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Data Manager User's Guide

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Chapter 1

Overview

This chapter includes a brief overview of Data Manager and how it fits into the Oracle Utilities (CCS), including:

- **Data Manager and the Oracle Utilities Energy Information Platform**

- **The Oracle Utilities Data Repository**

- **Data Manager Functions**

- **International and Multiple Currency Support**

- **Notes, Cautions, and Warnings**

Data Manager and the Oracle Utilities Energy Information Platform

Using Oracle Utilities software, your utility can bring together, maintain, and maximize the value of critical customer information, including customer profiles, rate and contract information, bill histories, and load shapes.

The core of the Energy Information Platform and related Oracle Utilities applications is the **Oracle Utilities Data Repository**. The Data Repository stores current and historical customer profiles, including billing histories, survey data, and any other data your company uses to understand and serve its customers. Customer data is stored in a relational format for maximum flexibility. The Data Repository also stores interval data, or time-series data that represents customer demand and other measurements taken at brief, regular intervals. This data is stored in a proprietary file format.

Data Manager is a tool for managing this data. It enables you to view, add, delete, edit, query, import, and export data in the Oracle Utilities Data Repository. If you are a rate designer, billing analyst, or other specialist, you will use Data Manager to assemble and maintain the customer information you need to perform a specific task, such as evaluating the impact of a new rate on a rate class or generating bills for large accounts. When the required inputs have been assembled using Data Manager, users can apply other Oracle Utilities products to accomplish a specific job. In addition, Data Manager provides a "window" on the data, presenting it in a format and detail level best suited to each user's needs.

The Oracle Utilities Data Repository

The standard (or "base") version of the Oracle Utilities Data Repository stores information for two key functions: large account billing and rate design and analysis. However, its use can be extended to other applications and utility-specific needs.

The categories of data accommodated by the standard version of the database are discussed below.

Customer and Account Information

The first category of information pertains to individual customers and how their bills are calculated. It includes customer identifiers, account history information, and recorder-channel information.

Customer Identifiers

There are three levels of customer identifiers for billing and rate purposes: customer, account, and (optionally) CIS account.

- **Customer** - A customer is the entity that receives the bill. The Oracle Utilities Data Repository stores a unique ID for each customer.

- **Account** - An account is the entity whose bill determinants are used to calculate the bill. An account may have one or more meters and/or recorders and recorder-channels.

  While one or more accounts may belong to a single customer, and the customer receives the bill, Oracle Utilities Billing Component does not calculate charges at the customer level.

- **CIS Account** - *Not available in all implementations.* A CIS Account is any account, service location, or other entity that has a unique ID in a Customer Information System (CIS).

  > **Note:** Internally, Data Manager assigns a unique identifier (UID) to each customer and account; these are UIDCustomer and UIDAccount. The UIDs are linked to customer and account records in the Data Repository, even if the customer and/or account IDs are changed. This enables you to create new relationships and groupings for customers and accounts without losing track of them.

Operating Company

An account is billed by a particular operating company, according to the regulations in its jurisdiction. For each account, the database stores a unique ID, the operating company/jurisdiction to which the account belongs, and the date that it became active. Stop-dates can also be stored to indicate inactive accounts.

Jurisdiction

An account's jurisdiction refers to its geographical area (usually state or province). Bills are calculated based on the regulations that pertain in that jurisdiction.

Account History

The Data Repository stores information about how each account is (and was) billed. For each category below, the Data Repository keeps track of the version currently in effect, as well as all previous versions.

- **Billing cycles** - the billing cycle read dates trigger the billing process for accounts that are billed automatically.

- **Rate codes** - relate accounts to specific rate schedules.

- **Overrides** - enable the application of alternate charges to an account, for discounts or for special events such as interruptions and backups.

- **Factors** - values identified in a rate schedule script for taxes or other charges.

Account Data

Usage Data

The Data Repository stores two categories of usage data for each account: bill determinant values and interval data. Bill determinant values are stored in the Bill History records in the Data Repository; interval data is stored in the Interval Database.

Bill History

For each account, the Data Repository stores usage values such as kWh or kW that are used to compute charges for each bill period. Categories of usage values that are used to compute bills are called **billing determinants**.

These values may be read from an account's energy or demand meter and fed into the Data Repository via your facility's CIS, or they may be computed by an Oracle Utilities application and written back to the Bill History records for each bill period.

When bill history information is changed via the Data Manager, the application automatically keeps an audit trail.

Recorder/Channels and Interval Data

In addition to metered and computed billing determinants, the Data Repository keeps track of the account's interval data recorders. The IDs for these recorders and their channels are the keys for accessing interval data in the Interval Database. This data may be used for power billing, end use analysis, and other functions.

> **Note**: Power billing refers to billing large volumes of accounts, and/or billing accounts with complex pricing requirements.

A **recorder** is a device used to measure a customer's demand (kW) or other quantity periodically, such as every 5, 15, 30, or 60 minutes. This data is "interval data" and is used to determine the demand a customer places on the system at various times of the day and over the course of a year.

These recorders are usually installed for large customers whose demand has a significant impact on the system, or for customers who are part of a load research sample.

A recorder may have several data **channels**, each measuring a different usage value such as kW, or another quantity such as temperature. For example, a recorder might be installed at an office building, with each channel assigned to a different office. Or, the recorder might belong to one account, with each channel assigned to a particular **end use** such as air conditioning, refrigeration, or water heating. With some recorders, it is necessary to sum data from a number of channels to get a total value for a determinant.

For every account in the database that has an interval data recorder, the Data Repository stores its recorder ID and channel numbers. This identifier -'recorder-ID,channel-number'- is the key to accessing customers' interval data records in the Oracle Utilities Data Repository. You can then apply Rules Language functions to compute billing determinants from this data.

Because recorders and channels can be moved and re-assigned, the Data Repository stores historical records of each account's channel assignments, including the unit of measure and end use being recorded, whether the channel measures a billing quantity, and how the channel's data should be combined with the others' to compute total usage.

Note: There are important distinctions between meters (also referred to as "indicative meters") and recorders, and between billing determinants and interval data. A meter is a device that measures a billing determinant. A billing determinant is a "scalar" value that represents one type of usage for a bill period—that is, a quantity for the period expressed as a single value. A recorder measures interval data, which is a series of values for one period and can be considered "raw data."

Oracle Utilities Rules Language functions are used to calculate billing determinant values from a customer's interval data.

Channel Groups and the Meter Value Table

When you need to track and store the usage for subsets of recorder channels belonging to an account (for example, when an account has service locations in different tax jurisdictions), Data Manager lets you subset the channels by assigning each one to a "group." A group may consist of one or more channels. You can also group channels differently for different applications.

The Bill History Table stores only one value per bill determinant per bill period for an account. The Meter Value Table allows users to store the bill determinants for each channel group belonging to an account, even if the channel groups have the same unit of measure. The determinants stored in the Meter Value Table are called "bill components."

System Peak

Data Manager stores information about the system peak for use by rate schedules with charges based on the time of the system peak. This information should be stored in an account record (where the Account ID is "SYSTEM"), and its values stored in the Meter Value Table.

Billing Accounts

Billing and rate analysis require computer-readable versions of contracts, rate schedules, and riders. Oracle Utilities provides a powerful language, the **Oracle Utilities Rules Language,** that you use to encode virtually *any* type of rate tariff in a program script. Language statements and functions access the Customer and Interval databases, compute billing determinants and charges, report the results, write data back to the Data Repository, and create CIS transaction records.

Before you can create a rate form, you must use Data Manager to create a **rate form record**. The rate form record includes an identifying code for the rate form, and descriptive information such as its type, name, and the Operating Company/Jurisdiction it belongs to. Next, you create a **version record** that specifies whether it is a current, historical, or trial version. When the descriptive records are stored in the Oracle Utilities Data Repository, you use the Rules Language Editor to write the rate form script. These scripts consist of Rules Language statements that tell the application how to calculate and report trial revenue or customer bills.

The rate form records provide a link between the language scripts and the customer and account history records, keeping track of which rate forms were applied to an account or customer, and when.

There are three types of rate forms—contracts, rate schedules, and riders:

- **Contracts:** A contract is a customer-specific rate form that describes the bill calculations or contract minimums for a single customer account. It is incorporated within a rate schedule.

- **Rate Schedules:** A rate schedule describes the bill calculations for a class of customers. It is a rate tariff encoded using Rules Language statements. When used as input to a Oracle Utilities product, rate schedules are used to compute revenue from billing determinants.

  A rate schedule is specific to one operating company and jurisdiction. It can include the definition of several rate codes, but it must represent *at least one*, because that is how accounts are related to rate schedules.

  A rate schedule can include one or more riders and contracts.

- **Riders:** The term "rider" refers to any sub-form. A sub-form is a set of statements that you want to make available for use in several rate schedules. This could include tariff riders, company-wide rules and regulations, or other common calculations such as a set of statements that creates time-of-use billing determinants from interval data.

Lookup Codes

Lookups are codes that identify entities commonly referenced in customer records and rate forms. Using standardized codes makes data retrieval and computations possible. Lookups in the base system include:

- **Jurisdiction** - agency or commission regulating how accounts in an area are billed.

- **Operating Company** - company that bills the accounts.

- **Billing Determinant** - quantity used to compute account bills (kW, kWh, etc.).

- **Unit of Measure** - unit of measure designations for customer services (electricity, hot water, gas, etc.) and related quantities. Codes "01" through "99" are reserved for Oracle Utilities UOMs. Oracle Utilities products also accept 3-digit, user-defined UOMs.

- **End Use** - appliance or other device whose electric or gas consumption is measured for billing, end use studies, or other purposes. Example end uses include air conditioners, refrigerators, hot water heaters, furnaces, and total house.

- **Factors** - global values that can be used for billing charges.

For a complete description of Oracle Utilities Lookup codes, see **Chapter 7**: **Maintaining Data**.

More about Jurisdiction and Operating Company: An important concept in Data Manager is the grouping of accounts based on the company doing the billing (Operating Company) and the location of the account (Jurisdiction). A billing account must reside entirely within one company and one jurisdiction. Accounts, rate schedules, and other information are specific to one operating company/jurisdiction.

Note that "outside" operating companies may be specified to allow for billing of wheeling services, because a rate schedule related to an account need not have the same operating company and jurisdiction as the account.

Calendar Schedules

Calendar schedules define how time-of-use and season-based rates are applied. Data Manager accommodates the following schedule types:

- **Time of Use (TOU)** - classifies each hour in a week or holiday as "on peak," "off peak," "shoulder," or any other periods in use at your facility.

- **Season** - specifies the dates for seasons in different years; you can also associate a different set of Time of Use schedules with each season.

- **User Specified Day List** - specifies a group of non-contiguous days to be analyzed together. For example, you could specify several summer peak days to be averaged together.

- **Holidays** - specifies the days to be treated as holidays when applying time-of-use periods; requires a holiday list for each operating company/jurisdiction.

For a complete description of Calendar schedules, see **Chapter 7**: **Maintaining Data**.

Data Manager Functions

Data Manager has two primary purposes:

- To give you a customized "view" of the Oracle Utilities database

- To enable you to prepare and maintain inputs for other Oracle Utilities products.

For input to other Oracle Utilities products, you will typically refer to the appropriate product's User Guide to determine the required inputs, then turn to this Guide for instructions on preparing them. Here's a brief description of the Data Manager functions and where to find more information about them:

- **View:** View customer information in an easy-to-use tab format specifically designed for billing analysts. This feature is called the **Account-Centric View**. See **Chapter 5**: **The Account-Centric View**. You can also view interval data cuts in the Interval Database using the **Interval Data Browser**. See **Chapter 6**: **Browsing Data**.

- **Add, update, and delete individual records:** Data Manager's graphical user interface offers you two tools for managing records in the Data Repository:

  - The Account-Centric View enables billing analysts to update billing information for selected accounts. See **Chapter 5**: **The Account-Centric View**

  - The Browser enables system administrators and other individuals to view, add, update, or delete any records in the Data Repository, including customer records, lookup codes, and rate form records.

- **Import:** Load files of customer or Interval data into the Oracle Utilities Data Repository. See **Chapter 3**: **Importing Data**.

- **Query (Lists):** Search the database for customers, accounts, or other entities that match criteria you define. You can use the resulting list as input for analysis and billing applications, or you can incorporate your list in a rate form. See **Chapter 8***:* **Working with Lists and Queries**, for customer and account lists, and for lists and queries that you can use in rate forms.

- **Calendar Schedule maintenance:** Add, modify, and delete schedules used in time-of-use or season-based analysis and billing. See **Chapter 7**: **Maintaining Data**.

- **Rules Language Editor:** Write and edit Rules Language scripts. See the *Oracle Utilities Rules Language User's Guide* for more information.

International and Multiple Currency Support

This section outlines international and multiple currency support in the Oracle Utilities Energy Information Platform, including:

- **Locales and Languages**
- **Date and Numeric Presentation**
- **Currency Presentation**
- **Multiple Currency Support**
- **File Formats**
- **Database Support**

Locales and Languages

Two fundamental concepts underlying international support in Oracle Utilities applications are **languages and locales**. Languages determine the specific language in which text labels and controls of an application appear. Locales determine the specific region or country in which the user is working. Specifically, locales are used to specify display and input formatting for:

- Date/time and numeric presentation, and
- Currency presentation

How a user selects a language and/or locale is determined by the type of application being used.

Web-enabled Products

For web-enabled products, a user's locale and language are selected from the **Locales** tab of the **Set Preferences** screen. The selected locale and language are stored in the user's security properties. The available locales on this screen are specified in the LOCALES.CFG.XML configuration file (see **Chapter 2**: **Configuration Files** in the *Oracle Utilities Energy Information Platform Configuration Guide* for more information). Locales included in the LOCALES.CFG.XML file must also be installed on the web server and be accessible from the Regional Settings Control Panel. If a selected locale is not installed on the web server, currency formatting and presentation may be incorrect.

If a user does not select a locale (or selects a locale of "None"), the default locale is the Server System Locale (defined by the operating system installed on the web server). Oracle Utilities recommends that all users specify a locale before using internationalized applications.

Client/Server Products

For client/server products, the user's locale is determined by the Regional Settings of the client and/or application server machine.

Languages

The language for client/server products is specified using a command line switch and/or a parameter in the LODESTAR.CFG file. See **Oracle Utilities Application Command Line Parameters** on page 4-11 in the *Oracle Utilities Energy Information Platform Installation Guide* for more information about command line parameters. See **LODESTAR.CFG** on page 2-2 in the *Oracle Utilities Energy Information Platform Configuration Guide* for more information about the LODESTAR.CFG file. At this time, available languages include English, French, German, and Italian.

Reports

For client/server applications, the locale for reports is determined by the Regional Settings of the machine on which the report is run.

For web-enabled applications, the locale for reports is based on the Server System Locale (defined by the operating system installed on the web server)

Languages

For client/server applications, the language that appears on reports is determined by the language of the application that generated the report, specified either by a command line parameter or a configuration file parameter.

For web-enabled applications, the language is specified by the Regional Settings of the machine on which the report is run, unless overridden by the LANGUAGE parameter in the LODESTAR.CFG file.

Date and Numeric Presentation

The display and input of dates and numbers is based on the selected locale.

Web-enabled products

Display formatting of both numbers and date/times is based on the user's selected locale.

Copy, cut, and paste operations are supported for all input controls. Required fields are identified by asterisks. Null values are represented by blank (empty) controls. Moving the mouse pointer over an input area displays sample formatting for that field.

Number input controls only accept formatting based on the user's selected locale. The only allowable characters include digits, decimal separator, and minus sign. Any other characters are filtered from input.

Date input controls only accept formatting based on the user's selected locale. Dates can either be keyed in or selected from a pop-up calendar control. All times are keyed in and based on 24 hour format (no AM or PM indicator).

Input validation occurs upon data entry.

Client/Server Products

Formatting for numbers and date/times is based on the locale determined by the regional settings of the client and/or application server machine. Date/time formatting can be overridden from the General Options tab of the Default Options dialog.

Reports

Display formatting of both numbers and date/times for reports is based on the Server System Locale on the machine on which the reports are run.

Currency Presentation

Currency information is stored in the LSCurrency table in the Oracle Utilities Data Repository. This table contains one or more currencies, each defined by a currency code, currency symbol, and formatting rules (such as the number of decimal places). Currency codes in this table use ISO-4217 codes. The LSCurrency table also indicates the Default currency for the database. See **LSCurrency** on page 3-3 in the *Oracle Utilities Energy Information Platform Configuration Guide* for more information about setting up the LSCurrency table.

Note: Although records in the LSCurrency table are not required, Oracle Utilities strongly recommends that at least one record with all properties specified be created and set as "Default". This will ensure consistent display of currency information.

Currency Presentation in Oracle Utilities Receivables Component and Oracle Utilities Quotations Management

Currency input and display is identical to that for numbers with two exceptions:

- A currency indicator is also displayed next to currency input controls and currency displays. The specific currency symbol displayed and the manner in which currency is formatted are determined in the following order:

    a. The currency associated with the account being viewed (from the LSCurrency field in the Account table).

    b. The default currency in the LSCurrency table. If there is no default currency, the first record in the LSCurrency table (sorted alpha-numerically by Currency Code).

    b. If the LSCurrency table is not present or does not contain any records, the currency and formatting of the Server System Locale (defined by the operating system installed on the web server),specified in the **HKEY_USERS\.DEFAULT\Control Panel\International** key in the Windows Registry on the web server.

- Currency formatting rules for the user's selected locale are overridden if specific formatting rules for the currency are stored in the LSCurrency table. Typically, the only formatting rules that would be overridden at the currency level would be the ISO code, symbol, and number of decimal places. This applies to Oracle Utilities Receivables Component reports as well, except that the initial locale formatting rules come from the regional settings of the machine on which the report is run.

Currency Presentation in Other Web-enabled Products

Currently, other web-enabled products do not require input of currency values.

Display of currencies is based on the formatting of the selected locale and of the default currency in the database (currency specific formatting always overrides locale specific formatting).

Enabling Display of International Currency Symbols

Display of international currency symbols requires the appropriate Encoding option is selected on Internet Explorer.

How to select encoding options:

1. Select **View-›Encoding** from the Internet Explorer menu bar.

2. Select the appropriate option from the list. For example, to enable displaying of the Euro symbol and other Western European currency symbols, select the **Western European (Windows)** option.

Currency Presentation in Client/Server Products

Client/server products do not require input of currency values.

Display of currencies is based on the formatting of the client machine's regional settings and of the default currency in the database. Currency specific formatting always overrides locale specific formatting. If the default currency in the database does not specify any formatting, the currency symbol is used for formatting. If the currency table does not exist or does not contain any records then the default currency is determined by the Regional Settings on the client/server machine. This applies to reports as well.

Multiple Currency Support

Multiple Currency Support allows for accounts with different associated currencies. This is accomplished through the presence of the Currency Code column on the Account, Journal Account, and Checking Account tables in the Oracle Utilities Data Repository. This column references records in the LSCurrency table

Multiple Currency and Oracle Utilities Receivables Component

All input screens which have amount fields on them indicate what currency type is expected as input.

All elements that represent a currency in Oracle Utilities Receivables Component XML structures have a CURRENCY attribute that indicates the corresponding currency type for the amount. The string values used for this attribute are the same as the Currency Code values in the LSCurrency table. On output, the CURRENCY attribute is set for the account as specified in the database. If the account's currency type is not specified in the database, the default currency is used.

A CURRENCY attribute (using the standard stem.tail notation) is supported for Oracle Utilities Receivables Component transaction identifiers to specify the currency type for the account.

On input, the CURRENCY attribute of all Oracle Utilities Receivables Component transactions is checked against the currency value of the account against which the transaction is being posted using the following rules:

1. If a currency type is specified for the account in the database, the transaction must indicate the same currency type or it is an error.

2. If a currency type is not specified for the account in the database, the transaction must indicate either no specific currency type or the default currency type for the database or it is an error.

All transactions that involve two or more accounts (such as Payment and Balance Transfers) validate that the currency types are the same for each account (no currency translation will occur). The credit/debit account pairs for each journal translation record are validated to ensure that they both have the same currency type. Only journal translation records that have credit/debit accounts with the same currency type as the account against which the transaction is being posted are used. Additional currency validations occur for payment files and refund checks.

Multiple Currency and Oracle Utilities Receivables Component Reports

Where applicable, Oracle Utilities Receivables Component reports are grouped by Currency Code.

Multiple Currency and Other Oracle Utilities Products

Oracle Utilities Billing Component, Oracle Utilities Rate Management and Data Manager reports display the Currency Code associated with each account where applicable. Reports that contain multiple currency types do not include the Summary Results page.

In Oracle Utilities Rate Management - Revenue Forecasting, the default currency type is used for all presentation of currency amounts, regardless of whether or not a specific currency has been indicated in the database for any accounts.

File Formats

Input/Output File Formats

Numbers and date/times in input and output files (such as files used with the PLIMPORT program) are independent from locale settings.

Non-English characters are supported in input/output files.

XML Formats

All dates, times, and numbers contained in XML files are represented using the standard formatting rules as defined by the W3C XML Schema Recommendation. For backward compatibility, previously accepted formats for dates and times will continue to be accepted on input, however, all output will use the XML Schema representation.

> **Note**: XML files created by the SAVE TO XML Rules Language statement are an exception. The date, time, and number formats in Rules Language generated XML files are based on the Rules Language configuration used to create them.

Non-English characters are supported in XML files

Database Support

In addition to the LSCurrency table and related columns in the Account, Journal Account, and Checking Account tables, database support for internationalization includes the addition of the COUNTRY column in the Address table and the change from ZIP Code to Postal Code on user interfaces.

Notes, Cautions, and Warnings

The following notes, cautions, etc. apply to all Oracle Utilities products. In the development of these applications tradeoffs were made in favor of performance, as opposed to functionality. The following explains some of these tradeoffs.

- All Oracle Utilities products accept dates and bill months from January 1, 1901 through December 31, 3000.

- All Oracle Utilities products use the C data type "double" to store floating point values. This is limited to 15 digits of precision. Strings or numbers with more digits are rounded to the nearest value supported by doubles when they are converted to a float.

- Use of the ampersand ("&") symbol in ID fields results in errors when exporting data in XML format.

- If the database Browser (Account Info, Customer/Account(s) or Customer Database) is running and a database Import is run, the Import may hang. The Browser may have database "pages" locked, which will hang Import if it tries to update one of these pages (the Import will continue when the Browser is closed). In general, you should close Browser windows before running the Import function.

- If the Import function deletes records that are on view in a Browser, the Browser may display an error message when it attempts to read the deleted record. Again, close Browser windows before running the Import function.

- Some data is cached for faster retrieval. This includes operating company codes and names, determinant information, and other relatively static data. If these values are changed in the Browser or via the Import program, the cache will not be updated (and the new values visible) in an application until the application restarts or the user selects Edit - Refresh Cached Tables from the menu.

- When most analysis dialogs are cancelled they are actually hidden, so that all the selections remain. When the analysis is selected again, the dialog displays the selections from the last time it was viewed. To refresh such a dialog, use the system Close menu pick or the X pick in the upper right corner. This destroys the dialog and re-initializes a new one.

- The maximum length of all codes and names is 64 characters. However, to keep dialog boxes at a reasonable size, a display maximum display width of 25 characters is assumed. If you use longer names, some displays will be distorted.

- Oracle Utilities Rate Management and Oracle Utilities Billing Component have some differences in how they perform their revenue or bill calculations. All Oracle Utilities Rate Management calculations use the dates in the BillHistory records; in Oracle Utilities Billing Component the interval data cut dates may override the BillHistory dates. In both cases, the Save Statement will write data to the database; this data is "rolled back" when the analysis completes. However, in a Oracle Utilities Billing Component analysis the data is actually saved when the bill is approved.

- Oracle Utilities Billing Component supports multiple Bill History records in a bill month. Oracle Utilities Rate Management supports only one Bill History record in a bill month.

- Oracle Utilities Billing Component requires the ReadDates in all Bill History records to be not NULL; Oracle Utilities Rate Management allows NULL ReadDates in Bill History records.

- Oracle Utilities Rate Management does "the best it can". If a historical value is requested, the nearest value will be used if the requested one does not exist. Oracle Utilities Billing Component is exact, with these historical function exceptions:

  - If HISTVALUE is used to request a value past the end of history values, 0 is returned.

- If the start month to historical functions is 1 and there is only the current value, 0 is returned. However, if the start month is greater than 1 and greater than the number of historical values, it is an error.

- If the stop month is greater than the number of historical values, it is set to the last period with data.

- When a rate schedule is used for an account and the analysis is Automatic Billing, Approval Required billing, or Current/Final Bill, the rate schedule must have either the $EFFECTIVE_REVENUE identifier or another identifier set as the total through the REVENUE TOTAL statement. This guarantees that there is a total revenue.

- In any numeric edit field, to make the value negative press the minus (-) key when the cursor is left of any decimal point. To make a negative value positive, press the plus (+) key. Note that you cannot delete or backspace over a minus sign to remove it.

- If you use an OR conjunction in a Prompted Query, the actual query may run **very slowly**. This is a limitation in all relational databases.

- If you change the Windows Regional Settings while an application (Data Manager, Oracle Utilities Billing Component, etc.) is running, you must restart the application in order for the new settings to take effect.

Chapter 2

Working with Data Manager

This chapter described how you work with Data Manager. This includes:

- **Starting Data Manager**

- **Data Manager Menus**

- **Data Manager Toolbar**

- **Default Options**

- **Setting Global Options**

- **Using Online Help**

- **Changing Your Password**

- **Shortcut Tips**

- **Saving and Applying Settings for Dialog Boxes**

- **Closing a Dialog Box so Current Inputs are Saved or Discarded**

Starting Data Manager

This section covers the basics of working with Data Manager and the other Oracle Utilities products—how to start the program, use the on-line help system, and set user preferences. It also acquaints you with the tools, commands, and controls you'll find in Data Manager, as well as a few shortcuts for navigating the system.

From the Windows Desktop

This section explains how to start Data Manager from the Windows desktop. (You can also start Data Manager from the command line and use switches to control which database is accessed, and other features. Ask your System Administrator.)

Depending upon how your system is configured, you can start Data Manager using one of two methods:

• Double-click the Data Manager icon, or

• Click the **Start** button in the lower-left corner of the Windows desktop. Then, select **Programs-›Oracle Utilities-›Data Manager**.

Depending upon your system configuration (or if an error occurs during database initialization), the logon screen appears.

• User Name: the user ID for the database connection*

• Password: the password for the supplied user ID*

• Data Source Name: The data source name and provider for the database, in one of the following formats:

For Oracle databases:

`"Data Source=<data_source>;LSProvider=ODP;"`

where:

• <data_source> is Oracle TNS Name from the TNS_NAMES.ora file (typically located in the \\<machine>\oracle\network\admin directory)

* User Name and Password are optional—if you do not supply them, the User ID defaults to your Windows logon ID.

When you complete the fields and click **OK**, the Data Manager desktop appears. You are now ready to begin.

From Another Application

You can start Data Manager while working in another Oracle Utilities application program, such as Oracle Utilities Rate Management or Oracle Utilities Billing Component. From that program's desktop, select **Tools-›Data Manager**. The Data Manager desktop appears.

> **Note:** If Data Manager is not available on the Tools menu, contact your System Administrator. (Data Manager must be added to the *.tls files.)

Data Manager Menus

The Data Manager menus provide access to all Data Manager functions, as well as to all other Oracle Utilities products installed on your system. The following describes each option on each menu.

> **Note:** Many of the options available via the menus are also available via the Toolbar. If the Toolbar does not appear on your screen, select **Tools-›Display Toolbar**.

File Menu

New: Open the Rules Language Editor to create a new version of a rate form (contract, rate schedule, or rider), or open the Rate Wizard (see the *Oracle Utilities Rules Language User's Guide* for more information about using the Rate Wizard).

Open: This has four sub-options.

- **Contract Version:** Opens an existing version of a Contract (rate form) in the Rules Language Editor.

- **Rate Schedule Version:** Opens an existing version of a Rate Schedule (rate form) in the Rules Language Editor.

- **Rider Version:** Opens an existing version of a Rider (rate form) in the Rules Language Editor.

- **File:** Allows you to view contents of any ASCII text file. (You can view the contents, but not modify them.)

Browse: Launches the browser. Use one of the following sub-options to determine what data will appear in the browser.

- **Customer/Account(s):** Use the Browser to view information in the Oracle Utilities Data Repository about selected accounts.

- **Customer Database:** View any information in the Oracle Utilities Data Repository using the Browser. This option is preferable for viewing lookup codes and other information. The **Customer/Account(s)** option (above), on the other hand, is faster and more convenient when you want to focus on information about specific accounts.

- **Database Schema:** View a graphical representation of the table structure in the Oracle Utilities Data Repository, as well as the table and column (record) names.

- **Interval Data Database:** View interval data cuts stored in the Interval Database (select the database using **Tools-›Options**).

- **Select Interval Data:** View interval data cuts associated with a specific customer or account.

View: Opens the Account-Centric View (see **Chapter 5**: **The Account-Centric View**).

- **Account:** View, update, add, and delete information about a selected account using the Account-Centric View.

- **Substation:** View, update, add, and delete information about a selected substation.

Close: Close an open report window.

Lists: Offers options for creating Lists.

- **Customer/Accounts:** View, edit, create, import, or export a list of customer or account IDs.

- **Table-Column:** View, edit, create, import, or export a list of values from any table-column in the database. This type of list can be used only in conjunction with a rate form.

- **Substation/Transformer:** View, edit, create, import, or export a list of substations or transformers.

Save: *Available only when the Rules Language Editor is active.* Saves the rate form currently open.

Save As...: *Available only when the Rules Language Editor is active.* Saves the rate form currently open with a new name.

Setup: Offers various setup options:

- **Blocking Tables:** Create, edit, or delete blocking tables (used to create a Bill Frequency Table for rate analysis or revenue forecasting).

- **Season Schedules:** Create, edit, or delete season schedules (used for season-based analysis and billing).

- **TOU Schedules:** Create, edit, or delete time-of-use schedules (used for TOU-based analysis and billing).

Import Data set: Imports data into the Oracle Utilities Data Repository.

- **To Customer Database:** Import customer records into the Oracle Utilities Data Repository.

- **To Interval Data Database:** Import interval data into the Oracle Utilities Data Repository.

Import: Imports contents of a file.

Export: Exports contents of an open report window or a rate schedule to a file.

Export/Delete: Exports and deletes the contents of an open report window or a rate schedule to a file.

Print: Print contents of an open report window.

Exit: Close Data Manager.

Edit Menu

Cut: *Available only when the Rules Language Editor is active.* Cut selected text, and save it to the Clipboard.

Copy: Copies selected text to the Clipboard.

Paste: *Available only when the Rules Language Editor is active.* Paste text from the clipboard into a rate form.

Undo: *Available only when the Rules Language Editor is active.* Undo last action; e.g., cut, copy, or paste.

Redo: *Available only when the Rules Language Editor is active.* Redoes the last undo action.

Add: Add a new record to the database.

Update: Update a record in the database.

Delete: Delete a record from the database (Browser) or selected text in a rate form (Rules Language Editor).

> **Note:** The Add, Update, and Delete options are operable only when the browser window or Rules Language Editor is open.

Find: This option allows you to search for a word or words in an open report window. When you select this option (or press **F3**), the Find dialog opens. See **Chapter 9**: **Reporting**, for more information.

Find Next (Shift-F3): This option finds the next instance of the word or words last entered in the Find dialog.

Find Previous (Ctrl-F3): This option find the previous instance of the word or words last entered in the Find Dialog.

Go To (Ctrl-G): This option opens the Go To tab on the Find dialog and allows you to go to a specific line in an open report window.

Browse Account: Examine information in the Oracle Utilities Data Repository for a selected account using the Browser.

> **Note:** You must first highlight an Account ID in a report in order for this feature to be available.

View Account: Examine information in the Oracle Utilities Data Repository for a selected account using the Account-Centric View.

> **Note:** You must first highlight an Account ID in a report in order for this feature to be available.

Refresh Cached Tables: Refreshes the contents of tables displayed in the browser.

Font: Allows you to change the font in an open report window. See **Chapter 9**: **Reporting** for more information.

Analysis Menu

Trial Calculations: Opens the Trial Calculation module. See **Trial Calculations** on page 10-2 for more information.

Billing History: Generate a summary of bill determinants for one or more accounts over any desired time period for which data is available. See **The Billing History Report** on page 10-9 for more information.

Special Events: Generate a summary of special event overrides that apply to one or more accounts over any desired time period for which data is available. See **The Special Events Report** on page 10-10 for more information.

Billing Options: Opens the Default Billing Options dialog, used when performing trial calculations. See **Default Billing Options** on page 10-11 for more information.

Records Menu

The Records menu contains options for working with records in the Oracle Utilities Data Repository. Note that the Records menu is only available when the browser is displayed.

Insert New: Inserts a new record in the selected table.

Filter: Opens the Set Filter dialog and allows you to filter records in the browser based on a specified account ID of table-column list. (see **How to Filter records in the Browser based on Account IDs or Table-Column Lists:** on page 6-4).

Query Filter: Opens the Query to Create a List of <TABLE> Records dialog and allows you to filter records in the browser based on a user-specified query (see **How to Filter records in the Browser based on Queries:** on page 6-4).

Export: Exports all records from a selected table, as well as all associated parent, child, and lookup records, when specified. See **Chapter 4: Exporting Data** for more information.

Delete: Deletes all records from a selected table, as well as all associated child records. No Export file is created. See **Chapter 4: Exporting Data** for more information.

Export/Delete: Exports all records* in a selected table, as well as all associated child records, and deletes same records from the database. See **Chapter 4: Exporting Data** for more information.

Refresh: Refreshes the selected table.

Browse Interval Data: This option opens the Interval Data Browser. This option is only active if you've selected the Channels, Recorders, or Channel History table, or one of the records in one of those tables. If you select a table, the Interval Data Browser displays the entire Interval Database.

If you select a single record, the Interval Data Browser displays only the selected record. See **Chapter 6: Browsing Data** for more information.

Refresh All: Refreshes all the tables in the Oracle Utilities Data Repository.

Single-Step Menu

The Single-Step menu contains options for working with the Trial Calculation window. Note that the Single-Step menu is only available when the Single-Step windows are displayed.

Step: Executes the selected line in the statements (upper left) window.

Jog: Executes the rate form slowly, line by line, allowing users to view the results.

Run: Runs the rate form.

Jog to Selection: Executes the rate form slowly, line by line, up to a selected line.

Run to Selection: Runs the rate form up to a selected line.

Break: Stops processing when "jogging" through a rate form.

ReStart: Reloads the rate form, allowing users to restart processing.

Graph Interval Data: If selected, displays interval data loaded in the rate form in the lower window. The default for this option is on.

Show Selected Identifiers: Shows the values of selected identifiers in the rate form. Identifiers are selected on the **Customer Bill Modification - Edit Id** dialog accessible when running a Single Step Analysis. See **How to run the Single Step Analysis** on page 10-4 for more information.

Show All Identifiers: Shows the values of all identifiers in the rate form.

View Open Interval Data Handles: Opens the Browse Open Interval Data Handles window, displaying interval data handles loaded in the rate form.

Display Report: Opens a report window for the trial calculation.

Display Profile: Opens a performance profile that lists the processing time for each line in the rate form.

Insert/Remove Breakpoint: Inserts or removes a breakpoint at the selected line in the top left window in the Single Step module. See **How to run the Single Step Analysis** on page 10-4 for more information.

Clear All Breakpoints: Clears all breakpoints in the rate form currently open in the Single Step module. See **How to run the Single Step Analysis** on page 10-4 for more information.

View Menu

The View menu contains options for altering the view of reports. Note that the View menu is only available when an open report window is displayed.

> **Note:** The contents of the View menu change when viewing graphs. See **Creating Graphs** on page 9-6 for more information.

Graph: Opens the Create Graph dialog and allows you to create a graph based data in the report. This option is only available if the data in the report can be graphed. See **Creating Graphs** on page 9-6 for more information.

Auto Vertical Scroll: Selecting this options causes the last page of the report to be displayed as the report progresses, if it is not checked then no automatic scrolling occurs.

Display Only Pages With Errors: Creates a new report window based on an open report window that contains only pages that contain errors. This option is only available if an open report window contains pages with errors.

Display Only Pages Without Errors: Creates a new report window based on an open report window that contains only pages that contain no errors. This option is only available if an open report window contains pages with errors.

Tools Menu

Options: User-selectable options for tailoring the Oracle Utilities programs to your needs and environment. See **Default Options** on page 2-9 for more information.

Display Toolbar: Toggle display of Toolbar on and off. See **Data Manager Toolbar** on page 2-8 for more information.

Customize: *Available in future release.* Make other programs accessible from the Oracle Utilities Billing Component menu bar.

[application program]: Open another Oracle Utilities or user-supplied application. This is optional. See your System Administrator about adding applications to the Tools menu.

Global Options: User-selectable global options for setting default values for Oracle Utilities applications that apply to all users. See **Setting Global Options** on page 2-16 for more information.

Change Password: Change password for logging in to the database. See **Changing Your Password** on page 2-21 for more information.

Window Menu

Cascade: Overlaps multiple open windows the desktop; provides largest view of active window.

Tile: Displays multiple open windows side by side.

Arrange Icons: Organizes icons on Data Manager desktop.

Close All: Closes all open windows.

Help Menu

Help: Displays on-line help for currently-displayed window. See **Using Online Help** on page 2-20 for more information.

Help contents: Displays table of contents for on-line help. See **Using Online Help** on page 2-20 for more information.

About: Displays version number of software. Also display the username, computer (network) name, and current database name.

Display Error Window: Displays database version, configuration settings, and error log. Useful when calling the HelpLine. This window can be exported by selecting **File->Export.**

Data Manager Toolbar

The Toolbar gives you quick access to the program's most frequently used tools and commands. If the toolbar is not visible, select
Tools-›Display ToolBar.

The following describes the function of each Toolbar button. Additional details are provided in other parts of this guide.

Click	To
New	Open the Rules Language Editor to create a new version of a rate form. This is the same function as the **New** option under the **File Menu** on page 2-3.
Open	Open an existing version of a rate form in the Rules Language Editor. This is the same function as the **Open** option under the **File Menu** on page 2-3.
Save	Save the currently displayed report or rate form version.
Print	Print the currently displayed rate form or report.
Export	Export the currently displayed report or rate form.
Cut	*Available only when the Rules Language Editor is active.* Remove selected text from the rate schedule.
Copy	Copy selected text and store it on the Clipboard.
Paste	*Available only when the Rules Language Editor is active.* Insert contents of the Clipboard at the insertion point or selection.
Browse	View information in the Data Repository about selected accounts; information is displayed via the Browser.
View Account	View, update, add, and delete information about a selected account using the Account-Centric View.
Browse Customer Database	Opens the Customer Database Browser. This is the same function as the **Browse: Customer Database** option under the **File Menu** on page 2-3.
Browse Interval Data Database	Opens the Interval Data Browser. This is the same function as the **Browse: Interval Database** option under the **File Menu** on page 2-3.
Browse Database Schema	Opens the Customer Database Schema. This is the same function as the **Browse: Database Schema** option under the **File Menu** on page 2-3.
Error Window	Display database version, configuration file settings, and error log. Useful when calling the Help Line.
Help	Display on-line help for currently displayed window.

Default Options

The Options feature allows you to set your own default values for several frequently used parameters. You can set your preferred defaults via Data Manager or another Oracle Utilities product (such as Oracle Utilities Billing Component) and store them in the Oracle Utilities Data Repository. In that way, whenever you open a Oracle Utilities program, these values are automatically supplied—saving you the time and effort of defining them each and every time.

When you are working in any of the Oracle Utilities application programs, you can also override your defaults for individual work sessions, or even specific dialog boxes throughout the programs. Whenever you see the **Options** button on a dialog box, you can click it to open the Options box to override the defaults.

Available options include:

- **General Options**

- **Rate Analysis Options**

- **Billing Options**

- **Interval Data Source**

- **Interval Data Options**

- **Interval Data Merge**

- **Error Handling**

- **User Files**

How to set default options:

1. At the Desktop, select **Tools-›Options.** *Or,* Click the **Options** button on the current active dialog box.

2. Set your options on each tab as desired.

3. When you have completed the tabs as desired, click **OK** to save the new settings as your defaults, replacing the previous settings. Any Oracle Utilities program you run will automatically use these defaults. If you click **Apply,** the result depends on how you opened the **Default Options** dialog:

   - If you opened the **Default Options** dialog from the main menu, your new settings apply to all of your work for remainder of your current session. The settings will revert to the original defaults when you quit the Oracle Utilities programs.

   - If you opened the **Default Options** dialog by selecting the Options button in a dialog box, your new settings apply to just the current job.

The next several pages contain detailed information about the Default Option tabs.

General Options

The General tab specifies a number of default values and formatting preferences used by the system.

Default Operating Company: Choose the default operating company for bill calculations and rate analyses.

Default Jurisdiction: Choose the default jurisdiction for bill calculations and rate analyses.

Account ID: Choose the default ID for bill calculations and rate analyses.

Minimum printed line width: The type size in printed reports is partially determined by the number of characters that you specify here. The recommended setting is 110 characters, which yields approximately 10 to 12 point type (depending upon your printer). If you do not supply a value here the programs automatically sizes the type based on the longest line in the report. So for example, if the longest line were 40 characters, the program would size the type so that the 40 characters filled the entire width of the page, which most likely would yield uncomfortably large type. On the other hand, if the longest line in the report is longer than the value you specify here, the value has no effect.

Default to landscape printing after this # of characters: If a line single line in a report contains this many characters, the report will default to landscape printing. This allows the user to print reports in landscape mode without having to manually change the mode in the printer's properties dialog box.

Display calculation time with date on each report page: The date/time is displayed on every page of every report. If this option is checked, the time is also displayed with the date.

Date Format: Your selection here dictates the format used to enter dates via the graphical user interface, and how they are displayed in reports. (This setting is not dependant upon, nor does it affect, how dates are stored by your database software.)

Your three options are:

* **MM/dd/yyyy hh:mm:ss:** Month-day-year, hours-minutes-seconds.

* **yyyy-MM-dd hh:mm:ss:** Year-month-day, hours-minutes-seconds.

* **Windows Regional Settings:** Default Options will draw from the **Date** tab of the **Regional Settings** Windows Control Panel.

    Using the Windows Regional Settings, you will have greater flexibility in the formats available to you. You can set a 2-digit year (although the 4-digit, Y2K-compliant date will still be used internally), a European format (day-month-year), and so on.

    Note: If you change the Windows Regional Settings while an application (Data Manager, Oracle Utilities Billing Component, etc.) is running, you must restart the application in order for the new settings to take effect.

Rate Analysis Options

The Rate Analysis tab specifies default values for processing rate schedules and running reports.

Default Rate Schedule: Choose a default rate schedule for calculating charges. This is the default schedule selected when running trial calculations.

Test Period: Can be any period, one month or greater. This period is used as the default time range for the Billing History Report, Special Events Report, and Trial Calculations.

Default Season Schedule: Select a season schedule for the calculations.

Note: If when running an analysis or calculation, the input rate form includes a statement that assigns a value to the SEASON_SCHEDULE_NAME identifier, the value in the rate form takes precedence over the Options selection.

Display Line Numbers: If this checkbox is checked, the Rules Language Editor and Rules Language Text Editor display line numbers at the beginning of each statement/line. Line numbers also appear in the Trial Calculation window.

Maximum number of Undo's allowed: This field sets the maximum number of Undos allowed in the Rules Language Editor. The default is 1.

Display 'Saved by' comments at end: If selected, the 'Saved by' comments inserted in rate schedules are inserted at the bottom of rate schedules instead of at the top. This option unselected by default.

Billing Options

The Billing tab specifies how billing information is displayed by the system.

Round Revenue: Specifies the precision of revenue values in reports. *This setting affects only values that have been assigned to revenue identifiers via an Assignment, All, or Block statement in the applicable rate form.* A value of **0** (zero) means don't round, **-1** means round to dollars, **-2** means round to tens of dollars, **1** to tens of cents, **2** to cents, and so on.

Currency displayed to n decimal places: Specifies the number of decimal places shown in reports for dollar values. It is usually set to be consistent with your choice for Round Revenue. A value of **0** (zero) means use the default (display cents), **1** means display tens of cents, **2** means display cents, **3** means display tenths of cents, **4** means display hundredths of cents, and so on.

Note: This setting applies only to Oracle Utilities Billing Component reports; Oracle Utilities Rate Management reports always display dollars with two decimal places (cents).

Billing Units displayed to n decimal places: Specifies the number of decimal places shown in reports for billing units.

Display midnight as 00:00:00 (not blank): Specifies whether or not a value (00:00:00) is displayed and printed when the time is midnight or unspecified.

If you leave this option unchecked (the default), the programs print and display the date without a time when *either* the time has not been specified or the time is midnight. For example, if either 12/01/1998 or 12/01/1998 00:00:00 were specified, the program would display 12/01/1998.

If you check this option, the programs print and display 00:00:00 when the time is either unspecified or midnight. For example, if either 12/01/1998 or 12/01/1998 00:00:00 were specified, the program would display
12/01/1998 00:00:00.

Interval Data Source

The Interval Data Source tab specifies the source of interval data used by the system.

Interval Data Database: Select a Type from the three options:

- **File:** Specify an interval data file. The **File** option below becomes active when this button is selected, allowing you to specify a file (and path) in the **File Name** field, or to **Browse** to a file.

- **Default:** Specifies that the default Interval Data Database identified in the LODESTAR.CFG File be used. See the *Oracle Utilities Energy Information Platform Installation and Configuration Guide* for more information about setting a default Interval Data Database.

