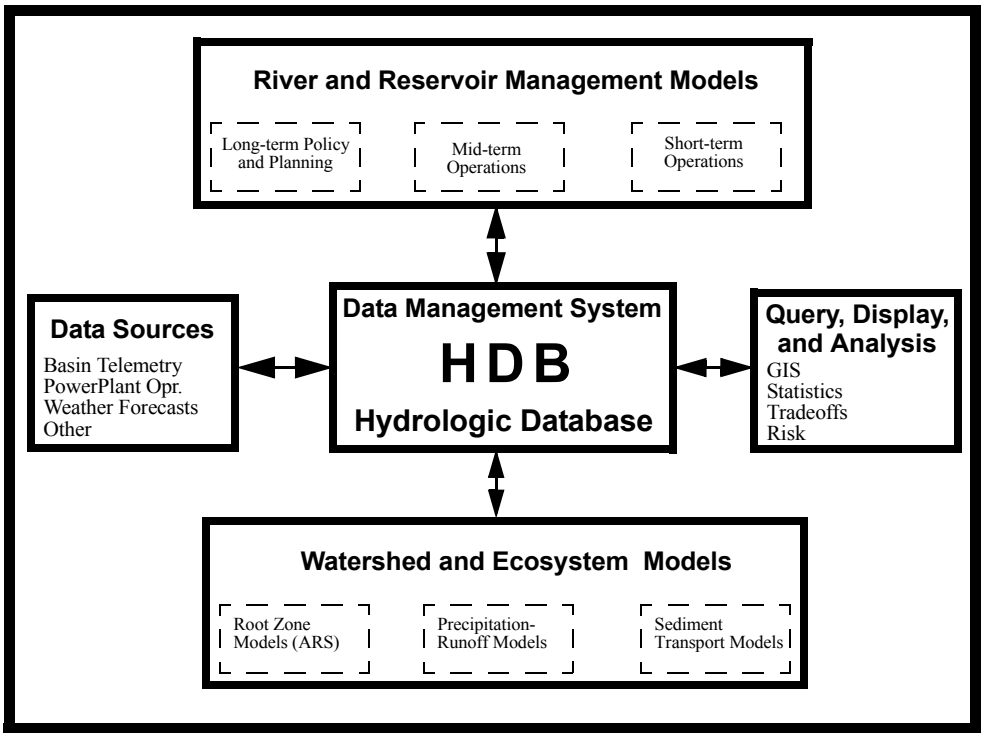
Hydrologic Database (HDB): Meta Data Application User Guide

Next Page



The Center for Advanced Decision Support for Water
and Environmental Systems (CADSWES)
University of Colorado at Boulder
College of Engineering and Applied Science
Department of Civil, Environmental and Architectural Engineering
Campus Box 421
Boulder, CO 80309-0421
Phone: (303) 492-3972 Fax: (303) 492-1347
E-mail: inquiries@cadswes.colorado.edu
http://cadswes.colorado.edu

CADSWES

Section 1 Intended Audience

This document is intended for all users of the Meta Data Application.

Next Page

Previous Page

Section 2 Application Overview

Application Purpose

Next Page

Previous Page

The Meta Data Application is an Oracle Forms application designed to make the viewing and maintenance of all HDB Meta Data more simple and efficient. Meta data is any data in HDB that is not time series data; it includes:

- all site, datatype, and unit lookup information (names, IDs, etc.);
- water accounting forms, such as the one for maintaining release annotations;
- other lookup information, such as that for states, rivers, dam types, gage types, etc.;
- model lookup data, including model IDs, model types, and model users (model run IDs are *not* maintained via this application);
- physical characteristic data;
- site coefficient data;
- application driver data (such as that for ref_agg_disagg, the DMIs, the Hydromet applications, and the Derivation Application);
- database instance information.

Installation Types

There are three types of installations for the Meta Data Application.

- Master Site: A Master site installation is used for a database installation, such as UCHDB, which has one or more database installations (LCHDB) whose hdb_ tables are a read-only snapshot of the tables at the master site. This is a master/ snapshot relationship. The data at the snapshot installation will not reflect changes made at the master site until a *refresh* of the snapshots is done.

Next Page

- Snapshot Site: A Snapshot site installation is an installation whose hdb_ tables are read-only snapshots of a Master site. A Snapshot site's ref_ tables are writable; they do not depend on the Master site.

Previous Page

- Island Site: An Island site installation is a stand-alone database (such as YAKHDB) which has no dependent Snapshot sites, and does not depend on a Master site. In other words, its hdb_ data is not synchronized with that of any other database.

