Informatica®
10.5

Profiling Getting Started Guide

Informatica Profiling Getting Started Guide
10.5
February 2021

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Publication Date: 2022-04-21

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Preface

Follow the instructions in the *Profiling Getting Started Guide* to learn how to create and run profiles in the Developer tool and Analyst tool. The guide provides a tutorial to help first-time users learn how to use *Informatica Developer* and *Informatica Analyst*.

The guide is written for data analysts and developers.

Informatica Resources

Informatica provides you with a range of product resources through the Informatica Network and other online portals. Use the resources to get the most from your Informatica products and solutions and to learn from other Informatica users and subject matter experts.

Informatica Network

The Informatica Network is the gateway to many resources, including the Informatica Knowledge Base and Informatica Global Customer Support. To enter the Informatica Network, visit https://network.informatica.com.

As an Informatica Network member, you have the following options:

- Search the Knowledge Base for product resources.
- View product availability information.
- Create and review your support cases.
- Find your local Informatica User Group Network and collaborate with your peers.

Informatica Knowledge Base

Use the Informatica Knowledge Base to find product resources such as how-to articles, best practices, video tutorials, and answers to frequently asked questions.

To search the Knowledge Base, visit https://search.informatica.com. If you have questions, comments, or ideas about the Knowledge Base, contact the Informatica Knowledge Base team at KB_Feedback@informatica.com.

Informatica Documentation

Use the Informatica Documentation Portal to explore an extensive library of documentation for current and recent product releases. To explore the Documentation Portal, visit https://docs.informatica.com.

If you have questions, comments, or ideas about the product documentation, contact the Informatica Documentation team at infa_documentation@informatica.com.

Informatica Product Availability Matrices

Product Availability Matrices (PAMs) indicate the versions of the operating systems, databases, and types of data sources and targets that a product release supports. You can browse the Informatica PAMs at https://network.informatica.com/community/informatica-network/product-availability-matrices.

Informatica Velocity

Informatica Velocity is a collection of tips and best practices developed by Informatica Professional Services and based on real-world experiences from hundreds of data management projects. Informatica Velocity represents the collective knowledge of Informatica consultants who work with organizations around the world to plan, develop, deploy, and maintain successful data management solutions.

You can find Informatica Velocity resources at http://velocity.informatica.com. If you have questions, comments, or ideas about Informatica Velocity, contact Informatica Professional Services at ips@informatica.com.

Informatica Marketplace

The Informatica Marketplace is a forum where you can find solutions that extend and enhance your Informatica implementations. Leverage any of the hundreds of solutions from Informatica developers and partners on the Marketplace to improve your productivity and speed up time to implementation on your projects. You can find the Informatica Marketplace at https://marketplace.informatica.com.

Informatica Global Customer Support

You can contact a Global Support Center by telephone or through the Informatica Network.

To find your local Informatica Global Customer Support telephone number, visit the Informatica website at the following link:
https://www.informatica.com/services-and-training/customer-success-services/contact-us.html.

To find online support resources on the Informatica Network, visit https://network.informatica.com and select the eSupport option.

CHAPTER 1

Getting Started Overview

This chapter includes the following topics:

- Profiling Overview, 8
- Introducing Informatica Analyst, 9
- Informatica Developer User Interface, 12
- The Tutorial Story, 14
- The Tutorial Structure, 14

Profiling Overview

Use profiling to find the content, quality, and structure of data sources of an application, schema, or enterprise. The data source content includes value frequencies and data types. The data source structure includes keys and functional dependencies.

As part of the discovery process, you can create and run profiles. A profile is a repository object that finds and analyzes all data irregularities across data sources in the enterprise and hidden data problems that put data projects at risk. Running a profile on any data source in the enterprise gives you a good understanding of the strengths and weaknesses of its data and metadata.

You can use Informatica Analyst and Informatica Developer to analyze the source data and metadata. Analysts and developers can use these tools to collaborate, identify data quality issues, and analyze data relationships. Based on your job role, you can use the capabilities of either the Analyst tool or Developer tool. The degree of profiling that you can perform differs based on which tool you use.

You can perform the following tasks in both the Developer tool and Analyst tool:

- Perform column profiling. The process includes discovering the number of unique values, null values, and data patterns in a column.
- Perform data domain discovery. You can discover critical data characteristics within an enterprise.
- Curate profile results including data types, data domains, primary keys, and foreign keys.
- Create scorecards to monitor data quality.
- Choose an operating system profile to create and run column profiles, enterprise discovery profiles, and scorecards based on the permissions of the operating system user that you define in the operating system profile.
- Use repository asset locks to prevent other users from overwriting work.
- Use version control system to save multiple versions of a profile.

- Create and assign tags to data objects.
- Look up the meaning of an object name as a business term in the Business Glossary Desktop. For example, you can look up the meaning of a column name or profile name to understand its business requirement and current implementation.

You can perform the following tasks in the Developer tool:

- Discover the degree of potential joins between two data columns in a data source.
- Determine the percentage of overlapping data in pairs of columns within a data source or multiple data sources.
- Compare the results of column profiling.
- Generate a mapping object from a profile.
- Discover primary keys in a data source.
- Discover foreign keys in a set of one or more data sources.
- Discover functional dependency between columns in a data source.
- Run data discovery tasks on a large number of data sources across multiple connections. The data discovery tasks include column profile, inference of primary key and foreign key relationships, data domain discovery, and generating a consolidated graphical summary of the data relationships.

You can perform the following tasks in the Analyst tool:

- Perform enterprise discovery on a large number of data sources across multiple connections. You can view a consolidated discovery results summary of column metadata and data domains.
- Perform discovery search to find where the data and metadata exists in the enterprise. You can search for specific assets, such as data objects, rules, and profiles. Discovery search finds assets and identifies relationships to other assets in the databases and schemas of the enterprise.
- View the profile results for a historical profile run.
- Compare the profile results for two profile runs in a column profile.
- View scorecard lineage for each scorecard metric and metric group.
- View the scorecard dashboard.
- Add comments to a profile or columns in a profile.
- Assign tags to a profile or columns in a profile.
- Assign business terms to columns in a profile.

Introducing Informatica Analyst

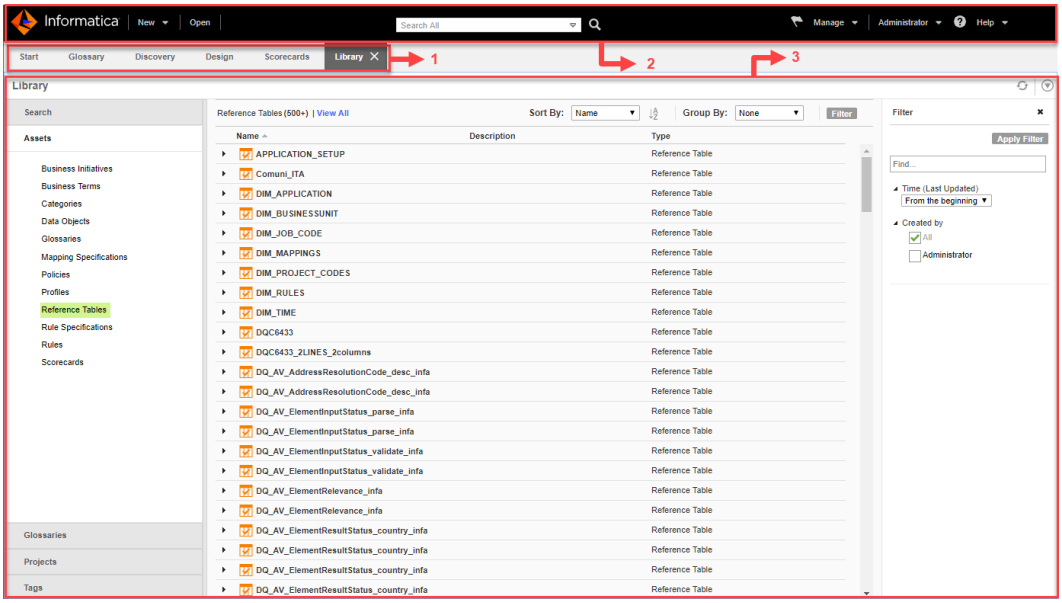
Informatica Analyst is a web-based application client that analysts can use to analyze, cleanse, standardize, profile, and score data in an enterprise.

Depending on your license, business analysts and developers use the Analyst tool for data-driven collaboration. You can perform column and rule profiling, scorecarding, and bad record and duplicate record management. You can also manage reference data and provide the data to developers in a data quality solution.

Informatica Analyst User Interface

The Analyst tool user interface consists of multiple workspaces that you use to create data integration and data qualitydata federation solutions. A workspace is a web page that you can access based on license and privilege.

The following image shows the Analyst tool user interface:



1. Workspace access panel
2. Header area
3. Workspace

The Analyst tool opens on the **Start** workspace. The **Start** workspace lists the workspaces that you have the license and privilege to use through workspace access panels.

The Analyst tool displays the following header menus:

New

Create assets in the **Glossary**, **Discover**, and **Design** workspaces.

Open

Open the **Library** workspace.

Notifications alert

View notifications for Glossary assets.

Manage

Open temporary workspaces and **Notifications**. You can open the **Connections**, **Data Domains**, **Job Status**, **Projects**, and **Business Glossary Security** workspaces.

User name

Set user preferences to change the password and to log out of the Analyst tool.

Help

Access help in the current workspace.

The Analyst tool contains the following permanent workspaces:

Start

Access other workspaces that you have the license to access through the workspace access panels. If you have the license to perform exception management, your tasks appear on the **My Tasks** panel of the workspace.

Glossary

Define and describe business concepts that are important to your organization. You can create and manage business terms, categories, glossaries, and policies.

Discovery

Analyze the quality of data and metadata in source systems. You can create and manage profiles, flat file data objects, and table data objects.

Design

Design business logic that helps analysts and developers collaborate. You can create and manage mapping specifications, reference tables, and rule definitions.

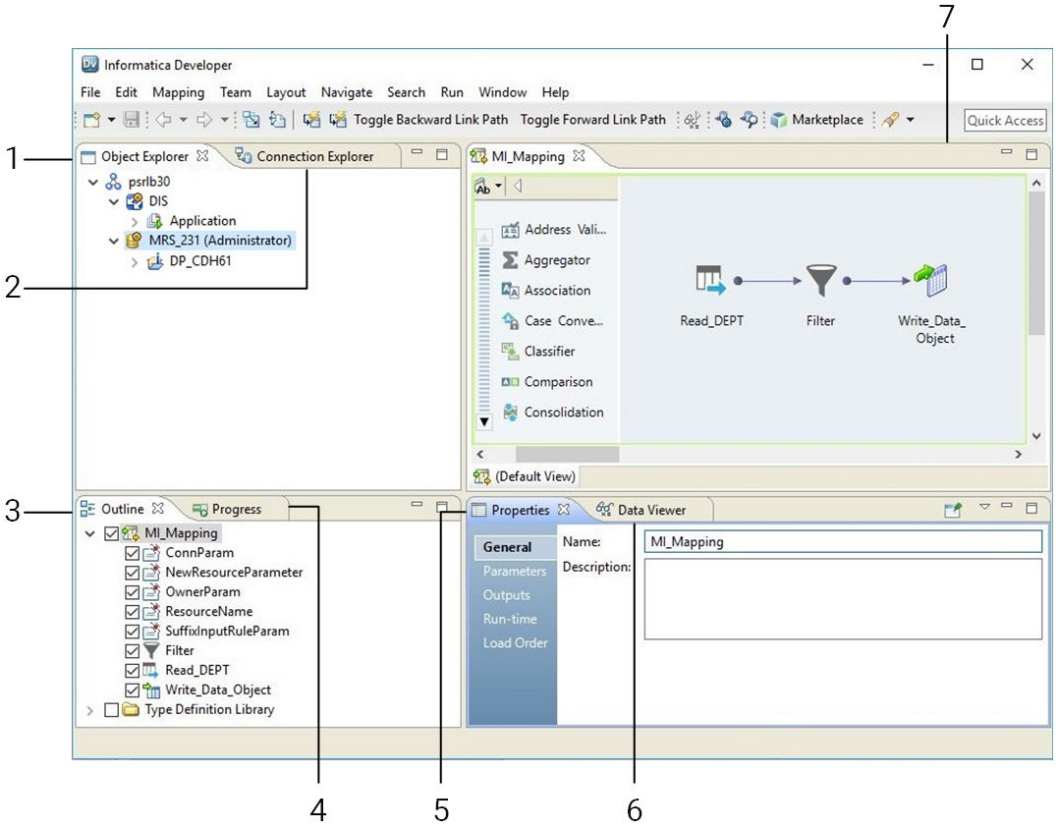
Scorecards

Open, edit, and run scorecards that you created from profile results. You can add metrics, drill down on columns, add scorecard filters, and view trend charts for a scorecard.