- **Customer Database:** Specifies that interval data stored in the Oracle Utilities Data Repository be used. When this button is selected, a drop-down list appears listing all available interval data header tables. The default table is the Channel Cut Header (LSCHANNELCUTHEADER) table.

Export Records Overwritten by SAVE to File: This option saves interval data cuts from the Interval Database to an export file before they are overwritten by new cuts created by a Rules Language SAVE Statement. The full path and name of the file (including a valid extension) must be specified.

This option appends new cuts to the same file without overwriting previously exported cuts.

Interval Data Options

The Interval Data Options tab specifies how interval data is loaded and processed by the system.

Exclude intervals with quality less than: Specify a status code level that the interval data must meet or exceed in order to be included in the calculations. All interval values with a code less than your selection will be ignored by the programs.

The codes are listed in order of decreasing quality—alpha codes generally indicate that the data is acceptable; numeric codes indicate that the data is suspect and should be corrected..

Status Code	Classification of interval data
(blank)	Normal
A	Normal, alternate-recorded (e.g., hand-entered)
J	Data inserted by Oracle Utilities Load Analysis to correct outage
L	Default for data modified by Oracle Utilities Load Analysis Load Data Editor
M	Splice peak interval (estimated value)
N	Interruptible or curtailable load
P	Inserted outage
Q	Corrected outage
X	Cuts resulting from merging invalid data or from unrecognized status codes
Y	Reserved
1	Uncorrected outage
2	Non-normal (usually timing-pulse defects)

Status Code	Classification of interval data
5	Aggregated interval used in rolling format with partially missing or unavailable data
7	Marged, aggregated, or transformed interval with partially missing data
9	Missing

Day Start: Specify the time that your facility considers the beginning of the day—8:00 am or midnight. This setting pertains to the ROUNDATE Rules Language function.

Use in all day calculations: Check this box if you want the Day Start time to apply to all date calculations that round to a full day or higher.

Use interval end time when displaying time of the interval: Specifies whether the start- or end-times of intervals are displayed for the MAXDATE values in INTDVALUE and INTDTOUVALUE functions. If checked, the end-time is displayed. If unchecked, the start-time is displayed (the default).

Add Fall Daylight Savings Time value to Energy requests: Because previous versions of the Oracle Utilities Data Repository stored energy in a 24-hour format, the system had to compensate for the extra hour of interval data that is left over on the day when the clocks are turned back for Daylight Savings Time. To do this, the system automatically takes each account's interval data values for the two DST hours (2:00 AM in the US) and averages them together for a single hour. This option enables you to specify how Oracle Utilities Billing Component (or other Oracle Utilities products) handles the "leftover" hour when calculating energy from interval data. If this option is checked, the system doubles the averaged value. If the option is unchecked, it uses just the single, averaged value. This option should only be used if the DST Participant flag is set to "A" in your interval data.

Version 3.70 (and above) can store interval data in 25-hour format (for the day when DST ends). Oracle recommends this option remain **unchecked** when using version 3.70 or above. Enabling this option in version 3.70 or above can result in incorrect energy calculations.

Export Validation Flag: Controls the settings of the Validate_Record_Flag upon export. This can be set to one of the following:

- **Valid** (default): Sets all Validate_Record_Flags of each cut within the exported file to "N", ignoring the Validation status of the requested cuts.

- **Invalid**: Sets all Validate_Record_Flags of each cut within the exported file to "Y", effectively ignoring the Validation status of the requested cuts.

- **Use Cut's Status**: Sets the Validate_Record_Flag to either "Y" or "N" depending upon the combination of validation flags that are current in the cut when exporting takes place. If either the Merge flag or the Internal_Validation flag are "Y", then the Validate_Record_Flag in the exported cut is set to "N". If both are set to "N" then the Validate_Record_Flag is set to "Y".

Interval Data Merge

The Interval Data Merge tab allows you to specific how interval data cuts are merged when using the INTDJOIN Rules Language function.

> **Note**: The Interval Data Merge options tab only appears if you include the INTD_NEW_JOIN parameter in the configuration file. See the *Oracle Utilities Energy Information Platform Installation and Configuration Guide* for more information.

Check Interval Data Validation before Merge: Check this checkbox to cause the program to check cuts' merge validation flag before merging. The default is not to check.

Interval Data Merge Selection Criterion: Choose a criterion for merging overlapping interval cuts (i.e., a rule how to merge two cuts into one). There are four criteria for merge:

- **Most Recent Start:** Pick the interval from the cut that starts later.

- **Best Status:** Pick the interval from the cut with a better status code. If the intervals have the same status code, the values are averaged.

- **Average Value:** Pick the time-weighted average of the overlapping intervals. The status code of the averaged interval will be the worse of the overlapping intervals.

- **Maximum Value:** Pick the interval from the cut with a larger value.

- **Time Stamp**: Pick the interval from the cut with the later Timestamp.

The default criterion is Most Recent Start.

Error Handling

The Error Handling tab specifies how errors are handled by the system.

Display error messages: If checked, the program will display the number of errors (if any) it encountered during the job run.

Stop analysis after ## errors: The number of errors to allow when running an analysis or bill.

On Rules Language Interval Data Error: Use this option to specify how the programs handle interval data problems encountered while the rate schedule is running:

- **Stop with Error.** Stop processing in any mode.

- **Log Message.** Complete processing; include warning message in error log, but not in report.

- **Continue.** Complete processing; do not issue any messages.

- **Issue Warning Message.** In the Automatic Billing mode, stop processing the bill. In the Automatic or Approval Required modes, complete processing, but issue a warning message in the bill report.

- **Issue Information Message.** Complete processing; include informational message in report.

User Files

The User Files tab specifies where files created by the user are stored by the system.

Default User Directory: If there is a value in this field it will override the USERDIR setting in the configuration file (after the database is opened). Files put in the user directory before the database is opened - such as .log files - will still be placed in the USERDIR directory.

Use last save/open path as default for next save/open? - If this checkbox is checked, the path used in the last open or save operation will be the default path for the next open and save operation, for the duration of the application's run. Each time an application starts it will use the Default User Directory/USERDIR path in the first open or save.

Setting Global Options

The Global Options feature allows you to set default values for Oracle Utilities products for all users. These default values correspond to parameters set in the LODESTAR.CFG file. See **LODESTAR.CFG** on page 2-2 in the *Oracle Utilities Energy Information Platform Configuration Guide* for more information about LODESTAR.CFG parameters.

The values you supply in the Global Options dialog **override** the settings in the LODESTAR.CFG file (both on the server and local client), and apply to **all users**.

How to set your Global Options:

1. At the Data Manager desktop, select **Tools-›Global Options.**

2. Set your options on each tab as desired.

3. When you have completed the tabs as desired, click **OK**.

This saves the new settings as your defaults, replacing the previous settings.

You must shut down and restart the application(s) in order for your new settings to take effect on other Oracle Utilities applications (including other instances of Data Manager or other users currently using Data Manager).

Global Options Tabs

The next several pages contain detailed information about the Global Options tabs. The corresponding configuration parameter is noted in parentheses in the description of each option. Global Options include:

• **Database Settings**

• **RCDATA Settings**

• **CIS Files Settings**

• **Rules Language Settings**

• **Reports Settings**

Database Settings

Database Date Format: (DATEFORMAT =). The date format string for your database. The string uses the format items in the *Oracle Utilities Energy Information Platform Configuration Guide*.

Database Ping Time (minutes): (PINGDB =). Value must be the number of minutes (whole number) between database pings. This is only needed if the database server will time-out if it is not accessed regularly. The provided value should be smaller than the server time-out, because the ping timer is not very accurate.

Browse entity tables: (BROWSERENTITIES =). If this checkbox is checked, only database entities are displayed in the database browser when the tables are first displayed (all tables are displayed on refresh).

Case Insensitive searches: (CASE_INSENSITIVE = 1). If this checkbox is checked, searches in the record select dialog will be case insensitive. The default is case sensitive search.

Database Monitor: (DATABASE_MONITOR = 1) If this checkbox is checked, then database monitoring is turned ON.

Userid Case: Allows you to select the case (upper or lower) for User IDs. The options are:

- **No Change:** The User ID is sent just as it appears in the command line, or as it is entered in the logon dialog.

- **Uppercase UserID:** (UPPERCASE_USERID). If checked, the entered user id is converted to all uppercase characters. This allows the user to type an upper or lower case user id if the database ignores the case of the user id, and still get the user's correct Options. Note that if this parameter is set, the user's Options will need to be reset if they were saved under a mixed or lowercase user id.

- **Lowercase UserID:** (LOWERCASE_USERID). If checked, the entered user id is converted to all lowercase characters. This allows the user to type an upper or lowercase user id if the database ignores the case of the user id, and still get the user's correct Options. Note that if this parameter is set, the user's Options will need to be reset if they were saved under a mixed or uppercase user id.

   Note: UPPERCASE_USERID takes precedence over LOWERCASE_USERID if both are present.

Number of 9s to round: (NUMBER_OF_9S_TO_ROUND=). If this number of consecutive nines appears to the right of the decimal place, round them up 1. The default is 3.

Number of 0s to round: (NUMBER_OF_0S_TO_ROUND=). If this number of consecutive zeros appears to the right of the decimal place, followed by non-zero values, round them to zero. The default is 3.

RCDATA Settings

RCDATA directory: (RCDATADIR=). If checked, tells the directory where to find and place shared application data files.If not specified, defaults to the ..\RCDATA directory parallel to where the application software resides. To select the RCDATA directory, click **Browse** and select the desired directory.

Do not append qualifier to RCDATA directory: (PLDBQUALNODEF = 1). If checked, then the default database qualifier selection <none> will **not** be listed.

CIS Files Settings

CIS Format File: (CISFORMAT =). The input file name containing the CIS record format text. If a file name is supplied with no path, the file must be in the USER directory. The default is CISFORMT.TXT in the CFG directory. To select the CIS Format file, click **Browse** and select the appropriate directory/file.

Default CIS Output File: (CISFILENAME =). The default output CIS file name as displayed in the Oracle Utilities Billing Component dialogs. It is also the CIS output file name used by AUTOBILL, if not overridden on the command line. If not set, the default file is "LODESTAR.CIS" in the USER directory. To select the default CIS output file, click **Browse** and select the appropriate directory/file.

Delayed CIS File Open: (DELAYED_CIS_FILE_OPEN =). Normally, the CIS output file is opened in append mode during the validation done when a bill is first approved. This detects any file problems; however, it leaves the file open while the database records are saved. If you want the file to be open for as short a period of time as possible, check this checkbox. The CIS file will then be opened just before committing the database changes.

Rebill Reason Required: (REBILLREASONREQUIRED =). If this checkbox is checked and there is a REBILLREASON Table in the database, a Rebill Reason Code must be selected to run **Rebill Only** or **Cancel/Rebill** in Bill Correction.

Rules Language Settings

Override NULL Value is Zero: (OVERRIDE_NULL_VAL_IS_ZERO =). If an override record is missing or its VAL or STRVAL columns are NULL, OVERRIDE[key].VAL is set to Null, OVERRIDE[key].STRVAL is set to Null, and the HASVALUE function will indicate that they do not have a value. To retain the previous assignment of 0.0 or "", check this checkbox. See "*Override Identifiers*" in the *Oracle Utilities Rules Language User's Guide*.

Allow interval data handle reassign: (ALLOWINTDREASSIGN =). The default is to generate an error if an interval data identifier is assigned any value that is not an interval data handle, or zero (usually caused by a mistake in coding a rate schedule or its riders). Checking this checkbox overrides the error check and allows any value to be assigned to an interval data identifier, possibly changing it to a temporary identifier.

Lock Rate Form While Editing: (RSLOCK). If this checkbox is checked, Data Manager locks rate forms while editing text.

Allow revenue identifier reuse: (ALLOWREVENUEIDREUSE =). There are three options:

- **No:** Generate a compile error if a revenue identifier is an INTO or TOTAL identifier in more than one BLOCK or ALL statement. This is the default.

- **Yes, with warning:** If this option is selected, this check is skipped, and a warning message is generated on validation.

    Note: If a revenue identifier is used more than once, results may be incorrect because the information from one statement may be overwritten by that from another.

- **Yes:** If this option is selected, no warning messages are generated for these errors.

If you select **Yes** or **Yes with warning**, identifiers will not be checked against the IDENTIFIER column in the BILLDETERMINANT Table. In this case it is not be an error to assign a value to a revenue identifier used in a BLOCK or ALL statement, even though that may lead to missing information.

    Note: These last two situations will be reported as Warnings when you validate a rate form, but will not interfere with saving or running it.

Color Format: This option allows color coding of Rules Language statements. This color coding is in effect when viewing and editing rate forms using the Rules Language Editor. The default color for all statements is black text with white background.

How to set color coding for Rules Language statements:

1. From the Rules Language tab of the Global Options dialog, click the **Color Format** button. The **Rules Language Color Format** dialog opens.

2. Select the statement to be color coded from the **Statements** box.

3. Select the text color for the statement from the **Foreground** drop-down list.

4. Select the background color for the statement from the **Background** drop-down list.

5. Repeat steps 2 through 4 to set color coding for other statements.

6. To set the color coding for a statement to the default (black text on white background), select the statement and click **Default**.

7. To save all color codings, for all desired statements, click **OK**. To close the dialog without saving any settings, click **Cancel**.

Reports Settings

Remove empty report columns: (REMOVE_EMPTY_COLUMNS =). If this checkbox is checked, a column in a billing report that has no values will not be displayed. If this is not present, the column header will appear with nothing below it.

Default Report Column Width: (REPORT_COLUMN_WIDTH =). Default width in characters of report columns. This value may be increased, depending on the data displayed in the column. Must be between 8 and 32, inclusive. The default is 16.

Customer Field Separator: (CUSTOM_FIELD_SEP =). The separator between the label and the value in the header part of reports. The separator is the first nonblank character after the = sign. If the line is empty after the =, a blank is used. The default is a colon. Note that a space will always follow the separator in the report.

Distribution Column Label: (BILL_CALC_DISTRIBUTION_LABEL =). Sets the label of the Distribution column in the Bill Calculation section. The default is, obviously, Distribution. If no value is supplied, the Distribution column is not displayed.

Log to ERRTABLE: (LOGTOTABLE) If this checkbox is checked, log records from importing customer/account data (using either Data Manager or PLIMPORT.EXE) are placed in the ERROR table in the Oracle Utilities Data Repository instead of into log files. Note that the ERROR table must be in the database for this option to be enabled.

Using Online Help

Oracle Utilities applications provide browser-based online help.

How to open online help:

1. Select **Help Contents** from the Help menu. The online help opens in a browser window.

2. Locate the topic you need help about via the Contents tab, Index tab, or Search tab.

   - The **Contents** tab allows users to expand/collapse sections of the table of contents as needed to find a particular topic. Click on the book icons (and) to open/close headings. Click on the topic icon ( ) to open it.

   - The **Index** tab allows the user to browse an index for the online help. Click on the index entry for the topic to open it.

   - The **Search** tab allows the user to search the online help for specific words. Enter the word(s) for the search in the text box and click **Go!** The search results appear beneath the text box. Click on the topic to open it.

3. The selected topic will appear in the right pane of the online help window.

Help Icons

A number of icons appear along the top of the online help window. These icons are used for navigating the online help and other functions. These icons perform the following functions:

Icon	Description
	Show Navigation: Open the navigation frame. Used after opening a single help topic.
	Previous: Display the previous help topic.
	Next: Display the next help topic.
	Show in Contents: Expand the Contents tab to display the current topic.
	E-mail: Send email to Customer Support.
	Print: Print the current topic.
	Bookmark: Save the current topic as an Internet Explorer Favorite..

Context-Sensitive Help

Users can also get online help based on a specific function or screen. This is referred to as context-sensitive help.

How to open context-sensitive help:

1. Open the function or screen you wish to find help about.

2. Click the Help button in the Toolbar or press F1.

3. An online help window opens displaying the corresponding topic.

Changing Your Password

The **Change Password** option enables you to change your password for logging in to the Oracle Utilities Data Repository.

> **Note:** If the Change Password option appears grayed-out on your system, consult your Database Administrator.

How to change your password:

1. Select **Tools-›Change Password**.

   The **Change Password** dialog box will appear

2. Complete the dialog box.

   User ID: This field displays your User ID. It will appear grayed-out and is uneditable.

   Old Password: Enter your current password.

   New Password: Enter the desired password.

   Confirm Password: Re-enter the desired password. This field *must* match the password entered in the New Password field. However, the password function is case-insensitive, so capitalization does not matter.

3. Click **OK** to change to the new password, or **Cancel** to keep the old one.

Shortcut Tips

Account ID Hyperlinks

Oracle Utilities Billing Component and Oracle Utilities Rate Management includes a convenient and time-saving shortcut for "jumping" from an open report to another module, while zeroing in on information about an account of interest.

How to use the account shortcut:

1. Highlight the ID of an account of interest in an open report window. If the report was generated based on a customer/account list, you can also select the list name.

2. *Right*-click in the report window, and select the desired option from the menu that appears.

    When the next dialog opens, the ID is already supplied.

Copying Text Between Windows

This is another timesaving tip that enables you to copy information from one text entry field and paste it into another, saving you the effort of retyping the data and ensuring that it is the same. It is especially useful for Account IDs. The fields can be in the same or different windows.

How to copy text from one data entry field and paste it into another:

1. Highlight the desired text, and *with the I-beam cursor still positioned in the text field,* click the *right* mouse button.

    A menu appears.

2. Select **Copy**.

    The text is now saved to the Clipboard.

3. Go to the window containing the field in which you wish to paste the text.

4. Click the cursor in the desired field. Without moving the cursor out of the field, click the *right* mouse button. When the menu appears, click **Paste**. The text appears in the field.

Alternate approach:

Here is another method that does the same thing, but with the keyboard instead of the mouse.

1. Highlight the desired text in a text entry field. Do not move the cursor out of the text field.

2. Press **CTRL+INSERT** (or **CTRL+C**) on your keyboard.

3. Go to the window containing the field in which you wish to paste the text.

4. Click the cursor in the desired field. Without moving the cursor out of the field, press **SHIFT+INSERT** (or **CTRL+V**) on your keyboard.

Saving and Applying Settings for Dialog Boxes

This section describes a very convenient and time-saving feature that enables you to save input parameters for tasks you perform frequently. Specifically, you can save your selections for account/customer and date(s). To use this feature, complete an input dialog box as you would normally before running a billing, analysis, or reporting module, save the settings with a name of your choosing, and recall them the next time you want to perform the same or a similar task.

How to save settings:

1. With the desired setting specified in an input dialog box, *right*-click in any blank area of the dialog. The **Save/Restore** dialog box appears.

2. Enter a name and optional descriptive note for your settings, and click **Save**.

    The settings are now saved to the database.

How to import/export settings:

To export:

1. Select the report settings and click **Export**. The Select File for Dialog Settings Report dialog opens.

2. Navigate to the desired directory and click **Save**. The report settings are exported in XML format, and can now be imported for use with other dialogs.

To Import:

1. Click **Import**. The Select File for Dialog Settings Report dialog opens.

2. Select the desired file and click **Open**. The report settings are now available for use with the current dialog.

How to apply the settings:

1. Open the dialog box for which you've saved settings. *Right*-click in any blank area of the dialog. The **Save/Restore** dialog appears.

2. Select the desired settings and click **Restore**.

    The dialog is updated with the settings. You can use them as is, or modify them before running the job.

How to delete the settings from the database:

The following instructions explain how to delete unwanted settings, so that they no longer appear in the pop-up menu. You can delete reports by highlighting the report settings you wish to delete and clicking **Delete** or by deleting the settings from the Data Repository using the Browser. To delete report settings using the Browser, using the following procedure.

1. Select **File-›Browse-›Customer Database**. The **Browser** opens.

2. Click on the plus sign that appears to the left of the **Report Settings** table icon (you may have to scroll down the tree to bring that table icon into view).

    A list of the Report Setting records that are currently stored in the database appears under the table icon. Each report setting record is identified by a combination of three IDs: the logon ID of the user that saved the setting, the internal ID that identifies the dialog box to the system, and the name that the user assigned to the settings when he/she saved them.

3. Highlight the icon for the record you wish to delete.

4. Select **Edit-›Delete** from the menu bar.

    A message box appears, asking you to confirm that you wish to delete the record. Click **OK** to delete the record. Click **Cancel** to keep it.

Closing a Dialog Box so Current Inputs are Saved or Discarded

If you complete an input dialog box but decide to close it without running the analysis, how you close the dialog box determines the settings that the system displays the next time you open it:

- To revert to the default settings, click the **Close** button (**X**) in the upper right corner of the window. The current settings are not saved. The next time you open the dialog box, it will display the defaults instead.

- Click **Apply** to make use of the settings for this session only. To retain the *original* settings for the next time, click the **Cancel** button. Click **OK** to save the *new* settings for future use.

Chapter 3

Importing Data

This chapter explains how to import data into the database, where it is available for use by Oracle Utilities products. This includes:

- **Importing Customer Data**
- **Importing Interval Data**
    - **Making Interval Data Available to Oracle Utilities Applications**
    - **Mapping MV-90 Data to the Oracle Utilities Data Repository**
    - **Interval Data Import DST Option**

Importing Customer Data

The Import utilities described in this section are flexible tools for managing the Data Repository. You can use them to add new records and update existing records.

About the Import File

The first step is to create a file (either ASCII text or XML) that contains the data to be imported. You will typically create the import files by extracting desired data from your utility's billing records, Customer Information System (CIS), and/or other computer data files, using an Export program that has been customized to your data formats and applications.

Regardless of how they are created, the files must adhere to the specifications defined by Oracle. These specifications are described in **Appendix A**: **Oracle Utilities Data Repository Schema Import File Format**.

Using the Import Utility

1. Select **File-›Import Data Set-›To Customer Database**.

   The **Customer Database Import Utility** dialog box appears.

2. Select the import file in the **DataFile** field, including the path and name of the Import file. You can either type this information into the field, or click the **Browse** button to select the desired file. If you type the information, you can supply either an absolute or relative path, but you must include the complete file name, including either the '.imp' or '.xml' extension.

   Note: If you select an XML file to import, all settings except the **DataFile** and **Name of error file** on this dialog are ignored. However, several of these "ignored" settings can be specified within the XML import file. See **Appendix A**: **Oracle Utilities Data Repository Schema Import File Format** for more information.

3. *Optional.* Specify the error file in the **Name of error file** field. If you specify a name here, the application will create an error file to contain any invalid records from the original import file. Any invalid records encountered during processing are copied as is into this error file. You can correct the records in the error file, and then use it as the new import file in a second run of the program. If you are importing a large quantity of data, you may have to repeat this process several times, each time whittling down the number of errors until all data is successfully imported. In that case, you may want to use a file naming convention to help keep track of the file sequence; e.g., file1.imp, file2.imp, file3.imp, and so on. If you use the same name and path for each run, the program overwrites the file's contents.

   If you do not supply a path, the error file is placed automatically in the LODESTAR\USER directory.

4. *Optional.* Specify the maximum number of errors (invalid records) in the import file before the program stops processing in the **Stop at error count** field. If you leave the field blank (the default), the program processes the entire file, regardless of the number of invalid records in it. In either case, invalid records are not entered into the database.

5. Specify the number of records accumulated in a batch file before the program commits them to the database in the **Max. batch size of each commit** field. This setting is used to optimize the performance (speed) of the Import process. The default value is 500 records. If performance is slow and you have spare hard disk space and memory capacity, try increasing the number.

6. Specify how the program determines the percentage completed when displaying the progress indicator bar by selecting the appropriate **Record Count** option:

   • **Count (slower):** The program reads the file once before processing it, to determine the actual number of records in the file. This option is slower, but more accurate.

- **Estimate (faster):** You supply a value for the number of records in the file, estimated or real. The program uses your value as the 100% mark for the progress indicator. This option is faster, but potentially less accurate.

7. Specify how the records in the Import file are processed by selecting the appropriate **Import Mode**:

   - **Add:** Adds **new** records to the Data Repository. If there are any records in the file that already exist in the database, or if there are duplicate record IDs in the import file, the program considers it an error.

   - **Update:** Replaces **existing** records in the Data Repository with the version in the import file. If there are any records in the file that do not already exist in the database, or if there are duplicate record IDs in the import file, the program considers it an error.

   - **Delete:** Deletes records from the Data Repository. For every parent ID in the import file, the program automatically deletes both the parent and all of its dependents. If there are any records in the file that do not already exist in the database, or if there are duplicate record IDs in the import file, the program considers it an error.

   - **Add/Update:** Both adds **new** records and replaces **existing** records. If a record is not already in the database, it is added. If it does exist, it is updated.

   Note: Using the 'Add/Update' mode will fail if the Import file contains more columns than the database table you are importing data into. Existing records will **not** be updated, and New records will **not** be created.

8. Specify the contents of the log file that is automatically produced at the end of the Import run by selecting the appropriate **Records to Log** option:

   - **None:** Check this box if you don't want to log any records.

   - **All Records:** Check this box if you want the log file to contain information about every record processed, whether it had an error or not.

   - **Records from these tables:** Check this box if you want the log file to describe each updated field for every record in selected tables. When you check this box, the list of tables to the right becomes active. Select the tables you wish to log. To select more than one, press **Ctrl** or **Shift** while selecting the table names.

   Note: Applying the Log All Records and Log Update Fields options can significantly slow processing time.

9. Select the type of data you wish to log by selecting the appropriate **Data to log** option:

   - **Identity (Key)**: logs only the identity (key) of each record.

   - **All fields:** Logs all fields for each record.

10. If you do not want imported records rolled back each time an error occurs, check the **Do not rollback ERRORS** checkbox. This allows batch commits to run faster.

11. *Optional.* You can write the log and error messages directly to a file, without viewing the information on screen. This is the fastest way to run the Import utility, because it eliminates the time and resources required for screen display. To do so, first click the **Report Options button**, and check the Write Report Directly to File option in the dialog box that appears. Then, click **Save as**. When the next dialog opens, specify a file name and location, and click **Save**, then **OK**.

    Note: If you do not select the **Write Report Directly to File** option here, the program displays the error log at the end of the job run, but will not allow you to save it in a file.

12. When you have completed the dialog box, click **OK**.

    A progress indicator appears.

When the program run is finished, an **Error Display** window appears. If all of the records in the file were imported successfully, the report will read "**n records processed, 0 had errors.**"

If there were errors in the file, a warning message appears, and the report in the Error Display window tells you how many errors there were and provides some information about them.

If there were errors and you specified the error file in Step 3, you can open the file, correct the errors, and rerun the program using the corrected error file as the new Import file.

> **Note:** If you close the error log window without selecting **Write report directly to file**, you will be unable to reopen it later. If you want to keep a record of the log, be sure to print it before closing the window.

Importing Interval Data

The Interval Database stores "cuts." A cut is one record of interval data for an account. Each cut is identified by the recorder-ID, channel-number of the device that recorded it, as well as the start- and stop-times of the period that it covers.

> **Note:** If the concepts of interval data, recorders, and channels are new to you, see **Recorder/Channels and Interval Data** on page 1-4.

Interval Data Import File Formats

The Interval Database can either reside in the Oracle Utilities Data Repository, or in a single file. The available interval data formats are:

- Oracle Utilities Enhanced Input/Output Interval Data Format (*.lse)

- Oracle Utilities Standard Format (*.inp)

- Oracle Utilities Comma Separated Format (*.csv)

- Oracle Utilities Standard XML Format (*.xml)

- MV90 Mainframe Format (*.mv9)

- EU Engineering Units Format (*.eu)

- DTV Engineering Units Format (*.dtv)

- Meter Data Exchange Format (*.mdf).

See **Appendix B**: **Oracle Utilities Enhanced Input/Output Interval Data Format**, **Appendix C**: **Oracle Utilities Standard XML Interval Data Format - Version 1.2**, and **Appendix D**: **Oracle Utilities Comma Separated Values (CSV) Interval Data Format** for more information about the interval data formats.

Depending upon the policies of your company, interval data from the field may be imported into the Interval Database on a regular basis via automated batch routines, or may be imported manually using the Interval Data Import utility.

Interval Data Import Process

There are four main steps for importing interval data into the Interval Database and making it available for use via the Oracle Utilities programs:

1. Obtain the Import file. This file contains the raw data in one of the import formats listed above.

2. If the customers the data belongs to have not already been entered in the Oracle Utilities Data Repository, you must set enter them. See **Chapter 6**: **Browsing Data**. At a minimum, you must enter the following records to link the Interval Data Records to the accounts they belong to:

   Lookup codes (see **Chapter 6**):

   Operating Company

   Jurisdiction

   Account records (see **Chapter 5**):

   Customer

   Account

   Recorder

   Channel

   Channel History

   The complete list of records you must set up is dictated by the requirements and complexity of the rate schedule used to calculate the customer's bill. To produce a bill, you must also create the rate form and identify it in the Data Repository using the Rate Form records and Rate Code (see **Chapter 6**: **Browsing Data**). The above list is the minimum number of records you need to link the interval data cuts in the Interval Database to the account records in the Data Repository. (If the customer records do not exist, you can still import the cuts, but the Import utility will generate an error message, and you will not be able to use the cuts for billing or other purposes.)

3. Apply the Interval Data Import utility, as described in the next section.

4. Set your Options to "point" to the Interval Database, as described under **Making Interval Data Available to Oracle Utilities Applications** on page 3-9.

Using the Interval Data Import Utility

The following instructions explain how to import a file into an Interval Database using the Interval Data Import utility. This utility automatically produces a log at the end of the job to alert you to any problems. You can view this log on-screen or save it to a file.

How to Import Interval Data:

1. Select **File-›Import Data Set-›To Interval Data Database**.

   The **Interval Data Import Utility** dialog box opens.

2. Select the **Input File** for the import, including the path and name of the file you wish to import. Click the **Browse** button to select the desired file type and file. The path and file name of the input file cannot have spaces in it. The Interval Data Source file defines the default interval data input file type.

3. Select the **Interval Data Database** to import the file to.

   If your interval data is stored in the Oracle Utilities Data Repository, select Customer Database.

   If you select file, specify the path and name of the Interval Database file you want to add the contents of the input file to. The default is the interval data source file specified on the Interval Data Source tab on the Default Options dialog. If using an interval data file, you can either type this information into the field or click the **Browse** button to select the desired file.

4. Check the **Export Overwritten Record(s) To File** checkbox if you want any cuts that are about to be replaced with new cuts in the Interval Database to be automatically exported to a file that you specify. Specify the full path and name of the Export file in the field under the checkbox.

   If you enable this option, the program identifies any cuts in the Interval Database with the same recorder-ID, channel-number, and start-time as a cut in the input file. It compares the cuts' stop time, SPI, UOM, start and stop readings, and pulse and meter multiplier and offsets; as well as their interval values and status codes, interval by interval. If there are any differences, it exports the old cut, appending it to the contents of the Export file.

   Note: The start-times must match exactly; overlapping cuts are ignored. Enabling this option can slow the Import process considerably.

5. Check the **Check import data against CHANNELHISTORY values** checkbox to compare the cut's header information with the description of the recorder that's stored in the Channel History Table (pulse multiplier, pulse offset, unit of measure, and so on). If there is a mismatch, the cut fails and is not imported. If either the header or the Channel History record has a null value in a field where the other record has a descriptive value, this does not cause the cut to fail (only contradictory information causes an error). If you leave this option unchecked, no comparison is made.

6. Select the **UnderCount** option from the drop-down list. This controls what behavior of import functions when an incoming cut has too few recorded intervals for the time span defined by the cut start time and the cut stop time and the DST Participant flag.

   - **BE**: Directs the function to behave similar to the default behavior observed in previous installations and versions of Oracle Utilities products. This setting behave exactly like FILL in most cases. If the cut being processed spans the end of the DST period, usually the fall DST hour, if viewed directly from the raw flat file, the cut will appear to be filled using DST calculations, yet if the cut is saved to a binary data source, it will only be filled with missings as if the DST_Participant flag is set to "N". For example, if a cut is supplied that crosses the Fall DST change and has only 92 intervals (23 hours), the system will fill to only 96 not 100. If 100 intervals are supplied, then 100 will be stored. Also, if 97 - 99 intervals are supplied, and the DST = "Y" then the system will Reject the incoming cut.

Note: Use of this feature may prevent the Proxyday Extension from successfully reading and merging together spring DST cuts imported using this feature. (It may effectively cause the cuts to be stored in an overcount state.) Cuts being imported are for use with Proxyday must have a valid number of intervals.

Using this feature on Spring DST cuts with may cause Data Manager and the Rules Language to ignore the 4 missing intervals when calculating recorded intervals.

- **REJECT**: Directs the function to produce and error and disallow the import of any incoming/uploaded cut when it has too few recorded intervals (Expected > Recorded).

- **FILL**: Fills all incoming cuts with missings (value = 0 Status = "9") to the stop time of the cut using DST adjustments if appropriate (DST_Participant = "Y").

- **ASIS**: Allow the storage of any incoming cuts with a number of expected intervals greater than the number of recorded intervals. The stop times of these cuts will remain unchanged.

7. Select the **OverCount** option from the drop-down list. This controls the behavior of import functions when an incoming cut has too many recorded intervals for the time span defined by the cut start time and the cut stop time and the DST_Participant flag.

- **REJECT**: Directs the function to produce an error and disallow the import of any incoming/uploaded when cut has too many recorded intervals (Expected < Recorded).

- **BE**: Behaves exactly like REJECT, except in the case where a cut that crosses the beginning of a DST period, and has its recorded interval count equal to the expected intervals count without the hour adjusted for DST.

- **ASIS**: Allow the storage of any incoming cuts with a number of expected intervals less than the number of recorded intervals. The stop times of these cuts will remain unchanged.

8. Select the **Validation Status** option. This controls the default behavior of how the system sets the Validate_Record_Flag.

- **Use Incoming Flag**: Sets the incoming cuts as invalid if the Validate_Record_Flag for a cut is set to "Y", or valid if the flag is set to "N". If the incoming Validate_Record_Flag is "Y" then it will act as Force Invalid for that cut. If the incoming Validate_Record_Flag is "N" then it will act as Force Valid for that cut.

- **Force Valid**: Sets all incoming cuts in the import file as valid (INTERNAL_VALIDATION, EXTERNAL_VALIDATION, MERGE, and DELETE flags all set "Y"), effectively ignoring the Validate_Record_Flags of the imported cuts.

- **Force Invalid**: Sets all incoming cuts as in the import file invalid (INTERNAL_VALIDATION, EXTERNAL_VALIDATION, MERGE, and DELETE flags all set "N"), effectively ignoring the Validate_Record_Flags of the imported cuts.

9. *Optional.* You can write the log and error messages directly to a file, without viewing the information on screen. This is the fastest way to run the Import utility, because it eliminates the time and resources required for screen display. In addition, this approach has the advantage of saving the log as a record for future reference. If you do not apply this option, the log is displayed on screen for viewing, but it is not saved. To apply this feature, click the **Report Options** button, and check the **Write Report Directly to File** option in the dialog box that appears. Next, click the **Save As** button. When the **Save Report As** dialog opens, specify a file name and location and click **Save**.

10. *Optional.* Click the **DST** button to open the Timezone/Daylight Savings Time Options dialog.

This advanced option lets you change the start- and stop-times of an input cut to the corresponding times in a different timezone. You can change the start- and stop-times of a cut from Standard Time to DST, from DST to Standard Time, and from 24-Hour Adjusted

DST to DST or Standard Time. To use this option, select the input timezone and the target timezone.

If only some of the data in the file is to be converted, you can use a Control file to make the conversion specific to each recorder. Check the **Recorder Specific Conversion File** checkbox, and select the appropriate Control file. If a recorder is in the file, the time zones there override those chosen in this dialog box. Each line in the Control file must contain a recorder ID (case sensitive), followed by a comma, followed by its input time zone, a comma, and its target time zone. There must not be any spaces before the recorder ID; however, spaces around the commas are ignored. A line may be empty. If it starts with a '**;**' the line is ignored - it can be used as a comment. If the cut's supplied time zone and DST information do not match the input time zone, it results in an error.

11. When you have completed the dialog box, click **OK**.

    If you specified **Write Report Directly to File** in the previous step, a message box appears alerting you when the Import process completes. You can use the **File-›Open-›File** option to view the contents of the log file.

    If you did not specify **Write Report Directly to File**, the log appears in the **Error Display** window (despite its name, this does not necessarily mean that there were errors). Review the contents of the log to ensure that all records processed as expected. If you want a record of the log file, print it by selecting **File-›Print**. (The electronic version is automatically discarded when you close the report window.) Close the window by selecting **File-›Close**.

Important Note

Due to data storage limitations of the CLDB file format, importing interval data into a CLDB file will yield incorrect values. Check with your System Administrator to determine the specific format of your interval data files. The file type is displayed in parentheses following the interval data file name when browsing interval data cuts. See **Chapter 6**: **Browsing Data** for more information.

For greater precision, Oracle Utilities recommends using the .lse file format when possible.

Making Interval Data Available to Oracle Utilities Applications

Before you can use any of the Oracle Utilities client/server applications such as Data Manager or Oracle Utilities Billing Component with the data you just imported, you must set your Options to "point" to the Interval Database.

> **Note:** You can also use the **Interval Data Options** tab to specify how the interval data is processed for analysis and billing. For example, you can set the level of acceptable quality for the data, and how data is handled when Daylight Savings Time takes effect. See **Default Options** on page 2-9.

How to "point" to the desired interval data source:

1. Select **Tools-›Options**.

   The **Default Options** dialog box appears.

2. Click the **Interval Data Source** tab.

3. Select the appropriate Type:

   • **File:** Select the desired interval database file type. The available interval data formats are:

      • Enhanced Oracle Utilities Input/Output Format (*.lse)

      • Oracle Utilities Standard Format (*.inp)

      • Comma Separated Values Format (*.csv)

      • Oracle Utilities Standard XML Format (*.xml)

      • MV90 Mainframe Format (*.mv9)

- Meter Data Exchange Format (*.mdf).

- **Default:** Specifies to use the default Interval Database identified in the LODESTAR.CFG file. See the *Oracle Utilities Energy Information Platform Configuration Guide* for more information about setting a default Interval Database.

- **Customer Database:** Specifies to use interval data stored in the Oracle Utilities Data Repository.

4. If you selected **File**, click **Browse** and select the desired file. If the name of the desired file is already displayed in the **File** field, click **Cancel** to close the dialog. The Interval Data Source file defines the default interval data input file type.

5. Select one of the following choices for applying the new setting:

   OK: Saves the new setting as your default interval data source, replacing the previous setting. Any Oracle Utilities program you run will automatically use this interval database.

   Apply: Applies to current work session only; that is, the setting will revert to the previously specified interval data source after this work session.

Mapping MV-90 Data to the Oracle Utilities Data Repository

This section describes the mappings from MV-90 files to the Oracle Utilities Data Repository. MV-90 field names are used in the following descriptions.

Overlap

The 'Check import data overlap option' on the **Interval Data Import Utility** dialog allows you to indicate that overlaps are an error. If you select this option, the dates for each cut are compared to the dates on other cuts for the same recorder and channel in the interval data repository. If there is any overlap it will be an error and the group will be skipped. If you select this and there is a gap, a warning message will be written to the log file, but it is not an error.

Header

Some information in the LODESTAR Interval Data Repository header is not supplied in the MV-90 file. Most of these values that are not supplied will be filled in with the default values, as listed in **Interval Data Repository Header Data** (p. 16). Two values must be supplied by the user when importing data. An option to the program indicates the DSTPARTICIPANT status and the time zone of the input data. The **Interval Data Import DST Option** on page 3-17 section describes this option.

The field mappings from MV-90 Channel Header record to Interval Data Repository Header are:

MV-90 Field Name	LODESTAR Field Name
DC_RECID	RECORDER_ID
LOGCHAN, DC_LOGCHAN	CHANNEL
TA_START	START_TIME
TA_STOP	STOP_TIME
STRTMTR	METER_START_READING
STOPMTR	METER_STOP_READING
DC_MMULT	METER_MULTIPLIER
DC_PMULT	PULSE_MULTIPLIER
DC_POFFS	PULSE_OFFSET

MV-90 Field Name	LODESTAR Field Name
DR_INPHR	SECONDS_PER_INTERVAL (3600 / DR_INPHR)
DC_UMCODE	UOM
STATUS	ACCEPT_REJECT_STATUS
DR_TDATE	TRANSLATION_DATE
DC_FLOW	DC_FLOW
DR_NOTE	DESCRIPTOR (from MV-90 CUSTOMER record)

Oracle Utilities identifies a cut by its recorder ID, channel number and start time. The recorder ID will come from the DC_RECID field in the Channel Header Record. It is treated as a character string, so leading and trailing spaces will be removed, but leading and trailing zeros will be retained. The channel number is a three-digit number. The low order two digits (00 - 99) will come from the DC_LOGCHAN field, the high order digit (0## through 9##) will come from the LOGCHAN field, both in the Channel Header Record. The start time comes from the TA_START field in the Channel Header Record.

Note: The Oracle Utilities Rules Language INTDLOADxxx functions have been modified to add all cuts with MV90_DC_FLOW flag set to ' ' (space) or 'D', and subtract all cuts with the flag set to 'R'. The FOR EACH CHANNEL statement can be used to find only the cuts with the flag set to one value or another.

Note: The MV-90 DR_INPHR field must NOT be set to '00.'

Values

The MV-90 DATA_TYPE field will be used to determine if values are in pulses or engineering units (EU). The two valid values for this field are 'P' or 'E' (Pulse or Engineering). Any other value will be an error. All Oracle Utilities interval data values are stored as engineering units. MV-90 pulse values will be converted to engineering units using the formula:

EU = (pulse * DC_PMULT) + DC_POFFS

Status Codes

When interval data in MV90 format is imported into the Oracle Utilities Data Repository, any Channel or Interval status codes in the incoming data are mapped to Oracle Utilities status codes based on the configuration of the MV90 Status Code Map table. MV90 status codes are set at specific bits within the MV90 format. The mapping for each bit in the MV90 Status Code table determines the resulting Oracle Utilities status code.

MV90 data can store multiple status codes for the channel and for each individual interval. Oracle Utilities stores only individual status codes for each interval (see Note below). If more than one bit is set on the same interval, the mapping with the higher priority is used.

Example: When importing MV90 data with interval status codes set at bits 1, 2, and 3 for a single interval, the following records in this table would result in a Oracle Utilities status code of 4 for that interval.

Mapping 1

- MV90 Status Word: Interval Status

- Bit: 1

- LODESTAR Status Code: 2

- Priority: 1

Mapping 2

- MV90 Status Word: Interval Status

- Bit: 2

- LODESTAR Status Code: 3

- Priority: 2

Mapping 3

- MV90 Status Word: Interval Status

- Bit: 3

- LODESTAR Status Code: 4

- Priority: 3

Note: The MV90 Status Code Map table is used when mapping MV90 status codes to standard Oracle Utilities status codes only. This table is NOT used to define Oracle Utilities Extended Status Codes.

Relational Data Import

Some values in the MV-90 Customer Header and Channel Header correspond to column values in the Oracle Utilities Data Repository. The actual table and column that corresponds to a MV-90 field depends on the clients database configuration. The action to take when a record or value is missing or different form a MV-90 field value also depends on the client. The following is intended to explain how MV-90 data is mapped into their Oracle Utilities Data Repository.

A MV-90 field may map to zero, one or more database columns (though only one column per table). In some cases, you may want a MV-90 field change to update one column, but add a new record for another table. In addition, you may want a change that causes a mismatch to generate an error. The following rules address these issues, and are used when importing relational data:

a)If record is not available, create it,

b)If record is not available, error,

c)If record is available and corresponding column equals field, do nothing,

d)If record is available and corresponding column is NULL, update column,

e)If record is available and corresponding column does not equal field, error,

f)If record is available and corresponding column does not equal field, update column,

g)If record is available and corresponding column does not equal field, stop current record, add new one.

Rule c is always in effect.

Several MV-90 fields may be required to key a database record. However, in the Oracle Utilities Data Repository, relative to interval data, all record keys can be derived from recorder id, channel and start time. In the following, when a table is specified its key is automatically derived from these three values.

The import program uses a mapping file - MV90MAP.TXT - to determine how to map MV-90 data to the Oracle Utilities Data Repository. This file is **REQUIRED** to run the MV-90 import program. See **Sample Mappings** on page 3-15 for a sample version of this file. The file must be an ASCII text file. The first line indicates the input file type and consists of the keyword INPUT followed by a comma and the keyword MV90.

The filename and path must be specified using the MV90MAPFILE config parameter:

MV90MAPFILE=\\FILESERVER\PATH\MV90MAP.TXT

If the parameter is specified with no value, then the import is done without relation database update. If the parameter is not specified then any use of an MV9 file extension will produce an error indicating that the feature is not enabled.

Each subsequent line describes one mapping - the MV-90 record and field, the Oracle Utilities Data Repository table and column (virtual column), and the action, comma separated. Spaces around commas are ignored. There are three MV-90 records - CUSTOMER, CHANNEL, and DEFAULT. The action can be one of four letters - E, A, U or (Error, Add, Update or Insert). Action I can only apply to the DEFAULT record (that is, if the record is DEFAULT, then its action can not be anything but I). Action E, A, and U can apply to mappings from any record but DEFAULT. Blank lines and lines that start with a semi-colon (;) are ignored.

If the MV-90 record is DEFAULT, then the value in the MV-90 field may be used as the column value. It is used only when adding a new record to the database and the corresponding column in the database does not have a value in it.

Mapping must be put in order. Parents table must be mapped before its dependent tables.

Every column in the Oracle Utilities table's identity must be specified, except for the STARTTIME column, which is described below.