Section 3 Permissions

Any user can run the Meta Data Application and *view* meta data. However, to insert, update, or delete meta data, you must have one of two roles granted to you, either ref_meta_role or hdb_meta_role. Those users with ref_meta_role are able to insert, update, and delete data in any "ref_" meta data table (that is, any table whose data is stored only locally, and not shared between databases). These users may also view any "hdb_" meta data (data which may be shared between 2 or more databases). Users with the hdb_meta_role privilege can insert, update, or delete on any table accessible from the Meta Data Application.

Next Page

Previous Page

Section 4 Invoking the Application

Double click on the shortcut to the application (Shortcut to Meta Data Startup), which is on your desktop. You'll be prompted for a username, password, and database. Enter your Oracle username, password, and the name of the database to which you want to connect, e.g., "uchdb".

Next Page

If your database is part of a Master/Snapshot supersystem, connections to other databases in the supersystem will be checked. If any connections are down, you will be notified. Notification includes the name of the database, and impacts that it being inaccessible will have on the application.

Previous Page

A window will inform you that your permissions are being checked, and roles are being set for the application. When this window disappears, the application is up and ready to use.

To determine which version of the application you are running, **See Section "Help Menu" on page 11**

Section 5 Inputs

Command Line

None.

Next Page

Files

Previous Page

None.

Dialog Boxes

Oracle username, password, and database to which you want to connect. **See Section 4 "Invoking the Application" on page 6**

Database Driver Tables

ref_installation: A one column, one row table that contains the installation type, "master," "snapshot," or "island." Used to determine if supersystem connections must be checked, and if refreshes are allowed.

Section 6 Outputs

Data Files

None.

Next Page

Log and Error Files

Previous Page

None.

Database

Intermediate output on the end status of each refresh gets written to *ref_refresh_monitor* on the snapshot database(s). This output is also displayed to the user.

Final outputs from the application include any user-specified meta-data modifications for which the user has permissions. This could include inserts, updates, or deletes to any of the *ref_* or *hdb_* tables in HDB. Modifications to *hdb_* tables affect the master table only, until a refresh is done, in which case the changes are propogated to all snapshots.

Section 7 Using Application Functionality

Introduction

This section describes the basic functionality available from all forms. For detailed instructions on special and more complex forms, such as the Derivation Application specification form and the Hydromet form, **See Section 8 "Examples" on page 23**.

Next Page

Previous Page

Main Window

The main window (hereafter referred to as the *startup form*) contains a menu bar; the items on the menu are File, Edit, Navigation, Tools, Window, and Help. In addition there is a Refresh HDB Snapshots button, which performs a refresh.
(**See"Refreshing a Snapshot" on page -22**.)

File Menu

Next Page

The File menu allows you to Quit out of the form that you are currently in. If the form is in Query mode when you select Quit, the query will be cancelled and the form will be in Edit mode.

Previous Page

Edit Menu

The Edit menu allows you to perform various operations on the records in the form. All items in the Edit menu are also available on the Icon Bar. Please see **See"Icon Bar" on page -13** for the functionality of the Clear Form, Previous Record, Next Record, Insert a New Record, Delete Selected Record(s) and Save Changes menu items.

Navigation Menu

The Navigation menu contains five sub-menus:

- HDB Metadata -- contains all of the hdb_ metadata tables.
- Application Driver Info -- contains all tables used specifically by HDB applications, such as the ref_derivation tables, ref_agg_disagg, ref_dmi_object_slot_map, and the Hydromet driver tables.
- Water Accounting -- contains forms to manage water accounting-specific data, such as release annotations.
- User and Row-Based Privileges -- contains user lookup information, and the ref_auth tables used to implement row-based permissions.
- Physical Characteristics -- contains the physical characteristic tables for reservoirs, stream gages and diversions
- Site Coefficient Data -- contains the coefficient data tables
- Engineering Table-Lookup Data -- contains table lookup information, such as ref_res_flowlu and ref_res_wselu.

Peruse these sub-menus to become familiar with where tables of

interest can be found. In order to access the form for any table, simply traverse the drop-down menu and select the item of interest. The appropriate form will be raised over the current form.

Tools Menu

The Tools menu allows you to move in and out of Query mode. All items in the Tools menu are also available on the Icon Bar. Please see **See"Icon Bar" on page -13** for the functionality of the Enter Search Data, Perform Search, and Cancel Search menu items.

Next Page

Window Menu

The Window menu allows you to arrange the windows you have open, and to switch between any open forms.

