribute History
- Entity Generations

These objects can be referenced by multiple Projects. In other words, it is possible for the same Entity or Attribute object to be included in Discovery Projects.

Each Time Series Project has a Metadata folder that displays the following information about the Project:

Metadata	Description
Ref	Reference number assigned by Oracle Data Quality when the Project is created
Description	Description of Time Series Project
Countries	Country templates used by Project
Owner	Name of the user who created the Project
Created Date	Date on which the Project was created
Changed By	Name of user who last modified the Project
Changed Date	Date on which the Project was last modified
History	Indicates if there is a history maintained for the Project
Name	Name of history
Auto Days	Number of days between automatic Series regeneration jobs

Quality Projects

A Quality Project contains references to:

- Project Metadata
- Entities
- Processes

Each Quality Project has a Metadata folder that displays the following information about the Project:

Metadata	Description
Ref	Reference number assigned by Oracle Data Quality when the Project is created
Description	Description of Project
Countries	Country templates used in the Project
Owner	Name of the user who created the Project
Created Date	Date on which the Project is created
Changed By	Name of user who last modified the Project
Changed Date	Date on which the Project was last modified

Entities Tab

The Entities tab in the Explorer contains a complete list of al Entities loaded into the Metabase. The list includes Entities created by:

- Importing data from a data source
- Generating the next Entity in a Time Series
- Processing data in a Quality process workflow

Profiling and Time Series Entities are designated by the  icon. Entities generated within Quality Projects and process workflows are designated by the  icon.

When you expand an Entity, you can view **Entity Metadata** and **Attributes**. If you want to learn more about an Entity, double-click the **Entity Metadata** folder. This action opens the **Entity** list view which displays information such as:

- Number of Attributes, Rows, and Values
- Maximum and minimum length of record Rows
- File name of the data source for the Entity
- Name of the schema file associated with the data source
- If the Entity is a 'real' or 'dynamic' Entity
- Date on which the Entity was created and if the data was fully loaded

For information about how to get started with creating Entities, see Chapter 3, Importing Data and Creating Entities. For more information about Entities in general, see the ***Oracle Data Profiling and Data Quality for Data Integrator Help***.

Analysis Tab

Oracle Data Profiling provides the features for analyzing and discovering data dependencies, keys, and joins in the Oracle Data Quality products. For more information about how to investigate data relationships, see the ***Oracle Data Profiling and Data Quality for Data Integrator Help*** available from the Oracle Data Quality user interface.

Data relationship analysis results are available in the Explorer. Click the Analysis tab to see what Dependency, Key, or Join statistics are discovered for an Entity.

If you need to re-run a Dependency or Key Analysis or create a new Dependency or Key, use the Analysis options on the main menu.

Dependencies

A **Dependency** is a data relationship where one or more Attributes determines the value in another Attribute within a single Entity. Some examples of Dependencies within an Entity are listed below.

- Post code determines city.
- Credit card number should only be associated with a single expiry date.
- Commission on a sale should only be claimed by a single agent.

Oracle Data Profiling automatically performs Dependency analysis on a sample of your data during data import to find possible Dependencies between Attributes.

If Oracle Data Profiling does not find relevant Dependencies during the data import or did not identify an expected Dependency, you can re-run the Dependency analysis on a different sample size, uniqueness threshold, fields/columns to exclude, or number of Attributes that might comprise a Dependency.

You can examine Dependencies to view Attributes involved in the Dependency and any breaks within that Dependency. For example, post code RG12 8SA should always indicate the city of Bracknell. If there is an occurrence of the city Beracknell with the RG12 8SA post code, then Oracle Data Profiling shows this as a conflict to the Dependency. You can then drill down to view the conflict and decide whether this is an issue. If a Dependency is relevant to your analysis, you can save it; otherwise, discard it.

Keys

Oracle Data Profiling automatically performs key analysis on a sample of your data during data import to find possible primary or composite keys. These keys are Attributes that can uniquely identify the data, either on their own or tied in with other Attributes in the Entity, and which meet a default criterion for uniqueness.

Oracle Data Profiling does not find suitable keys or does not identify an expected column as a key, you can re-run the key analysis on a different sample size, uniqueness threshold, or number of columns that might comprise a composite key.

You can examine the key quality, how many values are duplicated, and across how many rows. You can also drill down to see actual values and then drill down further to see entire rows containing duplicates. Since many keys could be discovered, you can save only those that are relevant to your analysis.

Joins

Oracle Data Profiling allows you to assess the suitability of data for integration or cleansing activities involving merges or joins between Entities. Depending on your data profiling needs, you may need to examine relationships between disparate Entities (for example, COBOL files merging with Oracle tables).

With Oracle Data Profiling you can perform "what if" scenarios on selected Entities that could participate in a join or merge. Venn diagrams and Entity Relationship Diagrams help visualize the joins.

Findings Tab

Findings is a general term referring to Oracle Data Profiling-based documentation highlighting issues, concerns, checkpoints, or even progress of your data discovery activities. This documentation includes:

- Project Notes
- Bookmarks
- Event logs

For more information about Findings, see the ***Oracle Data Profiling and Data Quality for Data Integrator Help*** available from the user interface main menu.

Project Notes

Project Notes can provide communication within and across teams that need information about the data in your Projects. They are a way to:

- Request and provide information to business users
- Distribute information about data objects

Follow the best practices of your site to group and share Notes, possibly by related topics, priorities, or business groups. You can also copy data examples into Notes. For information about adding notes to a Project, see "Adding Notes to a Project" on page 4-18.

Private and Public Bookmarks

Oracle Data Quality lets you bookmark the results of your data analysis and other findings. A **Bookmark** saves the data displayed in a List View and captures metadata and details for later viewing.

Note: A Private Bookmark is one that only you can view; a Public Bookmark is one that can be viewed by others.

Because Bookmarks are actively linked to an object (for example, an Entity or Join), you can perform drill downs and other functions on the object in the same way you might view data in a List View. Bookmarks require that the object they reference exist in the Metabase. If the object has been deleted and no longer appears in the Explorer, the Bookmark is no longer valid.

You can use bookmarks to:

- Mark data checkpoints for data profiling
- Prepare reports
- Share, communicate, and report on findings

For information about Private and Public Bookmarks, see the ***Oracle Data Profiling and Data Quality for Data Integrator Help***.

Event Logs

Event Logs contain information about the final results of Metabase activities. The logs are placed in folders in the Explorer where you can review them at any time. For information about viewing event logs, see "Viewing Event Logs" on page 2-19.

Navigating List Views

This section describes some of the ways you use List Views to display, filter, and compare data values and statistics. By opening multiple List Views at the same time, you can:

- Compare information about two different objects that are not sequentially shown in the Explorer
- View metadata in the Explorer alongside the actual data in the List View
- Compare information between multiple List Views

You can also use filter expressions to create special views of your data.

Opening Multiple List Views

To open multiple List Views

1. From the main menu, select **Window > New Window**. A new List View window appears.
2. Drag and drop the window to a new position or organize the List View window using the **Window** menu option. See "Organizing List Views" on page 2-17.

Organizing List Views

These instructions only apply when more than one List View is open.

To organize multiple List Views

1. From the main menu, select **Window**.
2. Select one of the following options.

Cascade	Arrange List Views so that they overlap, with the title bars visible. This is the default.
Tile Horizontally	Arrange List Views so that one is above the other.
Tile Vertically	Arrange List Views so that they are side by side.
Arrange Icons	Arrange minimized List Views so that they are side by side. This only functions when the List Views are minimized.

For more information about List Views, see the ***Oracle Data Profiling and Data***

Quality for Data Integrator Help available from the main menu of the user interface (**Help > Manuals**).

Filtering Information in List Views

Any information that displays in the List View (other than Metadata Views) can be queried to find specific information. You can build complex search expressions.

Tip: If you regularly apply a particular filter, create a Business Rule instead. The advantage is that Business Rules are saved and filters are not.

To filter the List View:

1. Ensure that the List View is displaying the information that you want to filter. You may have to click the **Back** button to clear your previous filter results.

Note: If the information you are looking for is not contained somewhere in the List View, you will not get expected results.

2. From the main menu, select **List > Filter**.

Note: You can also right-click in the List View and select **Filter** or click  .

Refreshing the Oracle Data Profiling and Quality User Interface

All metadata and statistics shown in the Explorer are cached on your client machine to reduce the network traffic to the Metabase server. You can periodically update this information by performing a refresh operation.

Note: If an expected object is not displayed in the user interface, try refreshing.

To refresh information

1. From the main menu, select **View > Refresh**. There is a brief pause as the Metabase information is refreshed.

Note: You can also click the toolbar button.

To refresh information in the Explorer

1. Click any Explorer tab.
2. Right-click the tab and select **Refresh**  .

   There is a brief pause as the information is refreshed from the server. The Explorer redraws when the operation completes.

Monitoring Metabase Activities

You can monitor various activities within an Oracle Data Profiling Metabase through:

- Background Tasks
- Event Logs
- Messages

Viewing Background Tasks

You can view information about the progress of background tasks such as data loads (with each phase broken out), Join analysis, Key and Dependency analysis, DSD analysis, Business Rule analysis, and Quality data processes.

To list all background tasks

1. From the main menu, select **Analysis > Background Tasks**.
   The List View displays the progress of all background tasks.
   The information displayed depends on how you logged into the Metabase. Refer to the table below to understand how information is displayed based on user type.

Limited User	can see all background activities related to Entities the user owns.
Full User	can see all background activities no matter the Entity owner

Viewing Event Logs

You can view results of completed Metabase activities in the Oracle Data Profiling and Quality Event Log. The Event Log organizes final results of Metabase activities into folders in the Explorer.

To view an event log

1. Double-click a folder to view log results that display in a List View.

   The information that displays in a List View is based on user access privileges. Users with limited privileges can see the events for Entities they own or have permission to access. Users with full privileges can see all events in the log.

Viewing Messages

Oracle Data Profiling and Quality can alert you to Metabase changes that might impact you.

To view message alerts

1. From the main menu, select **View > Messages**.

   A window displays at the bottom of the user interface. This window updates when objects change in the Metabase.

   The information displayed depends on how you logged on to the Metabase (regular or administrative user).

Printing

When you click the  icon on the toolbar, Oracle Data Profiling and Quality prints the active window, which can be a:

- List View
- Project Notes
- Entity Relationship Diagram

To print the active window, from the main menu, select **File > Print...**.