If two fields and their corresponding column values are both not equal, the action with the highest priority is taken. The priority order, from high to low, is Error, Add and Update. Thus if one field says Update and another says Add, a new record will be created with both new values - their values in the original record will be unchanged.

If a record is added because of a mis-compare with an existing record, all unchanged columns in the original record will be copied to the new record.

The action I is used only if a record is added, the corresponding columns are not compared. It is not used if there was an old record, the old record's values are always used.

In the special case of DC_LOGCHAN as the MV-90 field, the LOGCHAN field will also be used to create a three digit channel number, just as in the Interval Data Import section above.

The record in a table with a STARTTIME and STOPTIME column is chosen as the last one in effect on the cut stop (TA_STOP). If there is no overlap this means the record is not available (see Rules a and b above). If the table contains a STOPTIME column and an Add action happens, the original record's STOPTIME will be updated to be either the previous cut's stop time (if overlap check is on) or the new record's STARTTIME minus one second.

The lines for recorder and channel should always be first in the file (recorder first, channel second). The only actions allowed for them are Add and Error (see Rules a and b above). Records in all other tables are found via the straight path from the RECORDER and CHANNEL tables.

The MV-90 Customer record will be processed once, using the first channel header's recorder and channel. All Channel records will be processed once per channel header record.

The order of the file can affect performance, since the first error will cause the import of the cut to stop.

It is an error if a specified field is missing (all binary zeros or spaces) in the MV-90 cut and is required for the relational database. If it is missing and not required, the corresponding field will be set to NULL.

It is an error if a Oracle Utilities Data Repository table or column does not exist. It is an error if the same table and column is used to match more than one MV-90 field. This validation happens before any data is imported.

Sample Mappings

The following is a sample MV90MAP.TXT file:

```
; Input type
INPUT,MV90

;     MV-90                    LODESTAR Customer Database
;RecordFieldTableColumnAction

DEFAULT,TVA,OPERATINGCOMPANY,OPCOCODE,I
DEFAULT,TVA,OPERATINGCOMPANY,OPCONAME,I

DEFAULT,Tennessee,JURISDICTION,JURISCODE,I
DEFAULT,Tennessee,JURISDICTION,JURISNAME,I

CHANNEL,DC_RECID,RECORDER,RECORDERID,E
DEFAULT,10/10/1980,RECORDER,STARTTIME,I

CHANNEL,DC_LOGCHAN,CHANNEL,CHANNELNUM,E

CUSTOMER,CM_ADDR1,SUBSTATION,SUBSTATIONNAME,U
DEFAULT,TVA,SUBSTATION,OPCOCODE,I
DEFAULT,TVA,SUBSTATION,JURISCODE,I

CUSTOMER,CM_ADDR2,TRANSFORMERLOC,TRANSFORMERLOCNAME,U

CHANNEL,DC_RECID,CHANNELHISTORY,RECORDERID,A
CHANNEL,DC_LOGCHAN,CHANNELHISTORY,CHANNELNUM,A
CHANNEL,DC_UMCODE,CHANNELHISTORY,UOMCODE,A
CHANNEL,DR_INPHR,CHANNELHISTORY,IPH,A
CHANNEL,DC_MMULT,CHANNELHISTORY,METERMULTIPLIER,A
CHANNEL,DC_PMULT,CHANNELHISTORY,PULSEMULTIPLIER,A
CHANNEL,DC_POFFS,CHANNELHISTORY,PULSEOFFSET,A
CHANNEL,DC_PTRATIO,CHANNELHISTORY,VT,A
CHANNEL,DC_SERVTYPE,CHANNELHISTORY,SERVTYPE,A (not converted to # wires)
CHANNEL,DC_NDIALS,CHANNELHISTORY,NOOFDIALS,A
CHANNEL,DC_METERID,CHANNELHISTORY,METERNUMBER,A
DEFAULT,Y,CHANNELHISTORY,BILLED,I
DEFAULT,I,CHANNELHISTORY,TOTALIZE,I

CHANNEL,DR_DEVSN,RECORDERHISTORY,SERIALNUMBER,A
DEFAULT,10/10/1980,RECORDERHISTORY,INSTALLDATE,I
```

The first CHANNELHISTORY line will cause a new record to be created if there is no corresponding record.

Logging and Error Messages

A log file is generated during the import process. It describes each cut imported and provides specific error messages if an error occurs. The error message indicates the recorder and channel that failed, with as much detail about the error as is known.

A second log is also written. It's name is LGddmmyy.LSI (dd = day, mm = month, yy = year, LSI for LODESTAR Import). Only one file is created per day, subsequent runs during the day will append to the day's file. There will be one line per customer record and per MV-90 channel header processed.

A channel header record consists of the input file name, RCODE 10, eight digit channel header line number, 20 character recorder id (DC_RECID), three digit channel number (LOGCHAN DC_LOGCHAN), start time (MMDDYYHHMM from TA_START), stop time (MMDDYYHHMM from TA_STOP) and a success code, all comma separated, all values from the Channel Header Record. The success code is zero for successful import and one for any error

or failure, even of another cut in the same group. When an error happens to a cut and the group is skipped, a log message is still written for every cut in the group.

A customer record consists of the input file name, a two digit RCODE 1, an eight digit customer header line number, a 20 character customer id (CM_CUSTID), the number of expected channel records (CM_LOGCHANS, three digits), start time (MMDDYYHHMM from TA_START), stop time (MMDDYYHHMM from TA_STOP) and a success code. All the fields are comma separated, and come from the Customer Header Record. The success code is zero (0) if all cuts imported successfully, and is one (1) for any error or failure of any cut following this customer record and before another customer record.

Note that all fields after the input file are fixed width. Numeric fields are right justified with leading zeros replaced with spaces. Character fields are left justified and blank filled. If the input file names are all the same length, the file contains records with all fixed width columns.

An example of the log file is as follows:

```
JAN01.MV9,10,     2,1013001              , 1,0215990804,0314990810,0
JAN01.MV9,10,   100,1013001              , 2,0215990804,0314990810,0
JAN01.MV9,10,   200,1013001              , 5,0215990804,0314990810,0
JAN01.MV9, 1,     1,1013001              , 3,0215990804,0314990810,0
JAN01.MV9,10,   321,6833057              , 1,0215990820,0314990830,1
JAN01.MV9,10,   442,6833057              ,124,0215990820,0314990830,1
JAN01.MV9, 1,   320,6833057              , 2,0215990820,0314990830,1
```

Interval Data Repository Header Data

The following data is stored in each record (cut) in the Oracle Utilities Data Repository:

Field Name	Data Type	Default Value
RECORD_TYPE	char	' ' (space)
RECORDER_ID	char	
CHANNEL	integer	
START_TIME	datetime	
DATE_TIME_STAMP	char	Date and time of import
STOP_TIME	datetime	
METER_START_READING	float	
METER_STOP_READING	float	
METER_MULTIPLIER	float	
METER_OFFSET	float	0
PULSE_MULTIPLIER	float	
PULSE_OFFSET	float	
POPULATION	float	0
WEIGHT	float	0
CALC_CONSTANT	float	0
SECONDS_PER_INTERVAL	integer	3600 / Intervals-per-hour
TOTAL_INTERVALS	integer	computed
BASIC_UNIT_CODE	integer	0
UOM	integer	
TIME_ZONE_WEST_OF_GMT	integer	Import Program input
DATA_TYPE	char	' ' (spaces)
DESCRIPTOR	char	
EDITED	char	' ' (space)
INTERNAL_VALIDATION	char	' ' (space)
EXTERNAL_VALIDATION	char	' ' (space)
MERGE	char	' ' (space)
DELETE_FLAG	char	' ' (space)
DATA_STATUS_FLAG	char	'Y'
START_OFFSET_FLAG	char	' ' (space)
ORIGIN	char	'M' (Metered)

```
VAL_FLAG_E              char            ' ' (space)
VAL_FLAG_I              char            ' ' (space)
VAL_FLAG_O              char            ' ' (space)
VAL_FLAG_N              char            ' ' (space)
TK_WRITTEN_FLAG         char            'N'
DST_PARTICIPANT         char            Import Program input
```

New interval data cut fields

Field Name	Data Type	Default Value
MV90_STATUS	char(2)	Cut Accept/Reject Status Code
MV90_DR_TDATE	datetime	Translation Date / Time
MV90_DC_FLOW	char(1)	D or ' ' (Delivered), R (Received)

Interval Data Import DST Option

All interval data is stored with the time adjusted to match the accounts that use it. An option on the interval data import dialog and command line (the DST button) allows the user to specify the timezone of the input file and the timezone of its target accounts.

TIMEZONE Description

A timezone code describes the timezone. Four fields are associated with a timezone:

- CODE   Usually three or four letters such as EDT or EDTA, EST, CST, …

- NAME   Visible name - Eastern Daylight Time, Eastern Standard Time, Central Standard Time, ….

- TIMEZONE   An integer that is the number of timezones west of GMT (Greenwich Mean Time).

- DST   Y - Indicates that all dates and times reflect Daylight Savings Times, 23 hours in spring, 25 in fall.

    A - Indicates that all dates and times reflect Daylight Savings Times, intervals are 24 hour adjusted.

    N - Standard time.

Some examples:

CODE	NAME	TIMEZONE	DST
EST	Eastern Standard Time	5	N
EDT	Eastern Daylight Time	5	Y
EDTA	Eastern Daylight Time - Adjusted	5	A

See **Timezone Codes** on page 3-18 for a complete listing of Time Zone codes.

Interval Data Import

The Interval Data Import dialog has a DST dialog that lets the user input the meter and target timezones when importing interval data. This is the **Timezone/Daylight Savings Time Options** dialog. In addition, the value supplied to the -z switch on INTDIMP.EXE is the meter timezone, a slash, then the target timezone, and then an optional colon and recorder specific control file.

The meter timezone specifies how the data was measured, the target timezone specifies how the data is to be stored. The recorder specific control file contains a list of recorders and their individual meter and target timezones, comma separated (one recorder per line). Spaces around the commas are ignored. The values in the control file override the command line or user selected meter and target timezones. The command line meter and target timezones must both be present, or both missing.

A sample control file might look like this:

```
RECORDER1,EST,EDT
RECORDER2,EDTA,EDT
```

Sample command lines are:

intdimp …	Import all cuts as they are
intdimp … -zEST/EDT	Import and convert all cuts from EST to EDT
intdimp … -zEST/EDT:PSI.TXT	Convert all cuts from EST to EDT, unless otherwise specified in PSI.TXT
intdimp … -z:PSI.TXT	Import all cuts as they are, unless otherwise specified in PSI.TXT

If an input format is used that supports meter timezone information (such as the LodeStar enhanced format) and the values in the input file are different from the input meter option an error will be generated.

If the expected count of intervals differs from that in the file, an error will be generated. The expected count is basically determined by this equation (where times are measured in seconds):

Interval count = ((stop-time + 1) - start-time) / second-per-interval,

adjusted by plus or minus the IPH if the dates cross a DST transition (first Sunday in April, last Sunday in October).

Timezone Codes

CODE	NAME	TIMEZONE	DST
GMT	Greenwich Mean Time	0	N
BST	British Summer Time	47	N
BSTA	British Summer Time - Adjusted	0	A
IST	Irish Summer Time	47	N
ISTA	Irish Summer Time - Adjusted	0	A
WET	Western Europe Time	0	N
WEST	Western Europe Summer Time	0	Y
WESTA	Western Europe Summer Time - Adjusted	0	A
CET	Central Europe Time	46	N
CEST	Central Europe Summer Time	46	Y
CESTA	Central Europe Summer Time - Adjusted	46	A
EET	Eastern Europe Time	44	N
EEST	Eastern Europe Summer Time	44	Y
EESTA	Eastern Europe Summer Time - Adjusted	44	A
MSK	Moscow Time	42	N
MSD	Moscow Summer Time	42	Y

CODE	NAME	TIMEZONE	DST
MSDA	Moscow Summer Time - Adjusted	42	A
AST	Atlantic Standard Time	8	N
ADT	Atlantic Daylight Time	8	Y
ADTA	Atlantic Daylight Time - Adjusted	8	A
EST	Eastern Standard Time	10	N
EDT	Eastern Daylight Time	10	Y
EDTA	Eastern Daylight Time - Adjusted	10	A
CST	Central Standard Time	12	N
CDT	Central Daylight Time	12	Y
CDTA	Central Daylight Time - Adjusted	12	A
MST	Mountain Standard Time	14	N
MDT	Mountain Daylight Time	14	Y
MDTA	Mountain Daylight Time - Adjusted	14	A
PST	Pacific Standard Time	16	N
PDT	Pacific Daylight Time	16	Y
PDTA	Pacific Daylight Time - Adjusted	16	A
UTC-12	Universal Time Coordinated - 12 hours	24	N
UTC-12D	Universal Time Coordinated - 12 hours (DST)	24	Y
UTC-12DA	Universal Time Coordinated - 12 hours (24 Hr Adjusted)	24	A
UTC-11	Universal Time Coordinated - 11 hours	22	N
UTC-11D	Universal Time Coordinated - 11 hours (DST)	22	Y
UTC-11DA	Universal Time Coordinated - 11 hours (24 Hr Adjusted)	22	A
UTC-10	Universal Time Coordinated - 10 hours	20	N
UTC-10D	Universal Time Coordinated - 10 hours (DST)	20	Y
UTC-10DA	Universal Time Coordinated - 10 hours (24 Hr Adjusted)	20	A
UTC-9	Universal Time Coordinated - 9 hours	18	N
UTC-9D	Universal Time Coordinated - 9 hours (DST)	18	Y
UTC-9DA	Universal Time Coordinated - 9 hours (24 Hr Adjusted)	18	A
UTC-8	Universal Time Coordinated - 8 hours	16	N
UTC-8D	Universal Time Coordinated - 8 hours (DST)	16	Y

CODE	NAME	TIMEZONE	DST
UTC-8DA	Universal Time Coordinated - 8 hours (24 Hr Adjusted)	16	A
UTC-7	Universal Time Coordinated - 7 hours	14	N
UTC-7D	Universal Time Coordinated - 7 hours (DST)	14	Y
UTC-7DA	Universal Time Coordinated - 7 hours (24 Hr Adjusted)	14	A
UTC-6	Universal Time Coordinated - 6 hours	12	N
UTC-6D	Universal Time Coordinated - 6 hours (DST)	12	Y
UTC-6DA	Universal Time Coordinated - 6 hours (24 Hr Adjusted)	12	A
UTC-5	Universal Time Coordinated - 5 hours	10	N
UTC-5D	Universal Time Coordinated - 5 hours (DST)	10	Y
UTC-5DA	Universal Time Coordinated - 5 hours (24 Hr Adjusted)	10	A
UTC-4	Universal Time Coordinated - 4 hours	8	N
UTC-4D	Universal Time Coordinated - 4 hours (DST)	8	Y
UTC-4DA	Universal Time Coordinated - 4 hours (24 Hr Adjusted)	8	A
UTC-3	Universal Time Coordinated - 3 hours	6	N
UTC-3D	Universal Time Coordinated - 3 hours (DST)	6	Y
UTC-3DA	Universal Time Coordinated - 3 hours (24 Hr Adjusted)	6	A
UTC-2	Universal Time Coordinated - 2 hours	4	N
UTC-2D	Universal Time Coordinated - 2 hours (DST)	4	Y
UTC-2DA	Universal Time Coordinated - 2 hours (24 Hr Adjusted)	4	A
UTC-1	Universal Time Coordinated - 1 hour	2	N
UTC-1D	Universal Time Coordinated - 1 hour (DST)	2	Y
UTC-1DA	Universal Time Coordinated - 1 hour (24 Hr Adjusted)	2	A
UTC	Universal Time Coordinated	0	N
UTCD	Universal Time Coordinated (DST)	0	Y
UTCDA	Universal Time Coordinated (24 Hr Adjusted)	0	A
UTC+1	Universal Time Coordinated + 1 hour	46	N
UTC+1D	Universal Time Coordinated + 1 hour (DST)	46	Y

CODE	NAME	TIMEZONE	DST
UTC+1DA	Universal Time Coordinated + 1 hour (24 Hr Adjusted)	46	A
UTC+2	Universal Time Coordinated + 2 hours	44	N
UTC+2D	Universal Time Coordinated + 2 hours (DST)	44	Y
UTC+2DA	Universal Time Coordinated + 2 hours (24 Hr Adjusted)	44	A
UTC+3	Universal Time Coordinated + 3 hours	42	N
UTC+3D	Universal Time Coordinated + 3 hours (DST)	42	Y
UTC+3DA	Universal Time Coordinated + 3 hours (24 Hr Adjusted)	42	A
UTC+4	Universal Time Coordinated + 4 hours	40	N
UTC+4D	Universal Time Coordinated + 4 hours (DST)	40	Y
UTC+4DA	Universal Time Coordinated + 4 hours (24 Hr Adjusted)	40	A
UTC+5	Universal Time Coordinated + 5 hours	38	N
UTC+5D	Universal Time Coordinated + 5 hours (DST)	38	Y
UTC+5DA	Universal Time Coordinated + 5 hours (24 Hr Adjusted)	38	A
UTC+6	Universal Time Coordinated + 6 hours	36	N
UTC+6D	Universal Time Coordinated + 6 hours (DST)	36	Y
UTC+6DA	Universal Time Coordinated + 6 hours (24 Hr Adjusted)	36	A
UTC+7	Universal Time Coordinated + 7 hours	34	N
UTC+7D	Universal Time Coordinated + 7 hours (DST)	34	Y
UTC+7DA	Universal Time Coordinated + 7 hours (24 Hr Adjusted)	34	A
UTC+8	Universal Time Coordinated + 8 hours	32	N
UTC+8D	Universal Time Coordinated + 8 hours (DST)	32	Y
UTC+8DA	Universal Time Coordinated + 8 hours (24 Hr Adjusted)	32	A
UTC+9	Universal Time Coordinated + 9 hours	30	N
UTC+9D	Universal Time Coordinated + 9 hours (DST)	30	Y
UTC+9DA	Universal Time Coordinated + 9 hours (24 Hr Adjusted)	30	A
UTC+10	Universal Time Coordinated + 10 hours	28	N
UTC+10D	Universal Time Coordinated + 10 hours (DST)	28	Y

CODE	NAME	TIMEZONE	DST
UTC+10DA	Universal Time Coordinated + 10 hours (24 Hr Adjusted)	28	A
UTC+11	Universal Time Coordinated + 11 hours	26	N
UTC+11D	Universal Time Coordinated + 11 hours (DST)	26	Y
UTC+11DA	Universal Time Coordinated + 11 hours (24 Hr Adjusted)	26	A

Chapter 4

Exporting Data

This chapter explains how to export records in from the Oracle Utilities Data Repository to files that can be shared with other users or products, or archived for safekeeping. If desired, you can delete the records to free disk space. This includes:

- **Exporting Customer Data**
- **Exporting Interval Data**

Exporting Customer Data

Data Manager's Export and Delete functions are important tools for archiving data in the Oracle Utilities Data Repository, and for making that data available to other Oracle Utilities products.

The **Records** menu provides the following Export options:

- **Export -** Exports all records* from a selected table, including all associated parent, child, and lookup records, when specified. The Export file is in the Import format (either *.imp or *.xml). If desired, you can archive the file onto disk or other media for safekeeping. Because the data is in Import format, you can import the data back into the database using the Import utility, if necessary.

- **Delete -** Deletes all records* from a selected table, and all associated child records. No Export file is created.

- **Export/Delete -** Exports all records* in a selected table, and all associated child records, and deletes same records from the database.

The Export file is in Import format (either *.imp or *.xml), in the correct order for importing back into the database.

*In all three modes, it is possible to **filter** the records. If you apply this option, only records in the specified table that meet the specified criteria will be exported and/or deleted (along with their parent, lookup, and child records in the Export mode, and child records in the Delete and Export/Delete modes). For example, you could filter records of a specified table based on Start Date of 10/01/97 and Stop Date of 10/31/97. If you applied the Delete mode to the Account Table, all accounts that were terminated in October 1997 would be deleted from the database, along with any of their child records, such as Bill Histories.

In all modes, the program automatically creates a log file at the end of the run and places it in the USER directory. It lists the accounts exported and/or deleted, as well as a count of the other records exported and/or deleted, by table.

> *Note*: When importing a previously exported data set, be sure to use the Import utility's Add mode. Using the Update or Add/Update modes would overwrite any records that had been updated since the archive process was performed, replacing a newer version with an older one.

Exporting and Deleting Customer Data

Before you delete data from the Data Repository, you must be certain it is no longer required. The three options discussed here (Export, Delete, and Export/Delete) enable you to:

- Export records to a portable format (*.imp or *.xml)

- Delete records from the Data Repository

- Delete records from the Data Repository as they are exported to a backup file.

Filtering Data

Data Manager provides a **Filter** option that enables you to reduce the number of records displayed in the Browser. The Filter enables you to view only records of a type you specify. You should filter information before using the Export/Delete functions, to be certain that you get only the desired records.

How to filter data in the Data Repository before exporting and or deleting:

1. Select **File-›Browse-›Customer Database**.

   The Browser appears.

2. Click on the icon for the table containing the records you want to export or delete. A list of records currently stored in that table appears in the right pane.

3. To select the records to be exported and/or deleted based on specified criteria, select **Records-›Filter**. The **Set Filter** dialog appears.

   Complete the dialog as follows:

   Account ID: The ID of the account that contains the data to be exported. Click **Exact** to look for a *specific* Account ID.

   List Names: You can also filter data based on a table-column list..

   - **Table Name:** Select the table the list will be based on. Defaults to the table currently selected in the Browser.

   - **List Names:** Select a list from the **List Names** box and click **Add>>** to move it to the **Selected Lists** box. To remove a list from the **Selected Lists** box, click **<< Remove**. To clear all the lists in the **Selected Lists** box, click **Clear**.

   - To create a new filter list, click **New List**. This opens the Table-Column list dialog (see **Chapter 7**: **Maintaining Data** for more information).

4. Click **OK** to close the filter dialog.

   The display in the right pane of the Browser is automatically updated with the results of your Filter.

   Note: Records filtered by lists cannot be updated or deleted using the browser.

Exporting Data

The **Export** function enables you to copy records to a *.inp file.

How to export data:

With the appropriate data in displayed in the Browser:

1. Select **Records-›Export**.

   A dialog appears with three additional options. You can choose any combination, from none to all three. These options let you export all or a selected portion of the complete hierarchy the originally-selected records belong to:

   - **Child Records:** Exports all dependent records associated with the target records.

- **Referenced lookup records:** Exports the complete record, including any lookup codes referenced in the target records.

- **Referenced parent records:** Exports all higher-level records to which the target records belong. For instance, if the target table is the Channel History Table, all customer and account records that are "parents" to the channels in the Channel History Table will be exported as well.

2. Select the appropriate options and click **OK**. The **Export Records File As** window appears.

3. Choose a file name and destination directory, as desired.

   Data Manager will use the file name and directory for the Export file, and for the log file that is automatically created at the end of the job; the default filename for both is "plexport".

4. Select the **Save as type**. There are three choices:

   - **Export Files** (*.imp). This is the default type. This is the file format used by the Import Utility and the PLIMPORT batch executable (see **Chapter 3**: **Importing Data**). If you intend to import the data back into the database, select this type.

   - **XML Version 1** (*.xml) This exports the data in an XML format that can be used to export data for use in external applications.

   - **XML Version 2** (*.xml) This exports the data in an XML format that can be used by the Import Utility and the PLIMPORT batch executable (see **Chapter 3**: **Importing Data**). If you intend to import the data back into the database, select this type. This format can also be used to export data for use in external applications. This format is supported in version 4.00 and later only.

5. If the file name you specified above already exists in the destination directory, Data Manager gives you the option of either overwriting the existing Export file or appending (adding) the new records to the existing file. Respond as desired.

6. You can now select **File-›Open-›File** to view the Export file. You can also view and/or edit the file using a text editor such as Notepad.

Notes About Exported Records:
- If you export lookups (the **Referenced lookup records** option on the Export dialog), each lookup record will appear only once in the Export file.

- Trailing commas are removed from exported records.

Exporting an Account

The Export function can be used to export records for a single account or group of accounts, as follows.

How to Export Records for an Account or Accounts

1. Create a query list for the specific account(s) you wish to export using the Query List function described in **Chapter 7**: **Maintaining Data**.

2. Select **File-›Browse-›Customer/Account.**

3. Click on the **List** radio button, select the appropriate list for the account(s) to be exported, and click **OK**. The account(s) specified in the list will appear in the Browser.

4. Click on the word 'Account' at the top of the left pane of the Browser.

5. Select **Records-›Export.**

6. Check all three options listed (Child Records, Referenced Lookup Records, and Referenced Parent Records) and click **OK**.

7. Name the Export file and save it as appropriate.

Deleting Data

The **Delete** function permanently removes data from the Data Repository. It removes all the records from a selected table, and any child records belonging to it. Be *absolutely* certain that any important data has been backed up before you use this function. When data is deleted from the Data Repository, it can only be recovered from a backup file.

With the appropriate data displayed in the Browser:

1. Highlight the table you want to clear.

2. Select **Records-›Delete**.

   A message box appears asking you to confirm that you wish to delete the records.

3. Click **Yes** to Approve the deletion; click **No** to Reject it.

Export/Delete

Export/Delete enables you to save everything you're deleting from the Data Repository to a *.imp file. With the appropriate data displayed in the Browser:

1. Select **Records-›Export/Delete**.

   The **Export Records File As** window appears.

2. Choose a file name and destination directory, as desired. Data Manager will use the file name and directory for the Export file and for the log file that is automatically created at the end of the job; the default filename for both is "plexport".

3. Select the **Save as type**. If the file name you specified above already exists in the destination directory, Data Manager gives you the option of overwriting the existing Export file or appending (adding) the new records to the existing file. Respond as desired. A second message box appears asking if you want to overwrite or append to the existing log file. Again, respond as desired. There are three choices:

   • **Export Files** (*.imp). This is the default type. This is the file format used by the Import Utility and the PLIMPORT batch executable (see **Chapter 3**: **Importing Data**). If you intend to import the data back into the database, select this type.

   • **XML Version 1** (*.xml) This exports the data in an XML format that can be used to export data for use in external applications.

   • **XML Version 2** (*.xml) This exports the data in an XML format that can be used by the Import Utility and the PLIMPORT batch executable (see **Chapter 3**: **Importing Data**). If you intend to import the data back into the database, select this type. This format can also be used to export data for use in external applications. This format is supported in version 4.00 and later only.

4. A message box appears asking you to confirm that you wish to delete the records. Approve or reject the deletion by clicking **Yes** or **No**.

5. When the process is complete, you can view the Export or log files by selecting **File-›Open-›File**.

Exporting Interval Data

Data Manager's Interval Data Export and Delete functions are important tools for archiving data in the Interval Database, and for making that data available to other Oracle Utilities products.

Two export options are provided in the **File** menu:

- **Export -** Exports selected interval data records. The Export file can be in any of the following formats:

  - Enhanced Oracle Utilities Input/Output Format (*.lse)

  - Oracle Utilities Standard Format (*.inp)

  - Comma Separated Format (*.csv)

  - Oracle Utilities Standard XML Format (*.xml).

  If desired, you can archive the file onto disk or other media for safekeeping. Because the export formats are also import formats, you can easily import the data back into the database using the Interval Data Import utility.

- **Export/Delete -** Exports selected interval data records, and deletes them from the database. The exported data can be imported back into the database, if necessary.

In all modes, the program automatically creates a log file at the end of the run and places it in the USER directory. The log file lists the data exported and/or deleted, and provides a count of the exported/deleted records.

Important Note

If the interval data to be deleted is in the Oracle Utilities Data Repository, when you delete a recorder or channel via the Interval Data Browser, Data Manager gives you the option of deleting only the cut data, or the recorder or channel data as well.

Exporting and/or Deleting Interval Data

Before you delete data from the Interval Database, you must be sure it is no longer needed. The two options discussed here (Export and Export/Delete) enable you to:

- Export records to a file in the specified format (*.lse, *.inp, *.csv, or *.xml).

- Delete records from the Interval Database as they are exported to a backup file.

Exporting Data

The **Export** function enables you to copy records to a file in the specified format.

How to export data:

With the appropriate data displayed in the Interval Data Browser, you can select a specific cut, channel, recorder, or the entire Interval Database to export. See **Chapter 6**: **Browsing Data** for more information.

1. Select **File-›Export**.

   The **Select Interval Data File** window appears.

2. Choose a file name and destination directory.

3. Select the **Save as type**. The choices are:

   - Enhanced Oracle Utilities Input/Output Format (*.lse)

   - Oracle Utilities Standard Format (*.inp)

   - Comma Separated Format (*.csv)

   - Oracle Utilities Standard XML Format (*.xml).

4. Click **Save** to export the data to the specified file. If the file name you specify already exists, the exported data will be automatically appended to the file.

Export/Delete

Export/Delete enables you to save everything you're deleting from the Interval Database to a file in the specified format (*.lse, *.inp, *.csv, or *.xml).

With the appropriate data displayed in the Interval Data Browser, you can select a specific cut, channel, recorder, or the entire interval database to export/delete. See **Chapter 6**: **Browsing Data** for more information.

1. Select **File-›Export/Delete**.

   The **Select Interval Data File** window appears.

2. Choose a file name and destination directory.

3. Select the **Save as type**. The choices are:

   - Enhanced Oracle Utilities Input/Output Format (*.lse)

   - Oracle Utilities Standard Format (*.inp)

   - Comma Separated Format (*.csv)

   - Oracle Utilities Standard XML Format (*.xml).

4. Click **Save** to export the data to the specified file. If the file name you specify already exists, the exported data will be automatically appended to the file.

5. A message box appears asking you to confirm that you want to delete the records. Approve or reject the deletion by clicking **Yes** or **No**.

Chapter 5

The Account-Centric View

This chapter describes the Account-Centric View of data in the Oracle Utilities Data Repository. This tool displays information in an easy-to-use tab format, designed specifically for billing analysts, customer service representatives, and others who need to research customer inquiries, set up new account billing, or manage the billing of existing accounts. This includes:

- **Opening and Closing the Account-Centric View**

- **Navigating the Account-Centric View**

- **About Fields Displayed in the Account-Centric View**

The Account-Centric View serves three primary purposes:

- **Setting up a new account for billing with Oracle Utilities Billing Component.** When a new account enters the system, much of the necessary information is automatically downloaded from your CIS into Oracle Utilities Billing Component. However, you must manually add some information and specify a few settings, such as which billing module is used to process the account and how much detail should be included in the bill.

- **Entering information required to bill existing accounts.** For complex rate schedules or contracts, it may be necessary for billing analysts to enter some information on a regular or as-needed basis. You can also attach informative notes to the account's record, as a reminder to yourself or other users.

- **Researching billing information.** The Account-Centric View is especially useful for responding to customer inquiries about their bills, and for investigating any problems that occurred during the billing process. For example, you can look up an account's bill for a previous month, check peak values, or track the progress of a late bill.

Note: Because the Account-Centric View is designed for specific applications, not all information in the Data Repository is accessible from it. Also, some information displayed in the Account-Centric View, such as data that comes from a Customer Information System (CIS), cannot be edited via the Account-Centric View. That data is displayed in gray. **Administrators who require access to all information in the Data Repository, including support information such as lookup codes, should use the Browser.** See **Chapter 6**: **Browsing Data** for more information.

Opening and Closing the Account-Centric View

Opening the Account-Centric View

There are two ways to open the Account-Centric View, depending upon where you are in the system. You can open it from the menu bar, or from a report window in which the desired account ID is displayed.

How to open the Account-Centric View from the menu bar:

1. In Data Manager, select **File-›View-›Account**.

    The **Enter Account ID** dialog opens.

2. Enter the ID for the account you wish to view and click **OK**.

    The **View Account** window appears, displaying information about the selected account.

Closing the Account-Centric View

You can close the View in any of the following ways:

*   Press CTRL+F4 on your keyboard.

*   Click on the system icon in the upper left corner of the View window, and select **Close** from the menu that appears.

*   If View is the active window, select **File-›Close** from the main menu.

*   Click the **Close** button in the lower right corner of the window.

*   Click the **X** in the upper right corner of the window.

Navigating the Account-Centric View

The View has two sections. The top section displays the "header" or "indicative" data. This data remains on the screen for easy reference while you work with the account information displayed in the various tabs below. For instance, if you're on the phone with a customer researching that customer's bills, the customer's name is always visible at the top of the screen.

Each tab in the lower portion of the screen contains a particular category of information. To view the contents of a tab page, click on its tab. The tabs are organized in four columns. The fields displayed on each tab page are described later in this chapter.

Note: The specific tabs and fields in your company's version of the Account-Centric View may differ from those in the above illustration.

Viewing and Analysis Tools

While viewing an account's information in the Account-Centric View, you may want to apply other analysis or reporting tools for a deeper investigation of the data. From the Account-Centric View, you can immediately access the Browser, as well as the Billing History and Special Events reports.

How to open another tool while in the Account-Centric View:

1. With the mouse pointer positioned anywhere in the **View Account** window, click the *right* mouse button.

2. Select the desired tool from the pop-up menu that appears:

    *   **Billing History -** Displays billing information for the account for a user specified number of bill periods.

    *   **Special Events -** Lists the overrides that were applied to the account over a user-specified period.

    *   **Browse Account -** Opens the Browser for the account, giving you access to information not available or modifiable via the Account-Centric View.

    *   **View Account -** Opens another Account-Centric View window for the selected account. Note that you cannot have two Account-Centric View windows opens for the same account.

Navigating the Tables on the View Tabs

Each row in a table represents a record belonging to the current account. For example, the Channel History tab has a table that displays a record for each of the channels assigned to this account over the account's history. You can add, update or delete these rows.

You can adjust the table to display the desired information.

How to Scroll the Table View:

If a record has more fields than can be seen at once, you can move the horizontal scroll bar to shift the view. Similarly, if there are more records than can be seen at once, use the vertical scroll bar (not shown in the example above).

How to Resize the Columns in the Table:

1. Move the mouse pointer over the line that separates two of the column headers.

2. Drag to resize the columns.

   Resized columns will remain at the width you set them to for future sessions, until you resize them again.

How to sort the rows by information in a selected column:

Some tables enable you to sort the rows by the entries in a selected column. Columns that have this feature are noted in the last section of this chapter.

• Double-click on the header of the column you want to sort by.

Adding, Updating, and Deleting Account Information

The tab pages in the Account-Centric View have three types of controls you can use to add or update account information: simple text entry fields; drop-down lists for selecting from a finite set of options for a field; and spreadsheet-like tables for adding, updating, or deleting entire records associated with an account.

Updating a Field Using a Drop-Down Menu

1. Click on the arrow to the right of the field.

2. Select the desired option from the list that appears.

3. Click the **Update** button at the bottom of the View window to input your changes to the database.

Cut, Copy, and Paste

All selectable fields in the Account-Centric View can be cut and copied, and the data pasted in any appropriate field or application. The information cut or copied from a field is placed on the Windows Clipboard, and can be pasted into any application that accepts alphanumeric data.

Cut data by selecting it and pressing CTRL-X. Copy data by selecting it and pressing CTRL-C. Paste data by selecting the target field and pressing CTRL-V.

If the data cut or copied is incompatible with a field that you attempt to paste it into (e.g., text into a date field), the Paste command will fail.

Adding, Updating, or Deleting Rows in a Table on the View Tabs

The following explains how to add, update, or delete rows in a table.

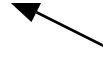|	Recorder ID/Channel	Installation	Removal	UOM	Req For Bill
>	1700/1	01/01/1993 00:00:01		01	Yes
	1700/1	01/01/1993 00:00:02		01	Yes
	MDMS1/1	01/01/1997 00:00:00		01	No
*					

How to Add or Update Information in an Existing Row:

1. Double-click in the desired cell. If nothing happens, you can't add information to that cell. If the field is editable, one of three things will occur:

   • A cursor will appear, enabling you to edit the information in the cell.

   • A window will appear, containing a list of lookup codes you can choose from.

   • A drop-down menu will appear with a short list of selections, such as **Yes** and **No**.

2. When you are finished updating the information in the row, click the **Update** button at the bottom of the window to input the changes.

How to Add a New Row to a Table:

1. If necessary, scroll to display the last row in the table (indicated with an asterisk (*)). This is the row you use to add a new record. If the table does not have an asterisk, you cannot add new rows to it.

	Recorder ID/Channel	Installation	Removal	UOM	Req For Bill
>	1700/1	01/01/1993 00:00:01		01	Yes
	1700/1	01/01/1993 00:00:02		01	Yes
	MDMS1/1	01/01/1997 00:00:00		01	No
*					

The asterisk (*) marks the row
where a new record can be added.

2. Click on the asterisk to highlight the row. Where appropriate, the system automatically fills in default information. You can accept the default information, or replace it.

   If the previous record included a STOPTIME field — such as the **Bill History** tab — the addition of a new record will result in Data Manager prompting you to update the STOPTIME to reflect the new record's STARTTIME minus one second.

   Note: This prompt will not occur unless the table you're adding a record to is listed in the LODESTAR.CFG file in the following format:

   STOPTIME_UPDATE=TABLENAME

   where TABLENAME is the table to be updated. See **Chapter 2**: **Configuration Files** in the *Oracle Utilities Energy Information Platform Configuration Guide* for more information.

3. Add information to the row using one of the methods described in **How to Add or Update Information in an Existing Row:** on page 5-5.

4. When you are finished adding information to the row, click the **Add** button at the bottom of the window to commit the information to the database.

How to Delete a Row from a Table:

1. Click anywhere in the row you wish to delete. Note that the caret in the far left column moves into the row you just selected. This caret indicates the active record.

2. Click the **Delete** button at the bottom of the View window.

3. A message box appears asking for confirmation. Respond as desired.

Searching a Lookup Table

Some of the fields in the Account-Centric View are associated with lookup tables of preset options (see **Chapter 6**: **Browsing Data**). Double-clicking in these fields brings up a **Select** window, where you can select a lookup code from the appropriate table.

The **Search** field automatically scrolls to the first item that matches the character or string you typed.

About Fields Displayed in the Account-Centric View

You can add, modify, or delete any information that is maintained via Data Manager and Oracle Utilities Billing Component. Note that the fields available in your company's version of the Account-Centric View may differ from those described here.

> **Note:** If you change the Date Format (from the General options tab accessible from the **Tools-›Options** menu option), you must close and reopen the Account-Centric View for the change to take effect.

Header Data

The header data displayed at the top of the View typically comes from CIS, and cannot be changed from the Account-Centric View.

Account ID	800001	Name	Paul Pham	Rev Code	33	Status	Excelle
Op Co	GECO	Juris	SF	Rate Code	GECO/SF/1-CL/Z1		
Recorder ID	1700						

> **Note:** If a grayed-out (uneditable) field does not display the entire contents of the field, positioning the cursor to the right of the field opens a tooltip box that displays the field's entire contents.

Account ID: The ID of this account in Oracle Utilities Billing Component.

Op Co: The operating company that bills this account.

Recorder ID: The ID for the account's interval data recorder. If the account has multiple recorders, a pair of up and down arrows is visible at the right of the field. Use these arrows to view the IDs of other recorders that belong to this account.

Name: The name of the customer this account belongs to.

Juris: The regulatory agency that has jurisdiction over how this account is billed.

Rev Code: The revenue or business class this account belongs to.

Rate Code: The rate schedule and rate code currently in effect for this account.

Status: The current status of the account. Examples include:

- **Excellent -** an account in good standing, currently receiving service
- **Active -** currently receiving service
- **Inactive -** no longer receiving service
- **New -** in first month of service
- **Final -** in final month of service.

Tab Data

Account Information

The **Account Information** tab contains the following fields:

Account ID: The ID of this account.

Name: The name of the account.

Billing Mode Flag: Indicates how Oracle Utilities Billing Component processes this account's bills:

- **Fully Automatic** - Automatically calculates bills when all required data is available, issues transaction records to CIS, and saves bill history information to the Data Repository.

- **Approval Required** - Calculates bills via the Approval Required module when all required data is available, issues transaction records to CIS, and saves bill history information to the Data Repository upon user approval.

- **Manual Start** - Calculates bills upon user request via Current/Final Bill module, issues transaction records to CIS, and saves bill history information to the Data Repository upon user approval.

- **Use default** - Applies the Bill Mode flag in the rate code record associated with the account. If a Use Default or Null value is present, Oracle Utilities Billing Component checks the billing mode associated with the account's rate schedule. If that record also has a Use Default or Null value, Oracle Utilities Billing Component applies the defaults supplied in the **Default Billing Options** dialog. See the *Oracle Utilities Billing Component User's Guide* for details.

Customer ID: The ID of the customer this account belongs to.

Bi-Monthly: Indicates the account's billing frequency:

- 0 - monthly
- 1 - bimonthly, on odd-numbered months
- 2 - bimonthly, on even-numbered months.

Full Day Billing: Use this flag to specify how Oracle Utilities Billing Component records the end of the bill period for the account in the Bill History record: the actual read date and time, or midnight of the last full 24-hour period before the actual read date and time. (This setting can affect energy and demand calculations, depending on the functions used in the rate schedule.) Options include:

- **Yes** - Use midnight of last full day.
- **No** - Use actual read date and time.
- **Use Default** - Use the flag supplied in the account's rate code record. If a Use Default or Null value is present, Oracle Utilities Billing Component checks the setting associated with the account's rate schedule. If a Use Default or Null value is present there, Oracle Utilities Billing Component uses the actual read date and time.

Print Detail: Specify the level of information that Oracle Utilities Billing Component provides in bill reports, CIS transaction records, and bill e-mail/faxes for the account:

- **None** - Effective revenue only.
- **Normal** - Effective revenue, plus any charges assigned to a revenue identifier in the applicable rate form.
- **All Detail** - Effective revenue, plus revenue identifiers, plus the values associated with the Rules Language Label and Report statements, such as interval data and peak times and values.
- **Use Default** - Use the flag supplied in the account's rate code record. If a Use Default or Null value is present, the application checks the rate schedule record. If that record also has a Use Default or Null value, the application uses the defaults supplied in the **Default Billing Options** dialog. See the *Oracle Utilities Billing Component User's Guide* for details.

Start: The date and time the account became active.

Stop: The date and time the account became inactive. If the field is empty, the account is still active.

Pre-Window and **Post-Window:** Use these fields to set the "eligibility" window for the account. When the account becomes eligible, Oracle Utilities Billing Component begins scanning for the data necessary to calculate its bill (this feature applies to accounts billed using the Fully Automatic or Approval Required modes).

Eligibility is determined by whether the account's meter is scheduled to be read on a date that is "near" today—that is, today's date falls within the window that extends some number of days before and some number of days after the scheduled read date. The number of days before is the "pre-window"; the number of days after is the "post-window." For either window, you can supply a value from 0 to 28.

If you leave the Pre-Window and Post-Window fields blank here, Oracle Utilities Billing Component looks at the Rate Code Table to see if you have set the windows at the rate code level. If there are no values there, Oracle Utilities Billing Component uses the settings in the **Default Billing Options** dialog. See the *Oracle Utilities Billing Component User's Guide* for a complete description of eligibility windows.

> **Note:** If you set the post-window to 0, the data must be available by the end of the read date, or it is considered missing. If the data is still unavailable by the end of the last day in the post-window, Oracle Utilities Billing Component stops scanning for the information and attaches a SYSTEM REJECTED note to the bill. Then the bill can only be calculated by manually applying the Current/Final Bill module.

Billing Cycle

The Account Information tab contains a spreadsheet-like table that lists the current and, if any, previous billing cycle assignments for this account. The **Start Time** is the date and time the assignment took effect. The **Billing Cycle** is identified by operating company code, jurisdiction code, and billing cycle code**.**

> **Tip:** To view the schedule of read dates associated with a billing cycle code, click the **Billing Cycles** button at the bottom of the tab page.

Rate History

The **Rate History** tab enables you to view rate schedules, rate codes, and tariff riders that are or have been in effect for this account, and to add new ones.

The Rate History tab page contains two spreadsheet-like tables.

Rate Schedule/Rate Code History

The upper table lists the rate schedules and rate codes that are or have been in effect for this account. To sort rows in the Rate Code Table by entries in the Start Time, Rate Schedule/Rate Code, or Stop Time columns, double-click the header of the desired column. The columns in this table are:

Start Time: The date and time that this rate schedule/rate code went into effect for this account.

Rate Schedule/Rate Code: Operating company code, jurisdiction code, rate form, and rate code.

Stop Time: The date and time that the rate code for the account expired. If this field is blank, the code is still in effect.

Note: An optional descriptive note.

Rider History

The lower table lists the tariff riders that are or have been in effect for this account.

Note: Do not confuse tariff riders with the larger class of generic riders. *Generic riders* are sets of Rules Language statements that perform commonly used calculations or reporting functions. They are saved as separate rate form riders so that rate analysts can use them in multiple rate schedules. Tariff riders are a *subset* of generic riders; they are explicitly attached to accounts via the database records, and appear in the Rider Summary Report.

From the system perspective, a generic rider becomes a tariff rider when you attach the rider to an account by entering it in the Account's Rate History tab (or, if using the Browser, the Rider History Table). You can sort the rows in the Rider History Table by entries in the Effective Date or Rider columns. The columns in this table are:

Effective Date: The date and time this tariff rider went into effect for this account.

Rider: Operating company code, jurisdiction code, and rate form code for the tariff rider.

Stop Time: The date and time that the tariff rider for the account expired. If this field is blank, the code is still in effect.

Note: An optional descriptive note.

Contract History

The **Contract History** tab enables you to view contracts and apply them to accounts.

The upper portion of the tab page displays a spreadsheet-like table that lists the current and previous contracts, if any, applied to this account. You can sort the rows in the Contract Table by entries in the Start Time or Contract column. It has two columns:

Start Time: The date and time the contract took effect.