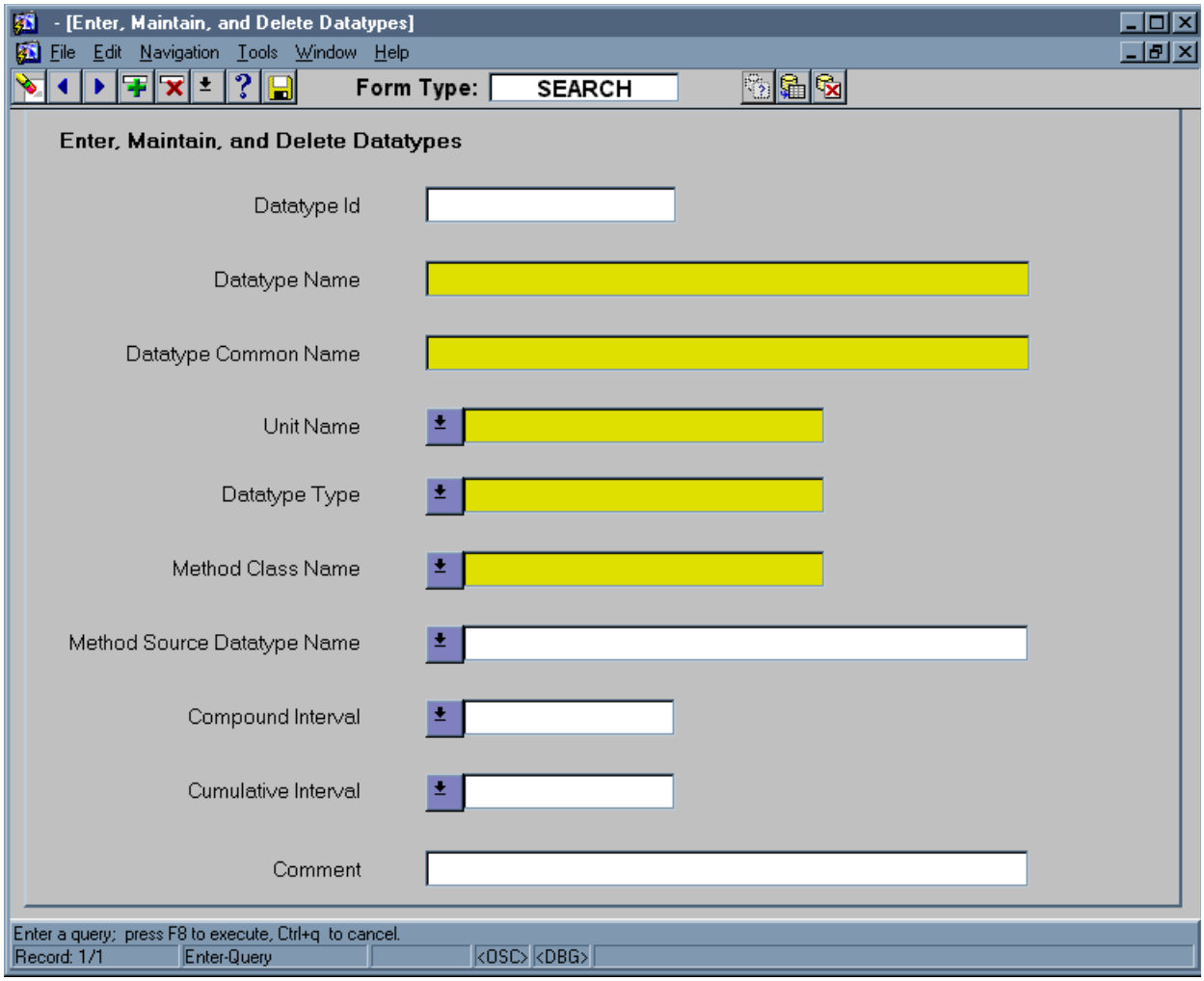
Previous Page

Help Menu

The Help menu is not of interest to most users, although you can determine which version of the application you're running by selecting "About the HDB Meta Data Application". Also, if you encounter an error while running the application, you can select "Display error" to gather more information on the error that occurred.

Form Structure

Let's assume you're working with datatypes; hence, the form for maintaining the *hdb_datatype* table is in front of you.



Next Page

Previous Page

Figure 1. Form for Maintaining HDB Datatypes

The Parts of a Form

From top to bottom, the parts of the form are:

- Form Name -- "(Enter, Maintain, and Delete Data Types)"
- Menu Bar

- Icon Bar
- Form Body
- Message Bar -- contains 2 lines. The first displays hint messages or messages generated by the application. The second contains several fields. The first displays the count of records retrieved by the last query. The second reads "Enter-Query" when the form is in enter-query mode. It is blank when the form is in Edit mode.