Informatica Developer User Interface

The Developer tool user interface consists of a workbench with multiple views that you use to create data integration and data quality data federation solutions.

The following image shows the Developer tool user interface:



1. Object Explorer view
2. Outline view
3. Properties view
4. Data Viewer view
5. Tags view
6. Object Dependencies view
7. Alerts view
8. Connection Explorer view
9. Editor

The Developer tool can display the following views:

Object Explorer view

Displays the domain and the design-time and run-time objects in the domain. Design-time objects are stored in projects and folders in the Model repository. Run-time objects are stored as part of a run-time application on a Data Integration Service.

Connection Explorer view

Displays connections to relational databases.

Outline view

Displays objects that are dependent on an object selected in the **Object Explorer** view.

Cheat Sheets view

Displays the cheat sheet that you open. To open a cheat sheet, click **Help** > **Cheat Sheets** and select a cheat sheet.

Data Viewer view

Displays source data, profile results, and previews the output of a transformation. You can also preview web service messages or run an SQL query from the Data Viewer view.

Object Dependencies view

Displays object dependencies when you view, modify, or delete an object.

Alerts view

Displays connection status alerts.

Validation Log view

Displays object validation errors.

The Developer tool can display other views also. You can hide views and move views to another location in the Developer tool workbench. Click **Window** > **Show View** to select the views you want to display.

Informatica Developer Welcome Page

The Welcome page appears the first time that you open the Developer tool. Use the Welcome page to learn how to set up and start working in the Developer tool.

The Welcome page displays the following options:

- Overview. Click the Overview button to get an overview of data quality and data services solutions.
- First Steps. Click the First Steps button to learn more about setting up the Developer tool and accessing Informatica Data Quality and Informatica Data Services lessons.
- Tutorials. Click the Tutorials button to see tutorial lessons for data quality and data services solutions.
- Web Resources. Click the Web Resources button for a link to the Informatica Knowledge Base. You can access the Informatica How-To Library. The Informatica How-To Library contains articles about Informatica Data Quality, Informatica Data Services, and other Informatica products.
- Workbench. Click the Workbench button to start working in the Developer tool.

Click **Help** > **Welcome** to access the welcome page after you close it.

Cheat Sheets

The Developer tool includes cheat sheets as part of the online help. A cheat sheet is a step-by-step guide that helps you complete one or more tasks in the Developer tool.

When you complete a cheat sheet, you complete the tasks and see the results. For example, after you complete a cheat sheet to import and preview a relational data object, you have imported a relational database table and previewed the data in the Developer tool.

To access cheat sheets, click **Help** > **Cheat Sheets**.

Informatica Developer Tasks

Use the data quality capabilities in the Developer tool to analyze the content and structure of your data. You can enhance the data in ways that meet your business needs.

Use the Developer tool to design and run processes that achieve the following objectives:

- Run a profile on source data. Profiling reveals the content and structure of your data. Profiling is a key step in any data project as it can identify strengths and weaknesses in data and help you define your project plan.
- Create scorecards to review data quality. A scorecard is a graphical representation of the quality measurements in a profile.
- Create and run data quality rules. Informatica provides pre-built rules that you can run or edit to suit your project objectives. You can create rules in the Developer tool.
- Collaborate with Informatica users. The rules that you add to the Model repository are available to users in the Developer tool and the Analyst tool. Users can collaborate on projects, and different users can take ownership of objects at different stages of a project.

The Tutorial Story

HypoStores Corporation is a national retail organization with headquarters in Boston and stores in several states. It integrates operational data from stores nationwide with the data store at headquarters on regular basis. It recently opened a store in Los Angeles.

The headquarters includes a central ICC team of administrators, developers, and architects responsible for providing a common data services layer for all composite and BI applications. The BI applications include a CRM system that contains the master customer data files used for billing and marketing.

HypoStores Corporation wants to profile the Boston and Los Angeles data before it integrates the data sets. The profile operations identify data quality issues that HypoStores can fix before the integration.

The Tutorial Structure

The *Getting Started Guide* contains tutorials that include lessons and tasks.

Lessons

Each lesson introduces concepts that will help you understand the tasks to complete in the lesson. The lesson provides business requirements from the overall story. The objectives for the lesson outline the tasks that you will complete to meet business requirements. Each lesson provides an estimated time for completion. When you complete the tasks in the lesson, you can review the lesson summary.

If the environment within the tool is not configured, the first lesson in each tutorial helps you do so.

Tasks

The tasks provide step-by-step instructions. Complete all tasks in the order listed to complete the lesson.

Tutorial Prerequisites

Before you can begin the tutorial lessons, the Informatica domain must be running with at least one node set up. You must verify that the Analyst Service, Model Repository Service, and Data Integration Service are running.

The installer includes tutorial files that you will use to complete the lessons. You can find all the files in both the client and server installations:

- You can find the tutorial files in the following location in the Developer tool installation path:

  `<Informatica Installation Directory>\clients\DeveloperClient\Tutorials`

- You can find the tutorial files in the following location in the services installation path:

  `<Informatica Installation Directory>\server\Tutorials`

You need the following files for the tutorial lessons:

- All_Customers.csv
- Boston_Customers.csv
- Customer_Order.xsd
- LA_customers.csv
- orders.csv

Informatica Analyst Tutorial

In this tutorial, an analyst logs into the Analyst tool, creates projects and folders, creates profiles and rules, creates scorecards on data, and creates reference tables.

The following table describes the lessons that you can perform:

Lesson	Description
Lesson 1. Setting up Informatica Analyst	Log in to the Analyst tool and create a project and folder for the tutorial lessons.
Lesson 2. Creating Data Objects	Import a flat file as a data object and preview the data.
Lesson 3. Creating Default Profiles	Create a default profile to quickly get an idea of data quality.
Lesson 4. Creating Custom Profiles	Create a custom profile to configure columns, and sampling and drill-down options.
Lesson 5. Creating Expression Rules	Create expression rules to modify and profile column values.
Lesson 6. Creating and Running Scorecards	Create and run a scorecard to measure data quality progress over time.
Lesson 7. Creating Reference Tables from Profile Columns	Create a reference table that you can use to standardize source data.
Lesson 8. Creating Reference Tables	Create a reference table to establish relationships between source data and valid and standard values.

Informatica Developer Tutorial

In this tutorial, you use the Developer tool to perform several data quality operations. You create a connection to a Model repository, create projects and folders, import a flat file as a physical data object, create an enterprise discovery profile, perform a join analysis on two data sources, and view the profile results.

The following table describes the lessons that you can perform:

Lesson	Description
Lesson 1. Setting Up Informatica Developer	Add a domain and create a connection to a Model repository that is managed by a Model Repository Service in the domain. Create a project and folder to store work for the lessons in the tutorial. Select a default Data Integration Service to run mappings and preview data.
Lesson 2. Importing Physical Data Objects	Import a flat file to create a physical data object.
Lesson 3. Run a Profile on Source Data	Create an enterprise discovery profile, perform a join analysis on two data sources, and view the profile results. You can perform join analysis in a profile to determine if a valid join is possible between two data columns.

Part I: Getting Started with Informatica Analyst

This part contains the following chapters:

- Lesson 1. Setting Up Informatica Analyst, 18
- Lesson 2. Creating Data Objects, 21
- Lesson 3. Creating Default Profiles, 24
- Lesson 4. Creating Custom Profiles, 28
- Lesson 5. Creating Expression Rules, 32
- Lesson 6. Creating and Running Scorecards, 35
- Lesson 7. Creating Reference Tables from Profile Columns, 40
- Lesson 8. Creating Reference Tables, 43

CHAPTER 2

Lesson 1. Setting Up Informatica Analyst

This chapter includes the following topics:

- Setting Up Informatica Analyst Overview, 18
- Task 1. Log In to Informatica Analyst, 19
- Task 2. Create a Project, 19
- Task 3. Create a Folder, 19
- Setting Up Informatica Analyst Summary, 20

Setting Up Informatica Analyst Overview

Before you start the lessons in this tutorial, you must set up the Analyst tool. To set up the Analyst tool, log in to the Analyst tool and create a project and a folder to store your work.

The Informatica domain is a collection of nodes and services that define the Informatica environment. Services in the domain include the Analyst Service and the Model Repository Service. The Analyst Service runs the Analyst tool, and the Model Repository Service manages the Model repository. When you work in the Analyst tool, the Analyst tool stores the assets that you create in the Model repository.

You must create a project before you can create assets in the Analyst tool. A project contains assets in the Analyst tool. A project can also contain folders that store related assets, such as data objects that are part of the same business requirement.

Objectives

In this lesson, you complete the following tasks:

- Log in to the Analyst tool.
- Create a project to store the assets that you create in the Analyst tool.
- Create a folder in the project that can store related assets.

Prerequisites

Before you start this lesson, verify the following prerequisites:

- An administrator has configured a Model Repository Service and an Analyst Service in the Administrator tool.

- You have the host name and port number for the Analyst tool.
- You have a user name and password to access the Analyst Service. You can get this information from an administrator.

Timing

Set aside 5 to 10 minutes to complete this lesson.

Task 1. Log In to Informatica Analyst

Log in to the Analyst tool to begin the tutorial.

1. Start a Microsoft Internet Explorer or Google Chrome browser.
2. In the Address field, enter the URL for Informatica Analyst:

   ```
   http[s]://<fully qualified host name>:<port number>/analyst
   ```

3. If the domain uses LDAP or native authentication, enter your user name and password on the login page.
4. Select **Native** or the name of a specific security domain.

   The Security Domain field appears when the Informatica domain uses LDAP or Kerberos authentication. If you do not know the security domain that your user account belongs to, contact the Informatica domain administrator.
5. Click **Log In**.

   The Analyst tool opens on the **Start** workspace.

Task 2. Create a Project

In this task, you create a project to contain the assets that you create in the Analyst tool. Create a tutorial project to contain the folder for the project.

1. On the **Manage** header, click **Projects**.

   The **Projects** workspace appears.
2. From the **Actions** menu, click **New** > **Project**.

   The **New Project** window appears.
3. Enter your name prefixed by "Tutorial_" as the name of the project.
4. Click **OK**.

Task 3. Create a Folder

In this task, you create a folder to store related assets. You can create a folder in a project or another folder. Create a folder named Customers to store the assets related to the data quality project.

1. In the **Projects** panel, select the tutorial project.

2. From the **Actions** menu, click **New** > **Folder**.

   The **New Folder** window appears.

3. Enter Customers for the folder name.
4. Click **OK**.

   The folder appears under the tutorial project.

Setting Up Informatica Analyst Summary

In this lesson, you learned that the Analyst tool stores assets in projects and folders. A Model repository contains the projects and folders. The Analyst Service runs the Analyst tool. The Model Repository Service manages the Model repository. The Analyst Service and the Model Repository Service are application services in the Informatica domain.