Contract: Operating company code, jurisdiction code, and rate form code that identify the contract.

The lower box displays the Rules Language statements that make up the contract highlighted in the upper box. This information is view-only.

> **Note:** An account may go off a contract with no new one established. The Contract Table does not have a column for specifying stop times for expiring contracts. In this case, add a new row and, for "Start Time," specify the date and time the old contract ended; leave the "Contract" cell blank in the new row.

Account Notes

The **Account Notes** tab lets you view, add, or edit Account Notes.

The spreadsheet-like table lists the Account Notes that Oracle Utilities Billing Component or a billing analyst attached to an account. These notes alert billing analysts to actual or potential problems that occurred during the billing process, such as missing data. The notes can be informational only, or they can actually stop the billing process. You can sort the rows in this table by the Date Time or Account Note Type columns. The columns in this table are:

Date Time: When the note was recorded in the Data Repository.

Account Note Type: Account note type selected from the Account Note Type lookup codes.

Note: Description of the problem.

See the *Oracle Utilities Billing Component User's Guide* for a description of Account Notes Types and their impact on the billing process.

You can add Account Notes to this tab page. You can also generate reports of Account Notes for selected customers and accounts using Oracle Utilities Billing Component's **Review Billing Exceptions** feature (described in the *Oracle Utilities Billing Component User's Guide*).

Don't confuse these Account Notes with the informational notes displayed in the Account-Centric View header or Account Information tab page; these two types of notes are unrelated.

> **Note**: The Account Notes tab is not displayed if the USE_WORK_Q_FOR_ACCOUNT_NOTES = 1 parameter is included in the LODESTAR.CFG file. See **LODESTAR.CFG** on page 2-2 in the *Oracle Utilities Energy Information Platform Configuration Guide* for more information.

Customer

The **Customer** tab displays information about the customer the account belongs to. It enables you to add, update, or delete the names of account managers or other utility personnel involved with the accounts, and to specify whether those individuals should be notified of the accounts' activity with fax or e-mail copies of their bills.

Fields on this window include:

Customer ID: The ID of the customer this account belongs to.

Name: The name of the customer this account belongs to.

Account ID: Lists the IDs of all accounts belonging to the customer. To open another Account-Centric View for another account, double-click on its ID in the list.

Summary Bill: Indicates whether Oracle Utilities Billing Component calculates and releases the CIS transaction records for the customer's accounts only when all of them are ready—thus making it possible for CIS to calculate a "summary bill" for the customer. Options for this field are:

- **Blank -** Use the default ("No").

- **No -** Issue each account transaction record as it is calculated (and approved, if approval required).

- **Yes -** Hold processing of account transaction records until all are ready.

Directory

The Customer tab includes a spreadsheet-like table that lists the customer's account manager, designated contact at the utility, and any other authorized individuals who are concerned with the account's billing information. It also indicates whether or not Oracle Utilities Billing Component automatically produces a copy of the customer's bill in fax or e-mail format for these individuals each billing period. For a complete explanation of the Directory and outputting bills in fax or e-mail format, see **Chapter 3**: **Working with Reports** in the *Oracle Utilities Billing Component User's Guide*. You can sort the rows in the Directory Table by entries in the Title, Name, or Fax flag columns. Acct Mgr and Utility Contact will always be at the top of the list. Sorting begins with the third row. The columns in this table are:

Directory Code: The lookup code that identifies this individual in the Directory Lookup Table. If you are adding a new entry to this table, you need only make a selection for this cell; the rest of the row is completed for you.

> **Tip:** To add a name to the contents of the Directory Lookup Table, click the **Directory** button at the bottom of the tab page. This opens the Browser, where you can register new contacts. Similarly, if you want to modify any of the cells in an existing row (other than the Fax flag), you must do so by applying the Browser to the contact's entry in the Directory Table. See **Setting Up Bills to be Faxed or E-mailed** in **Chapter 3**: **Working with Reports** in the *Oracle Utilities Billing Component User's Guide* for more information.

Title: Title of the account manager, utility contact, or other individual.

Name: The name of the account manager, utility contact, or other individual.

Phone #1: The primary phone number of the account manager, utility contact, or other individual.

Phone #2: An alternate phone number for the account manager, utility contact, or other individual.

Fax: Fax number for the account manager, utility contact, or other individual.

Pager: The pager number for the account manager, utility contact, or other individual.

Mail: The e-mail address of the account manager, utility contact, or other individual.

Fax Flag: Tells Oracle Utilities Billing Component to produce the bill in an e-mail- or fax-ready file format. If the field is blank, neither is produced.

Name of File: The name of the file that Oracle Utilities Billing Component writes e-mail to. (Faxes are automatically written to FAX.TXT in the POWRLINE\USER directory.)

> **Note:** After a fax or e-mail file is issued, be sure to delete or move the file. Otherwise, the next time Oracle Utilities Billing Component creates the fax or e-mail, it will append the new information to the old file. You will have to manually delete the old information from the file before sending it.

Channel History

The **Channel History** tab displays current and historical information about recorder/channels assigned to this account.

With this tab, you view the information, as well as adding, updating, or deleting the account's channel and channel group assignments.

The Channel History tab page contains two spreadsheet-like tables.

Channel History

The upper table lists the logical interval data recorders/channels that are or have been assigned to this account. *Logical* refers to the recorder associated with the account; the ID of the recorder can stay the same even if the actual hardware is replaced. You can sort the rows in the Channel History Table by entries in the CIS Account, Recorder ID/Channel, Installation, Removal, UOM, or Req for Bill columns. The columns in this table are:

Recorder ID/Channel: Logical recorder ID and channel number assigned to this account. (**Note:** The recorder ID/channels themselves are defined in the system via the Logical Recorder tab. You cannot create a new recorder ID/channel here; you can only select from a pick list to assign an existing recorder ID/channel to the account.)

Installation: Date the logical recorder/channel was activated.

Removal: Date, if any, the logical recorder/channel was deactivated.

UOM: Code identifying the unit of measure recorded by this channel.

Req for Billing: Is the data recorded by this channel necessary for billing?

Pulse Multiplier and **Pulse Offset:** Interval data is a series of measurements taken at regular intervals, such as every 5, 10, 15, 30, or 60 minutes. For each interval, an interval data recorder counts the number of *pulses* (the number of changes in state that occurred within the interval). "Pulse multiplier" and "pulse offset" are values used to convert pulse counts into real measurements. The pulse multiplier is a scale factor, and the pulse offset is a displacement. These values are device-specific.

Meter Multiplier and **Meter Offset:** In some instances, metered energy is used to verify interval data using the following formula: Metered energy equals the net-meter-reading times the meter multiplier plus the meter offset times. These values are also device-specific.

IPH: The number of intervals per hour recorded by the device.

Data Type: Can be either "scalar data" or "interval data." If this Channel History is for an interval data recorder, select "interval data." If it is for an indicative meter, select "scalar." Selecting "scalar" tells the billing programs to look for billing determinant values in the Meter Value Table, rather than the Bill History Table. (If an account requires multiple scalar values for the same UOM per month, they must be stored in the Meter Value Table—*see the Bill Components tab.*)

End Use: Code that represents the end use measured by the channel; refrigerator, air conditioning, etc.

Totalize: Specifies how the programs total interval data when combining data from two or more recorder/channels:

- **Include -** include this channel's data in total

- **Total -** use this channel's data as the total

- **Exclude -** exclude this channel's data from total.

Channel Groups

The lower table in the Channel History tab lists the channel groups a recorder ID/channel is assigned to. Channel groups make it possible to store the total usage for subsets of channels belonging to an account, even if they measure the same bill determinant. To view, add, modify, or delete channel group assignments, first highlight the recorder ID/channel of interest in the upper table.

The columns are:

Group Category - Identifies the application this channel group was set up for—typically, Billing. Group categories are lookup codes; they can only be created by applying the Browser to the Group Category Table.

Group Name - The name assigned to this group. This name is used in rate forms to retrieve the recorder ID/channels belonging to this group.

Meter History

The **Meter History** tab displays current and historical information about meters in the Meter Table.

With this tab, you can view the information, as well as adding, updating, or deleting the Meter, Meter History, and Meter Read records.

The Meter History tab page contains three spreadsheet-like tables.

Meter

The upper table lists the meters from the Meter Table. The columns in this table are:

Meter ID: The identifier of the meter.

Manufacturer: The meter's manufacturer.

Serial Number: The meter's serial number.

Unique Number: A unique number associated with the meter.

Meter History

The second table lists the meter history records. These provide a snapshot of the meter's use. The columns in this table are:

Meter ID: The identifier of the meter (from the Meter Table).

Start Time: Effective start date/time for the meter.

Stop Time: Stop date/time for the meter.

Service Type: Service type associated with the meter (from the Service Type Table).

Premise Address: Address, City, State, ZIP of the premise associated with the meter.

Service Plan Account: Account associated with the service plan and meter.

Service Plan Start: Start date of the service plan.

Service Plan Service: Service type associated with the service plan.

Service Plan Address: Address, City, State, ZIP of the service plan associated with the meter.

Service Plan LDC: The account's local distribution company account number.

Number of: Number of dials on the meter.

Meter Multiplier and **Meter Offset:** In some instances, metered energy is used to verify data using the following formula: Metered energy equals the net-meter-reading times the meter multiplier plus the meter offset times. These values are also device-specific.

UOM: The unit of measure recorded by the meter (from the Units of Measure Table).

End Use: Code that represents the end use measured by the meter; refrigerator, air conditioning, etc. (from the End Use Table).

Bill Determinant Code: Bill determinant code associated with the meter (from the Bill Determinants Table).

Meter Reads

The lower table in the Meter History tab lists individual meter read records for each meter. The columns are:

Meter: The identifier of the meter (from the Meter Table)

Meter Read Time: The time the meter was read

Stop Reading Time: Time associated with the stop reading

Stop Reading: The stop reading

Start Reading Time: Time associated with the start reading

Start Reading: The start reading

Read Month: Read month

Therm Factor: Therm factor (for gas meter readings)

Peak Value: Peak value reading (for demand measurements)

Peak Time: Time of the peak reading

Reading Type: The type of reading (Actual, Cancelled, Estimated, or Adjusted).

Ready Use Flag

The **Ready Use Flag** tab displays a list of the Special Event overrides and Bill Determinants that are required for billing the account. It also enables you to add new requirements, and to set the Override Ready Flag for a bill period.

The Ready Use Flag tab page contains two spreadsheet-like tables.

Special Event Overrides

The upper table lists the Special Event overrides that must be manually verified by a billing analyst (e.g., have an entry in the Override Use Table for the account) before Oracle Utilities Billing Component can calculate the bill. You can use this table to set the Override Ready flag for the account. See the *Oracle Utilities Billing Component User's Guide* for a complete description of Special Event overrides. You can sort the rows in this table by entries in the Special Event or Start Time columns.

> **Note:** For each Special Event Override that can be applied to this account, the upper table displays the date and time of the most recently-entered ready flag, although all of the past records are stored in the database.

The columns on this tab include:

Special Event: Name of the override (must have already been defined in the Override Lookup Table).

Start Time: The date and time the override went into effect for the account.

Stop Time: The date and time the override for the account expired. If no end date is supplied, or if the override applies indefinitely, this field is blank.

Ready Time: The time you verified this special event override for the account (typically now, if you are now entering a record). An entry in this field constitutes the Ready flag.

Special Event Pre-Window: *View only*. You must set the Ready flag (in other words, make an entry in this special event table, including the Ready Time) within *n* number of days before the account's actual read date, where *n* is the number that appears in the Special Event Pre-Window field. If you set the Ready Flag more than *n* days before all other data required for billing is available, Oracle Utilities Billing Component will reject the account (if the account is billed by either the Approval Required or Automatic Billing module). If that happens, you must update the overrides and reset the Ready Time.

How to Set the Ready Flag for a Special Event Override:

1. Highlight the row in the upper table that contains the desired special event override.

2. Click the **Set Ready Flag** button. Note that the entry in the Ready Time cell changes to reflect when you clicked the button.

How to Clear the Ready Flag for a Special Event Override:

1. To clear the Ready Flag, highlight the row in the upper table that contains the desired special event override.

2. Click the **Clear Ready Flag** button. The date and time reverts to that of the most recently saved record.

Bill Determinants

The lower table lists the bill determinants that must be available for Oracle Utilities Billing Component to calculate the account's bill. You can sort the rows in this table by entries in the Bill Determinant or Start Time columns.

Bill Determinant: Code for the bill determinant (as defined in the Bill Determinant Lookup Table).

Start Time: The date and time the requirement for the bill determinant was initiated.

Stop Time: The date and time that the requirement was dropped. If blank, the bill determinant is currently required.

Special Event History

The **Special Event History** tab lists the overrides that are or have been applied to this account at the account and meter levels. The spreadsheets on this tab contain the same information as the Override History and Name Override History tables described in the *Oracle Utilities Billing Component User's Guide*. You can view the information on this tab, as well as add, update, or delete it.

The Special Event History tab page has two spreadsheet-like tables. The upper table lists account-level overrides; the lower lists meter-level overrides.

Account Overrides

The columns on this tab include:

Special Event: The lookup code that identifies the override (must have already been defined in the Override Lookup Table).

Start Time: The beginning of the period over which the override applies.

Stop Time: The end of the period over which the override applies. If the stop date is unknown or the override applies indefinitely, this field is blank.

Value: Value that expresses the scope of the override. Oracle Utilities Billing Component uses this value for a variable numeric value in the rate form. If the value is a percentage, it is expressed as a decimal fraction; for example, 0.1 indicates a 10% discount.

Note: *Optional.* Descriptive information about the override.

String Value: *Optional.* Value for a variable in the rate form script that requires a text string. For example, to apply a rider for just the period defined by the start- and stop-times above, enter the name of the rider. To apply a factor for just that period, enter the factor's name.

Meter-Level Overrides

The columns are:

Special Event: The lookup code that identifies the override (must have already been defined in the Override Lookup Table).

Channel or Group: The name of the channel group, CIS account, or recorder ID/channel the override applies to.

Start Time: The beginning of the period over which the override applies.

Stop Time: The end of the period over which the override applies. If the stop date is unknown or the override applies indefinitely, this field is blank.

Value: Value that expresses the scope of the override. Oracle Utilities Billing Component uses this value for a variable numeric value in the rate form. If the value refers to a percentage, it is expressed as a decimal fraction; for example, 0.1 indicates a 10% discount.

String Value: *Optional.* Value for a variable in the rate form script that requires a text string. For example, to apply a rider for just the period defined by the start- and stop-times above, enter the name of the rider. To apply a factor for just that period, enter the factor's name.

Factor History

The **Factor History** tab lists the factors currently in effect for this account, and all of the values that are or have been associated with each factor. It enables you to assign a new factor to the account, and to change values associated with a factor.

A *factor* is a variable that can be used in rate form scripts to represent taxes, charges, and other values that are used widely and are expected to change over time. The factors and their associated values are stored separately. In that way, when a tax changes it is not necessary to update the value in every rate form script, but only to create a new Factor Value record. The billing programs automatically find and use the correct value.

Factors

The upper spreadsheet-like table lists the factors that have been applied to the account. You can sort the rows in this table by entries in the Factor Code or Start Time columns. The columns are:

Factor Code: The operating company code, jurisdiction code, and factor code identifying this factor.

Start Time: The beginning of the period over which the factor applies to the account.

Stop Time: The end of the period over which the factor applies to the account. If the factor is currently in effect, this field is blank.

UOM: The unit of measure for the quantity represented by the factor value.

Factor Values

The lower spreadsheet-like table lists a history of the values that have been associated with the factor you select in the upper table. The columns are:

Factor Value: Value for the factor.

Start Time: The date and time the factor value went into effect.

Prorate: Indicates whether the programs prorate charges if the factor value changes during a bill period:

- **No -** do not prorate charges (use the factor in effect on the Bill Date for the entire bill period)

- **Yes -** prorate the charges.

Factors button

To view the list of currently available Factor Codes, or to add a new Factor Code, click the Factors button.

Bill History

The **Bill History** tab displays billing information, including bill determinants and revenue, for each month. You can delete records from this table, as well as add new ones to it. When you add a new record, the program automatically supplies default values for the next month to be billed.

You can sort the rows in this table by entries in any of the columns. The columns this tab include:

Bill Month: The revenue month for the bill.

Stop Time: The end of the bill period, which is *either* the time that the account's meter was actually read, or the midnight before the time that the meter was read—depending on the Full Day Bill option setting for this account.

Read Date: The date the meter was scheduled to be read. This date *must* match the read date specified for this bill period in the account's billing cycle. The read dates enable Oracle Utilities Billing Component to match the Bill History record to the correct bill period.

Number of Days: Actual number of days in the bill period.

Bill Code: *Not applicable to all implementations.* Utility-specific code indicating the type of bill (estimated, etc.). This field is automatically completed by CIS.

kWh: Usage for this bill period; either supplied by CIS or another system, or computed by Oracle Utilities Billing Component from interval data.

Note: The next several columns are utility-specific bill determinants; ask your System Administrator for details.

Bill Time: The date and time when Oracle Utilities Billing Component created the CIS transaction record.

Start Time: The actual beginning of the bill period.

Viewing a Single Bill History Record

If you double-click on the gray button at the left end of a record (row), a dialog box will appear, displaying that record. If the selected record has related records in the Bill History Value Table, the Bill History Value record values are also displayed.

You can edit the information in this dialog. Select the desired field to edit and change the data accordingly. To close the dialog, click either the '**X**' in the upper right corner, or the **Close** button.

View Bill

The **View Bill** tab lets you view a selected past bill for the account.

How to view a bill:

1. If the account has multiple Rate Schedules, select one.

2. Select the **Bill Month**.

3. Click the **View** button.

   The bill is displayed in the **Bill Report** window.

Bill Components

In Oracle Utilities Billing Component, an account is defined as the entity whose charges for bill determinants are added together to compute a bill. However, in some cases it is necessary to track subsets or components of these bill determinants. If an account has multiple service addresses in different jurisdictions with different tax rates, it is necessary to store the monthly kWh for each service address in order to compute the taxes. If an account's meters are subject to different ratcheting charges, it is necessary to store separate usage values for each meter.

To accommodate such situations, Oracle Utilities Billing Component allows you to store values for the same bill determinant for multiple entities, such as recorder-ID/channels, channels groups, or CIS accounts, in the Meter Value Table.

The **Bill Components** tab displays information from the **Meter Value Table**. You can view existing records and add new ones. When you add a new record, the program automatically supplies default values for the next month to be billed.

You can sort the rows in this table by entries in any of the columns. The columns on this tab include:

Read Date: The scheduled read date for the channel group.

Bill Month: The month the bill was issued.

Bill Determinant: The lookup code identifying the bill determinant that this channel group records.

Name: The name of the channel group, recorder ID/channel, or CIS account that this bill component belongs to.

Start Time: Start time of the bill period.

Stop Time: Stop time of the bill period.

Value: The value for the bill determinant.

Bill History Prob/Res

The **Bill History Prob/Res** tab enables you to view and attach "Problem" descriptions to bills. These problem descriptions mark the bill for inclusion in the **Late Bill** report. See **Chapter 10**: **Problem Bills and the Late Bill Report** in the *Oracle Utilities Billing Component User's Guide* for a complete description of late bills and problem descriptions.

To view any problem descriptions attached to an existing bill, highlight its bill month in the upper table on the tab. Any problems that were entered previously appear in the lower table.

How to add a problem description for a bill:

1. Click the desired bill month in the upper table.

    Go to the Bill History tab and click the asterisk in the lower left corner. The program automatically supplies default values for the next month to be billed. Leave the default values in place—Oracle Utilities Billing Component will update the dates and other information when the bill is actually issued. Click **Add**. Then, return to the Bill History Prob/Res tab and highlight the row that represents the new bill month.

    Note: If the current bill month is not listed, that means that a Bill History record for it does not yet exist in the database. If Oracle Utilities Billing Component receives bill determinant data from CIS for the account, a record will exist. On the other hand, if the account is not billed using determinants from CIS, there won't be a Bill History record for the month. In that case, you must create the Bill History record, as follows:

2. In the lower table, click in the Problem cell and enter a description of the problem (up to 254 characters) to appear in the Late Bill report.

3. Enter a description of the problem's resolution (up to 254 characters) to appear in the Late Bill report. If the problem has not been resolved, leave this field blank.

4. When you have completed the tab, click the **Add** button to enter the information in the database.

Logical Recorder

The **Logical Recorder** tab page displays information about the logical interval data recorders/ channels currently assigned to each of the account's premises. "*Logical*" refers to the utility-assigned ID of the recorder assigned to the account; the recorder ID stays the same even if the hardware is replaced. You can view, add, update, or delete this data.

This tab page has two spreadsheet-like tables. The upper table displays a list of recorders that belong to the premise you select in the lower table. The lower table displays a list of channels that belong to the recorder you select in the upper table. Following is a description of the columns in each of the tables.

Recorders

Recorder ID: Logical recorder ID.

Interrogation Code: The interrogation lookup code that identifies the recorder type and specifies the pre- and post-windows associated with the recorder.

Channels

Channel Number: Number identifying the recorder's channel.

Premise

The **Premise** tab lets you view, add, or edit records in the Premise Table.

The spreadsheet-like table lists the Premises associated with this account. The columns in this table are:

Address 1: Physical address of the premise. *Required.*

Address 2: Second address of the premise. *Optional.*

Address 3: Third address of the premise. *Optional.*

City: City where the premise is located.

State: State where the premise is located.

ZIP Code: ZIP code where the premise is located.

County: County where the premise is located.

Peak Values

The **Peak Values** tab displays the history of weekly or monthly peak values for the account (whether it's weekly or monthly depends upon the rate schedule). One month of data is visible at a time. When the tab first opens, the peak values for the latest bill month are displayed. The information in this tab is view-only.

Demand Type: Demand that the peak is for (kWh or KVAR).

Peak Date & Time: Date and time of the peak.

Value: Value of the demand at the peak.

Contribution: Percentage peak contributes to the bill total.

Bill Month: This drop-down menu contains a list of all applicable months you can review. Select a month to view the above values for that period's bill.

LODESTAR Data

The **LODESTAR Data** tab displays information about the meter readings and interval data cuts recorded for this account. Each row represents one cut. This information is view-only.

You can sort the rows by information in any of the columns. The columns on this tab include:

Recorder ID: ID of the interval data recorder.

Channel Number: Number that identifies the channel on the recorder.

UOM: Unit of measure for the data recorded by the channel.

Reading: Usage (meter reading stop minus meter reading start).

Reading Start: Meter reading start.

Reading Stop: Meter reading stop.

Value: Total usage for UOM.

Start Time: Date and time the cut's recording period began.

Stop Time: Date and time the cut's recording period ended.

Number of Days: Number of days covered by the cut.

Viewing a Single LODESTAR Data Record

If you double-click on the gray button at the left end of a record (row), a dialog box will appear, displaying that record only.

Chapter 6

Browsing Data

This chapter explains how to use the Browser to view the contents of the Oracle Utilities Data Repository. The Browser displays the hierarchy of tables and records, and the information in the records, in a "tree" view that reflects the organization of the database tables. This includes:

- **Viewing Database Records in the Browser**

- **Viewing the Database Schema**

- **Browsing Interval Data in the Interval Database**

The Browser is primarily used by database administrators who need access to the entire database. To view a specific account, see **Chapter 5**: **The Account-Centric View**.

Viewing Database Records in the Browser

The Browser offers two options for viewing database records; you can explore all of the tables and records in the Oracle Utilities Data Repository, or you can focus on specific customers or accounts.

How to Browse the entire database:

1. Select **File-›Browse-›Customer Database**.

   The **Browse Customer Database** window appears, displaying a list of all primary tables in the left pane.

2. Navigate the Browser (see **Navigating the Browser** on page 6-3).

How to Browse selected accounts:

1. Select **File-›Browse-›Customer/Accounts**.

   The **View Customer/Account(s) Input** dialog appears.

2. Complete the dialog as follows:

   Select By: Choose either **Account** or **Customer**.

   Select: Select the desired accounts or customers using one of the following options:

   - **All -** View all customers or accounts.

   - **ID -** Type a customer or account identifier.

   - **List -** Select a list of customers or accounts. See **Chapter 7**: **Maintaining Data** for more information.

   - **File -** Select a file; types include customer/account IDs (*.ids), list files (*.lst), account query files (*.qra), and customer query files (*.qrc).

3. Click **OK**.

   The **Browse Customer/Account(s)** window displays the customer or account records.

Navigating the Browser

The Browser window has two panes. On the left is the "Tree Pane," which presents the database in a "tree" structure. The right side, the "Record Pane," displays the contents of each table or record you select in the Tree Pane.

How to navigate the tree structure:

1. To expand an entity in the tree, click on the plus sign.

   The tree will display the IDs of the records currently stored in that table.

   Note: If you expand the tree for a table with hundreds of records, the display may take several minutes to refresh. The cursor changes to an hourglass while this process is taking place. If you click the plus sign and the tree does not expand, this means the table contains no records.

2. To collapse the tree, click on the minus sign next to an entity.

The following symbols appear in the Tree Pane:

This icon:	Represents:
	A *database* contains a series of tables.
	A *table* contains a series of records.
	A *record* contains information about a single entity, such as an account or lookup code.

As you explore the tree, you'll see that a table or a parent record can appear under a record in the tree. That's because the tree does not solely represent the strict parent-child hierarchy. It is a 2-dimensional representation of the relationships between tables and records in the database. When a record or table appears under a record in the tree, the record above contains a reference to the record(s) in the table below it.

When the tree is expanded and a table is displayed in red, this indicates that you should not add records to the table at that point in the tree. Instead, locate the table at the point in the tree where it appears normally (i.e., gray).

How to View All Records in a Table:

The contents of all records stored in a table are displayed in a tabular format.

1. Locate the desired table in the Tree Pane.

2. Click on the icon for the desired table.

   The information appears in the Record Pane.

How to resize the panes:

You can adjust the relative sizes of the panes according to your needs.

1. Move the mouse pointer over the divider until a double-headed arrow appears.

2. Drag the divider in the direction of the arrows to resize the panes.

How to resize the columns in the Record pane:

1. Move the mouse pointer over the divider between two column headers until a double-headed arrow appears.

2. Drag the divider to resize the columns.

How to view the contents of a single record:

1. Click on the icon for the desired record in the Tree Pane.

   The record information appears in the Record Pane. You can add, edit, and delete this information.

How to Filter records in the Browser based on Account IDs or Table-Column Lists:

The **Filter** option enables you to specify the type of records displayed in the Browser.

1. Select **File-›Browse-›Customer Database**.

   The Browser appears.

2. Click on the icon for the table that contains the records you want to filter.

   A list of records currently stored in that table appears in the right pane.

3. To specify the filter criteria, select **Records-›Filter,** or click the *right* mouse button and select **Filter**.

   The Set Filter dialog appears.

   Complete the dialog as follows:

   Account ID: Filter based on the account identifier. Click on **Exact** to look for a *specific* Account ID.

   List Names: Filter based on a table-column list.

   > **Table Name:** Select the table to extract the list from (defaults to the table currently selected).

   > **List Names:** Select a list from the **List Names** box and click **Add>>** to move it to the **Selected Lists** box. To remove a list from the **Selected Lists** box, click **<< Remove**. To clear the lists from the **Selected Lists** box, click **Clear**.

   > To create a new list to use as a filter, click **New List**. This opens the Table-Column list dialog (see **Chapter 7**: **Maintaining Data** for more information).

4. Click **OK** to close the Filter dialog.

   The Browser's right pane will display the Filter results.

   > **Note**: Records filtered by lists cannot be updated or deleted using the browser.

How to Filter records in the Browser based on Queries:

The **Query Filter** option enables you to specify the number and type of records displayed in the Browser based on a database query.

1. Select **File-›Browse-›Customer Database**.

   The Browser appears.

2. Click on the icon for the table that contains the records you want to filter.

   A list of records currently stored in that table appears in the right pane.

3. To specify the filter criteria, select **Records-›Query Filter,** or click the *right* mouse button and select **Query Filter**.

   The **Query to Create a List of <TABLE> Records** dialog appears.

4. Construct the query to be used to filter the data. See **Constructing Queries** on page 8-15 for more information about constructing queries.

5. Enter the maximum number of records you wish displayed in the Browser in the **Max. records to display** field. This values overrides the value set in the DM_BROWSER_MAX_RECORD parameter in the LODESTAR.CFG file. See **LODESTAR.CFG** on page 2-2 of the *Oracle Utilities Energy Information Platform Configuration Guide* for more information about this parameter.

   Note: This field is displayed only when creating query filters, effectively replacing the Order by Column drop-down list on the List Query dialog.

6. Click **OK** to apply the query and close the Filter dialog.

   The Browser's right pane will display the specified number of records that match the query. If the desired records are not displayed, select the **Query Filter** option again and adjust the query as necessary.

How to close the Browser:

To close the Browser, do one of the following:

• Press CTRL+F4 on your keyboard.

• Click on the system icon in the upper left corner of the Browser window, and select **Close** from the menu.

• Click the Close icon (**X**) in the upper right corner of the Browser window. Be careful not to click on the identical icon in the Data Manager window; clicking on it will terminate the application.

• Select **File-›Close**.

Viewing the Database Schema

The Data Manager provides an on-line diagram of the database structure (the *schema*) that you can view using the Browser. It provides a visual representation of the database layout, as well as a list of names that identify the tables and records in various circumstances.

How to view the database schema:

1. Select **File-›Browse-›Database Schema**.

    The **Browse Database Schema** window appears. Initially, the window displays all tables that are "strong" database entities. **Strong** database entities are those with no parent records.

    The label to the right of each table icon consists of three parts:

    -   The "visible" name that appears in the Browser (for example, "Accounts").

    -   The "real" database table name (for example, "ACCOUNT").

    -   The abbreviation used in Import files for the PLIMPORT utility (for example, "ACCT").

2. Click the plus (+) symbol beside a table to display the columns it contains, and references to and from the table.

    Each column label consists of its visible name and its real database column name. Each reference label contains the internal reference name, with the referenced table's label in parentheses. "To" in the table label indicates that the table is either a parent (red icon) or a lookup (purple icon). "From" in the table label indicates a child table.

Browsing Interval Data in the Interval Database

Data Manager includes a Browser for examining the contents of the Interval Database. You can use it to view a list of all cuts currently available in the database, and to view each cut's header data and interval values.

A "cut" is one record of interval data for an account. Each cut is identified by the recorder-ID, channel-number of the device that recorded it, and by the start- and stop-time of the period it covers. Each recorder-ID, channel-number that identifies a cut in the Interval Database is related to its account in the Data Repository via the Channel History Table.

The Interval Data Browser is particularly useful for responding to customer questions about demand charges, and for investigating any billing problems that might have been caused by bad or missing interval data. You cannot use the Browser to change any data in the Interval Database.

Specifying the Interval Database to Browse

Your company may have several Interval Databases. Use the following instructions to specify the one you wish to browse.

How to "point" to the desired interval data source:

1. Select **Tools-›Options**.

    The **Default Options** dialog box appears.

2. Click the **Interval Data Source** tab (see **Default Options** on page 2-9).

3. Select the appropriate Type:

    - **File:** Select one of the following formats for the desired Interval Database file:

        - Enhanced Oracle Utilities Input/Output Format (*.lse)

        - Oracle Utilities Standard Format (*.inp)

        - Comma Separated Format (*.csv)

        - Oracle Utilities Standard XML Format (*.xml)

        - MV90 Mainframe Format (*.mv9)

        - Meter Data Exchange Format (*.mdf).

    - **Default:** Use the default Interval Database identified in the LODESTAR.CFG file.

    - **Customer Database:** Use interval data stored in the Oracle Utilities Data Repository.

4. If you selected **File**, click **Browse** and select the desired file. If the name of the desired file is already displayed in the **File** field, click **Cancel** to close the dialog.

5. Select one of the following options for applying the new setting:

    - **OK:** Saves the new setting as your default interval data source, replacing the previous setting. Any Oracle Utilities program you run will automatically use this Interval Database.

    - **Apply:** Applies to current work session only; the setting will revert to the previously specified interval data source after this work session.

Using the Interval Data Browser

How to open the Browser:

1. Select **File-›Browse-›Interval Data Database**.

   The Browser appears, displaying a list of all recorders with interval data in this database.

Recorder IDs are associated with their accounts via the Channel History Table. If you do not recognize a recorder ID and want to learn more about it, go to the Data Repository Browser by selecting **File-›Browse-›Customer Database**. Then, click on the **Channel History** table icon. The right pane displays a list of all recorder-IDs in the database, with descriptive information about each one. When you have found the desired information, close the Customer Database Browser and return to the Interval Data Browser.

How to view a list of cuts for a selected recorder-ID, channel-number:

1. Expand the tree by clicking on the plus sign next to the recorder of interest.

   A list of channel-numbers assigned to the recorder appears.

2. Expand the tree by clicking on the plus sign next to the channel of interest.

   A list of all cuts currently stored and accessible for the selected recorder-ID, channel-number appears. The dates indicate the start- and stop-date and time of the period covered by the cut.

How to view the header data for a selected cut:

The "Header" provides descriptive information about the cut.

1. Expand the tree so that the icon for the desired cut is visible in the Browser window, as described on the previous page.

2. Click the plus sign next to the desired cut.

   The header data appears.

   The header consists of the following fields:

   > **Note**: Some interval data cuts may have additional fields that are not described below.

   Recorder/Cust ID: Logical recorder-ID. ("Logical" means that it identifies the recorder installed for the account; the ID remains the same even if the device is replaced.)

   Channel: A single digit (0 to 9) that identifies the port, register, or channel of the recording device. Each channel measures a different end-use, data type, or other quantity.

   Interval Start: Date and time the recording period covered by this cut began.

   Interval Stop: Date and time the recording period covered by this cut ended.

   Description: Optional descriptive data.

   Timestamp: Time the cut was loaded into the Interval Database.

   Origin: Origin of the cut; **M** (Metered), **P** (Profiled), or **C** (Computed).

   UOM: The Unit of Measure code identifies the type of interval data stored in the cut. "1" means that the interval data represents kWh. For a list of UOM codes, see **Appendix B**: **Oracle Utilities Enhanced Input/Output Interval Data Format**.

   IPH: The Intervals per Hour indicate the frequency at which the interval data was recorded. An IPH of "4" indicates that each interval value represents a 15-minute period.

   SPI: The Seconds per Interval indicate the frequency at which the interval data was recorded, in seconds. An SPI of "900" indicates that each interval value represents a 15-minute, or 900-second, period.

   Type: Frequency of the data (monthly, daily, hourly, 60-minute, etc.).

Internal Validation Status, External Validation Status, Merge Flag, Delete Flag: Flags used to manage data quality in the Oracle Utilities Load Analysis Load Data Management System. If you load data into the Data Repository using the Data Manager Import utility described in **Chapter 3**: **Importing Data**, the flags are automatically set to ON or YES, and therefore have no meaning. However, if your data is loaded from the Oracle Utilities Load Analysis product, these flags indicate the actual quality of the data. A flag setting of NO indicates bad data. In that case, the data must be edited and validated by Oracle Utilities Load Analysis before it can be used for billing.

Count: Total number of "pulse values" in the cut. Internally, the system converts the number of pulse counts to real measurements.

Non-zero Count: Total number of nonzero pulse values.

Total (not IPH/UOM corrected): Sum of all interval values in the cut.

Energy (IPH/UOM corrected): If the original data represents kW, it is converted to kWh and then summed. If the original data represents kWh, it is summed.

Maximum: Value, date, and time for the maximum interval value in the cut.

Minimum: Value, date, and time for the minimum interval value in the cut.

Pulse Mult and Pulse Offset: Values the system uses to convert pulses to real measurements. These values depend on the device used to record them.

How to view a graph of interval data for a selected cut:

To use the Interval Data Browser to display the cut's interval data values in a graph:

1. Double-click on the icon for the cut whose data you wish to view.

   The Browser automatically reconfigures itself so that two windows are visible; the upper window displays the header data, and the lower window displays a graph of the interval data.

   To see the value associated with a particular point in the graph (such as a peak), move the cursor to that point. Its associated value appears in the lower left corner of the window.

How to close the Browser:

You can close the Interval Data Browser (and most other windows) using the same methods as those used to close the Customer Database. See **How to close the Browser:** on page 6-5 for more information.

Browsing Interval Data Stored in the Oracle Utilities Data Repository

Interval data can be stored in a separate Interval Database, or in the Oracle Utilities Data Repository. The instructions in this chapter assume that your interval data is stored in the Interval Database. When interval data is stored in the Data Repository, users can view some information about the interval data using the Customer Database Browser, in addition to using the Interval Database Browser.

Users can view the following types of data using the Customer Database Browser:

• Cut Header Information

• Cut Edit Information.

Viewing Header Information

Header information is descriptive data concerning an interval data cut. The Channel Cut Header Table stores this information.

How to view Header Information using the Customer Database Browser:

1. Select **File-›Browse-›Customer Database**.

   The **Browse Customer Database** window appears.

2. Click on the icon for the Channel Cut Header Table (or click the plus sign next to the icon).

   A list of all the interval data cuts stored in the database appears, either beneath the **Channel Cut Header** table icon or in the right pane.

3. To select the cut you wish to view, double-click on the record in the right pane.

   A Channel Cut Header record will open in the right pane. This record contains the same header as described previously, except for the Maximum Values and Oracle Utilities Load Analysis Validation Messages. These can only be viewed using the Interval Database Browser.

Viewing Cut Edit Information

Edit messages in interval data cuts are saved to the Oracle Utilities Data Repository, and can be viewed using the Browser. These messages, along with other data concerning edits to interval data cuts stored in the Data Repository, are stored in the Channel Cut Edits Table.

How to view Cut Edit Information using the Customer Database Browser:

1. Select **File-›Browse-›Customer Database**.

   The **Browse Customer Database** window appears.

2. Click on the icon for the Channel Cut Edits Table, or click the plus sign next to the icon.

   A list of all the interval data cut edits stored in the database appears, either beneath the **Channel Cut Edits** table icon or in the right pane.

3. To select the cut edit you wish to view, double-click the record in the right pane.

   A Channel Cut Edit record will open in the right pane. This record contains the following information:

   • **Channel Cut:** The recorderid,channel, start time, and stop time of the cut.

   • **Sequence:** A number that designates the order of edits for the particular cut. The first edit has a sequence of 1, the second 2, etc.

   • **Text:** The text of the edit message associated with the cut edit.

Browse Select Interval Data

Select Interval Data in the Oracle Utilities Data Repository can be viewed using the Browser.

How to view Select Interval Data:

1. Select **File-›Browse-›Select Interval Data**.

    The **Select Interval Data** window appears.

2. Click on **Account** or **Customer** under **Select By**.

3. Click on **ID**, **List**, **All**, or **File** to specify the type of data to be selected. If **File** is selected, you can click Browse to locate and select the desired file.

4. In the **Recorder** field, enter the ID of the desired recorder. Click **Exact** to specify an exact match.

5. Under **Interval Data Input**, the **Database/Input Type** will be automatically filled in. For **FileName**, enter the full path and file name, or click Browse to select a file.

6. Click **OK**.

    A screen appears, displaying the selected interval data in a tree format.

Daylight Savings Time

Oracle Utilities products support interval data reads where the meter's clock is set differently from the account's clock. This occurs because the meter is set to Standard time, while the account may be on Daylight Savings Time, or because data from a third party may be based on a different time zone than the account that uses the third party's data.

In addition, an account can have meters in two or more time zones.

When a Oracle Utilities product reports a date and time that is based on interval data (such as the date and time of a maximum), the date and time must be reported as seen by the account, not the meter.

When a Oracle Utilities product computes a real-time price by multiplying the price data (possibly from a third party) by the usage data, the corresponding intervals must be aligned correctly—the price must correspond to the usage in the same real time.

All interval data is stored with the time adjusted to match the accounts that use it. An option on the interval data import dialog and command line allows users to specify the time zones of input files and the time zones of their target accounts.

TIMEZONE Table

The TIMEZONE Table, stored internally, provides Daylight Savings Time (DST) support. It has four columns:

Column Name	Description
CODE	The code assigned to the time zone; usually three or four alphabetic characters, such as EDT (Eastern Daylight Time), EDTA (Eastern Daylight Time - Adjusted), EST (Eastern Standard Time), CST (Central Standard Time), etc.
NAME	Visible name: Eastern Daylight Time, Eastern Standard Time, Central Standard Time, etc.
TIMEZONE	An integer indicating the number of timezones west of Greenwich Mean Time (GMT); valid values are from 0 (GMT) to 23, inclusive.
DST	**Y** - Indicates that all dates and times reflect Daylight Savings Time (23 hours in spring, 25 in fall). **A** - Indicates that all dates and times reflect Daylight Savings Time, with intervals 24-hour adjusted. For adjusted intervals, in April there is a blank hour on the appropriate day, and in October there is an hour that is the average of two on the appropriate day. **N** - Standard time.

If a channel is used by accounts in different timezones (such as an RTP price channel), each cut is stored repeatedly with as many adjustments as needed, with each adjusted copy stored in a different channel. An override value in the ACCTOVERRIDEHIST Table can be used to determine the correct channel to retrieve.

Timezone Codes

CODE	NAME	TIMEZONE	DST
GMT	Greenwich Mean Time	0	N
BST	British Summer Time	47	N

CODE	NAME	TIMEZONE	DST
BSTA	British Summer Time - Adjusted	0	A
IST	Irish Summer Time	47	N
ISTA	Irish Summer Time - Adjusted	0	A
WET	Western Europe Time	0	N
WEST	Western Europe Summer Time	0	Y
WESTA	Western Europe Summer Time - Adjusted	0	A
CET	Central Europe Time	46	N
CEST	Central Europe Summer Time	46	Y
CESTA	Central Europe Summer Time - Adjusted	46	A
EET	Eastern Europe Time	44	N
EEST	Eastern Europe Summer Time	44	Y
EESTA	Eastern Europe Summer Time - Adjusted	44	A
MSK	Moscow Time	42	N
MSD	Moscow Summer Time	42	Y
MSDA	Moscow Summer Time - Adjusted	42	A
AST	Atlantic Standard Time	8	N
ADT	Atlantic Daylight Time	8	Y
ADTA	Atlantic Daylight Time - Adjusted	8	A
EST	Eastern Standard Time	10	N
EDT	Eastern Daylight Time	10	Y
EDTA	Eastern Daylight Time - Adjusted	10	A
CST	Central Standard Time	12	N
CDT	Central Daylight Time	12	Y
CDTA	Central Daylight Time - Adjusted	12	A
MST	Mountain Standard Time	14	N
MDT	Mountain Daylight Time	14	Y
MDTA	Mountain Daylight Time - Adjusted	14	A
PST	Pacific Standard Time	16	N
PDT	Pacific Daylight Time	16	Y
PDTA	Pacific Daylight Time - Adjusted	16	A
UTC-12	Universal Time Coordinated - 12 hours	24	N
UTC-12D	Universal Time Coordinated - 12 hours (DST)	24	Y

CODE	NAME	TIMEZONE	DST
UTC-12DA	Universal Time Coordinated - 12 hours (24 Hr Adjusted)	24	A
UTC-11	Universal Time Coordinated - 11 hours	22	N
UTC-11D	Universal Time Coordinated - 11 hours (DST)	22	Y
UTC-11DA	Universal Time Coordinated - 11 hours (24 Hr Adjusted)	22	A
UTC-10	Universal Time Coordinated - 10 hours	20	N
UTC-10D	Universal Time Coordinated - 10 hours (DST)	20	Y
UTC-10DA	Universal Time Coordinated - 10 hours (24 Hr Adjusted)	20	A
UTC-9	Universal Time Coordinated - 9 hours	18	N
UTC-9D	Universal Time Coordinated - 9 hours (DST)	18	Y
UTC-9DA	Universal Time Coordinated - 9 hours (24 Hr Adjusted)	18	A
UTC-8	Universal Time Coordinated - 8 hours	16	N
UTC-8D	Universal Time Coordinated - 8 hours (DST)	16	Y
UTC-8DA	Universal Time Coordinated - 8 hours (24 Hr Adjusted)	16	A
UTC-7	Universal Time Coordinated - 7 hours	14	N
UTC-7D	Universal Time Coordinated - 7 hours (DST)	14	Y
UTC-7DA	Universal Time Coordinated - 7 hours (24 Hr Adjusted)	14	A
UTC-6	Universal Time Coordinated - 6 hours	12	N
UTC-6D	Universal Time Coordinated - 6 hours (DST)	12	Y
UTC-6DA	Universal Time Coordinated - 6 hours (24 Hr Adjusted)	12	A
UTC-5	Universal Time Coordinated - 5 hours	10	N
UTC-5D	Universal Time Coordinated - 5 hours (DST)	10	Y
UTC-5DA	Universal Time Coordinated - 5 hours (24 Hr Adjusted)	10	A
UTC-4	Universal Time Coordinated - 4 hours	8	N
UTC-4D	Universal Time Coordinated - 4 hours (DST)	8	Y
UTC-4DA	Universal Time Coordinated - 4 hours (24 Hr Adjusted)	8	A
UTC-3	Universal Time Coordinated - 3 hours	6	N
UTC-3D	Universal Time Coordinated - 3 hours (DST)	6	Y

CODE	NAME	TIMEZONE	DST
UTC-3DA	Universal Time Coordinated - 3 hours (24 Hr Adjusted)	6	A
UTC-2	Universal Time Coordinated - 2 hours	4	N
UTC-2D	Universal Time Coordinated - 2 hours (DST)	4	Y
UTC-2DA	Universal Time Coordinated - 2 hours (24 Hr Adjusted)	4	A
UTC-1	Universal Time Coordinated - 1 hour	2	N
UTC-1D	Universal Time Coordinated - 1 hour (DST)	2	Y
UTC-1DA	Universal Time Coordinated - 1 hour (24 Hr Adjusted)	2	A
UTC	Universal Time Coordinated	0	N
UTCD	Universal Time Coordinated (DST)	0	Y
UTCDA	Universal Time Coordinated (24 Hr Adjusted)	0	A
UTC+1	Universal Time Coordinated + 1 hour	46	N
UTC+1D	Universal Time Coordinated + 1 hour (DST)	46	Y
UTC+1DA	Universal Time Coordinated + 1 hour (24 Hr Adjusted)	46	A
UTC+2	Universal Time Coordinated + 2 hours	44	N
UTC+2D	Universal Time Coordinated + 2 hours (DST)	44	Y
UTC+2DA	Universal Time Coordinated + 2 hours (24 Hr Adjusted)	44	A
UTC+3	Universal Time Coordinated + 3 hours	42	N
UTC+3D	Universal Time Coordinated + 3 hours (DST)	42	Y
UTC+3DA	Universal Time Coordinated + 3 hours (24 Hr Adjusted)	42	A
UTC+4	Universal Time Coordinated + 4 hours	40	N
UTC+4D	Universal Time Coordinated + 4 hours (DST)	40	Y
UTC+4DA	Universal Time Coordinated + 4 hours (24 Hr Adjusted)	40	A
UTC+5	Universal Time Coordinated + 5 hours	38	N
UTC+5D	Universal Time Coordinated + 5 hours (DST)	38	Y
UTC+5DA	Universal Time Coordinated + 5 hours (24 Hr Adjusted)	38	A
UTC+6	Universal Time Coordinated + 6 hours	36	N
UTC+6D	Universal Time Coordinated + 6 hours (DST)	36	Y

CODE	NAME	TIMEZONE	DST
UTC+6DA	Universal Time Coordinated + 6 hours (24 Hr Adjusted)	36	A
UTC+7	Universal Time Coordinated + 7 hours	34	N
UTC+7D	Universal Time Coordinated + 7 hours (DST)	34	Y
UTC+7DA	Universal Time Coordinated + 7 hours (24 Hr Adjusted)	34	A
UTC+8	Universal Time Coordinated + 8 hours	32	N
UTC+8D	Universal Time Coordinated + 8 hours (DST)	32	Y
UTC+8DA	Universal Time Coordinated + 8 hours (24 Hr Adjusted)	32	A
UTC+9	Universal Time Coordinated + 9 hours	30	N
UTC+9D	Universal Time Coordinated + 9 hours (DST)	30	Y
UTC+9DA	Universal Time Coordinated + 9 hours (24 Hr Adjusted)	30	A
UTC+10	Universal Time Coordinated + 10 hours	28	N
UTC+10D	Universal Time Coordinated + 10 hours (DST)	28	Y
UTC+10DA	Universal Time Coordinated + 10 hours (24 Hr Adjusted)	28	A
UTC+11	Universal Time Coordinated + 11 hours	26	N
UTC+11D	Universal Time Coordinated + 11 hours (DST)	26	Y
UTC+11DA	Universal Time Coordinated + 11 hours (24 Hr Adjusted)	26	A

Chapter 7

Maintaining Data

This chapter explains how to maintain data, including

- **Maintaining Lookup Codes**

- **Creating and Maintaining Calendar Schedules**

- **Creating Blockings**

Maintaining Lookup Codes

Lookup codes provide a standardized way to reference commonly-used pieces of information—such as billing determinants, operating companies, and jurisdictions.