Icon Bar

Next Page

The form body varies for each form; the icon bar is identical for all forms. The icons on the icon bar are, from left to right:

Previous Page

- Clear Form -- clears the form of any data which has been retrieved or which you have entered.
- Previous Record -- Moves up to the previous record in the set of records being retrieved or added/edited. If you have added or edited the record you are currently in, you are prompted to save it, or not, before moving on to the previous record. If you choose not the save the record, its contents will revert to those originally selected from the database.
- Next Record -- Moves down to the next record in the set of records being retrieved or added/edited. If you have added or edited the record you are currently in, you are prompted to save it, or not, before moving on to the next record. If you choose not the save the record, its contents will revert to those originally selected from the database. Note for these two icons, Previous and Next Record: some forms are set up to display multiple records, others are set up to display only one. For those set up to display only one, the record you were viewing will disappear, but it is still being held in the form and can be accessed by moving through the set in the opposite direction.
- Insert a Record -- Inserts a (clear) record in the set of records currently in the form, into which you can enter the data for a new record. Does not work when the form is in enter-query mode.
- Delete record(s) -- Deletes the selected (current) record from the form and the database. You are asked to confirm the delete before it actually takes place.
- List of Values -- Brings up the list of values on the currently active field, if there is an LOV associated with this field.

Note: For all LOVs in the Meta Data Application, there is a also button which sits to the left of the associated text field. But, you can use the List of Values button on the icon bar when the cursor is *in* the text field with the associated LOV.

- Help with Selected Item -- Brings up the associated help message for any form item. Not applicable for any fields in the Meta Data Application.
- Save Changes-- This button writes any modifications made in the form *to the database*. You are prompted to confirm the save before it actually takes place. Note that most operations in the form, including Insert a Record, do not act on the database; they only change the content of the form. You must press the Save button to propagate your changes to the database to which you are connected. The exception is the "Delete a Record" button, which will delete the record from the form and the database.

Next Page

Previous Page

In the center of the icon bar is a field which tells you if you are in SEARCH mode or EDIT mode. To the right of that field are 3 icon buttons which manage your search:

- Enter Search Data -- This button puts the form from EDIT mode into SEARCH mode. Any data entered into the form when in search mode will be taken as search criteria. *The cursor appears as a question mark "?" when you are in search mode.*
- Perform Search -- This button sends the search criterion in the form to the database; only those records that match are returned. Note that if the form is empty when this button is pressed, all records in the table are returned. Once the appropriate records are retrieved, the form goes from SEARCH mode into EDIT mode. *The cursor appears normal, as a vertical bar "|", when you are in edit mode.*
- Cancel Search -- This button puts the form from SEARCH mode into EDIT mode. Any search criterion which were in the form are cleared. The user can then enter data to add to the database, if desired. *The cursor appears normal, as a vertical bar "|" when you are in edit mode.*

You can see the name of an icon at any time by positioning your mouse over it.

Searching for Data

When you bring up a form, it is in search mode. Simply type in your search criterion and press the Perform Search button to view the matching records. A couple of things to note about entering search data:

- A percent sign (“%”) is a wildcard. It can be used at any point in a character string to represent any unknown portion of the string. For instance, if you’re searching for “Wild Horse Basin”, and you’re not sure if “Wild” and “Horse” are 2 different words, or if “Basin” is actually in the name, you could enter “%orse%”. The search is case sensitive. A field with only a “%” will match all records, be they text or numeric.

Next Page

Previous Page

- You can use any numeric operator in a number field (<, >, =). For instance, if you want to find all IDs greater than 40, enter “>40”. If you want to find all IDs less than or equal to 20, enter “<=20”.
- To do a "between" (i.e., you want to select IDs which are between 10 and 20), type "#between 10 and 20".
- In some cases, you may desire to 1) enter in more complex search criteria than can be done through the form, or 2) change the pre-defined order of returned results. Forms has a built-in feature which supports this. You may enter a ":" (all alone) in any field in the form. This will bring up a dialog box which allows you to enter SQL to further specify a WHERE clause and/or an ORDER BY clause.

  For instance, if you want all datatypes that have a *compound_interval* of "day" OR that have a *datatype_type* that is "computed" -- you could put a ":" in any field in the form, and in the box that comes up, type in:

  where compound_interval = 'day' or datatype_type = 'computed'

  Alternatively, if you want to have datatypes be returned in order of *datatype_id*, rather than *datatype_name*, put a : in any field, and type in "order by datatype_id" and the rows returned will come in that order.

