Oracle® Retail Data Warehouse

User Guide

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Value-Added Reseller (VAR) Language

Oracle Retail VAR Applications

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Preface

The *Oracle Retail Data Warehouse User Guide* is a conceptual overview and user reference to the dimensions, attributes, and metrics (measures) of Oracle Retail Data Warehouse (RDW).

Audience

This document is intended for the users and administrators of Oracle Retail Data Warehouse. In particular, it is for business analysts who create and publish RDW reports (requests) using the Oracle Business Intelligence (Oracle BI) user interface to RDW.

Related Documents

For more information, see the following documents in the Oracle Retail Data Warehouse Release 13.1 documentation set:

- *Oracle Retail Data Warehouse Data Model*
- *Oracle Retail Data Warehouse Implementation Guide*
- *Oracle Retail Data Warehouse Installation Guide*
- *Oracle Retail Data Warehouse Operations Guide*
- *Oracle Retail Data Warehouse Release Notes*

See also:

- *Oracle Retail Merchandising Batch Schedule*
- Oracle Business Intelligence documentation
- Oracle Retail Extract, Transform, and Load (RETL) documentation

Customer Support

To contact Oracle Customer Support, access My Oracle Support at the following URL:

https://metalink.oracle.com

When contacting Customer Support, please provide the following:

- Product version and program/module name
- Functional and technical description of the problem (include business impact)
- Detailed step-by-step instructions to recreate

- Exact error message received
- Screen shots of each step you take

Review Patch Documentation

If you are installing the application for the first time, you install either a base release (for example, 13.1) or a later patch release (for example, 13.1.2). If you are installing a software version other than the base release, be sure to read the documentation for each patch release (since the base release) before you begin installation. Patch documentation can contain critical information related to the base release and code changes that have been made since the base release.

Oracle Retail Documentation on the Oracle Technology Network

In addition to being packaged with each product release (on the base or patch level), all Oracle Retail documentation is available on the following Web site (with the exception of the Data Model which is only available with the release packaged code):

http://www.oracle.com/technology/documentation/oracle_retail.html

Documentation should be available on this Web site within a month after a product release. Note that documentation is always available with the packaged code on the release date.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Introduction to Oracle Retail Data Warehouse

This chapter introduces the role of decision support and data warehousing in a retail environment. It briefly describes the implementation of Oracle Retail Data Warehouse (RDW) and its data sources, and the RDW user interface through Oracle Business Intelligence (Oracle BI).

Decision Support in the Retail Environment

Decision support allows all users in a retail organization to answer questions about the business, for example:

- How do actual sales this period compare to the current plan?

- What is the retail value of inventory on hand, and how does it compare to the same period last year?

- How do our prices compare to our competitors' prices?

- What are the best-selling items in a category or department?

- How effective was the last promotion?

The answers to these questions and others are embedded in the enormous volume of sales and returns, price changes, receipts, and other transactions generated by your retail organization. These transactions are the raw material for decision support. Transaction-level data must be converted to information to support decisions in a retail enterprise.

Data Warehousing and Decision Support

The data warehouse is the central repository for the data that is required for decision support in a retail environment. The applications and components that make up the data warehouse perform these functions:

- They organize and standardize data so that it can be stored in a consistent format in the data warehouse.

- They load data to a relational database management system that is specially constructed for decision support.

- They provide analytical tools and interfaces necessary to deliver information throughout the retail organization.

Online transaction processing (OLTP) applications, such as the Oracle Retail Merchandising System (RMS), are designed for efficient record-keeping. They

generally hold only a small amount of historical information. The data warehouse, on the other hand, consists entirely of historical data organized by business area. (Collections of data organized to support particular business areas are sometimes called data marts.) These business areas consist of a relatively small number of very large tables.

This type of organization is optimal in the decision support environment, where large quantities of historical data must be stored and made available to users in summary form. The tables that make up the data warehouse contain the information that is needed to create a picture of the organization at any point during the period for which data is kept.

Data Sources

Figure 1–1 illustrates the data sources for RDW. The data sources can be Oracle Retail applications, as well as other data sources specific to each retailer's systems environment.

Figure 1–1   Data Sources for Oracle Retail Data Warehouse
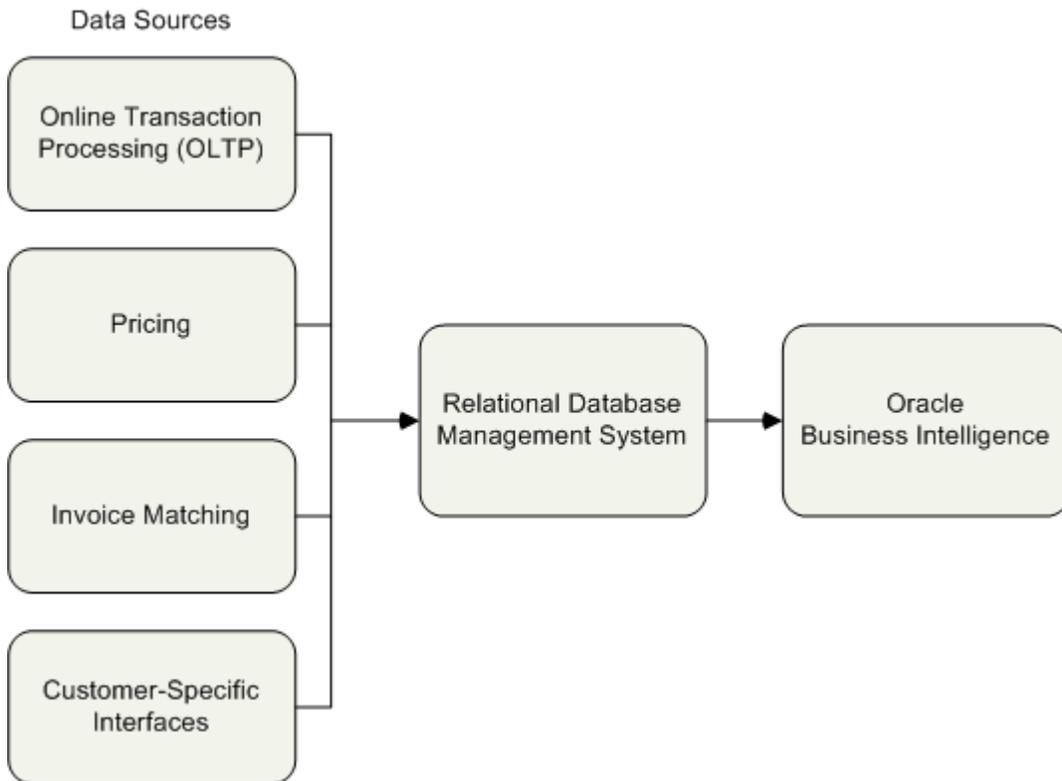
Oracle Retail Solutions

Oracle Retail Data Warehouse is integrated with the following Oracle Retail applications:

- Oracle Retail Merchandising System (RMS)

- Oracle Retail Invoice Matching (ReIM)

- Oracle Retail Price Management (RPM)

An online transaction processing (OLTP) application such as the Oracle Retail Merchandising System (RMS) is the principal source of data for RDW. The OLTP application provides the majority of attribute data for most dimensions, including organization, product, and time calendar. The OLTP application supplies facts for many data marts including inventory, pricing, cost, stock ledger, and supplier compliance.

Oracle Retail Invoice Matching (ReIM) is a solution that provides the data necessary to support invoice verification, minimizing interface development and maintenance costs. ReIM can serve as the source of invoice cost data. This information must be extracted from another application if you do not use ReIM.

Oracle Retail Price Management (RPM) is a solution that suggests and assists with pricing decisions. RPM can serve as the source of promotion data. This information must be extracted from another application if you do not use RPM.

Retailer-Specific Interfaces

RDW provides infrastructure for data for which no Oracle Retail source system exists. Your own interfaces must supply data for the following attribute data:

- Customer
- Customer account
- Customer demographic
- Customer geographic
- Customer order code detail
- Depiction codes
- Market data
- Media
- Media location matrix
- Media transformations
- Plan season
- Product and customer clusters
- Selling item

In addition, customer-specific interfaces must capture facts in these areas:

- Catalog and activity requests
- Customer order demand
- Customer order line positions
- Customer order promotions
- Customer order returns, replacements, exchanges
- Customer order value added services
- Market data
- Media
- Planning
- Space allocation

- Store traffic

- Supplier compliance

- Quality control

- Missed schedule deliveries

See the *Oracle Retail Data Warehouse Operations Guide* for additional source system interface information.

Functional Areas That Can Be Added to RDW

The following functional areas are not part of the RDW architecture. These functional areas are available in the RDW data model, and you can import them into Oracle BI and design your own functionality:

Call Center

Carrier

Carrier Service

Catalog Type

CO by Demand Status

CO by Disposition

CO by Item Loc Day

CO by Line Item

CO Header

CO Hold Event

CO Line Returns

CO Line Type

CO Order Status by Line Item

CO Partial Reason

CO Promotion

CO Ship To

Media

Media Fact

Media Selling Item

Request Activity Type

Request Catalog Type

Request Origin

Service Line

Service Line Font

Service Line Style

Service Type

Service Type Colors

Data Granularity

The data from transaction systems is transformed to accommodate the RDW database structure. This data serves as the foundation for business measurements, but by itself, it is not sufficient to answer many business questions.

Typically, data is held at a low granular level in RDW. For example, RDW holds sales data by the location, item, and day attributes. There is one row in the sales fact table for every combination of these attributes. In most cases, however, the analyst wants to view data at higher levels in the product and organization hierarchies, and for a longer span of time than a single day.

Effective decision support requires facts to be held at a low granular level, while allowing measurements at any level in the organization where they is needed. For example, a location manager making an assessment of monthly sales at the department level wants a report showing total sales for each department. When the location manager spots a potential problem at the department level, the manager may want to focus analysis on the subclass, or even the specific items, where problems exist. RDW permits analysis at any level by storing information at a low granular level, while allowing reporting at higher summary levels.<P>

In some cases, RDW holds data at multiple levels, to facilitate analysis and improve performance. For example, sales facts are held by subclass and week, as well as by item and day (the location attribute is present in both tables). The result is that the same data exists in more than one fact table in the database. While redundant data improves performance by reducing the number of queries that must be serviced, it also requires more maintenance. RDW uses redundant data in a few cases in which all customers benefit in terms of performance; in most cases, however, retailers must determine where redundancy is needed, based on their own requirements.

Oracle Retail Data Warehouse

Oracle Retail Data Warehouse (RDW) is specifically designed and optimized for the retail environment. Its components load massive volumes of data provided by transaction systems throughout the organization and transform the data into meaningful business measurements.

Answering the many complex questions required to support a retail organization requires sophisticated query and analytical engines to retrieve and manipulate data in the data warehouse. These capabilities are provided by online analytical processing (OLAP) tools. These applications and interfaces make it possible to:

- Create the sophisticated business measurements needed for analysis

- Execute highly complex queries against the data warehouse

- Deliver information on demand to a large and diverse user population

Oracle Business Intelligence

Oracle Business Intelligence (Oracle BI) is the interface that provides the OLAP tools for RDW. Oracle BI is a comprehensive solution that you can use to create, modify, schedule, and distribute reports to end users throughout your retail enterprise. You access Oracle BI through your Web browser.

Oracle Retail Data Warehouse can be used with these versions of Oracle Business Intelligence:

- Oracle Business Intelligence Enterprise Edition (EE)

- Oracle Business Intelligence Standard Edition One (SE One)

> **Note:** The specific URL and login requirements for Oracle BI depend on how Oracle BI is configured in your enterprise. Your system administrator can supply the information you need to access Oracle BI and RDW.

The Oracle BI interface can be customized in many ways for your enterprise. The illustrations in this guide show the default installation. You can create your own dashboards to organize your reports and other objects you create. You can also develop report schedules and automated distribution mechanisms, to direct reports to the people who need them.

RDW Implementation

RDW is implemented as two subject areas in Oracle BI Presentation Services. A subject area is also called a presentation catalog in the repository. The subject areas are as follows:

- RDW

- The RDW subject area contains all of the RDW attributes and metrics.

- RDW Foundation

- The RDW Foundation subject area contains a subset of the RDW attributes and metrics.

(See Appendix C, "Repository Documentation," for information about how to produce a list of repository objects.)

Figure 1–2 shows the RDW subject areas (active links) in the Oracle Answers interface.

Figure 1–2   RDW Subject Areas - Oracle BI Answers

Oracle BI Presentation Interface

Use the Oracle BI Presentation interface for tasks such as the following:

- To create and modify reports (requests), prompts, and filters

- To perform ad hoc analyses and experiment with metrics and filters

- To experiment with different report presentations, including tables and charts of many types

- To schedule and distribute finished reports to the end users who need them

Figure 1–3 shows an example of the interface you use to create and modify reports.

Figure 1–3   Creating a Report
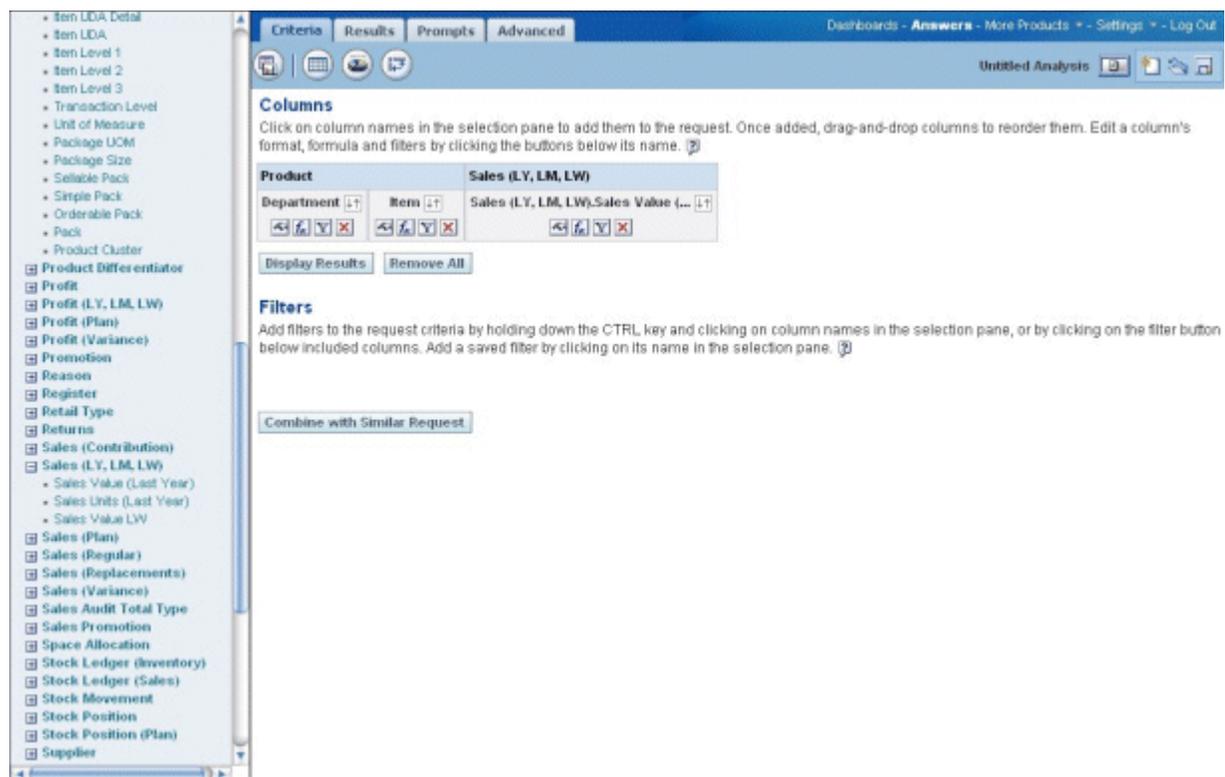
The Oracle BI interface displays attributes, facts, and metrics as logical columns, grouped by their dimensions. You can include any of the logical columns in your reports.

You can modify your report columns with your own metrics, filters, and prompts.

Oracle BI Documentation

For information about how to use the Oracle BI interface and OLAP tools, see the Oracle BI documentation available at the following locations:

- Oracle BI Enterprise Edition documentation

  http://www.oracle.com/technology/documentation/bi_ee.html

- Oracle BI Standard Edition One documentation

  http://www.oracle.com/technology/documentation/bi_se1.html

Oracle BI Administration Interface

Use the Oracle BI Administration interface for tasks such as the following:

- Create and modify metrics, attributes, and dimensions

- Create and modify Presentation catalogs, which appear as subject areas in the Oracle BI Presentation interface

- Create and modify users and their privileges

- Add new tables to the physical layer or modify the existing relations

Figure 1–4 shows the Oracle BI Administration interface.

Figure 1–4   Oracle BI Administration Interface
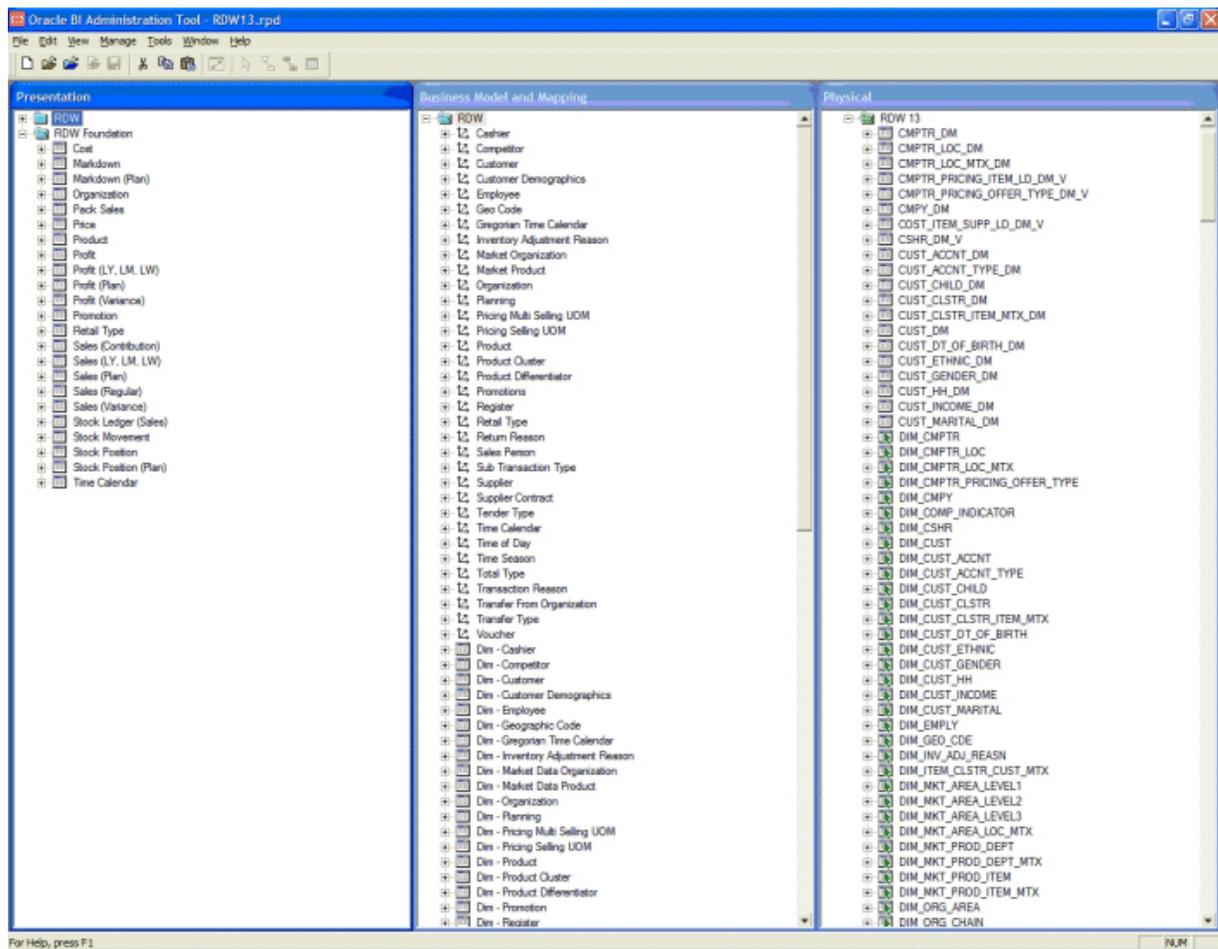
For more information, see the *Oracle Business Intelligence Server Administration Guide* (B31770).