This section explains how to use the Browser to add, update, and delete records for many of the types of Lookup codes used by the Oracle Utilities products.

About Lookup Codes

Lookups are codes used to identify entities that are commonly referenced in account and account history records, rate form parent records, and rate form scripts. Each type of lookup code can be considered a table or "picklist" of acceptable values for certain fields in other records. Lookup codes are used to represent units of measure, bill determinant types, billing cycle codes, operating companies, jurisdictions, etc.

Lookup codes prevent users from entering the same information in multiple ways. For instance, without a lookup code for units of measure (UOMs), three different users might enter "kilowatt," "kW," and "Kilowatts." The system would interpret these as three different UOMs. Using a consistent set of codes makes data retrieval possible, and helps eliminate tedious and error-prone typing.

A lookup code must be defined in the database before you can reference it in another database record. For example, you cannot specify an operating company for an account until that operating company has been assigned a lookup code. Similarly, you cannot remove a lookup code from the database until all references to it in other records are either deleted or modified.

Lookups in the base system include:

- **Operating Company**
- **Jurisdiction**
- **Unit of Measure (UOM)**
- **Bill Determinants**
- **Group Category**
- **Interrogations**
- **Account Note Type**
- **Revenue Code**
- **Standard Industrial Classification (SIC) Code**
- **Override**
- **Factor**
- **Factor Values**
- **Billing Cycle**
- **Billing Cycle Dates**
- **Directory**
- **Account Statuses**
- **CIS Account**
- **LSCurrency**

This section explains how to add, modify, and delete lookup codes. Refer to the *Oracle Utilities Energy Information Platform Configuration Guide* for more information about these and other lookup codes.

Adding a New Lookup Code

How to add a new Lookup Code:

1. Select **File-›Browse-›Customer Database**.

   The Browser appears.

2. Click on the table icon for the lookup code type that you wish to enter.

   All currently available lookup codes of the selected type appear in the Record Pane on the right. Scroll through the list to make sure the code you're interested in isn't already defined.

3. Select **Records-›Insert New,** or click the *right* mouse button and select **Insert New**.

   A blank data entry form for the lookup code type appears.

4. Add data as desired. Some general guidelines are:

   - *All fields are required.* If you do not want to insert information in a field, click the **Null checkbox** for that field or group of fields. (A checkmark in the Null box means that you've intentionally left the field blank.) If the Null box is checked and you *do* want to put some information in that field, you must uncheck the box before you can enter any data.

   - Fields that have gray outlines (such as Unit of Measure Code in the preceding example) require entries (such as other lookup codes) that have already been defined in other tables. To complete one of these fields, click the mouse in the field and make your selection from the pick list that appears. With the desired selection highlighted, press ENTER, click **OK**, or double-click on your selection.

   - When completing a "Code" or "Identifier" field, Oracle Utilities recommends that you use all capital letters (e.g., GECO, not Geco). Database queries are case-sensitive, so it's important to be consistent when setting up the database and entering query criteria.

   - If you have entered some information in the form and then decide not to save the record, simply click on another table or record to open a new one.

   - If you want to base a new record on an existing record (so that you don't have to retype information that already exists), open the old record to display its information in the record pane, type in the new information where required, and select **Edit-›Add**.

   - Do not attempt to add a record to a table that is displayed in red in the Tree Pane. The red warning does not mean you cannot add a record to that table at all, but that you should not add records at that point in the tree. Instead, find the table at a different point in the tree, where it is displayed normally (in white). Then, add records as desired.

   - If you add a new record but it does not appear in the tree view, you need to "refresh" the display. Click the minus sign next to the parent table so that the tree collapses, then click on the plus sign to re-expand it. You can also refresh the display by highlighting the parent table and selecting **Records-›Refresh**. Select **Records-›Refresh All** to refresh the entire tree after adding multiple entries.

5. To save the record when you have completed all information, select **Edit-›Add**, or click the *right* mouse button and select **Add**.

Alternate Method:

This method allows you to create new lookup codes on-the-fly. Instead of browsing the appropriate table in the Tree Pane, you can add a child lookup code from your present location via the Record Pane.

1. Enter the name of the code you want to create in the appropriate lookup code field in the Record Pane.

2. *Right*-click in an unused (gray) portion of the Record Pane; select **Add** from the menu that pops up.

The system will prompt you to add this code to the database.

3. Click **Yes**.

   A new Browser will appear, displaying a list of all required fields.

4. Fill in the fields as desired, then right-click and select **Add** to add the new lookup code and return to the original Browser window.

Updating a Lookup Code

Often, information within your system needs to change to reflect new or modified rates, tariffs, companies, jurisdictions, etc. Use the following procedure to update lookup codes, to reflect the changes.

How to update a lookup code:

1. In the Browser, click on the plus sign to the left of the table that contains the record you wish to update.

   The records are displayed in both the Tree Pane and the Record Pane.

2. Click on the icon for the desired record in the Tree Pane.

   The edit form for that record appears.

3. Change attribute values as necessary. Refer to the previous pages for descriptions of the record fields and allowable values.

   Note: The software will not allow you to modify any field values that are referenced in other records without first modifying or deleting the other records.

4. Click **Edit-›Update,** or click the *right* mouse button and select **Update**, to save.

Selecting a Lookup Code

When you click in a field that has an associated list of predefined lookup codes — called a lookup table — a window will appear, allowing you to pick from the predefined codes or add a new one. This window can be sorted to make long lists of codes easier to navigate.

To select a code from the list, either double-click the desired code, or single-click to highlight it and click **OK**.

Sorting a Lookup Table

Clicking on the header of one of the table's columns will alpha-numerically sort the table by the contents of that column.

To move to a particular section of the list or to a specific item, use the **Column Name** and **Value** fields. The Column Name drop-down menu contains the names of all the columns in the displayed table (including those you might need to scroll left or right to see). Select the column you wish to scan. Next, enter a string into the Value field that corresponds to an entry in that column. Then click **Find**.

The table will scroll to (and highlight) the first record it encounters that begins with the string entered into the Value field. The more specific you are, the closer the selection will be to the code you're seeking. In the illustration above, entering 'P' in the Value field will jump to "PAPCo." Entering 'PO' will jump to "POC."

The search is not case-sensitive. Wild card searches are not supported.

Deleting a Lookup Code

When you delete a record, the software removes the selected record *and* any child records. For example, when you delete a Billing Cycle record, all of its Billing Cycle Date records are also deleted.

How to delete a lookup code:

1. In the Browser, click on the plus sign to the left of the table that contains the record you wish to delete.

   The records are displayed in both the Tree Pane and the Record Pane.

2. Click on the icon for the desired record in the Tree Pane.

3. Select **Edit-›Delete**.

   A warning message appears, reminding you that dependent records will also be deleted.

4. Click **Yes** to delete the records.

Creating and Maintaining Calendar Schedules

Rate forms can incorporate time-of-use and season-based pricing. You use the calendar schedules to assign every hour of every day to a Time of Use schedule, so that the computational programs apply the correct charges. This section explains how to create new schedules and modify existing ones.

Holidays

Many of the Oracle Utilities products refer to the holiday lists when executing analyses that incorporate time-of-use periods.

There must be at least one holiday list for each operating company/jurisdiction combination in your system.

Holidays require two types of records: "Holiday List Name" defines the Holiday List in the database, and "Holiday" defines the date and name of each holiday in the list.

Data Manager considers Holidays to be lookup codes, so you work with them via the Browser.

How to add a Holiday List Record:

1. Select **File-›Browse-›Customer Database**.

    The **Browser** appears.

2. Click on the **Holiday Lists** table icon.

3. Select **Records-›Insert New,** or click the *right* mouse button and select **Insert New**.

4. Complete the fields:

    Name: Enter a name for the list (up to 64 characters).

    Note: Add any descriptive comments (up to 254 characters.)

5. When you have completed the fields, select **Edit-›Add,** or click the *right* mouse button and select **Add**, to save the record to the database.

How to add a Holiday to a List:

1. Click the plus sign next to the icon for the parent Holiday List record in the Tree Pane.

    A **Holidays** table icon appears below the parent Holiday List record.

2. Click on the **Holidays** table icon.

3. Select **Records-›Insert New**, or click the *right* mouse button and select **Insert New**.

4. Complete the fields:

    Holiday List: Click on the words 'Holiday List' to open a list of existing holiday lists. Select the appropriate list.

    Date: Enter the date on which the holiday falls, using the date format specified in **Tools-›Options**.

    Name: Add a descriptive name (up to 64 characters).

5. When you have completed the fields, select **Edit-›Add,** or click the *right* mouse button and select **Add**, to save the record to the database.

6. Repeat steps 2 through 5 for each holiday you want to include in the list.

How to Update or Delete a Holiday List or Holiday Record:

Holiday lists and Holidays are updated and deleted in the same way as other lookup codes. See **Updating a Lookup Code** on page 7-4, and **Deleting a Lookup Code** on page 7-5 for instructions.

Season Schedules

Season schedules specify the dates for seasons in different years. You can define any period or periods as "Summer," "Winter," or any time period consisting of a set of revenue months. Non-contiguous time periods can belong to the same season (for example, winter in several different years).

When you have defined the seasons, you can use the Rules Language's SELECT BILL_PERIOD Statement to assign different charges to each season in a rate form.

You can also associate a different set of Time-of-Use schedules with each season (explained in the next section).

You can name and save any number of sets of seasons.

Rules for Creating Season Schedules

The rules to follow when creating a new Season Schedule or updating an existing one are.

- A schedule must have at least two uniquely named periods (seasons).

- Each season period must have a name, start date, and stop date.

- Dates must be specified in the format selected in your Options dialog.

- No overlaps are allowed. This means one day may not be in two seasons.

- No gaps are allowed. This means that all season periods within the schedule must be contiguous.

Creating or Modifying a Season Schedule

1. Select **File-›Setup-›Season Schedules**.

   The **Open Season Schedule** dialog box appears.

2. To create a new schedule, click **New**. To view or modify an existing schedule, highlight it in the list box and click **Open**.

   The **Season Schedule** dialog box appears.

   You can open multiple season schedules at the same time by pressing the **Shift** or **Ctrl** key while selecting the season schedules. The selected schedules will open in separate Season Schedule dialog boxes.

3. To add a new period to your schedule, type its name, start date, and stop date in the lower portion of the window. (Dates must be specified in the format selected in your Options dialog.) Click **Add**; the season appears in the upper list box.

4. To modify an existing season, highlight it in the upper list box, change the information in the edit boxes below, and click the **Update** button.

5. To remove a season from the schedule, highlight it in the upper list box and click **Delete**.

6. Continue adding or modifying seasons until all days within the schedule are assigned to a season. Be sure that the schedule follows the guidelines described in **Rules for Creating Season Schedules** on page 7-7.

7. When you are satisfied with the schedule, you can either click **OK** to replace an old schedule with a new version or save a new schedule, or click **Save As** to save a modified version under a new name.

   The **Save Season Schedule** box appears.

8. Type a name for your schedule in the **Name** field.

   The name can be up to 64 characters long. You will use this name in rate forms to identify the schedule.

9. If you wish, supply descriptive information in the **Comment** field.

    You can use up to 254 characters. These comments will appear in the **Open Season Schedule** dialog box.

10. Click **OK** to save your schedule to the database.

Exporting a Season Schedule

You can export a Season Schedule from Data Manager in a file that is automatically formatted for input to the Oracle Utilities programs.

How to Export a Season Schedule:

1. Select **File-›Setup-›Season Schedules**.

    The **Open Season Schedule** dialog box appears.

2. Highlight the desired schedule, and click **Export**.

    The **Select season file for export** dialog box appears.

3. If you want to overwrite an existing file, browse for it (if necessary). When the target file appears in the window, double-click to select it.

4. To save to a new file, enter a new **File name**. *Do not* add an extension, as the program will add it for you, based on **Save as type (below)**.

5. Season schedules are saved as Common Schedule (*.txt) files. This is a plain text format so you may open and edit the file with Notepad or another text editor.

6. Click **Save**.

Importing a Season Schedule

You can also import a previously-exported Season Schedule.

How to Import a Season Schedule:

1. Select **File-›Setup-›Season Schedules**.

    The **Open Season Schedule** dialog box appears.

2. Click **Import**.

    The **Select season schedule file for import** dialog box appears.

3. Select the file to import. Season files are in Common Schedule (*.txt) format.

4. Click **Open**.

Time-of-Use Schedules

Use Time-Of-Use (TOU) Schedules to classify each hour in a week or holiday as "on peak," "off peak," or "shoulder," or whatever periods are used at your utility. You can set up any number of TOU Schedules, which will then be available for reference in a rate form.

Rules for Creating TOU Schedules

Be sure to follow these rules when creating a new schedule or updating an existing one.

•   A TOU Schedule must have at least one period.

•   Each period must have a name, start time, stop time, and at least one day checked.

•   No overlaps or gaps are allowed between periods. This means that every minute in the seven weekdays and the holiday must be included in a period. No hour may be in more than one period.

- Times should be entered on full hour boundaries. For example, 00:00 to 12:00 and 12:00 to 24:00.

Creating or Modifying a TOU Schedule

1. Select **File-›Setup-›TOU Schedules**.

   The **Open Time of Use Schedule** box appears.

2. To create a new schedule from scratch, click **New**. To view or modify an existing schedule, highlight it and click **Open**.

   The **Time-of-Use Schedule** dialog box appears.

   You can open multiple TOU schedules at the same time by pressing the **Shift** or **Ctrl** key while selecting the TOU schedules. The selected TOU schedules will open in separate Time-of-Use Schedule dialog boxes.

3. If you want to associate the TOU schedule with a particular season, select it from the **Season Schedule** list box. (Click on the arrow to the right of the field, and make your selection. The season must have already been defined; if not, see *Season Schedules* earlier in this chapter.)

4. To add a new period to your TOU schedule, enter a TOU Period Name, Start Time, and Stop Time in the lower portion of the window. Check all days that apply. Click **Add**. The period appears in the upper list box.

   Note: The TOU Period Name must be defined in the TOU Period Name table in the Oracle Utilities Data Repository.

5. To modify an existing period, highlight it in the upper list box, change the information in the edit boxes below, and click the **Update** button.

6. To remove a period from the schedule, highlight it in the upper list box and click **Delete**.

7. Continue adding or modifying periods until every hour of all eight days are covered. Be sure that the schedule follows the guidelines described in *"Rules for Creating TOU Schedules,"* earlier in this section.

8. When you are satisfied with the schedule, you can either click **OK** to replace an old schedule with a new version or save a new schedule, or click **Save As** to save a modified version under a new name.

   The **Save Time of Use Schedule** box appears.

9. Type a name for your schedule in the **Schedule Name** field. The name can be up to 64 characters long.

10. If you wish, supply descriptive information in the **Comment** field. You can use up to 254 characters. These comments will appear in the "Open Time of Use Schedule" dialog box.

Exporting a TOU Schedule

You can export a Time-Of-Use Schedule from Data Manager in a file that is automatically formatted for input to the Oracle Utilities programs.

   Note: Export works only with TOU Schedules that are associated with a Season Schedule. (This feature creates two files—a TOU Schedule Export File and a Season Schedule Export file.) If you attempt to export a TOU file that is not associated with a Season, the program returns an error message.

1. Select **File-›Setup-›TOU Schedules**.

   The **Open Time of Use Schedule** dialog box appears.

2. Highlight the desired schedule, and click **Export**.

   The **Select time of use file for export** dialog box appears.

3. If you want to overwrite an existing file, browse for it (if necessary). When the target file appears in the window, double-click to select it.

4. To save to a new file, enter a new **File name**. *Do not* add an extension, as the program will add it for you, based on **Save as type** (below).

5. Season schedules are saved as Common Schedule (*.txt) files. This is a plain text format so you may open and edit the file with Notepad or another text editor.

6. Click **Save**.

About the Output Format

TOU Schedule Export File: Contains a record for each TOU period in the TOU schedule. Each record has the following fields separated by three blanks:

*   Schedule number—extracted from the different season periods covered by the TOU schedule.
*   TOU period.
*   Day list—identifies the day of the week to which the period applies (1 - Sunday, 2 - Monday, etc.; 8 - holiday).
*   Period start-time
*   Period stop-time
*   Comments (TOU period name).

Sample TOU Schedule Export File

```
1   1   1,7,8        00:01   24:00   off_peak

1   2   2,3,4,5,6    00:01   24:00   on_peak

2   1   1,7,8        00:01   24:00   off_peak

2   2   2,3,4,5,6    00:01   24:00   on_peak
```

Season Schedule Export File: Contains a record for each TOU schedule within a season period of a season schedule. Each record has the following fields separated by three blanks:

*   Season schedule number.
*   Season number—season number corresponding to the season period within a season schedule.
*   TOU schedule number—extracted from the TOU schedule file by matching the season corresponding to the TOU schedule's season period with the current season period.
*   Start and stop—start and end of a range within a season period. Separate records are created for each range within a season period.
*   Comments (Season period name).

Sample Season Schedule Export File

```
1   1   1   05/01/92-00:01   08/31/92-24:00   Summer

1   1   1   05/01/93-00:01   08/31/93-24:00   Summer

1   2   2   09/01/92-00:01   04/30/92-24:00   Winter

1   2   2   09/01/93-00:01   04/30/93-24:00   Winter
```

Importing a Time-of-Use Schedule

You can also import a previously-exported Time-of-Use Schedule.

How to Import a Time-of-Use Schedule:

1. Select **File-›Setup-›Time of Use Schedules**.

    The **Open Time of Use Schedule** dialog box appears.

2. Click **Import**.

    The **Select time of use schedule file for import** dialog box appears.

3. Select the file to import. Time of use schedule files are in Common Schedule (*.txt) format.

4. Click **Open**.

User-Specified Day Lists

A User-Specified Day List can be an input to some of the computational programs. It is used to specify a group of days to be averaged together. For example, you could specify several summer peak days to be averaged together.

Like Holiday Lists, User-Specified Day Lists are considered lookup codes from the database perspective, so you work with them via the Browser.

User-Specified Day Lists require two types of records: **User-Specified Day List Name,** which creates a parent record for the list in the database, and
User-Specified Days, which defines the date and name of each day in the list.

How to Add a User-Specified List Record:

1. Select **File-›Browse-›Customer Database**. The Browser appears.

2. Click on the **User-Specified Day Lists** table icon. (You may have to scroll down the list to bring the icon into view.)

    All currently defined lists are shown in the right Record Pane. Scroll through the pane to make sure that the list you're interested in isn't already defined.

3. Select **Records-›Insert New,** or click the *right* mouse button and select **Insert New**.

4. Complete the fields:

    Name: Enter a name for the list (up to 64 characters).

    Note: Add any descriptive comments (up to 254 characters.)

5. When you have completed the fields, select **Edit-›Add**, or click the *right* mouse button and select **Add**, to save the record to the database.

How to add a day to a list:

1. Click the plus sign next to the icon for the parent **User-Specified Day List** record in the Tree pane.

    A table icon for **User-Specified Days** appears under it in the tree.

2. Click on the **User-Specified Days** table icon.

3. Select **Records-›Insert New,** or click the *right* mouse button and select **Insert New**.

4. In the data entry form that appears, specify the date using the format specified in your Options dialog.

5. Select **Edit-›Add,** or click the *right* mouse button and select **Add**, to save it to the database.

6. Repeat steps 2 though 5 for each day you want to add to the list.

Creating Blockings

When you create a blocking, you can specify the high and low values that define each individual block. Or, if all or a portion of the blocking consists of a series of contiguous, equal-size blocks, the software gives you a shortcut—in that case, you can supply the high and low values that define the range covered by the series of equal-sized blocks, and then the value of the block (called the "**Step**" value).

How to create a new blocking:

1. Go to the Data Manager desktop. If you are at the Oracle Utilities Rate Management desktop, you can open Data Manager by selecting **Tools-›Data Manager**.

2. At the Data Manager desktop, select **File-›Setup-›Blocking Tables**.

   The **Open Blocking** dialog box appears.

3. Click **New**.

   The **Blocking** dialog box appears.

4. Under **Values**, enter the Low and High values for the current block (or the range of contiguous, equal-size blocks). The High value must be greater than the Low value for each block, except for the *last* block in the blocking, which may be zero (a High value of zero indicates infinity).

   You can specify negative numbers for the low and high values that define a block (however, these are used only in the Billing Impact Frequency report in Customer Impact). If you change your mind and want to remove a minus sign, simply type a + sign in the Values field for that value.

5. Enter a **Step** value for the block. If you are defining each block individually, then the Step value must equal the difference between the High and Low values. If you are using the step feature to specify a set of contiguous, equal-size blocks, the Step value must evenly divide into the difference between the High and Low values. If you are specifying the last block with a High value of 0, the Step value should be 0, too.

   Note: If any usage values fall outside of the specified blockings (either at the high end if you did not specify 0 for the High value in the last block, or at the low end if there are negative values), the program automatically creates an "additional" blocking at that end when the program creates the Bill Frequency Table.

6. Click **Add** to insert the block(s) into the Blocking Contents list box. A block is automatically inserted into its proper position in the list box based on its Low and High values.

7. Repeat Steps 3 through 6 to add any other blocks necessary to complete the definition of the Blocking. **Make sure that the High values match the Low values for consecutive blocks.**

8. Click **OK** to save the new blocking in the Customer Database. The **Save Blocking Table As** dialog appears.

9. Enter a name and comments for the blocking, and click **OK**.

You can also open an existing blocking file.

How to Open an Existing Blocking:

1. At the Data Manager desktop, select **File-›Setup-›Blocking Tables**.

   The **Open Blocking** dialog box appears.

2. Select the desired blocking and click **Open**. You can also import a Common Blocking file by clicking **Import** and selecting the appropriate Common Blocking file. The imported blocking file then appears in the **Open Blocking** dialog.

Chapter 8

Working with Lists and Queries

Lists are a required input for many Oracle Utilities products. You use them to specify the customers or accounts with which you wish to work.

You can use Data Manager's powerful Query feature to create and work with lists of customers or accounts that meet a set of user-defined characteristics, as well as lists of database records that can be used by the Oracle Utilities Rules Language. This includes:

- **Customer/Account Lists**
- **Lists for Use in Rate Forms (Table.Column Queries)**
- **Constructing Queries**
- **Importing and Exporting Lists in Batch Mode**

Customer/Account Lists

Customer/account lists consist of a set of customer IDs or account IDs. Lists are required inputs for many Oracle Utilities applications.

You can create a customer/account list by simply typing it with a text editor or by downloading it from another application. You can then use Data Manager's List Import feature (described later in this chapter) to bring the list into the Oracle Utilities Data Repository.

The Query Feature

The **Query** feature enables you to automatically assemble a list of all customers or accounts in the Data Repository that match certain criteria. You can, for example, find all accounts in the database that have a particular rate code, or all customers whose monthly kWh usage exceeds a given amount, or all accounts in a particular jurisdiction. The system is very flexible and the search criteria are up to you.

> **Note:** It is also possible to use a query to generate lists of other types of entities in the database. See **Lists for Use in Rate Forms (Table.Column Queries)** on page 8-8.

Using the Query Feature, you create lists as needed, and you can save them for later or repeated use. Because the query is automatically saved with the list, you always have a record of what was done. And, you can quickly rerun the query against a modified database or edit it for another use.

You can also export a list in a file format that can be used as input to Oracle Utilities products; or in a neutral, text-only file format for sharing with non-Oracle Utilities products. This means that you can make use of the Query feature for any application that requires segmenting the customer population by user-defined characteristics.

Creating a New Customer/Account List Using the Query Feature

This section explains how to initiate a query that finds a list of customer or account IDs that match a set of desired characteristics.

How to create a customer/account list:

1. Select **File-›Lists-›Customer/Account(s)**.

   The **Account/Customer List** dialog box appears.

   To browse database records for an existing list, select its name from the Name drop-down list, and click the **Browse** button. The Browser opens, with the account or customer records displayed.

2. Select **Accounts** or **Customers**, depending upon whether you want a list of customer or account IDs.

   An account is the entity for which a bill is computed. A customer is the entity that receives the bill.

3. Type a **Name** and **Description** for your list.

   Name and Description can each consist of up to 40 characters. Spaces are allowed in both. If a name already exists, click in the field and type over the old entry. When typing the name of a new list, be sure to remove the angle brackets ('<', '>') and any existing text.

4. Click the **Query** button.

   The **Query to Create a List of Accounts** (or **Customers**, if that's what you selected in Step 2) dialog box appears.

   The List Query dialog box gives you a convenient and structured way to describe the customers or accounts that you want to retrieve from the database.

Queries are constructed in this order: "table.column, relationship, value." You can construct queries with multiple conditions by chaining together any number of clauses using either of the two conjunctions (logical AND or OR).

Example of a typical query:

First Clause	Conjunction	Second Clause
Accounts.ID > 10000	AND	RateCodes.Code = 5

If you are creating a list of account IDs, this query retrieves all accounts whose ID is greater than 10000 and whose rate code is 5.

See **Constructing Queries** on page 8-15 for more information.

5. When you have finished constructing your query, click **OK**

Data Manager displays a list of the IDs that met your search criteria.

You have several options:

Display: Click **Display** to view the list that resulted from your query (if not displayed).

Report: Generates a Billing History Report for a selected Customer or Account ID (see **The Billing History Report** on page 10-9 for more information about the Billing History Report). To use this option, first select one of the IDs in the currently-displayed list, then click **Report**. This report uses the default test period specified on the Rate Analysis tab of the Default Options dialog. See **Default Options** on page 2-9 for more information.

Save: Saves your list—and the query used to create it—to the database. Your list is now available for other Oracle Utilities products.

Query: If you are not satisfied with the list (perhaps the number of customers found was much larger or smaller than expected), you can revise your query, and rerun the search. Click the **Query** to redisplay the **Query to Create a List** dialog box.

Delete: Deletes the list if saved.

Cancel: Closes the window. **Be sure to save your list first, otherwise all your work will be lost.**

Change to Customer List: Changes an account list to a customer list, or a customer list to an account list. See **Changing the List Type (Account to Customer)** on page 8-4 for more information.

Import: Imports a previously-created list. See **Importing a Customer/Account List** on page 8-4 for more information.

Export: Saves the currently-displayed list to a file. See **Exporting a Customer/Account List** on page 8-5 for more information.

Changing the List Type (Account to Customer)

You can change an account list to a customer list (or change a customer list to an account list).

Note: Lists that been locked (the Editable column on the List table is set to "No"). cannot be changed in any way.

How to change a customer/account list:

1. At the Data Manager desktop, choose **File-›Lists-›Customer/Account(s)**.

2. Select **Accounts** or **Customers**, depending upon whether you want a list of customer or account IDs.

3. In the **Name** combo box, select the desired list.

4. Click **Change to Customer List (or Change to Account List**. The **Change Account/ Customer List** dialog box opens.

5. Select the appropriate **Save Option**:

    • **Replace List Query**: Replaces the existing account (or customer) list with a customer (or account) list based on the same query.

    • **Save List Query as**: Saves the account (or customer) list as a new list. If you select this option, enter the name for the new list.

6. Click **Save** to save the list.

Importing a Customer/Account List

You can import a list file containing customer or account IDs into the Oracle Utilities Data Repository. The file must be in one of the following formats:

• **List Files (*.lst)** files are created by the Export feature explained on the previous page and have the extension '.LST'. They contain both the IDs and the query used to create the list.

• **Account Query Files (.qra)** Contains the query and all the account IDs in the list. It is a proprietary format that only the Data Manager can read.

• **Customer Query Files (.qrc)** Contains the query and all the customer IDs in the list. It is a proprietary format that only the Data Manager can read.

• **IDs Only Files (.ids)** An ASCII file of just the customer IDs or account IDs. This is useful for sharing with any type of application.

• **IDs Only XML Files (.xml)** An XML file containing the customer IDs or account IDs. This is useful for sharing with any type of application.

The format for this file type is as follows:

For an Account List:

```
<LODESTAR_LISTEXPORT>
  <ACCOUNT_ID>Artemis05</ACCOUNT_ID>
  <ACCOUNT_ID>Artemis04</ACCOUNT_ID>
  <ACCOUNT_ID>Artemis03</ACCOUNT_ID>
  <ACCOUNT_ID>Artemis02</ACCOUNT_ID>
  <ACCOUNT_ID>Artemis01</ACCOUNT_ID>
</LODESTAR_LISTEXPORT>
```

For a Customer List:

```
<LODESTAR_LISTEXPORT>
  <CUSTOMER_ID>KNN_01</CUSTOMER_ID>
  <CUSTOMER_ID>KNN_02</CUSTOMER_ID>
  <CUSTOMER_ID>KNN_03</CUSTOMER_ID>
  <CUSTOMER_ID>KNN_04</CUSTOMER_ID>
  <CUSTOMER_ID>KNN_05</CUSTOMER_ID>
```

```
</LODESTAR_LISTEXPORT>
```

How to import a customer/account list:

1. At the Data Manager desktop, choose **File-›Lists-›Customer/Account(s)**.

2. Click the **Import** button. The **File Import List** dialog box appears.

3. Select the desired list, and click **Open**.

   The list appears in the **Account/Customer List** dialog box. You can edit the name and description, or apply any of the other features of the dialog box. For example, if the list is in the .LST format, you can click Query and edit or rerun the query as desired.

4. Click the **Save** button to save your list.

Exporting a Customer/Account List

When you have created a list of customer or account IDs, you can save it to a file for sharing with other Oracle Utilities users or even other applications. There are several types of file formats to which you can export:

- **List Files (.lst)** Contains the query and all the customer/account IDs in the list. It is a proprietary format that only the Data Manager can read.

- **IDs Only Files (.ids)** An ASCII file of just the customer IDs or account IDs. This is useful for sharing with any type of application. Following is an example of an '.IDS' file:

```
192993898985
198982988485
198929994995
192999499599
```

- **Control Files (.ctl)**. Contains the identifiers of the interval data recorders/channels that belong to the customers or accounts in the list. This file format can be used as a Control file for input to a Oracle Utilities program. An example of a Control file:

```
N1723, 1
N1724, 1
```

   If there are no recorder/channels stored for one or more members of the list, you are notified via a pop-up message box. Data Manager also writes this information to the Log file (located in the \user directory).

- **Totalize Files (.ctl)** Use this file format if you want to totalize multiple channels of interval data for the members of your list using the Totalizing Reporter (an optional extension to the Oracle Utilities Load Analysis product). In other words, this file is automatically created in the correct format for use as a Totalizer Control file.

   Following is an example of the Totalize File Format. In the following example, the customer ID is 80001 and it has one account (800002).

```
REM 'CUSTOMER NUMBER'
ACCUMULATE 'CUSTOMER NUMBER 80001'
KEY N1723, 1
KEY N1725, 1
ACCUMULATE 'ACCOUNT NUMBER 800002'
KEY N1736, 1
END 'ACCOUNT NUMBER 800002'
END 'CUSTOMER NUMBER 80001
```

   If a customer has more than one account, all accounts will be listed one after another, enclosed within the keyword pair "ACCUMULATE-END".

- **Account Query Files (.qra)** Contains the query and all the account IDs in the list. It is a proprietary format that only the Data Manager can read.

- **Customer Query Files (.qrc)** Contains the query and all the customer IDs in the list. It is a proprietary format that only the Data Manager can read.

  Note: If desired, you can edit these files using an ASCII text editor.

- **IDs Only XML Files (.xml)** An XML file containing the customer IDs or account IDs. This is useful for sharing with any type of application.

How to export a customer/account list:

1. At the Data Manager desktop, choose **File-›Lists-›Customer/Account(s)**.

2. Select **Accounts** or **Customers**, depending upon whether you want a list of customer or account IDs.

3. In the **Name** combo box, select the desired list.

4. Click **Export**. The **File Export List** dialog box appears.

5. In the **File name** field, supply a file name.

6. Specify a list type in the **Save as type** drop-down box.

7. Click **Save** to save the query to the specified file.

Refreshing Customer and Account Lists in Batch Mode

The LISTOP function of the Oracle Utilities Rules Language performs operations on lists of values in the BILLHISTORY Table, which may contain hundreds of thousands of values. If the list is not correct the same record may appear in the result set more than once. Lists can be refreshed so only the most current and accurate data available is used via the LSTRFRSH.EXE command line program.

LSTRFRSH Command Syntax

LSTRFRSH uses the syntax shown below. Parameter switches are case insensitive; you can enter them in either upper or lower case (-c or -C). If a parameter includes a space, you must enclose it in quotes (for example,   -f "11/01/1999 12:00:00").

lstrfrsh -c *connectstring* [**-q** *qualifier*] **-f** *configfilename* [**-lcfg** *logging configuration filename*]

In actual use, the command must be entered on one line. Also, you must either change to the directory in which the program is stored (typically, \LODESTAR\bin) before entering the command, or specify the path in the command. To view a list of all parameters on-screen, type **lstrfrsh -?** at the command prompt.

Parameter	Description
-c	*connectstring* is database connection information for the Oracle Utilities Data Repository. This parameter is **required** and must be in one of the following formats: For Oracle databases: "Data Source=<data_source>;User ID=<user_id>;Password=<password>;LSProvider=ODP;" where: • <data_source> is the Oracle TNS Name for the data source, from the TNS_NAMES.ora file (typically located in the \\<machine>\oracle\network\admin directory) • <user_id> is the user ID for the database connection • <password> is the password for the supplied user ID.
-q	*qualifier* is an optional database qualifier. The default is PWRLINE.
-f	*configfilename* is the name of the configuration file that defines the working environment of the Oracle Utilities software (tells the software where to find and place the application data files, etc.). If you do not supply a value for *configfilename*, the system uses the default (LODESTAR.CFG). For information about the contents of this configuration file, see the *Oracle Utilities Energy Information Platform Configuration Guide*.
-lcfg	*logging configuration filename* Name of an optional logging configuration file that specifies where error and log messages are sent. If you omit this parameter, the application creates a log file named LSTRFRSH.LOG in the LOG directory.

Example

Following is an example of LSTRFRSH.EXE.

```
LSTRFRSH -c lodestar -f lodestar.cfg
```

Lists for Use in Rate Forms (Table.Column Queries)

This section explains how to create queries that you can incorporate in rate forms. These queries, called "Table.Column Queries," are strictly for use with the Oracle Utilities Rules Language—specifically, the "For Each x in List" Statement, and the INTDLOADLIST and MVLOADLIST functions.

These queries enable you to apply revenue calculations, report statements, or other elements of the Rules Language to any group of entities in the database that meet a set of search criteria you supply. This is particularly useful for applying calculations to elements of the billing hierarchy other than just accounts, such as channels or channel groups.

This section introduces the concept of Table.Column lists and queries, and the interrelationship between Table.Column lists and the Rules Language. It then provides step-by-step instructions for creating and saving Table.Column queries.

What Are Table.Column Queries?

Table.Column queries are used to create lists of items in the Oracle Utilities Data Repository that match a set of criteria you define. They are similar to the queries used to create the lists of Customer and Account IDs described in the previous chapter—that is, they compare a value in a database column to criteria you supply. If the value satisfies the criteria, the entity to which it belongs is included in your list. If not, it is skipped.

There are important differences between Customer and Account queries and Table.Column queries, however.

First, Table.Column queries and lists are *used only as part of a rate form.* When the billing or analysis program runs the rate form, the list is automatically created at that time and applied however the Rules Language statements specify. The list itself is not saved.

Second, Table.Column queries let you specify the "target" table and column that you want to take data from. You are not limited to customer and account IDs as you are with Customer and Account queries. In fact, *you can target* any *column in* any *table or combination of tables in the Oracle Utilities Data Repository.* For example, the result of your query might be a list of lookup codes in a targeted lookup table, or a list of recorder IDs from the Recorder Table, or a list of channels that belongs to a channel group in the Channel Group Table. This feature makes it possible to apply rate calculations at any level of the billing hierarchy, such as channels or channel groups.

Further, if the column you target contains the primary key for the table, the resulting list includes not only the contents of that column for the retrieved entity, but the rest of the row as well. This feature is especially useful for reporting information about items in the list. For example, let's say you want a list of channels that belongs to an account. Therefore, the target of your query would be the Channel Table's UID Channel column (CHANNEL.UIDCHANNEL). For each channel that met your search criteria, the resulting list would contain not only the channel's unique identifier (UID), but also its recorder-ID and channel number—because a channel record (row) in the Channel Table consists of UIDCHANNEL, UIDRECORDER, and CHANNELNUM.

If you target a column that contains non-unique values, such as a UOMCODE in the Channel History Table, the program returns a list of values that met your search criteria, with duplicates removed.

Table.Column Lists and Rate Forms

To understand the value of Table.Column lists and queries, it's helpful to explore the application for which they were created—their use in rate forms.

You can use Table.Column lists with the "For Each *x* in List" Statement, and the INTDLOADLIST and MVLOADLIST functions.

Let's look at the "For Each *x* in List" Statement. The purpose of this statement type is to apply a set of Rules Language statements to each and every entity in the database that matches a set of user-defined criteria. In other words, when you use an analysis or billing program to apply the rate form, the Rules Language statements nested in the "For Each x in List" Statement are repeated for each item in the list created by your query.

The format of this statement is:

```
FOR EACH <identifier> in LIST <list-name>
    <nested-statements>
END FOR;
```

Where:

- *list-name* is the name of a table.column query that you or another user have previously created and saved. This query defines the target table.column, and the set of conditions that the database entity must meet in order for it to be included in your list. (The next section in this chapter, "Creating a List of Items in the Data Repository Using a Table.Column Query," provides step-by-step instructions for creating these queries.)

- *identifier* is a temporary name you supply in the statement. When the billing or analysis program runs the rate form, it assigns this identifier to the first item in the list and applies the nested-statements to it. When that is done, it assigns this identifier to the second item in the list and applies the nested-statements to it, and so on until all items in the list have been processed.

- *nested statements* are the actions you wish to occur for each item in the list.

Below is an example query and related portion of a sample rate form that might be used with Oracle Utilities Billing Component. The purpose of this query and rate form is to include a list of the recorder-IDs, channel-numbers that belong to the account being billed in the bill report.

Query Name: LIST_CHAN   (could be anything)

Target Table.Column: CHANNEL.UIDCHANNEL

Query: ACCOUNT.ACOUNTID = ACCOUNT_ID

Rate Form Statements:

```
ACCOUNT_ID=ACCOUNT.ACCOUNTID
FOR EACH CHAN in LIST "LIST_CHAN"
    RC = "" + CHAN.RECORDERID + ","CHAN.CHANNELNUM
    REPORT RC LABEL "Account Recorder, Channel";
END FOR;
```

When Oracle Utilities Billing Component applies this Rules Language statement, it first runs the query—that is, it compares each ID in the Account Table with the ACCOUNTID it is billing. When the program finds it, it retrieves all UIDCHANNEL records in the CHANNEL Table that belong to the Account ID and puts them in the list named LIST_CHAN. When the list is complete, the program assigns the temporary identifier CHAN to the first Channel UID in the list, and applies the nested statements to it. In this example, the nested statements simply report the recorder-ID and channel-numbers that belong to the channel. (Remember from the discussion on the previous page, values for RECORDERID and CHANNELNUM were also returned in the list, because the target column UIDCHANNEL was a primary key for the table.) The nested statements are repeated for each UIDCHANNEL that belongs to the account.

The table below shows how the program applies the Table.Column query in Example 1 to generate a list.

Account Table (contains values used in search criteria)

UIDACCOUNT	UIDCUSTOMER	ACCOUNTID	STARTTIME	POSTWINDOW
097609	975721	10030	12/01/1995	3
097610	975722	**10031**	12/01/1995	3
097611	975723	10032	12/01/1995	3
097612	975724	10033	12/01/1995	3

The query asks the program to find the account being billed:
ACCOUNT.ACCOUNTID= ACCOUNT_ID. In this example, let's say it's the account ID 10031.
This corresponds to UIDACCOUNT 097610.

Channel History Table (relates Account Table to Channel Table)

UIDCHANNEL	STARTTIM	UIDACCOUNT	STOPTIME	METEROFFSET
134678	12/01/1995	097609	null	3
134679	12/01/1995	**097610**	null	3
162456	12/01/1995	**097610**	null	3
268648	12/01/1995	097611	null	3

The Channel History Table relates the Account Table (the one containing the search values) to the
Channel Table (the "target table" containing the data you want for your list). In this case,
UIDACCOUNT 097610 is associated to UIDCHANNEL 134679 and UIDCHANNEL 162456.
These are the records in the Channel Table.

Channel Table (Target Table)

UIDCHANNEL	UIDRECORDER	CHANNELNUM
134678	8076888	1
134679	1111101	1
162456	1111101	2
268648	8999876	1

Note: The **Account** and **Channel History** tables both contain more columns
than are shown in the illustration.

Creating a List of Items in the Data Repository Using a   Table.Column Query

The first part of this section explains how to target a table and column—that is, specify the table and column you want to take data from. The next set of instructions explains how to create a query that specifies your search conditions.

How to target a table and column:

1. Select **File-›Lists-›Table-Column**.

    The **Table-Column List** dialog box appears.

2. Select the target table from the **Target Table** drop-down menu.

    Each table is denoted by two names in the drop-down menu (e.g., ACCOUNT/Accounts). The first is the "real" name—the name that the system recognizes the table by. The second is the "visible" name that appears in the Query screen.

3. Select the target column from the **Target Column** drop-down menu.

    If the target column stores the unique key for the table, the list will contain all values in each row (record) that meets your criteria. The unique keys are identified in the display by the prefix UID. In addition, if the table has just one primary key, you can use that column as the target to retrieve the row. If the column stores non-unique values, the list will contain just the values that met your search conditions, with duplicates removed. Other tables require multiple columns to identify the rows. See *Appendix A* for information about primary keys.

    Note: LONG, BLOB, CLOB, and XML columns cannot be selected as the target column for table.column queries.

4. Type a **Name** for your query.

    This is the name you will use in the rate form to call the list. The name can have up to 40 characters.

    Do not use spaces in the name. Underscores are acceptable. For example, LIST_CHAN is acceptable for use in rate forms, LIST CHAN is not. Also, if you use the percent sign (%) in the list name, the list name must appear as a string (inside double quotes) when referenced in a rate form. See the 'For Each X in List' Statement in the *Oracle Utilities Rules Language User's Guide* for more information.

5. Type an optional **Description** for your list.

    The description can consist of up to 40 characters, including spaces.