You logged in to the Analyst tool and created a project and a folder.

Now, you can use the Analyst tool to complete other lessons in this tutorial.

CHAPTER 3

Lesson 2. Creating Data Objects

This chapter includes the following topics:

- Creating Data Objects Overview, 21
- Task 1. Create the Flat File Data Object, 22
- Task 2. View the Data Object Properties, 22
- Creating Data Objects Summary, 23

Creating Data Objects Overview

In the Analyst tool, a data object is a representation of data based on a flat file or relational database table. You create a flat file or table object and then run a profile against the data in the flat file or relational database table. When you create a flat file data object in the Analyst tool, you can upload the file to the flat file cache on the machine that runs the Analyst tool or you can specify the network location where the flat file is stored.

Story

HypoStores keeps the Los Angeles customer data in flat files. HypoStores needs to profile and analyze the data and perform data quality tasks.

Objectives

In this lesson, you complete the following tasks:

1. Upload the flat file to the flat file cache location and create a data object.
2. Preview the data for the flat file data object.

Prerequisites

Before you start this lesson, verify the following prerequisites:

- You have completed lesson 1 in this tutorial.
- You have the LA_Customers.csv flat file. You can find this file in the <Installation Root Directory>\<Release Version>\clients\DeveloperClient\Tutorials folder.

Timing

Set aside 5 to 10 minutes to complete this task.

Task 1. Create the Flat File Data Object

In this task, you use the **Add Flat File** wizard to create a flat file data objects from the LA_Customers data file.

1. In the **Projects** Navigator, select the Customers folder in your tutorial project.

   Note: You must select the project or folder where you want to create the flat file data object before you can create it.
2. Click **New** > **Flat File Data Object**.

   The **Add Flat File** wizard appears in the **Discovery** workspace.
3. Select **Browse and Upload**, and click **Browse**.
4. Browse to the location of LA_Customers.csv, and click **Open**.
5. Click **Next**.

   The **Choose type of import** page displays **Delimited** and **Fixed-width** options. The default option is **Delimited**.
6. Click **Next**.
7. Under **Specify the delimiters and text qualifiers used in the data**, select **Double quotes** as a text qualifier.
8. Under **Specify lines to import**, select **Import from first line** to import column names from the first line that is not empty.
9. Click **Next.**

   The **Column Attributes** section shows the name, data type, precision, scale, and format for each column.
10. Click **Next**.

    The **Name** field displays **LA_Customers**.
11. Optionally, change the name of the file and add a description.
12. In the **Folders** section, select the **Customers** folder.
13. Click **Finish**.

    The LA_Customers data object appears in the **Discovery** workspace with the data preview of the source data.

Task 2. View the Data Object Properties

In this task, you can view the properties of the LA_Customers data object.

1. Click **Open** to open the **Library** workspace.
2. In the **Library** workspace, click **Data Objects** in the **Assets** panel.

   A list of data objects appears in the **Data Objects** panel.
3. Click **LA_Customers** flat file.

   The **Data Preview** panel appears with the data retrieved from the LA_Customers data object.
4. In the **Data Preview** panel, review the structure and content of the LA_Customers data object.

   The Analyst tool displays the first 100 rows of the flat file data object.

5. Click **Properties**.

   The **Properties** panel displays the name, type, description, and location of the data object. You can also see the column names and column properties for the data object.

Creating Data Objects Summary

In this lesson, you learned that data objects are representations of data based on a flat file or a relational database source. You learned that you can create a flat file data object and preview the data in it.

You uploaded a flat file and created a flat file data object, previewed the data for the data object, and viewed the properties for the data object.

After you create a data object, you create a default profile for the data object in Lesson 3, and you create a custom profile for the data object in Lesson 4.

CHAPTER 4

Lesson 3. Creating Default Profiles

This chapter includes the following topics:

- Creating Default Profiles Overview, 24
- Task 1. Create and Run a Default Profile, 25
- Task 2. View the Profile Results in Summary View, 25
- Task 3. View the Profile Results in Detailed View, 26
- Creating Default Profiles Summary, 26

Creating Default Profiles Overview

A profile is the analysis of data quality based on the content and structure of data. A default profile is a profile that you create with default options. Use a default profile to get profile results without configuring all columns and options for a profile.

Create and run a default profile to analyze the quality of the data when you start a data quality project. When you create a default profile object, you select the data object and the data object columns that you want to analyze. A default profile skips the profile column and option configuration. The Analyst tool performs profiling on the live flat file for the flat file data object.

Story

HypoStores wants to incorporate data from the newly-acquired Los Angeles office into its data warehouse. Before the data can be incorporated into the data warehouse, it needs to be cleansed. You are the analyst who is responsible for assessing the quality of the data and passing the information on to the developer who is responsible for cleansing the data. You want to view the profile results quickly and get a basic idea of the data quality.

Objectives

In this lesson, you complete the following tasks:

1. Create and run a default profile for the LA_Customers flat file data object.
2. View the profile results.

Prerequisites

Before you start this lesson, verify the following prerequisite:

- You have completed lessons 1 and 2 in this tutorial.

Timing

Set aside 5 to 10 minutes to complete this lesson.

Task 1. Create and Run a Default Profile

In this task, you create a default profile for all columns in the data object and use default sampling and drill-down options.

1. In the **Library** workspace, select a data object in the **Assets** panel.
2. Right-click the data object and select **Create Profile**.

   The **New Profile** wizard appears.
3. In the **Specify General Properties** screen, the name, description, and location is populated by default.
4. Click **Next**.
5. In the **Select Source** screen, the data object appears by default. You can view the columns in the **Choose Columns** pane.
6. Click **Next**.
7. In the **Specify Settings** screen, the following options are selected by default:
   - **Run column profile**
   - **All rows** in the **Run profile on** pane
   - **Live** in the **Drilldown** pane
   - **Exclude approved data types and data domains from the data type and data domain inference in the subsequent profile runs.**
   - **Native** option in the **Run-time environment** pane.
8. Click **Next**.
9. In the **Specify Rules and Filters** screen, click **Save and Run** to create and run the profile.

   The Analyst tool creates and runs the profile. The profile results appear in the summary view.

Task 2. View the Profile Results in Summary View

In this task, you use the summary view for the LA_Customers profile to get a quick overview of the profile results.

1. In the **Library** > **Assets** > **Profiles** pane, click the **LA_Customers** profile.

   The profile results appear in the summary view.
2. In the summary view, click **Columns** in the **Filter By** pane to view the profile results for columns.
3. Move the pointer over the horizontal bar charts to view the values in percentages.

4. In the **Null Distinct Non-Distinct %** section, you can view the null values, distinct values, and non-distinct values in percentages for a column.
5. In the **Pattern** section, you can view multiple patterns in the column as horizontal bar charts. You can view the pattern characters and the number of similar patterns in a column as a percentage when you move the pointer over the bar chart.
6. In the **Length** section, you can view the minimum and maximum length of the values in the column.
7. In the **Value** section, you can view the minimum and maximum values in a column.
8. In the **Data Type** section, you can view all the inferred data types and documented data types for a column when you move the pointer over the values.
9. In the **Data Domain** section, you can view all the inferred data domains for a column when you move the pointer over the values.
10. To view the outlier data, click **Actions** > **Detect Outlier** to detect outliers in the profile results.
11. Click **Pattern outlier** or **Value frequency outlier** filters to view the outliers in the profile results.
12. Click a column name to view the profile results for the column in the detailed view.

Task 3. View the Profile Results in Detailed View

In this task, you use the detailed view for the LA_Customers profile to get a quick overview of a column in the profile results.

1. Click a column name in the summary view to view the profile results for the column in the detailed view.

   The profile results for the column appears in the detailed view.
2. In the **General** pane, you can view the null, distinct, and non-distinct values as a horizontal bar chart and in percentages.
3. In the **Values** pane, you can view all the values in the upper panel. When you slide the slider over the values in the upper panel, all the values within the slider appears in the lower panel.
4. In the **Data Preview** pane, click **Actions** > **Show Preview** to view the source data.
5. In the **Patterns** pane, you can view the inferred patterns in the column as a horizontal bar chart and in percentages.
6. In the **Data type** pane, you can view the inferred data types in the column as a horizontal bar chart and in percentages.
7. In the **Data Domain** pane, you can view the inferred data domains.

Creating Default Profiles Summary

In this lesson, you learned that a default profile shows profile results without configuring all columns and row sampling options for a profile. You learned that you create and run a default profile to analyze the quality of

the data when you start a data quality project. You also learned that the Analyst tool performs profiling on the live flat file for the flat file data object.

You created a default profile and analyzed the profile results. You got more information about the columns in the profile, including null values and data types. You also used the column values and patterns to identify data quality issues.

After you analyze the results of a quick profile, you can complete the following tasks:

- Create a custom profile to exclude columns from the profile and only include the columns you are interested in.
- Create an expression rule to create virtual columns and profile them.
- Create a reference table to include valid values for a column.

CHAPTER 5

Lesson 4. Creating Custom Profiles

This chapter includes the following topics:

- Creating Custom Profiles Overview, 28
- Task 1. Create a Custom Profile, 29
- Task 2. Run the Profile, 30
- Task 3. Drill Down on Profile Results, 30
- Creating Custom Profiles Summary, 31

Creating Custom Profiles Overview

A profile is the analysis of data quality based on the content and structure of data. A custom profile is a profile that you create when you want to configure the columns, sampling options, and drilldown options for faster profiling. Configure sampling options to select the sample rows in the source. Configure drilldown options to drill down to data rows in the source data or staged data. You can choose to run the profile in a Hadoop or native environment.

You create and run a profile to analyze the quality of the data when you start a data quality project. When you create a profile object, you start by selecting the data object and data object columns that you want to run a profile on.

Story

HypoStores needs to incorporate data from the newly-acquired Los Angeles office into its data warehouse. HypoStores wants to access the quality of the customer tier data in the LA customer data file. You are the analyst responsible for assessing the quality of the data and passing the information on to the developer responsible for cleansing the data.

Objectives

In this lesson, you complete the following tasks:

1. Create a custom profile for the flat file data object and exclude the columns with null values.
2. Run the profile to analyze the content and structure of the CustomerTier column.
3. Drill down into the rows for the profile results.

Prerequisites

Before you start this lesson, verify the following prerequisite:

- You have completed lessons 1, 2, and 3 in this tutorial.

Timing

Set aside 5 to 10 minutes to complete this lesson.

Task 1. Create a Custom Profile

In this task, you create a custom profile. When you create a custom profile, you select the data object and the columns that you want to run a profile on. You also configure the sampling and drill-down options.

1. Click **New** > **Profile**.

   The **New Profile** wizard appears.
2. The **Single source** option is selected by default. Click **Next**.
3. In the **Specify General Properties** screen, set the following options:
   - In the Name field, enter **Profile_LA_Customers**.
   - In the Location field, select the **Customers** folder.
4. Click **Next**.
5. In the **Select Source** screen, click **Choose**.

   The **Choose Data Object** dialog box appears.
6. In the **Choose Data Object** dialog box, select **LA_Customers**. Click **OK**.
7. In the **Select Source** screen, clear the Address2, Address3, and City2 columns.
8. Click **Next**.
9. In the **Specify Settings** screen, set the following options:
   - **Run column profile**.
   - Select the **Random sample** option in the **Run profile on** pane.
   - Select **Exclude approved data types and data domains from the data type and data domain inference in the subsequent profile runs** option.
   - Select the **Staged** option in the **Drilldown** pane.
10. Click **Next**.
11. In the **Specify Rules and Filters** screen, click **Save and Finish** to create and run the profile.

    The Analyst tool creates the profile and displays the profile in the **Discovery** workspace. You need to run the profile to view the results.