Supported Languages

Oracle BI provides numerous language options for users; however, not all languages supported by Oracle BI are supported by RDW.

The following languages are supported for RDW users:

- Brazilian Portuguese
- Chinese (Simplified)
- Chinese (Traditional)
- English
- French
- German
- Italian
- Japanese
- Korean
- Russian
- Spanish

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Report Components and Concepts

Reports are composed of a number of elements that provide the report structure and specify the information that is included. These report building blocks exist independently in RDW and can be reused in many different reports.

> **Note:** In the Oracle BI interface, reports are called *requests*.

Report Elements

A report is primarily constructed of logical columns. Logical columns include:

- Facts

- Attributes

- Metrics

You can constrain (limit) the data to be included in a report with filters and prompts:

- A filter constrains the data in the report so that the report shows only the information that the user of the report wants to see. For example, you can use filters to limit reports to show information only about certain locations, products, and time periods. See "Filters" later in this chapter.

- A prompt allows the user of a report to select how to filter data in the report. For example, a prompt can ask the user to select a time period or location. See "Prompts" later in this chapter.

Facts

A fact is a column that contains numeric data in one or more database tables. For example, the Sales fact F_SLS_AMT (sale amount) allows access to the corresponding column in the Sales tables in the RDW database.

Facts are the basis for the formulas used to construct business metrics. For example, the formula SUM(F_SLS_AMT) is the basis for the calculation of gross sales amount.

The majority of facts are additive, meaning that we can add two facts of the same type and create a meaningful number. For example, the sum of total sales dollars for each of the days in a week gives the total sales dollars for that week. Some facts are semi-additive, meaning that we cannot add facts of the same type in all circumstances. For example, we would add receipts for an item to existing inventory, but we would not add the number of units on hand for every day during a week to arrive at a weekly total; rather, the amount of inventory is expressed as a position for some time period such as day or week.

In and of themselves, facts have no meaning. The statement "inventory on hand was 10" only has meaning when given the context of time and place. Attributes place facts in context and make them meaningful. An attribute is the general description of some aspect of the business, such as location, day, or item. Examples are Minneapolis (location), April 16, 2008 (day), and scarves (item). Facts become useful only when qualified by one or more attributes. Facts are most often qualified by multiple attributes.

Attributes and Dimensions

An attribute describes some characteristic of an entity such as a product, customer, or organization. Attributes are used to aggregate data and constrain data in a report.

Attributes that are not part of the same dimension are related when they exist in the same fact table. The attributes item, location, and week are not formally related in a hierarchy; however, all of these attributes exist in the Sales fact table. This means that questions can be answered by one or more of these attributes.

For example, you might ask first to see sales data by location and week. Because the fact table contains the attribute item as well, the data can be reorganized using the item attribute. As a general rule, information can be referenced by any attribute, or combination of attributes, present in the fact table.

Dimensions are collections of related attributes. These are some examples of RDW dimensions:

- Organization
- Customer
- Product
- Promotion
- Time Calendar

RDW dimensions and their attributes are described in detail in Chapter 3.

Dimensions and Drilling

Attributes can be related to each other through parent-child relationships. In a relationship of this type, the child attribute belongs to only one parent attribute. For example, the Location attribute in the Organization hierarchy is defined as the child of the Region attribute. All elements of the Location attribute exist in only one region. Because the Region attribute is also defined as the child of another attribute, the relationship of the Location attribute to all other attributes in the hierarchy can be predicted.

Through these relationships, you can drill into data. Investigation of a business problem often begins at a summary level and moves to a detailed level as analysis progresses. Drilling allows you to focus on parts of the data set where problems are identified.

> **Note:** Most RDW attributes are included in dimensions. For each RDW dimension, there is a predefined drill path.

Metrics

RDW contains an extensive set of metrics (measures) and key performance indicators designed for decision support in a retail environment.

Metrics are performance measurements, typically numeric, that allow you to analyze business performance. Metrics range in complexity from a simple metric that sums the values in a single fact column, to highly complex calculations that contain mathematical operators.

A metric can be viewed as a statement that specifies how a performance measure is calculated. The basic component of a metric is a formula that specifies the calculation to be made. A metric can contain other components that specify additional criteria for calculating the metric.

Formulas

Each metric has a formula that specifies how the metric is calculated. The formula for a simple metric specifies a fact and a function for the fact. For example, the following formula calculates a sum of values in the sales fact column:

```
Sum(F_SLS_AMT)
```

where F_SLS_AMT is the fact, and SUM is the function to be performed.

In a compound metric, the formula contains two or more metrics and a formula for calculation. For example, a formula for a compound metric might calculate the average sales value by dividing the net sales metric by another metric that calculates the number of units sold.

As another example, the following compound metric formula calculates average sales value per unit using two simple metrics:

```
Sales Value / Sales Units
```

Compound metrics can also be used to create other compound metrics. For example, the formula for the stock turn metric employs a simple metric (Sales Value) and a compound metric (Avg Stock Retail Value):

```
Sales Value / Avg Stock Retail Value
```

Avg Stock Retail Value in the preceding formula is itself a compound metric, constructed from three simple metrics that access base formulas for the facts used in the calculation:

```
((BOH Retail Value + EOH Retail Value (SUM)) / (No of Weeks with Stock + 1))
```

Variance metrics are common compound metrics in RDW. Variance metrics compare the change or difference in two different data points.

"% Change" or "% Variance" metrics within RDW are defined as (A-B)/B. The following are some examples:

Metric	Formula
% Change Sales Value vs Last Year	(Sales Value - Sales Value (Last Year))/Sales Value (Last Year)
% Change Sales Units vs Last Year	(Sales Units - Sales Units (Last Year))/Sales Units (Last Year)
% Change Profit vs Last Year	(Profit - Profit (Last Year))/Profit (Last Year)

Metric	Formula
% Change EOH Retail Value vs. Last Year	(EOH Retail Value - EOH Retail Value (Last Year))/EOH Retail Value (Last Year)
% Change Receipts Retail Value vs. LY	(Receipts Retail Value - Receipts Retail Value (Last Year))/Receipts Retail Value (Last Year)

Metric Levels

The level component of a metric specifies the attribute level to which a metric aggregates. By default, a metric aggregates to the level of the attributes on the report.

Some complex metrics require more than one level of aggregation in formulas. For example, you might want a report that shows the percent contribution sales value of each location to its region. You must know the sales value for each location and the total sales value for region to which it belongs to create the formula for this metric:

Sales Value (Location) / Sales Value (Region)

A metric that specifies a level of aggregation other than the default level for the report is called a level metric. RDW includes many level metrics for sales and profit for attributes in the Organization and Product dimensions. In RDW, when a metric has a predefined dimension level, the name of the attribute level appears in parentheses after the metric name. The following are some example level metrics for sales value in the Product hierarchy.

- Sales Value (Company)
- Sales Value (Group)
- Sales Value (Department)
- Sales Value (Class)

You can use level metrics to build compound metrics that measure the contribution of lower-level elements to higher or parent levels. The following are some examples of these contribution metrics.

Metric	Formula
% Contribution Sales Value to Company	Sales Value/Sales Value (Company)
% Contribution Sales Value to Division	Sales Value/Sales Value (Division)
% Contribution Sales Value to Group	Sales Value/Sales Value (Group)
% Contribution Sales Value to Department	Sales Value/Sales Value (Department)
% Contribution Sales Value to Class	Sales Value/Sales Value (Class)

Time Series Conversion Functions

Time-based comparisons are an essential part of analysis at almost every level in a retail environment. Typical examples are the comparison of sales value for the current season-to-date to the same period last year, or the retail value of inventory compared to the previous week.

RDW time conversion functions use the following Oracle BI time series aggregation functions:

- Ago()

  This function calculates the aggregated value from the current time back to a specified time period.

- ToDate()

  This function aggregates a measure attribute from the beginning of a specified time period to the currently displayed time.

The Ago() and ToDate() functions are described in the *Oracle Business Intelligence Server Administration Guide*.

See Appendix B, "Time Series Conversion Functions," for information about the RDW time series conversion functions.

Filters

A filter constrains the data that is retrieved from the database. The filter attached to a report limits the data that is retrieved for the metrics in the report. For example, a filter can limit the information in a report to a particular month, department, and location.

Filters generally constrain all of the metrics in a report. In some cases, however, it is necessary to place additional constraints on individual metrics in a report. When a condition is applied to a single metric, it does not affect the other metrics in the report. A metric condition plays the same role in a metric that a filter plays in a report, limiting the data that is retrieved based on one or more conditions.

In RDW, sales and return amounts are segmented by price type according to the retail price type: regular, promotion, or clearance. Sales fact tables hold sales and return amounts in two fact columns, F_SLS_AMT and F_RTRN_AMT. The retail price type is indicated by a code for each row in the table. A sales metric retrieves all values, regardless of type, unless a price type is specified. To specify the price type, a filter is attached to the metric. For example, regular price type is indicated in the fact table by a value of 1. A filter stating that price type must equal 1 is attached to a metric. Queries for this metric limit the data to rows in the fact table that have a retail type of 1.

You can build your own filters with Oracle BI. RDW does not include any packaged filters.

Prompts

Prompts allow any end user of a report to select the data used in the content of a report. Using prompts, you can customize filter criteria and other parts of a report, allowing multiple users to use the same report to answer different business questions.

In Oracle BI, there are two kinds of prompts:

- Dashboard prompts

  A dashboard prompt filters all reports (requests) on a dashboard page. A dashboard prompt can prompt the end user for multiple filter criteria.

- Criteria prompts

  A criteria prompt applies to only one report. You can use a criteria prompt to prompt the user about the content of an individual report column.

RDW packaged reports include dashboard prompts, but they do not use criteria prompts. Figure 2–1 shows a dashboard prompt for week, departments, and locations, to select the data used in the EOH Value by Type report. See "RDW Packaged Reports" for more information.

Figure 2–1   Prompt for Week, Departments, and Locations
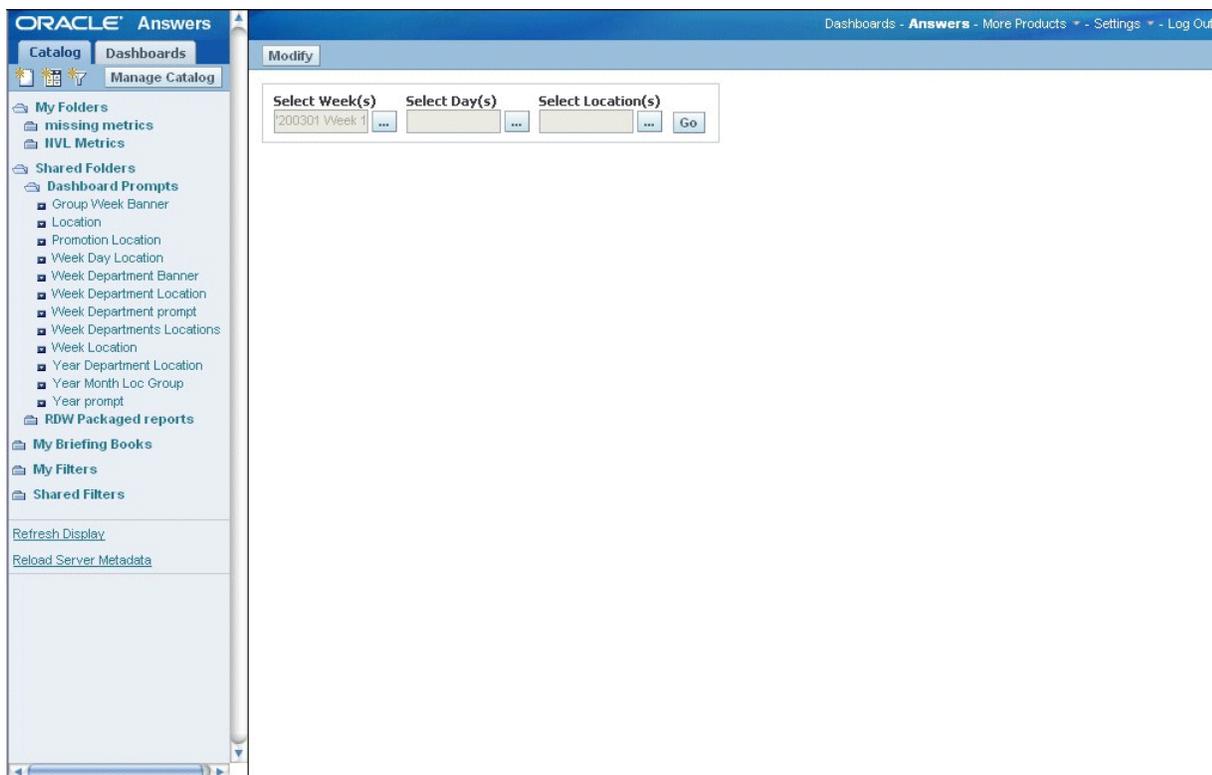
RDW Packaged Reports

Predefined reports are packaged with RDW and available on predefined Oracle BI dashboards. You can use these packaged reports as a foundation or examples, and you can build your own custom reports in addition. Each packaged report includes dashboard prompts.

In addition, RDW includes many predefined metrics. Some of these are used in the packaged reports, and you can use any of the metrics in your own custom reports.

The following figure shows the RDW Merchandising dashboard and an example of the Top Performers report.

Figure 2–2   Merchandising Dashboard - Top Performers Report
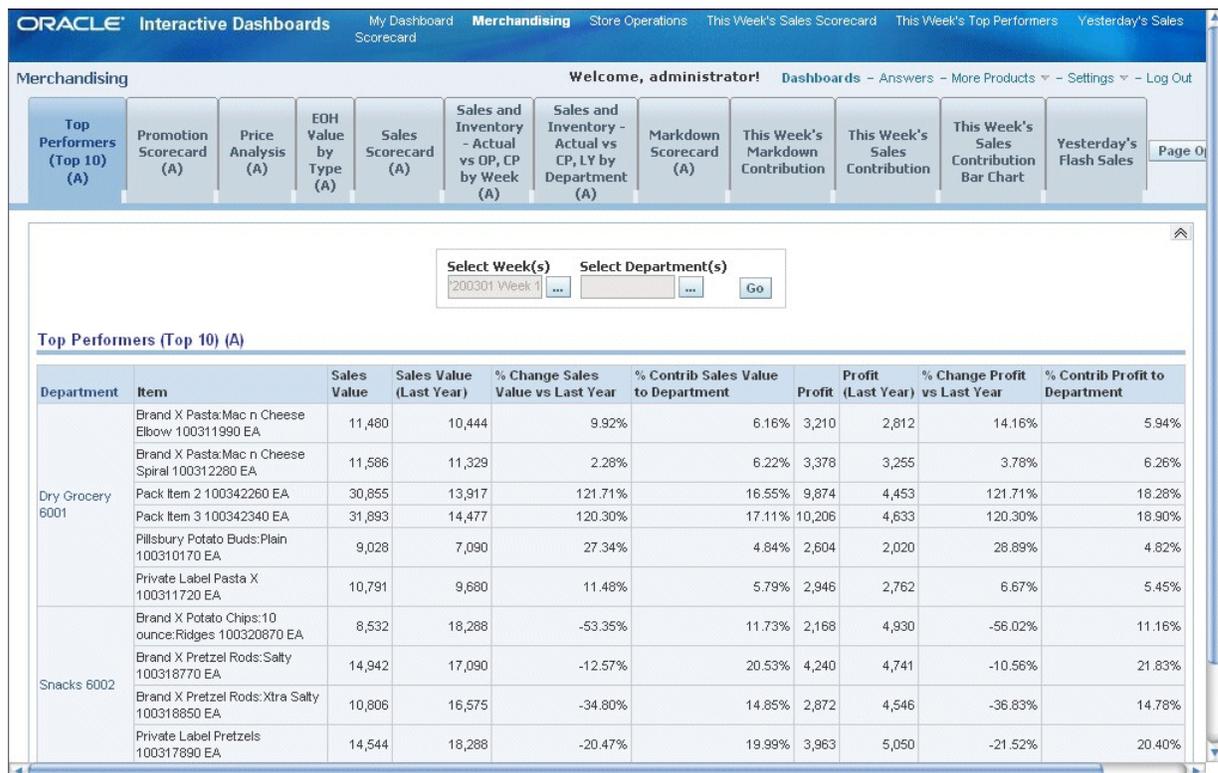
The following are the RDW packaged reports, with their associated dashboard prompts, found on Oracle BI dashboards.

Merchandising Dashboard

- Top Performers (Top 10)

- Promotion Scorecard

- Price Analysis

- EOH Value by Type

- Sales Scorecard

- Sales and Inventory–Actual vs OP, CP by Week

- Sales and Inventory–Actual vs CP, LY by Department

- Markdown Scorecard

- This Week's Markdown Contribution
- This Week's Sales Contribution
- This Week's Sales Contribution Bar Chart
- Yesterday's Flash Sales

Store Operations Dashboard

- Daily Performance
- Comp Sales and Inventory by Department

This Week's Sales Scorecard Dashboard

- This Week's Sales Scorecard

This Week's Top Performers Dashboard

- This Week's Top Performers

Yesterday's Sales Scorecard Dashboard

- Yesterday's Sales Scorecard

3

RDW Dimensions and Attributes

RDW dimensions and attributes represent the structure and activities of a retail organization and make measurement possible. Data is stored in RDW at low levels to allow maximum flexibility in reporting. Dimensions and their attributes allow you to summarize this information at higher levels where it is needed to support business decision-making. For example, the Sales fact table holds data at the location, item, and day level. The time, product, and organization dimensions allow you to summarize this data at any level where it is needed.

Competitor Dimension

The Competitor dimension holds information about each competitor store and associates each competitor store with a location in the organization. Competitor pricing facts can be associated with a specific competitor location and mapped to an item in the Product dimension. This provides the means to compare competitor prices for identical or similar items at a direct competitor location.

The following are the attributes of the Competitor dimension.

Attribute	Description
Competitor Company	The highest attribute within the Competitor hierarchy. A competitor company consists of one or more competitor stores.
Competitor Company City	Attribute of Competitor Company, the city in which the competitor company is located.
Competitor Company Country	Attribute of Competitor Company, the country in which the competitor company is located.
Competitor Company State	Attribute of Competitor Company, the state in which the competitor company is located.
Competitor Multi Units Incentive	The multiple that a competitor's item sold for at given price. Displayed as a numeric value.
Competitor Offer Type	The RDW unique identifier for competitor offer type.
Competitor Store	The lowest attribute within the Competitor hierarchy.
Competitor Store City	Attribute of Competitor Store, the city in which the competitor store is located.
Competitor Store Country	Attribute of Competitor Store, the country in which the competitor store is located.
Competitor Store Distance	Numeric value that represents the distance from a specific location to a competitor.

Attribute	Description
Competitor Store Distance UOM	Unit of measure that applies to the Competitor Store Distance.
Competitor Store Estimated Volume	Attribute of Competitor Store, the yearly volume of the competitor store.
Competitor Store Rank	Relative importance of a competitor location to a specific location.
Competitor Target Ind	Identifies a competitor store as the target for a given location.

Currency Code Attribute

This attribute is the RDW unique identifier for currency code.

Currency Code is not part of an RDW dimension.

Customer Dimension

The Customer dimension provides information about customer preferences and buying behavior. In RDW, customer information and transaction history are used to segment the customer base.

The following are the attributes of the Customer dimension.