To view the retrieved data, use the scrollbar (if multiple records are displayed), or the Previous Record and Next Record buttons on the toolbar.

Once you have retrieved the records for a search, the form is in EDIT mode. You can modify or delete existing records, or you can add data by pressing the Insert a Record button.

To clear retrieved data and perform a new search, use Enter Search Data.

Next Page

Previous Page

Modifying Data

To modify existing data, select the value to be changed using the mouse, and enter in the new value. Your changes will not be saved to the database until you press the Save Changes button, or attempt to leave the record with a "Next Record" or "Previous Record" operation (in which case you will be prompted to save, or not.) Once the data is committed to the database, a message will appear in the message bar, showing you the number of records processed. (In the case of a master/snapshot setup, changes are committed only to the master database with a Save.)

Next Page

Note that primary key IDs are non-enterable and non-changeable; the first time you attempt to enter or modify a value for such an ID, a message will appear.

Previous Page

Adding Data

You can clear a record on your form for adding new data one of two ways:

- Perform a search, and after the records are retrieved, press the Insert a Record button; or
- Immediately after entering the form, press the Cancel Search button.

Next Page

After doing either of these operations, you may enter the new data into the (first) clear record in the form. You must press the "Save Changes" button to commit your additions to the database.

Previous Page

Note that the background color of each field is either white or yellow. White fields are not required when entering new data; yellow fields are required. All numeric IDs (such as site_id) are white (not required) because the user does not enter the value for a new record; it is generated automatically.

Deleting Data

In order to delete data, simply move the cursor to a field in the record to be deleted and press Delete Selected Record(s). You will be asked to confirm that you really do want to delete the current record, and reminded that the delete will impact the database as well as the form (assuming that the record has been saved to the database).

Next Page

Previous Page

Using Lists Of Values (LOVs)

Any field which has a down-arrow button to its left has a List of Values associated with it. Press the button, and a window with a list of all valid values (from the database) will be displayed. Select the value you want, and press OK to propagate that value to the form field in question. You may also type into the text field at the top of the dialog to limit displayed values to those matching what you've typed. Use Cancel to get out of the LOV selector without selecting a value into your form.

Next Page

LOVs are available in both Query and Edit mode.

If you are in Edit mode, and the value which you need is not present, you must add it first by using the form for the appropriate HDB lookup table.

Previous Page

Note: Some LOVs will not display a complete list of the values in the associated table. This is because the list is being pared-down based on other values already present in your form. If you feel that an LOV is not behaving properly, notify the development team.

Quitting a Form

Quitting a Form Using the Menu

At any time, you may go to the File menu and select Quit to close the form you are currently in. If you are in Query mode, you will have to select Quit twice; the first Quit will put you into Edit mode, and the second will quit the form. If you are in the midst of modifying data, you will be asked if you want to save your changes. Select Yes, No, or Cancel, as needed.

Next Page

Quitting a Form Using Windows "Close Window"

Previous Page

You may also quit a form using the standard method for closing a window in MS Windows, the "X" in the upper right hand corner of the window. Note that you actually have two windows open in any form; you need to use the lower "X" to close the form. If you are in Query mode, the form will close immediately. If you are in Edit mode and there are unsaved changes to the form, you will be asked if you want to save them.

Quitting the Application

To quit the application, get back to the Metadata Startup Window, and select File/Quit. If you are running at a master/snapshot installation, you will be prompted to do one of three things: really Quit, do a Refresh of any snapshots whose master data was changed (before quitting), or Cancel the quit. If you are running at an island site, you will be given the choice to Quit or Cancel.

Section 7 Using Application Functionality

Refreshing a Snapshot

Next Page

Previous Page

When you are connected to a Snapshot or Master site installation, all data edits to *hdb_* tables are being saved to the Master database. In order to see your changes at the snapshot site(s), you must explicitly do a refresh of the snapshot tables.

Note: Even if you are running at the Master site, and are not overly-concerned with data contents at any snapshot sites, you need to do a refresh if you've modified any hdb_ data. Data inconsistencies between a Master and its Snapshots will cause problems!)

In the current version of the Meta Data Application, refreshes are not automatic, and they are not limited to only those tables whose contents have changed. That is, the application does not track which *hdb_* tables have been modified, and refresh only those.

As things stand, when you have modified any *hdb_* tables, you must do one of two things to propagate the changed values to the snapshot site(s).