6. Click the **Query** button. The **Query to Create a List** dialog box appears.

    The List Query dialog box gives you a convenient and structured way to describe the customers or accounts that you want to retrieve from the database.

    Queries are constructed in this order: "table.column, relationship, value." You can construct queries with multiple conditions by chaining together any number of clauses using either of the two conjunctions (logical AND or OR).

    Example of a typical query:

First Clause	Conjunction	Second Clause
Accounts.ID > 10000	AND	RateCodes.Code = 5

    If you are creating a list of account IDs, this query retrieves all accounts whose ID is greater than 10000 and whose rate code is 5.

    See **Constructing Queries** on page 8-15 for more information.

7. When you have finished constructing your query, click **OK**

    The **Table-Column List** dialog appears.

If the query included a rate form identifier as the qualifier on the right side of a query clause, the program can't perform the search now, so it displays a reminder, "List contains Rules Language Identifiers, access via Rate Form." If on the other hand the query did not include rate identifiers, the program runs the query and displays how many items it found.

You have several options now:

Display: Click **Display** to view the list that resulted from your query (if not displayed).

Save: Saves your query so that it is available for use in rate forms.

Query: If you are not satisfied with the query or the list (perhaps the number of items found was much larger or smaller than expected), you can edit your query. See **Editing an Existing Table.Column Query** on page 8-13 for more information.

Delete: Deletes the list if saved.

Cancel: Closes the window. **Be sure to save your query and list first, otherwise all your work will be lost.**

Change Target Column: Changes the target column of the list. See **Changing the Target Column** on page 8-12 for more information.

Import: Imports a previously-created query. See **Importing a Table-Column List** on page 8-13 for more information.

Export: Saves the query to a file so that you can archive it and/or share it with other users. See **Exporting a Table-Column List** on page 8-13 for more information.

Changing the Target Column

You can change target column of a table-column list.

Note: Lists that have been locked (the Editable column on the List table is set to "No"). cannot be changed in any way.

How to change the target column for a table-column list:

1. At the Data Manager desktop, choose **File-›Lists-›Table-Column**. The **Table-Column List** dialog box appears.

2. Select the target table from the **Target Table** drop-down list.

3. Select the target column from the **Target Column** drop-down list.

4. In the **Name** combo box, select the desired list.

5. Click **Change Target Column**. The **Change Target Column List** dialog box opens.

6. Select the new target column for the list from the **Change Target Column** drop-down list.

7. Select the appropriate **Save Option**:

   • **Replace Table-Column List**: Replaces the existing list based on the new target column.

   • **Save Table-Column List as**: Saves the table-column list as a new list. If you select this option, enter the name for the new list.

8. Click **Save** to save the list.

Importing a Table-Column List

You can import a previously created Table-Column list into the Oracle Utilities Data Repository. The file must be a Query file (*.qry) that was created using Data Manager.

How to import a Table-Column list:

1. At the Data Manager desktop, choose **File-›Lists-›Table-Column**.

2. Click the **Import** button. The **File Import List** dialog box appears.

3. Select the desired list, and click **Open**.

    The list appears in the **Table-Column List** dialog box. You can edit the name and description, or apply any of the other features of the dialog box. For example, you can click Query and edit or rerun the query as desired.

4. Click the **Save** button to save your list.

Exporting a Table-Column List

When you have created a Table-Column list, you can save it to a file for sharing with other Oracle Utilities users.

How to export a Table-Column list:

1. At the Data Manager desktop, choose **File-›Lists-›Table-Column**.

2. Select the target table from the **Target Table** drop-down list.

3. Select the target column from the **Target Column** drop-down list.

4. In the **Name** drop-down list, select the desired list.

5. Click **Export**. The **File Export List** dialog box appears.

6. In the **File name** field, supply a file name.

7. Specify a list type in the **Save as type** drop-down box. There are two types from which to choose:

    *   **Query Files** (*.qry). This saves only the query itself. This is the default file type for exported queries.

    *   **Values Files** (*.val) This saves the list of values based on the query.

    *   **Values in XML Files** (*.xml) This saves the list of values in an XML file based on the query.

8. Click **Save** to save the query to the specified file.

Editing an Existing Table.Column Query

This feature enables you to view and, if desired, revise an existing Table.Column query.

Note: Lists that been locked (the Editable column on the List table is set to "No"). cannot be changed in any way.

How to edit an existing Table.Column Query:

1. Select **File-›Lists-›Table-Column**.

    The **Table-Column List** dialog box appears.

2. Select the **Target Table** and **Target Column** for which the query was created.

3. Click on the down arrow to the right of the **Name** field, and select a list from the drop-down menu that appears. This menu contains only the queries that have been previously created for the target table and column you specified in Step 2.

4. Click the **Query** button.

5. Modify the query conditions:

   • To revise an existing clause, highlight it in the Query display box. Then, modify it as desired.

   • To delete a clause that follows a conjunction, highlight both it and the conjunction that precedes it, and click **Remove**.

   • To delete the *entire* query and start over, click **Clear**.

6. When you are satisfied with your query, click **OK**.

7. The **Table-Column List** dialog appears, with information about the results. If you are satisfied with the results, click **Save**.

Constructing Queries

The following instructions take you step-by-step through the process of constructing a query using the Query to Create a List dialog. Essentially, you will specify the conditions a customer or account or record must meet for it to be included in your list.

Query clauses compare a record's value in a specified column in a specified database table to a value that you supply. Therefore, your first step in constructing a query clause is to identify the table and column that contains the information you want to use for the search conditions.

1. Click on the **Browse** button in the **Query Clause** box.

    A database tree similar to the Browser tree appears

2. Click on the table icon for the desired table.

    The table you want may be one or more levels deep, so you may have to expand the tree by clicking on the plus signs. For example, the Rate Codes table is listed below the Rate Code History Table.

3. Click on the desired column icon, and click **OK**.

    The first part of your query appears in the **Query Display** box.

4. Select the desired **Relationship**.

    Relationships are used to define how the program will compare values in the database to the value or item you specify in the next step. The choices are:

=	Equal to	IN
< =	Less than or Equal	LIKE
> =	Greater than or Equal	NOT LIKE
<	Less than	IS NULL OR >=
>	Greater than	IS NOT NULL
<>	Not equal	IS NULL

The first six options are straightforward – they are used to set conditions of equality or inequality. The others give you additional flexibility for expressing your search criteria.

- **IN** allows you to provide a *list* of values for the criteria. The account's value need match only one item in the list to be selected. For example, if you wanted to find all accounts with rate code 461, 462, or 463, your query might be:

    - Rate codes.code IN '461', '462', '463'

- **LIKE** enables you to search for text strings that satisfy a partial match. You can use the "percent" (%) sign or underscore (_) as **wildcards** to indicate that any characters are acceptable in their place. The '%' matches any series of characters, the '_' matches any single character. LIKE and the wildcards are useful if you want to broaden your search, or if you're not sure how a database entry might have been spelled. Here are some examples:

    - `Accounts.ID LIKE A%` would find all accounts whose ID begins with the letter A.

    - `Accounts.ID LIKE%A%` would find all accounts whose ID contains the letter A, anywhere in the ID.

    - `Rate Codes.Code LIKE _ab_ _` would find all accounts with rate codes that have AB in the second and third character position, such as yab01, xab02, and so on.

- **NOT LIKE** retrieves all database entries that do not satisfy a partial match. For example `Rate Codes.Code NOT LIKE%A%` would find all accounts with rate codes that do *not* contain an A (a code with an A anywhere in it would be rejected).

- **IS NULL OR >=** creates two comparisons in the query and means the column can be NULL or, if not NULL, must be greater than or equal to the selected value. This speeds up performance when compared to these two as separate clauses.

- **IS NOT NULL** enables you to find all accounts that have any value in a given column, other than null.

- **IS NULL** enables you to find all accounts that have a NULL value in a given column. Remember, NULL is not zero, but rather the intentional absence of any value.

5. Select either **Value** or **Identifier**, *or* select a **table.column** for the comparison.

   Supply a **value** or **identifier** if you want to compare database values with a constant (the supplied value) or the value of an Rules Language identifier. Specify a **table and column** if you want to compare an item in one customer or account record to another. For example, you could ask Data Manager to find every customer whose Account ID matches (is equal to) its Customer ID.

   Here are some important points to keep in mind if you are supplying a value:

   - **Data Manager is case-sensitive:** For Data Manager to retrieve an entry in the database, the value in your query statement must match the database entry exactly. Pay particular attention to case when dealing with character data. If you specify r04 but the database entry was R04, Data Manager will not consider this a match. You can avoid this problem by consistently using upper-case letters when inputting data to the database and when specifying a query value.

   - If you are using the IN relation, type all desired values in the Value field, making sure to separate them with a comma, or with a comma and a space. *If the members of the list are strings, you must enclose each one in single quotes.* For example:

     - Rate codes.code IN '461', '462', '463'

     You can tell if the database value is a string by looking at **Appendix A**. Columns with datatype "varchar" are strings. You only have to supply the single quotes in the Value field when you are using the IN predicate. In all other cases, Data Manager automatically supplies them for you.

   - If you wish to use either of the wildcards '**%**' or '**_**' in the value, you must use the LIKE predicate, as explained on the previous page.

     If a percent sign or an underscore is part of the text string you are searching for, you must use the ESCAPE command within the query. To use this command use the following guidelines:

     - Insert an extra special character immediately preceding the percent sign or underscore, such as '\', '#', etc.

     - Add "ESCAPE '<special_character>'" immediately following the query expression.

     For example, to search for Account IDs that begin with 'ACCT_,' you could use the following query:

     ```
     'ACCT#_%' ESCAPE '#'
     ```

   - Decimal numbers use a decimal point as the decimal separator regardless of Regional Settings. Also, numbers should not have thousands separators.

6. When you are satisfied with the clause as it appears in the Query Display box, you have two options:

- If you want to add additional clauses: click the desired conjunction button (**AND** or **OR**) and go to Step 7.

- If you have finished constructing the query: Go to Step 9.

7. If you are constructing a query with multiple conditions, select one of the conjunctions (**AND** or **OR**). (This step is optional; if you are using a single condition, skip to Step 9.)

    The conjunction appears on a new line in the Query Display box. Then input the next "table.column, relation, value/item" clause in the same way you entered the first one (steps 1 through 5).

    The lines that appear in the Query Display box can be manipulated with the **Cut**, **Copy,** and **Paste** functions. Select a line (or group of lines), then click **X** for Cut, **C** for Copy, or **V** for Paste. Cut or copied lines are stored on the Windows Clipboard, and are available to other applications.

    When you use AND, only database entries that meet both conditions are selected. When you use OR, every entry that satisfies either or both of the conditions is selected.

    Note: Queries that incorporate OR can require lengthy processing time. This is an issue with relational databases in general, not Data Manager in particular.

    To put parentheses around clauses to create complex logical expressions: Highlight all lines in the Query Display box that you want to include within the parentheses, and click the **Group** button.

    The grouped clauses are surrounded with parentheses.

    You cannot begin or end a group with a conjunction, and that the first and last lines in a group must be query clauses. To remove parentheses, highlight all the grouped lines and click **Ungroup**. To clear the entire query and start over, click **Clear**. To remove a clause that follows a conjunction, highlight it and the conjunction and click **Del**.

8. Specify the order of the list and if the list should include only distinct records.

    Distinct Records: The default for all lists is to select distinct records. That is, lists return only one value if there are duplicates. If you want all results returned, uncheck the **Distinct** check box. However, be aware that if this is off and there is a join, you may get multiple results even if each value is only in one record. This option does not affect the DISTINCT parameter of the LISTOP function.

    Ordering: The default ordering for lists is to order by the target column, in ascending order. The default for Account, Customer, Substation and Transformer lists is their ID column (the first two) or Name column (the last two). You can change the ordering by clicking the **Order by Column** button. This opens the **Order by Columns** dialog.

    To select a column for sorting, select the column in the **Table Columns** list, and click the **Add** button. The selected column will appear in the **Selected Columns** list. To remove a selected column, select the column in the **Selected Columns** list, and click the **Remove** button. The selected column will no longer appear on the **Selected Columns** list.

    To order the columns in a particular sequence for sorting, select the columns in the desired order. For example, to sort by Account ID followed by Start Time, you would select the Account ID column first, followed by the Start Time column. To sort by Start Time followed by Account ID, select the columns in the reverse order (Start Time followed by Account ID).

    Note that if the selected column's value is NULL in a record, the ordering is undefined. Some databases put NULLs first, some put them last.

    By default results are sorted in ascending order. To switch to descending order, uncheck the **Ascending** check box.

    If you do not want the results ordered, check the **No Order By** checkbox.

9.   When you are satisfied with your query as it appears in the Query Display box and you want to initiate the search, click **OK**.

About precedence and grouping

Your query can have any number of conditions. However, if you use both AND and OR in a statement, Data Manager automatically evaluates all conditions connected by AND before the conditions connected by OR. Consider the following query:

```
Rate Codes.Code = R100
AND
Billing Cycles.Code = 2
OR
Billing Cycles.Code = 3
```

This query selects every account who satisfies at least one of these conditions:

Its rate code is R100 AND it is on billing cycle 2, OR it is on billing cycle 3.

This may not be what you want. If not, you can change how the expressions are evaluated by grouping clauses with parentheses. Clauses within the parentheses are evaluated before those outside. For example:

```
Rate Codes.Code = R100
AND
(
Billing Cycles.Code = 2
OR
Billing Cycles.Code = 3
```

Now, the query selects every account who satisfies *both* of these conditions:

Its rate code is R100 AND it is on billing cycle 2 or billing cycle 3.

Importing and Exporting Lists in Batch Mode

In addition to setting up and creating lists, you can move lists from an older database to a newer one. This is done using the LSTIMEXP.EXE command line program.

LSTIMEXP Command Syntax

LSTIMEXP uses the following syntax. Parameter switches are case insensitive; you can enter them in either upper or lower case (-c or -C). If a parameter includes a space, you must enclose it in quotes (for example, -f "11/01/1999 12:00:00"). In actual use, the command must be entered on one line. Also, you must either change to the directory in which the program is stored (typically, \LODESTAR\bin) before entering the command, or specify the path in the command. To view a list of all parameters on-screen, type **lstimexp -?** at the command prompt.

lstimexp [**-c** *connectstring* [**-q** *qualifier*]] **-ffile** *configfilename* [**-lcfg** *logging configuration filename*]

Parameter	Description
-c	*connectstring* is database connection information for the Oracle Utilities Data Repository. This parameter is **required** and must be in one of the following formats: For Oracle databases: "Data Source=<data_source>;User ID=<user_id>;Password=<password>;LSProvider=ODP;" where: • <data_source> is the Oracle TNS Name for the data source, from the TNS_NAMES.ora file (typically located in the \\<machine>\oracle\network\admin directory) • <user_id> is the user ID for the database connection • <password> is the password for the supplied user ID.
-q	*qualifier* is an optional database qualifier. The default is PWRLINE.
-f	*configfilename* is the name of the configuration file that defines the working environment of the Oracle Utilities software (e.g., directs the software where to find and place the application data files and so on). If you do not supply a value for *configfilename*, the system uses the default (LODESTAR.CFG). For information about the contents of this configuration file, see the *Oracle Utilities Energy Information Platform Configuration Guide*.
-lcfg	*logging configuration filename* Name of an optional logging configuration file that specifies where error and log messages are sent. If you omit this parameter, the application creates a log file named LSTIMEXP.LOG in the LOG directory.

The parameters explained above are only those that apply to *all* LSTIMEXP modes. Additional modes are explained on the following pages.

Import Mode

These parameters are specific to Import Mode only:

Parameter	Description
-i	List file name. The list name does not include the .lst extension. Add quotes(" ") around parameter if the list name contains spaces.
	This argument may be repeated.

Export Mode

These parameters are specific to Export Mode only

Parameter	Description
-xname	Export this list. The exported file name will equal the list name. Special characters (commas, semi-colons, slashes, etc.) will be replaced with an underscore ('_').
	This argument may be repeated.
-wpath	Write (export) files to this directory.

Dump Mode

Dump Mode overrides all other modes.

Parameter	Description
-dump	Export all lists. They are put in the USER directory by default, one list per file (unless -w used). Each file name is LISTNAME.lst.
-wpath	Dump files to this directory. (Note: This directory must exist).

Display Mode

The following parameter is specific to Display Mode only.

Parameter	Description
-aname	Display results of the specified table-column list. This argument may be repeated.

Importing Groups of Lists

The Import Mode of LSTIMEXP is used to import lists one at a time. You can also import groups of lists. To import all the list files from a specific directory, run the following command from the DOS command line:

```
for %1 in (<path>*.lst) do lstimexp -i%1 ...
```

(... is userid, password, and connect string).

Where:

- <path> indicates the path to the directory where the exported list files (*.lst files) are stored.

You must run this command from the "C:\LODESTAR\Bin" directory. If not, you must specify the path to the LSTIMEXP program in the command line. For example, if your rate forms were stored in the C:\LODESTAR\LISTS directory, and the LSTIMEXP program was in the C:\LODESTAR\APPS directory, the command line would be:

```
for %1 in (C:\LODESTAR\LISTS\*.lst) do C:\LODESTAR\APPS\lstimexp -i%1 ...
```

Chapter 9

Reporting

This chapter covers the basics of working with Data Manager and the other Oracle Utilities products to set report options and to create reports and graphs for analysis, including:

- **Report Options**
- **Viewing and Printing Reports**

Report Options

Report options allow users to customize the contents of a report, including the report presentation and output, the print detail level, problem determination options, and the appearance of the Bill Calculation Results section of reports.

> **Note**: Changes to report options as described in this section apply only to the report currently being run.

Users access the Report Options via tabs at the top of the Report Options dialog. Clicking on these tabs allows users to navigate between types of report options, including:

- **General Options**

- **Print Detail Options**

- **Problem Determination Options**

- **Bill Calculation Results Columns Options**

How to set and save report options:

1. Click the **Report Options** button in the input dialog box for the report you're creating. The **Report Options** dialog appears.

2. Make any appropriate changes on the **General**, **Print Detail**, **Problem Determination**, and **Bill Calculation Results Columns** tabs.

   Note: Not all report options are available for all reports. If an option is not available, it is greyed out.

3. Click **OK** to save the changes. To close the Report Options dialog without saving changes, click **Cancel**.

General Options

The General tab allows users to set presentation and output options for a report.

Report Titles

To add optional titles to a report, enter the title in one of the three optional title fields.

Saving Reports to Files

To write the report to a file, check the "Write report directly to File" check box and specify the path and filename for the file. Use the "Browse" button to locate an existing file. To display the report also, check the "Also Display Report" checkbox.

Other Options

- To disable graphing for the report, check the "Disable graphing of data" checkbox.

- To display only summaries for the report, check the "Display summaries only" checkbox.

- To keep the report data for CSV/XML exporting, check the "Keep data" checkbox.

Print Detail Options

The Print Detail tab allow users to specify the level of detail included in both a bill report and transaction record. The information computed and available for reporting is determined by the statements used in the applicable rate form. The **Print Detail** tab enables you to specify how much of that available data is included in the reports and transaction records.

Print Detail Options

Default: This option means the program will use the **Print Detail** setting normally applied to the account (via the Account, Rate Code, Rate Schedule, or Global options specified). Alternately, you can override the usual setting for just this job by selecting one of the following:

None: This option displays effective revenue only.

Normal Detail: This option displays effective revenue, plus any charges assigned to a revenue identifier and any values assigned to a Report Statement in the applicable rate form.

All Detail: This option displays effective revenue, plus revenue identifiers, plus the values associated with the Rules Language Label and Report statements in the rate form.

The table below details how these options apply to specific components of a report and transaction record.

Report Component	None	Normal	All
Customer/Account Detail	X	X	X
Input Values		X	X
LABELed Identifier Values			X
Simple Report Values		X	X
Compound Report Values		X	X

Print Detail Items

To override the **Print Detail Options** setting for specific components of a bill report and transaction record, select the specific options for each component in the **Print Detail Items** section of the dialog. For each report component type, select one of the following:

- **On** - Include the component in the report and transaction record.

- **Off** - Exclude the component from the report and transaction record.

- **Print Detail Option** - Apply the setting specified under **Print Detail Options**. The specific manner in which these settings affect individual report components is detailed in the table above. For example, if you had selected "None" under **Print Detail Options**, and selected **Print Detail Option** here for **Input Values**, the input values would not appear in the report.

Following is a brief description of each of the report components.

Customer/Account Detail. Date activated, billing mode, number of days specified for the eligibility pre- and post-windows.

Input values. This option reports the parameters specified for the bill calculations: bill start and end date; date that the account's meter was scheduled to be read; rate code applied to the account; number of days in bill period, and the bill month.

LABELed Identifier Values. This option reports the any identifier values and text strings specified using a LABEL Statement in the rate form. LABEL statements are typically used to substitute meaningful labels for bill determinant names or other brief and sometimes-cryptic identifiers (e.g., LABEL LF "LOAD FACTOR" displays LOAD FACTOR and its value in the report). They are often used for column headings or report subtitles.

Note: If a report component type is designated to appear in a report, and it is assigned a name using a LABEL Statement, its values will automatically appear in the report, with the new label. In other words, it is not necessary in that case to apply the **LABELED identifier values** option to get the label and value to appear. For example, the applicable rate form might have the statement LABEL $EFFECTIVE_REVENUE "Total Charges". Because Effective Revenue is automatically included in all report types, "Total Charges" will appear, no matter what print details options you choose.

Simple report values. This option reports any values that were assigned to an identifier using a REPORT Statement in the rate form. REPORT statements are typically used to report values of interest that are calculated and/or drawn from the database, such as peak times.

Compound report values. This option reports any values associated with a stem identifier using a REPORT Statement in the rate form.

Problem Determination Options

The Problem Determination tab allows users to specify the level of problem determination detail included in both a bill report and a transaction record.

When problems occur during the processing of a bill, error messages and other information useful in determining the cause of the problem are created. The **Problem Determination tab** option enables you to specify how much of that data is included in the reports and transaction records.

Problem Determination Options

Show All Error Messages: This option reports all error messages that occur while processing the bill.

Show All Input Options: This option reports all input options used in processing the bill.

Show Bill records to Save (BillHistory, CSS, etc). This option includes the Bill History records in the Bill Report. *It is typically only used for testing.* If you turn this option off, the records are still output when you approve a bill, but they are not displayed or printed in the bill report.

Show Rate Schedule Used in Bill Calculation: This option includes the rate schedule used in processing the bill on the bill report.

Bill Calculation Results Columns Options

The Bill Calculation Results Columns tab allows users to specify the labels of the Bill Calculation Results section of a bill report.

The Bill Calculation Results section displays the number of billing units, the distribution of those billing units, the charge rate, and revenue for each revenue identifier used in a rate schedule.

Bill Calculation Results Columns Options

- To change one or more of the Bill Calculation labels, check the **Change Bill Calculation Labels** checkbox and edit the labels as appropriate.

- To omit one or more of the columns from the bill report (except the Revenue column), check the **Change Bill Calculation Labels** checkbox and delete the appropriate label.

Billing Units Label: The label for the Billing Units column. If blank, the column is omitted.

Distribution Label: The label for the Distribution column. If blank, the column is omitted.

Charge Rate Label: The label for the Charge Rate column. If blank, the column is omitted.

Revenue Label: The label for the Revenue column. This column cannot be omitted. If blank, the column label is Revenue.

Viewing and Printing Reports

One of the primary functions of Oracle Utilities applications is to generate reports. Each of the various analysis modules generate reports, and the programs also generate a number of other useful reports as well.

Once a report has been generated, it appears in an open report window on the application desktop. Once in an open report window, you can view and/or print the report. This section describes how to view and print reports generated using Oracle Utilities applications.

Viewing and Searching Reports

You can search for a specific word or words (or numbers) in an open report window using the **Find** option. The Find option (selected from the Edit Menu) allows you to search for a word or words in an open report window. When you select this option (or press **F3**), the Find dialog opens.

Enter the word or words you wish to find and click **OK**. To find the next instance of the word or words with the Find dialog still open, click **Find Next.** To find the previous instance of the word or words with the Find dialog still open, click **Find Previous**.

Once you've entered a word or words in the Find dialog, you can search by using the Find Next or Find Previous options from the Edit menu.

- To search for the next instance of the word or words last entered in the Find dialog, select the **Find Next** (or press **Shift-F3**) option.

- To find the previous instance of the word or words last entered in the Find dialog, select the **Find Previous** (or press **Ctrl-F3**) option.

Moving to a Specific Line in a Report

You can also jump to a specified line number within an open report window by using the Go to option. The Go to option (selected from the Edit Menu) allows you to move to a specific line in an open report window. When you select this option (or press **Ctrl-G**), the Go To tab on the Find dialog opens.

Enter the line number in the report that you wish to move to and click **OK**.

Changing the Appearance of Reports

You can also change the appearance of the text in an open report window using the Font option (from the Edit menu). When you select the Font option, the Font dialog opens.

To change the font in the report window, select a new Font, Style, and Size and click **OK**. The text in the report window will display and print the font/style/size selected.

Printing Reports

You can also print reports using the Print option (from the File menu). When you select the Print option, the Print dialog opens.

To print the report, complete the Print dialog as appropriate:

- **Ignore page breaks:** Check this to ignore the page breaks in the report.

- **Page width in characters:** Enter the desired width of the report.

- **Display line numbers:** Check this to include line numbers on the report.

Once you've completed the dialog, click **OK**. A standard Windows Print dialog will open, allowing to set any desired print options.

Creating Graphs

You can also create graphs from data in open report windows.

How to Create a Graph:

1. Select the Graph option from the View Menu (available only when an open report window is displayed), the Create Graph dialog opens.

2. Select an Account ID you wish to graph from the Select Account ID to Graph box. A list of available rows to graph will appear in the Select Rows to Graph box.

3. Select a row to include on the graph and click Add. The selected row will appear in the Pairs to Graph box. Repeat this step for each Account ID/row pair you wish to include in the graph.

   To remove a pair, select it and click **Remove**.

4. Enter an optional title for the graph in the Title box and click OK. The graph will appear in a window.

5. To change the view of the graph, select from the options in the View menu.

   • The Style option allows you to select from bar graph style (as above) or line graph style.

   • The Background Color option allows you select the background color for the graph (White, Gray, Dark Gray, or Black).

Chapter 10

The Data Manager Analysis Menu

This chapter describes the functions available from the Analysis menu. This includes:

- **Trial Calculations**

- **The Billing History Report**

- **The Special Events Report**

- **Default Billing Options**

Trial Calculations

The Trial Calculation module enables you apply any rate form to any account's historical data over a user-specified date range. You can view and modify any of the billing determinants or rate form statements used in the calculations, and quickly rerun the calculation to see the impact of your changes. Unless otherwise specified in **Advanced** options, this module does not permit data to be saved to the Data Repository. This module has several important applications:

• "debugging" new rate forms before they are used in a production mode.

• demonstrating to a customer the potential impact of switching to an alternative rate, or of modifying their usage patterns on the same rate.

• training new users.

This section explains how to run a trial calculation.

How to Run a Trial Calculation:

1. Select **Analysis-›Trial [Bill] Calculation.**

   The **Trial Calculation** dialog box opens.

2. Select the customer or account for the calculation:

   Select By: Select Account or Customer. Account must be selected to run Single Step. Customer can only be used with the Report option.

   Select: Enter the ID of the account/customer you wish to use in your trial bill.

3. Enter the **Billing Dates** for the calculation by selecting one of the following options:

   • **From bill history:** Click **Select** to use a specific Bill History record.

   • **Compute:** Calculates the bill exactly as the billing engine calculates. This option supports recalculating existing bills.

   • **User specified:** This option only applies to accounts whose bills are based on interval data. Specify the following for any period for which interval data is available for the account. Note that Bill History values will not be prorated to user-specified dates.

     Bill Month: Enter the desired bill month.

     Read Date: Enter the desired read date.

     Bill From: Enter the start date of the trial bill.

     Bill To: Enter the stop date of the trial bill.

4. Select the **Billing Rate Schedule** for the calculation using one of the following options:

   • **Select Rate Schedule:** Click this radio button, then the **Select Rate Schedule** button if you want to select a rate form from the database. The **Select Rate Schedule and Optional Rate Code** dialog box appears. This box gives you access to all current, historical, and trial rate schedules stored in the Oracle Utilities Data Repository. If you select this option, skip to step 5.

   • **Use Applicable Rate Schedules:** Click this radio button if you want to use the rate form that was in effect for the account during the bill month you specified above. If you select this option, skip to step 6.

5. *Optional.* Select the rate schedule to use for the calculation on the **Select Rate Schedule and Optional Rate Code** dialog box.

   • Select an operating company, jurisdiction, and rate schedule.

   • Check the desired rate schedule **Type** (**Current/Historical** and/or **Trial**). A list of all of the versions of the rate schedule that meet your criteria appears in the **Rate Form Version** selection box.

- Highlight one rate form version in the **Rate Form Version** selection box. The language script for that rate form appears in the box below, so that you can determine whether or not it's the desired version.

- **Select Rate Code:** The program requires a rate code to determine how to price out the billing determinants.

  You can select a rate code from the **From Rate Schedule Rate Code** list. If you do not select a rate code, the program will use the customer's current rate code to determine the correct pricing.

- Click **OK**. You are back at the **Trial Bill Calculation** dialog box. Notice that the selected rate schedule version appears under **Billing Rate Schedule**.

6. *Optional.* Click **Options**.

   The **Default Options** dialog box opens. See **Default Options** in **Chapter Two** for more information about setting Default Options.

   Set the options as appropriate, and click **OK**.

7. *Optional.* Click **Advanced**.

   The **Advanced Trial Bill Calculation Options** dialog box opens.

   Set the options as desired then click **OK** to close this dialog.

   - **INTDLOAD...ENERGY loads all energy used:** This options loads energy from cuts that extend past the bill stop date and time. The default is to only load energy used within the bill period.

   - **Save Options:** This option allows you to specify if and how results are saved to the database. There are four options available:

     - **Do not enable saves of any kind:** With this option selected, Rules Language SAVEs do not save and no CIS transactions record are written to the CIS file. This is the option you'll choose most often when testing rate forms and when using Trial Bill.

     - **Enable user approve/reject of saves**: When this option is selected, you can either **Approve** or **Reject** each set of results. If you approve an account (or an account and all its related accounts), the bill will be rerun with Automatic Approval. This second run will generate the same results, and will create database and CIS records.

     - **Automatically save/approve each page if it is OK:** If you select this option, then data from each non-error page of an account is automatically written, regardless of the errors in other pages of the account or other related accounts.

   - **Use cut dates nearest the supplied dates:** If the account uses interval data and you want to use the best cut dates, check this option. Otherwise, to subset the interval data based on the supplied dates, uncheck this option.

   - **Do not Display Graph for Interval Data:** If this checkbox is checked, the lower graph window does not open. The default for this option is unchecked.

   - **Do not use current Bill History determinant values:** If the account uses interval data, has already been billed, and you want to check the computation without using the saved bill determinants, check this option. Otherwise the current Bill History values will be used, and the NOVALUE statements may not execute.

   - **Do not use Account/Customer selection:** This option runs the calculation in the same manner as the RUNRS.EXE program (see the *Oracle Utilities Energy Information Platform Installation and Configuration Guide*). When **Report** or **Single Step** is pressed (see below) the Account/Customer selection will be ignored and the rate schedule will be run just as if it was run from RUNRS.

8. Choose one of the following options to view the calculations:

    •   **Report:** Displays the results of the calculations in a report window. Go to the section **How to View the Bill Calculation Report** on the next page.

    •   **Single Step:** Lets you execute one rate form statement at a time. See **How to run the Single Step Analysis**, later in this chapter.

How to View the Bill Calculation Report

1. On the **Trial Calculation** dialog, click the **Report** button.

    A progress indicator displays until the calculations are complete. Then, the Bill Calculation Report appears in a window.

2. Review the report to make sure that the data processed as expected.

    If you want to override your default report options for this report, output the bill report to a file, or add titles to the report, click **Report Options**. The **Report Options** dialog opens.

3. To close the report, select **File-›Close**.

How to run the Single Step Analysis

The Single Step Analysis feature lets you execute one rate form statement at a time so that you can see the changes to identifier values.

1. On the **Trial Calculation** dialog, click the **Single Step** button.

    The windows for the **Single Step** module appear.

    The module consists of two (or three) windows. The top left window displays the statements that make up the rate form. The next statement to be executed is highlighted (comments are skipped). The top right window displays the identifiers in the rate form and their values. The lower window is a graphical display of the interval data. This window appears only when an interval data identifier is highlighted in the top right window.

    You can use the **Find**, **Find Next**, **Find Previous**, and **Go to** options from the Edit menu to search in either the top left or top right windows. To do so, select the starting point for the search in the appropriate window, and select the desired options from the **Edit** menu.

2. When the rate form is first displayed, the first executable statement is highlighted. To execute the statement, select **Single-Step-›Step**, or press **F8**. You can execute each statement this way.

3. If you want to execute a portion of the rate form up to a particular statement, highlight the target statement and select **Single-Step-›Run to Selection**, or press **F4**. This allows you to avoid having to single-step through every statement prior to the one of interest.

4. To run all statements to completion, select **Single-Step-›Run** or press **F5**. Note that when running a rate form, processing stops at each breakpoint encountered. To stop executing the rate form, select **Single-Step-›Stop** or press **F12**.

5. To restart executing the rate form, select **Single-Step-›Restart** or press **F10**. Note that all warning and informational messages set before restarting will be cleared. Also, any values for identifiers calculated before restarting will be cleared.

6. After you have run the statements, you can view the resulting bill report by selecting **Single-Step-›Display Report**, or pressing **F6**.

    The bill report appears (it has the same format as other bill reports in the system). You can export or print the report using options from the File menu. You can also search for selected text or copy all or a selected portion to the clipboard using options from the Edit menu.

7. To close the report, select **File-›Close**.

Single Step Module Advanced Options

The Single Step module also provides advanced options when executing rate forms. These include **Changing Identifiers Values**, **Setting Breakpoints**, and **Selecting Identifiers to Display**.

Changing Identifier Values: To change the value of an identifier before you generate the bill report, double-click on the identifier in the right window. The **Customer Bill Modification - Edit Id** dialog box opens with the current value in an edit box. Change the value as appropriate, and click **OK** to save the value in the executing rate schedule.

> **Note:** You must enter the same value type - Integer, Float, etc. - as the current value. If the identifier is an interval data handle, the value displayed contains its total, maximum, pulse multiplier, and pulse offset. This value is not modifiable.

Setting Breakpoints: You can specify points within the rate form at which you want execution of the rate to stop or break. These are called breakpoints. To set breakpoints within the rate form, select the line at which you wish the execution to break and select **Single-Step-›Insert/Remove Breakpoint** or press **F9**. This inserts a breakpoint ("=>") at the selected line. When the rate form is executed, processing stops at each breakpoint. To remove a breakpoint, select a line that contains a breakpoint and select **Single-Step-›Insert/Remove Breakpoint** or press **F9**. Breakpoints inserted into a rate form are stored in the Oracle Utilities Data Repository until specifically cleared.

You can also create "conditional" breakpoints. These are breakpoints related to a specific identifier in the rate form which can be set to stop processing when the value of a specified identifier changes or when the value equals a user-specified value. To set a conditional breakpoint for an identifier, double-click the identifier and click **Breakpoint** on the **Customer Bill Modification - Edit Id** dialog. The **Customer Bill Modification - Breakpoint** dialog opens.

This dialog allows you to set the conditions for the breakpoint in one of two ways:

- To specify that rate form execution breaks when the value of the identifier changes, select "**Break when value changes**" in the Breakpoint box on the dialog and click **OK**.

- To specify that rate form execution breaks when the identifier reaches a specified value, select select "**Break when value equals**" in the Breakpoint box on the dialog, select the type of the identifier from the **Type** drop-down list, enter the specified value in the **Value** field, and click **OK**.

Selecting Identifiers to Display: Normally the top right window displays all identifiers used in the rate form, but in some cases it may be preferable to view only selected identifiers, as this can help users more easily track the values of specific identifiers while the rate form executes. To select an identifier for display in the top right window, double-click the identifier, check the **Add identifier to Selected list** checkbox on the **Customer Bill Modification - Edit Id** dialog, and click **OK**. The identifier will appear in the top right window when the user selects the **Show Selected Identifiers** option from the Single-Step menu.

Graphing Options

The Trial Calculation Single Step Analysis graphing tool provides the following features:

Zoom View: The Zoom View allows users to zoom in on the graph by dragging the mouse over a portion of the graph. To return it to it's original size, select the Undo Zoom option on the Graphing Options menu (see below).

Graphing Options: The Graphing Options menu provides access to several other graphing options.

To open the Graphing Options menu, right-click on the graph. This menu provides the following options:

- **Viewing Style** opens a menu of options that change the appearance of the graph. Using these options you can make the graph color or monochrome. You can also select **Bitmap/ Gradient** to add a predefined style to the graph. A variety of predefined styles are listed under the Bitmap/Gradient item on the menu.

- **Border Style** opens a menu of options that change the borders of the graph. Using these options you can add or remove a border, line, shadow, or inset.

- **Font Style** opens a menu of options for the size of the graph's font.

- **Show Legend** allows you to turn off and on the graph's legend.

- **Numeric Precision** opens a menu of options that allow you to change the number of decimal points displayed in the graph's data. Using these options you can display the data with 0 to 3 decimal places.

- **Plotting Method** opens a menu of options that allow you to change the appearance of the graph's data. Using these options you can display the data as points, a line, bars, sticks, or spline. You can also display the data as points combined with other options, for example, a line with points.

- **Data Shadows** opens a menu of options that affect the shadow of the data. You can add or remove a shadow or 3D effect.

- **Grid Options** opens a menu of options that alter the display of the X axis and Y axis. Using these options you can place the grid in front of the graph, extend the Y axis tick marks, display or hide grid lines, and change the style of the lines.

- **Include Data Labels** hides or displays the data labels.

- **Mark Data Points** hides or displays the data points.

- **Undo Zoom** returns the graph to its original size after you have zoomed in by dragging the mouse over a portion of the graph.

- **Maximize** displays the graph at full screen size. To return it to it's original size, either press the Esc key, or click in the blue bar at the top of the graph.

- **Customization Dialog** opens the Customization dialog box.

- **Export Dialog** opens the Export Dialog box.

Customization Dialog: To open the Customization Dialog box, right-click on the graph and select **Customization Dialog**. The Customization Dialog box can be used to change the settings of the graph and to export or maximize the graph. Many of the options in this box are also available in the menu that appears when you right-click on the graph. The dialog box contains the following tabs:

General Tab: On the General tab you can change the following settings for the graph:

- **Main Title** is a text box in which you can add or edit the graph's title.

- **Sub Title** is a text box in which you can add or edit the graph's subtitle.

- **Border Style** allows you to change the border style of the graph.

- **Viewing Style** allows you to change the viewing style for the graph.

- **Font Size** allows you to change the size of the graph's fonts.

- **Numeric Precision** allows you to choose from 0 to 3 decimal places for the graph's data.

- **Grid Lines** allows you to change the display settings of the graph's grid lines.

To apply your changes select **Apply**. To close the dialog box without applying your change select **Cancel**. To apply your changes and close the dialog box select **OK**. You can also select **Maximize** to make the graph full screen size. (To return the graph to it's original size press the Esc key, or click in the top bar). Selecting Export will open the **Export Dialog Box**.

Plot Tab: On the Plot tab you can change the following settings for the graph:

- **Axes**

- **Plot Style** allows you to choose the style of plot points for the graph.

- **Comparison Plot Style** allows you to choose the style of plot points for the comparison graph.

- **3D** allows you to choose the 3D effects for the plot style

- **Mark Data Points** allows you to mark or unmark the data points.

To apply your changes select **Apply**. To close the dialog box without applying your change select **Cancel**. To apply your changes and close the dialog box select **OK**. You can also select **Maximize** to make the graph full screen size. (To return the graph to it's original size press the Esc key, or click in the top bar). Selecting Export will open the **Export Dialog Box**.

Subsets Tab: On the Subsets tab you can change the following settings for the graph:

- **Subsets to Graph** allows you to scroll through subsets of the graph.

If more than one interval data cut is graphed, you can select the cuts individually and make different changes to each. The data cuts are listed in the text field on the tab.

To apply your changes select **Apply**. To close the dialog box without applying your change select **Cancel**. To apply your changes and close the dialog box select **OK**. You can also select **Maximize** to make the graph full screen size. (To return the graph to it's original size press the Esc key, or click in the top bar). Selecting Export will open the **Export Dialog Box**.

Axis Tab: On the Axis tab you can change the following settings for the X Axis and Y Axis:

- **Linear** or **Log** allows you to set the graph's tick marks in either linear or log values.

- **Maximum** and **Minimum** allows you to change the minimum and/or maximum values for the axes.

To apply your changes select **Apply**. To close the dialog box without applying your change select **Cancel**. To apply your changes and close the dialog box select **OK**. You can also select **Maximize** to make the graph full screen size. (To return the graph to it's original size press the Esc key, or click in the top bar). Selecting Export will open the **Export Dialog Box**.

Font Tab: On the Font tab you can change the following settings for the graph's fonts:

- **Main Title** allows you to choose the font for the graph's main title. You can also choose to make the title bold, italic, and/or underlined.

- **Sub-Title** allows you to choose the font for the graph's main sub-title. You can also choose to make the subtitle bold, italic, and/or underlined.

- **Subset / Point / Axis Labels** allows you to choose the font for the graph's subsets, points and axis labels. You can also choose to make those items bold, italic, and/or underlined.

To apply your changes select **Apply**. To close the dialog box without applying your change select **Cancel**. To apply your changes and close the dialog box select **OK**. You can also select **Maximize** to make the graph full screen size. (To return the graph to it's original size press the Esc key, or click in the top bar). Selecting Export will open the **Export Dialog Box**.

Color Tab: On the Color tab you can change the colors of the following parts of the graph:

- **Desk Foreground**

- **Desk Background**

- **Shadow Color**

- **Graph Foreground**

- **Graph Background**

- **Table Foreground**

- **Table Background**

You can also add a bitmap image or a gradient to the graph by selecting **Bitmap/Gradient Styles** in the QuickStyles area of the tab. This area also lists an assortment of predefined bitmap and gradient styles that can be applied to the graph.

To apply your changes select **Apply**. To close the dialog box without applying your change select **Cancel**. To apply your changes and close the dialog box select **OK**. You can also select **Maximize** to make the graph full screen size. (To return the graph to it's original size press the Esc key, or click in the top bar). Selecting Export will open the **Export Dialog Box**.

Style Tab: On the Style tab you can change the following settings for the graph's lines:

- **Color** allows you to select a color for the graph's lines.

- **Point Type** allows you to select a style for the graphs points.

- **Line Type** allows you to choose the type of line for the graph.

If more than one interval data cut is graphed, you can select the cuts individually and make different changes to each. The data cuts are listed in the text field on the Style tab.

To apply your changes select **Apply**. To close the dialog box without applying your change select **Cancel**. To apply your changes and close the dialog box select **OK**. You can also select **Maximize** to make the graph full screen size. (To return the graph to it's original size press the Esc key, or click in the top bar). Selecting Export will open the **Export Dialog Box**.

Export Dialog: To open the Export Dialog box, right-click on the graph and select **Export Dialog**.

To Export a graph, use the following procedure:

1. In the Export area of the box, choose the type of file you would like to export. You can choose from EMF, WMF, BMP, JPG, PNG or Text/Data.

2. In the Export Destination are of the box, select the destination of the exported file. You can choose from ClipBoard, File or Printer.

3. In the Export Size area of the box, choose the unit of measurement of the file, and then set the size. You can choose from Millimeters, Inches, or Points. BMP, JPG and PNG files will default to Pixels. You can set the width and length of the file. You can also set the DPI for the file. Select Large Font if you want the file to have a larger font.

4. Select **Export** to export the file, or **Cancel** to close the dialog box.

The Billing History Report

The Billing History Report is useful for examining and comparing bill determinant values and other billing information for one or more accounts over a user-specified number of bill periods. This report also allows you to produce a summary report which totals the data for all accounts.

How to create a Billing History Report:

1. Select **Analysis-›Billing History**.

   The **Billing History Report Input** dialog box opens.

2. Select either **Account** or **Customer** in the **Select By** box.

3. **Select** the accounts or customers of interest using one of the following options:

   • **ID:** Type the ID of the account or customer for the report.

   • **List:** Select a list for the report. For example, you might have a list of the accounts that you are responsible for. If the contents of the list may have changed since the last time that the query associated with it was run, check the box for **Refresh list before using**. This option updates the list for this job and saves the new version of the list to the database, replacing the old one.

   • **File:** Select a file containing a list of customer/account IDs (*.IDS), a list file (*.lst), an account query file (*.qra), or a customer query file (*.qrc).

4. Enter the beginning and end of the period for the report in the **Test Period From/To** box using the date format specified via **Tools-›Options**.

5. *Optional.* Enter a name for the analysis in the **Analysis Name** field, to appear in the title bar of the report window and on the printed report.

6. Enter the level of detail to be included in the report. You can check one or both of the following options, but you must check at least one:

   • **Individual Account Report:** The report displays a page of information for each account in the list.

   • **Grand Total Summary:** The report displays the total data for all accounts in the list. This option is **always** checked.

7. *Optional.* **Add Override Codes:** If this checkbox is checked, the report includes the override codes in effect for each account and bill period in the report. This option requires the **Individual Account Report** option be selected.

8. Select the number of decimal places to display from the **Bill Determinants Displayed to n Decimal Places** drop-down list. If the number in the database has more decimal places than the number selected, the number displayed on the report is rounded off the number of decimals selected. If the number in the database has less decimal places than the number selected, the number displayed on the report will have zeros appended to the end to display the number of decimals selected. The default setting is 1.