Attribute	Description
Account Group	Group to which the customer account belongs. Examples are Loyalty Card and Credit Card.
Account Number	Account number of the customer account.
Account Type	Type of account within account group.
Age	Age of the customer.
Customer	Customer.
Customer Cluster	Cluster to which the customer belongs, based on buying behavior.
Customer Cluster	Cluster to which the customer belongs, based on buying behavior.
Customer External Strategy Identifier	External strategy preferred by the customer (for example, do not call the customer at work).
Customer Occupation	Occupation of the customer.
Customer Status	Status of a customer (for example, active or inactive).
Customer Type	Customer type.
Ethnicity	Ethnicity of the customer.
Extended Primary Bill To Postal Code	Extended primary Bill To Postal Code of the customer.
Gender	Gender of the customer (Male, Female, or Unknown).
Household Size	Size of the customer's household.
Income	Customer's income.
Marital Status	Customer's marital status.
Number of Children	Number of children the customer has.

Attribute	Description
Primary Bill To City	Primary Bill To City of the customer.
Primary Bill To Country	Primary Bill To Country of the customer.
Primary Bill To County	Primary Bill To County of the customer.
Primary Bill To Postal Code	Primary Bill To Postal Code of the customer.
Primary Bill To State or Province	Primary Bill To State or Province of the customer.

Employee Dimension

The Employee dimension provides unique employee identifiers.

The following are the attributes of the Employee dimension.

Attribute	Description
Cashier	The RDW unique identifier for the cashier.
Employee	The RDW unique identifier for the employee
Salesperson	The RDW unique identifier for the salesperson.

Geographic Code Dimension

The Geographic Code dimension segments customers according to a set of geographic characteristics. A Geo Code is assigned to each customer based on a geographic segment such as ZIP code. All customers in this segment share the Geo Code. The attributes for the Geo Code represent averages in the geographic segment. The attributes do not represent individual characteristics for each customer.

The following are the attributes of the Geographic Code dimension.

Attribute	Description
Geo Age	Age of persons in the geographic population in which the customer resides.
Geo Ancestry Code	Ethnic ancestry of the geographic population in which the customer resides.
Geo Code	Code of the geographic population in which the customer resides.
Geo Commute Time	Work commute time of the geographic population in which the customer resides.
Geo Education Level	Level of education of the geographic population in which the customer resides.
Geo Family Type	Family type of the geographic population in which the customer resides.
Geo Home Number of Rooms	Number of rooms in homes in the geographic population in which the customer resides.
Geo Household Income	Household income of the geographic population in which the customer resides.
Geo Housing Value	Value of housing of the geographic population in which the customer resides.
Geo Industry	Industry of employment of the geographic population in which the customer resides.
Geo Male to Female Ratio	Male-to-female ratio of the geographic population in which the customer resides.

Attribute	Description
Geo Number of Autos Available	Number of autos available to a household of the geographic population in which the customer resides.
Geo Per Capita Income	Per capita income of the geographic population in which the customer resides.
Geo Persons Total Number	Total number of persons in a family of the geographic population in which the customer resides.
Geo Poverty Total Number	Number of people at poverty level in the geographic population in which the Customer resides.
Geo Rent to Own Ratio	Number of families renting homes to eventually own their homes in the geographic population in which the customer resides.
Geo Retirement Income	Families whose main source of income is retirement income in the geographic population in which the customer resides.
Geo Urban to Rural Ratio	Urban homestead to rural homestead ratio of the geographic population in which the customer resides.
Geo Year Home Built	Year home built of the geographic population in which the customer resides.

Market Organization Dimension

The Market Organization dimension reflects the structure of the market as a whole. It allows the analyst to examine the performance of the retail organization in the general marketplace. For example, a store in the New York area might produce $4,000 in sales on a given day, while the market data indicates that the average in the general marketplace is $10,000.

The following are the attributes of the Market Organization dimension.

Attribute	Description
FDM CRMA	Food, Drug Stores, and Mass Merchants (FDM) Competitive Regional Marketing Area (CRMA) is the highest attribute within the market organization hierarchy. FDM CRMA represents the highest geography type at which market data for a regional marketing area is being provided. Examples of RDM CRMAs are NY FDM CRMA and Maine/Vermont FDM CRMA.
Food CRMA	Food CRMA represents the second highest geography type at which market data for a regional marketing area is being provided.
RMA	Regional Marketing Area (RMA) is the lowest attribute within the market organization hierarchy. RMA represents the retailer's market data for a regional marketing area.

Market Product Dimension

The Market Product dimension reflects the structure of the market as a whole at the product level. It allows the analyst to examine the performance of the retailer's products in the general marketplace. For example, a product in the New Jersey area might produce $4,000 in sales on a given day, while the market data indicates that the average in the general marketplace is $12,000.

The following are the attributes of the Market Product dimension.

Attribute	Description
As of Date	The date of the last market information update for the market item or category.
Listed Department Ind	Indicates whether the market department is carried by the company.
Listed Item Ind	Indicates whether the market item is carried by the company.
Market Brand	A name, term, design, symbol, or other feature that distinguishes one seller's good or service from those of other sellers.
Market Department	Department in the market.
Market Flavor/Scent	Flavor or scent of the market item. For example, if the item is yogurt, the flavor might be strawberry.
Market Item	An item in the market.
Market Item Size	The size of a market item.
Market Package	A market data attribute supplied by a syndicated data provider to represent the type of packaging for a product (for example, can, glass, or box).
Market Product Type	Product classification (for example, soda or cookies).
Market Vendor	A retailer's source for purchasing goods to be sold (same as supplier).

Organization Dimension

The Organization dimension mirrors the structure of the retail company, allowing analysis at every level of the organization. Because of its importance in the retail environment, the Organization dimension plays a dominant role in nearly all types of analysis available in RDW. Assessing the contribution of a child attribute to its parent attributes (for example, location to region or chain) allows an analyst to identify the segments of the larger organization that are performing as planned, as well as those whose performance is below expectations. In addition, the Organization hierarchy makes it possible to analyze sales by channel and perform comparable store analysis.

The majority of business measurements in RDW reference data by attributes in the Organization dimension. Sales and profit, markdowns, stock position, and most other data is held by location, the lowest-level attribute in the Organization dimension hierarchy.

The following are the attributes of the Organization dimension.

Attribute	Description
Area	Area is the third-highest attribute within the Organization hierarchy. An area consists of one or more regions.
Area Manager	Identity of the person assigned to manage a particular area.
Banner	The name of a retail company subsidiary that is recognizable to the consumer, or the name of the store as it appears on the catalog, Web channel, or brick-and-mortar store.
Chain	Chain is the second-highest attribute within the Organization hierarchy. A chain consists of one or more areas.
Chain Manager	Identity of the person assigned to manage a particular chain.
Channel	The outlet for sale and delivery of goods and services to the customer. A retailer can have multiple outlets, such as brick-and-mortar stores, Web sites, and catalogs.
Channel Type	Type of channel (for example, catalog, brick-and-mortar, or Web).
Comp Ind	Identifies the store as a comparable store for a given week.
Company	Company is the highest attribute within the Organization hierarchy. A company consists of one or more chains.
District	District is the fifth-highest attribute within the organization hierarchy. A district consists of one or more locations.
District Manager	Identity of the person assigned to manage a particular district.
Location	Location is the lowest attribute within the Organization hierarchy. It identifies a warehouse, store, or partner within the company. Additional attribute forms for location include: - Remodel Date – Date on which the location was remodeled - Stock Holding – Whether the location holds stock - Format – Format of the location - Linear Distance – Total linear selling space at the location - Local Currency – Local currency at the location - Location Type – Whether the location is a 'S'tore, 'W'arehouse, or 'E'xternal Finisher/Partner - Desc 2 – The secondary description or name of the store or warehouse
Location City	Attribute of Location, the city of the primary address for the location.

Attribute	Description
Location Country	Country of the primary address for the location.
Location List	A group of predefined locations.
Location List Created by	User who created the location list. A user can have one or more location lists.
Location Manager	Identity of the person assigned to manage a particular location.
Location State	State of the primary address for the location.
Location Trait	The unique identifier of the location trait. Only store locations can have valid entries for this attribute.
Physical Warehouse	A physical warehouse location.
Postal Code	Postal code to of the primary address for the location.
Region	Region is the fourth-highest attribute within the Organization hierarchy. A region consists of one or more districts.
Region Manager	Identity of the person assigned to manage a particular region.
Store End Date	Date on which a location was closed.
Store Start Date	Date on which a location was opened.
Time Zone	Time zone at the location.
Virtual Warehouse	Virtual location in a physical warehouse.

Product Dimension

The Product dimension represents the product line that the company sells. The Product dimension is essential to the category or department manager who needs to know which items turn the highest profit, or how an item performs within the market as a whole.

Because of its importance for analysis in the retail environment, attributes from the Product dimension are present in nearly every data mart in RDW. In most cases, data is kept at the lowest level in the hierarchy (item), to allow maximum flexibility and detail in reporting.

Attributes

The following are the attributes of the Product dimension.

Attribute	Description
Class	Class is the second-lowest attribute within the Product hierarchy. A class consists of one or more items.
Class Buyer	Executive responsible for purchasing merchandise to be sold in a store or retail channel for a particular class.
Class Planner	Executive responsible for meeting the financial goals of an area through the placement and flow of merchandise in a store or retail channel for a particular class.
Company	Company is the highest attribute within the Product hierarchy. A company consists of one or more divisions.
Conveyable Type	Unique identifier for the conveyable type. Conveyable Type indicates whether the product needs to be hand-carried or can be placed on a conveyor belt to be moved.
Department	Department is the fourth-highest attribute within the Product hierarchy. A department consists of one or more subdepartments.
Department Manager	Identity of the person assigned to manage a particular department.
Department Planner	Executive responsible for meeting the financial goals of an area through the placement and flow of merchandise in a store or retail channel for a particular category.
Department Profit Calc Type	Method used to calculate the profit for the department.
Division	Division is the second-highest attribute within the Product hierarchy. A division consists of one or more groups.
Division Buyer	Executive responsible for purchasing merchandise to be sold in a store or retail channel for a particular division.
Division Planner	Executive responsible for meeting the financial goals of an area through the placement and flow of merchandise in a store or retail channel for a particular division.
Group	Group is the third-highest attribute within the Product hierarchy. A group consists of one or more categories.
Group Buyer	Executive responsible for purchasing merchandise to be sold in a store or retail channel for a particular group.
Group Planner	Executive responsible for meeting the financial goals of an area through the placement and flow of merchandise in a store or retail channel for a particular group.
Inventory Ind	Whether an item is an inventory item or a non-inventory item (such as gift certificate, labor).

Attribute	Description
Item	Item is the lowest-level attribute within the Product hierarchy. Sales and inventory facts are tracked at one of three predetermined levels within the Item attribute.
Item Level 1	Highest item level, which can consist of one or more items at level 2.
Item Level 2	Second-highest item level, which can consist of one or more items at level 3.
Item Level 3	Lowest item level.
Item List	Predefined group of items.
Item List Created by	User who created the item list. A user can have one or more item lists.
Item Number Type	Format in which an item number is being held (for example, UPC, internal number, or PLU).
Item UDA	User-defined attribute of an item.
Item UDA Detail	Detailed information of a particular item UDA.
Merchandise Ind	Whether the item sales are financially tracked in the stock ledger.
	Whether the pack is an orderable pack.
Pack	Group of items that are packaged and sold together.
Pack Indicator	Identifies an item as a pack item.
Package Size	Numeric value that represents the size of the item package.
Package UOM	Unit of measure associated with the item package.
Perishable Ind	Whether the item is perishable.
Primary Supplier	Main supplier for an item.
Product Cluster	The RDW unique identifier for product cluster.
Sellable Ind	Whether the item can be sold and have a price greater than 0. If 'N', the item can only be placed on customer orders of replacement or partial type.
Sellable Pack	Identifies a pack as a sellable pack.
Simple Pack	Identifies a pack as a simple pack.
Subclass	Subclass is the third-lowest attribute within the Product hierarchy. A subclass consists of one or more classes.
Subclass Buyer	Executive responsible for purchasing merchandise to be sold in a store or retail channel for a particular subclass.
Subclass Planner	Executive responsible for meeting the financial goals of an area through the placement and flow of merchandise in a store or retail channel for a particular subclass.
Transaction Level	Item level at which sales information is stored.
Unit of Measure	Standard unit of measure for an item.

Product Season Item Architecture

Oracle Retail Merchandising System (RMS) can be a source for the Product Season dimension. Product season functionality allows the user to categorize each item according to different seasons and phases within a season. For example, you can assign a season of "Spring" to a group of items, according to the supplier's deliveries of fashion items. Those relationships can be further broken down into the phases, such as Spring I and Spring II. These item-season relationships are then loaded into RDW. You can then query sales and inventory data, for instance, based on all items in the Spring season.

> **Note:** On a given day, an item can only belong to one product season. In addition, product seasons cannot overlap; the same item-day cannot belong to two product seasons.

Plan Season Item Architecture

To aid in querying planning facts, you can populate the Plan Season dimension. Because planning facts are held in RDW at week level, the Plan Season dimension and season-to-date attributes associate a specific range of calendar weeks with a plan season.

> **Note:** Plan seasons cannot overlap; the same week cannot belong to two plan seasons.

Product Differentiator Dimension

Differentiators (diffs) are used to define the characteristics of an item. Characteristics such as size, color, flavor, scent, and pattern are attached to the items as differentiators within the Oracle Retail Merchandising System (RMS). These first five differentiator types are predetermined within RDW, but an additional 25 types are available.

The following are the attributes of the Product Differentiator dimension.

Attribute	Description
Color	Characteristic of an item that belongs to the item differentiator type 2.
Flavor	Characteristic of an item that belongs to the item differentiator type 3.
Pattern	Characteristic of an item that belongs to the item differentiator type 5.
Scent	Characteristic of an item that belongs to the item differentiator type 4.
Size	Characteristic of an item that belongs to the item differentiator type 1.
Unit of Measure	Standard unit of measure for an item.

Promotion Dimension

A promotion is an attempt to stimulate the sale of merchandise. This can be accomplished by temporarily reducing its price, by advertising it, or by linking its sale to offers of other merchandise at reduced prices (or for free). A promotion can take place for many different reasons, such as the desire to attract a certain type of customer, increase sales of a particular class of merchandise, introduce new items, or gain competitive advantage. Tracking of sales and demand by promotion allows retailers to assess the success in attracting customers to purchase items that are placed on promotion.

A single promotion can be part of a larger effort or event. Several promotions can be associated with an event. For example, a summer sale event might consist of multiple promotions. In RDW, a promotion can be represented at two levels:

- As a promotion header that holds start and end dates

- At a more granular level, a promotion detail that includes additional information on the promotion such as promotion format and trigger type

For example, the promotion header "24-hour sale" might have two promotion detail records: "buy one and get one free for all men's shirts" and "10% off all women's shoes."

There are a number of formats in which a promotion can be offered. Some common examples of these formats are:

- Get a specific percent off the price of an item

- Buy a certain quantity of an item and get a certain amount off the total purchase value

- Buy a certain item and get a discount on another item

- Get free shipping and handling

Every promotion has one of the following promotion formats:

- General: Get Y (percent or amount) discount on item A.

- Threshold: Buy X (quantity or amount) of item A, get Y (percent or amount) discount on item A.

- Mix and Match: Buy X (quantity or amount) of item A, get Y (percent or amount) discount on item B.

- Service: Get Y (percent or amount) discount on service charges. (If the promotion format is Service, there is a service type. A service type could be monogramming, gift wrap, personalization, or shipping and handling.)

Typically, a promotion on an item is not applied universally. It might be triggered only for certain stores, for certain media, for certain customer types, or for certain offer coupons. The type of circumstance that triggers a promotion is called the promotion trigger type. In a brick-and-mortal market, a promotion is always triggered by the store. In a direct-to-consumer market, there can be different trigger types such as Source Code, Media Code, Selling Item Code, or Customer Type. One promotion can be triggered by only one promotion trigger type.

The following are the attributes of the Promotion dimension.

Attribute	Description
Promotion Event	Event for which one or more promotions are offered.
Promotion Head	Business activity that includes one or more promotions.
Promotion Detail	Unique items and attributes of a single promotion. It includes detailed information on a promotion, such as the items for which this promotion is valid, or the format of the promotion.
Promotion Start Date	Date when the promotion started.
Promotion End Date	Date when the promotion ended.
Promotion Format	Format and source in which the promotion is offered. Examples of formats are threshold, general, service, and mix and match. Examples of sources are RPM and DTC.
Promotion Service Type	Service type of the promotion, when the promotion format is Service. Examples of service types are monogramming, gift wrap, personalization, and shipping and handling.
Promotion Trigger Type	Type of trigger that prompted the promotion. Examples of trigger types are Media Code, Offer Code, Selling Item Code, Item Code, and Order Type Code.

Reason Dimension

The Reason dimension makes it possible to track why a particular action was taken in the areas of inventory adjustment and sales.

Return reasons, such as "wrong item shipped" or "defective," are tracked by Return Reason.

Other transactional reasons, such as why a payout was done, or the reason why an even exchange was made, are tracked by Tran Reason. This information makes it possible to spot trends and anomalies in sales.

Inventory adjustments are tracked by Inv Adjustment Reason.

The following are the attributes of the Reason dimension. The Reason attributes do not form a drillable hierarchy.

Attribute	Description
Inv Adj Reason	A detailed description of the reason why a particular action was taken. For example, inventory shrinkage can occur for reasons such as spoilage or theft.
Return Reason	Reason why an item is being returned.
Sub Transaction Type	The RDW unique identifier for sub transaction type.
Tran Reason	Detailed description of the reason why a particular action was taken on a transaction.

Register Attribute

The Register attribute provides an RDW unique identifier for a register.

The Register attribute is not part of an RDW dimension.

Retail Type Attribute

The Retail Type attribute represents the price type at which items were sold or held as inventory. There are four values for Retail Type:

- Regular

- Promotional

- Clearance

- Intercompany

This attribute segments a number of business measurements by price type, including sales and profit, stock position and value, markdowns, markups, and competitor pricing. This information is valuable when determining a pricing strategy, analyzing inventory value, or evaluating a competitor.

The Retail Type attribute is not part of an RDW dimension.

Sales Audit Total Type Attribute

The Sales Audit Total Type provides an RDW unique identifier for sales audit total type.

The Sales Audit Total Type attribute is not part of an RDW dimension.

Supplier Dimension

The attributes in the Supplier dimension allow the business analyst to rate supplier performance based on delivery history and the quality of products. This information can be used to identify suppliers whose performance is below standard, as well as those who are in compliance with expectations.

The following are the attributes of the Supplier dimension.

Attribute	Description
Contract	The RDW unique identifier for contract.
Contract Shipment Method	The RDW unique identifier for contract shipment method.
Contract Status	The RDW unique identifier for contract status.
Supplier	Unique name of a supplier.
Supplier Currency	Currency under which the supplier operates.
Supplier Location	Main location of the supplier.
Supplier Status	Whether the supplier is currently active.
Supplier Trait	Merchandising supplier trait unique identifier.

Tender Type Dimension

This dimension allows reporting of sales and return transactions and vouchers by tender type. In the loss prevention area, this allows identification of cashiers who have an abnormal number of vouchers issued or redeemed, or an abnormal ratio of sales to returns for a particular tender type.

The following are the attributes of the Tender Type dimension.

Attribute	Description
Cash Equivalent Ind	Cash equivalent indicator.
Tender Type	Tender type.
Tender Type Group	Tender type group.

Time Calendar Dimension

Because of its importance, an attribute from the Time Calendar dimension is present in every fact table in RDW and part of nearly every data extraction operation.

Time intervals in RDW are based on the 4-5-4 calendar, the Gregorian calendar, or a thirteen-period calendar.

4-5-4 Calendar

The 4-5-4 calendar is the default. The calendar can be implemented as 4-5-4, 4-4-5, or 5-4-4, depending upon your needs. In addition, you determine the weekday on which a week begins and ends. Every quarter contains 13 full weeks. Quarters have two four-week months and one five-week month.