Task 2. Run the Profile

In this task, you run a profile to perform profiling on the data object and display the profile results. The Analyst tool performs profiling on the staged flat file for the flat file data object.

1. Verify that you are in the **Discovery** workspace.

   You can see the profile **Profile_LA_Customers_Custom** in the workspace.
2. Click **Profile_LA_Customers_Custom** in the workspace.
3. The profile screen appears where you can choose to edit the profile or run the profile. Click **Run**.

   The profile results appear in the summary view.

Task 3. Drill Down on Profile Results

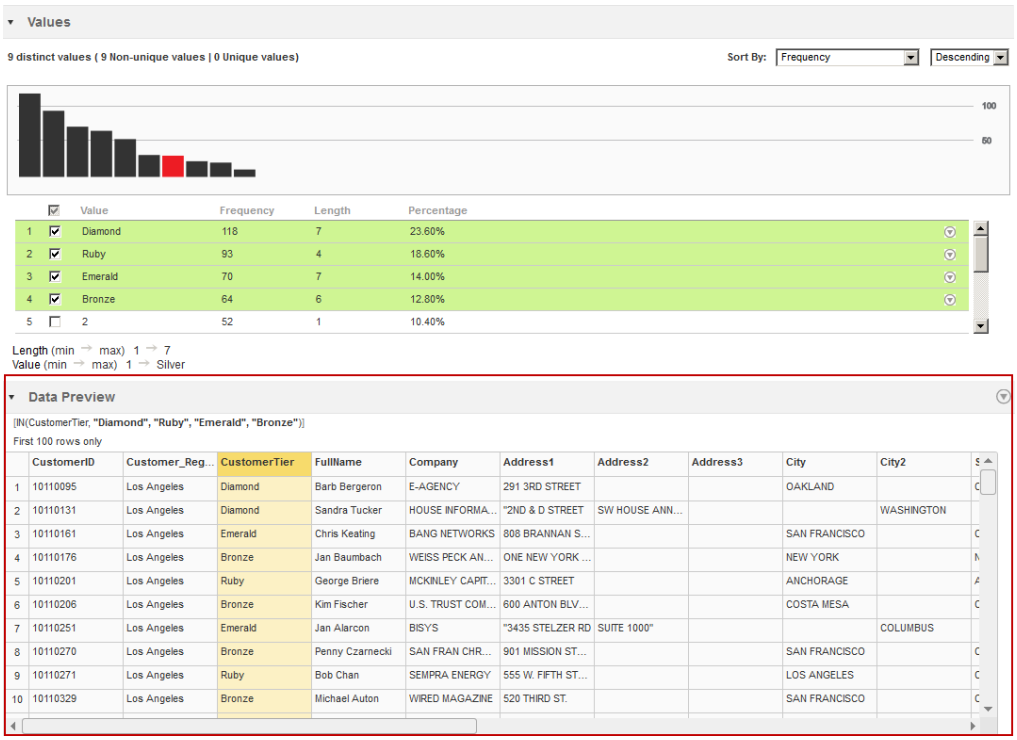
In this task, you drill down on the CustomerTier column values to see the source rows in the data object for the profile.

1. Verify that you are in the summary view of the profile results for the **Profile_LA_Customers** profile.
2. Click the **CustomerTier** column.

   The profile results for the column appear in the detailed view.

3. In the detailed view, select the Diamond, Ruby, Emerald, and Bronze values. Right-click on the values in the **Values** pane, and select **Drilldown**.

   The rows for the column with a value of Diamond, Ruby, Emerald, or Bronze appear in the **Data Preview** pane.
   The following image shows the drill-down results in the **Data Preview** pane when you drill down on values Diamond, Ruby, Emerald, or Bronze:



   The **Data Preview** pane displays the first 100 rows for the selected column. The title of the **Data Preview** pane shows the logic used for the source column.

Creating Custom Profiles Summary

In this lesson, you learned that you can configure the columns that get profiled and that you can configure the sampling and drilldown options. You learned that you can drill down to see the underlying rows for column values and that you can configure the columns that are included when you view the column values.

You created a custom profile that included the CustomerTier column, ran the profile, and drilled down to the underlying rows for the CustomerTier column in the results.

Use the custom profile object to create an expression rule in lesson 5.

CHAPTER 6

Lesson 5. Creating Expression Rules

This chapter includes the following topics:

- Creating Expression Rules Overview, 32
- Task 1. Create Expression Rules and Run the Profile, 33
- Task 2. View the Expression Rule Output, 33
- Task 3. Edit the Expression Rules, 34
- Creating Expression Rules Summary, 34

Creating Expression Rules Overview

Expression rules use expression functions and source columns to define rule logic. You can create expression rules and add them to a profile in the Analyst tool. An expression rule can be associated with one or more profiles.

The output of an expression rule is a virtual column in the profile. The Analyst tool profiles the virtual column when you run the profile.

You can use expression rules to validate source columns or create additional source columns based on the value of the source columns.

Story

HypoStores wants to incorporate data from the newly-acquired Los Angeles office into its data warehouse. HypoStores wants to analyze the customer names and separate customer names into first name and last name. HypoStores wants to use expression rules to parse a column that contains first and last names into separate virtual columns and then profile the columns. HypoStores also wants to make the rules available to other analysts who need to analyze the output of these rules.

Objectives

In this lesson, you complete the following tasks:

1. Create expression rules to separate the FullName column into first name and last name columns. You create a rule that separates the first name from the full name. You create another rule that separates the last name from the first name. You create these rules for the Profile_LA_Customers profile.
2. Run the profile and view the output of the rules in the profile.

3. Edit the rules to make them usable for other Analyst tool users.

Prerequisites

Before you start this lesson, verify the following prerequisite:

- You have completed Lessons 1 through 4.

Timing

Set aside 10 to 15 minutes to complete this lesson.

Task 1. Create Expression Rules and Run the Profile

In this task, you create two expression rules to parse the FullName column into two virtual columns named FirstName and LastName. The rule names are FirstName and LastName.

1. In the **Library** workspace, click the **Profile_LA_Customers** profile.

   The profile results appear in summary view.
2. Click **Edit**.

   The **Profile** wizard appears.
3. Click **Specify Rules and Filters** screen.
4. In the **Rules** pane, click **Actions** > **Create Rule**.
5. In the **Name** field, enter **FirstName**.
6. In the **Expression** section, enter the following expression to separate the first name from the **Name** column:

   ```
   SUBSTR(FullName,1,INSTR(FullName,' ' ,-1,1 ) - 1)
   ```
7. Click **Validate**.
8. Click **OK**.
9. Repeat steps 4 through 8 to create a rule named **LastName**. Enter the following expression to separate the last name from the **Name** column:

   ```
   SUBSTR(FullName,INSTR(FullName,' ',-1,1),LENGTH(FullName))
   ```
10. Click **Save and Run** to save and run the profile.

Task 2. View the Expression Rule Output

In this task, you view the output of expression rules that separates first and last names after you run a profile.

1. In the summary view, click **Edit**.

   The profile wizard appears
2. In the profile wizard, click **Select Source**.
3. In the **Select Source** screen, select the check box next to **Name** on the toolbar to clear all columns.

   One of the columns is selected by default because you need to select at least one column in the **Columns** section.

4. Select the **FullName** column and the **FirstName** and **LastName** rules.
5. Clear any other column that is selected.
6. Click **Save and Run**.

   The profile results appear in the summary view.
7. Click the **FirstName** rule, the profile results for the rule appears in detailed view.
8. Select a value in the **Values** pane. Right-click on the value and click **Drilldown**.

   The values for the **FullName** column and the **FirstName** and **LastName** rules appear in the **Data Preview** pane along with other column values. Notice that the Analyst tool separates the **FullName** column into first name and last name.

Task 3. Edit the Expression Rules

In this task, you make the expression rules reusable and available to all Analyst tool users.

1. In the summary view for the **Profile_LA_Customers** profile, click **Edit**.

   The profile wizard appears.
2. Click the **Specify Rules and Filters** screen.
3. In the **Specify Rules and Filters** screen, select the **FirstName** rule and click **Actions** > **Edit Rule**.

   The **Edit Rule** dialog box appears.
4. Select the **Do you want to save this rule as a reusable rule?** option, and choose a location to save the rule.
5. Click **OK**.
6. Select the **LastName** rule, and repeat steps 3 through 5.
7. Click **Save and Finish** to save the profile.

   Any Analyst tool user can use the FirstName and LastName rules to split a column with first and last names into separate columns.

Creating Expression Rules Summary

In this lesson, you learned that expression rules use expression functions and source columns to define rule logic. You learned that the output of an expression rule is a virtual column in the profile. The Analyst tool includes the virtual column when you run the profile.

You created two expression rules, added them to a profile, and ran the profile. You viewed the output of the rules and made them available to all Analyst tool users.

CHAPTER 7

Lesson 6. Creating and Running Scorecards

This chapter includes the following topics:

- Creating and Running Scorecards Overview, 35
- Task 1. Create a Scorecard from the Profile Results, 36
- Task 2. Run the Scorecard, 37
- Task 3. View the Scorecard, 37
- Task 4. Edit the Scorecard, 38
- Task 5. Configure Thresholds, 39
- Task 6. View Score Trend Charts, 39
- Creating and Running Scorecards Summary, 39

Creating and Running Scorecards Overview

A scorecard is the graphical representation of valid values for a column or the output of a rule in profile results. Use scorecards to measure and monitor data quality progress over time.

To create a scorecard, you add columns from the profile to a scorecard as metrics, assign weights to metrics, and configure the score thresholds. You can add filters to the scorecards based on the source data. To run a scorecard, you select the valid values for the metric and run the scorecard to see the scores for the metrics.

Scorecards display the value frequency for columns in a profile as scores. Scores reflect the percentage of valid values for a metric.

Story

HypoStores wants to incorporate data from the newly-acquired Los Angeles office into its data warehouse. Before the organization merges the data, they want to verify that the data in different customer tiers and states is analyzed for data quality. You are the analyst who is responsible for monitoring the progress of performing the data quality analysis. You want to create a scorecard from the customer tier and state profile columns, configure thresholds for data quality, and view the score trend charts to determine how the scores improve over time.

Objectives

In this lesson, you will complete the following tasks:

1. Create a scorecard from the results of the Profile_LA_Customers_Custom profile to view the scores for the CustomerTier and State columns.
2. Run the scorecard to generate the scores for the CustomerTier and State columns.
3. View the scorecard to see the scores for each column.
4. Edit the scorecard to specify different valid values for the scores.
5. Configure score thresholds, and run the scorecard.
6. View score trend charts to determine how scores improve over time.

Prerequisites

Before you start this lesson, verify the following prerequisite:

- You have completed lessons 1 through 5 in this tutorial.

Timing

Set aside 15 minutes to complete the tasks in this lesson.

Task 1. Create a Scorecard from the Profile Results

In this task, you create a scorecard from the Profile_LA_Customers_Custom profile to score the CustomerTier and State column values.

1. In the **Library** workspace, click the **Profile_LA_Customers** profile.

   The summary view of the profile results appear.
2. In the summary view, select the **CustomerTier** column, and right-click on the column, and select **Add to** > **Scorecard**.

   The **Add to Scorecard** wizard appears.
3. In the **Add to Scorecard** wizard, the **New Scorecard** option is selected by default. Click **Next**.
4. In the **Step 2 of 8** screen, enter **sc_LA_Customer** for the scorecard name, and navigate to the **Customers** folder for the scorecard location.
5. Click **Next**.
6. In the **Step 3 of 8** screen, select the **CustomerTier** and **State** columns to add to the scorecard.
7. Click **Next**.
8. In the **Step 4 of 8** screen, you can create, edit, or delete filters for the metrics. In this tutorial, we will not create a scorecard filter. Click **Next**.
9. In the **Step 5 of 8** screen, select the **CustomerTier** metric in the **Metrics** pane.
10. In the **Score using: Values** pane, select all the values, and click the **Add All** button to move the values to the **Valid Values** section.