To preview a window as it will look when printed

1. Activate the window to print.
2. From the main menu, select **File > Print Preview**.

To configure the printer, from the main menu, select **File > Print Setup...**.

Next Step

The next step is to import the data into a Metabase by creating an Entity.

Entity creation is described in Chapter 3, Importing Data and Creating Entities.

3

Importing Data and Creating Entities

This chapter describes how to import data into a Metabase and create a Metabase object, called an **Entity**. It also describes the different types of data sources that you can import, and how to use the **Create Entity Wizard**.

You can create one of two types of Entities. Both Entity types are described in this chapter:

Entity	Referred to as a real Entity, this type contains Metabase data imported from an external data source.
Dynamic Entity	This Entity type links directly to an external data source.

This chapter includes the following topics:

- **Types of Sources for Entity Creation**
- **Before You Begin**
- **Customizing Data During Entity Creation**
- **Creating an Entity**
- **Monitoring the Entity Creation Process**
- **About Verifying New Entities**
- **About DSD Failures**
- **About Overflow**
- **About Metabase Clean-Up Tasks**
- **Next Steps**

Types of Sources for Entity Creation

Oracle Data Quality can import, or link directly to, data from any of the following data sources:

Data Source Type	Description
Delimited files	Delimited text files and comma-separated value (CSV) files ■ With ASCII, extended ASCII, or Hexadecimal delimiters ■ With or without ANSI DDL
COBOL copybook	Flat, fixed length files described by COBOL copybooks ■ Character encoding including, but not limited to ASCII, EBCDIC, and Unicode ■ Big or little endian byte orders ■ One or two byte data alignment
Relational data	Relational data stored in a relational database management system (RDBMS) application. Oracle Data Quality can import or link via: ■ Direct connection to Oracle and IBM DB2 databases ■ ODBC-compliant RDBMS connection ■ RDBMS extraction into a delimited file with a corresponding ANSI DDL
ODQ files	File generated by the Oracle Data Quality for Data Integrator application

Before You Begin

Each **Entity** you create requires that a Metabase administrator first create the following:

- Metabase to import the data to
- Loader Connection to the data source

Before you begin, verify with your administrator that the Metabase and Loader Connections that you need are set up. If these have not been set up properly, you will not be able to log on to the Oracle Data Quality user interface and create an Entity.

Optionally, you may want to test your data by limiting the initial number of rows you import or by using sample data files. Oracle recommends that you import sample data for testing purposes, especially if you plan to import large volumes of data.

If you are creating a **Dynamic Entity** (that is, an Entity that is linked to an external data source), you will only need a Loader Connection to the data source. You do not need the administrator to create a Metabase for you.

About Importing Sample Data Files

Oracle Data Quality products support simple data sample tests during Entity creation. If you require complex sampling, the data may need to be pre-processed before you create the Entity.

If you pre-process the data in any way prior to creating Entities, Oracle recommends that you document all data preparation or sampling information by adding Notes to the Entity after you import to a Metabase.

Note: For information about adding Notes, see the *Oracle Data Profiling and Oracle Data Quality for Data Integrator* online help available from the Oracle Data Profiling and Quality user interface. Select Help > Manuals from the main menu.

For best results when importing samples of data, make sure the imported data contains a consistent sampling of data across all Entities you plan to import to the Metabase. If the data sample is inconsistent, the resulting sample data analysis will not be representative of the data in the data source.

For example, if you imported only 10,000 customer records, and imported all 100,000 account records, the result will be a 10% match quality of these two Entities. However, if all customer records are imported, then the match quality might be 90% or higher.

In this same example, if you imported the first 10,000 records to create a customer Entity, then you should make sure the accounts for the same customers are imported. This will give you a higher % match quality.

In the same way, if you are planning to perform a Join Analysis using sample data, the sample data must be consistent and of the same size in order to correctly interpret the quality of the Join Analysis results.

Customizing Data During Entity Creation

When you create an Entity, the **Create Entity Wizard** gives you a **Preview** option that allows you to look at the data you have selected to import. While you are in Preview mode, you can select fields (data table columns) you want ignored during the import process, and customize how the data displays after it is imported.

Selecting a Subset of Fields (Columns) to Import

To import a subset of fields:

1. Open the **Create Entity Wizard**. See "To open the Create Entity Wizard:" on page 3-5 and "To create an Entity:" on page 3-5.
2. When you get to the schema settings dialog, apply the schema settings and click **Preview**.

   The data displays in the pane below the wizard. From this pane you can organize how the data should be represented in the new Entity.
3. From the **Preview** pane below the wizard, right-click anywhere on the column header and select **Choose Columns...**.
4. Hide any columns that are not important to your data analysis. The columns you hide are ignored during the import process.
5. Continue with the **Create Entity Wizard**. Only those columns that you selected to remain displayed will be represented in the new Entity.

Creating an Entity

During installation, your Oracle Data Quality products administrator set up at least one data staging area that the Oracle Data Profiling and Quality application can connect to, and from which you can import data. Depending on your security needs, data can be stored in multiple secure locations.

Using the Create Entity Wizard

After you verify that the Metabase and Loader Connection have been created by the Metabase administrator, you are ready to create an Entity. You can either import data directly into the Metabase or link to an external source.

Use the **Create Entity Wizard** to create each Entity separately. The Wizard guides you through steps for creating an Entity and presents different dialogs depending on which data source you select for the Entity creation.

To open the Create Entity Wizard:

1. From the main menu, select **Analysis > Create Entity...**

   OR

2. From the **Explorer**, right-click the **Entities** tab and select **Create Entity...**.

The **Create Entity Wizard** displays in the upper right pane.

To create an Entity:

1. Open the **Create Entity Wizard**.

   The **Connection** dialog displays.

2. Select a Loader Connection.

Note: If you do not see the connection to the data you require, see your Oracle Data Quality products administrator. If you have Metabase administration privileges, refer to the *Oracle Data Integrator Installation Guide* and add a new Loader Connection.

Note: You can change the appearance of the connection list by right-clicking the connection list textbox and selecting **Large Icons**, **Small Icons**, **List View**, or **Detail View**.

3. If you want to reduce the number of connections displayed, under **Connection list currently filtered on:**, type a new filter expression and click **Change filter**.
   For example, if you only want to list connections that start with "cust", your filter would look like the graphic example displayed.

4. In **Connection Validation**, enter a **Username** and **Password** if log-on access is required to connect to the data source.

This information grants access to the data import directory or relational data source specified by the Metabase administrator when he created the Loader Connection. If no security has been configured for the data source selected, you do not need to type a username or password.

Note: If you do not have access to the data source directory or relational database, contact your administrator.

5. Click **Next**.

6. Oracle Data Quality connects to the data source using the Loader Connection you selected in Step 2.

Note: If the connection fails, contact your Metabase administrator. Ask them to check the data source location and Loader Connection setup configuration. After the problem is corrected, open the **Create Entity Wizard** and try again.

7. In **Entity list currently filtered on:**, type the filter expression to use to display a list of data source files and tables for Entity creation. To see all data files and tables at the connection location, enter a wildcard character (*), and click **Change Filter**.
8. Select one or multiple data source file names in the list.

Note: You can select multiple data files to be created as Entities at the same time using the same settings. However, if you select multiple files, you will not be able to preview them.

Note: If you do not see expected files listed, check to see how the list has been filtered.

9. (*Optional*) If you want to see a preview of the data contained in the file, click **Preview**. When you finish, click **Close**. If you do not want to preview the data, go to Step 10.

Note: If you selected multiple data files to be created at the same time, you will not be able to preview the files.

10. Click **Next**.
11. Follow the steps for the type of data source you are importing:

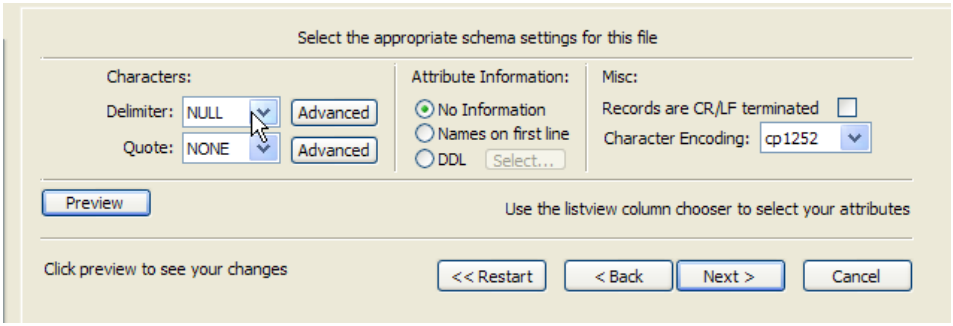
Data Source Type	File Extensions	Go to...
Delimited data files	Data: dat, txt, csv Schema: ddl, ddt	on page 3-7
COBOL copybooks	Data: dat, txt Schema: cpy, cbl	on page 3-10
Relational databases	Data source set by Loader Connection	on page 3-14
ODQ files	Data: dat, txt Schema: ddl, ddt	on page 3-7

The **Create Entity Wizard** recognizes the data source type and prompts you for the appropriate information.

To create an Entity from delimited files or ODQ files:

1. Follow Steps 1-11 in "To create an Entity:" on page 3-5.
2. Select the schema settings for the selected data file (Figure 3–1)

Figure 3–1 Schema Settings for Delimited and ODQ Files.



3. Use this table to guide your selections:

Option	Description
Characters	
Delimiter	Select a delimiter from the list provided or, if the delimiter that you require is not shown, click **Advanced** to specify a Decimal or Hexadecimal (HEX) representation of the delimiter. **Note:** An extended ASCII character can be a delimiter.
Quote	If your data uses characters to group strings together, you must select the character that represents the grouping. For example, if your file is comma-delimited, but one of the columns of data contains the value "Edinburg, Texas," then you would select double-quote (") as the character to use to group the string: Edinburg, Texas. If the character you want to use is not shown in the drop-down list, click **Advanced** to specify: ▪ Decimal or Hexadecimal (HEX) representation of the character ▪ Double delimiters, such as | | **Note:** An extended ASCII character can be a quote.