Gregorian Calendar

Both 4-5-4 and Gregorian calendars can be used; however, the Gregorian calendar alone is not an option. The Gregorian calendar is a solar calendar, based on the length of the earth's revolution around the sun.

In the Gregorian calendar, a solar year is divided up into 11 months of 30 or 31 days, plus February, which has 28 or 29 days, depending on whether the year is a leap year. This gives a year of 365 or 366 days.

In the Gregorian calendar, leap years occur in every year divisible by 4, except for years divisible by 100; however, years that are divisible by 400 are leap years. For example, 1900 was not a leap year, but 2000 was a leap year. A week in a Gregorian calendar may not have 7 days, so reporting on a Gregorian week may not always show a full week for comparison analysis. For that reason, Gregorian week analysis is not a valid option in RDW.

13-Period Calendar

A 13-period calendar can be used as an alternative. You must determine the structure of the calendar and implement it consistently.

The 13-period calendar year is divided into 4 quarters. The first quarter contains 4 periods of 4 weeks, and each successive quarter contains 3 periods of 4 weeks. Every fifth or sixth year, however, there are 53 weeks. The calendar has a 28-year cycle of 6 years, 5 years, 6 years, 6 years, and 5 years. In a 53-week year, the fourth quarter contains 2 periods of 4 weeks and the last period of 5 weeks.

For example, a 13-period calendar could begin on the Sunday after the last Saturday in February. The calendar year ends on a Saturday 52 or 53 weeks after it begins. Every 5 or 6 years, there are 53 weeks in the year.

See the *Oracle Retail Data Warehouse Middle Tier Installation Guide f*or additional information about using this option.

Attributes

There are two sets of attributes in the Time Calendar dimension, one for 4-5-4 or 13-period calendars, the other for a Gregorian calendar.

4-5-4 or 13-Period Calendar

The following are the attributes of the 4-5-4 or 13-period Time Calendar dimension. See "Time Conversions" in Appendix B for a comparable table of transformational time attributes.

Attribute	Description
Day	Uniquely identifies the day. The display consists of a description, date, and day (for example, Sunday 02/24/02 2002001, where the identifier consists of 4 digits for the year and 3 digits for the day [001 – 365]).
Half Year	Uniquely identifies the half-year. The display consists of a description, half-year identifier (for example, Half Year 1 20021, where the half-year identifier consists of the year and half-year number [1 or 2]). **Note:** The Half Year attribute does not exist in a 13-period calendar.
Month	Unique numeric representation for a month.
Plan Season	Plan season.
Quarter	Unique numeric representation of a quarter
Season	Season description and number.
Week	Unique numeric representation for a week.
Week End Date	End of the week by date in MM/DD/YY format.
Week Start Date	Start of the week by date in MM/DD/YY format.
Weekday	Day of the week by name (for example, Wednesday).
Year	Unique numeric representation for a year.

Gregorian Calendar

The following are the attributes of the Gregorian Time Calendar dimension. See "Time Conversions" in Appendix B for a comparable table of transformational time attributes.

Attribute	Description
Gregorian Day	Day within the Gregorian time calendar hierarchy.
Gregorian Half Year	Half year within the Gregorian time calendar hierarchy.
Gregorian Month	Month within the Gregorian time calendar hierarchy.
Gregorian Quarter	Uniquely identifies the Gregorian quarter. The display consists of a quarter description and year, for example, Quarter 1 2002.
Gregorian Year	Year within the Gregorian time calendar hierarchy.

Time of Day Dimension

The Time of Day dimension permits analysis in the loss prevention and employee productivity areas, where identifying problems and trends requires the use of hourly or smaller time increments. In addition, the Time of Day dimension allows analysis of sales and return transactions on an hourly basis.

The following are the attributes of the Time of Day dimension.

Attribute	Description
Half Hour	Identifier for the half hour, made up of the hour_idnt followed by a 1 or 2 to indicate the half of that hour.
Hour	Identifier of the hour (0-23).
Minute	Identifier for the minute, made up of the hour_idnt followed by a number from 1 to 60 to indicate the minute of that hour.
Quarter Hour	Identifier for the quarter hour, made up of the hour_idnt followed by a number from 1 to 4 to indicate the quarter of that hour.

Transfer From Organization Dimension

This dimension allows tracking of inventory transfers from a location or other organizational attribute. This permits analysis of the number of units transferred and the retail and cost value of the transfer in the organization.

The following are the attributes of the Transfer From Organization dimension.

Attribute	Description
From Chain	Chain in the company from which a transfer originates.
From Area	Area in the company from which a transfer originates.
From Region	Region in the company from which a transfer originates.
From District	District in the company from which a transfer originates.
From Location	Warehouse, store, or partner from which a transfer originates.

Transfer Type Attribute

The Transfer Type attribute represents the different types of transfers at which items were moved from one location to another location. There are three values for transfer type:

- Normal
- Book
- Intercompany

The Transfer Type attribute is not part of an RDW dimension.

Voucher Age Band Attribute

The Voucher Age Band attribute provides an RDW unique identifier for voucher age band.

The Voucher Age Band attribute is not part of an RDW dimension.

Wholesale/Franchise Dimension

The Wholesale/Franchise dimension contains information about wholesale and franchise customers.

The following are the attributes of the Wholesale/Franchise dimension.

Attribute	Description
W/F Customer Group	Identifies the Wholesale/Franchise Customer Group.
W/F Customer	Identifies the Wholesale/Franchise Customer.

Customer Type Attribute

The Customer Type attribute distinguishes between wholesale and franchise customers.

Store Type Attribute

The Store Type attribute identifies whether the location is a wholesale, franchise, or normal location.

4

Retail Base and Performance Metrics

This chapter describes many kinds of retail metrics and the metrics provided with RDW, organized by functional area in alphabetical order.

Metrics (measures) are performance measurements that allow you to analyze business performance. They are usually numeric values. A metric can be as simple as the sum of the values in a fact column. A metric can be a highly complex calculations that contains mathematical operators.

A metric can be viewed as a statement that specifies how a performance measure is calculated. The basic component of a metric is a formula that specifies the calculation to be made. A metric can contain other components that specify additional criteria for calculating the metric.

RDW Metrics

Oracle Retail Data Warehouse provides an extensive set of predefined business measures and key performance indicators for decision support in a retail environment. You can create your own metrics with the tools available in Oracle BI.

RDW metrics are stored in presentation tables. These tables contain a table description that includes the level and nature of information provided and the functional area in which the metrics are used. For each metric, the presentation tables contain a description that includes the following:

- Metric type, such as count or system metric

- Functional area, such as net cost

- Definition (for example, base cost is defined as the initial cost before any discounts are applied)

- Constraints (for example, net profit data is only available by primary supplier)

In the Oracle BI interface, you can access a summary description of a metric as follows:

1. Right-click on the metric name.

2. Select Properties.

Comparable Store Analysis Metrics

Comparable stores (comp stores) are stores that are open for business for a set period of time and were in operation within the time period of analysis. In other words, comparable stores are established stores, rather than new or closed stores. Comparable store measurements are important to an analyst because profits and sales from the more established stores provide stable indicators of business performance. New or closed stores tend to be more volatile and can have a skewing effect on business performance indicators. Sales and profits from new or closed stores are not comparable in business analysis, and they are not included in the comparable store measurements.

RDW uses a comp indicator, based on comparable start and end dates that are set for each store location in the source system. These dates are used within RDW to determine a store location as comparable for a given week.

Following are RDW comparable store metrics.

Metric	Definition	Description
% Change Comp Sales Value vs Last Year	(Comp Sales Value - Comp Sales Value (Last Year))/Comp Sales Value (Last Year)	This metric calculates the percent increase or decrease in comparable sales value over the comparable sales value for last year.
% Chng Comp EOH Retail Value vs Comp Base	(Comp EOH Retail Value - Comp Base EOH Retail Value]) / Comp Base EOH Retail Value	This metric calculates the percent increase or decrease in comparable ending-on-hand retail value over the base comparable ending-on-hand retail value.
% Chng Comp EOH Retail Value vs LY	(Comp EOH Retail Value - Comp EOH Retail Value (Last Year)) / Comp EOH Retail Value (Last Year)	This metric calculates the percent increase or decrease in comparable ending-on-hand retail value over the comparable ending-on-hand retail value for last year.
% Chng Comp Rcpts Retail Value vs Comp Base	(Comp Receipts Retail Value - Comp Base Receipts Retail Value) / Comp Base Receipts Retail Value	This metric calculates the percent increase or decrease in comparable receipts retail value over the base comparable receipts retail value.
% Comp Profit	Comp Profit / Comp Sales Value]	This metric calculates percent contribution of comparable profit earned on sales, including comparable profit lost on returns, to comparable sales.
Comp Base EOH Retail Value	Last year's Sum([F_I_SOH_RTL_AMT]) where Comp Indicator = Y	This metric calculates last year's ending-on-hand retail value for locations where the comparable indicator is set to "Y" for the earliest week within the filter criteria.
Comp Base Profit	Last year's Sum(([F_SLS_PRFT_AMT] - [F_RTRN_PRFT_AMT])) where Comp Indicator = Y	This metric calculates last year's profit for locations where the comparable indicator is set to "Y" for the earliest week within the filter criteria. The amount is net of returns.
Comp Base Receipts Retail Value	Last year's Sum([F_I_RCPTS_RTL_AMT]) where Comp Indicator = Y	This metric calculates last year's receipts retail value for locations where the comparable indicator is set to "Y" for the earliest week within the filter criteria.

Metric	Definition	Description
Comp Base Sales Value	Last year's Sum((([F_SLS_PRFT_AMT] - [F_RTRN_PRFT_AMT])) where Comp Indicator = Y	This metric last year's sales value for locations where the comparable indicator is set to "Y" for the earliest week within the filter criteria. The amount is net of returns and inclusive of VAT.
Comp EOH Retail Value	Sum([F_I_SOH_RTL_AMT]) where Comp Indicator = Y	This metric calculates ending-on-hand retail value for locations where the comparable indicator is set to "Y" for the earliest week within the filter criteria.
Comp EOH Retail Value (Last Year)	Sum([F_I_SOH_RTL_AMT]) where last year's Comp Indicator = Y	This metric calculates last year's ending-on-hand retail value for locations where the comparable indicator is set to "Y" for last year in the earliest week within the filter criteria.
Comp Profit	Sum(([F_SLS_PRFT_AMT] - [F_RTRN_PRFT_AMT])) where Comp Indicator = Y	This metric calculates profit for locations where the comparable indicator is set to "Y" for the earliest week within the filter criteria.
Comp Receipts Retail Value	Sum([F_I_RCPTS_RTL_AMT]) where Comp Indicator = Y	This metric calculates the receipts retail value for locations where the comparable indicator is set to "Y" for the earliest week within the filter criteria.
Comp Sales Value	Sum(([F_SLS_AMT] - [F_RTRN_AMT])) where Comp Indicator = Y	This metric calculates sales value for locations where the comparable indicator is set to "Y" for the earliest week within the filter criteria. The amount is net of returns and inclusive of VAT.
Comp Sales Value (Last Year)	Sum(([F_SLS_AMT] - [F_RTRN_AMT])) where last year's Comp Indicator = Y	This metric calculates last year's sales value for locations where the comparable indicator is set to "Y" for last year in the earliest week within the filter criteria. The amount is net of returns and inclusive of VAT.

Customer Segmentation Metrics

Customer segmentation is the process of identifying and classifying customers according to their current and future value to your business. Segmentation identifies your most and least valuable customers, based on how frequently and recently customers have purchased, and the monetary value and profitability of their business.

RFMP Analysis

RFMP analysis is a database marketing methodology that ranks your customers based on their purchase history. This method employs four criteria for ranking customers according to their value to your company. These criteria are described in the following subsections.

Recency

Recency segmentation profiling measures the amount of time that has elapsed since the customer's last purchase. Recency is calculated as the number of elapsed days between the last day of the period being analyzed and the date of the last purchase. Customers with the fewest number of days rank in the highest group. Customers with the largest number of days rank in the lowest group.

Frequency

Frequency segmentation profiling measures the number of times that a customer has purchased from you since a specified date. The value is determined for each customer, based on a count of the number of days on which transactions occurred for this customer. Customers are rated and placed in segments based on this value.

Monetary

Monetary segmentation profiling measures value according to the amount of money a customer has spent in the course of a specified time period. Customers are ranked according to the total monetary value of their purchases and assigned to a segment based on this value.

Profitability

This segmentation type measures customer value according to the profitability derived from purchases in a specified time period. Customers are ranked according to the total profitability and assigned to a segment based on this value.

> **Note:** Use caution in interpreting results based on frequency, monetary, and profitability profiling. New customers tend to be ranked lower than customers with longer purchase histories. This does not necessarily indicate that a new customer is of less value than an established customer whose purchases extend over a longer period. For new customers, recency ranking provides a more accurate measurement of the potential value.

Business Metrics

The following are the metrics used in segmentation profiling.

Metric	Description
No of Customers with Transactions	Count of the number of customers with transactions.
Count of Customer Frequency	The total number of days on which customer transactions took place.
% Customer Frequency Value	The percent contribution to the total frequency count.
Sales Value	The net sales amount for customer purchases.
% Customer Monetary Value	The percentage of sales contribution to total sales.
Avg Spent per Customer Purchase	The average dollar amount of purchases per customer.
Profit	The net profit amount for customer purchases.
% Customer Profit Value	The percentage of profit contributed by this customer to total profit.

In-Store Markdown Metrics

An in-store markdown occurs when a sales transaction has a different retail than what is recorded in the price history and cannot be attributed to a promotion. For example, if the cashier decides to give an unhappy customer an extra $10 off, that is recorded as an in-store markdown.

In-store markdowns are held by retail type as well, and they can be associated with regular, promotional, and clearance merchandise.

The following are RDW in-store markdown metrics.

Metric	Definition	Description
In Store Markdown Value	Sum([F_SLS_IS_MKDN_AMT]) - Sum([F_RTRN_IS_MKDN_AMT])	This metric calculates in-store markdown sales.
In Store POS Markdown Value	Sum([F_SLS_IS_MKDN_AMT]) - Sum([F_RTRN_IS_MKDN_AMT]) where retail type is "promotion"	This metric calculates in-store point-of-sale markdowns, including promotional markdowns.

Loss Prevention Metrics

Preventing loss through employ theft or other means is an important part of controlling cost. Loss prevention permits monitoring of employee activity by transaction. This information allows the retailer to spot trends and anomalies in transaction activity by cashier.

The following information is important for understanding the information in loss prevention reports:

- When you see cashier on a report, it is reporting the number of sales transactions, overrides, and so on, taken at the register for that cashier, or rung with that cashier number.

- When you see employee on a report, the employee is the purchaser. So when cashier and employee appear together (as they do), it is a transaction executed by that cashier to somebody else who is an employee.

- Loss prevention (LP) transactions aggregated at the Employee level give the number of LP transactions that these employees initiated (for example, the number of cases where an employee is the customer). This does not show how many LP transactions the employee entered in the system. For that, you need to analyze LP transactions at cashier or salesperson levels.

Over/Short Amounts

Over/short amounts can be used to track loss over time, assisting in loss prevention issues. Over amounts are positive, and short amounts are negative.

Drawer over/short amounts are held by location, cashier, and register (F_DRAWER_OS_AMT).

Overrides

Loss prevention tables hold the total number of transactions processed. Overrides are the number of manual transactions taken at the register. Overrides can be markdowns or markups. Override counts are maintained for markups and markdowns. These values and the total number of loss prevention transactions are used to calculate the percentage of override transactions.

Metric	Definition
No of LP Transactions	Sum(F_LP_COUNT)
No of Override Markups	Sum(F_SLS_IS_MKUP_COUNT)
Override Markup Value	Sum(F_SLS_IS_MKUP_AMT)
No of Override Markdowns	Sum(F_SLS_IS_MKDN_COUNT)

Loss Prevention Voucher

A voucher is a document for issue of goods and services. Vouchers are issued by the retailer and redeemed. Loss prevention tables hold the number and value of vouchers issued and redeemed.

Metric	Definition
No of Vouchers Issued	Sum(F_ISS_COUNT)
Value of Vouchers Issued	Sum(F_ISS_AMT)
No of Vouchers Redeemed	Sum(F_RED_COUNT)
Value of Vouchers Redeemed	Sum(F_RED_AMT)
No of Vouchers Escheated	Sum(F_ESCH_COUNT)
Value of Vouchers Escheated	Sum(F_ESCH_AMT)

The number of outstanding vouchers is also tracked to allow trending and voucher age reporting.

Loss Prevention Transaction Activity

RDW holds a count and value of loss prevention transactions by cashier, location, and reason type for each quarter hour.

These facts are used to calculate the percentage of total transactions that each cashier accounts for.

```
No of LP Transactions / No of LP Transactions (All Cashiers)
```

Tracking of transaction by reason type allows calculation of the ratio of a reason type to all transactions.

Discount Coupons and Scanned Items

Loss prevention holds data on coupons, manually entered and scanned items, and credit cards.

Metric	Definition
No of Manufacturer Coupons	SUM(F_TNDR_COUPON_COUNT)
Manufacturer Coupon Value	SUM(F_TNDR_COUPON_AMT)
No of Store Coupons	SUM(F_DSCNT_COUPON_COUNT)
No of Items Manually Entered	SUM(F_ENTER_ITEM_COUNT)
No of Items Scanned	SUM(F_SCAN_ITEM_COUNT)
No of Credit Cards Manually Entered	SUM(F_ENTER_CC_COUNT)
No of Credit Cards Scanned	SUM(F_SCAN_CC_COUNT)

The formulas are used to calculate the percentage of manual and scanned items to the total number of items:

```
No of Items Manually Entered / (No of Items Scanned + No of Items Manually
Entered)
```

The percentages of scanned and manually entered credit card are similarly calculated:

```
No of Credit Cards Scanned / (No of Credit Cards Manually Entered] + No of Credit
Cards Scanned)
```

Employee Sales and Returns

RDW holds sales and return values by employee. In addition, transactions are tracked by cashier and employee. This allows you to track transactions for which an employee is the purchaser.

When sale and return values are tracked by employee, the employee is the purchaser. Consequently, these values reflect transactions in which the employee bought or returned goods to the store.

Sales and Returns by Tender Type

RDW holds sales and return amounts by tender type. This information is further segmented into cash and non-cash equivalents at the fact level. Tender type is important because it allows the point-of-sale system to distinguish between the use of cash, credit cards, gift certificates, and other forms of payment. In RDW, this information can be used to track loss prevention issues.

Metric	Definition	Condition
Tender Sales Value	SUM(F_TNDR_SLS_AMT)	None
Tender Sales Value (Cash Equivalent)	SUM(F_TNDR_SLS_AMT)	Cash Equivalent = Y
Tender Sales Value (Non-Cash Equivalent)	SUM(F_TNDR_SLS_AMT)	Non-cash Equivalent = Y
Tender Return Value	SUM(F_TNDR_RTRNS_SLS_AMT)	None
Tender Return Value (Cash Equivalent)	SUM(F_TNDR_RTRNS_SLS_AMT)	Cash Equivalent = Y
Tender Return Value (Non-Cash Equivalent)	SUM(F_TNDR_RTRNS_SLS_AMT)	Non-cash Equivalent = Y

Markdown Metrics

Markdown metrics allow you to calculate markdown values and compare markdown values for different time periods.