    Use the **Shift** key to select multiple values.
11. In the **Metrics** pane, select the **State** metric, and select those values that have two letter state codes in the **Score using: Values** section.
12. Click the **Add** button to move the values to the **Valid Values** section.

You can see the total number of valid values and valid value percentage at the top of the section.

13. For each metric in the **Metrics** section, accept the default settings for the score thresholds in the **Metric Thresholds** section.
14. Click **Next**.
15. In the **Step 6 of 8** screen, you can optionally select a metric group to add the metrics. By default, the Analyst tool adds the metrics to the **Default** metric group.
16. Click **Next**.
17. In the **Step 7 of 8** screen, double-click the **Weight** column for the **CustomerTier** metric in the **Default - Metrics** pane.

    When you run a scorecard, the Analyst tool calculates the weighted average for each metric group based on the metric score and weight you assign to each metric.
18. Enter a weight for the **CustomerTier** and **State** metrics.
19. Click **Next**.
20. In the **Step 8 of 8** screen, the **Native** option is selected by default. Click **Save** to create the scorecard.

    The scorecard appears in the **Scorecards** workspace.

Task 2. Run the Scorecard

In this task, you run the sc_LA_Customer scorecard to generate the scores for the CustomerTier and State columns.

1. In the **Library** workspace, click **Assets** > **Scorecards**.
2. Select a scorecard in the **Scorecards** pane.
3. Click **Actions** > **Open**.

   The scorecard appears.
4. Click **Actions** > **Run Scorecard**

   The **Run Scorecard** dialog box appears.
5. Verify the settings in the dialog box, and click **Run**.

   The **Scorecards** workspace displays the scores for the CustomerTier and State columns.

Task 3. View the Scorecard

In this task, you view the sc_LA_Customer scorecard to see the scores for the CustomerTier and State columns.

1. Select the **State** row that contains the State score you want to view.

   In the **sc_LA_Customer - metrics** section, you can view the following properties of the scorecard:

   - Scorecard name.
   - Total number of rows in the scorecard.

- Number of rows that are not valid.
- Score along with a horizontal bar chart.
- Score trend. You can click on the score trend to view a graphical representation in the **Trend Chart Detail** screen.
- Weight of the metric.
- Cost of invalid data.
- Cost trend.
- Data object. Click the data object to view the data preview of the data object in the **Discovery** workspace.
- Column or rule name.
- Type of source.
- Drilldown icon.

2. Click the drilldown icon in the State row.

   The scores that are not valid for the State column appears in the **Invalid Rows** section in the **Drilldown** pane.
3. Select **Valid Rows** to view the scores that are valid for the State column.
4. Click the drilldown icon in the **CustomerTier** row.

   All scores for the **CustomerTier** column are valid.

Task 4. Edit the Scorecard

In this task, you edit the sc_LA_Customer scorecard to specify the Ruby value as not valid for the CustomerTier score.

1. Verify the you are in the **Scorecard** workspace, and the sc_LA_Customer scorecard is open.
2. Select **Actions** > **Edit** > **Metrics**.

   The **Edit Scorecard** dialog box appears.
3. In the **Metrics** section, select **CustomerTier**.
4. In the **Score using: Values** section, move **Ruby** from the **Valid Values** section to the **Available Values** section.

   Accept the default settings in the **Metric Thresholds** section.
5. Click **Save & Run** to save the changes to the scorecard and run it.
6. View the CustomerTier score again.

   The CustomerTier score changes to 81.4 percentage.

Task 5. Configure Thresholds

In this task, you configure thresholds for the State score in the sc_LA_Customer scorecard to determine the acceptable ranges for the data in the State column. Values with a two letter code, such as CA are acceptable, and codes with more than two letters such as Calif are not acceptable.

1. Verify the you are in the **Scorecard** workspace, and the sc_LA_Customer scorecard is open.
2. Select **Actions** > **Edit** > **Metrics**.

   The **Edit Scorecard** dialog box appears.
3. In the **Metrics** section, select **State**.
4. In the **Metric Thresholds** section, enter the following ranges for the Good and Unacceptable scores: 90 to 100% Good; 0 to 50% Unacceptable; 51% to 89% Acceptable.

   The thresholds represent the lower bounds of the acceptable and good ranges.
5. Click **Save & Run** to save the changes to the scorecard and run it.

   In the **Scorecard** panel, view the changes to the score percentage and the score displayed as a bar for the State score.

Task 6. View Score Trend Charts

In this task, you view the trend chart for the State score. You can view trend charts to monitor scores over time.

1. Verify the you are in the **Scorecard** workspace, and the sc_LA_Customer scorecard is open.
2. Select **State** row.
3. Click **Actions** > **Show Trend Chart**, or click the arrow under the **Score Trend** column.

   The **Trend Chart Detail** dialog box appears. You can view the **Good**, **Acceptable**, and **Unacceptable** thresholds for the score. The thresholds change each time you run the scorecard after editing the values for scores in the scorecard.
4. Point to any circle in the chart to view the valid values in the **Valid Values** section at the bottom of the chart.
5. Click **Close** to return to the scorecard.

Creating and Running Scorecards Summary

In this lesson, you learned that you can create a scorecard from the results of a profile. A scorecard contains the columns from a profile. You learned that you can run a scorecard to generate scores for columns. You edited a scorecard to configure valid values and set thresholds for scores. You also learned how to view the score trend chart.

You created a scorecard from the CustomerTier and State columns in a profile to analyze data quality for the customer tier and state columns. You ran the scorecard to generate scores for each column. You edited the scorecard to specify different valid values for scores. You configured thresholds for a score and viewed the score trend chart.

CHAPTER 8

Lesson 7. Creating Reference Tables from Profile Columns

This chapter includes the following topics:

- Creating Reference Tables from Profile Columns Overview, 40
- Task 1. Create a Reference Table from Profile Columns, 41
- Task 2. Edit the Reference Table, 42
- Creating Reference Tables from Profile Columns Summary, 42

Creating Reference Tables from Profile Columns Overview

A reference table contains reference data that you can use to standardize source data. Reference data can include valid and standard values. Create reference tables to establish relationships between source data values and the valid and standard values.

You can create a reference table from the results of a profile. After you create a reference table, you can edit the reference table to add columns or rows and add or edit standard and valid values. You can view the changes made to a reference table in an audit trail.

Story

HypoStores wants to profile the data to uncover anomalies and standardize the data with valid values. You are the analyst who is responsible for standardizing the valid values in the data. You want to create a reference table based on valid values from profile columns.

Objectives

In this lesson, you complete the following tasks:

1. Create a reference table from the CustomerTier column in the Profile_LA_Customers_Custom profile by selecting valid values for columns.
2. Edit the reference table to configure different valid values for columns.

Prerequisites

Before you start this lesson, verify the following prerequisite:

- You have completed lessons 1 through 6 in this tutorial.

Timing

Set aside 15 minutes to complete the tasks in this lesson.

Task 1. Create a Reference Table from Profile Columns

In this task, you create a reference table and add the CustomerTier column from the Profile_LA_Customers profile to the reference table.

1. In the **Library** workspace, click **Assets** > **Profiles**.
2. Click **Profile_LA_Customers** profile to open the profile results in summary view.
3. In the summary view, select the CustomerTier column that you want to add to the reference table. Right-click and select **Add to Reference Table**.

   The **Add to Reference Table** dialog box appears.
4. Select **Create a reference table**.
5. Click **Next**.
6. In the **Name** field, enter **Reftab_CustTier_HypoStores**.
7. Enter a description and set 0 as the default value.

   The Analyst tool uses the default value for any table record that does not contain a value.
8. Click **Next**.
9. In the **Column Attributes** section, configure the following column properties for the CustomerTier column:

Property	Description
Name	CustomerTier
Data type	String
Precision	10
Description	Reference customer tier values

10. Optionally, choose to create a description column for rows in the reference table. Enter the name and precision for the column.
11. Verify the CustomerTier column values in the **Preview** section.
12. Click **Next**.

    The Reftab_CustomerTier_HypoStores reference table name appears. You can enter an optional description.
13. In the **Save in** section, select your tutorial project where you want to create the reference table.

    The **Reference Tables:** panel lists the reference tables in the location you select.
14. Enter an optional audit note.
15. Click **Finish**.

Task 2. Edit the Reference Table

In this task, you edit the Reftab_CustomerTier_HypoStores table to add alternate values for the customer tiers.

1. In the **Library** workspace, click **Assets** > **Reference Tables**.
2. Click the Reftab_CustomerTier_HypoStores reference table.

   The reference table opens in the **Design** workspace.
3. To edit a row, select the row and click **Actions** > **Edit** or click the **Edit** icon.

   The **Edit Row** dialog box appears. Optionally, select multiple rows to add the same alternate value to each row.
4. Enter the following alternate values for the Diamond, Emerald, Gold, Silver, and Bronze rows: 1, 2, 3, 4, 5.

   Enter an optional audit note.
5. Click **Apply** to apply the changes.
6. Click **Close**.

   The changed reference table values appear in the **Design** workspace.

Creating Reference Tables from Profile Columns Summary

In this lesson, you learned how to create reference tables from the results of a profile to configure valid values for source data.

You created a reference table from a profile column by selecting valid values for columns. You edited the reference table to configure different valid values for columns.

CHAPTER 9

Lesson 8. Creating Reference Tables

This chapter includes the following topics:

- Creating Reference Tables Overview, 43
- Task 1. Create a Reference Table, 44
- Creating Reference Tables Summary, 44

Creating Reference Tables Overview

A reference table contains reference data that you can use to standardize source data. Reference data can include valid and standard values. Create reference tables to establish relationships between the source data values and the valid and standard values.

You can manually create a reference table using the reference table editor. Use the reference table to define and standardize the source data. You can share the reference table with a developer to use in Standardizer and Lookup transformations in the Developer tool.

Story

HypoStores wants to standardize data with valid values. You are the analyst who is responsible for standardizing the valid values in the data. You want to create a reference table to define standard customer tier codes that reference the LA customer data. You can then share the reference table with a developer.

Objectives

In this lesson, you complete the following task:

- Create a reference table using the reference table editor to define standard customer tier codes that reference the LA customer data.

Prerequisites

Before you start this lesson, verify the following prerequisite:

- You have completed lessons 1 and 2 in this tutorial.

Timing

Set aside 10 minutes to complete the task in this lesson.

Task 1. Create a Reference Table

In this task, you will create the Reftab_CustomerTier_Codes reference table to standardize the valid values for the customer tier data.

1. Click **New** > **Reference Table**.

   The **New Reference Table** wizard appears.
2. Select **Use the reference table editor**.
3. Click **Next**.
4. For each column you want to include in the reference table, click the **Add New Column** icon and configure the column properties for each column.

   Add the following column names: CustomerID, CustomerTier, and Status. You can reorder the columns or delete columns.
5. Enter an optional description and set the default value to **0**.

   The Analyst tool uses the default value for any table record that does not contain a value.
6. Click **Next**.
7. In the **Name** field, enter **Reftab_CustomerTier_Codes**.
8. In the **Folders** section, select the **Customers** folder in the tutorial project.
9. Click **Finish**.

   The reference table appears in the **Design** workspace.
10. From the **Actions** menu, select **Add Row** to populate each reference table column with the following four values:

    CustomerID = LA1, LA2, LA3, LA4

    CustomerTier = 1, 2, 3, 4.

    Status= Active, Inactive

Creating Reference Tables Summary

In this lesson, you learned how to create reference tables using the reference table editor to create standard valid values to use with source data.

You created a reference table using the reference table editor to standardize the customer tier values for the LA customer data.