- Press the Refresh HDB Static Tables button on the main (Metadata Startup) window; or
- Select the Refresh option from the Quit dialog when you exit the application.

Either way, *all hdb_* tables will be refreshed, at all snapshot installations. This is a time-consuming process. After each snapshot installation has been refreshed, a message will appear indicating if the refresh was successful or not. A separate message will appear when all snapshot installations have been refreshed. Press OK and continue (with the application, or with quitting).

Note that, if you are modifying several *hdb_* tables, you only need to do a Refresh once, after all modifications have been saved to the Master database. This is because the Refresh procedure refreshes snapshots in an order which reflects any dependencies between the *hdb_* tables.

Maintaining Datatype Data

The form for maintaining datatypes in HDB is quite simple, but we mention it here because there are several other forms, and pieces of Meta Data, which the hdb_datatype form relies on to work properly. Users of the form should be aware of these dependencies. (**See Figure 1 on page 12** for the hdb_datatype form.)

Next Page

The information in this section assumes that you have read all the sections on datatypes in the HDB User's Guide. The examples will prove particularly useful in the context of using the hdb_datatype form.

Previous Page

The instructions here are for creating or modifying data; no special instructions apply for querying or deleting data.

Note: This form does not, currently, visually support the datatype business rules which are itemized in the HDB User's Guide. However, inappropriately-entered data will be caught when the data is saved, and associated error messages will be displayed back to the form user.

Datatype_Id

This field is generated automatically and cannot be entered when you're creating or editing a datatype. Once the new datatype is saved to the database, the newly-assigned *datatype_id* will show up in this field.

Datatype_Name

Enter a complete, technically descriptive name for the datatype here.

Datatype_Common_Name

Enter a user-friendly name that might be used by graphing applications, etc., to describe the data.

Unit_Name

Select the name of the unit in which this datatype will be stored in HDB (not necessarily the same unit in which a given data source might represent the datatype). If the unit does not yet exist, you must create it using the hdb_unit form.

Datatype_Type

Select the appropriate type of the datatype: simple, method-applied, computed, or a combination of any two of these types (rarely needed, but possible). See ?? for a description of each of these datatype types.

Method_Class_Name

If this is a method-applied datatype, select the method class name which describes how this data is arrived at. If this is not a method-applied datatype, select 'N/A'.

Next Page

Method_Source_Datatype_Name

Previous Page

If this is a method-applied datatype, select the datatype to which the method is applied to arrive at the datatype you are defining. That is, if you are defining average flow, the method_source_datatype_name is "instantaneous flow", to which an averaging method will be applied. If you do not find the appropriate datatype_name, this means that it has not yet been created as a datatype in HDB. You must first create this source datatype before adding any datatypes which use it as a source.

Compound_Interval

If you're creating compound data (aggregating data which has already been aggregated, such as taking an average of maximum temperatures), then enter then interval of the source data which will be used to create the new data. For instance, if you will be averaging *daily* maximum temperatures, select "day".

Cumulative Interval

If this is cumulative or percent-of-normal data, enter the interval over which the accumulations are taken. Typically, this is water year (wy), but any interval is valid. If the accumulation is simply within the interval in which the data will be stored (e.g., what we think of as "total precipitation" for the day is really an accumulation within the day) then use "table interval".

Comment

Enter a free-form comment about this datatype, if you wish.

Maintaining Derivation Application Driver Data

The Derivation Application Driver Tables Form is the primary interface between HDB users and the Derivation Application. As such, it is important that the form be well designed and well understood. This section explains the use of the form and its fields, as well as the impact that various values have on the behavior of the Derivation Application.

The Derivation Application Form

Next Page

Below is the Derivation Application Driver Tables form. As with all forms in the Meta Data Application, this form comes up in Search mode.

Previous Page

Searching For Derivation Application Specifications

Searches for Derivation Application specs can only be conducted in the master block of the form, Ref Derivation Source. In this block, any of the fields can be queried on by entering a value in the field, and pressing the Perform Search button. The exception to this is the radio buttons which indicate "Copy Only" or "Derive". Activating these radio buttons does not impact the search in any way. You may use the Lists of Values (LOVs) in Search mode.

Creating Derivation Application Specifications

To put the form into Edit mode, either execute a search, or press the Cancel Search button.

Derivation Source Data

The upper portion of the form, labeled Ref_Derivation_Source, is where you specify information about the source data to be used in the derivation.

Site Datatype Name: This is the name of the site_datatype which holds the source data for the derivation. The LOV is ordered by site name, then datatype name. Once a site datatype is selected, the corresponding Site Datatype ID is displayed in the field to the right.