Metric	Definition	Description
% Change Markdown Value vs Last Year	(Markdown Value - Markdown Value (Last Year)) / Markdown Value (Last Year)	This metric calculates the percent increase or decrease in net markdown sales between this year and last year.
% Change Regular Markdown Value vs LY	(Regular Markdown Value - Regular Markdown Value (Last Year)) / Regular Markdown Value (Last Year)	This metric calculates the percent increase or decrease in regular markdown value between this year and last year.
% Chng Clearance Markdown Value vs LY	(Clearance Markdown Value - Clearance Markdown Value (Last Year)) / Clearance Markdown Value (Last Year)	This metric calculates the percent increase or decrease in net clearance markdown value between this year and last year.
% Markdown	Markdown Value / Sales Value	This metric calculates the net markdown percent, as markdown value divided by net sales value.
Clearance Markdown Value	Sum([F_MKDN_AMT]) where retail type = 3	This metric calculates net clearance markdown value. The clearance markdown reflects the clearance price markdown and is based on price history information.
Intercompany Markdown Value	Sum([F_MKDN_AMT])	This metric calculates net intercompany markdown value. The intercompany markdown reflects the intercompany price markdown and is based on price history information.
Markdown Value	Sum([F_MKDN_AMT])	This metric calculates net markdown value.
Markdown Value (Last Year)	Last Year's Sum([F_MKDN_AMT])	This metric calculates net markdown sales for last year.
Regular Markdown Value	Sum([F_MKDN_AMT]) where retail type = 1	This metric calculates regular markdown value. The regular markdown reflects the regular price markdown and is based on price history information.
Regular Markdown Value (Last Year)	Last Year's Sum([F_MKDN_AMT]) where retail type = 1	This metric calculates regular markdown value for last year.

Pack Sales Metrics

A sellable pack is a group of individual items grouped together by the retailer to be sold as one item. An example is a bottle of shampoo and a bottle of conditioner, both individual items on their own, but packaged together to be sold as a unique pack item.

Analysis of component item contribution to pack sales reporting is facilitated by RDW extraction, transformation, and loading processing, which prorates the value of a pack into its component items (see "Prorating of Packs" later in this section). Pack sales value is modeled similarly to sales value and is available by regular, clearance, and promotion retail type.

Metrics

The following are RDW pack sales metrics.

Metric	Definition	Description
% Change Markdown Value vs Last Year	(Markdown Value - Markdown Value (Last Year)) / Markdown Value (Last Year)	This metric calculates the percent increase or decrease in net markdown sales between this year and last year.
Pack Sales Value	Sum(F_PACK_SLS_AMT) -Sum(F_PACK_RTRN_AMT))	This metric calculates the total value of regular, clearance, and promotion pack sales. The amount does not include returns but is inclusive of VAT.
Regular Pack Sales Value	(Sum(F_PACK_SLS_AMT) -Sum(F_PACK_RTRN_AMT))	This metric calculates the total value of regular pack sales. The amount does not include returns but is inclusive of VAT.
Promotion Pack Sales Value	(Sum(F_PACK_SLS_AMT) -Sum(F_PACK_RTRN_AMT))	This metric calculates the total value of promotion pack sales. The amount does not include returns but is inclusive of VAT.
Clearance Pack Sales Value	(Sum(F_PACK_SLS_AMT) -Sum(F_PACK_RTRN_AMT))	This metric calculates the total value of clearance pack sales. The amount does not include returns but is inclusive of VAT.
Pack Sales Units	(Sum(F_PACK_SLS_QTY) - Sum(F_PACK_RTRN_QTY))	This metric calculates the total quantity of regular, clearance, and promotion pack sales units.

Prorating of Packs

The prorating of a pack's value into its component items requires calculation. The following formulas are used for prorating packs:

```
Item Prorated Sales Value = Pack Sales Value * Item Prorate %

Item Prorate % = (Item Price * Pack Item Qty) / Pack Component Sales Value

Pack Component Sales Value = (Item A Price * Item A Qty) + (Item B Price * Item B
Qty) + (Item C Price * Item  C Qty) + …+ (Item n Price * Item n Qty)
```

Example Data

1. Pack A contains:

   - Item A

   - Item B

   - Item C

2. Quantities of each Item in Pack A:

   - Item A = 2

   - Item B = 1

   - Item C = 1

3. Prices:

   - Pack A = $9

   - Item A = $4

   - Item B = $2

   - Item C = $1

4. Pack Sales Value:

   - $90,000

Calculation Steps

Step 1, part 1 - pack component sales value

Item A Price * Quantity of Item A in Pack A

```
4 * 2 = 8
```

Item B Price * Quantity of Item B in Pack B

```
2 * 1 = 2
```

Item C Price * Quantity of Item C in Pack C

```
1 * 1 = 1
```

Step 1, part 2 - pack component sales value

```
8 + 2 + 1 = 11
```

Step 2 - item prorate percent

```
8/11 = .7273
2/11 = .1818
1/11 = .0909
```

Step 3 - item prorated sales value

```
$90,000 * .7273 = $65,457.00 = Item A Prorated Sales Value
$90,000 * .1818 = $16,362.00 = Item B Prorated Sales Value
$90,000 * .0909 = $8,181.00 = Item C Prorated Sales Value
```

Planning Metrics

RDW holds facts for both pre-season (original) and in-season (current) planning in several reporting areas, including sales, markdowns, receipts, inventory, gross margin, and open-to-buy, in both dollars and units.

Plan Sales and Profit

The following are RDW planning sales and profit metrics.

Metric	Definition	Description
% CP Profit	CP Profit / CP Sales Value	This metric calculates percent contribution of plan profit to plan sales.
% Variance Profit vs CP	(Profit - CP Profit]) / CP Profit	This metric calculates the percent increase or decrease in profit earned on sales, including profit lost on returns, over the current plan profit.
% Variance Sales Units vs CP	(Sales Units - CP Sales Units) / CP Sales Units	This metric calculates the percent increase or decrease in unit sales versus plan.
% Variance Sales Value vs CP	(Sales Value - CP Sales Value) / CP Sales Value	This metric calculates the percent increase or decrease in sales value over current plan sales value.
CP Profit	Sum([F_PLN_CURR_GRS_PRFT_AMT])	This metric calculates current plan profit based on expected sales.
CP Sales Units	Sum((([F_PLN_CURR_RGLR_SLS_QTY] + [F_PLN_CURR_PRMTN_SLS_QTY]) + [F_PLN_CURR_CLRC_SLS_QTY]))	This metric calculates current plan sales units based on regular, clearance, and promotion plan sales units. Inclusion of returns depends on the data source.
CP Sales Value	Sum((([F_PLN_CURR_RGLR_SLS_AMT] + [F_PLN_CURR_PRMTN_SLS_AMT]) + [F_PLN_CURR_CLRC_SLS_AMT]))	This metric calculates the current plan sales value, based on regular, clearance, and promotional sales amount. Inclusion of returns depends on the data source.
OP Sales Units	Sum((([F_PLN_ORIG_RGLR_SLS_QTY] + [F_PLN_ORIG_PRMTN_SLS_QTY]) + [F_PLN_ORIG_CLRC_SLS_QTY]))	This metric calculates original plan sales units based on regular, clearance, and promotion plan sales units. Inclusion of returns depends on data source.
OP Sales Value	Sum((([F_PLN_ORIG_RGLR_SLS_AMT] + [F_PLN_ORIG_PRMTN_SLS_AMT]) + [F_PLN_ORIG_CLRC_SLS_AMT]))	This metric calculates the original plan sales value, based on regular, clearance, and promotional sales amount. Inclusion of returns depends on the data source.

Plan Inventory

The following are RDW planning inventory metrics.

Metric	Definition	Description
% Variance Owned Inv Retail Value vs CP	(([Owned Inventory Retail Value] - [CP EOP Retail Value]) / [CP EOP Retail Value])	This metric calculates the percent increase or decrease in owned inventory retail value versus current plan.
% Variance Receipts Retail Value vs CP	(([Receipts Retail Value] - [CP Receipts Retail Value]) / [CP Receipts Retail Value])	This metric calculates the percent increase or decrease retail value versus plan retail value of received items.
CP BOP Cost Value	Sum([F_PLN_CURR_BOP_COST_AMT]) The beginning fact based on the lookup table for the time period	This metric calculates the cost value of the current plan stock on hand at the beginning of the time period selected.
CP BOP Retail Value	Sum([F_PLN_CURR_BOP_RTL_AMT]) The beginning fact based on the lookup table for the time period	This metric calculates the selling value of the current plan stock on hand at the beginning of the time period selected.
CP EOP Retail Value	Sum([F_PLN_CURR_EOP_RTL_AMT]) The ending fact for the time period	This metric calculates the selling value of the current plan stock on hand at the end of the time period selected.
CP Receipts Retail Value	Sum([F_PLN_CURR_RCPTS_RTL_AMT])	This metric calculates a current plan retail value of an item that is expected to be received.
CP Stock Turn Value	([CP Sales Value] / [CP Avg Stock Retail Value])	This metric calculates the average current plan stock value. Data available at the week/subclass level and higher.
OP BOP Retail Value	Sum([F_PLN_CURR_BOP_RTL_AMT]) The beginning fact based on the lookup table for the time period	This metric calculates retail value for the original plan stock on hand at the beginning of a selected period.
OP EOP Retail Value	Sum([F_PLN_CURR_EOP_RTL_AMT]) The ending fact for the time period	This metric calculates retail value for the original plan stock on hand at the end of a selected period
OP Stock Turn Value	([OP Sales Value] / [OP Avg Stock Retail Value])	This metric calculates original plan stock turnover based on original plan sales value divided by original plan average stock value.

Plan Markups and Markdowns

The following are RDW planning inventory metrics.

Metric	Definition	Description
% Variance Clearance Mkdn Value vs CP	(([Clearance Markdown Value] - [CP Clearance Markdown Value]) / [CP Clearance Markdown Value])	This metric calculates the percent increase or decrease in actual net clearance markdown value compared to plan net clearance markdowns.
% Variance Markdown Value vs CP	(([Markdown Value] - [CP Markdown Value]) / [CP Markdown Value])	This metric calculates the percent increase or decrease in the actual net markdown sales and planned net markdown sales.
% Variance POS Promo Mkdn Value vs CP	(([POS Promo Markdown Value] - [CP Promotion Markdown Value]) / [CP Promotion Markdown Value])	This metric calculates the percent increase or decrease in point-of-sales, including promotional markdowns, markdown sales compared to plan.
% Variance Regular Markdown Value vs CP	(([Regular Markdown Value] - [CP Regular Markdown Value]) / [CP Regular Markdown Value])	This metric calculates the percent increase or decrease in regular markdown value versus plan.
CP Clearance Markdown Value	Sum([F_PLN_CURR_CLRC_MKDN_AMT])	This metric calculates the current plan clearance markdown value.
CP Markdown Value	CP Clearance Markdown Amount + CP Promotion Markdown Amount + CP Regular Markdown Amount	This metric calculates current plan markdown value for clearance, promotion, and regular sales.
CP Promotion Markdown Value	Sum([F_PLN_CURR_PRMTN_MKDN_AMT])	This metric calculates the current plan promotion markdown value.
CP Regular Markdown Value	Sum([F_PLN_CURR_RGLR_MKDN_AMT])	This metric calculates the current plan regular markdown value.
OP Clearance Markdown Value	Sum([F_PLN_ORIG_CLRC_MKDN_AMT])	This metric calculates the original plan clearance markdown value.
OP Markdown Value	OP Clearance Markdown Amount + OP Promotion Markdown Amount + OP Regular Markdown Amount	This metric calculates original plan markdown value for clearance, promotion, and regular sales.
OP Promotion Markdown Value	Sum([F_PLN_ORIG_PRMTN_MKDN_AMT])	This metric calculates the original plan promotion markdown value.
OP Regular Markdown Value	Sum([F_PLN_ORIG_RGLR_MKDN_AMT])	This metric calculates the original plan regular markdown value.

Price Metrics

RDW holds price as a retail value for an item, day, and location. For the purpose of analysis, the average price is calculated over the time period selected for the report.

Metric	Definition
Avg Retail Price	Avg(F_UNIT_RTL_AMT)
Avg Retail Price (YTD)	YTD Avg([F_UNIT_RTL_AMT])
Avg Retail Value (YTD)	([Sales Value (YTD)] / [Sales Units (YTD)])
Cost Amount	Avg([F_BASE_COST_AMT])
Cost Amount (YTD)	YTD Avg([F_BASE_COST_AMT])

Time series conversion functions allow the calculation of average retail price and values for the week-to-date, month-to-date, and year-to-date. See Appendix B, "Time Series Conversion Functions."

Promotions Metrics

A promotion is an attempt to stimulate the sale of merchandise by temporarily reducing its price or by tying its sale to other merchandise offers at reduced prices (or for free).

In a direct-to-consumer (DTC) market, there may be more than one promotion tied to a single customer order line. For example, there might be $10 off the total retail of the promotion item in which a quantity of 10 units were purchased, and an additional 20% off promotion if the entire order retail was over $100.

Using this example, the sales of 10 units are accredited to the $10 off promotion as well as the additional 20% off promotion. If a report is created with both promotions, the total sales for each of the two promotions appear as $100, which is not inaccurate; however, when looking at the totals, do not add the two lines together and conclude that $200 worth of sales took place.

RDW has a number of metrics to measure a promotion against sales data, as well as against customer order demand data. As in the case of most of the metrics, the names of metrics that measure against demand are prefixed with a CO, signifying that these metrics pertain to customer orders.

The following are RDW Promotions metrics.

Metric	Definition	Description
% Change Promotion Markdown Value vs LY	(Promotion Markdown Value - CP Promotion Markdown Value) / CP Promotion Markdown Value	This metric calculates the percent increase or decrease in point-of-sales markdown, including promotional markdowns, between this year and last year.
% Promo Markdown	Promotion Markdown Value / Promotion Sales Value	This metric calculates promotion markdown value as a percentage of promotion sales value.
% Promo Profit	Promotion Profit Value / Promotion Sales Value	This metric calculates percent contribution of profit earned on promotion sales, including profit lost on promotion returns, to promotion sales.
No of Items with Promotion Sales	Count (Item) of items on promotion	This metric calculates the number of items with promotional sales.
No of Stores with Promotion Sales	Count (Location) where they were on promotion	This metric counts the number of distinct stores with promotions.
Promotion Markdown Value	Sum(F_PRMTN_MKDN_AMT)	This metric calculates the discount amount in sales due to promotions in sales transactions. For example, for a "buy one, get one free" promotion, the discount amount would be the value of the "get one" product.
Promotion Profit Value	Sum(([F_SLS_PRFT_AMT] - [F_RTRN_PRFT_AMT])) where retail type = 2	This metric calculates profit earned on promotion sales.

Sales and Profit Metrics

RDW includes a complete set of metrics for measuring sales and profit at virtually any level in the retail organization.

Gross sales value is the total dollar amount the retailer sells to consumers. Gross sales value is calculated by multiplying the unit price of an item by the number sold to consumers. Returns are the portion of sales that are returned to the store for a refund. Sales value is the net value after customer returns are subtracted from gross sales value.

RDW maintains gross sales and returns for amounts and number of units in separate fact fields. Separation of these values allows for analysis of returns and the use of gross sales in calculations where this is desirable. Net sales value is required for most calculations. In addition, the retailer may need to track sales according to price type to allow analysis of sales for promotional and clearance items. RDW holds sales amount and units by retail price type to allow analysis at this level, which is discussed later in this section.

Profit is calculated as the difference between sales amount and cost of the item in the transaction. The cost of the item is based on what is stored in the merchandising system as the average cost of the item for a given location.

The following are RDW sales and profit metrics.

> **Note:** The definitions for the compound metrics in this table do not use the actual metric names. The business definitions of the metrics are shown instead.

Metric	Definition	Description
% Change Profit vs Last Week	((Profit - [Profit (Last Week)]) / [Profit (Last Week)])	This metric calculates the percent increase or decrease in profit earned on sales, including profit lost on returns, over the previous week.
% Change Profit vs Last Year(	Profit – Last Year's Profit)/ Last Year's Profit)	This metric calculates the percent increase or decrease in profit earned on sales, including profit lost on returns, over the previous year.
% Change Sales Units vs Last Year(	Sales Units – Last Year's Sales Units)/Last Year's Sales Units	This metric calculates the percent increase or decrease in unit sales over the previous year.
% Change Sales Value vs Last Week(	Sales Value – Last Week's Sales Value)/Last Week's Sales Value	This metric calculates the percent increase or decrease in sales value over the previous week.
% Change Sales Value vs Last Year	(Sales Value – Last Year's Sales Value)/Last Year's Sales Value	This metric calculates the percent increase or decrease in sales value over the previous year.
% Contrib Profit to Department	(Profit / [Profit (Department)])	This metric calculates the percent contribution of profit to total department profit.

Metric	Definition	Description
% Contrib Sales Value to Department	([Sales Value]/[Sales Value (Department)])	This metric calculates the percent contribution of sales to total department sales.
% Contrib Sales Value to Location	([Sales Value]/[Sales Value (Location)])	This metric calculates the percent contribution sales value to total location sales.
% Profit	(Profit / [Sales Value])	This metric calculates percent contribution of profit earned on sales, including profit lost on returns, to sales.
% Profit (Last Year)	([Profit (Last Year)] / [Sales Value (Last Year)])	This metric calculates percent contribution of profit, including profit lost on returns, to sales for last year.
% Profit (YTD)	([Profit (YTD)] / [Sales Value (YTD)])	This metric calculates percent contribution of year-to-date profit earned on sales, including profit lost on returns, to year-to-date sales.
Profit	Sum(F_SLS_PRFT_AMT) - Sum(F_RTRN_PRFT_AMT)	This metric calculates total regular, clearance, and promotion profit, including profit lost on returns.
Profit (Last Week)	Last Week's Sum(([F_SLS_PRFT_AMT] - [F_RTRN_PRFT_AMT]))	This metric calculates total profit earned on regular, clearance and promotion sales, including profit lost on returns for last week.
Profit (Last Year)	Sum(F_SLS_PRFT_AMT) - Sum(F_RTRN_PRFT_AMT)	This metric calculates total profit earned on regular, clearance, and promotion sales, including profit lost on returns, for last year.
Profit (YTD)	YTD Sum(([F_SLS_PRFT_AMT] - [F_RTRN_PRFT_AMT]))	This metric calculates total year-to-date regular, clearance and promotion profit, including profit lost on returns.
Sales Units	Sum(F_SLS_QTY) - Sum(F_RTRN_QTY)	This metric calculates total number of units sold based on regular, clearance, and promotion sales. The quantity is net of returns.
Sales Units (Last Year)	Sum(F_SLS_QTY) - Sum(F_RTRN_QTY)	This metric calculates total number of units sold, based on regular, clearance, and promotion unit sales for last year. The quantity is net of returns.
Sales Value	Sum(F_SLS_AMT) - Sum(F_RTRN_AMT)	This metric calculates the total value of regular, clearance, and promotion sales. The amount is net of returns and inclusive of VAT.

Metric	Definition	Description
Sales Value (Last Year)	Sum(F_SLS_AMT) - Sum(F_RTRN_AMT)	This metric calculates total sales value, based on regular, clearance, and promotion sales, for last year. The amount is net of returns and inclusive of VAT.
Sales Value (LW)	Last Week's Sum(F_SLS_AMT) - Sum(F_RTRN_AMT)	This metric calculates total sales value for last week based on regular, clearance, and promotion sales. The amount is net of returns and inclusive of VAT.

Retail Type

Sales and profit are segmented by retail price type. Conditional metrics are used to constrain data based on retail type.

Sale Type	Retail Type
Regular	1
Promotion	2
Clearance	3
Intercompany	4

The following are the metric formulas and conditions used in the Organization, Sales Value by Type report.