Part II: Getting Started with Informatica Developer

This part contains the following chapters:

- Lesson 1. Setting Up Informatica Developer, 46
- Lesson 2: Importing Physical Data Objects, 50
- Lesson 3. Run a Profile on Source Data, 59

CHAPTER 10

Lesson 1. Setting Up Informatica Developer

This chapter includes the following topics:

- Setting Up Informatica Developer Overview, 46
- Task 1. Start Informatica Developer, 47
- Task 2. Add a Domain, 47
- Task 3. Add a Model Repository, 48
- Task 4. Create a Project, 48
- Task 5. Create a Folder, 48
- Task 6. Select a Default Data Integration Service, 49
- Setting Up Informatica Developer Summary, 49

Setting Up Informatica Developer Overview

Before you start the lessons in this tutorial, you must start and set up the Developer tool. To set up the Developer tool, you add a domain. You add a Model repository that is in the domain, and you create a project and folder to store your work. You must also select a default Data Integration Service if the domain includes more than one service.

The Informatica domain is a collection of nodes and services that define the Informatica environment. Services in the domain include the Model Repository Service and the Data Integration Service.

The Model Repository Service manages the Model repository. The Model repository is a relational database that stores the metadata for projects that you create in the Developer tool. A project stores objects that you create in the Developer tool. A project can also contain folders that store related objects, such as objects that are part of the same business requirement.

The Data Integration Service performs data integration tasks in the Developer tool.

Objectives

In this lesson, you complete the following tasks:

- Start the Developer tool and go to the Developer tool workbench.
- Add a domain in the Developer tool.
- Add a Model repository so that you can create a project.

- Create a project to store the objects that you create in the Developer tool.
- Create a folder in the project that can store related objects.
- Select a default Data Integration Service to perform data integration tasks.

Prerequisites

Before you start this lesson, verify the following prerequisites:

- You have installed the Developer tool.
- You have a domain name, host name, and port number to connect to a domain. You can get this information from a domain administrator.
- A domain administrator has configured a Model Repository Service in the Administrator tool.
- You have a user name and password to access the Model Repository Service. You can get this information from a domain administrator.
- A domain administrator has configured a Data Integration Service.
- The Data Integration Service is running.

Timing

Set aside 5 to 10 minutes to complete the tasks in this lesson.

Task 1. Start Informatica Developer

Start the Developer tool to begin the tutorial.

1. Start the Developer tool.

   The **Welcome** page of the Developer tool appears.
2. Click the **Workbench** button.

   The Developer tool workbench appears.

Task 2. Add a Domain

In this task, you add a domain in the Developer tool to access a Model repository.

1. Click **Window** > **Preferences**.

   The **Preferences** dialog box appears.
2. Select **Informatica** > **Domains**.
3. Click **Add**.

   The **New Domain** dialog box appears.
4. Enter the domain name, host name, and port number.
5. Click **Finish**.
6. Click **OK**.

Task 3. Add a Model Repository

In this task, you add the Model repository that you want to use to store projects and folders.

1. Click **File** > **Connect to Repository**.

   The **Connect to Repository** dialog box appears.
2. Click **Browse** to select a Model Repository Service.
3. Click **OK**.
4. Click **Next**.
5. Enter your user name and password.
6. Select a namespace.
7. Click **Finish**.

   The Model repository appears in the **Object Explorer** view.

Task 4. Create a Project

In this task, you create a project to store objects that you create in the Developer tool. You can create one project for all tutorials in this guide.

1. In the **Object Explorer** view, select a Model Repository Service.
2. Click **File** > **New** > **Project**.

   The **New Project** dialog box appears.
3. Enter your name prefixed by "Tutorial_" as the name of the project.
4. Click **Finish**.

   The project appears under the Model Repository Service in the **Object Explorer** view.

Task 5. Create a Folder

In this task, you create a folder to store related objects. You can create one folder for all tutorials in this guide.

1. In the **Object Explorer** view, select the project that you want to add the folder to.
2. Click **File** > **New** > **Folder**.
3. Enter a name for the folder.
4. Click **Finish**.

   The Developer tool adds the folder under the project in the **Object Explorer** view. Expand the project to see the folder.

Task 6. Select a Default Data Integration Service

In this task, you select a default Data Integration Service so you can run mappings and preview data. This step is required if there is more than one Data Integration Service in the domain. If the domain contains one Data Integration Service, this service is set as the default.

1. Click **Window** > **Preferences**.

   The **Preferences** dialog box appears.
2. Select **Informatica** > **Data Integration Services**.
3. Expand the domain.
4. Select a Data Integration Service.
5. Click **Set as Default**.
6. Click **OK**.

Setting Up Informatica Developer Summary

In this lesson, you learned that the Informatica domain includes the Model Repository Service and Data Integration Service. The Model Repository Service manages the Model repository. A Model repository contains projects and folders. The Data Integration Service performs data integration tasks.

You started the Developer tool and set up the Developer tool. You added a domain to the Developer tool, added a Model repository, and created a project and folder. You also selected a default Data Integration Service.

Now, you can use the Developer tool to complete other lessons in this tutorial.

CHAPTER 11

Lesson 2: Importing Physical Data Objects

This chapter includes the following topics:

- Importing Physical Data Objects Overview, 50
- Task 1. Import the Boston_Customers Flat File Data Object, 51
- Task 2. Import the LA_Customers Flat File Data Object, 57
- Task 3. Importing the All_Customers Flat File Data Object, 58
- Importing Physical Data Objects Summary, 58

Importing Physical Data Objects Overview

A physical data object is a representation of data based on a flat file or relational database table. You can import a flat file or relational database table as a physical data object to use as a source or target in a mapping.

Story

HypoStores Corporation stores customer data from the Los Angeles office and Boston office in flat files. You want to work with this customer data in the Developer tool. To do this, you need to import each flat file as a physical data object.

Objectives

In this lesson, you import flat files as physical data objects. You also set the source file directory so that the Data Integration Service can read the source data from the correct directory.

Prerequisites

Before you start this lesson, verify the following prerequisite:

- You have completed lesson 1 in this tutorial.

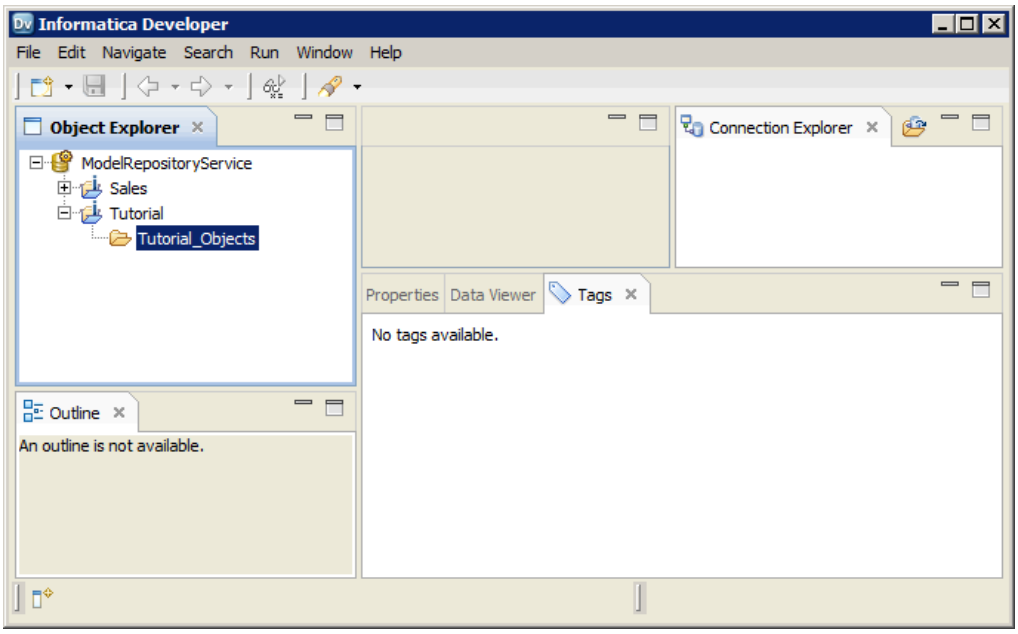
Timing

Set aside 10 to 15 minutes to complete the tasks in this lesson.

Task 1. Import the Boston_Customers Flat File Data Object

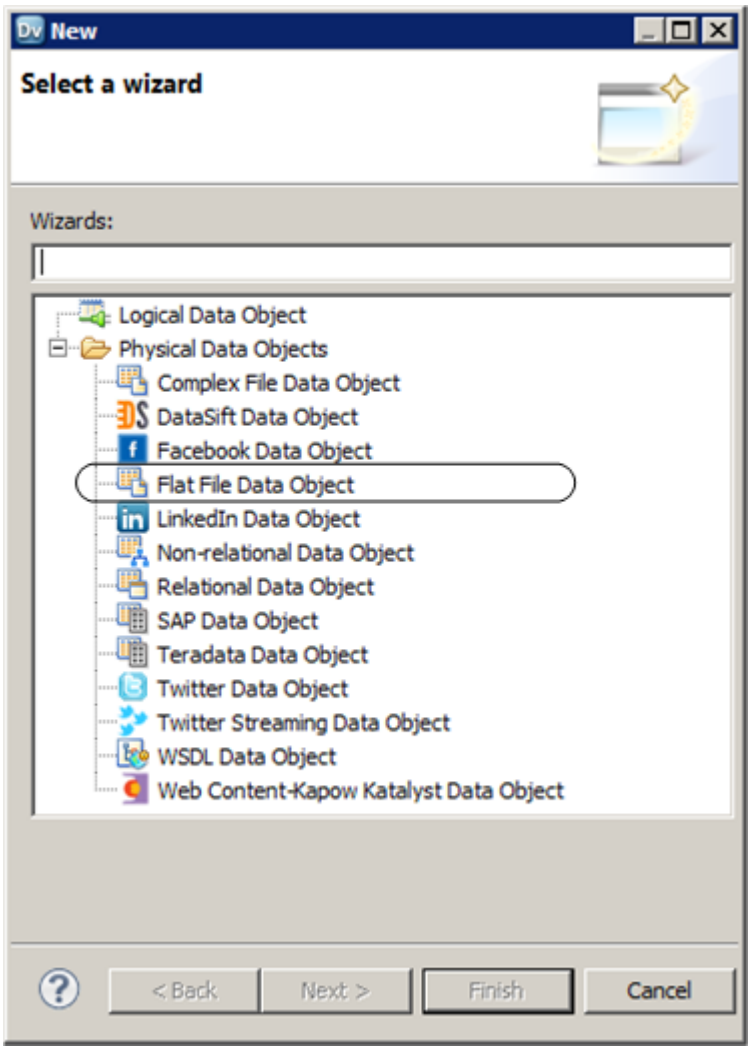
In this task, you import a physical data object from a file that contains customer data from the Boston office.