Option	Description
Attribute Information	
No information	Select if there are no column names on the first line.
Names on first line	Select if there are column names on the first line.
DDL	Select if this data file has a corresponding DDL. When the **Schema Selection** window appears, you can select the DDL that matches this delimited data file.
Misc	
Records are CR/LF terminated	Specify how end of lines are represented in the data file. **Note:** Windows text applications typically apply CR/LF line delimiters, while UNIX typically applies LF. **Note:** The preview pane will attempt to display end-of-line characters. These characters will differ, depending on which font is selected.
Character Encoding	Specify the character encoding for the data. ASCII is the most commonly used.

4. After you select the schema settings, click **Preview**. **Preview** mode shows how the data will appear in the Entity, based on your selected schema settings. The data displays in a List View.

Note: You can select one or more Attributes and right-click to perform additional tasks.

Note: If you want to change your schema setting, click **Back**. You can click the **<<Restart** button to return to the Entity selection list and restart the Create Entity session.

5. Use the **Preview** mode to customize how the data will appear in the new Entity.

Note: You can click **Preview** at any time. Any selected settings are reflected in the **Preview** pane. Use the **Preview** mode to verify that the data is organized and displays as you expect.

6. Use the following table to help you select actions to format the data. Changes you make to the data in **Preview** mode are preserved when the Entity is created.

To...	Preview Mode Action
Select a subset of fields for import	1. In the **Preview** pane, right-click the column header of the column to be hidden and select **Hide**. **Note:** To show the column again, right-click on the column header and select **Choose Columns....**
Rearrange columns	1. In the **Preview** pane, you can drag and drop a single column into a new location by clicking on the column header and dragging to the desired location. 2. If you have multiple columns to move, right click anywhere on the column header and select **Choose Columns...**.
Select rows of data matching certain criteria	1. Right-click anywhere in the **Preview** pane, and select **Filter**. 2. Build a filter expression and click **Filter**. **Note:** For more information about building filter expressions, see *Oracle Data Profiling and Oracle Data Quality for Data Integrator* online help.

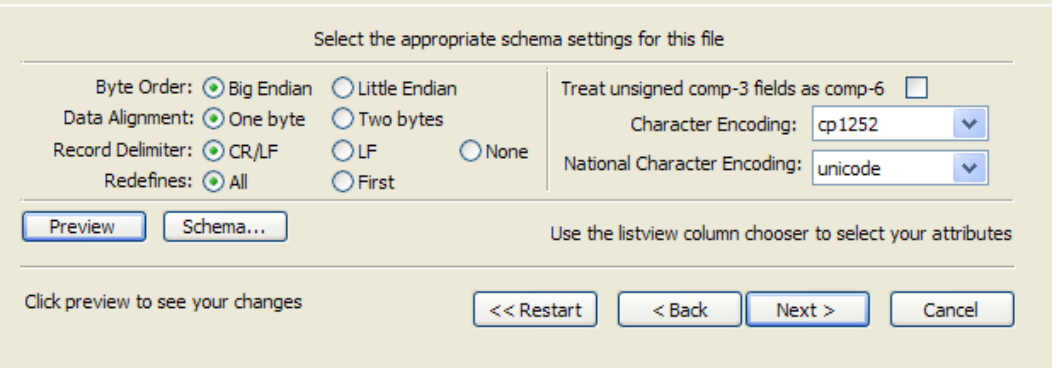
7. When you are ready to continue, click **Close**. Click **Next**.
8. Go to "To set Load Parameters:" on page 3-16.

To create an Entity from data described by a COBOL copybook:

Note: Data from COBOL applications may need to be prepared prior to importing to Oracle Data Profiling and Quality. For information about how to prepare COBOL data, see the *Oracle Data Profiling and Oracle Data Quality for Data Integrator* online help.

1. Follow Steps 1 - 11 in "To create an Entity:" on page 3-5.
2. Select the schema settings for the file. (Figure 3–2).

Figure 3–2 Schema Settings for COBOL



3. Use this table to guide your selections:

Option	Description
Byte order	Controls order of bytes in binary word values (16-bit values). ▪ Mainframe systems (for example, IBM mainframes using EBCDIC) tend to be **Big Endian**, which means that the first byte (8 bits) of a word is the high byte, and the second byte is the low byte. ▪ Personal computer (PC) platforms that run on Intel systems are **Little Endian**, which results in the bytes being swapped around. ▪ UNIX platforms could be either, but generally Intel-based platforms are **Little Endian** and all others are **Big Endian**. If you are loading data from a platform that is not **Big Endian** (such as binary PC data), then you must select **Little Endian** for the data to be interpreted correctly.

Option	Description
Data alignment	Specifies how data is stored and depends solely on the compiler that generates the application that created the data. In general, IBM mainframe (MVS) data is stored using the two-byte method and ICL/PC (Microfocus compiler) data is stored using the one-byte method. **IBM MVS half word alignments:** pic digits 0123456789012345678 byte length 0222244444888888888 **Intel, ICL, single byte alignments:** pic digits 0123456789012345678 byte length 0112233444555667788 There are several ways to determine which method is used: ■ Consult the original COBOL compiler documentation used to create the application where the data originated. ■ Ask someone who knows how the original data was created and by which system (generally, systems programmers will know this). ■ Assume IBM mainframe data is “two-byte” aligned and everything else is “one-byte” aligned. Try the **Preview** option to see which setting works best for the file. If you select the incorrect setting, generally the record contents after the **COMP** field will be misaligned.

Option	Description
Record delimiter	Specifies how records are delimited in your data file. Usually COBOL data files are fixed length and have no record delimiter. But, if COBOL data is exported from the original application and transferred into other file systems (especially UNIX), they could contain record delimiters added by the export or transfer process. If the file originated from: ■ Windows, select **CR / LF** ■ UNIX, select **LF** ■ mainframe, select **None** **Note:** The Preview pane attempts to display end-of-line characters. These characters will differ, depending on what font is selected.
Redefines	Select: **All** to account for all REDEFINES clauses in a copybook. If this option is selected and Oracle Data Quality encounters a REDEFINES clause, it removes the REDEFINES clause and keeps both representations of the data in the copybook. The data file will be populated to match the copybook. **Note:** You cannot selectively pick REDEFINES clauses to describe data areas. If this is the case, modify your copybook prior to importing data to a Metabase. **Note:** Oracle Data Profiling and Quality handles nested REDEFINES clauses. Select: **First** to ignore all REDEFINES clauses in the copybook.
Treat unsigned comp-3 fields as comp-6	Place a check in this box only if your COBOL compiler supports COMP-3 without an embedded sign.
Character Encoding	Controls the character set for the file. EBCDIC data is translated into a correct ASCII representation on load. Generally, UNIX COBOL files will be ASCII and IBM mainframe data will be EBCDIC.

Option	Description
National Character Encoding	If your COBOL copybooks define national data items holding Unicode strings (such as PIC clause containing "N" and USAGE NATIONAL) or your compiler options from the data source are set to NSYMBOL (NATIONAL) or CODEPAGE, you should specify the National Character encoding standard of the data source.

4. After you have selected the schema settings, click **Preview**.

Note: You can click **Preview** at any time. Any selected settings are reflected in the **Preview** pane. Use the **Preview** mode to verify that the data is organized and displays as you expect.

Preview mode shows how the data will appear in the Entity, based on your selected schema settings. The data displays below in a list view.

Note: You can select one or more Attributes and right-click to perform additional tasks.

Note: If you want to change your schema setting, click **Back**. You can click the **<<Restart** button to return to the Entity selection list and restart the Create Entity session.

5. Use the **Preview** mode to customize how the data will appear in the new Entity.

6. Use the following table to help you select actions to format the data. Changes you make to the data in **Preview** mode are preserved when the Entity is created.

To...	Preview Mode Action
Ignore fields	1. In the **Preview** pane, right click on the column header of the column to hide and select **Hide**. **Note:** To show the column again, right-click on the column header and select **Choose Columns...**.
Rearrange fields	1. In the **Preview** pane, you can drag and drop a single column into a new location by clicking on the column header and dragging to the desired location. 2. If you have multiple columns to move, right click anywhere on the column header and select **Choose Columns...**.

To...	Preview Mode Action
Select records of data matching certain criteria (for example, multiple record types)	1. Right-click anywhere in the **Preview** pane, and select **Filter**. 2. Build a filter expression and click **Filter**. **Note:** For more information about building filter expressions, see *Oracle Data Profiling and Oracle Data Quality for Data Integrator* online Help.

7. When you are ready to continue, click **Close**. Click **Next**.
8. Go to "To set Load Parameters:" on page 3-16.

To create an Entity from data in a relational database:

1. Follow Steps 1 - 11 in "To create an Entity:" on page 3-5.
2. From the list of tables, click a table name.

To...	Action
Limit number of tables to display	Next to the prompt **Entity list currently filtered on:**, type a filter expression and then click **Change filter**. **Examples**: ■ To return all tables with **test** in the table name, enter **test** or ***.test.** ■ To return all tables with **test** in the table name and **scott** as the owner, enter **scott.test.** **Note:** A default filter can be configured by a Metabase Administrator using the Metabase Manager. See the "Oracle Data Integrator Installation Guide".

To...	Action
Change how you view tables	From the list of tables, right-click and select one of the following options: ■ **Large Icons**—displays your connections as large icons ■ **Small Icons**—displays your connections as small icons ■ **List View**—displays your connections as a list ■ **Detail View**—displays your connections as a list with descriptions
Display a preview of the data contained in the highlighted table	1. Click the **Preview** button. All of the data contained in that table displays in the List View below the **Create Entity Wizard**. 2. Customize how the data will appear in the new Entity by formatting the data in the preview window.
Selectively retrieve data with a SQL WHERE clause	1. Place a check in the box labeled **Add SQL 'WHERE' clause.** 2. Click **Next**. 3. Type a valid SQL WHERE clause. You do not need to type the command WHERE. For example if you wanted to bring back only those rows that contain a product_id of 555, then you would type the following into the window: **`product_id = 5`** **Note:** SQL syntax is not validated. If you are unfamiliar with SQL, contact the Oracle Customer Support Help Desk or refer to a reference guide on SQL. 4. Click **Preview** to review the results of the filter. **Note:** You can customize how the data will appear in the new Entity by formatting the data as described above. 5. Click **Close**.