Metric	Definition	Description	Retail Type
Sales Value	Sum(F_SLS_AMT) - Sum(F_RTRN_AMT)	This metric calculates the total value of regular, clearance, and promotion sales. The amount is net of returns and inclusive of VAT.	None
Regular Sales Value	Sum(F_SLS_AMT) - Sum(F_RTRN_AMT)	This metric calculates the total value of regular sales. The amount is net of returns and inclusive of VAT.	1
% Contrib Regular to Sales Value	Regular Sales Value/Sales Value	This metric calculates the percent contribution of regular sales value to total sales value.	N/A
Promotion Sales Value	Sum(F_SLS_AMT) - Sum(F_RTRN_AMT)	This metric calculates the total value of promotion sales. The amount is net of returns and inclusive of VAT.	2
% Contrib Promotion to Sales Value	Promotion Sales Value/Sales Value	This metric calculates the percent contribution of promotion sales value to total sales value.	N/A
Clearance Sales Value	Sum(F_SLS_AMT) - Sum(F_RTRN_AMT)	This metric calculates the total value of clearance sales. The amount is net of returns and inclusive of VAT.	3
% Contrib Clearance to Sales Value	Clearance Sales Value/Sales Value	This metric calculates percent contribution of clearance sales value to total sales value.	N/A

Value-Added Tax

RDW holds VAT amounts for the retail amounts of sales and return transactions only. If VAT is used in the source system (such as RMS), RDW extracts sales and return retail values and loads them with VAT included. RDW also holds the VAT portion independently in the facts F_SLS_VAT_AMT and F_RTRN_VAT_AMT.

Markdown and profit amounts in RDW are always exclusive of VAT. For sales forecast facts, RDW only holds sales forecast quantity information that does not include VAT.

For implementations where RMS is in use:

- If the VAT indicator in RMS is on, the retail sales coming from the source system may include VAT, depending on certain RMS system options. However, RDW always holds VAT-inclusive sales and return retail amounts based on the item's VAT rate as held in RMS.

- If the VAT indicator in RMS is off, all the values for RDW sales and returns are exclusive of VAT. VAT facts such as F_SLS_VAT_AMT are empty.

- "Standalone implementations that employ a retailer-supplied source for sales values for sales and returns could be inclusive of VAT, depending on the source data you provides to RDW. You also need to supply VAT facts such as F_SLS_VAT_AMT in this case.

Returns, Exchanges, Replacements, and Partials

Returns, replacements, exchanges, and partials are events that can happen to a customer order after the order is shipped (and thus recorded as a completed sale). They involve the merchant either accepting back a previously shipped item, or shipping another item to the customer, or both.

These types of transactions have implications both on the demand side as well as the sales side of transactions. The metrics and definitions that follow apply to a return, exchange, replacement, or partial at the time that the customer order management system processes this transaction and communicates this transaction to a sales audit or merchandising system.

Returns

A return transaction takes place when the customer returns merchandise that was purchased ("return in") and receives a refund of all or part of the payment that was originally made. A return does not affect demand, but it counts against net sales.

Replacements

A replacement transaction takes place when the customer returns merchandise that was purchased and gets the exact same merchandise in replacement. No additional payments are made by or refunded to the customer in this transaction because the retail value of the merchandise that is returned ("replace in") and the retail value of the merchandise that is replaced ("replace out") are the same. A replacement is treated as two different transactions, a replace in transaction followed by a replace out transaction. A replacement does not affect demand or net sales.

Exchanges

An exchange transaction takes place when the merchandise that the customer returns ("exchange in") is not identical to the merchandise that the customer receives in exchange ("exchange out"). This may be because the merchandise has a different SKU, or because the value or quantity of the merchandise is different, or both. An exchange

is treated as two different transactions, a return transaction followed by a new sale transaction. The value of the merchandise that is returned is counted as a return and counted against net sales. The exchange return does not affect demand, however. The merchandise that is sent out as part of an exchange transaction (exchange out) is considered part of demand as well as sales.

Partials

A partial transaction takes place when a part of an item is sent to the customer ("partial out") because the part in the original shipment was damaged or missing. A partial may involve charging or refunding money to the customer. The items that are sent out as part of a partial transaction are not considered part of demand. The value of the items is included as part of sales, however.

The following are RDW returns and replacements metrics.

Metric	Definition	Description
Return Units	Sum([F_RTRN_QTY])	This metric calculates the quantity of items returned by customers in units.
Return Value	Sum([F_RTRN_AMT])	This metric calculates the total value of regular, clearance, and promotion returns. The amount is inclusive of VAT.
Replacement In Cost Value	Sum([F_RPLC_COST_IN_AMT])	This metric calculates the cost incurred for items being replaced.
Replacement In Units	Sum([F_RPLC_IN_QTY])	This metric calculates the quantity of items that are being replaced.
Replacement Out Cost Value	Sum([F_RPLC_COST_OUT_ AMT])	This metric calculates the cost incurred for items sent out to customers as replacements.
Replacement Out Units	Sum([F_RPLC_OUT_QTY])	This metric calculates the quantity of items sent out to customers as replacements.

Accommodations

Accommodations are monetary adjustments given to a customer by the retailer in an act of good will. Depending on the circumstances under which an accommodation is given to a customer, the accommodation may be recorded differently in the transaction system and would also be held differently in RDW:

- If an accommodation is given to a customer while the customer order is still open, it is treated and stored as an accommodation and also as an in-store markdown. The amount of the accommodation is subtracted from the amount of the original sales amount in such a transaction.

- If an accommodation is given to a customer for a customer order that is closed, the accommodation amount is recorded in a new transaction, with a negative sale value equal to the accommodation amount.

- If an accommodation cannot be tied to a specific customer order line or transaction, the accommodation amount is stored as a loss prevention amount, with a reason of "customer accommodation".

Accommodation metrics in RDW described here include only those accommodations that can be tied to a specific customer order line or transaction.

> **Note:**   Because of the methods used to capture accommodations, the sales and profit metrics in RDW are net of any accommodation amounts applied on customer orders, except when reported at the most granular transaction level. The in-store markdown metrics in RDW include all accommodations that were given to customers while the customer orders were still open, in addition to the normal in-store discounts.

The following is an RDW accommodation metric.

Metric	Definition	Description
Sales Accommodation Value	Sum(([F_SLS_ACCOM_AMT]	This metric calculates customer order accommodations associated with items, in primary currency, for sales transactions.

Spatial Analysis Metrics

RDW holds linear, square, and cubic measurements for space allocation reporting. The unit of space allocation measurement that is populated (such as linear, square, cubic) depends on the type of item. For example, a fashion item such as a dress may be displayed on a rack. Racks are likely to use a linear unit of measurement. A grocery item, such as a box of cereal, may be displayed on a shelf. Shelves are likely to use a square unit of measure. Other grocery items, such as fruit, may be displayed in large containers. These would use a cubic unit of measure.

Base Formulas and Metrics

Space allocation facts are held in the space allocation item table (at item-location-day) and space allocation department table (at dept-location-day). The following base metrics are used to build more complex space allocation metrics.

Metric	Definition
Avg Space Allocation (Cu)	Avg(F_SA_CUBIC_AMT)
Avg Space Allocation (Ln)	Avg(F_SA_LINEAR_AMT)
Avg Space Allocation (Sq)	Avg(F_SA_SQUARE_AMT)

All of the space allocation metrics are based on these three base metrics (cubic, linear, square feet). The business measures that follow are all available in these three varieties.

Profit Per Unit of Allocated Space

RDW maintains the transformations required for viewing profit measures per units of allocated space. The profit measures can come from both actual sales and plan sales. Average profit on actual sales per average unit of allocated space can be viewed for this year, last year, and as a percent change between the two. The following is an example business measure.

Metric	Definition
Avg Profit per Space Allocation (Ln)	(Avg Profit on Sales]/Avg Space Allocation (Ln))

Sales Per Unit of Allocated Space

Transformations also exist for viewing sales measures per units of allocated space. The sales measures can come from both actual sales and plan sales. Average sales value per average unit of allocated space can be viewed for this year, last year, and as a percent change between the two.

The following is an example business measure.

Metric	Definition
Avg Sales per Space Allocation (Ln)	([Avg Sales Value]/[Avg Space Allocation (Ln)])

Space Allocation Aggregation

> **Note:** The *Oracle Retail Data Warehouse Operations Guide* provides two options for loading space allocation data into RDW. You can either directly load item and department level space allocation data to the fact tables, or you can load item-level space allocation facts, and then allow an RDW aggregation batch module to summarize that data to the department level.

If you choose to load directly to item and department, some clarification is needed about drilling between item and department for space allocation facts. For example, suppose that there are two departments for which you have space allocation data, Dept A and Dept B. Dept A space allocation facts are tracked in the source system at item level, and that item-level data is directly loaded to RDW. Dept B, however, only tracks space allocation facts in the source system at the department level, and that department-level data is directly loaded to department space allocation tables in RDW. In this situation, a space allocation report run with only department , and an empty filter, would only show facts for Dept B. This is because there are no facts for Dept. A items summarized at department level.

If you drilled to item level from Dept B, however, the report would return no data, because there are no facts below department level for Dept. B. If a space allocation report had only items and was run with an empty filter, the report would only return facts for Dept A, because that is the only department with item-level space allocation data. Contrast this situation to inventory position (and most other facts in RDW) where data is always available at item level and is then aggregated to higher levels.

Stock Ledger Metrics

The information for stock ledger analysis comes from RMS.

The lowest-level stock ledger facts are kept at the subclass and week level. This gives RDW visibility to store/subclass/week level and subclass month. As a result, stock ledger reporting is not available at the item and day level. Reports and drills into data that are lower than the subclass/week level return null values for stock ledger facts.

For RDW users who receive stock ledger information from RMS, the RMS stock ledger feed to RDW supports either 4-5-4 fiscal time or Gregorian time. For users who run a Gregorian stock ledger, reporting in RDW can be done at the subclass, location, and month level. Reports and drills into data that are lower than the subclass/month level return null values for stock ledger facts. Clients running a 4-5-4 stock ledger can analyze the stock ledger at the subclass, location, week, and month levels. Reports and drills into data that are lower than the subclass/week level return null values for stock ledger facts. Any other time calendars, such as a 13-period time calendar, are not supported by the RMS-RDW interface for stock ledger facts. As a result, if an RMS user customizes the stock ledger to work as a 13-period calendar, there are inconsistencies with the RMS-RDW stock ledger interface unless modifications are made.

Because the month level stock ledger is directly related to the RMS month_data table, data for a specific month is available in RDW after the close of that month.

Sales and Gross Margin

RDW holds facts for sales at retail value and gross profit margin.

Metric	Definition
Stock Ledger Gross Margin Value	Sum(F_IVL_GRS_PRFT_AMT)
Stock Ledger Returns Retail Value	Sum(F_IVL_RTRNS_RTL_AMT)
Stock Ledger Sales Cost Value	Sum(F_IVL_SLS_COST_AMT)
Stock Ledger Sales Retail Value	Sum(F_IVL_SLS_RTL_AMT)

Percent gross margin is the ratio of gross profit amount to total sales at retail value and is calculated as follows:

Metric	Definition
Stock Ledger % Gross Margin	(Stock Ledger Gross Margin Value/Stock Ledger Sales Retail Value)

Note that time transformations are applied to sales and gross margin within the stock ledger. Time series conversion functions allow retail sales to be retrieved for month-to-date, season-to-date, and year-to-date, with corresponding metrics for last year.

Beginning and Ending Stock Values

Beginning and ending values are maintained at retail and cost.

Metric	Definition
% Change EOH Retail Value vs Last Year	(([EOH Retail Value] - [EOH Retail Value (Last Year)]) / [EOH Retail Value (Last Year)])
% Chng Owned Inventory Retail Value vs LY	(([Owned Inventory Retail Value] - [Owned Inventory Retail Value (Last Year)]) / [Owned Inventory Retail Value (Last Year)])
EOH Retail Value (Last Year)	Last Year's Sum([F_I_SOH_RTL_AMT])
Owned Inventory Retail Value	([EOH Retail Value] + [In Transit Retail Value])
Owned Inventory Retail Value (Last Year)	Last Year's ([EOH Retail Value] + [In Transit Retail Value])
Stock Ledger BOH Cost Value	Sum(F_IVL_BEG_SOH_COST_AMT)
Stock Ledger BOH Retail Value	Sum(F_IVL_BEG_SOH_RTL_AMT)
Stock Ledger EOH Cost Value	Sum(F_IVL_END_SOH_COST_AMT)
Stock Ledger EOH Retail Value	Sum(F_IVL_END_SOH_RTL_AMT)

These values are used to calculate average stock cost value. Average stock cost value is the average cost of stock over a period of weeks. This value is held at retail and cost.

Metric	Definition
Stock Ledger Avg Stock Cost Value	((Stock Ledger BOH Cost Value + Stock Ledger EOH Cost Value (SUM))/(No of Weeks with Stock + 1))
Stock Ledger Avg Stock Retail Value	((Stock Ledger BOH Retail Value] + Stock Ledger EOH Retail Value (SUM))/(No of Weeks with Stock + 1))

Stock Turn Retail Value

Stock turn retail value is calculated using sales value and the average stock cost at retail.

Metric	Definition
Stock Ledger Stock Turn Value	(Stock Ledger Sales Retail Value/[Stock Ledger Avg Stock Retail Value)

Gross Margin Return per Dollar of Inventory (GMROI)

GMROI calculates the relative effectiveness of inventory investment. It is kept in RDW in the stock ledger tables at the subclass and week level and calculated as follows:

Metric	Definition
Stock Ledger GMROI	(Stock Ledger Gross Margin Value/Stock Ledger Avg Stock Cost Value)

Receipts

The stock ledger holds receipts at cost and retail value. The following is an example metric.

Metric	Definition
% Chng Receipts Retail Value vs LY	(([Receipts Retail Value] - [Receipts Retail Value (Last Year)]) / [Receipts Retail Value (Last Year)])
Receipts Retail Value (Last Year)	Last Year's Sum([F_I_RCPTS_RTL_AMT])
Stock Ledger Receipt Retail Value	Sum(F_IVL_RCPTS_RTL_AMT)

Stock Movement Metrics

Stock movement is concerned with transactional values, rather than positional values. For example, a receipt is transactional because it is a series of events that take place on successive days during the week. At the end of the week, all receipts for that week can be added together to determine the total for the week.

This area includes receipts, transfers, returns to vendor (RTV), and stock adjustments. Basic measurements are units and valuation (cost and retail).

Receipts

Receipts are units purchased and placed in inventory. RDW holds the number of units purchased at the day and week level and at retail and cost value. Receipts are held at item level for day and week and at the subclass (segment) level for day and week.

Metric	Definition
Receipts Units	Sum(F_I_RCPTS_QTY)
Receipts Cost Value	Sum(F_I_RCPTS_COST_AMT)
Receipts Retail Value	Sum(F_I_RCPTS_COST_AMT)

These base metrics are used in calculating the performance metrics described in the following.

Variances

Receipt value metrics have transformations for month, season, and year-to-date for a current and previous year. These metrics allow for the display of to date measures and a comparison of values for a current year to the previous year. Percent change in receipts retail value vs. last year is calculated as follows:

```
((Receipts Retail Value - Receipts Retail Value (Last Year)) / Receipts Retail
Value (Last Year))
```

Percent Markup on Projected Receipts

The receipt values at retail and cost can be used to calculate the percent initial markup on receipts, as follows:

```
(Receipts Retail Value - Receipts Cost Value) / (Receipts Retail Value)
```

Plan and Variance from Plan

Plan values for receipts are held for an original and current plan. Plan values are held at subclass, location, and week levels. Planned receipts values allow for calculation of variance from plan.

Return to Vendor (RTV)

RTV units are units returned to the vendor for any reason. RDW maintains a record of RTV units and the value of RTV units at cost and retail amount. RTV facts are held at the item/supplier/location/day/return reason level.

Metric	Definition
RTV Units	Sum(F_I_RTV_QTY)
RTV Retail Value	Sum(F_I_RTV_RTL_AMT)
RTV Cost Value	Sum(F_I_RTV_COST_AMT)

RTV plan facts are available for units for an original plan (F_PLN_CURR_RTV_QTY) and current plan (F_PLN_ORIG_RTV_QTY) and for retail value (F_PLN_CURR_RTV_QTY) and (F_PLN_ORIG_RTV_RTL_AMT). These facts allow reporting of actual RTV data to a current and original plan.

Plan facts are held at the subclass/location/week level.

Transfers

RDW distinguishes between two types of transfers, book and intercompany, with an attribute called transfer type.

Book transfer items are inventory units moved from one part of the company to another, for example, warehouse to location/store, by department, or store to store. RDW holds transfer units and cost and retail values of transferred units.

Intercompany transfer items are inventory units moved from one business entity into another business entity. RDW holds transfer units cost, and retail values of transferred units

Transfers are held at the item or subclass, destination, location, shipping location, and day or week levels.

Metric	Definition
Transfer To Loc Units	Sum(F_I_TSF_TO_LOC_QTY)
Transfer To Loc Retail Value	Sum(F_I_TSF_TO_LOC_RTL_AMT)
Transfer To Loc Cost Value	Sum(F_I_TSF_TO_LOC_COST_AMT)

Stock Adjustments

Stock adjustments are changes to inventory level. RDW holds stock adjustment units and values by reason code at the item, location, and day level.

Metric	Definition
SOH Adjustment Units	Sum(F_I_ADJ_QTY)
SOH Adjustment Retail Value	Sum(F_I_ADJ_RTL_AMT)
SOH Adjustment Cost Value	Sum(F_I_ADJ_COST_AMT)

Gross Margin Return on Inventory (GMROI)

GMROI is the rate per dollar of return on investment in inventory. GMROI measures how effectively inventory investment has produced gross margin dollars.

In RDW, GMROI is calculated as follows:

```
(Gross Margin Value / Avg Stock Cost Value)
```

Gross Margin Value is (Profit - Profit Lost on Returns). See "Sales and Profit Metrics" for additional information on gross margin.

The average stock value at cost is calculated as follows:

```
((BOH Cost Value + EOH Cost Value (SUM)) / (No of Weeks with Stock + 1))
```

EOH Cost Value (SUM) is a sum of all values for the period rather than an ending position.

All components required for calculation of GMROI are available with transformation to last year.

```
(Gross Margin Value (Last Year) / Avg Stock Cost Value (Last Year))
```

Stock Position Metrics

Stock position is the quantity and value of inventory at the beginning or end of a unit of time, such as day, week, or month. Stock on hand, in transit, and on order are measured as positions. A positional measurement differs from a transactional measurement, such as sales or returns, in the way that it is handled in relation to time.

Sales transactions are a series of discrete events that occur over time. The values of these transactional events can be added together to create a new and meaningful value. For example, the values of daily sales are added together to calculate weekly sales, which in turn are used to determine monthly sales, and so on.

Position is a constant state in which a value or position shifts over time. Stock on hand is at a certain position at the beginning and end of a week and at any point in between. Positional values cannot be added together to arrive at a meaningful number. For example, the ending stock on hand values for the days in a week do not add up to the ending value for a week. Rather, there is a position at the end of each day, and in this example, the ending position for the week is the same as the position for the last day of the week. For this reason, positional measurements are "semi-additive." They are not additive in the time dimension. In other dimensions, they act much like transactions. For example, the ending on-hand value for a subclass can be determined by adding the ending values for items in that subclass.

In RDW, positional values are used in several important measurements, including inventory contribution, variances in the value of stock between the current and previous year, the number of days in a month on which the item was out of stock, and sales velocity metrics.

Stock on Hand

Beginning stock on hand (BOH) and ending stock on hand (EOH) are the beginning and ending values for stock on hand (SOH) in a defined period of time.

In RDW, it is assumed that position is captured at the end of a day, week, or month:

- EOH is the ending value for the time period. It is the position at the end of the day, week, month, or year in question.

- BOH is the ending value for the previous day, week, month, or year in question.

Special metrics are used to extract a positional value from the fact table. Positional metrics specify the dimensional hierarchy (time calendar) in which the position exists and the grouping which is always set to ending.

The following are RDW stock position metrics.

Metric	Definition	Description
BOH Units	Sum(F_I_SOH_QTY)	This metric calculates the unit quantity of stock on hand at the beginning of a selected period.
BOH Cost Value	Sum(F_I_SOH_COST_AMT)	This metric calculates the cost value of the stock on hand at the beginning of the time period selected.
BOH Retail Value	Sum(F_I_SOH_RTL_AMT)	This metric calculates the retail value of the stock on hand at the beginning of the time period selected.