1. In the **Object Explorer** view, select the Tutorial_Objects folder.



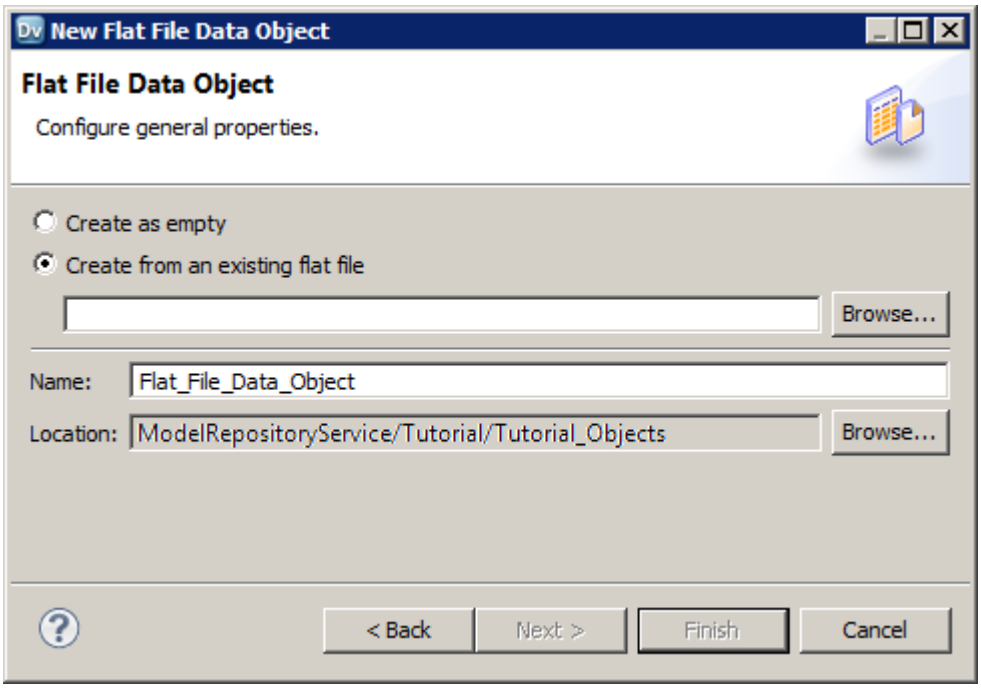
2. Right-click the Tutorial_Objects folder and select **New** > **Data Object**.

The **New** dialog box appears.



3. Select **Physical Data Objects** > **Flat File Data Object** and click **Next**.

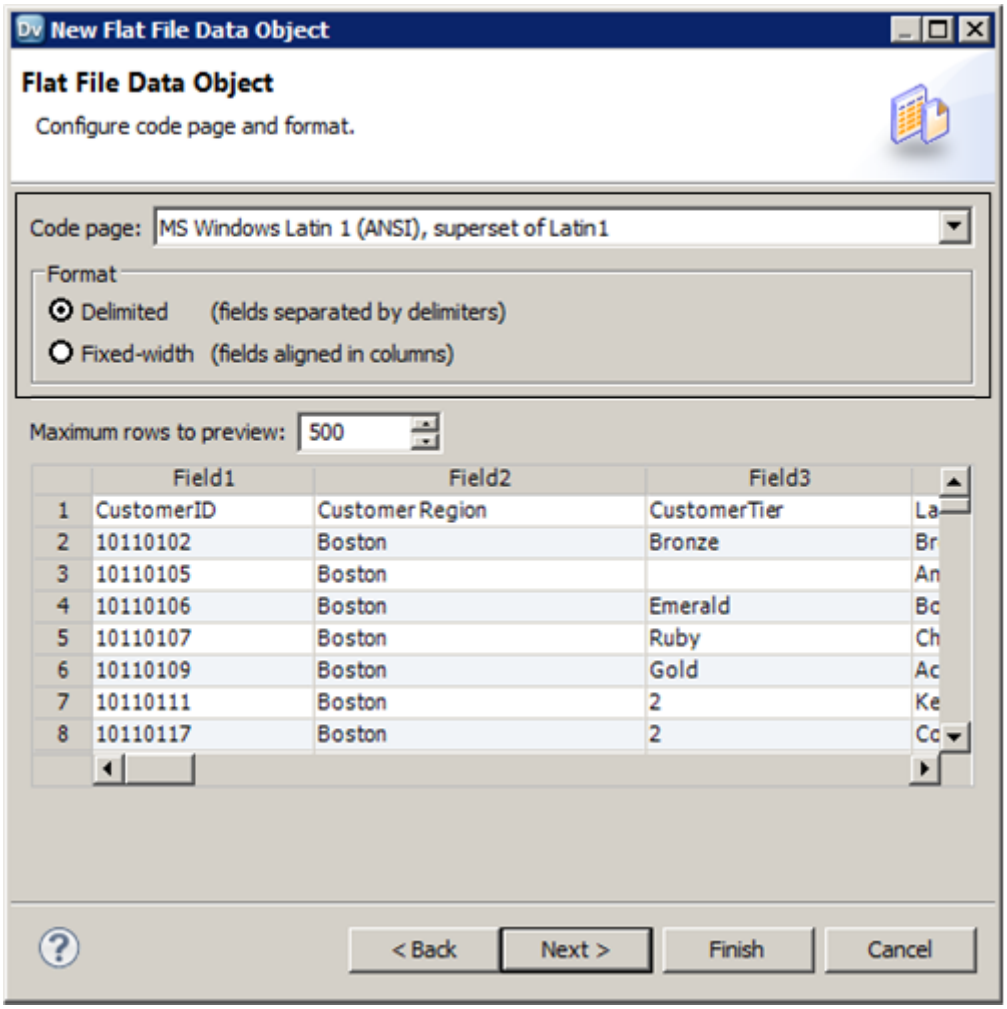
The **New Flat File Data Object** dialog box appears.



4. Select **Create from an existing flat file**.
5. Click **Browse** and navigate to Boston_Customers.csv in the following directory on the Developer tool machine: `<Informatica installation directory>\clients\DeveloperClient\Tutorials`
6. Click **Open**.

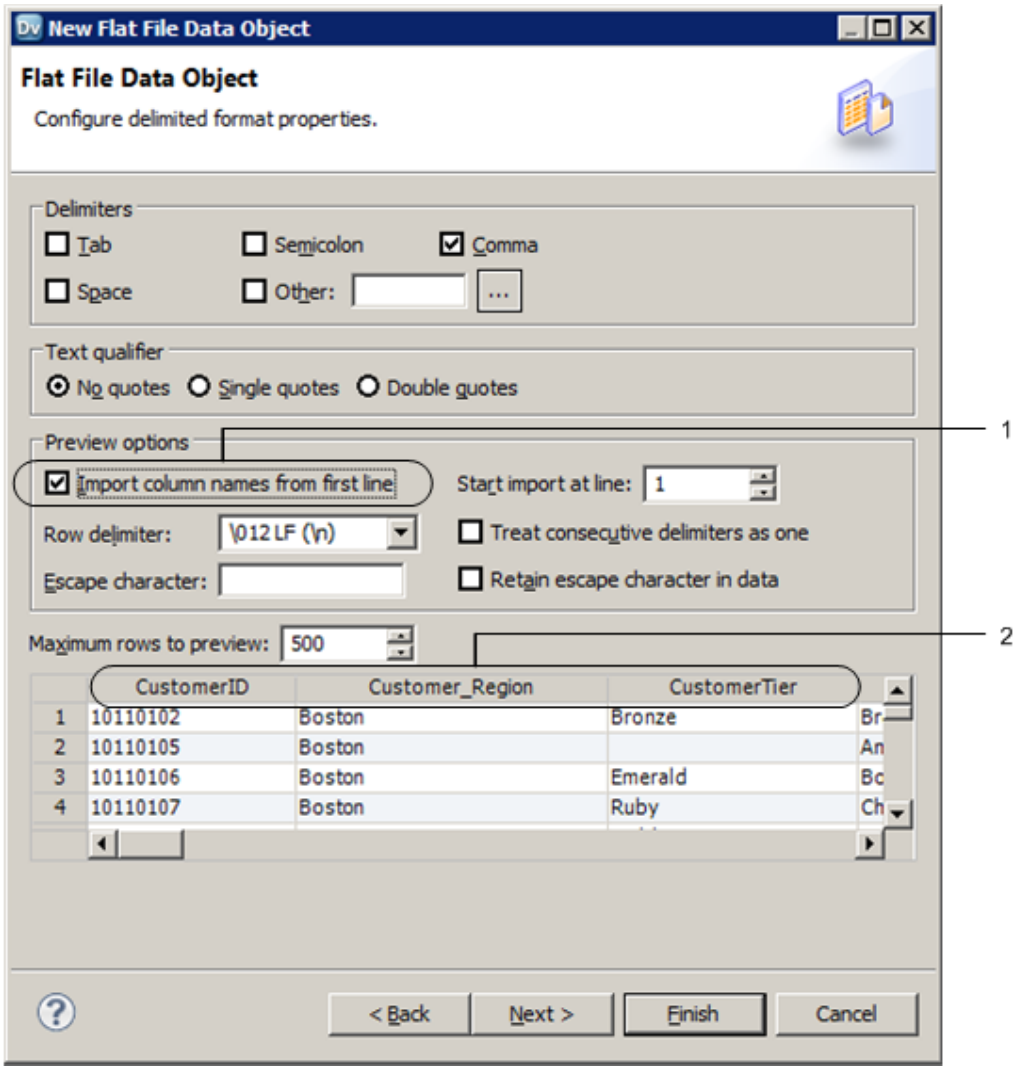
   The wizard names the data object "Boston_Customers."
7. Click **Next**.
8. Verify that the code page is set to **MS Windows Latin 1 (ANSI), superset of Latin 1** and the format is set to **Delimited**.

The **New Flat File Data Object** dialog box shows the default code page, the format, and a preview of the flat file data.



9. Click **Next**.
10. Select **Import column names from first line**.

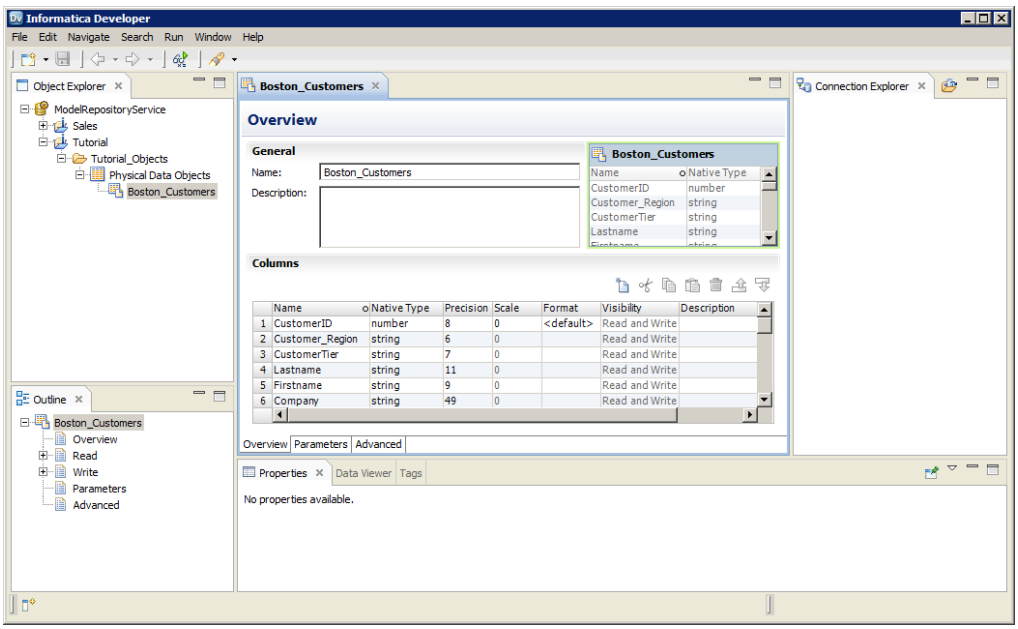
The **New Flat File Data Object** dialog box shows the column names in the preview of the flat file data.



1. The **Import column names from first line** option
2. Column names

11. Click **Finish**.

The Boston_Customers physical data object appears under the Physical Data Objects folder in the Tutorial_Objects folder. The **Overview** view displays the file content and it is open in the editor.