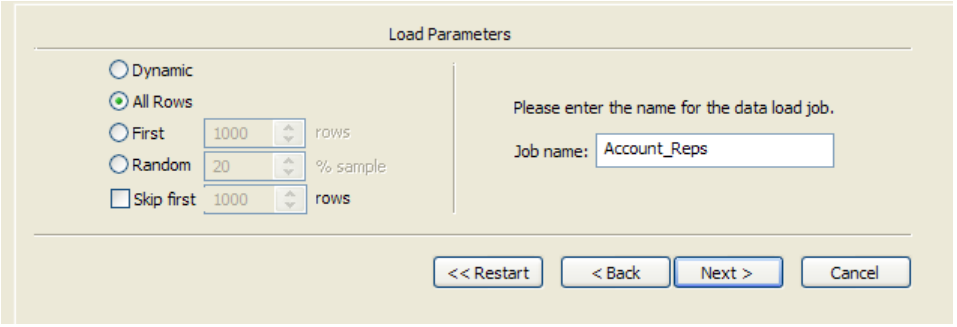
3. When you are ready, click **Next**.
4. Go to "To set Load Parameters:" on page 3-16.

To set Load Parameters:

This step determines whether or not the Entity you create is “Dynamic." When you create a Dynamic Entity, no data is loaded to a Metabase, and the Entity links directly to the physical data. With the **Dynamic** option, you can use Oracle Data Quality to view and modify the physical data in your external data source. You cannot, however, analyze data such as Keys, Dependencies, and Joins.

1. Complete all previous steps based on the type of data source you are importing.
2. The **Load Parameters** dialog (Figure 3–3) should be open in the **Create Entity Wizard**. The load parameters you specify determine the type of Entity that Oracle Data Profiling and Quality creates during the Entity creation job process. If you choose to import to a Metabase, you must either select the **All Rows** option or specify which data rows are to be imported from your data source.

Figure 3–3 Load Parameters



Note: If you choose to import data to a Metabase, do NOT select the Dynamic option.

3. Select the load parameters for the Entity creation process. Use this table to guide your selections:

Option	Description
Dynamic	A link is created to the external source allowing you to: ■ drill down to the rows ■ create and run Business Rules ■ filter No data is imported into the Metabase. **Important:** If you select the Dynamic option, you will not have access to features such as DSD, Key, and Dependency analysis until you load the data into a Metabase. **Note:** If the external source changes, the date displayed in Oracle Data Quality also changes. This setting is ideal for quickly examining very large data sources.
All Rows	Load all of the data rows.
First *[number]* rows	Load a selected number of rows from the beginning of the file (for example, the first 1000 rows).
Random *[percent]* % sample	Randomly sample a percentage of rows from the file.
Skip first *[number]* rows	This option is not available if you select "Dynamic." Allows you to specify a starting row for data imports. For example, if your file has 300 rows and you select **All Rows** and **Skip first 99 rows**, Oracle Data Profiling and Quality loads 200 rows, starting with the 100th row.
Job name	Name of data load job. Option is not available when you select "Dynamic."

4. Click **Next** to continue.

Note: If you click **Create & Restart** to schedule the job, you are returned to the Entity selection list where you can select another Entity. Use this button when you want to quickly load several files from the same source with different settings.

5. In **Confirm Settings**, review the list of settings and click **Finish** to schedule the Entity creation job.

To schedule a job:

You can schedule a job to:

- **Run Now -** run the job immediately.
- **Run Later** - schedule to run at another date and time.
- **Cancel** - do not create the Project.

Monitoring the Entity Creation Process

If you are importing a large volume of data, the Entity creation (data load) process may take some time to complete, depending on the job parameters and Load Connection settings selected. If you choose, you can continue to work on other activities while you monitor the load progress. To do this, follow these steps to display Oracle Data Profiling and Quality background tasks.

To monitor the Entity creation process:

1. From the main menu, select **Window > New Window**.
2. Select **Window > Tile Horizontally**.

Note: You can also arrange the windows vertically (**Window > Tile Vertically**) or cascade the windows (**Window > Cascade**).

3. Select **Analysis > Background Tasks**. All background tasks display in the new window.
4. You can continue working in the other windows. Select another window by clicking on the title bar.
5. After all activities associated with the Entity creation show a **State** of **Completed**, expand the new Entity in the Explorer pane (left side) and begin viewing Attributes, Rows, and Metadata.

About Verifying New Entities

During the data import process, Oracle Data Quality translates your data files into three basic components (Metabase objects): **Entities, Attributes**, and **Rows**.

You can view Metabase objects in the **Metabase Explorer,** located in the left pane of the Oracle Data Quality user interface. (See "Viewing Metabase Objects in the Explorer" on page 2-9.)

To verify a new Entity, review the contents of the Entity in the Explorer. You can expand Explorer folders to see a list of Entities, Attributes and Rows, related Metadata, and data analysis Statistics.

Perform the following list of verification tasks to ensure that the data you expected has been successfully imported to a Metabase and is correctly represented in the Metabase Explorer.

- Make sure that every data file imported has one corresponding Entity. Skip this check task for COBOL data sources.
- Make sure that the column names do not contain any special characters, with the exception of underscore (_) or minus sign (-) characters.

Note: Minus signs and underscores are translated into spaces during the data load process.

- Make sure that every column imported has one corresponding Attribute. Skip this task for schema files.

Note: For COBOL copybooks, the Attribute names are taken from the copybook.

- Make sure that you have one Entity Row for every data row imported.

About DSD Failures

When you create an Entity, Oracle Data Quality verifies the quality of the imported data against data compliance standards defined as **Data Standard Definitions (DSD).**

Data Standard Definitions check compliance on each Attribute, and when an Attribute does not pass a standard, the Attribute name displays in the Explorer in the color red. You can see the percentage of compliance by clicking on the Attribute name and finding **DSD Compliance %** in the List View to the right (default position).

Note: Oracle Data Quality applies DSD checks at the Attribute level and evaluates data quality only for Attributes in Entities that are **not** Dynamic Entities. DSD compliance checks require that data be imported into a Metabase in order to perform the analysis and show compliance statistics.

To investigate DSD failures:

1. Right-click any Attribute name that displays in **red** and select **Drill down to DSD Metadata**.
2. The **Attribute DSD Tests** list view displays. The view shows which DSD checks are enabled and whether the Attribute passed or failed the check.
3. Find the DSD Check(s) that failed and review the statistics in that row.
4. Double-click a failed DSD Check name to open the DSD configuration dialog for that check.
5. At the top right of the dialog, click **failing** in "Drill to passing and failing values."
6. The **Check Failed** list view displays and shows the row that has caused the failure.

Note: There are ten types of DSD checks that you can perform when importing or reanalyzing data. These are described in detail in the *Oracle Data Profiling and Oracle Data Quality for Data Integrator* **Help**.

About Overflow

It is possible that a schema file may not accurately reflect the data in the associated data file. For example, the data may have a longer record length than the length described by the schema.

Since this is a common issue, Oracle Data Quality loads the schema and does not reject data that does not match. Instead, when the data is imported, the data is represented exactly as the schema describes it with the addition of an Attribute named **Overflow**.

Figure 3–4 EXAMPLE for COBOL data sources

If you create an Entity using the following copybook (schema) and data file, the Overflow attribute does not appear in the new Entity.

COPYBOOK: customer.cpy

```
01 CUSTOMER-FILE
 10 CUSTOMER-NUMBER       PIC 9(5).
   10 CUSTOMER-FIRST-NAME   PIC X(10).
   10 GENDER                PIC X.
```

EXPECTED DATA FILE: customer.dat

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	0	1	2	3	J	O	H	N	A	T	H	O	N		M

Scenario 1

Assume that you try to create an Entity with the same copybook as above, but the contents of the data file look like:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0	1	2	3	J	O	H	N	A	T	H	O	N		M	0	2	1	6	1	9	7	1

The Create Entity Wizard will correctly recognize all of the data and apply the correct field names through to the 16th position (GENDER field). The remaining data (after the 16th position) is given the field name **Overflow**.

Scenario 2

Assume that you try to create an Entity with the same copybook as above, but the contents of the data file look like:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0	1	2	3	J	O	H	N	A	T	H	O	N		0	2	1	6	1	9	7	1	M

To check for Overflow Attributes:

1. From the Explorer, click the **Entities** tab.
2. Expand each Entity and its **Attributes**.
3. Look for any Attribute with the name **Overflow**.
4. Make note of which Entity or Entities have an **Overflow** Attribute and then investigate the causes of **Overflow**.

Note: The Entity name can be found next to the Attribute name.

To investigate causes of Overflow Attributes:

1. Click on the **Entities** tab.
2. From the Entities list, find the Entities that you identified as problematic.
3. Expand the Entity.
4. Expand the folder labeled **Metadata**.
5. Double-click **Rows** and try to identify the following:
   - Which row has a value in the column labeled **Overflow**?
   - What value displays in the column labeled **Overflow**?
   - Does the schema accommodate these values? If not, correct the schema and try to create the Entity again.

To investigate causes when there are no visible values in the Overflow column:

1. Expand the Attribute labeled **Overflow**.
2. Double-click **Unique Values**.
3. Highlight the values in the List View.
4. Right-click and select **Drill down to Matching Rows**.
5. Examine the rows to determine the problem. Ask:
   - What values are common in the last column of that Entity (column left of **Overflow**)?
   - Does the schema have enough space allocated for each Attribute (field)? For example, does a PIC X(10) contain data that is 13 characters long? If not, correct the schema and try to create the Entity again.

About Metabase Clean-Up Tasks

After you have created all required Entities for your project and validated that all Entities are as expected, you may want to clean up the Metabase by performing one or more of these tasks:

- Change display names to be more user-friendly
- Make note of any pre-import processing (such as flattening schema data or breaking out multiple record types)

- Delete any Entities that are not required for data analysis

For more information, see the *Oracle Data Profiling and Oracle Data Quality for Data Integrator* online help.

Next Steps

After you create one or more Entities, the next step is to create a Project. In Chapter 2, you learned about different types of Projects you can create. In Chapter 4, Setting Up Projects, you will learn more about Project types, when to use them, and how to create them.

4

Setting Up Projects

This chapter describes the process for preparing and creating new projects in the Oracle® Data Profiling and Quality user interface. It does not include information about process setup and configuration or about advanced data processing.

For detailed information about how to process data contained in an Oracle Data Profiling and Quality Project, see the *Oracle Data Profiling and Oracle Data Quality for Data Integrator Help* available from the main menu (**Help > Manuals**).