Site Datatype ID: This is the ID of the site_datatype which holds the source data. If you know the ID, you may enter it into this field, rather than selecting a name. Once you click outside the ID field, the corresponding name will appear in the Site Datatype Name field.

Base Data Interval: This is the interval of the source data, that is, the interval at which the data arrives in r_base. Use the LOV to select from valid interval values. If you select Instant or Other, the value "hour" will appear in the First Derivation Interval field. If you

select any other interval (e.g., day) the next larger interval (e.g., month) will appear in the First Derivation Interval field.

Effective Start Date: This is the date and time that this specification, either the original or the updated, becomes effective. It is populated automatically by the database and displayed back to the Forms interface; do not enter a value for this field.

"Copy" or "Derive" Radio Buttons: Select one of these radio buttons to indicate if you only want the data to be copied from r_base into its corresponding interval, or if you want to create data at larger intervals (derive it up into new data) with this source data.

Next Page

- Copy: If you choose Copy (the default), all fields which pertain only to derived data will be inactivated (greyed out). This includes the First Derivation Interval field in the Ref_Derivation_Source block, as well as the entire Ref_Derivation_Destination block.

Previous Page

- Derive: If you choose Derive, fields which pertain only to derived data will be activated. *You can only enter a destination data specification if you have chosen Derive*.

First Derivation Interval: This field indicates the first interval to which base data will be derived. If the base data is already of a regular business interval (hourly or greater), the first derivation interval is always the next larger interval. For instance, if base data is hourly, First Derivation Interval will contain "day", and "day" is the only value available in the LOV. If the Base Data Interval is Instant or Other, the default First Derivation Interval defaults to hour, but you may choose any displayed interval from the LOV. This is to allow for the fact that Instant or Other data may be sampled irregularly, and that generating hourly data from it may not be possible.

Note: All data derived from this particular source will be derived starting at the same First Derivation Interval. That is, you may derive maximum, minimum, and average data from the same instantaneous data, but if First Derivation Interval is set to Hour, all of these pieces of data will be created initially for the hour.

Note: After being derived to the First Derivation Interval, data is derived up into every interval above that initial one. That is, you cannot derive hourly data without also deriving daily, monthly, yearly, and water yearly data.

Time Offset in Minutes: This value offsets the interval by the specified number of minutes. For instance, normally an hour runs from on-the-hour to on-the-hour. A value of 10 for the offset will shift the hour; it will run from 10 minutes after the hour to 10 minutes after the next hour. The offset is useful for handling delays in reporting from telemetry devices, where the delay is actually reflected in the time stamp of the data.

Max Value Cutoff: The maximum value allowed for source data. If

a value is above the cutoff, it is not copied out of r_base to its corresponding interval table and it is not used as source data for any derivations.

Max Value Expected: The maximum value expected for source data. If a value is above the maximum expected, but less than or equal to the maximum cutoff value, it is used as source data; however, when copied to its corresponding interval table, it is flagged as being above the maximum expected value.

Min Value Expected: The minimum value expected for source data. If a value is below the minimum expected, but greater than or equal to the minimum cutoff value, it is used as source data; however, when copied to its corresponding interval table, it is flagged as being below the minimum expected value.

Next Page

Previous Page

Min Value Cutoff: The minimum value allowed for source data. If a value is below the cutoff, it is not copied out of r_base to its corresponding interval table and it is not used as source data for any derivations.

Note: If any of the Cutoff or Expected Values fields are NULL, the Derivation Application does not perform that particular check on the source data.

Derivation Destination Data (Derived Values)

The lower portion of the form, labeled Ref_Derivation_Destination, is where you specify information about the data to be derived. There may be multiple destination specifications for any given source data specification. Only one destination specification is displayed at a time.

Derive: This field indicates the base site datatype being used. When you click in this field, the source Site Datatype Name will appear. (This field is present to clarify which site datatypes are being derived into which.)

To SDI: This is the site datatype to which you are deriving the source data. That is, if your source data is instantaneous flow, and you want to create average flow from that, select the "average flow" record for your site. The LOV will contain only site datatype names for the current site, including the base_site_datatype_id (which it makes no sense to select as the "to SDI").

Using Method Of: This is the exact calculation method you wish to use in deriving the value. The LOV is limited to methods that are appropriate for the method_class associated with the datatype to which you are deriving; for example, if you are deriving to average flow, the methods available will be data point average and time weighted average using linear interpolation.