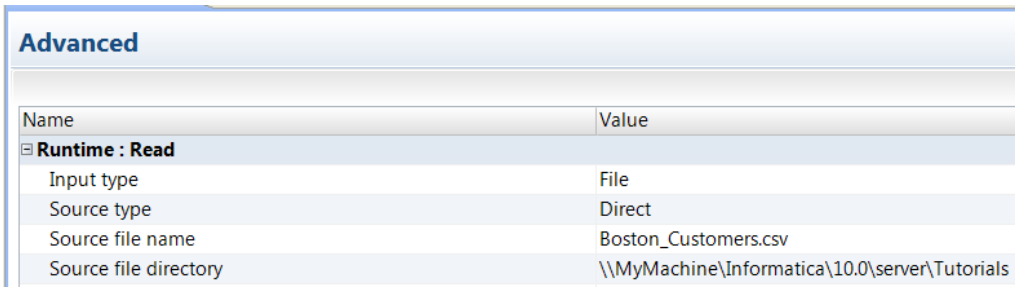
12. Click the **Advanced** view.

    The **Advanced** view shows properties for the physical data object.

13. In the **Advanced** view, scroll to the **Run-time: Read** section.

14. In the **Run-time: Read** section, set **Source file directory** to the following directory on the Data Integration Service machine: `<Informatica installation directory>\server\Tutorials`

    The Data Integration Service searches for the source file in the server directory on the machine that runs the Data Integration Service. The server installation contains a copy of the tutorial files. The Data Integration Service cannot read files from the client installation directory unless you change access permissions on the source file and directory.
    The following figure shows a sample source file directory:



Advanced

Name	Value
Runtime : Read	
Input type	File
Source type	Direct
Source file name	Boston_Customers.csv
Source file directory	\\MyMachine\Informatica\10.0\server\Tutorials

Note: The Developer tool machine must have access to the source file directory on the machine that runs the Data Integration Service. If the Developer tool cannot access the source file directory, the Developer tool cannot preview data in the source file or run mappings that access data in the source file. If you run multiple Data Integration Services, there is a separate source file directory for each Data Integration Service.

15. Click the **Data Viewer** view.

16. In the **Data Viewer** view, click **Run**.

The Data Integration Service reads the data from the Boston_Customers file and shows the results in the Output window.

17. Click **File** > **Save** to save the Boston_Customers physical data object.

Task 2. Import the LA_Customers Flat File Data Object

In this task, you import a physical data object from a flat file that contains customer data from the Los Angeles office.

1. In the **Object Explorer** view, select the tutorial project.
2. Click **File** > **New** > **Data Object**.

   The **New** dialog box appears.
3. Select **Physical Data Objects** > **Flat File Data Object** and click **Next**.

   The **New Flat File Data Object** dialog box appears.
4. Select **Create from an Existing Flat File**.
5. Click **Browse** and navigate to LA_Customers.csv in the following directory: `<Informatica Installation Directory>\clients\DeveloperClient\Tutorials`
6. Click **Open**.

   The wizard names the data object LA_Customers.
7. Click **Next**.
8. Verify that the code page is MS Windows Latin 1 (ANSI), superset of Latin 1.
9. Verify that the format is delimited.
10. Click **Next**.
11. Verify that the delimiter is set to comma.
12. Select **Import column names from first line**.
13. Click **Finish**.

    The LA_Customers physical data object appears under **Physical Data Objects** in the tutorial project.
14. Click the **Read** view and select the Output transformation.
15. Click the **Runtime** tab on the **Properties** view.
16. Set the Source File Directory to the following directory on the Data Integration Service machine: `<Informatica Installation Directory>\server\Tutorials`
17. Click **File** > **Save**.

Task 3. Importing the All_Customers Flat File Data Object

In this task, you import a physical data object from a flat file that combines the customer order data from the Los Angeles and Boston offices.

1. In the **Object Explorer** view, select the tutorial project.
2. Click **File** > **New** > **Data Object**.

   The **New** dialog box appears.
3. Select **Physical Data Objects** > **Flat File Data Object** and click **Next**.

   The **New Flat File Data Source** dialog box appears.
4. Select **Create from an Existing Flat File**.
5. Click **Browse** and navigate to All_Customers.csv in the following directory: `<Informatica Installation Directory>\clients\DeveloperClient\Tutorials`.
6. Click **Open**.

   The wizard names the data object All_Customers.
7. Click **Next**.
8. Verify that the code page is MS Windows Latin 1 (ANSI), superset of Latin 1.
9. Verify that the format is delimited.
10. Click **Next**.
11. Verify that the delimiter is set to comma.
12. Select **Import column names from first line**.
13. Click **Finish**.

    The All_Customers physical data object appears under **Physical Data Objects** in the tutorial project.
14. Click the **Read** view and select the Output transformation.
15. Click the **Runtime** tab on the **Properties** view.
16. Set the Source File Directory to the following directory on the Data Integration Service machine: `<Informatica Installation Directory>\server\Tutorials`
17. Click **File** > **Save**.

Importing Physical Data Objects Summary

In this lesson, you learned that physical data objects are representations of data based on a flat file or a relational database table.

You created physical data objects from flat files. You also set the source file directory so that the Data Integration Service can read the source data from the correct directory.

You use the data objects as mapping sources in the data quality lessons.

CHAPTER 12

Lesson 3. Run a Profile on Source Data

This chapter includes the following topics:

- Profiling Data Overview, 59
- Task 1. Perform a Join Analysis on Two Data Sources, 60
- Task 2. View Join Analysis Results, 61
- Task 3. Run a Profile on a Data Source, 61
- Task 4. View Column Profiling Results, 62
- Profiling Data Summary, 62

Profiling Data Overview

A profile is a set of metadata that describes the content and structure of a data set.

Profiling and data discovery is often the first step in a project. You can run a profile to evaluate the structure of data and verify that data columns are populated with the types of information you expect. If a profile reveals problems in data, you can define steps in your project to fix those problems. For example, if a profile reveals that a column contains values of greater than expected length, you can design data quality processes to remove or fix the problem values.

A profile that analyzes the data quality of selected columns is called a column profile.

Note: You can also use the Developer tool to discover primary key, foreign key, and functional dependency relationships, and to analyze join conditions on data columns.

A column profile provides the following facts about data:

- The number of distinct and null values in each column, expressed as a number and a percentage.
- The patterns of data in each column, and the frequencies with which these values occur.
- Statistics about the column values, such as the maximum and minimum lengths of values and the first and last values in each column.
- For join analysis profiles, the degree of overlap between two data columns, displayed as a Venn diagram and as a percentage value. Use join analysis profiles to identify possible problems with column join conditions.

You can run a column profile at any stage in a project to measure data quality and to verify that changes to the data meet your project objectives. You can run a column profile on a transformation in a mapping to indicate the effect that the transformation will have on data.

Story

HypoStores wants to verify that customer data is free from errors, inconsistencies, and duplicate information. Before HypoStores designs the processes to deliver the data quality objectives, it needs to measure the quality of its source data files and confirm that the data is ready to process.

Objectives

In this lesson, you complete the following tasks:

- Perform a join analysis on the `Boston_Customers` data source and the `LA_Customers` data source.
- View the results of the join analysis to determine whether or not you can successfully merge data from the two offices.
- Run a column profile on the `All_Customers` data source.
- View the column profiling results to observe the values and patterns contained in the data.

Prerequisites

Before you start this lesson, verify the following prerequisite:

- You have completed lessons 1 and 2 in this tutorial.

Time Required

- Set aside 20 minutes to complete this lesson.

Task 1. Perform a Join Analysis on Two Data Sources

In this task, you perform a join analysis on the Boston_Customers and LA_Customers data sources to view the join conditions.

1. Select the tutorial folder and click **File** > **New** > **Profile**.
2. Select **Enterprise Discovery Profile**.
3. Click **Next**.
4. In the **Name** field, enter **Tutorial_Profile**.
5. Click **Finish**.

   The Tutorial_Profile profile appears in the Object Explorer.
6. Drag the **Boston_Customers** and **LA_Customers** data sources to the editor on the right.

   Tip: Hold down the Shift key to select multiple data objects.
7. Right-click a data object name and select **Join Profile**.

   The **New Join Profile** wizard appears.
8. In the **Name** field, enter **JoinAnalysis**.
9. Verify that Boston_Customers and LA_Customers appear as data objects, and click **Next**.
10. Verify that the **CustomerID** column is selected in both data sources.

Scroll down the wizard pane to view the columns in both data sets.

Click **Next**.

11. Click **Add** to add join conditions.

    The **Join Condition** dialog box appears.

12. In the **Columns** section, click **Add row**.
13. Double-click the first row in the left column and select **CustomerID**.
14. Double-click the first row in the right column and select **CustomerID**.
15. Click **OK**, and click **Finish**.
16. If the Developer tools prompts you to save the changes, click **Yes**.

    The Developer tool runs the profile.

Note: Do not close the profile. You view the profile results in the next task.

Task 2. View Join Analysis Results

In this task, you view the join analysis results in the Join Result view of the JoinAnalysis profile.

1. Click the **JoinAnalysis** tab in the editor.
2. In the **Join Result** section, click the first row.

   The **Details** section displays a Venn diagram and the color key that details the results of the join analysis.

3. Verify that the **Join Rows** column shows zero as the number of rows that contain a join.
   This value indicates that CustomerID fields do not have duplicates. You can successfully merge the two data sources.
4. To view the CustomerID values for the LA_Customers data object, double-click the circle named **LA_Customers** in the Venn diagram.

   Tip: Double-click the circles in the Venn diagram to view the data rows. If the circles intersect in the Venn diagram, double-click the intersection to view data values common to both data sets.

   The Data Viewer displays the CustomerID values from the LA_Customers data object.

Task 3. Run a Profile on a Data Source

In this task, you run a profile on the All_Customers data source to view the content and structure of the data.

1. In the **Object Explorer** view, browse to the data objects in your tutorial project.
2. Select the **All_Customers** data source.
3. Click **File** > **New** > **Profile**.

   The **New** dialog box appears.

4. Select **Profile**.
5. Click **Next**.
6. In the **Name** field, enter **All_Customers**.

7. Click **Finish**.

   The All_Customers profile opens in the editor and the profile runs.

Task 4. View Column Profiling Results

In this task, you view the column profiling results for the All_Customers data object and examine the values and patterns contained in the data.

1. Click **Window** > **Show View** > **Progress** to view the progress of the All_Customers profile.

   The Progress view opens.
2. When the Progress view reports that the All_Customers profile finishes running, click the **Results** view in the editor.
3. In the **Column Profiling** section, click the **CustomerTier** column.

   The **Details** section displays all values contained in the CustomerTier column and displays information about how frequently the values occur in the data set.
4. In the **Details** section, double-click **Ruby**.

   The Data Viewer runs and displays the records where the CustomerTier column contains the value **Ruby**.
5. In the **Column Profiling** section, click the **OrderAmount** column.
6. In the **Details** section, click the **Show** list and select **Patterns**.

   The **Details** section shows the patterns found in the OrderAmount column. The string **9(5)** in the Pattern column refers to records that contain five-figure order amounts. The string **9(4)** refers to records containing four-figure order amounts.
7. In the **Pattern** column, double-click the string **9(4)**.

   The Data Viewer runs and displays the records where the OrderAmount column contains a four-figure order amount.
8. In the **Details** section, click the **Show** list and select **Statistics**.

   The **Details** section shows statistics for the OrderAmount column including the average value, standard deviation, maximum and minimum lengths, the five most common values, and the five least common values.

Profiling Data Summary

In this lesson, you learned that a profile provides information about the content and structure of the data.

You learned that you can perform a join analysis on two data objects and view the degree of overlap between the data objects. You also learned that you can run a column profile on a data object and view values, patterns, and statistics that relate to each column in the data object.

You created the `JoinAnalysis` profile to determine whether data from the `Boston_Customers` data object can merge with the data in the `LA_Customers` data object. You viewed the results of this profile and determined that all values in the `CustomerID` column are unique and that you can merge the data objects successfully.

You created the `All_Customers` profile and ran a column profile on the `All_Customers` data object. You viewed the results of this profile to discover values, patterns, and statistics for columns in the `All_Customers`

data object. Finally, you ran the Data Viewer to view rows containing values and patterns that you selected, enabling you to verify the quality of the data.

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