This chapter includes the following topics:

- **About Oracle Data Profiling and Quality Project Types**
- **Viewing Projects in the Explorer**
- **About Oracle Data Profiling Projects**
- **About Time Series Projects**
- **About Quality Projects**
- **Modifying Process Workflow**
- **Managing Projects**
- **Next Steps**

About Oracle Data Profiling and Quality Project Types

After you create one or more Entities in a Metabase, the next step is to create a **Project.** Oracle® recommends that you create Projects to organize data and profiling activities. For example, Projects can help you group your work by business area, user, project phase, testing activity or priority assignment.

Note: You cannot create a Project until you have at least one available Entity to add to the Project. See Chapter 3, Importing Data and Creating Entities, for information about how to create an Entity.

There are three types of Projects that you can create, depending on which Oracle Data Profiling and Quality area you are working in, as described in **Table 4–1.**

Table 4–1 List of Oracle Data Profiling and Quality Project Types

Project Type	Description
Oracle Data Profiling	**Oracle Data Profiling** Project for investigating and profiling data stored in a Metabase Entity. See "About Oracle Data Profiling Projects" on page 4-3.
Time Series	**Time Series** Project for capturing and monitoring data trends. See "About Time Series Projects" on page 4-5.
Quality	**Quality** Project for managing data process steps and input and output files to these processes. See "About Quality Projects" on page 4-7.

When you create a new Project, you assign a name for the Project and provide a brief description. Each Project you create is given an ID number, plus additional information about the creation date and user who created the Project. This information is retained as **Project Metadata**.

Each of the three Project types have different purposes and considerations. These are described in the following sections of this chapter. You will also find additional information in the *Oracle Data Profiling and Oracle Data Quality for Data Integrator Help* available from the main menu by selecting **Help > Manuals**.

Viewing Projects in the Explorer

You can view all existing Projects by clicking on the **Projects** tab in the **Metabase Explorer**. Projects are organized by type (see Table 4-1).

To view a list of existing Projects:

1. Open the **Explorer**.
2. Click the **Projects** tab.
3. Determine which Project type you want to view, and expand the corresponding folder - **Oracle Data Profiling**, **Time Series**, or **Quality**. To expand a folder, click the folder name.
4. Projects are denoted by this icon  . Click any Project to open it.

To open a Project:

1. Open the **Explorer**.
2. Click the **Projects** tab.
3. Determine which Project type you want to view, and expand the corresponding folder - **Oracle Data Profiling**, **Time Series** or **Quality**.
4. Right-click the Project name and select **Open**.

About Oracle Data Profiling Projects

Oracle Data Profiling Projects contain references to one or more Entities (Attributes and Permanent Joins) stored in a Metabase and allow you to logically group objects for the purpose of data investigation. In this way, Projects can help you to manage the different sets of data, profiling activities, and analysis tasks you might want to perform on your data. Projects are viewable in the Metabase Explorer and let you easily identify your work and the status of your profiling activities.

About Setting Up Oracle Data Profiling Projects

You may choose to set up your own Projects, or your Oracle Data Quality Administrator may choose to set up Projects for you, especially if the Project will be utilized by more than one person in your company. In such cases, Projects may be set up for specific profiling tasks, and can assist in preventing duplicate efforts by different business teams.

The following table provides a list of common Oracle Data Profiling Project purposes:

Purpose	Groups...
Data Source Quality Analysis	source Entities together and allows you to perform data quality analysis activities on the Entity group, as opposed to each separately. For example, you may want to group all Entities that contain customer data, regardless of their original data source.
Target Mapping Analysis	source Entities mapped to a single target Entity as part of a data integration activity.
Source Database Definition	all Entities that are sourced as part of a single database or database system, such as RDBMS (Relational Database Management System) or CMS (Content Management System).
Subject Area Definition	all Entities that are a discrete part of a source database or database system, such as RDBMS (Relational Database Management System). For example, a grouping might reference relational subject areas or an IMS sub-schema.
Project Management Work Allocation	individual user-managed data analysis activities. These activities might be defined in an external project plan document.
Compliance Standards	Entities with complete Compliance Standards that you might want to copy to new Entities.
Data Tracking Requirements	Entities that contain data with the same data tracking requirements, allowing you to perform your compliance and profiling activities on the Entity group, instead of individual Entities.

Creating an Oracle Data Profiling Project

You create an Oracle Data Profiling Project from the **Projects** tab.

To create an Oracle Data Profiling Project from the Projects tab:

1. Open the Explorer.
2. Click the **Projects** tab.

3. Right-click **Profiling** and select **Create Project...**.

   The **Create Profiling Project** wizard displays.
4. In **Name**, type a name for the Project.
5. In **Description**, type a brief description of the Project.
6. Place a checkmark next to the Entities to include.
7. Click **OK**.
8. Verify that your new Project is listed in the Explorer under **Profiling**.

About Time Series Projects

Time Series Projects let you organize Time Series data trend and analysis results by data source, business area, project task, and other ways that give you the information you require to support on-going profiling and decisions about your data.

Time Series Projects are listed in the Explorer and contain **Project Metadata** and one or more **Time Series** data trending objects. Each Time Series object has a name, and contains **Series Metadata** and data snapshots of the **Entities** and **Attributes** included in the Project.

Creating a Time Series Project

You can create a Time Series Project from the **Projects** tab. Each time you run a Time Series job, a new Time Series Entity is created. You can see it by clicking the **Entities** tab or opening a Time Series Project and viewing the **Entity Generations** folder.

To create a Time Series Project:

1. Open the Explorer.
2. Click the **Projects** tab.
3. Right-click **Time Series** and select **Create project...**.

   The **Create Time Series Project** wizard displays.
4. In **Name**, type a name for the Project. The name you enter should be unique across all existing Time Series Projects. A Project name is required in order to create the Project.
5. In **Description**, type a brief description for the Project.

6. In **Entity**, accept the shown default or use the pull-down menu to select the Entity you want to include in this Time Series Project.
7. In **Data Source**, the data source for the selected Entity displays.
8. Under **Automation Interval**, select a time interval between Entity regeneration jobs. Choose one of the following:

None	(Default) The Time Series project will run automatically. If you plan to generate each Entity iteration manually, select this option.
Days	**Every:** Enter the time interval in number of days. This designates the number of days between regeneration of the Entity. **At:** Enter the time when the regeneration should start. The format is hh:mm:ss. **Starting:** Enter the date on which you want the regeneration to begin. If you accept the default (today's date), the first regeneration starts today at the time indicated above. If it is past the time indicated, the first regeneration begins when you click OK to close the dialog.
Weekly	**Every**: Use the drop-down menu to select the day of the week on which the Entity regeneration should run. **At:** Enter the time when the regeneration should start. The format is hh:mm:ss. **Starting**: Enter the date on which you want the regeneration to begin. If you change the day of the week in Every:, the default starting date becomes the next occurrence of that day.

Monthly	**Every**: Enter a calendar day on which, each month, the Entity regeneration should run. If you select 29, 30, or 31, on months with fewer days, the job will run on the last day of the month. For example, if you selected '30', because February has only 28 days, the job will run on February 28th. **At:** Enter the time when the regeneration should start. The format is hh:mm:ss. **Starting**: Enter a starting date. To set an initial generation to run earlier than the selected calendar day, enter a date that occurs before the calendar day you selected. When you change the calendar day in the Every: field, the next Series regeneration date in **Starting:** resets to the next occurrence of that calendar day.

9. Click **OK**.
10. Verify that your new Project is listed in the Explorer under **Time Series**.

About Quality Projects

A **Quality Project** contains the blueprint for processing Entity data using Quality ***data process*** modules. You will find a list of the Quality processes in Table 1–1, "Quality Data Processes," on page 1-5.

A Quality Project includes the data files, schema files, settings files, output and statistics files, user-defined tables and scripts for each process you select. These files are managed by Oracle Data Quality. When you create a Project, you select the type of data with which you want to work (Name and Address or Business), and the Entities that contain the data for your Project. If you select Name and Address, you must also select the countries for which the data is relevant.

You may also choose to create an Empty Project if you want a customized process workflow.

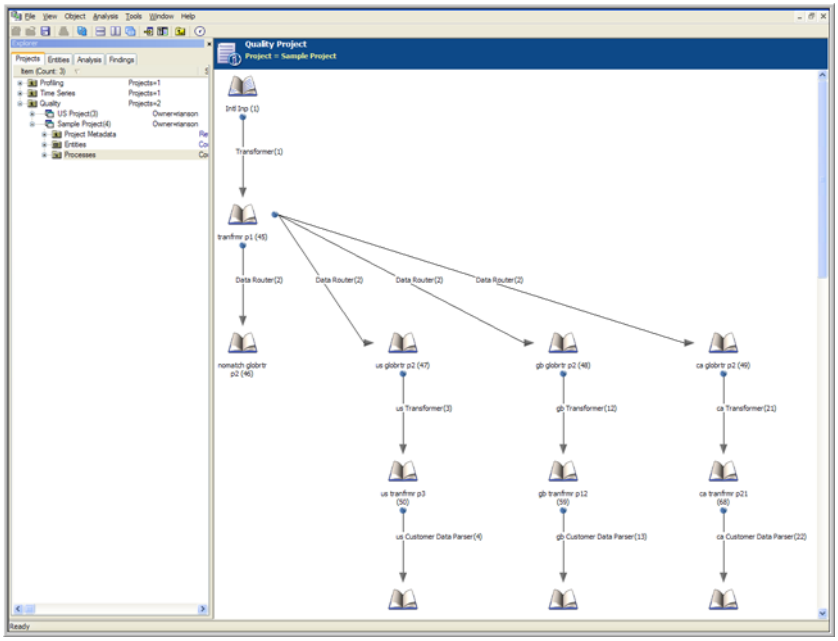
Note: You need to specify parameter files and executables only if you are creating a Project that uses the User-Defined Process.

After you create a Quality Project, the Project is listed in the Explorer. Click the **Projects** tab and expand **Quality** to verify that your new Project was created correctly.

When you select a Project in the Explorer, the process workflow for that Project displays in a **Project View**. The view identifies each Entity and process in the

sequence. When you run the Project, the Entity you selected for processing uses the displayed workflow. See Figure 4–1, "Quality Project View" for an example of a Quality Project display in a Project View.