9. If you want to change the report options, click **Report Options**. See **Report Options** for more information.

10. Click **OK** to run the report.

    A progress indicator is shown until the calculations are complete. The requested information then appears in the report window.

11. To close the report, select **File-›Close**.

The Special Events Report

The Special Events Report summarizes all of the overrides that have been applied to an account over a user-specified date range.

How to create a Special Events Report:

1. Select **Analysis-›Special Events.**

   The **Special Events Report Input** dialog box opens.

2. Select either **Account** or **Customer** in the **Select By** box.

3. **Select** the accounts or customers of interest using one of the following options:

   • **ID:** Type the ID of the account or customer for the report.

   • **List:** Select a list for the report. For example, you might have a list of the accounts that you are responsible for. If the contents of the list may have changed since the last time that the query associated with it was run, check the box for **Refresh list before using**. This option updates the list for this job and saves the new version of the list to the database, replacing the old one.

   • **All:** Oracle Utilities Billing Component applies the report to all accounts

   • **File:** Select a file containing a list of customer/account IDs (*.IDS), a list file (*.lst), an account query file (*.qra), or a customer query file (*.qrc).

4. Type the start date and end date for the period you wish to report in the **Special Events Period From/To** box. Use the MM/DD/YYYY date format.

5. Select one of the following **Event Codes**:

   • **All Codes:** Include all overrides that were applied to the specified accounts or customers during the reporting period.

   • **Codes List:** Include just selected overrides. When you select this button, you can then highlight any and all desired codes in the list box to the right. To select more than one code, hold down the CTRL key and select each code to be included. You can select up to 64 specific event codes. This box displays all of the Account Override codes that are currently stored in the Override Table in the Oracle Utilities Database.

6. If you want to change your report options, click **Report Options**. See **Report Options** for more information.

7. Click **OK** to run the report.

   A progress indicator is shown until the calculations are complete. The requested information appears in the report window.

8. To close the report, select **File-›Close**.

Default Billing Options

The **Default Billing Options** dialog box lets you specify default global options that apply to all accounts in the system. These options apply to all billing modules and to all Oracle Utilities Billing Component users (unlike the user-specific **Tools-›Options** preferences described in **Chapter Two** of the *Oracle Utilities Billing Component User's Guide*). However, you can override any of these settings for specific rate schedules, rate codes, or accounts in the Oracle Utilities Data Repository, or for individual jobs. Available Billing options include:

- **Billing Options**

- **Billing Rules**

- **Report Options**

- **Summary Options**

- **Multiple Bill History Records**

- **Check Options**

How to set a global billing mode:

1. Select **CIS Billing (or Analysis)-›Billing Options**.

    The **Default Billing Options** dialog box appears.

2. Set your options on each tab as desired.

3. When you have completed the tabs as desired, you have the following choices for applying the options:

    - **OK:** Saves the new settings as your defaults, replacing the previous settings.

    - **Apply:** The new settings apply to all of your work for remainder of your current session. The settings will revert to the original defaults when you exit the application.

Billing Options

The Billing Options tab specifies a number of default values and preferences used when performing billing calculations.

Default Billing Mode: Use this option to specify the mode that Oracle Utilities Billing Component applies to accounts that have not otherwise been assigned a billing mode. If you select **Automatic Billing**, Oracle Utilities Billing Component calculates the bills, updates the Oracle Utilities Data Repository, and issues transaction records—all without review and approval by a user. If you select **Approval Required**, Oracle Utilities Billing Component puts the results of its bill calculations in a bill report which you must approve before the software issues any transaction records or updates the bill history record in the Oracle Utilities Data Repository).

> **Note:** Any billing mode flags set for individual rate schedules, rate codes, or accounts in the Oracle Utilities Data Repository records automatically override this setting.

Default Eligibility Pre- and Post-Windows: Specify the number of days before an account's scheduled read date (the Pre-Window) and the number of days after an account's scheduled read date (the Post-Window) that defines the "eligibility" window. You can supply any value from 0 to 28 for either. In the **Automatic Billing** and **Approval Required** modes, Oracle Utilities Billing Component uses this window to identify "eligible" accounts. That is, if today's date falls within this window, Oracle Utilities Billing Component begins scanning for the data required to bill the account and continues scanning until the data is available or the window for the account passes today.

> **Note:** If you set the Post Window to 0, the data must be available by the end of the read date, or it is considered missing. You can override the eligibility window setting for individual accounts and recorder types.

> **Note:** The Default Pre- and Post-Windows should be set the same or larger than the largest Pre- and Post-Window for any single account.

Special Event Pre Window: Specify the number of days prior to the billing date within which a Billing Analyst must approve an account's Special Events information in order for the account to be billed. You can enter any value from 0 to 28.

This feature is designed to ensure that all Special Events are included in a bill. For example, suppose that the Billing Analyst approved an account's Special Event information on schedule. However, for some reason the account's meter could not be read until seven days after the scheduled date. That would mean there would be seven days during which a Special Event could occur but not be included in the current bill. However, if you set the Special Event Pre Window to some number less than 7, Oracle Utilities Billing Component would flag the account as "ineligible" and the billing analyst would have to update the special events information.

Automatic Repeat Frequency: The default amount of time between a completed Automatic Billing cycle and the next. Set this number in minutes, from 0 (do not repeat) to 1440 (24 hours later).

> **Note**: The setting here does not actually define the repeat frequency; it simply specifies the default. The repeat frequency is set on the Automatic BIlling Parameters dialog box.

Billing Rules

The Billing Rules tab specifies a number of default rules and settings used when performing billing calculations.

Effective Date is: The date used to determine Rate Form versions, factor values and the default for determining the season. There are four options:

- **Bill Stop**
- **Bill Start**
- **1st of Bill Month**
- **Scheduled Read Date**

See **General Billing Rules** on page 4-4 of the *Oracle Utilities Billing Component Installation and Configuration Guide* for more information.

Allow Saves without SAVE TO CIS statement: Normally output records are created as part of a bill calculation. These records are used with non-Oracle Utilities Billing Component systems such as printing, accounts receivable, and so on. Oracle Utilities Billing Component verifies that at least one output record has been created before saving any data to the Oracle Utilities Data Repository. Check this box to turn this verification off, then you can save to the database without creating an output record.

You must Approve a bill to save it to the Oracle Utilities Data Repository. When you Approve the bill, data is saved and the Bill Time (BILLTIME) column in the Bill History is set.

Retrieve all Account Determinants: Normally, to improve performance, Oracle Utilities Billing Component loads only the determinants that are explicitly used in the Rate Schedule. However, if you are using indirection (the @ operator) to retrieve determinant values you need to turn this option on. Oracle Utilities Billing Component then loads all determinants in the account's Bill History records.

Use 2.10 and before Account Note generation in Automatic Billing and Approval Required: Check this checkbox to generate Account Notes/Work Queue Items in Automatic and Approval Required billing as was in version 2.10 and earlier versions of Oracle Utilities Billing Component. The primary difference between pre-2.10 and post-2.10 is that for 2.10 and earlier, Account Notes/Work Queue Items are generated on the day after the scheduled read date, while for post-2.10 they are generated the day after the end of the postwindow from the scheduled read date. See **Billing Account Note/Work Queue Item Generation** on page 4-11 in the *Oracle Utilities Billing Component Installation and Configuration Guide* for more information.

> **Note**: When using Work Queues, exceptions are written to the Work Queue Open Item table instead of the Account Notes table. To enable the Work Queues application, include the **USE_WORK_Q_FOR_ACCOUNT_NOTES = 1** parameter in the LODESTAR.CFG file.

Report Options

The Report Options tab specifies a number of default values used with printing reports.

Print Detail: This option determines the level of detail included in the bill reports, transaction records, and bill faxes or E-mail. Select one of the following:

- **None:** Effective revenue only.

- **Normal:** Effective revenue, plus any charges assigned to a revenue identifier and any values assigned to a Report Statement in the applicable rate form.

- **All:** Effective revenue, plus revenue identifiers, plus the values associated with the Rules Language Label and Report statements in the rate form.

   Note: You can override this setting for selected accounts, rate codes, or rate schedules using the Billing Mode Flags in the corresponding records in the Oracle Utilities Data Repository.

Show Bill History Problems/Resolutions in Bill Reports: If checked, this option specifies that any problems or resolutions that a Billing Analyst has entered into the Bill History Problem record for the current bill period appear near the top of the bill report (in the header section, just after the customer and account information). This option applies to all bill reports produced by Oracle Utilities Billing Component.

Summary Options

The Summary Options tab specifies how summary customers and accounts are processed. See **Summary Bill Calculation** on page 4-20 in the *Oracle Utilities Billing Component Installation and Configuration Guide* for more information.

Compute Multiple Rates per Account: This option specifies whether all effective rates, or only the most recent rate is used for billing. The options available include:

- **No:** Oracle Utilities Billing Component calculates each account's bill using just the most recent rate specified in the Rate Code History Table for that account.

- **Throughout Bill Period:** Compute multiple rates using all rates in effect for that account throughout the Bill Period, as specified in the Account Rate Code History Table. When computing multiple rates, Oracle Utilities Billing Component executes the rates in reverse order starting with the record with the most recent Start Time.

   Note: If you use either of the first two options, be sure that all inactive rate codes have a stop time in the Account Rate Code History Table; otherwise they will be included in the calculations.

- **On Effective Date:** Compute multiple rates using all rates in effect for that account on the Effective Date, as specified in the Account Rate Code History Table.

Enable Customer SUMMARY Rate Schedules: If this is checked, Oracle Utilities Billing Component can process Summary rate schedules.

Multiple Bill History Records

The Multiple Bill History Records tab specifies how customers/accounts with multiple Bill History records per bill period and/or read date are handled. See **Multiple Bill History Records per Bill Period** on page 4-29 in the *Oracle Utilities Billing Component Installation and Configuration Guide* for more information.

Allow Multiple Bill History Records per Bill Period/Read Date: Normally, Oracle Utilities Billing Component uses the billing cycle's scheduled meter read dates to match an account's Bill History records with the correct bill periods. However, this may not suffice in all cases, either because the metered data does not come in from the field on a reliable schedule, or because the metering and billing schedule at your company is more complex. This tab enables you to choose the action that Oracle Utilities Billing Component takes when it encounters two or more account Bill History records associated with the same read date. The option you choose depends upon the metering and billing policies of your company. (This setting applies to Automatic Billing, Approval Required, and Current/Final Bill.)

- **No:** Oracle Utilities Billing Component rejects all Bill History records for the specified account that have the same read date. It does not process the bills, and issues an error message instead.

- **Bill Individually - Allow Out of Order Bill Periods:** This option is designed primarily for situations in which metered data comes in from the field irregularly—for example, readings for bill periods arrive out of sequence, and/or scheduled read dates are missed altogether. If you select this option, Oracle Utilities Billing Component treats any account Bill History records that have the same read date as valid records, and processes them as separate and complete bills. It retrieves and bills the previously unbilled Bill History records for the account (Bill Time value equals NULL), in sequence, from oldest to most recent. To determine the bill period that the Bill History record actually belongs to, it looks at the Bill History record's Start Date/Time for the metered data and processes the bill accordingly. If the applicable rate form includes any SAVE statements, the computed values are saved to the Bill History record for the correct bill period.

- **Bill Individually - Monthly Merge Historical Values:** This option is designed primarily for companies whose bill calculations require determinant values for sub-periods within the current bill period (e.g., weekly kWh), as well as values for entire historical bill periods (e.g., maximum kW for the past 12 bill months). In this case, multiple sub-period records (e.g., records with different start- and stop-dates) may be associated with a single scheduled read date. If you select this option, Oracle Utilities Billing Component assumes that multiple bill history records with the same read date for one account are in fact sub-period records. To perform the calculations (depending upon the rate schedule), Oracle Utilities Billing Component first aggregates historical sub-period values and start- and stop-dates to find values for entire historical bill periods. It then bills each sub-period for the bill period (same scheduled read date), from oldest through most recent.

- **Aggregate to Read Date and Bill as One:** This option is designed primarily for companies that take multiple meter readings for an account within a single bill period (i.e., partial reads), but bills the account using values for the entire bill period. In this case, two or more Bill History records are allowed per read date. If you select this option, Oracle Utilities Billing Component aggregates all determinant values and dates to the read date (in other words, records with the same read date are combined into one). If the applicable rate form includes any SAVE statements for the sub-periods, it saves them to the latest record with the current read date.

• **Aggregate to Read Date and Bill as One (Oracle Utilities Rate Management Style):** This option is used only for testing, and should not be selected for billing in a production mode. It is similar to the option described above, except that the process is oriented to bill months. That is, two or more Bill History records with the same bill month are combined into one record for the entire bill month.

Check Options

The Check Options specifies how certain checks are performed before processing calculations. In some systems, some of these checks are unnecessary. Use these options to turn off the unneeded checks, to improve performance.

Do not use Interval Data: Turn off all support for Interval Data during calculations.

Do not use Interval Data to Compute Start/Stop: Don't use interval data cuts to compute the bill start and stop, and do not verify that all the account's interval data is ready. If neither Interval Data check is turned off and Multiple Bill History Records are allowed, only the verification is performed.

Do not check for Interval Data gaps: Turn off checking for gaps between cuts. The rate schedule should then check for missing data (status code '9') to validate the data. If this is not checked, a Warning will be reported if there are gaps between the interval data cuts.

Do not check Account Notes: Don't check for Account Notes that stop billing in Automatic Billing or Approval Required. Do not write Account Notes from Automatic Billing or Approval Required.

Do not check Override Ready: Don't check that Special Events or Overrides are Ready.

Do not check Account's Meter Values: Don't verify that account's scalar data is in the Meter Value Table.

Do not check Rate Code Flags: Do not use the BILLINGMODEFLAG, PRINTDETAIL or FULLDAYBILL values in the RATECODE Table. If this is checked, it also turns off the same flags in the Rate Forms (RATEFORM) Table.

Do not check Rate Schedule Flags: Do not use the BILLINGMODEFLAG, PRINTDETAIL or FULLDAYBILL values in the RATEFORM Table, independent of the RATECODE Table.

Do not display "Reason for Change" dialog when updating the Bill History [Value] records: Don't display the Reason for Change dialog after updating Bill History or Bill History Value records.

Do not check Bill Determinant Use: Don't check the Bill Determinants' Use table.

Use MDM schema: When this option is checked, Oracle Utilities Billing Component checks the Oracle Utilities Meter Data Management (MDM) tables, specifically the Meter Data Channel Cut table, for interval data when billing accounts.

Checking this option also automatically checks the following other options:

• Do not check for Interval Data Gaps

• Do not check Account's Meter Values

It also disables the following options:

• Do not use Interval Data

• Do not use Interval Data to compute Start/Stop

Use MDM check data: When this option is checked, usage in the Oracle Utilities Meter Data Management tables is validated when Oracle Utilities Billing Component checks for data.

Each of these checks requires at least one query to a database so turning one off eliminates its database query and saves time. The most time consuming check is using Interval Data to Compute Start/Stop, followed by checks for Account Notes, Account's Meter Values, Override Ready and Bill Determinant Use. To determine what you can turn off, look at the rate schedules. If no rate schedule, rider or contract uses Overrides, for example, turn off the Override Ready check. Likewise, if there your system doesn't use interval data, turn off the Interval Data checks.

Appendix A

Oracle Utilities Data Repository Schema Import File Format

This appendix describes the format of the input files required by the Oracle Utilities import utilities, based on the base Oracle Utilities Data Repository schema (LSDB 5.31.002), including:

- **Record Formats**

  - **A Note Regarding Dependent Records**

- **Oracle Utilities Import Format (*.imp)**

- **Oracle Utilities XML Import Format (*.xml)**

Important Note

Any client-specific customizations to this base schema, whether implemented by the client or Oracle, may alter one or more of the definitions provided below.

Record Formats

Import files can be in one of two formats:

- **Oracle Utilities Import Format (*.imp)**
- **Oracle Utilities XML Import Format (*.xml)**

A Note Regarding Dependent Records

Dependent records can only be added to the database after all of their parent records have been added. If a dependent record and one or more of its parent records are loaded from the same file, the parent records must appear before the dependent record in the file.

Oracle Utilities Import Format (*.imp)

The Oracle Utilities Import Format is a comma-delimited format in which each column value for a record must appear on a single line, in correct order, separated by commas. The following rules provide specific details concerning the input file format:

- Each record must begin on a new line (though text wrapping may occur).

- Comments may be placed on a line by themselves by beginning the line with an asterisk (*) character. Blank lines are also allowed.

- The first value of each record must be the identifying mnemonic for the record type. The table layouts (see **How to view or print database table layouts:** on page A-3) contain the mnemonic for each table.

- Each value may optionally be enclosed by double-quotation marks. If a value is enclosed in double quotation marks, then all characters between the quotation marks will be considered part of the value, including any leading or trailing blanks.

- If a value contains a comma (,) character, or any leading or trailing blank characters, then it **must** be enclosed in double-quotation marks.

- Null values are represented by no value. Trailing null values must be preceded by commas.

Example:

*The following lines contain the Customer, Account Status, Jurisdiction, Operating Company, Revenue Code, and Account information.

```
CUST,"800001","Paul Pham",,"HOME","OFFICE1","E","E"
ACCTSTAT,"A","Excellent"
JURIS,"SF","Smithfield"
OPCO,"GECO","Generic Electric Company","123 Mars Planet
Ave","Universe","GK","12345-4321","991-123-4567"
REVCODE,"33","Commercial (Light)"
ACCT,"800001","800001","01/01/1993 00:00:00",,"GECO","SF","Paul
Sauvageau",,"A","33","2","3","N",5,5
```

Each table in the Oracle Utilities Data Repository has its own record format, based on the specific columns in the table. The PLIMPORT command line program can be used to view or output a layout of each table that defines its record format.

The -t switch on the PLIMPORT program allows users to view the layout of a table (or tables), or to create a text-only output file that contains the table layout. See **Importing Customer Data** on page 8-4 of the *Oracle Utilities Energy Information Platform Configuration Guide* for more information about using the PLIMPORT program.

> **Note**: Using the -t switch overrides the other parameters. PLIMPORT can either import data or display tables in the database, but not both in the same command line. In other words, if you use the -t switch in the command line, PLIMPORT will NOT import data.

How to view or print database table layouts:

1. Open a Command Prompt (DOS) Window. Select **Start-›Run**, and type 'cmd' in the field that appears.

2. Change to the directory in which your Oracle Utilities executables are stored, typically \LODESTAR\BIN.

3. To view the database layout, type the following command at the prompt:

```
PLIMPORT -d dsn -t TABLENAME
```

where:

- The **-d** switch is identical to the switch described in **Importing Customer Data** on page 8-4 of the *Oracle Utilities Energy Information Platform Configuration Guide*.

- The **-t** switch specifies the table you wish to view. To view the entire database, enter **-t** without the tablename parameter.

4. To save the table layouts to a text file, type the following command at the prompt:

```
PLIMPORT -d dsn -t TABLENAME > outputfile.txt
```

where:

- **outputfile.txt** is name of the output file containing the table layouts.

PLIMPORT writes the text-only output file containing the layout of the specified table(s) to the current directory, which can be viewed and printed using Notepad or another text editor.

For example, to save the layout of the Account Table in the "lodestar" database to a file named acctpict.txt, type the following

```
PLIMPORT -d lodestar -t ACCOUNT > acctpict.txt
```

The output might look like the following:

Column Name	Data Type	Data Length	Req'd?	Unique	Identity	Foreign Key
MNEMONIC	"ACCT"	N/A	X			
CUSTOMERID	character	64 (max)	X			1 - CUSTOMER
ACCOUNTID	character	64 (max)	X	1	X	
STARTTIME	datetime	N/A	X			
STOPTIME	datetime	N/A				
OPCOCODE	character	64 (max)				2 - OPERATINGCOMPANY
JURISCODE	character	64 (max)				3 - JURISDICTION
NAME	character	64(max)				
SIC	character	64 (max)				4 - SIC
ACCOUNTSTATUSCODE	character	64 (max)				5 - ACCOUNTSTATUS
REVENUECODE	character	64 (max)				6 - REVENUECODE
BILLINGMODEFLAG	character (0,1,2,3)	1				
PRINTDETAIL	character (0,1,2,3)	1				
FULLDAYBILL	character (0,Y, N)	1				
PREWINDOW	small integer	N/A				
POSTWINDOW	small integer	N/A				
EDI	character	1				
REGIONCODE	character	64 (max)				7 - REGION

Rules

There are specific rules regarding the Oracle Utilities Import format, including:

- A single record will have at least one unique column (or compound column combinations), representing the primary key, or identity, of the record.

- The use of a tilde ("~") in an identity column causes the column to be ignored. The identity of the record must still be discernible from the included identity columns.

- A record may have zero or more foreign key columns (or compound column combinations). The existence of a foreign key indicates a dependent record, meaning that all of its parent records must exist in the database before it is added. If a dependent record and one or more of its parent records are imported in the same file, the parent records must appear before the dependent record in the file. For example, before records can be added to the Account table in the above example, appropriate records must exist in the database in the Customer, Operating Company, Jurisdiction, SIC, Account Status, Revenue Code, and Region tables. If these records were imported using the same import file, the Customer, Operating Company, Jurisdiction, SIC, Account Status, Revenue Code, and Region table records would have to appear before the Account table records in the import file.

- If a record is added and one of the columns in the record is Null (i.e. there is no value for the column provided in the input file), the column is ignored. This allows default values in the database to remain unaffected.

- If updating a record, the new record must be followed **on the same line** by a comma and the primary key of the existing record (comma separated if more than one column).

  Example:

  Update the jurisdiction record from Smithfield (SF) to California (CA).

  ```
  JURIS,"CA","California",, "SF"
  ```

Date Formats

Billmonth data types are formatted as "MM/YYYY".

Date data types are formatted as either:

- "MM/DD/YYYY"
- "YYYY/MM/DD"

Datetime (Timestamp) data types are formatted as either:

- "MM/DD/YYYY HH:MM:SS"
- "YYYY/MM/DD HH:MM:SS"

Note: If import data contains milliseconds, the milliseconds must be set to "000" before importing.

Oracle Utilities XML Import Format (*.xml)

The Oracle Utilities XML Import Format is a XML format in which each record and column value for a record are defined in a specific XML structure. This is the same XML format used by the Oracle Utilities Database interface (LSImportDB). A Data Type Definition (DTD), xml examples, and data element descriptions for this format are provided below.

DTD - Oracle Utilities XML Import Format

```
<!DOCTYPE LODESTAR_IMPORT
[
<!ELEMENT LODESTAR_IMPORT (ROWS*)>
<!ATTLIST LODESTAR_IMPORT
    ACTION#PCDATA,
    BATCHSIZE#PCDATA,
    ONERROR#PCDATA>
<!ELEMENT ROWS(ROW*)>
<!ATTLIST ROWS
    TBL #PCDATA>
<!ELEMENT ROW (DBCOLUMNNAME)>
<!ATTLIST ROW
    TBL CDATA        #IMPLIED,
    ACTION(ADD|UPDATE|DELETE|ADDUPDATE)#IMPLIED>
<!ELEMENT DBCOLUMNNAME(#PCDATA)>
<!ATTLIST DBCOLUMNNAME
    V   CDATA        "column value",
    NV  CDATA        "new column value">
]>
```

XML Examples - Oracle Utilities XML Import Format

Add Example

```
<LODESTAR_IMPORT ACTION="ADD" BATCHSIZE="50" ONERROR="CONTINUE">
  <ROWS>
    <ROW TBL="ACCOUNT">
      <CUSTOMERID V="Cust1"/>
      <ACCOUTNID  V="Acct1"/>
      <STARTTIME  V="01/01/2000 00:00:00"/>
    </ROW>
  </ROWS>
</LODESTAR_IMPORT>
```

Update Example

```
<LODESTAR_IMPORT ACTION="UPDATE" BATCHSIZE="50" ONERROR="STOP">
  <ROWS TBL="ACCOUNT">
    <ROW>
      <CUSTOMERID V="Cust1"/>
      <ACCOUTNID  V="Acct1" NV="Acct100"/>
      <STARTTIME  V="01/01/2001 00:00:00"/>
    </ROW>
  </ROWS>
</LODESTAR_IMPORT>
```

Element Descriptions - Oracle Utilities XML Import Format

LODESTAR_IMPORT: Root element containing one or more sets of records, each defined in a ROWS element.

Attributes:

ACTION: Defines the action performed. Possible values are:

- **ADD**: Adds one or more records to the database. It is an error if the record(s) is already present.

- **UPDATE**: Updates one or more existing records in the database. It is an error if the record does not exist.

- **DELETE**: Deletes one or more records in the database. It is an error if the record to be deleted does not exist.

- **ADDUPDATE**: Adds or Updates one or more records in the database. This is the Default behavior. If a record is present, the function updates it. If the record does not exist, the function adds the record.

BATCHSIZE: The number of records to be sent to the database in a single call. Larger numbers generally improve performance. The default is 50. The maximum is 500.

ONERROR: Defines how errors are handled. Possible values include:

- **CONTINUE**: Continue importing records after error.

- **STOP**: Stop importing records when an error occurs.

Elements:

ROWS: Element containing one or more records for import, each defined in a ROW element.

> Attributes:
>
> **TBL**: Table name for all the records defined in the ROW elements included in the ROW element.
>
> Elements:
>
> **ROW**: Element containing one record for import.
>
>> Attributes:
>>
>> **TBL**: Table name for the record. If present in a ROW element, this overrides the TBL attribute on the ROWS element.
>>
>> Elements:
>>
>> **DBCOLUMNNAME**: Actual database name of the column. For example, when importing records in the Account ID column of the Account table, this would be "ACCOUNTID".
>>
>>> Attributes:
>>>
>>> **V**: Column value. If not present, NULL is assumed. If the value is an XML, it will be specified as a child of the DBCOLUMNNAME element.
>>>
>>> **NV**: New column value for the record. Must be specified if updating a key column.

Notes:

- The "NV" (New value) attribute is only required for identity columns that need to be updated.

- Also, for "DELETE" operations, providing just the identity columns is sufficient.

- Any missing "V" (Value) attribute will be treated as a NULL value for the column.

Appendix B

Oracle Utilities Enhanced Input/Output Interval Data Format

siThis document provides a detailed description of the Oracle Utilities Enhanced Input/Output Interval Data (LSE) format, used by Oracle Utilities applications. This includes:

- **Enhanced Format**

- **Enhanced Format Details**

- **Sample Files**

- **Units of Measure**

Enhanced Format

General Field Descriptions

In the enhanced format, fields are comma-delimited. A data line may contain as many full data-status-time groups as desired. No physical record in the file may exceed a character count (record length) of 32750. Leading or trailing white space is allowed on any field, but will be ignored upon processing. *The descriptor field is an exception to this rule.* It may contain any number of spaces, anywhere within the field.

Numeric fields will be expressed as decimal numbers, and may contain a decimal point and/or a leading minus sign (-), but must not contain commas or the value "+" to indicate a positive number. Non-negative numbers are assumed on all numeric fields if no leading minus sign is present.

The Customer Identifier, Channel Number, and the Start Time compose the full key of the record which, in combination with each other, must uniquely identify the record to be stored in the database.

No field except the descriptor may contain a comma.

All character values in the Enhanced Format must be uppercase.

Any cut entered with an invalid Start or Stop Time will be rejected.

An input cut with header records, but no data records, will be treated like any other cut; the number of intervals allocated will be determined by the time range, and all intervals will be treated as missing.

The contents of the Customer Identifier field, Origin field, and all Y/N indicators will be translated to uppercase before they are stored in the database.

Note: Database sort order will follow ASCII collating sequence, starting with the Customer Identifier and followed in turn by the Channel, then the Start Time.

A cut will be rejected if the number of interval values supplied is greater than the number of interval values expected, based upon the Start Time, Stop Time, SPI, and DST_Participant fields. If too few interval values are supplied, the cut will be filled out with "missings" (value of 0 and status of '9').

Any Stop Time falling exactly on an interval boundary will have one second subtracted from it.

Field Relationships and Requirements

Relationships between fields exist in the enhanced format. These are described along with detailed field requirements in this section. Defaults are inserted when the processing program encounters an omitted field (indicated by double commas) or white space between commas.

Sort Code

Relationships:

This field has no relationship with any other field.

Requirements:

- Sort codes must contain eight digits, including leading 0s. Sort codes are restricted to integers between 00000001 and 99999999. However, 00000005 through 09999999 are not used, and may be ignored (see below).

- Leading white space before the sort codes is not allowed.

- The first three header records are required.

- The fourth header record is optional.

- Header records will have sort code 00000001 through 00000004.

- Column 1 of each header record must contain a 0.

- Records with Sort codes 00000005 through 05000000 are reserved.

- Sort codes 00000030 through 000000039 are reserved for user-defined attributes created through Oracle Utilities Rules Language rate schedules.

- Data records must start with sort code 10000000, and progress sequentially (i.e. 10000001, 10000002…) through 99999999, or as high as needed to accommodate the data, with the maximum of 99999999.

- Column 1 of the data records must be greater than 0.

Recorder/Customer Identifier (key element)

Relationships:

None.

Requirements:

- Only letters, numbers, underscores, and hyphens will be accepted in this field; all other characters and embedded blanks will cause the record to be rejected.

  Note: Lowercase letters will be translated to uppercase before they are stored in the database.

- Must be at least one character, and no more than 64 characters in length.

Default:

None; field is required.

Channel (key element)

Relationships:

None.

Requirements:

- Field values must be non-negative integer only.

- Maximum value is 32767.

Default:

None; field is required.

Start Time (key element)

Relationships:

- Must be a valid datetime value less than the value of the Stop Time.

Requirements:

- Format must be YYYYMMDDHHMMSS.

- Value must be after 19700101000000 when using Data Manager, Oracle Utilities Billing Component, and other non-Oracle Utilities Load Analysis applications. The value must be after 19670101000000 when using Oracle Utilities Load Analysis.

- No spaces, colons, or any ASCII value allowed between time components.

Default:

None; field is required.

Stop Time

Relationships:

- Must be a valid datetime value greater than the value of the Start Time.

- Value must agree with the number of interval values past the start time * SPI.

- One second is subtracted if the value is equal to an even interval start time.

Requirements:

See Start Time.

Default:

None; field is required

DST Participant Flag

Relationships:

None.

Requirements:

Valid values are Y, N, or A, indicating whether or not this record will be processed using DST adjustments.

Flag Value	Definition
Y	(DST Participant) The intervals recorded participate in DST adjustments and the intervals during DST reflect the time change.

Flag Value	Definition
N	(Does not participate in DST) The intervals recorded do not make any DST time changes.
A	(DST participant) The intervals have been adjusted to 24-hour days. (At the April time change, there should be a value at the time change (a place holder) of 0 with status code "9". At the October time change, there should be a combined value.) These cuts will be converted to a "Y" or "N", and are not stored in the database as "A".

Default:

As specified in the INTDDEFAULTDST configuration parameter setting, the
INTDCONFIG.XML file, or the CSDST value in Oracle Utilities Load Analysis.

Invalid Record Flag

Relationships:

None.

Requirements:

Valid values are Y or N, indicating whether or not the input programs should validate the
incoming record.

Flag Value	Definitions
Y	The incoming record contains unvalidated data. In Oracle Utilities Load Analysis, a value of Y can be used to run this record through the validation routines.
N	The incoming record contains valid data (mark as valid).

Default:

Y.

Meter Start Reading

Relationships:

Must be supplied if any of the other Meter fields (Meter Stop Reading, Meter Multiplier, or Meter
Offset) are supplied.

Requirements:

If supplied, value must be a non-negative numeric value.

Default:

0.

Meter Stop Reading

Relationships:

Must be supplied if any of the other Meter Fields (Meter Start Reading, Meter Multiplier, or Meter
Offset) are supplied.

Requirements:

If supplied, value must be a non-negative numeric value.

Default:

0 stored in the database if not supplied.

Meter Multiplier

Relationships:

Must be supplied if any of the other Meter fields (Meter Start Reading, Meter Stop Reading, or Meter Offset) are supplied.

Requirements:

If supplied, value must be positive numeric. However, if no value is specified, 0 will be stored. Zero (0) is not a valid value for the meter multiplier, but its presence in the database indicates that no meter multiplier was supplied.

Default:

None, 0 stored in the database if not supplied.

Note: If 0 is stored and/or observed in the database and a cut is exported to the LSE format, all meter fields for that cut will be absent. A zero stored in the database is indicative of "no meter information supplied".

Meter Offset

Relationships:

Must be supplied if any of the other Meter fields (Meter Start Reading, Meter Stop Reading, or Meter Multiplier) are supplied.

Requirements:

If supplied, value must be numeric.

Default:

0 stored in the database if not supplied

Pulse Multiplier

Relationships:

None.

Requirements:

Value must be positive numeric. Also, must be supplied if Pulse Offset (see below) is supplied.

Default:

None, 0 stored in the database if not supplied.

Note: If 0 is stored and/or observed in the database and a cut is exported to the LSE format, all pulse fields for that cut will be absent. A zero stored in the database is indicative of "no pulse information supplied".

Pulse Offset

Relationships:
If supplied, you must also supply Pulse Multiplier.

Requirements:
Value must be numeric.

Default:
None. (Zero is stored in the database to indicate that the Pulse Multiplier was not supplied.

Seconds Per Interval (SPI)

Description:
This field stores the interval duration if appropriate. An Intervals Per Hour (IPH) of 1 can be translated to a Seconds Per Interval of 3600.

Relationships:
Value of 0 indicates non-uniform recording duration and a full array of interval start values (one per recording) located in the data section. (This feature will be supported in a future release and is **not currently available.**)

Requirements:
- Value must be a positive integer.
- Valid values for SPI are 86400, 3600, 1800, 900, 300, and 60.

Default:
None; field is required.

Unit of Measure

Description:
See **Units of Measure** on page B-16 for valid Units of Measure.

Relationships:
None.

Requirements:
- Value should be a valid unit of measure. If the value entered is unknown to, 16 (Miscellaneous) will be stored.
- Value must be non-negative numeric.
- Maximum value is 32767.

Default:
None; field is required.

Basic Unit Code

Description:

This field is reserved for future use.

Relationships:

None.

Requirements:

Omit this field.

Default:

0.

Times Zones West of GMT

Description:

This value tells programs accessing this record which time zone the values have been recorded in. Its value will be the difference in time, heading west, between Greenwich Mean Time and the represented time zone as measured in half hours.   Eastern Standard Time should have a value of 10; Pacific = 16. A Value of -1 will indicate "Time Zone not available".

Relationships:

None.

Requirements:

Value must be -1 or a non-negative numeric between 0 and 47, that represents the time zones West of GMT measured in half-hour increments. Any record containing a time zone greater than 47 will be rejected.

Default:

-1.

Population

Description:

For Oracle Utilities Load Analysis statistical records only.

Relationships:

None.

Requirements:

Value may be any non-negative integer value.

Default:

0.

Weight

Description:

For Oracle Utilities Load Analysis statistical records only.

Relationships:

None.

Requirements:

Value may be any non-negative numeric value.

Default:

0.0.

Time Zone Standard Name

Description:

Defines the Time Zone to which the cut is associated. The value must be one of EST, CST, MST, PST, or be defined in the LSCALENDAR.XML configuration file (if present). Each value in this field must contain printable ASCII characters no longer than 32 bytes.

Only letters, numbers, underscores, and hyphens will be accepted in this field, all other characters and embedded blanks will cause the record to be rejected.

Relationships:

Must map exactly to one of EST, CST, MST, PST or an entry in the LSCALENDAR.XML file (if present). Oracle Utilities Load Analysis will import without checking this file.

Requirements

Length: <= 32 bytes

Descriptor

Description:

The user may enter any descriptive information in this field. Any information entered into this field will be stored in the database verbatim as supplied.

Relationships:

None.

Requirements:

- Value must be 80 characters or fewer, and may contain commas.

- May start with blanks.

- If more than 80 characters are entered, truncation will occur and the first 80 will be used.

Timestamp

Relationships:
None.

Requirements:
- Format should be YYYYMMDDHHMMSSmmm. The milliseconds (mmm) may be omitted, in which case mmm will be set to 000.

- No spaces, colons, or any ASCII value allowed between time components.

Default:
Current time that data is loaded into database.

Note: It is strongly recommended that you leave this field empty and allow the system to input the TimeStamp for you.

Origin

Relationships:
None.

Requirements:
Must be one of: M (metered), P (profiled), C (computed), or S (Oracle Utilities Load Analysis Statistic).

Default:
M (metered).

Interval Value

Description:
This field contains the actual recorded value for a time period.

Relationships:
Must have one status code entry per interval data value.

Requirements:
Any numeric value. (up to 15 digits can be stored.)

Default:
0 (see Status Code, Relationships, below).

Status Code

Description:
This field contains the status code for the preceding Interval Value.

Relationships:
Must have an entry for the Interval Value.

Requirements:
Any character will be accepted.

Default:
- This field defaults to a blank (' ') when omitted if the interval value is present.

- This field defaults to '9' when the Interval Value field is omitted.

Interval Start

Description:

- This field indicates the starting time of the recording or the time when the recording took place.

- Format must be YYYYMMDDHHMMSS. (This feature will be supported in a future release and is **not currently available**.)

Relationships:

- Until this feature is supported, the SPI may not be omitted (represented by „).

- There must be one entry per Interval Value.

Requirements:

See Start Time, Requirements.

Default:

None.

Enhanced Format Details

First Header Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	Must be 00000001
2	Recorder/ Customer Identifier	64	Letters, numbers, hyphens or underscores are acceptable Values
3	Channel	5	Max is 32767
4	Start Time	14	YYYYMMDDHHMMSS (24-hour)
5	Stop Time	14	YYYYMMDDHHMMSS (24-hour)
6	DST Participant Flag	1	Y/N/A
7	Invalid Record Flag	1	Y/N

Second Header Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	Must be 00000002 Default: None; field required
2	Meter Start Reading	N/A	Non-Negative Numeric Max: 999999999999999.9999 Default: 0
3	Meter Stop Reading	N/A	Non-Negative Numeric Max: 999999999999999.9999 Default: 0
4	Meter Multiplier	N/A	Positive Numeric (Optional) Max: 999999999999999.9999 Default: 0
5	Meter Offset	N/A	Numeric (Optional) Max: 999999999999999.9999 Default: 0
6	Pulse Multiplier	N/A	Positive Numeric (Optional) Max: 999999999999999.9999 Default: 0
7	Pulse Offset	N/A	Numeric (Optional) Max: 999999999999999.9999 Default: None; field required
8	Seconds Per Interval (SPI)	N/A	Positive Numeric Default: None; field required

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
9	Unit of Measure	N/A	Numeric Max: 32767 Default: None; field required
10	Basic Unit Code	N/A	Positive Numeric (Optional) Max: 9999 Default: 0
11	Time Zones West of GMT	N/A	Numeric. (Optional) Default: -1 Min: -1 Max: 47
12	Population	N/A	Positive Numeric (Optional) Max: 99999999999999.9999 Default: 0.0
13	Weight	N/A	Positive Numeric (Optional) Max: 99999999999999.9999 Default: 0.0
14	Time Zone Standard Name		Character (32) Overrides any value in TZWGMT. Must be one of "EST", "CST", "MST", "PST", or definition must exist in LSCalendar.xml file.

Third Header Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	Must be 00000003
2	Descriptor	80	

Fourth Header Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	Must be 00000004
2	Timestamp	17	YYYYMMDDHHMMSSMM (optional) Default: current date
3	Origin	1	C, M, P, or S (optional)

Data Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	10000000 through 99999999
2	Interval Value		
3	Status Code	1	
4	Interval Start	14	YYYYMMDDHHMMSS (optional)

A data line may contain as many full data-status-time groups as desired, providing the record does not exceed a character count (record length) of 32750.

Interval start times may be omitted, but a comma must still be present as a placeholder. Data must be contiguous and "missings" (or gaps) must be represented by value 0 and status '9'. At this time, all intervals must be of the same duration, hence Interval Start Times should not be specified.

Sample Files

Enhanced Direct Input File

A sample input file using the enhanced format with 3 headers and 2 data records and with interval starts omitted:

```
00000001,N1732,17,19820412000001,19820412005959,Y,Y
00000002,23887.34,23903.56,1.0,0.0,0.0144,0.0,900,1,0,-1,,,
00000003,ACCEPTANCE TEST DATA NUMBER 1
00000004,,M
10000000,31,Q,,9.52,R,,.00314,S,,123456.98765,T,,
10000001,32,Q,,9.53,R,,.00315,S,,123457,T,,
```

Standard Direct Input File

A sample old-format file is provided below for comparison.

```
0001WARNINGTEST          10412821351051382140004010
00020131275014002500000000091235000000000000945679-000000000012346-
000000000034567
0003ACCEPTANCE TEST DATA                       00000000000000000000000000000000000000
0004
100000031Q00028Q00008Q00061Q00038Q00011Q00050Q00005Q00055Q000009000009000004Q
100100029Q00016Q00079Q00036Q00020Q00076600061600015600078Q00021Q00050Q00004Q
100200004Q00007Q00006Q00006Q00004Q00008Q00005Q00009Q00009Q00009Q00005Q00006Q
```

Units of Measure

The table below lists valid Units of Measure. Intervals may be summed or averaged when aggregating, depending on the unit of measure. The aggregation technique is noted on the table

Note: Oracle Utilities products also accept 3-digit UOMs, which may be user-defined.

CODE	DESCRIPTION	AGGREGATION TECHNIQUE
01	kWh	Sum
02	kW	Average
03	kVARh	Sum
04	kVAH	Sum
05	Temperature (°F)	Average
06	KQD	Average
07	V^2H (PTP)	Sum
08	kQh	Sum
09	kQh (45 degrees)	Sum
10	I^2H	Sum
11	Volts	Average
12	Amps	Average
13	Temperature (°C)	Average
14	Dewpoint	Average
15	Amplitude	Average
16	Miscellaneous	Sum
17	Minute Run Time (MRT)	Sum
18	Wind Velocity (Cm/Sec)	Average
19	Fraction V2H (PTN)	Average
20	Percent	Average
21	Flow	Average
22	kVAR	Average
23	kVA	Average
24	kVA Ratio	Average
25	Power Factor	Average
26	Hertz	Average
27	Feet	Average

CODE	DESCRIPTION	AGGREGATION TECHNIQUE
28	Minutes	Sum
29	On/Off (Tap position)	Average
30	Inches	Average
31	Individual kWh	Sum
32	kWh r	Sum
33	Individual Totalized kVARh	Sum
34	kVARh r	Sum
35	Individual Totalized Temperature (°F)	Average
36	kVAh r	Sum
37	IND V^2H (Individual totalized V^2H)	Sum
38	IND kQh (Individual totalized kQh)	Sum
39	KQH r	Sum
40	Miscellaneous	Average
41	IND Volts (Individual totalized Volts)	Average
42	IND Amps (Individual totalized Amperes)	Average
43	IND Temperature (°C) (Individual totalized temperature, degrees Celsius)	Average
44	Mw	Sum
45	MVAR	Average
46	MVA	Average
47	IND MRT (Individual totalized MRT)	Sum
48	IND CMS (Individual totalized CMS)	Average
49	Run Hours	Sum
50	Equivalent Full Load Hours	Sum
51	KWH-OUT	Sum
52	KW-OUT	Average
53	KVARH-OUT	Sum
54	KVAH-OUT	Sum
55	KQH-OUT	Sum
56	LEAD-KVARH	Sum
57	LEAD-KVARH-OUT	Sum
58	LAG-KVARH	Sum

CODE	DESCRIPTION	AGGREGATION TECHNIQUE
59	LAG-KVARH-OUT	Sum
60	Gallons / Minute	Average
61	BTU	Sum
62	THERMS	Sum
63	Cubic Feet / Minute	Average
64	Cubic Feet / Second	Average
65	WM^2	Average
66	Relative Humidity	Average
67	MPH	Average
68	THI	Average
69	Gallons	Sum
70	Cubic Feet	Sum
71	Temperature Difference	Average
72	KVAR-OUT	Average
73	KVA-OUT	Average
74	Knots	Average
75	Degrees	Average
76	CCF (Hundred cubic feet)	Sum
77	CF / Hour	Average
78	Pounds / Square inch	Average
79	Dollars	Sum
80	DECATHERMS	Sum
81	Pounds	Sum
82	Pounds / Hour	Average
83	MPOUNDS	Sum
84	MPOUNDS / Hour	Average
85	$ / KWH	Average
86	$ / MW	Average
87	$ / MWH	Average
88	$/Hour	Average
89	Volt Hours	Sum
90	Individual Totalized Cubic Feet	Sum

CODE	DESCRIPTION	AGGREGATION TECHNIQUE
91	Individual Totalized Btu	Sum
92	Pressure in MILLIBARS	Average
93	Visibility in Miles	Average
94	Cents per kWh	Average
99	Individual Totalized Gallons	Sum
100	MWH	Sum
102	Euros	Sum
103	Euros per MWH	Average
104	Euros MW	Average
105	GW	Average
106	TWH	Sum
107	Cubic Meters (M3)	Sum
108	Mega Joules per Cubic Meter (MJ/m3)	Average
109	Kilograms per Cubic Meter (Kg/m3)	Sum
110	Cubic Meters per Hour (M3/H)	Average

UOM Compatibility

When merging cuts with different units-of-measure, cuts with specific differing UOMs can be combined while others can't. For example, you can't merge two cuts if the UOM of one cut is inches and the UOM of the other is dollars, because whichever UOM is assigned to the merged cut wouldn't apply to at least some of the data.

However, cuts with certain specific different UOMs can be combined. UOMs that can be combined are referred to as compatible UOMs, and are listed in the table below.