Metric	Definition	Description
EOH Units	Sum(F_I_SOH_QTY)	This metric calculates the unit quantity of stock on hand at the end of a selected period.
EOH Cost Value	Sum(F_I_SOH_COST_AMT)	This metric calculates the cost value of the stock on hand at the end of the time period selected.
EOH Retail Value	Sum(F_I_SOH_RTL_AMT)	This metric calculates the retail value of the stock on hand at the end of the time period selected.

RDW holds EOH retail values by retail type, allowing for the valuation of inventory position by retail type. A condition is added to these metrics to indicate retail type (Regular, Promotional, or Clearance).

> **Note:** If a client receives inventory data from RMS (through DWI batch extraction), the RDW fact F_I_SOH_QTY equates to the end-of-day SOH value from the RMS item-location tables. In RMS, SOH includes goods on the shelf (goods available for sale), unavailable inventory, and inventory reserved from this location (for example, inventory to be transferred to another location that is waiting for the transfer to be shipped).

In Transit

In transit is the quantity that is on approved and shipped transfers for the receiving location.

The following are RDW in-transit metrics.

Metric	Definition	Description
In Transit Units	Sum(F_I_IN_TRNST_QTY)	This metric calculates the unit quantity of inventory currently in transit.
In Transit Retail Value	Sum(F_I_IN_TRNST_RTL_AMT)	This metric calculates the retail value of inventory currently in transit.
In Transit Cost Value	Sum(F_I_IN_TRNST_COST_AMT)	This metric calculates the cost value of inventory currently in transit.

On Order

On order are the approved purchase order quantities of all quantities not yet received on a purchase order written for a particular location.

The following are RDW on order metrics.

Metric	Definition	Description
On Order Units	Sum(F_I_ON_ORD_QTY)	This metric calculates the unit quantity of items on order.
On Order Retail Value	Sum(F_I_ON_ORD_RTL_AMT)	This metric calculates the retail value of items on order.
On Order Cost Value	Sum(F_I_ON_ORD_COST_AMT)	This metric calculates the cost value of items on order.

Reserved

Reserved quantity and value are positional facts that represent the quantity and value of inventory currently reserved from other locations to this location. Once the inventory that was reserved at the other locations is shipped, it becomes IN_TRANSIT and is no longer reserved at the To location.

The following are RDW reserved metrics.

Metric	Definition	Description
Reserved Units	Sum(F_I_ALLOC_RSV_QTY) + Sum(F_I_TRNSFR_RSV_QTY)	This metric calculates the total reserved units of inventory, at the receiving location. This may be composed of the warehouse-to-store and store-to-store reserved quantities.
Reserved Retail Value	Sum(F_I_ALLOC_RSV_RTL_AMT) + Sum(F_I_TRNSFR_RSV_RTL_AMT)	This metric calculates the total reserved retail value of inventory for the receiving location.
Reserved Cost Value	Sum(F_I_ALLOC_RSV_COST_AMT) + Sum(F_I_TRNSFR_RSV_COST_AMT)	This metric calculates the total reserved cost value of inventory for the receiving location.

Store Traffic Metrics

Store traffic reporting measures the ratio of sales transactions to the total number of customers in the store on a daily and weekly basis. Store traffic is an important measure for understanding how many shoppers a retailer converts to buyers. This information can be used to assess the store layout and adjacency information.

Facts and Base Measures

RDW holds the volume of store traffic and the number of transactions by location and day.

> **Note:** Store traffic must be loaded by a third-party or customer-supplied application.

Measure	Fact
Store Traffic	F_STORE_TRAFFIC
No of Sales Transactions	F_SLS_COUNT

Conversion Rate

The conversion rate is the number of transactions divided by the amount of store traffic, and it is calculated as follows:

```
(No of Sales Transactions / Store Traffic) * 100) = Conversion Rate
```

Supplier Compliance Metrics

Supplier compliance can be defined as the process of measuring supplier performance based on some key performance indicators, such as timeliness and accuracy of deliveries. The supplier compliance functionality in RDW includes and supports supplier evaluation based on the following parameters:

- Timeliness

- Delivery accuracy

- Order fulfillment

- Quality measure

Supplier Invoice Cost

Supplier invoice cost is the actual cost as shown on the vendor invoice (from the Oracle Retail Invoice Matching application). Supplier invoice purchase order cost is the expected cost previously agreed upon in the purchase order, before any deals or discounts. A difference between the two can be reflective of deals, discounts, clerical errors, or dishonesty.

Supplier invoice cost is held in F_SUPP_INVC_UNIT_COST_AMT, and supplier invoice purchase order cost is held in F_PO_ITEM_UNIT_COST_AMT, at the supplier-item-location-day level.

Receipts by Supplier

RDW supplier compliance data provides the ability to report receipt units grouped by supplier, item, location, and day. The fact column F_RECEIVED_QTY contains the quantity from the qty_received column in the RMS table shipsku.

The supplier compliance data does not contain cost or sales data, so it cannot be used to report on sales or cost by supplier. The quantity in the supplier compliance data should not be confused with receipt units in the inventory movement data.

Supplier Compliance Rating

The supplier compliance rating is calculated by taking the average of the timeliness, accuracy, order fulfillment, and quality measures. It can be modified based on your business requirements. This calculation is done on the front end:

```
Supplier Compliance Rating =(Timeliness + Delivery Accuracy + Order Fulfillment +
Quality Measure) / 4
```

Timeliness

Timeliness measures the supplier's ability to deliver according to schedule. Early, late, and on-time shipments are tracked in the supplier compliance system. You can measure supplier timeliness on a daily basis.

```
Timeliness = No of On Time Deliveries / ( No of On Time Deliveries  +  No of Early
Deliveries  +  No of Late Deliveries )
```

For example, if the number of on-time deliveries is 75 and the total of all deliveries is 100, the timeliness rating is 75%.

Missed deliveries are deliveries that did not take place within the time frame specified. As such, a late delivery is also a missed delivery. Because the timeliness measure

would not be meaningful if two of its components were counted twice, missed deliveries are not included in the timeliness measure. Missed deliveries can be reported at the supplier/location/time level as a separate metric.

Delivery Accuracy

Delivery accuracy measures the supplier's ability to deliver the correct items and quantities on the order. The rating is determined by comparing the total number of deliveries for the supplier to the number of deliveries where the quantity or item was incorrect.

```
Delivery Accuracy = Number of ASN Expected Deliveries / Number of Deliveries
```

where:

```
Number of Deliveries = No of ASN Expected Deliveries + No of ASN Over Deliveries +
No of ASN Under Deliveries + No of Mismatched Deliveries
```

A mismatched delivery is a delivery that contains at least one mismatched item.

For example, if the number of on-time deliveries is 75 and the total number of deliveries is 100, the delivery accuracy rating is 75%.

Order Fulfillment

Order fulfillment measures the supplier's ability to deliver on order in full. The rating is determined by calculating the ratio of completely filled order to the total number of orders.

```
Order Fulfillment = No of Full Order Deliveries/ Total Orders
```

where:

```
Total Orders = Orders Received in Full + Orders Received in Part + Orders Received
in Excess
```

For example, a supplier earns an order fulfillment rating of 75% if the total number of orders is 4 and the number of partial deliveries is 1.

Quality Measure

RDW supports reporting of a shipment rejected for quality control failure reasons, and this gives a quality measure of vendor performance. The quantity of items that fail quality control checks, compared to the total quantity of items received, indicates the quality of the shipment received. Note that not all items require QC checks. This measure only applies to those items that do (qc_ind = 'Y').

```
Quality = Passed QC Units / Receipt QC Units
```

If this measure equals to 100, then the vendor's quality measure is 100%.

Variance Reporting

Transformations exist for all compliance ratings for last year. This allows comparison of a current compliance rating with the rating for last year.

Supplier Contracts and Availability Metrics

The supplier contracts and availability metrics allow you to assess unit availability by supplier, balance of contract (BOC) units, and supplier cost. This analysis conveys contract information by supplier, item, and day.

Base Formulas and Metrics

RDW holds facts for supplier contract and availability quantities and cost values. These facts are aggregated and used in formulas to define the following metrics.

Metric	Definition
Contract Units	Sum(F_CNTRCT_QTY)
Available Units	Sum(F_AVAIL_QTY)
Contract Order Units	Sum(F_CNTRCT_ORD_QTY)
Contract Cost Value	Sum(F_CNTRCT_COST_AMT)
Avg Contract Cost Value	Avg(F_CNTRCT_COST_AMT)
Contract Order Cost Value	Sum(F_CNTRCT_ORD_COST_AMT)

Balance of Contract

The base metrics are used to calculate the quantity and value of what remains on the contract.

Metric	Definition
BOC Total Units	(Contract Quantity - Contract Order Quantity)
BOC Total Value	((Contract Quantity - Contract Order Quantity) * Avg Contract Cost Value)
Contract Order Cost Unit Value	(Contract Order Cost Value/Contract Order Quantity)

Commitment Total Units and Value

Total committed units are calculated as the sum of existing units on hand, BOC units, and on-order units and values.

Metric	Definition
Commitment Total Units	((BOC Total Units + On Order Units) + EOH Units)
Commitment Total Value	([BOC Total Value] + On Order Retail Value) + EOH Retail Value)

Supplier Performance Metrics

This functional area focuses on reporting that provides supplier performance information based on key performance measures. Collection of this data makes the following types of analysis available to RDW users:

- Compare and contrast supplier performance over time

- Compare and contrast category performance by primary supplier

- Monitor category performance in terms of sales volume and value

- Compare and contrast market vendor with supplier performance

Primary Supplier

Retailers and category managers, in particular, need access to comparative sales and profit contribution information by primary supplier. These abilities are necessary to enable retailers to monitor supplier performance:

- Identify suppliers of profitable versus unprofitable items

- Measure contribution to total category performance

- Identify how their categories are performing relative to other categories, as well as relative to last year, using various business measures (for example, sales and profitability)

Unless facts are stored by supplier (such as net cost), all facts in that data can only be attributed to the primary supplier.

Performance Metrics

The following types of measures are a part of supplier performance:

- Sales and profit

- Inventory position and movement

- Net (deal) cost

Sales and Profit (as Related to Supplier)

- Sales value and variance in sales value from last year

- Sales units and variance in sales units from last year

- Profit amount and variance in percent profit from last year

- Percent contribution to total sales value for the department

Inventory Position and Movement (as Related to Supplier)

- Sell-through

- Stock turn

- Beginning stock on hand (BOH) and ending stock on hand (EOH) retail value

- Receipts

- Gross margin return per dollar of inventory (GMROI)

See "Stock Position Metrics" and "Stock Movement Metrics" in this chapter for more information on these calculations.

Net Cost

Net cost (sometimes referred to as deal cost) measures are held at the supplier level.

Net cost is populated with data from RMS or another source system. The data from RMS consists of cost values that represent different discounts on base cost that the supplier provides. These different discounts may consist of the following:

- Deals with deal partners for items, or items at specific locations

    Deal partners can be suppliers, wholesalers, distributors, and manufacturers. Within a deal, you create deal components, specify the items for the deal component, and define thresholds.

- Fixed deals with suppliers

    Your organization receives payments from suppliers in return for mentioning their products in promotions or for displaying their products on prime shelf space.

- Bracket costing deals with suppliers

    Your organization receives a certain deal price on an order, depending on the size of the order. Different types of brackets can be established based on mass, volume, pallet, case, each, or stat case.

RDW Metric	RDW Fact Field	Description
Base Cost	F_SUPP_BASE_COST_AMT	This is the supplier base cost of the item/supplier/location at a given location on a given day. It is the initial cost before any deals or discounts are applied. It is stored in primary currency.
Net Cost	F_SUPP_NET_COST_AMT	This is the supplier net cost for the item/supplier/location on a given day. It is the defined as the base cost minus any deal components that are applied by the retailer. If no deals or discounts are applier at this level, the supplier net cost = supplier base cost. It is stored in primary currency.
Net Net Cost	F_SUPP_NET_NET_COST_AMT	This is the supplier net net cost of the item/supplier/location on a given day. It is defined as the net cost minus any deal components designated by a retailer as applicable to the net net cost. If no deals or discounts are applied at this level, the supplier net net cost = supplier net cost. It is stored in primary currency.
Dead Net Cost	F_SUPP_NET_NET_COST_AMT	This is the supplier dead net cost of the item/supplier/location on a given day. It is the final cost after all deals or discounts are applied. It is defined as the net net cost minus any deal components designated by a retailer as applicable to the dead net cost. If no deals or discounts are applied at this level, the supplier dead net cost = supplier net net cost. It is stored in primary currency.

Variances

Transformations exist for last year and last month, allowing for the calculation of variance from a previous month and last year.

For last month, transformations exist for all base metrics, allowing for the comparison of cost for this month to last month.

Transformations are available for net cost and net net cost for last year, allowing for the comparison of these figures to a previous year.

Velocity Metrics

Velocity metrics measure the rate at which stock is sold and replaced. Stock turn and percent sell-through are velocity metrics.

Stock Turn

Stock turn is a measurement of the rate at which stock is sold and replaced. In RDW, the stock turn value is calculated as a ratio between sales value and the average value of stock during the same period.

RDW calculates both stock turn value and stock turn unit quantity.

Stock Turn Value

Stock turn value is calculated using sales value and the average stock value, as follows:

```
Sales Value / Average Stock Value
```

For example, if sales of widgets are 2 million during month 1, and the average stock value during the same month is 500,000, the stock turn value is 2,000,000/500,000.

The average stock retail value is calculated as follows:

```
((BOH Retail Value + EOH Retail Value (SUM)) / (No of Weeks with Stock] + 1))
```

EOH Retail Value (SUM) is a sum of all values for the period, rather than an ending position.

Stock Turn Units

Stock turn units is similarly calculated:

```
(Net Sales Units / (([BOH Units] + EOH Units (SUM)) / (No of Weeks with Stock]+
1)))
```

Plan Values and Variance to Plan

RDW holds planning data sufficient to calculate stock turn for a current plan. This allows the comparison of actual stock turn to planned levels. RDW holds last year facts required to calculate stock turn, allowing for a comparison of stock turn value to last year.

Percent Sell-Through

Sell-through is the number of units sold, expressed as a percentage of total units on hand for a defined time period. It is calculated as follows:

```
(Sales Units / (EOH Units + Sales Units))
```

Wholesale / Franchise Metrics

Wholesale/Franchise metrics allow reporting for wholesale and franchise locations. These metrics only include data associated with a wholesale or franchise location.

Metric	Definition	Description
% W/F Profit	W/F Profit / W/F Sales Value	This metric calculates the percent contribution of wholesale or franchise profits earned on wholesale or franchise sales. The amount is net of returns.
W/F Acquisition Cost	F_wf_acq_cost_amt	This metric calculates wholesale or franchise acquisition cost for wholesale or franchise sales. The amount is net of returns.
W/F Markdown Units	F_WF_MKDN_QTY	This metric calculates the total quantity of wholesale or franchise markdowns. The quantity is net of returns.
W/F Markdown Value	F_WF_MKDN_AMT	This metric calculates the value of wholesale or franchise markdowns. The amount is net of returns.
W/F Markup Units	F_WF_MKUP_QTY	This metric calculates the total quantity of wholesale or franchise markups. The quantity is net of returns.
W/F Markup Value	F_WF_MKUP_AMT	This metric calculates the value of wholesale or franchise markups. The amount is net of returns.
W/F Profit	WF Sales Value - WF Acquisition Cost	This metric calculates the total value of wholesale or franchise profits. The amount is net of returns.
W/F Restocking Fee Value	F_wf_rtrn_restock_fee_amt	This metric calculates the value of wholesale or franchise restocking fees.
W/F Return Acquisition Cost	F_wf_rtrn_acq_cost_amt	This metric calculates wholesale or franchise acquisition cost for wholesale or franchise returns.
W/F Return Units	F_wf_rtrn_qty	This metric calculates the total quantity of wholesale or franchise returns.
W/F Return Value	F_wf_rtrn_vat_amt	This metric calculates the total value of wholesale or franchise returns.
W/F Sales Units	F_wf_sls_qty - F_wf_rtrn_qty	This metric calculates the total quantity of wholesale or franchise sales. The quantity is net of returns.

Metric	Definition	Description
W/F Sales Value	F_wf_sls_amt - F_wf_rtrn_amt	This metric calculates the total value of wholesale or franchise sales. The amount is net of returns.
W/F Sales VAT Value	F_wf_sls_vat_amt - F_wf_rtrn_vat_amt	This metric calculates the total value of wholesale or franchise sales VAT. The amount is net of returns.

A

Joint-Child Attributes

Joint-child attributes exist at the intersection of two or more indirectly related attributes. For example, the weather attribute "rainy" only makes sense at the cross-dimensional intersection of location and day. This appendix describes the RDW joint-child attributes for the following:

- Item Joint-Child Attributes
- Competitor Pricing Joint-Child Attributes
- Pricing Joint-Child Attributes

Note: All joint-child attributes can be used in reports. They can also be used in filters to constrain queries.

Item Joint-Child Attributes

This table summarizes Item joint-child attributes. Detailed descriptions follow the table.

Joint-Child Attribute Name	Joint-Children	Description
Collection	Item Location	Identifies an individual collection.
Deposit Code	Item Location	Indicates whether a deposit is associated with this item at the location.
Electronic Marketing Club	Item Location	Code that represents the electronic marketing clubs to which the item belongs at the location.
Food Stampable IndI	Item Location	Whether the item is approved for food stamps at the location.
Full Pallet Item Ind	Item Location	Whether a store must reorder an item in full pallets only.
National Brand Comparison Item	Item Location	Nationally branded item to which you would like to compare the current item.
New Item Start Date	Item Location	Date that the item should first be sold at the location.
Reorderable Ind	Item Location	Whether the store may reorder the item.

Joint-Child Attribute Name	Joint-Children	Description
Reward Club Eligible Ind	Item Location	Whether the item is valid for various types of bonus point or award programs at the location.
Type	Item Location	Identifies the item type.
Unauthorized Ind	Item Location	Indicates that sale of the item should be stopped immediately at the location.

Collection

Collection identifies a collection to which an item belongs. For example, a collection could be a line of leather furniture named the Manhattan Collection that includes an armchair, ottoman, and sofa.

Deposit Code

A deposit code allows you to report on income generated from deposits at specific item-locations. For example, drink bottles have refundable deposits in some states, and a report could be generated indicating the amount refunded for the deposit code.

This is modeled as a joint-child attribute, establishing the relationship of Item-Location.

Electronic Marketing Club

The term *electronic marketing club* refers to a membership club for consumers for a particular retailer. By being a member of an electronic marketing club, a consumer is offered special deals on items when they use their membership card to purchase an item. This attribute is related to the Reward Club Eligible Indicator and defines to a greater detail the award clubs associated with each item. This attribute is used to filter and define sales for items associated with award programs.

This is modeled as a joint-child attribute, establishing the relationship of Item-Location.

Food Stampable Indicator

This attribute indicates whether food stamps are valid tender to purchase the item. Redemption of food stamps (a tender type) can be tracked against the items purchased to validate usage of food stamps. Additionally, stores that receive a higher quantity of food stamp purchases may assort their products differently than stores that receive little food stamp revenue.

A report using the Food Stampable Indicator might have item assortment and sales information for products where the Food Stampable Indicator is 'Y'. With knowledge of the demographics of the stores being handled, the assortment can be managed appropriately to the demographic demand.

This is modeled as a joint-child attribute, establishing the relationship of Item-Location.

Full Pallet Item Indicator

This attribute indicates whether the item must be ordered by pallet. This attribute could be used in exception reporting, especially where unexpected vendor fees are appearing. You look for purchases not equal to pallet quantities for items that are pallet item only.

This is modeled as a joint-child attribute, establishing the relationship of Item-Location.

National Brand Comparison Item

This attribute represents the nationally branded item to which you wish to compare the current item (for example, private label ice cream). This attribute is used as a reference and for filtering. For example, pull sales for all items with a particular brand as the National Brand Comparison in the ice cream category, and compare those results with all the items with that actual brand in the same category.