Figure 4–1 Quality Project View



Quality Projects contain **Project Metadata, Entities,** and **Processes.** Each Project process has its own **Process Metadata, Inputs** and **Outputs** that are configured during the process setup. You can view and edit a configuration by right-clicking a process name (such as Transformer or Postal Matcher) in the Explorer and selecting **Edit Process**. A **Configuration** dialog will display in the upper right dialog pane where you can make tuning or other adjustments to the process setup.

See the online help for detailed instructions about how to use the Configuration dialog.

Selecting a Process Workflow

Before you can select a Project workflow, you must identify the issues you want to resolve and align these with the business goals or other objectives required for the data. For example, do you need to standardize the data format, identify incorrect addresses, or remove duplicate records?

Note: Use Oracle Data Profiling to analyze and profile your data to learn where issues exist and to drill down and investigate the data. This information will help you define your data quality objectives.

Some of the most common data quality objectives are:

- Identify and remove duplicate records
- Cleanse and standardize data formats
- Identify specific data elements
- Normalize name and address data
- Identify and standardize all data that is **NOT** name and address related
- Identify incorrect, obsolete, or invalid data
- Identify multiple customers within a household and link them together
- Find the same customer among multiple files
- Update files with new data
- Re-engineer and consolidate data after cleansing to create unique views

If you have enterprise data-cleansing standards, you can set up complex workflows using business rules and other rules-driven processes to bring data into compliance with your data governance requirements.

For more information about selecting a process workflow, see the *Oracle Data Profiling and Oracle Data Quality for Data Integrator Help*.

Creating a Quality Project

After you have determined how you want to process your data and decided on the Quality process flow, you are ready to create a Quality Project and configure your workflow.

To Create a Quality Project:

1. Open the Explorer.
2. Click the **Projects** tab.
3. Right-click **Quality** and select **Create project...**. The **Create Quality Project** dialog displays.
4. In **Name**, type a unique name for the Quality Project you want to create.
5. In **Description**, type a brief description.

6. Choose one of the following options to identify the Project type by record format. The option you select determines the Project template used to define the initial default set of Quality processes in a workflow:

Option	Description
Name and Address Project	Create this type of project for Entities that contain name and address records. When the project job runs, it runs the following processes in this sequence: **Transformer**, **Customer Data Parser**, **Sort for Postal Matcher**, **Postal Matcher**, **Window Key Generator**, **Sort for Linking**, **Relationship Linker**, **Commonizer**, and **Data Reconstructor**. You can add or delete processes after creating the project to customize the data process workflow. For process descriptions, see Table 4–2, "Name and Address Process Workflow," on page 4-12.
Business Data Project	Create this type of project for Entities that contain business data with no name and address records. When the project job runs, it runs the following processes in this sequence: **Transformer**, **Business Data Parser**, **Window Key Generator**, **Sort for Linking**, **Relationship Linker,** and **Commonizer**. You can add or delete processes after creating the project to customize the data process workflow. For process descriptions, see Table 4–3, "Business Data Process Workflow," on page 4-15.
Empty Project	Use if you want to customize the project process flow by creating a user-defined workflow. It allows you to create a Project that contains only Entities you select to include in the project and no processes. You must add or delete processes to customize the process workflow. For a list of processes, see Table 1–1, "Quality Data Processes," on page 1-5.

7. In the **Entity selection** text box, select the Entities to include in the Project by highlighting each Entity name.
8. Click **Next**.
9. If you selected **Name and Address Project**, follow these steps:
   - The **Add country** dialog shows a list of the country templates installed on the Oracle Data Profiling and Quality server. Select all countries you are using, and **Add** them to the box.

Note: To remove a country template, use the Up and Down buttons to select the country and click **Remove**.

- Click **OK**. Go to Step 11.

10. If you selected **Business Data Project** or **Empty Project**, go to Step 11.
11. Schedule the **Create Project** job. You can schedule it to:
    - **Run Now -** run the job immediately
    - **Run Later** - schedule to run at another date and time
    - **Cancel** - do not create the Project

The new Quality Project displays in the Quality Projects view. You can also see the new Project if you expand the **Projects, Quality** folder in the Explorer. The next step is to open the new Project and begin work.

Opening a Quality Project

After you create a Quality Project, you'll want to open the Project and begin your work.

To open a Quality Project:

1. Open the Explorer.
2. Click the **Projects** tab.
3. Expand **Quality**.
4. Right-click a Project and select **Open**.
5. The Quality Project opens in the Quality Project view (right-side). The Quality process for the Project record format you specified has been run and is shown as a process flow in the Quality Project view.

   Note: You can also open a Project by double-clicking a Project name in either the Explorer or Project View window.

Modifying Process Workflow

Quality processes (see Table 1–1) are the building blocks that make up the workflow for each Quality Project. There are two basic types of workflow:

- **Name and Address**—for data that contains name and address records

- **Business Data**—for business data that contains no name and address records

When you create a Project, you create either a Name and Address Project or a Business Data Project based on the type of data in the Entity (or Entities) in the Project. You can also create an Empty Project which requires that you construct a workflow by adding Quality processes that you select from a Configuration dialog. The process for creating your own workflow is described in the following section.

About Quality Project Workflows

Before you begin to create or modify a workflow, you should become familiar with the data quality functions performed by each process and where it makes sense to use them in a workflow sequence.

When you create a Project and select **Name and Address**, the Oracle Data Quality product application creates an optimum process flow for name and address records (see Table 4–2). When you select a **Business Data** Project, the Oracle Data Quality product application creates a workflow optimized for non-name and address data (see Table 4–3). When you select an **Empty** Project, you can create the workflow yourself. See "Adding Quality Processes" on page 4-16.

For additional information, please refer to the *Oracle Data Profiling and Oracle Data Quality for Data Integrator Help* where you will find topics about working with Quality processes.

Table 4–2 Name and Address Process Workflow

Step	Quality Process	Description
1	**Transformer**	Converts data and formats it for the next process in a workflow. It performs these functions: ▪ Scans data rows for defined shapes (masks) and literal values, and then moves, recodes, or deletes the data ▪ Applies conditional logic to perform an unlimited number of data transformations ▪ Recodes character attributes, based on a user-defined external table

Table 4–2 Name and Address Process Workflow

Step	Quality Process	Description
2	**Customer Data Parser**	Receives data from the Transformer, identifies name and address rows, and standardizes the data. It performs these functions: ■ Identifies elements of data ■ Uses country-specific tables to verify and identify data ■ Generates output data for two data types: original data and recoded or standardized data ■ Uses Word Pattern Definition files to define word and phrase patterns (tokens) for a given country ■ Uses City Directory files to define state and city names, and postal codes for a given country
3	**Sort for Postal Matcher**	Reads the data rows received from the Customer Data Parser and sorts them to produce data that is ready for the Postal Matcher process.
4	**Postal Matcher**	Relies on the output from the parsing process. It verifies and enriches address data by matching the data to directories and appropriate fields populated with Postal Geocoded data. It performs these functions: ■ Collects lists of possible streets in a city as potential matches for the parsed data. ■ Compares name and address components of the parsed data to the list of potential matches. ■ Weights the results of the comparisons. ■ Populates the parsed output area with the acceptable result. ■ Uses postal matching rules that correspond to a country's postal rules.
5	**Window Key Generator**	Creates window keys from elements of fields input from the Postal Matcher. These keys will be used to match rows in the Relationship Linker.
6	**Sort for Linking**	Reads the data rows received from the Window Key Generator and sorts them to produce data that is ready for the Relationship Linker process.

Table 4–2 Name and Address Process Workflow

Step	Quality Process	Description
7	**Relationship Linker**	Identifies the relationship between rows in a file at the *business* and *consumer* level. It performs these functions: ■ Identifies whether duplicate rows exist in several files. ■ Uses comparison routines to determine the level of similarity between rows. Results are categorized as *Pass*, *Suspect*, or *Fail*, depending on the similarity of data elements. ■ Uses window keys to match rows, and attempts to match rows in the same window key set.
8	**Commonizer**	Selects the "best" record of a matched set of records, called the *survivor*, and then copies that record to a field in another record, across a matched set of records. The selection process is defined by *decision routines* that you create.
9	**Data Reconstructor**	Reconstructs addresses from a combination of data, elements, and postal matcher output fields. It performs these functions: ■ Uses a rich scripting language with conditional IF/ELSE capabilities and text manipulation, allowing you to apply rule-based logic as data reconstruction rules, at any point in a project job stream or real-time process. ■ Combines existing data elements and literal values to create new data elements, based on markers you find with the row (such as Parser and Postal Matcher type attributes and flag attributes).

Table 4–3 Business Data Process Workflow

Step	Quality Process	Description
1	**Transformer**	Converts data and formats it for the next process in a workflow. It performs these functions: ■ Scans data rows for defined shapes (masks) and literal values, and then moves, recodes, or deletes the data ■ Applies conditional logic to perform an unlimited number of data transformations ■ Recodes character attributes, based on a user-defined external table
2	**Business Data Parser**	Identifies and standardizes business data (non-name and address) using business rules that you can customize to your requirements. It performs these functions: ■ Identifies words and phrases in free-form text by their values or masks ■ Produces standardized output in useful formats ■ Uses customized user-defined Attributes ■ Uses business rules ■ Corrects misspellings ■ Enables recoding of words or phrases using external tables
3	**Window Key Generator**	Creates window keys from elements of fields input from the Business Data Parser. These keys will be used to match rows in the Relationship Linker.
4	**Sort for Linking**	Reads the data rows received from the Window Key Generator and sorts them to produce data that is ready for the Relationship Linker process.

Table 4–3 Business Data Process Workflow

Step	Quality Process	Description
5	**Relationship Linker**	Identifies the relationship between rows in a file at the *business* and *consumer* level. It performs these functions: ■ Identifies whether duplicate rows exist in several files. ■ Uses comparison routines to determine the level of similarity between rows. Results are categorized as *Pass*, *Suspect*, or *Fail*, depending on the similarity of data elements. ■ Uses window keys to match rows, and attempts to match rows in the same window key set.
6	**Commonizer**	Selects the "best" record of a matched set of rows, called the *survivor*, and then copies that row to a field in another row, across a matched set of rows. The selection process is defined by *decision routines* that you create.

You can add or delete any process to customize the process workflow. For descriptions of available Quality processes, see Table 1–1 on page 1-5.

Adding Quality Processes

The new process you add will display in the workflow sequence *ahead of* the process you select to indicate the insertion position. For example, if you want to add a Sort process ahead of a Postal Matcher process, you select the Postal Matcher process in the graphical workflow pane and then add the Sort process.