Compatible UOMs
01,31,32,51
02,52
03,33,34,53,56,57,58,59
04,36,54
05,35
07,37
08,09,38,39,55
11,41
12,42
13,43

Compatible UOMs
17,47
18,48
22,72
23,73
61,69
69,99
70,90

These units of measures may have their intervals divided by the IPH for display:

Demand-Type UOMs
02, 05, 06, 07, 10, 22, 23, 24, 52, 72, 73, 105, 110

Appendix C

Oracle Utilities Standard XML Interval Data Format - Version 1.2

This appendix provides a detailed description of the Oracle Utilities Standard XML Interval Data Formats, supported by Oracle Utilities applications. This includes:

- **Standard XML Format**

- **XML Standard File Format Example**

- **XML Standard File Format DTD**

- **XML Compact Format**

Standard XML Format

General Node Descriptions

In the Oracle Utilities Standard XML format, nodes are enclosed with XML tags. A data line may contain as many full data-status-time groups as desired.

Numeric nodes will be expressed as decimal numbers, and may contain a decimal point and/or a leading minus sign (-). Non-negative numbers are assumed on all numeric nodes if no leading minus sign is present. If a minus sign is present, spaces may exist between it and the numeric value. For example: …,-   122.11,… or …,   -23.3,… are valid entries for a numeric node.

The Recorder, Channel Number, and the Start Time compose the full key of the record which, in combination with each other, must uniquely identify the record to be stored in the database.

Node names and XML tag names must be uppercase.

Any cut entered with an invalid Start or Stop Time will be rejected.

The contents of the Recorder node, Origin node, and all Y/N indicators will be translated to uppercase before they are stored in the database.

Note: Database sort order will follow ASCII collating sequence, starting with the Recorder and followed in turn by the Channel, then the Start Time.

A cut will be rejected if the number of interval values supplied is greater than the number of interval values expected, based upon the Start Time, Stop Time, SPI, and DST_Participant nodes. If too few interval values are supplied, the cut will be filled out with "missing" (value of 0 and status of '9').

Any Stop Time falling exactly on an interval boundary will have one second subtracted from it.

General Rules

Each root node of a file starts with a set of special nodes. These nodes contain the name of the format, the version number of the format, the decimal point specification, and date/time format specification.

Format Name

The first node identifies the format as "LODESTAR Interval Data XML Format". It is an error if this is not present.

Example:

```
<INTERVAL_DATA_FORMAT>LODESTAR Interval Data XML Format </INTERVAL_DATA_FORMAT>
```

Format Version Number

The second node identifies the version number of the format. It is an error if this is not present.

Example:

```
<VERSION>version_number</VERSION>
```

Decimal Point Specification

The third node identifies the decimal point specification to be used in the file. All float values used throughout the file must use this decimal point format. It is an error if this is not present.

Example:

```
<DECIMAL_POINT>.</DECIMAL_POINT>
```

Date/Time Format Specification

The fourth node identifies the date/time format to be used in the file. There are three available date/time formats:

1. MM/DD/YYYY HH:MM:SS

2. DD/MM/YYYY HH:MM:SS

3. YYYY/MM/DD HH:MM:SS

All date/time values used throughout the file must use this format. It is an error if this is not present.

Example:

```
<DATETIME_FORMAT>10/27/1999 10:31:00</DATETIME_FORMAT>
```

These nodes are followed by the interval cut information as outlined below:

Node Relationships and Requirements

Relationships between nodes exist in the standard XML format. These are described in this section, and detailed node requirements are provided. Defaults are inserted when the processing program encounters an omitted node.

RECORDER (key element)

Relationships:
None.

Requirements:
- Only letters, numbers, underscores, and hyphens will be accepted in this node; all other characters and embedded blanks will cause the record to be rejected.

  Note: Lowercase letters will be translated to uppercase before they are stored in the database.

- Must be at least one character, and no more than 64 characters in length.

Default:
None; node is required.

CHANNEL (key element)

Relationships:
None.

Requirements:
- Node values must be non-negative integer only.
- Maximum value is 32767.

Default:
None; node is required.

STARTTIME (key element)

Relationships:
- Must be a valid datetime value less than the value of the Stop Time.

Requirements:
- Format must match that specified by the **Date/Time Format Specification** on page C-3.
- Value must be after 19700101000000.
- No spaces, colons, or any ASCII value allowed between time components.

Default:
None; node is required.

STOPTIME

Relationships:

- Must be a valid datetime value greater than the value of the Start Time.

- Value must agree with the number of interval values past the start time * SPI.

- One second is subtracted if the value is equal to an even interval start time.

Requirements:

See STARTTIME.

Default:

None; node is required.

DST_PARTICIPANT

Relationships:

None.

Requirements:

Valid values are Y, N, or A, indicating whether or not this record will be processed using DST adjustments.

Flag Value	Definition
Y	(DST Participant) The intervals recorded participate in DST adjustments and the intervals during DST reflect the time change.
N	(Does not participate in DST) The intervals recorded do not make any DST time changes.
A	(DST participant) The intervals have been adjusted to 24-hour days. (At the April time change, there should be a value at the time change (a place holder) of 0 with status code "9". At the October time change, there should be a combined value.) These cuts will be converted to a "Y" or "N", and are not stored in the database as "A".

Default:

As specified in the INTDDEFAULTDST configuration parameter setting, the INTDCONFIG.XML file, or the CSDST value in Oracle Utilities Load Analysis.

VALIDATION_REQUIRED

Relationships:

None.

Requirements:

Valid values are Y or N indicating whether or not the record should be marked as valid.

Flag Value	Definition
Y	The incoming record contains unvalidated data.
N	The incoming record contains valid data, and should be marked as such.

Default:

Y.

METER_START_READING

Relationships:

Must be supplied if any of the other Meter nodes (Meter Stop Reading, Meter Multiplier, or Meter Offset) are supplied.

Requirements:

If supplied, value must be a non-negative numeric value.

Default:

0.

METER_STOP_READING

Relationships:

Must be supplied if any of the other Meter nodes (Meter Start Reading, Meter Multiplier, or Meter Offset) are supplied.

Requirements:

If supplied, value must be a non-negative numeric value.

Default:

0 (not supplied).

METER_MULTIPLIER

Relationships:

Must be supplied if any of the other Meter nodes (Meter Start Reading, Meter Stop Reading, or Meter Offset) are supplied.

Requirements:

If supplied, value must be positive numeric. However, if no value is specified, 0 will be stored. Zero (0) is not a valid value for the meter multiplier, but its presence in the database indicates that no meter multiplier was supplied.

Default:

None, 0 stored in the database if not supplied.

Note: If 0 is stored and/or observed in the database and a cut is exported to the LSE format, all meter fields for that cut will be absent. A zero stored in the database is indicative of "no meter information supplied".

METER_OFFSET

Relationships:

Must be supplied if any of the other Meter nodes (Meter Start Reading, Meter Stop Reading, or Meter Multiplier) are supplied.

Requirements:

If supplied, value must be numeric.

Default:

0 (not supplied).

PULSE_MULTIPLIER

Relationships:

None.

Requirements:

Value must be positive numeric. Also, must be supplied if Pulse Offset (see below) is supplied.

Default:

None, 0 stored in the database if not supplied.

Note: If 0 is stored and/or observed in the database and a cut is exported to the LSE format, all pulse fields for that cut will be absent. A zero stored in the database is indicative of "no pulse information supplied".

PULSE_OFFSET

Relationships:

If supplied, you must also supply Pulse Multiplier.

Requirements:

Value must be numeric.

Default:

None.

SPI (Seconds per Interval)

Description:

This node will store the interval duration if appropriate. An Intervals per Hour (IPH) of 1 can be translated to an SPI of 3600.

Relationships:

Value of 0 indicates non-uniform recording duration and a full array of interval start values (one per recording) located in the data section. (This feature will be supported in a future release and is **not currently available.**)

Requirements:

- Value must be a positive integer.

- Valid values for SPI are 86400, 3600, 1800, 900, 300, and 60.

Default:

None; node is required.

UOM (Unit of Measure)

Description:

See **Units of Measure** on page B-16 for valid Units of Measure.

Relationships:

None.

Requirements:

- Value should be a valid unit of measure. If the value entered is unknown to, 16 (Miscellaneous) will be stored.

- Value must be non-negative numeric.

- Maximum value is 32767.

Default:

None; node is required.

DC_FLOW

Description:

Power flow direction. This is used with MV90 data.

Relationships:

None.

Requirements:

Must be either "D" (Delivered) or "R" (Received).

Default:

"D"

TIMEZONE

Description:

This value tells programs accessing this record which time zone the values were recorded in. Its value will be the difference in time, heading west, between Greenwich Mean Time and the represented time zone, measured in half hours.   Eastern Standard Time should have a value of 10; Pacific = 16. A Value of -1 indicates "Time Zone not available."

Relationships:

None.

Requirements:

Value must be -1 or a non-negative numeric between 0 and 47, that represents the time zones west of GMT, measured in half-hour increments. Any record containing a time zone greater than 47 will be rejected.

Default:

-1.

POPULATION

Description:

For Oracle Utilities Load Analysis Statistical records only.

Relationships:

None.

Requirements:

Value may be any non-negative integer value.

Default:

0.

WEIGHT

Description:

For Oracle Utilities Load Analysis Statistical records only.

Relationships:

None.

Requirements:

Value may be any non-negative numeric value.

Default:

0.0.

TIME_ZONE_STANDARD_NAME

Description:

Defines the Time Zone to which the cut is associated. The value must be one of EST, CST, MST, PST, or be defined in the LSCALENDAR.XML configuration file. Each value in this field must contain printable ASCII characters no longer than 32 bytes.

Only letters, numbers, underscores, and hyphens will be accepted in this field, all other characters and embedded blanks will cause the record to be rejected.

Note: Lowercase letters will be translated to uppercase before being stored

Relationships:

Must map exactly to one of EST, CST, MST, PST or an entry in the LSCALENDAR.XML file. Oracle Utilities Load Analysis will import without checking this file.

Requirements

Length: <= 32 bytes

DESCRIPTOR

Description:

The user may enter any descriptive information in this node. Any information entered into this node will be stored in the database verbatim.

Relationships:

None.

Requirements:

- Value must be 80 characters or fewer, and may contain commas.

- May start with blanks.

- If more than 80 characters are entered, truncation occurs and the first 80 are used.

TIMESTAMP

Relationships:

None.

Requirements:

- Format must match that specified by the **Date/Time Format Specification** on page C-3.

- No spaces, colons, or any ASCII value allowed between time components.

Default:

Current time that data is loaded into database.

> **Note:** It is strongly recommended that you leave this node empty and allow the system to input the TimeStamp for you.

ORIGIN

Relationships:

None.

Requirements:

Must be one of: M (metered), P (profiled), C (computed), or S (Oracle Utilities Load Analysis Statistic).

Default:

M (metered).

ACCEPT_REJECT_STATUS

Description:

This is used by MV90 to indicate if the cut was accepted or rejected.

Relationships:

None.

Requirements:

Will be either:

Status Code	Description
00	Accept. No Error.
01 though 07	Rejected/Reject type.

Default:

None.

TRANSLATION DATE

Description:

This is used by MV90 to indicate the date/time the cut was translated from MV90.

Relationships:

None.

Requirements:

Format must match that specified by the **Date/Time Format Specification** on page C-3).

Default:

None.

Interval Values

The interval values data is enclosed within the <INTERVAL> node. Each individual interval value is enclosed within the <RECORD> node, and consists of the VALUE, STATUS (optional), and STARTTIME (optional). The RECORD node will not have a STATUS node if and only if the interval status is a space. The optional STARTTIME node in the RECORDING node is only included if the XMLEXPORTINTDSTARTTIME=1 parameter is included in the LODESTAR.CFG file (see **Chapter Four: Configuration Files** in the *Oracle Utilities Energy Information Platform Installation and Configuration Guide*).

Descriptions of the RECORD nodes are as follows:

VALUE (Interval Value)

Description:

This node contains the actual recorded value for a time period.

Relationships:

Must have one status code entry per interval data value, if the status is not a space (see above).

Requirements:

Any numeric value. (Up to 15 digits can be stored.)

Default:

0 (see Status Code, Relationships, below).

STATUS (Status Code)

Description:

This node contains the status code for the preceding Interval Value.

Relationships:

Must have an entry for the Interval Value.

Requirements:

Any character will be accepted.

Default:

- This node defaults to a blank (' ') when omitted if the interval value is present.

- This node defaults to '9' when the Interval Value node is omitted.

STARTTIME (Interval Start Time)

Description:
- This node indicates the starting time of the recording or the time when the recording took place.

- Format must match that specified by the **Date/Time Format Specification** (page D-3).

- This feature will be supported in a future release and is **not currently available**.

Relationships:
- There can be one entry per Interval Value.

Requirements:

See Start Time, Requirements.

Default:

None.

XML Standard File Format Example

An example of the Oracle Utilities Standard XML format is shown below.

```
<INTERVAL_DATA>
  <INTERVAL_DATA_FORMAT>LODESTAR Interval Data XML Format</INTERVAL_DATA_FORMAT>
  <VERSION>1.2</VERSION>
  <DECIMAL_POINT>.</DECIMAL_POINT>
  <DATETIME_FORMAT>MM/dd/yyyy HH:mm:ss</DATETIME_FORMAT>
  <CUT>
    <RECORDER>TV011285</RECORDER>
    <CHANNEL>32767</CHANNEL>
    <STARTTIME>01/01/1999 00:00:00</STARTTIME>
    <STOPTIME>01/31/1999 23:59:59</STOPTIME>
    <DST_PARTICIPANT>Y</DST_PARTICIPANT>
    <VALIDATION_REQUIRED>N</VALIDATION_REQUIRED>
    <METER_START_READING>1234</METER_START_READING>
    <METER_STOP_READING>2345</METER_STOP_READING>
    <METER_MULTIPLIER>1.12345</METER_MULTIPLIER>
    <METER_OFFSET>100.0</METER_OFFSET>
    <PULSE_MULTIPLIER>1.0000</PULSE_MULTIPLIER>
    <PULSE_OFFSET>0.0000</PULSE_OFFSET>
    <SPI>900</SPI>
    <UOM>01</UOM>
    <DC_FLOW>D</DC_FLOW>
    <TIMEZONE>8</TIMEZONE>
    <POPULATION>300000</POPULATION>
    <WEIGHT>0.0</WEIGHT>
    <TIME_ZONE_STANDARD_NAME>EST</TIME_ZONE_STANDARD_NAME>
    <DESCRIPTOR>DEMO</DESCRIPTOR>
    <TIMESTAMP>01/01/2000 00:00:00</TIMESTAMP>
    <ORIGIN>M</ORIGIN>
      <INTERVAL>
        <RECORDING>
          <VALUE>123456.1234</VALUE>
          <STATUS>A</STATUS>
          <STARTTIME>11/01/1999 11:12:34</STARTTIME>
        </RECORDING>
        <RECORDING>
          <VALUE>123456.1234</VALUE>
          <STATUS>A</STATUS>
          <STARTTIME>11/01/1999 11:15:00</STARTTIME>
        </RECORDING>
      </INTERVAL>
  </CUT>
</INTERVAL_DATA>
```

XML Standard File Format DTD

The Data Type Definition for the Oracle Utilities Standard XML format is shown below.

```
<!DOCTYPE INTERVAL_DATA

[

<!ELEMENT INTERVAL_DATA (INTERVAL_DATA_FORMAT, VERSION, DECIMAL_POINT,
        DATETIME_FORMAT, INTERVAL_CUT+)>

<!ELEMENT INTERVAL_DATA_FORMAT (#PCDATA)>

<!ELEMENT VERSION (#PCDATA)>

<!ELEMENT DECIMAL_POINT (#PCDATA)>

<!ELEMENT DATETIME_FORMAT (#PCDATA)>

<!ELEMENT CUT (RECORDER, CHANNEL,  STARTTIME, STOPTIME, DST_PARTICIPANT,
        METER_START_READING,  METER_STOP_READING,  METER_MULTIPLIER,
        METER_OFFSET, PULSE_MULTIPLIER, PULSE_OFFSET,  SPI,  UOM, TIMEZONE,
        TIMESTAMP, ORIGIN?, DC_FLOW?, POPULATION?, WEIGHT?,
        TIME_ZONE_STANDARD_NAME?, DESCRIPTOR?, ACCEPT_REJECT_STATUS?,
        TRANSLATION_DATE?, INTERVAL)>

<!ELEMENT RECORDER (#PCDATA)>

<!ELEMENT CHANNEL (#PCDATA)>

<!ELEMENT STARTTIME (#PCDATA)>

<!ELEMENT STOPTIME (#PCDATA)>

<!ELEMENT DST_PARTICIPANT (#PCDATA)>

<!ELEMENT METER_START_READING (#PCDATA)>

<!ELEMENT METER_STOP_READING (#PCDATA)>

<!ELEMENT METER_MULTIPLIER (#PCDATA)>

<!ELEMENT METER_OFFSET (#PCDATA)>

<!ELEMENT PULSE_MULTIPLIER (#PCDATA)>

<!ELEMENT PULSE_OFFSET (#PCDATA)>

<!ELEMENT SPI (#PCDATA)>

<!ELEMENT UOM (#PCDATA)>

<!ELEMENT DC_FLOW (#PCDATA)>

<!ELEMENT TIMEZONE (#PCDATA)>

<!ELEMENT POPULATION (#PCDATA)>

<!ELEMENT WEIGHT (#PCDATA)>

<!ELEMENT TIME_ZONE_STANDARD_NAME (#PCDATA)>

<!ELEMENT DESCRIPTOR (#PCDATA)>

<!ELEMENT TIMESTAMP (#PCDATA)>

<!ELEMENT ORIGIN (#PCDATA)>

<!ELEMENT ACCEPT_REJECT_STATUS (#PCDATA)>

<!ELEMENT TRANSLATION_DATE (#PCDATA)>

<!ELEMENT INTERVAL (RECORDING+)>

<!ELEMENT RECORDING (VALUE, STATUS?, STARTTIME?)>

<!ELEMENT VALUE (#PCDATA)>

<!ELEMENT STATUS (#PCDATA)>

<!ELEMENT STARTTIME (#PCDATA)>

]>
```

XML Compact Format

The XML "compact" format is an XML format used with interval data that has a smaller footprint than the XML standard format. The compact format is the same format used by the LSINTD Interval Data component, and can be used with the Oracle Utilities Adapter. See the *Oracle Utilities Energy Information Platform User's Guide* and *Oracle Utilities Energy Information Platform Installation and Configuration Guide* for more information about the *Oracle Utilities* Adapter.

XML Compact File Format Examples

The following is an example of a standard interval data cut defined in the XML compact format.

```
<CUTS>
  <CUTEX>
    <HEADER
      RECORDER="1700"
      CHANNEL="1"
      STARTTIME="2003-02-24 00:00:00"
      STOPTIME="2003-02-24 23:59:59"
      START_READ=15000
      STOP_READ=17500
      M_MULT=1
      M_OFFSET=0
      SPI="1800"
      UOM="1"
      DESC="Pre-validation"]
      DCFLOW="D"
      ARS="00"
      TZSN="EST"
      ORIGIN="M"
      DST="Y"
      CHNSTATUS="0" />
    <INTS>
      <I V=12.00 S=" " E=" "/>
      <I V=13.00 S=" " E=" "/>
      <I V=14.00 S=" " E=" "/>
...
    </INTS>
  </CUTEX>
</CUTS>
```

Below is an example the compact XML format user to import data into an enhanced/generic interval data table that includes the CALCGROUP, MINIMUM, and MAXIMUM custom columns.

```
<CUTS>
  <CUTEX>
    <HEADER TIMESERIES="TEST,1" SPI="900" UOM="1" DST="Y" STARTTIME="2006-12-12
00:01:00" STOPTIME="2007-01-10 23:59:59" TDATE="1969-12-31 19:00:00" ORIGIN="C"
DCFLOW="" ARS="" START_READ="0.0" STOP_READ="0.0" POP="0.0" WEIGHT="0.0"
M_OFFSET="0.0" M_MULT="0.0">
      <CUSTOM CALCGROUP="1" MAXIMUM="10" MINIMUM="-10" />
    </HEADER>
    <INTS>
      <I V="16" S="7" />
      <I V="18" S="7" />
      <I V="16" S="7" />
      <I V="18" S="7" />
      <I V="15" S="7" />
      <I V="18" S="7" />
      <I V="16" S="7" />
      ......
      <I V="21" S="7" />
      <I V="20" S="7" />
      <I V="17" S="7" />
```

```
      </INTS>
    </CUTEX>
  </CUTS>
```

Below is a similar example that includes a category.

```
<CUTS>
  <CUTEX>
    <HEADER TIMESERIES="PERCOT,1" CATEGORY="RAW" UOMCODE="01" STARTTIME="2005-
12-03T00:00:00" STOPTIME="2005-12-03T23:59:59" SPI="3600" DST="Y" P_MULT="1.0"
P_OFFSET="1.0">
    <CUSTOM  CALCGROUP="1" MAXIMUM="1" MINIMUM="1"/>
    </HEADER>
    <INTS>
      <I V="2850" S=" " />
      <I V="3150" S=" " />
      <I V="2850" S=" " />
      <I V="3150" S=" " />
      <I V="2850" S=" " />
      <I V="3150" S=" " />
      <I V="2850" S=" " />
      <I V="3150" S=" " />
      <I V="2850" S=" " />
      <I V="3150" S=" " />
      <I V="2850" S=" " />
      <I V="3150" S=" " />
      <I V="2850" S=" " />
      <I V="3150" S=" " />
    </INTS>
  </CUTEX>
</CUTS>
```

XML Compact File Format Element and Attribute Descriptions

The elements and attributes of the XML compact format are described below. All attributes correspond to elements described under **Standard XML Format** on page C-2. Defaults are inserted when the processing program encounters an omitted attribute.

CUTS: Optional element containing one or more CUTEX elements.

CUTEX: Element containing a single interval data cut.

Elements:

> **HEADER**: Element containing header information for the interval data cut contained in the parent CUT element.
>
> **Attributes**:
>
> - **RECORDER** (key attribute): Recorder ID for the interval data cut. See **RECORDER (key element)** on page C-4 for detailed information.
>
> - **CHANNEL** (key attribute): Channel number for the interval data cut. See **CHANNEL (key element)** on page C-4 for detailed information.
>
> - **TIMESERIES** (key attribute): Identity of the parent record of the interval data. Used in place of the RECORDER and CHANNEL elements when defining interval data stored in enhanced interval data tables.
>
> - **CATEGORY**: Optional category of the interval data. Used only with interval data stored in enhanced interval data tables..
>
> - **STARTTIME** (key attribute): Start time for the interval data cut. Must be in ISO datetime format. See **STARTTIME (key element)** on page C-4 for detailed information.
>
> - **STOPTIME**: Stop time for the interval data cut. Must be in ISO datetime format. See **STOPTIME** on page C-5 for detailed information.

- **TIMESTAMP**: (optional) Timestamp of the interval data cut. Must be in ISO datetime format. See **TIMESTAMP** on page C-10 for detailed information.

- **START_READ**: (optional) Meter start reading for the interval data cut. See **METER_START_READING** on page C-6 for detailed information.

- **STOP_READ**: (optional) Meter stop reading for the interval data cut. See **METER_STOP_READING** on page C-6 for detailed information.

- **M_MULT**: (optional) Meter multiplier for the interval data cut. See **METER_MULTIPLIER** on page C-6 for detailed information.

- **M_OFFSET**: (optional) Meter offset for the interval data cut. See **METER_OFFSET** on page C-7 for detailed information.

- **POP**: (optional) Population for the interval data cut. See **POPULATION** on page C-9 for detailed information.

- **WEIGHT**: (optional) Weight for the interval data cut. See **WEIGHT** on page C-9 for detailed information.

- **SPI** (Seconds per Interval): SPI for the interval data cut. See **SPI (Seconds per Interval)** on page C-7 for detailed information.

- **UOM** (Unit of Measure): UOM for the interval data cut. See **UOM (Unit of Measure)** on page C-8 for detailed information.

- **DESC**: (optional) Descriptor for the interval data cut. See **DESCRIPTOR** on page C-10 for detailed information.

- **DCFLOW**: (optional) DC Flow for the interval data cut. See **DC_FLOW** on page C-8 for detailed information.

- **ARS**: (optional) Accept-Reject-Status for the interval data cut. See **ACCEPT_REJECT_STATUS** on page C-11 for detailed information.

- **TDATE**: (optional) Translation Date for the interval data cut. See **TRANSLATION DATE** on page C-11 for detailed information.

- **TZSN**: (optional) Time Zone Standard Name for the interval data cut. See **TIME_ZONE_STANDARD_NAME** on page C-10 for detailed information.

- **ORIGIN**: (optional) Origin for the interval data cut. See **ORIGIN** on page C-10 for detailed information.

- **DST**: (optional) DST participant flag for the interval data cut. See **DST_PARTICIPANT** on page C-5 for detailed information.

- **CHNSTATUS**: (optional) Status code for the interval data cut.

Elements:

- **CUSTOM**: Used to define custom columns added to enhanced/generic interval data tables. The format of this element is:

  <CUSTOM <fieldname>=<value>/>

  where:

  - <fieldname> is an attribute that is the name of the custom column

  - <value> is the value to be imported into the custom column

  The <fieldname> attribute can be repeated for multiple custom columns.

  For example, the following <CUSTOM> element includes import values for the CALCGROUP, MAXIMUM, and MINIMUM custom columns:

  ```
  <CUSTOM CALCGROUP="1" MAXIMUM="10" MINIMUM="-10" />
  ```

Interval Values

The interval values data is enclosed within the <INTS> node. Each individual interval value is enclosed within the <I> node, and consists of the V (Value) and optional S (STATUS) attributes.

INTS: Element containing interval values.

Elements:

> **I**: Element containing a single interval value. The I node will not have an S attribute if and only if the interval status is a space.
>
> **Attributes**:
>
> - **V** (Interval Value): the actual recorded value for the interval
> - **S** (Status Code): The status code for the interval
> - **E** (Extended Status Code): The extended status code for the interval

Appendix D

Oracle Utilities Comma Separated Values (CSV) Interval Data Format

This appendix provides a detailed description of the Oracle Utilities Comma Separated Values (CSV) Interval Data Format, supported in Oracle Utilities programs such as Oracle Utilities Load Analysis, Oracle Utilities Billing Component, Oracle Utilities Rate Management, and Data Manager. This includes:

- **CSV Format**

- **Format Details**

- **Sample CSV File**

CSV Format

This format is designed to support:

- Mixed interval lengths among cuts

- Daylight Savings Time

- International date and value formats (via tab characters for separators); the specific formats of dates and decimal values are solely dependent on the operating system in use.

- The possibility of a future enhancement for non-fixed interval lengths within cuts (with the use of Time tags for each interval).

The times that are defined in the export format will be expressed in the format designated by the **Short Date** and **Short Time** settings on the operating system. The language indicator and the decimal separator will also be read from the operating system. In all likelihood, the recipient of the export file generated by the producing Oracle Utilities application will be sharing the same language environment, so date and decimal format translation would not be necessary. If format translation is necessary, the date format, decimal separator, and language indicator found in the document description record of the export file could be used to translate the date and decimal formats to the desired format representation. The format translation that occurs in this scenario becomes solely the responsibility of the user, unless a future specification overrides the responsibility explicitly.

The format consists of two sections of data. The first section describes the export file format version and the regional settings. The second section contains data that appears in the same exact sequence as data would appear in the .LSE format, except that the data is separated by a semi-colon.

General Description

Records in the CSV format are defined as a series of tab/comma/delimiter separated values followed by a carriage return/line feed pair. Each record begins with a record tag field that identifies that record type.

General Rules

Order

Within each section, proper ordering is mandatory. Records in the Header and Detail sections should arranged in the order as described in **Format Details** on page D-13. Trailing empty or null fields in any record cannot be omitted.

Fields

All fields, regardless of whether they are required or optional, must be enclosed with double quotation marks. Use the empty string to represent empty fields ("").

Import Capability

The CSV Format file (*.CSV) differs from an Enhanced Oracle Utilities (*.LSE) file in two main respects.

- First, it contains a document description record that provides a date format and a time format. This record also contains a decimal separator, and the operating system 3-character locale identifier. Data can be re-imported from this file by translating the export date/time and decimal layouts to the appropriate format.

- Second, the data is formatted according to the date/time and decimal format that is specified in the document description record (see below).

Document Description Record

The document description record contains the CSV format version, and the regional setting information. This required single record must precede all others in the export file. All fields within this record are required. The version number used should be related in some fashion to the version of the specification that defines the export format (e.g. 2.2). This version number must be changed when a syntactical change in the export format occurs for any reason. The importable option can be used to signify that a standard Application Program Interface (API) can process the data in this file.

```
[00000000][Document Type Identifier][Field Delimiter][Export Version][Field
Delimiter][Decimal Point Character][Field Delimiter][Language Indicator][Field
Delimiter][Date/Time Format][Field Delimiter][CSV Version][Record Delimiter]
```

Notes:

1. The [Field Delimiter] is defined to be the character immediately following the first sequence that consists of a double quotation mark, followed by eight consecutive zero characters and then another double quotation mark ("00000000"). Characters preceding the first instance of this sequence are considered to be superfluous, and should be ignored. The [Field Delimiter] is most often a comma, but can be any delimiter character, or even non-printing characters such as the Tab character.

2. The [Document Type Identifier] identifies the format of the file.

3. The [Export Version] references the version of this document that the export was generated from. No assumptions about forward and/or backward compatibility can be assumed when comparing export files generated at differing versions. Likewise, CSV files with identical versions are said to be structurally compatible.

4. The [Decimal Point Character] cannot be the same character as the [Field Delimiter]. Should a conflict occur in the generation of the CSV file, the Decimal Separator takes precedence over the [Field Delimiter]. So, in case of a conflict, the [Field Delimiter] would be forced to change to an alternate character. Non-printable characters such as the tab character can be used in the place of commas, but please be aware that delimiters that differ from commas and semicolons may not be imported to some spreadsheets easily.

5. The [Language Indicator] is the unique 3-character abbreviation for a locale as defined by the operating system.

6. The [Date/Time Format] is expressed as a string consisting of a sequence of date and time elements strung together to form a date/time format (for example, mm/dd/yyyy hh:mm:ss). Predefined date/time format strings such as "Short Date" and "Short Time" are not legal formatting strings for the export format, because these formats are always relative to the operating system settings of the machine that generated the export, and therefore could not be determined from another computer.

7. The carriage return/line feed pair is always the [Record Delimiter]. Neither the [Field Delimiter], nor the [Decimal Separator] can be either a carriage return or a line-feed character.

Field Relationships and Requirements

Relationships between fields exist in the CSV format. These are described along with detailed field requirements in this section. Defaults are inserted when the processing program encounters an omitted field (indicated by double commas) or white space between commas.

Sort Code

Relationships:

This field has no relationship with any other field.

Requirements:

- Sort codes must contain eight digits, including leading 0s. Sort codes are restricted to integers between 00000000 and 99999999. However, 00000005 through 09999999 are not used, and may be ignored (see below).

  Note: Sort code 00000000 can used **only** in the Document Description record.

- Leading white space before the sort codes is not allowed.

- The first three header records are required. The fourth header record is optional.

- The document description record starts with sort code 00000000.

- Header records will have sort code 00000001 through 00000004.

- Column 1 of each header record must contain a 0.

- Records with Sort codes 00000005 through 05000000 are reserved. Records with Sort codes 05000001 through 09999999 may be present, but will be ignored.

- Data records must start with sort code 10000000, and progress sequentially (i.e. 10000001, 10000002…) through 99999999, or as high as needed to accommodate the data, with the maximum of 99999999.

- Column 1 of the data records must be greater than 0.

Recorder/Customer Identifier (key element)

Relationships:

None.

Requirements:

- Only letters, numbers, underscores, and hyphens will be accepted in this field; all other characters and embedded blanks will cause the record to be rejected.

  Note: Lowercase letters will be translated to uppercase before they are stored in the database.

- Must be at least one character, and no more than 64 characters in length.

Default:

None; field is required.

Channel (key element)

Relationships:

None.

Requirements:

- Field values must be non-negative integer only.

- Maximum value is 32767.

Default:

None; field is required.

Start Time (key element)

Relationships:

- Must be a valid date/time value less than the value of the Stop Time.

Requirements:

- The date format has no limitations: it is defined in the **Document Description Record Format** on page D-13.

- The date itself must correspond to acceptable date ranges of the product in use (Data Manager, Oracle Utilities Billing Component, and other non-Oracle Utilities Load Analysis applications, as well as Oracle Utilities Load Analysis).

- No spaces, colons, or any ASCII value allowed between time components.

Default:

None; field is required.

Stop Time

Relationships:

- Must be a valid date/time value greater than the value of the Start Time.

- Value must agree with the number of interval values past the start time * SPI.

- One second is subtracted if the value is equal to an even interval start time.

Requirements:

See Start Time.

Default:

None; field is required.

DST Participant Flag

Relationships:

None.

Requirements:

Valid values are Y, N, or A, indicating whether or not this record will be processed using DST adjustments.

Flag Value	Definition
Y	(DST Participant) The intervals recorded participate in DST adjustments and the intervals during DST reflect the time change.
N	(Does not participate in DST) The intervals recorded do not make any DST time changes.
A	(DST participant) The intervals have been adjusted to 24-hour days. (At the April time change, there should be a value at the time change (a place holder) of 0 with status code "9". At the October time change, there should be a combined value.) These cuts will be converted to a "Y" or "N", and are not stored in the database as "A".

Default:

As specified in the INTDDEFAULTDST configuration parameter setting, the INTDCONFIG.XML file, or the CSDST value in Oracle Utilities Load Analysis.

Invalid Record Flag

Relationships:

None.

Requirements:

Valid values are Y or N, indicating whether or not the input programs should validate the incoming record.

Flag Value	Definitions
Y	The incoming record contains unvalidated data.
	In Oracle Utilities Load Analysis, a value of Y can be used to run this record through the validation routines.
N	The incoming record contains valid data (mark as valid).

Default:

Y.

Meter Start Reading

Relationships:

Must be supplied if any of the other Meter fields (Meter Stop Reading, Meter Multiplier, or Meter Offset) are supplied.

Requirements:

If supplied, value must be a non-negative numeric value.

Default:

0.

Meter Stop Reading

Relationships:

Must be supplied if any of the other Meter Fields (Meter Start Reading, Meter Multiplier, or Meter Offset) are supplied.

Requirements:

If supplied, value must be a non-negative numeric value.

Default:

0 (not supplied).

Meter Multiplier

Relationships:

Must be supplied if any of the other Meter fields (Meter Start Reading, Meter Stop Reading, or Meter Offset) are supplied.

Requirements:

If supplied, value must be positive numeric. However, if no value is specified, 0 will be stored. Zero (0) is not a valid value for the meter multiplier, but its presence in the database indicates that no meter multiplier was supplied.

Default:

None, 0 stored in the database if not supplied.

Note: If 0 is stored and/or observed in the database and a cut is exported to the LSE format, all meter fields for that cut will be absent. A zero stored in the database is indicative of "no meter information supplied".

Meter Offset

Relationships:

Must be supplied if any of the other Meter fields (Meter Start Reading, Meter Stop Reading, or Meter Multiplier) are supplied.

Requirements:

If supplied, value must be numeric.

Default:

0 (not supplied).

Pulse Multiplier

Relationships:

None.

Requirements:

Value must be positive numeric. Also, must be supplied if Pulse Offset (see below) is supplied.

Default:

None, 0 stored in the database if not supplied.

Note: If 0 is stored and/or observed in the database and a cut is exported to the LSE format, all pulse fields for that cut will be absent. A zero stored in the database is indicative of "no pulse information supplied".

Pulse Offset

Relationships:

If supplied, you must also supply Pulse Multiplier.

Requirements:

Value must be numeric.

Default:

None.

Seconds Per Interval (SPI)

Description:

This field will store the interval duration if appropriate. An Intervals Per Hour (IPH) of 1 can be translated to a Seconds Per Interval of 3600.

Relationships:

Value of 0 indicates non-uniform recording duration and a full array of interval start values (one per recording) located in the data section. (This feature will be supported in a future release and is **not currently available.**)

Requirements:

- Value must be a positive integer.

- Valid values for SPI are 86400, 3600, 1800, 900, 300, and 60.

Default:

None; field is required.

Unit of Measure

The Oracle Utilities products will accept Units of Measure (UOMs) that are one to three digits in length. The **Units of Measure** on page B-16 are the ones supplied by Oracle.

Description:

See **Units of Measure** on page B-16.

Relationships:

None.

Requirements:

- Value should be a valid Unit of Measure, or a user-defined one. If the value entered is unknown to, 16 (Miscellaneous) will be stored.

- Value must be non-negative numeric.

- Maximum value is 32767.

Default:

None; field is required.

Basic Unit Code

Description:

This field is reserved for future use.

Relationships:

None.

Requirements:

Omit this field.

Default:

0.

Times Zones West of GMT

Description:

This value tells programs accessing this record which time zone the values have been recorded in. Its value will be the difference in time, heading west, between Greenwich Mean Time and the represented time zone as measured in half hours. Eastern Standard Time should have a value of 10; Pacific = 16. A Value of -1 will indicate "Time Zone not available."

Relationships:

None.

Requirements:

Value must be -1 or a non-negative numeric between 0 and 47, that represents the time zones West of GMT measured in half-hour increments. Any record containing a time zone greater than 47 will be rejected.

Default:

-1.

Population

Description:

For Oracle Utilities Load Analysis Statistical records only.

Relationships:

None.

Requirements:

Value may be any non-negative integer value.

Default:

0.

Weight

Description:

For Oracle Utilities Load Analysis Statistical records only.

Relationships:

None.

Requirements:

Value may be any non-negative numeric value.

Default:

0.0.

Time Zone Standard Name

Description:

Defines the Time Zone to which the cut is associated. The value must be one of EST, CST, MST, PST, or be defined in the LSCALENDAR.XML configuration file. Each value in this field must contain printable ASCII characters no longer than 32 bytes.

Only letters, numbers, underscores, and hyphens will be accepted in this field, all other characters and embedded blanks will cause the record to be rejected.

Note: Lowercase letters will be translated to uppercase before being stored

Relationships:

Must map exactly to one of EST, CST, MST, PST or an entry in the LSCALENDAR.XML file. Oracle Utilities Load Analysis will import without checking this file.

Requirements

Length: <= 32 bytes

Descriptor

Description:

The user may enter any descriptive information in this field. Any information entered into this field will be stored in the database verbatim as supplied.

Relationships:

None.

Requirements:

- Value must be 80 characters or fewer, and may contain commas.

- May start with blanks.

- If more than 80 characters are entered, truncation will occur and the first 80 will be used.

Timestamp

Relationships:

None.

Requirements:

- Format should be YYYYMMDDHHMMSSmmm. The milliseconds (mmm) may be omitted, in which case mmm will be set to 000.

- No spaces, colons, or any ASCII value allowed between time components.

Default:

Current time that data is loaded into database.

Note: It is strongly recommended that you leave this field empty and allow the system to input the TimeStamp for you.

Origin

Relationships:

None.

Requirements:

Must be one of: M (metered), P (profiled), C (computed), or S (Oracle Utilities Load Analysis Statistic).

Default:

M (metered).

Interval Value

Description:

This field contains the actual recorded value for a time period.

Relationships:

Must have one status code entry per interval data value.

Requirements:

Any numeric value. (Up to 15 digits can be stored.)

Default:

0 (see Status Code, Relationships, below).

Status Code

Description:

This field contains the status code for the preceding Interval Value.

Relationships:

Must have an entry for the Interval Value.

Requirements:

Any character will be accepted.

Default:

- This field defaults to a blank (' ') when omitted if the interval value is present.

- This field defaults to '9' when the Interval Value field is omitted.

Interval Start

Description:

- This field indicates the starting time of the recording or the time when the recording took place.

- Format must be YYYYMMDDHHMMSS. (This feature will be supported in a future release and is **not currently available**.)

Relationships:

- Until this feature is supported, the SPI may not be omitted (represented by „).

- There must be one entry per Interval Value.

Requirements:

See Start Time, Requirements.

Default:

None.

Format Details

Document Description Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	Must be 00000000 (Note: Character that immediately follows is the Field Delimiter.)
2	Document Type ID	1	LODESTAR Interval Data CSV format
3	Version	N/A	2.2
4	Decimal Separator	1	Usually "." or ","
5	Locale Abbreviation	5	Defined by OS
6	Date/Time Format	N/A	Date/Time format string

First Header Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	Must be 00000001
2	Recorder/ Customer Identifier	64	Letters, numbers, hyphens or underscores are acceptable values
3	Channel	5	Max is 32767
4	Start Time	N/A	Cut start date and time
5	Stop Time	N/A	Cut stop date and time
6	DST Participant Flag	1	Y/N/A
7	Invalid Record Flag	1	Y/N

Second Header Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	Must be 00000002 Default: None; field required
2	Meter Start Reading	N/A	Non-Negative Numeric Max: 999999999999999.9999 Default: 0
3	Meter Stop Reading	N/A	Non-Negative Numeric Max: 999999999999999.9999 Default: 0
4	Meter Multiplier	N/A	Positive Numeric (Optional) Max: 999999999999999.9999 Default: 0
5	Meter Offset	N/A	Numeric (Optional) Max: 999999999999999.9999 Default: 0
6	Pulse Multiplier	N/A	Positive Numeric (Optional) Max: 999999999999999.9999 Default: 0
7	Pulse Offset	N/A	Numeric (Optional) Max: 999999999999999.9999 Default: None; field required
8	Seconds Per Interval (SPI)	N/A	Positive Numeric Default: None; field required
9	Unit of Measure	N/A	Numeric Max: 32767 Default: None; field required
10	Basic Unit Code	N/A	Positive Numeric (Optional) Max: 9999 Default: 0
11	Time Zones West of GMT	N/A	Numeric. (Optional) Default: -1 Min: -1 Max: 47
12	Population	N/A	Positive Numeric (Optional) Max: 999999999999999.9999 Default: 0.0
13	Weight	N/A	Positive Numeric (Optional) Max: 999999999999999.9999 Default: 0.0
14	Time Zone Standard Name		Character (32)(Optional) If present, must be one of "EST", "CST", "MST", "PST", or definition must exist in LSCalendar.xml file.

Third Header Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	Must be 00000003
2	Descriptor	80	

Fourth Header Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	Must be 00000004
2	Timestamp	17	YYYYMMDDHHMMSSMM (optional) Default: current date
3	Origin	1	C, M, P, or S (optional)

Data Record Format

ELEMENT	DESCRIPTION	MAXIMUM LENGTH IN BYTES (if applicable)	COMMENT
1	Sort Code	8	10000000 through 99999999
2	Interval Value		Interval value in locale-format
3	Status Code	1	
4	Interval Start	N/A	See Note 2
5	Interval Stop	N/A	See Note 2

Notes

1. A data line may contain as many full data-status-time groups as desired, providing the record does not exceed a character count (record length) of 1024.

2. When this file is generated, the interval start time is always required. The interval stop time is required only for partial intervals.

3. Data spanning time must be contiguous and "missings" (or gaps) must be represented by value 0 and status '9'. For fixed-length SPIs, all intervals must be of the same duration, including "missings". Only single intervals can appear in a single record.

Sample CSV File

A sample *.CSV file appears below:

```
"00000000","LODESTAR Interval Data CSV Format","2.2",".","USE","mm/dd/yyyy
hh:mm:ss"
"00000001","N1732","17","01/01/2000 00:00:00","01/31/2000 23:59:59","Y","Y"
"00000002","12.34","1234.56","1.0","100","1.0","0","900","04","","-1","","",""
"00000003","","ACCEPTANCE TEST DATA NUMBER 1"
"00000004","","M"
"10000000","31","Q","01/01/2000 00:00:00",""
"10000001","32","Q","01/01/2000 00:15:00",""
"10000002","33","Q","01/01/2000 00:30:00",""
"10000003","34","Q","01/01/2000 00:45:00",""
"10000004","32","Q","01/01/2000 01:00:00",""
"10000005","30","Q","01/01/2000 01:15:00",""
```

Differences with the .LSE format

There are a number of significant differences between the *.LSE format and the *.CSV format. These differences include:

- **Field Delimiters**
- **Field Types**
- **Document Description Record**
- **Date, Time, and Decimal Value Representation in Records**
- **Interval Data Records**

Field Delimiters

Field delimiter in the CSV format is defined to be the character that immediately follows the first sort code ("00000000") in a file. They can be either printable or non-printable. The LSE format always uses a comma (",").

Field Types

All fields in the CSV format must be enclosed in double quotation marks, regardless of the apparent data type. The LSE format doesn't require this.

Document Description Record

The first record in a CSV file is always the document description record which always has a sort code of "00000000". This record provides date/time and decimal formats and locale information, as well as a version number so incompatibility can be determined. The LSE format doesn't include this record.

Date, Time, and Decimal Value Representation in Records

All date, time, and decimal data in the CSV format uses the date/time and decimal format as defined in the document description record. The LSE file uses a specific decimal and time format.

Interval Data Records

The interval start time is required for CSV files, but not for the *.LSE format. Also, only a single interval value can be expressed in a record in CSV files. The interval data record contains an optional interval stop field that can be used to designate a partial interval.

Compatibility Issues

All export files, including CSV files, have export format versions. Export files with different version numbers are inherently incompatible. A mapping algorithm is required to convert export files from one version to another. Any APIs created to read these CSV files must consult the export format version as basis for reading the files correctly. APIs should be flexible enough to react accordingly to older versions and use the proper mapping mechanism. A parser built to read a specific CSV format does not imply that it can automatically read an earlier version.

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