This attribute is modeled as a joint-child attribute, establishing the relationship of Item-Location.

New Item Start Date

The new item start date holds the date that the item should first be available for sale. This attribute could be used in two different scenarios:

- To track sales trends, beginning with the new item start date, to see how quickly the item is uptrending.

- To perform exception reporting to ensure that no sales were recorded prior to the new item start date. This type of reporting would be done for licensed products that have supplier-driven release dates (such as DVD releases).

A report using New Item Start Date would show sales trend for items with new item start date in the last month.

This is modeled as a joint-child attribute, establishing the relationship of Item-Location.

Reorderable Indicator

The reorderable indicator signifies whether the store may reorder the item. For example, you can run an exception report of items where the reorderable indicator is set to No and selling continues.

This is modeled as a joint-child attribute, establishing the relationship of Item-Location.

Reward Club Eligible Indicator

This attribute indicates whether the item is valid for various types of bonus points or award programs at the location. This attribute would likely be referenced when analyzing sales trends on products. An item may sell more strongly in a state that allows bonus points to be accrued on its sales, compared to a state that disallows point accumulation on certain products.

A possible report is sales by reward club ineligible value for a given region or category.

This is modeled as a joint-child attribute, establishing the relationship of Item-Location.

Item Type

Item Type is an item attribute than can identify its form or function. Example item types are Swatch, Component, and Raw.

Unauthorized Indicator

This attribute indicates that sales should not be processed for the item at the location (for example, for safety recalls of products). Exception tracking of sales on items flagged "unauthorized" allows a company to verify compliance to the recall.

This is modeled as a joint-child attribute, establishing the relationship of Item-Location.

Competitor Pricing Joint-Child Attributes

This table summarizes the Competitor Pricing joint-child attributes. Detailed descriptions follow the table.

Joint-Child Attribute Name	Joint-Children	Description
Competitor Store Distance	Competitor Location	Distance between the competitor location and the owned location.
Competitor Store Distance UOM	Competitor Location	Unit of measure used by the Distance joint-child attribute.
Competitor Store Rank	Competitor Location	Priority of the competitor in relation to comparing prices.
Competitor Target Ind	Competitor Location	Indicates which competitor in the ranked list for the owned location is used for rules based pricing.

Competitor Store Distance and Competitor Store Distance UOM

These joint-child attributes reference the distance from the competitor's location to the owned location with which it is associated. In a report, you may want to filter on the distance to include only competitors within a certain radius of your own store. For example, you may want to see the past month's competitor pricing history compared to your own prices, only for competitor locations with a distance of 10 (distance) miles (distance UOM) or less.

These are modeled as two joint-child attributes, Competitor Store Distance and Competitor Store Distance UOM, establishing the relationship of Competitor Store-Store.

Competitor Store Rank

This joint-child attribute references the assigned rank given to a competitor location by the category manager and equates to the competitor's impact on the owned location's price strategy.

Example 1

A price change at a competitor location ranked 1 would have a greater impact on your decision to change retails than that of a competitor ranked 3. In a report, you may want to filter on the rank to enable decision-making.

Example 2

(1) Show the past month's competitor pricing history, compared to your own prices, only for competitors ranked 1. (2) Show the past month's competitor pricing history compared to your own prices for all competitor locations, and show their ranking. This tells you if you have the correct competitor ranked 1.

This is modeled as a joint-child attribute, establishing the relationship of Competitor Store and Location.

Competitor Target Ind

This joint-child attribute identifies which competitor is driving the competitive price. This attribute is also used to filter competitor prices to owned prices only where Competitor Target Ind is 'Y'.

This is modeled as a joint-child attribute, Competitor Target Ind, establishing the relationship of Competitor Store-Store.

Pricing Joint-Child Attributes

This table summarizes the Pricing joint-child attribute Avg Retail Price.

Joint-Child Attribute Name	Joint-Children	Description
Avg Retail Price	Pricing Qualities	Selling unit of measure represents the unit of measure in which an item is sold on a specified day at a specified location.

B

Time Series Conversion Functions

There are two types of time conversions, table-based and expression-based:

- Table-based conversions use a relationship table in the data warehouse to define the conversion from one time period to another.

- Expression-based conversions perform transformations by using mathematical expressions.

All of the RDW conversions are expression-based. Oracle BI does not use transformation tables to create metrics; however, there are RDW views in Oracle BI that are created based on some of the transformation tables. Those views are used to create some complex metrics such as Comp, Comp Base, and BOH (beginning on hand).

Mapping Types for Table-Based Conversions

There are two mapping types:

- One-to-one

- Many-to-many

One-to-One Mapping

In one-to-one mapping, one period of time is mapped to one prior or future period of time. For example, Last Year mapped at the day level relates a day in the current year to a particular day in a previous year. To better understand one-to-one mapping, see the following table.

DAY_IDNT	LAST_YR_DAY_IDNT
2009001	2008001
2009002	2008002
2009003	2008003
...	...

The DAY_IDNT 2009001 is mapped to only one LAST_YR_DAY_IDNT (2008001), and the LAST_YR_DAY_IDNT 2008001 is also only mapped to one DAY_IDNT (2009001).

Many-to-Many Mapping

In many-to-many mapping, an entity A is mapped to many entities B, and an entity B is mapped to many entities A. To-date conversions are examples of many-to-many mapping. For example, Week to Date includes every date up to and including the value of the day attribute. To better understand many-to-many mapping, see the following table.

DAY_IDNT	WTD_DAY_IDNT
2009001	2009001
2009002	2009001
2009002	2009002
2009003	2009001
2009003	2009002
2009003	2009003
...	...

The DAY_IDNT 2009002 is mapped to multiple WTD_DAY_IDNT values (2009001 and 2009002), and the WTD_DAY_IDNT 2009002 is mapped to many DAY_IDNT values (2009002 and 2009003). Therefore, this is a many-to-many mapping.

Time Conversions

Time conversions are used to compare values from different time periods to discover and analyze time-based trends. This year versus last year and month-to-date comparisons are examples of common time conversions.

Any time conversion function can be included as part of the definition of a metric. For example, applying the Last Year conversion to a Sales Value metric creates a Sales Value (Last Year) metric that calculates the sales for last year. Multiple conversions can be applied to the same metric.

RDW Time Conversion Levels

Each time conversion in RDW is defined at all the levels applicable for that transformation. For example:

- The Last Week conversion is defined at the day and week levels.

- Last Month is defined at the day, week, and month levels.

- Last Year is defined at the day, week, month, quarter, half-year, and year levels.

These definitions provide better query performance.

Conversion List

The following list describes the time conversions in RDW. See "Conversion Mappings" for the mapping of each transformation.

Conversion	Summary
Last Half Year	Returns the corresponding last half-year fact data for the time period selected.
Last Month	Returns the corresponding last month fact data for the time period selected.
Last Quarter	Returns the corresponding last quarter fact data for the time period selected.
Last Week	Returns the corresponding last week fact data for the time period selected.
Last Year	Returns the corresponding last year fact data for the time period selected.
LFL Last Year	Returns the corresponding like-for-like last year fact data for the time period selected.
Month to Date	Returns the corresponding month-to-date fact data for the time period selected.
Next Year	Returns the corresponding next year fact data for the time period selected.
Plan Season to Date	Returns the corresponding plan season-to-date fact data for the time period selected.
Quarter to Date	Returns the corresponding quarter-to-date fact data for the time period selected.
Week to Date	Returns the corresponding week-to-date fact data for the time period selected.
Year to Date	Returns the corresponding year-to-date fact data for the time period selected.

Conversion Mappings

There are conversion mappings at these levels:

- Day Level
- Week Level
- Month Level
- Quarter Level
- Half-Year Level
- Year Level

Day Level

Conversions at the day level for a one-to-one mapping relate one day of a specified time period to one day of another time period. For example:

- The conversion at the day level for Last Week maps a day of a particular week to the corresponding day of the previous week.
- The conversion at the day level for Last Month maps a day of a particular month to the corresponding day of the previous month.

Example: Last Week by Day

The following is an example of a day-level mapping for the Last Week conversion.

DAY_IDNT	LAST_WK_DAY_ IDNT
1997001	1996358
1997002	1996359
…	…
1997365	1997358
1997366	1997359
…	…
1997371	1997364
1998001	1997365
…	…
1998007	1997371
1998008	1998001
...	...
1998364	1998357
...	…

Conversions at the day level for a many-to-many mapping relate a day of a specified time period to the corresponding days. For example:

- The conversion at the day level for Week to Date maps a day of a particular week to the corresponding days included in that week up to that day.

- The conversion at the day level for Month to Date maps a day of a particular month to the corresponding days included in that month up to that day.

Example: Week to Date by Day

The following is an example of a day-level mapping for the Week to Date conversion.

DAY_IDNT	WTD_DAY_IDNT
1999001	1999001
1999002	1999001
1999002	1999002
...	...
1999007	1999001
1999007	1999002
1999007	1999003
1999007	1999004
1999007	1999005
1999007	1999006
1999007	1999007
1999008	1999008
1999009	1999008
1999009	1999009
...	...

Week Level

Conversions at the week level for a one-to-one mapping relate a week of a specified time period to a week of another. For example:

- The conversion at the week level for Last Month maps a week of a particular month to the corresponding week of the previous month.

- The conversion at the week level for Last Quarter maps a week of a particular quarter to the corresponding week of the previous quarter.

Example: Last Month by Week

The following is an example of a week-level mapping for the Last Month conversion.

WK_IDNT	LAST_MTH_WK_IDNT
199701	199649
199702	199650
...	...
199753	199749
199801	199750
...	...
199804	199753
199805	199801
...	...
199852	199848
…	…

Conversions at the week level for a many-to-many mapping relate a week of a specified time period to the corresponding weeks. For example:

- The conversion at the week level for Month to Date maps a week of a particular month to the corresponding weeks included in that month up to that week.

- The conversion at the week level for Quarter to Date maps a week of a particular quarter to the corresponding weeks included in that quarter up to that week.

Example: Month to Date by Week

The following is an example of a week-level mapping for the Month-to-Date conversion.

WK_IDNT	MTD_WK_IDNT
199901	199901
199902	199901
199902	199902
…	…
199904	199901
199904	199902

WK_IDNT	MTD_WK_IDNT
199904	199903
199904	199904
199905	199905
199906	199905
199906	199906
…	…

Month Level

Conversions at the month level for a one-to-one mapping relate a month of a specified time period to a month of another. For example:

- The conversion at the month level for Last Quarter maps a month of a particular quarter to the corresponding month of the previous quarter.

- The conversion at the month level for Last Year maps a month of a particular year to the corresponding month of the previous year.

Example: Last Quarter by Month

The following is an example of a month-level mapping for the Last Quarter conversion.

MTH_IDNT	LAST_QTR_MTH_IDNT
199701	199610
199702	199611
...	...
199712	199709
199801	199710
...	...
199803	199712
199804	199801
...	...
199812	199809
...	...

Conversions at the month level for a many-to-many mapping relate a month of a specified time period to the corresponding months. For example:

- The conversion at the month level for Quarter to Date maps a month of a particular quarter to the corresponding months included in that quarter up to that month.

- The conversion at the month level for Year to Date maps a month of a particular year to the corresponding months included in that year up to that month.

Example: Quarter to Date by Month

The following is an example of a month-level mapping for the Quarter to Date conversion.

MTH_IDNT	QTD_MTH_IDNT
199901	199901
199902	199901
199902	199902
199903	199901
199903	199902
199903	199903
199904	199904
199905	199904
199905	199905
...	...

Quarter Level

Conversions at the quarter level for a one-to-one mapping relate a quarter of a specified time period to a quarter of another. For example:

- The conversion at the quarter level for Last Half Year maps a quarter of a particular half-year to the corresponding quarter of the previous half-year.

- The conversion at the quarter level for Last Year maps a quarter of a particular year to the corresponding quarter of the previous year.

Example: Last Half Year by Quarter

The following is an example of a quarter-level mapping for the Last Half Year conversion.

QTR_IDNT	LAST_HALF_QTR_ IDNT
19991	19983
19992	19984
19993	19991
19994	19992
...	...

Conversions at the quarter level for a many-to-many mapping relate a quarter of a specified time period to the corresponding quarters. For example:

- The conversion at the quarter level for Half Year to Date maps a quarter of a particular half-year to the corresponding quarters included in that half-year up to that quarter.

- The conversion at the quarter level for Year to Date maps a quarter of a particular year to the corresponding quarters included in that year up to that quarter.

Example: Half Year to Date by Quarter

The following is an example of a quarter-level mapping for the Half Year to Date conversion.

QTR_IDNT	HTD_QTR_IDNT
19991	19991
19992	19991
19992	19992
19993	19993
19994	19993
19994	19994
...	...

Half-Year Level

Conversions at the half-year level for a one-to-one mapping relate a half-year of a specified time period to a half-year of another. For example, the conversion at the half-year level for Last Year maps a half-year of a particular year to the corresponding half-year of the previous year.

Example: Last Year by Half-Year

The following is an example of a half-year-level mapping for the Last Year conversion.

HALF_IDNT	LAST_YR_HALF_IDNT
19971	19961
19972	19962
19981	19971
...	...

Conversions at the half-year level for a many-to-many mapping relate a half-year of a specified time period to the corresponding half-years. For example, the conversion at the half-year level for Year to Date maps a half-year of a particular year to the corresponding half-years included in that year up to that half-year.

Example: Year to Date by Half-Year

The following is an example of a half-year-level mapping for the Year to Date conversion.

HALF_IDNT	YTD_HALF_IDNT
19991	19991
19992	19991
19992	19992
...	...

Year Level

Conversions at the year level map a year of a specified time period to a year of another time period. For example, the conversion at the year level for Last Year maps a year of a particular year to the corresponding year of the previous year.

The following is the mathematical expression used for defining the Last Year conversion:

YR_IDNT - 1

Time Conversions for the RDW 4-5-4, Gregorian, and 13-Period Calendars

Mappings for the RDW time conversions are calculated according to the type of calendar you use:

- 4-5-4
- Gregorian
- 13-period

Three calendar configurations are supported in RDW:

- 4-5-4 only
- 4-5-4 and Gregorian together
- 13-period only

Time Conversions for the RDW 4-5-4 Time Calendar

The RDW 4-5-4 year is a year that contains a series of 4-week, 5-week, and 4-week months. A typical year includes 364 days, 52 weeks, 12 months, 4 quarters, and 2 half-years. For a detailed explanation of the RDW 4-5-4 time calendar, see "Time Calendar Dimension" in Chapter 3.

Based on the figures above, the mapping of a 4-5-4 calendar to last year at the day level is calculated as 364 days earlier than the day in question. For a 4-5-4 calendar, mappings to last year are calculated as follows:

Week level	52 weeks
Month level	12 months
Quarter level	4 quarters
Half-year level	2 half-years

Similar logic applies for last half-year, last quarter, and last week transformations. The following table illustrates the number of days, weeks, months, quarters, or half-years that RDW uses to add or subtract to the time period in question for a particular time conversion.

Time Transformation	Day	Week	Month	Quarter	Half-Year	Year
Last year	-364	-52	-12	-4	-2	-1
Next year	+364	+52	+12	+4	+2	+1
Last half year	-182	-26	-6	-2	-1	N/A
Last quarter	-91	-13	-3	-1	N/A	N/A
Last month	N/A	N/A	-1	N/A	N/A	N/A
Last week	-7	-1	N/A	N/A	N/A	N/A

Last month day calculations are not performed, because the 4-5-4 time calendar can frequently have five-week months. The last month day is usually inaccurate if it is calculated as a day four weeks ago.

Time Conversions for the RDW Gregorian Time Calendar

A Gregorian year is divided into 12 months of 30 or 31 days, with February having 28 or 29 days, depending on whether the year is a leap year. This gives a year of 365 or 366 days.

In the Gregorian calendar, leap years occur in every year divisible by 4, except for years that are divisible by 100; however, years that are divisible by 400 are leap years. For example, 1900 was not a leap year, but 2000 was a leap year.

The Gregorian year depends on the start_of_half_month from the RMS source system. For example, if start_of_half_month =2:

■ The Gregorian first day is February 1st of the same year.

■ The Gregorian first month is February.

■ The Gregorian first quarter contains February, March, and April.

■ The Gregorian first half year contains February, March, April, May, June, and July.

■ The Gregorian year starts on February this year and ends at the end of January next year.

If start_of_half_month = -12:

■ The Gregorian first day is December 1st of the previous year.

■ The Gregorian first month is December of the previous year.

■ The Gregorian first quarter contains December of the previous year, plus January and February of the current year.

For a Gregorian calendar, last year mapping at the day level is calculated as 365 days earlier than the day in question. For a leap year, the extra day, February 29th, is not mapped to any date for the previous year or next year, because there is no February 29th in the previous or next year.

Last month day, half, and quarter calculations are not performed, because there is no business need.

The following table shows how RDW adds or subtracts to the time period in question for a particular time conversion.

Gregorian Time Transformation	Day	Week	Month	Quarter	Half-Year	Year
Gregorian Last Year	-365	N/A	-12	-4	-2	-1
Gregorian Next Year	+365	N/A	+12	+4	+2	+1
Gregorian Last Half Year	N/A	N/A	-6	-2	-1	N/A
Gregorian Last Quarter	N/A	N/A	-3	-1	N/A	N/A
Gregorian Last Month	N/A	N/A	-1	N/A	N/A	N/A

Time Conversions for the RDW 13-Period Time Calendar

The RDW 13-period calendar is composed of 13 periods of 4 weeks each. A year typically includes 364 days, 52 weeks, 13 periods, and 4 quarters. For a detailed explanation of the RDW 13-period time calendar, see "Time Calendar Dimension" in Chapter 3.

The following table shows how RDW adds or subtracts to the time period in question for a particular time conversion.

13-Period Time Transformation	Day	Week	Month	Quarter	Half-Year	Year
Last year	-364	-52	-13	-4	N/A	-1
Next year	+364	+52	+13	+4	N/A	+1
Last half year	N/A	N/A	N/A	N/A	N/A	N/A
Last quarter	-84	-12	-3	-1	N/A	N/A
Last period	-28	-4	-1	N/A	N/A	N/A
Last week	-7	-1	N/A	N/A	N/A	N/A

In both 4-5-4 and 13-period fiscal calendars, last year mapping for the 53rd week in a 53 week year is the first week of the 53-week year. The first week of the year following the 53-week year is the second week of the 53-week year, and so on. The entire year following the 53-week year is offset by a week, but the conversion returns to its normal mapping after that year is over.

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Repository Documentation

Use the Oracle BI Repository Documentation Wizard to report information about all the repository objects in CSV (comma-separated values) format. You can import a file with comma-separated values into a spreadsheet or other application.

Follow these steps:

1. From the Tools menu in the Oracle BI Administration Tool, select **Utilities**.

2. From the Utilities dialog, select **Repository Documentation**.
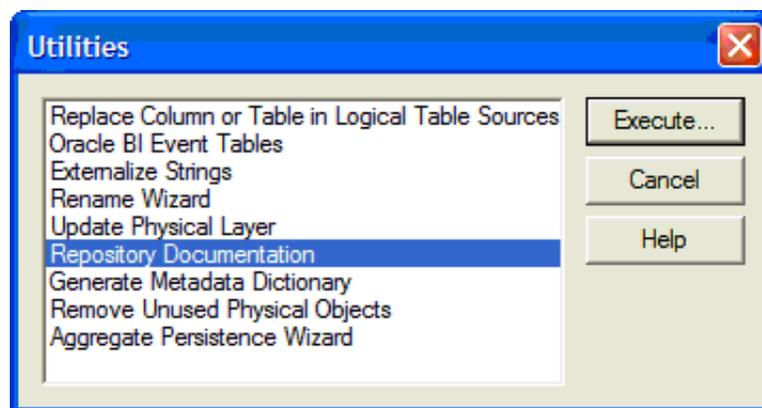
3. Click **Execute.**

4. When prompted, save the CSV file in the folder you prefer.