To add a process to a Project workflow:

1. From the Explorer or Project workflow, select a process to indicate where you want to add a new process. The new process is inserted BEFORE the selected process.
2. Right-click the process and select **Insert new process**. The **Create Process** dialog displays.
3. In **Process Selection**, select the process you want to add.
4. Click **OK**.

Deleting Quality Processes

To delete a process in a Project workflow:

1. From the Explorer or Project workflow, select the process you want to delete.
2. Right-click the process and select **Delete Process...**.
3. Choose one of the following options:

Option	Description
Just This Process	Deletes a single process
This Process and Dependents	Deletes all processes that follow this process and are connected to it as *dependent* processes

4. At the **Server Action** confirmation message, select **Yes**.

Managing Projects

You can edit Project Metadata, add and view Project Notes, and delete Projects. For Quality Projects, in addition to the above, you can run the data processes you have configured for the Project, and export the Project process steps to a script for running later in batch mode or from a command line.

For information about setting up Quality data process workflows and specifying input files, output files, and business rules, see the *Oracle Data Profiling and Oracle Data Quality for Data Integrator Help*.

Editing Projects

You can edit Projects by modifying Project detail. The specific fields you can edit vary by Project Type. For a Time Series Project, you can change the name, description, and schedule. For a Quality Project, you can only change the Project's name and description. For a Profiling Project, you can change the name, description, and Entities used by the project.

To edit Project details:

1. Open the Metabase **Explorer**.
2. Click the **Projects** tab.
3. Expand the **Profiling**, **Time Series** or **Quality** folder, depending on the type of Project you want to edit.

4. Right-click the Project name and select **Edit project details**.

   The **Edit Project** dialog displays.

5. Make the appropriate changes and click **OK**.

Deleting Projects

To delete a Project:

1. Open the Metabase **Explorer**.
2. Click the **Projects** tab.
3. Expand the **Profiling**, **Time Series** or **Quality** folder, depending where the Project you want to delete is located.
4. Right-click the Project name and select **Delete**.
5. You are asked to confirm the deletion and, if necessary, to remove any related objects. Click **Yes**.
6. Verify that the Project has been removed from the Explorer list.

Adding Notes to a Project

Project Notes are a way to provide communication within and across teams that need information about the data in your Projects.

For detailed information about Notes and ways to use them, see the *Oracle Data Profiling and Oracle Data Quality for Data Integrator Help*.

To add Project Notes:

1. Open the Metabase **Explorer**.
2. Click the **Projects** tab.
3. Expand the **Profiling**, **Time Series** or **Quality** folder, depending on the type of Project you want to add Notes to.
4. Right-click the Project name and select **Notes > Add.**

Managing Quality Projects

Projects can help you manage the total data quality process by giving you a space in which you can work. However, managing a Quality Project is more than creating a Project workflow. It requires that you do some up-front planning and preparation, such as:

- Identifying the goals and business objectives for your data
- Preparing the data you want to process
- Choosing and testing the appropriate data process steps, and fine tuning the results.

The *Oracle Data Profiling and Oracle Data Quality for Data Integrator Help* contains information to assist you in these tasks, and provides detailed information about setting up Project workflows and data processes.

Note: If you do not have the Oracle Data Quality add-on component installed, the following features are not available.

Running a Quality Project Job

After you identify the data quality processes and workflow you want to run, you will start the processing at the Project level. Follow these instructions for running a Quality data quality job.

To run a Quality Project job:

1. Open the Metabase **Explorer**.
2. Click the **Projects** tab.
3. Expand the **Quality** folder to find the Project you want to run.
4. Right-click the Project name and select **Run.**

Note: If you want to view the process workflow before running it, right-click the Project name and select **Open**, review the process, and then select **Run**.

To view Project Notes:

1. Open the Metabase **Explorer**.
2. Click the **Projects** tab.
3. Expand the **Profiling**, **Time Series** or **Quality** folder, depending on the type of Project you want to view Notes for.
4. Right-click the Project name and select **Notes > Drill down to Notes**.

To view all Project Notes:

1. Open the Metabase **Explorer**.
2. Click the **Projects** tab.
3. Expand the **Profiling**, **Time Series** or **Quality** folder, depending on the type of Project you want to view Notes for.
4. Right-click a Project name and select **Notes > Drill down to All Notes**.

Next Steps

Creating Entities and Projects are two fundamental steps to getting started using the Oracle Data Profiling and Quality user interface. After you have imported and set up data in projects, you can begin to investigate and evaluate the data in your Metabase.

If you are working with Oracle Data Profiling and Quality for the first time, your next step may be to become familiar with the data and metadata in the Entity you created. Use the Metabase Explorer to investigate your data and take advantage of drill-down features to help you explore underlying details.

As you work, refer to the *Oracle Data Profiling and Oracle Data Quality for Data Integrator Help* for answers to your questions and detailed information about tasks. The Help is divided into these areas of information:

- Tour of User Interface
- Basic Steps to Getting Started
- Working with Oracle Data Profiling
- Working with Time Series
- Working with Quality

Each section contains detailed instructions for performing activities and includes reference information to help you make decisions and choices that support your data quality objectives.

You will find Help located in the main menu at the top of the Oracle Data Profiling and Quality products program window.

A

Menu and Toolbar

This Appendix is a reference for the Oracle Data Profiling and Quality user interface Main Menu and Toolbar.

Main Menu

The Oracle Data Profiling and Quality user interface includes a menu bar at the top of the program window that gives you the options listed in Table A-1.

Note: A condensed version of the main menu is displayed when the List View pane is closed.

Table A–1 Main Menu Options (List View)

Menu	Shortcut	Description
File		
Close		Closes the Metabase session.
Save	Ctrl + S	Saves the Metabase connection settings to a file that you specify. The file is saved as a Session file (.tss).
Save As…		Saves the Metabase connection settings to a file that you can specify with a new name. The file is saved as a Session file (.tss).
Print	Ctrl + P	Displays the **Print** dialog. Allows you to print any active element, such as Notes or List Views, in the user interface. Specify the printer, print range, and copies, and click **OK**.
Print Preview		Displays a preview screen of the data to be printed.

Menu	Shortcut	Description
Print Setup...		Displays the **Print Setup** dialog. Specify the setup properties for your print job and click **OK**.
Exit		Closes the Oracle Data Profiling and Quality user interface.
Edit		
Copy	Ctrl + C	Copies a selected Entity.
View		
Metabase Explorer		Displays the **Explorer** pane on the left-side of the program window. The Explorer shows a hierarchical listing of Metabase objects.
Messages		Displays the **Messages** pane at the bottom of the program window. Messages show alerts or information related to Metabase changes.
Toolbar		Displays the Main Toolbar at the top of the program window. The Main Toolbar gives you access to user interface tasks and features in icon form.
Status Bar		Displays the **Status** Bar at the bottom of the program window. It shows the current state of operations running in the user interface.
Refresh		Refreshes the entire Oracle Data Profiling and Quality window.
List		
Stop Drilldown		Cancels the drill-down activity.
Filter		Opens the **Filter Listview** dialog to create filter expressions.
Sort		Changes the sort order to **Ascending** or **Descending**.
Sort by Length		Changes the sort by length order to **Ascending** or **Descending**.
Multi-Column Sort		Opens the **Multi-Column Sort** dialog to allow you to specify how you want multiple columns in a List View sorted.
Back	Alt + Left Arrow	Refreshes List View to show previous data you displayed.

Menu	Shortcut	Description
Forward	Alt + Right Arrow	Refreshes List View to show next data display in a series.
Export		Exports List View data to a file. You can select either **All Rows** or **Selected Rows** for export.
Export to Server		Exports List View data to the Oracle Data Profiling and Quality server. You can specify either **All Rows** or **Selected Rows**. Opens the **Export to Server** dialog.
Analysis		
Create Entity…	Ctrl + L	Opens the **Create Entity Wizard** for creating a new Entity in a Metabase.
Background Tasks		Opens the **Background Tasks** window.
Discover Joins…		Opens the **Discover Joins** dialog where you specify Entities and run an analysis of Joins in your data.
Create Joins…		Opens the **Create Join** dialog where you identify the "left-hand-side" LHS and "right-hand-side" RHS Entities for a Join.
Discover Keys or Dependencies…		Opens the **Discover Keys or Dependencies** dialog where you specify the Entities you want to re-analyze.
Create Key or Dependency…		Opens the **Create Key or Dependency** dialog where you specify which to create and the Entity to use.
Entity Relationship Diagram		Generates an Entity Relationship Diagram (ERD) based on Permanent Join data.
Tools		
Change Password…		Opens the **Change Password** dialog. Use to change the password for your Oracle Data Profiling and Quality User account.
Email Notifications		Allows you to view your email notifications in a List View.

Menu	Shortcut	Description
Options…		Opens an **Options** dialog for configuring your personal preferences for the Oracle Data Profiling and Quality **Environment**, **List View**, and **E-R Diagram**.
Launch Insight		If you have **Insight** installed, use this menu option to launch the application.
Execute Server action		If you have any server actions defined, use this menu option to launch the action.
Windows		
New Window		Opens an empty List View window in the right pane.
Cascade		Arranges List Views one on top of the other in a cascading display.
Tile Horizontally		Arranges List Views in a horizontal non-overlapping tile display.
Tile Vertically		Arranges List Views in a vertical non-overlapping tile display.
Arrange Icons		Arranges icons in an icon view.
Help		
Manuals		Opens the Oracle Data Profiling and Quality documentation page with links to Online Help and this manual.
About Oracle Data Profiling and Quality User Interface…		Shows information about the Oracle Data Profiling and Quality user interface.

Toolbar

Main functions are available in the Oracle Data Profiling and Quality toolbar at the top of the program window.

Toolbar actions are each represented by an icon. To select an action, such as Save or Create Entity, click the appropriate icon.

The following table describes each icon in the toolbar when the List View pane is displayed. A condensed version appears when the List View pane is closed.

Table A–2 Toolbar Icons

Icon	Label	Description
	New	Creates a new Metabase connection.
	Open	Opens existing Connection settings.
	Save	Saves the Connection settings.
	Print	Opens Print dialog. Allows you to print any active element in the user interface window, such as List Views and Notes.
	Refresh Explorer	Refreshes the Metabase Explorer tree in the left pane.
	Tile Windows Horizontally	Arranges List Views in a horizontal non-overlapping tile display.
	Tile Windows Vertically	Arranges List Views in a vertical non-overlapping tile display.
	Cascade Windows	Arranges List Views one on top of the other in a cascading display.
	Create Entity	Opens the **Create Entity Wizard**.
	Metabase Explorer	Opens the Metabase Explorer.
	Copy	Copies selection.
	Export	Export data to Oracle Data Profiling and Quality server.
	Back	Refreshes List View to previous data display.
	Forward	Refreshes List View to next data display in a series.

Icon	Label	Description
	Filter	Opens the **Filter Listview** dialog for constructing filter expressions.
	Ascending	Sorts List View data in ascending order.
	Descending	Sorts List View data in descending order.
	List of Background Tasks	Displays a list of Background Tasks activities in a List View.
	Stop	Stops drill-down activity.

Index

A

adding
  SQL WHERE clause, 3-15
Analysis menu, A-3
Analysis tab, 2-3, 2-10, 2-14
Arrange Icons menu, A-4
Ascending icon, A-6
ASCII data, 3-12
Attribute
  definition of, 2-4
  imported data type, 2-5
Attribute History, 2-12
Attribute Metadata
  definition of, 2-4
automation interval, 4-6 to 4-7

B

Back
  icon, A-5
  menu, A-2
Background Tasks
  icon, A-6
  menu, 3-18, A-3
  viewing, 2-19
Bookmarks, 2-16
Business Data Parser process, 1-5
Business Data Project, 4-10
business level, 1-8, 4-14, 4-16

C

Cascade
  icon, A-5
  menu, 2-17, A-4
Change Password menu, A-3
character encoding, 3-8, 3-12
City Directory files, 1-6
Close menu, A-1
closing
  Explorer objects, 2-9
COBOL copybook, 3-2, 3-6
  byte order, 3-10
  character encoding, 3-12
  data alignment, 3-11
  Entity creation from, 3-10
  filtering matching records, 3-14
  ignoring fields, 3-13
  national character encoding, 3-13
  rearranging fields, 3-13
  record delimiter, 3-12
  Redefines clauses, 3-12
  selecting matching records, 3-14
  unsigned comp-3 fields, 3-12
collapsing objects, 2-9
Commonization function, 1-6
Commonizer process, 1-5
conditional IF/ELSE statements, 1-6, 4-14
configuring the printer, 2-20
connection validation, 3-5
consumer level, 1-8, 4-14, 4-16
Copy
  icon, A-5
  menu, A-2
Create & Restart button, 3-17
Create Entity
  icon, A-5

menu, A-3
Create Entity Wizard, 3-1, 3-4, 3-4 to 3-18
Create Joins menu, A-3
Create Key or Dependency menu, A-3
creating
Entity, 3-4, 3-5
Quality Project, 4-9
Time Series Project, 4-5
CR/LF line delimiters, 3-8, 3-12
Customer Data Parser process, 1-6
customizing data, 3-4

D

data alignment, 3-11
Data Dictionary Language (DDL) files, 3-8
Data Reconstructor process, 1-6
Data Router process, 1-6
decimal character, 3-7
deleting Projects, 4-18
Delimited data files, 3-2, 3-6
Delimiter character, 3-7
Dependency
definition of, 2-4
description of, 2-14
Descending icon, A-6
Discover Joins menu, A-3
Discover Keys or Dependencies menu, A-3
Discovery Project, 2-10, 2-11, 4-2
double delimiters, 3-7
drilling down
in Metabase Explorer, 2-9
Dynamic Entity, 3-3
Dynamic option, 3-16, 3-17

E

EBCDIC data, 3-12
Email Notifications menu, A-3
Empty Project, 4-10
Entities tab, 2-3, 2-10
Entity, 3-1
before you create, 3-2
COBOL copybook data, 3-10
created from relational data, 3-14
creating, 3-5
creation, 3-4
definition of, 2-4
filtering data source list, 3-6
imported data type, 2-5
in Quality Project, 2-12
monitoring creation of, 3-18
types of data sources, 3-2
verifying, 3-18
Entity Generation, 2-12
Entity Relationship Diagram menu, A-3
event logs, 2-19
Execute Server action menu, A-4
Exit menu, A-2
Explorer
see Metabase Explorer
Export
icon, A-5
Export menu, A-3
Export to Server menu, A-3

F

Fail category, 1-8, 4-14, 4-16
File Update process, 1-7
Filter
icon, A-6
menu, A-2
filtering
criteria for table display, 3-14
data source list for Entities, 3-6
information in List Views, 2-18
search expressions, 3-14
Finding
definition of, 2-4
Findings tab, 2-3, 2-10, 2-15
Forward
icon, A-5
menu, A-3

G

grouping strings, 3-7

H

Help menu, A-4
hexadecimal (HEX) character, 3-7

I

IBM mainframe (MVS) data, 3-11
ICL/PC (Microfocus compiler) data, 3-11
ignoring fields, 3-13
importing
  sample data files, 3-3
  subset of fields, 3-4, 3-9

J

job status, 2-19
Join
  definition of, 2-4
  description of, 2-15

K

Key
  definition of, 2-4
  description of, 2-15

L

Launch Insight
  menu, A-4
LF line delimiter, 3-12
limiting tables to display, 3-14
List menu, A-2
List View
  arranging icons, 2-17
  cascading views, 2-17
  description of, 2-2
  filtering information in, 2-18
  opening multiple, 2-17
  organizing, 2-17
  organizing options, 3-18
  tiling horizontally, 2-17
  tiling vertically, 2-17
load job, 3-17
load parameters, 3-16
Load Parameters dialog, 3-16
Loader Connection, 3-2
loading all data rows, 3-17

M

main menu
  description of, 2-3
main toolbar
  description of, 2-3
managing
  Quality Projects, 4-19
Manuals menu, A-4
Merge/Split process, 1-7
messages, 2-20
Messages menu, A-2
Metabase, 3-2
  about, 2-5
  activities, 2-19
  clean-up tasks, 3-22
Metabase Explorer, 2-5, 2-7
  closing, 2-9
  closing all objects, 2-9
  closing objects, 2-9
  description of, 2-2
  drilling down, 2-9
  icon, A-5
  menu, A-2
  navigating, 2-8
  opening, 2-9
  opening objects, 2-9
  refreshing, 2-9
  tabs, 2-10
  viewing Projects, 4-2
Metadata
  definition of, 2-4
  folder, 2-11
  in Time Series Project, 2-12
monitoring
  Entity creation, 3-18
Multi-Column Sort menu, A-2

N

Name and Address Project, 4-10

national character encoding, 3-13
New icon, A-5
New Window menu, A-4
Notes
see Project Notes

O

Open icon, A-5
opening
Explorer objects, 2-9
Metabase Explorer, 2-9
multiple List Views, 2-17
Projects, 4-3
Quality Project, 4-11
Options menu, A-4
organizing
List Views, 2-17
Overflow, 3-20 to 3-22
Attributes check, 3-21
Attributes investigation, 3-22
COBOL data source example, 3-21

P

Pass category, 1-8, 4-14, 4-16
Postal Matcher process, 1-7, 1-9
Preview option, 3-4, 3-6, 3-8, 3-13, 3-15
Print
icon, A-5
menu, A-1
Print Preview menu, 2-20, A-1
Print Setup menu, 2-20, A-2
printing
active window, 2-20
preview, 2-20
Process
in Quality Project, 2-12
Project
definition of, 2-4
deleting, 4-18
types of, 2-10
Project Metadata
in Quality Project, 2-12
Project metadata, 4-2
Project Notes
description of, 2-16
viewing, 4-20
Project tab, 2-3, 2-10
Project View
description of, 2-2
Projects, 3-23
managing, 4-17
opening, 4-3
types of, 4-2
Projects tab, 2-10, 4-2, 4-4, 4-5

Q

Quality application
introduction, 1-5
Quality process
list of, 1-5
Quality Project, 2-10, 2-12, 4-2
creating, 4-9
data source, 4-6
list of data processes, 1-5
managing, 4-19
opening, 4-11
running a job, 4-19
selecting process workflow, 4-8
quote character, 3-7

R

random sampling, 3-17
rearranging columns, 3-9
rearranging fields, 3-13
record termination, 3-8
Redefines clauses, 3-12
Reference Matcher process, 1-8
Refresh Explorer icon, A-5
Refresh menu, A-2
refreshing
Explorer views, 2-9
relational data
creating Entities from, 3-14
data source for Entity, 3-2
limiting tables to display, 3-14
preview of data, 3-15

SQL WHERE clause, 3-15
table view options, 3-15
Relational databases, 3-6
Relationship Linker process, 1-8
Resolve process, 1-8
Restart button, 3-8, 3-13
restarting Create Entity session, 3-8
Row
imported data type, 2-5
Rules files, 1-7
running Quality Project job, 4-19

S

Save
icon, A-5
menu, A-1
Save As menu, A-1
schema settings, 3-7, 3-10
selecting
fields to import, 3-4
matching records of data, 3-14
matching rows of data, 3-9
number of records to import, 3-17
Quality process workflow, 4-8
subset of fields, 3-9
Set Selection process, 1-8
setting load parameters, 3-16
Sort by Length menu, A-2
Sort for Linking process, 1-8
Sort for Postal Matcher process, 1-9
Sort menu, A-2
specifying import start row, 3-17
Status Bar menu, A-2
Stop Drilldown menu, A-2
Stop icon, A-6
Survivorship function, 1-6
Suspect category, 1-8, 4-14, 4-16

T

table view options, 3-15
Tile Horizontally
icon, A-5
menu, A-4
Tile Vertically
icon, A-5
menu, A-4
Time Series application
introduction, 1-4
Time Series Project, 2-10, 2-12, 4-2
automation interval, 4-6 to 4-7
creating, 4-5
data trending objects, 4-5
description of, 4-5
Toolbar menu, A-2
Tools menu, A-3
Transformer process, 1-9
ODQ files, 3-2, 3-6

U

UNICODE strings, 3-13
UNIX COBOL files, 3-12
User Defined Process, 1-9
User Defined Sort process, 1-9

V

verifying new Entities, 3-18
View menu, A-2
viewing
messages, 2-20

W

Window Key Generator process, 1-9
window keys, 1-8, 4-14, 4-16
Windows menu, A-4
Word Pattern Definition files, 1-6