Partial Calc: This field determines whether or not the Derivation Application will derive a value for an interval that is not yet

complete. That is, if a derivation is being performed to create monthly values, and it is the 12th of the month, the application will go ahead and derive a value for the month, using what values are avaialable, if partial_calc is set to "Y". If it is set to "N," a mid-interval value will not be derived. When a value is derived part way through an interval, it is flagged as being a partial calc value.

Note: The partial_calc value applies to all intervals of data being derived. That is, partial_calc cannot be set to Y for hourly and daily, and N for monthly, yearly, and water yearly.

Next Page

Previous Page

Compounding from SDI: When you are creating compound data, this field is populated with the name of the site datatype from which the compounding occurs. That is, if you are creating "Average daily maximum air temperature" from anything other than "maximum air temperature" at a daily interval (in which case the destination data is not the result of a compounding operation) this field will automatically be populated with "Maximum air temperature" for the same site. This indicates that, regardless of what the base site_datatype is (it might be instantaneous air temperature), the value will be derived from this intermediate datatype.

At Interval: This is the interval from which the "compounding from" data will be pulled. If you are creating "Average daily maximum air temperature," this will read "day" to indicate that only daily maximum air temperature values will be used in the derivation. This is important because an average of daily maximums can produce a different value than an average of hourly or monthly maximums.

Effective Start Date: This is the date and time that this specification, either the original or the updated, becomes effective. It is populated automatically by the database and displayed back to the Forms interface; do not enter a value for this field.

Note: Because values can only be derived for intervals greater than the compound interval (it makes no sense to create a daily average of daily maximums), all interval-specific information for intervals less than or equal to the compoud interval will be inactive (greyed out) for compound datatype derivations. This includes beginning and end of period windows, and number of source value specifications.

Interval Specific Specifications

The remaining fields in the Ref_Derivation_Destination block are interval specific. That is, each value can be specified individually for each interval.

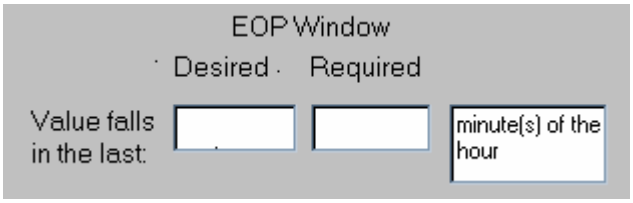
Note that only the rows and columns needed are activated. This means that only rows for intervals which will be derived to in the derivation (first_derivation_interval and above) are active. And, the column activated (BOP Window, EOP Window, or Num Source) is dependent on the datatype implied by the site datatype. So, if the derived datatype is a beginning or end of period value, the BOP

or EOP columns will be active, respectively. If the value is not BOP or EOP, the Num Source columns will be active.

Window Values: Window values are always specified in units of time one smaller than the current interval. For instance, when specifying a BOP window for hourly data, you must specify it in minutes. If the BOP data is monthly, you must specify the window in days. The graphic below shows how the display reads when the EOP window columns for the Hour interval are activated.

Next Page

Previous Page



The user is to enter values to complete the Desired and Required windows. For instance, if Desired = 10, then it is preferable that a value to be used as an EOP reading falls in the last 10 minutes of the hour (inclusive). If Required = 15, then the value must fall in the last 15 minutes of the hour (inclusive) to be considered. Values that are between 11 and 15 minutes from the end of the hour (inclusive) are used, but the derived data is marked as having source data outside the desired window.

Beginning of Period window values work the same as End of Period, except that the window defined is from the beginning of the hour.

Note that both BOP and EOP windows are referenced from the interval *as defined or redefined*. If the interval has not been redefined, the window will reference the standard (clock/calendar) beginning or end of interval (midnight, in the case of days). There are two ways to redefine an interval. First, the interval can be redefined at the installation level (i.e., day re-defined as 8am to 8am). In this case, a window of 1 hour from the beginning of the day (on a BOP value) would be interpreted as between 8 and 9am. The interval can also be redefined with the source data time offset in minutes. If an offset of 10 minutes is given, and there is an EOP window of 15 minutes before the end of the hour, the window is actually interpreted as from 5 minutes before the clock hour to 10 minutes after the clock hour, since the hour actually ends 10 minutes after the clock hour.

Num Source, Desired and Required: The Number of Source Values fields allow the user to specify a minimum desired and required number of source values for each interval. For instance, in creating hourly data, you may desire 4 source values, and will accept no less than 2. If an hourly value is created with 2 or 3 source values, it will be flagged as having fewer than the desired number of source values. If there is only 1 source value available, the value will not be derived. For daily data, you may desire 20 values and

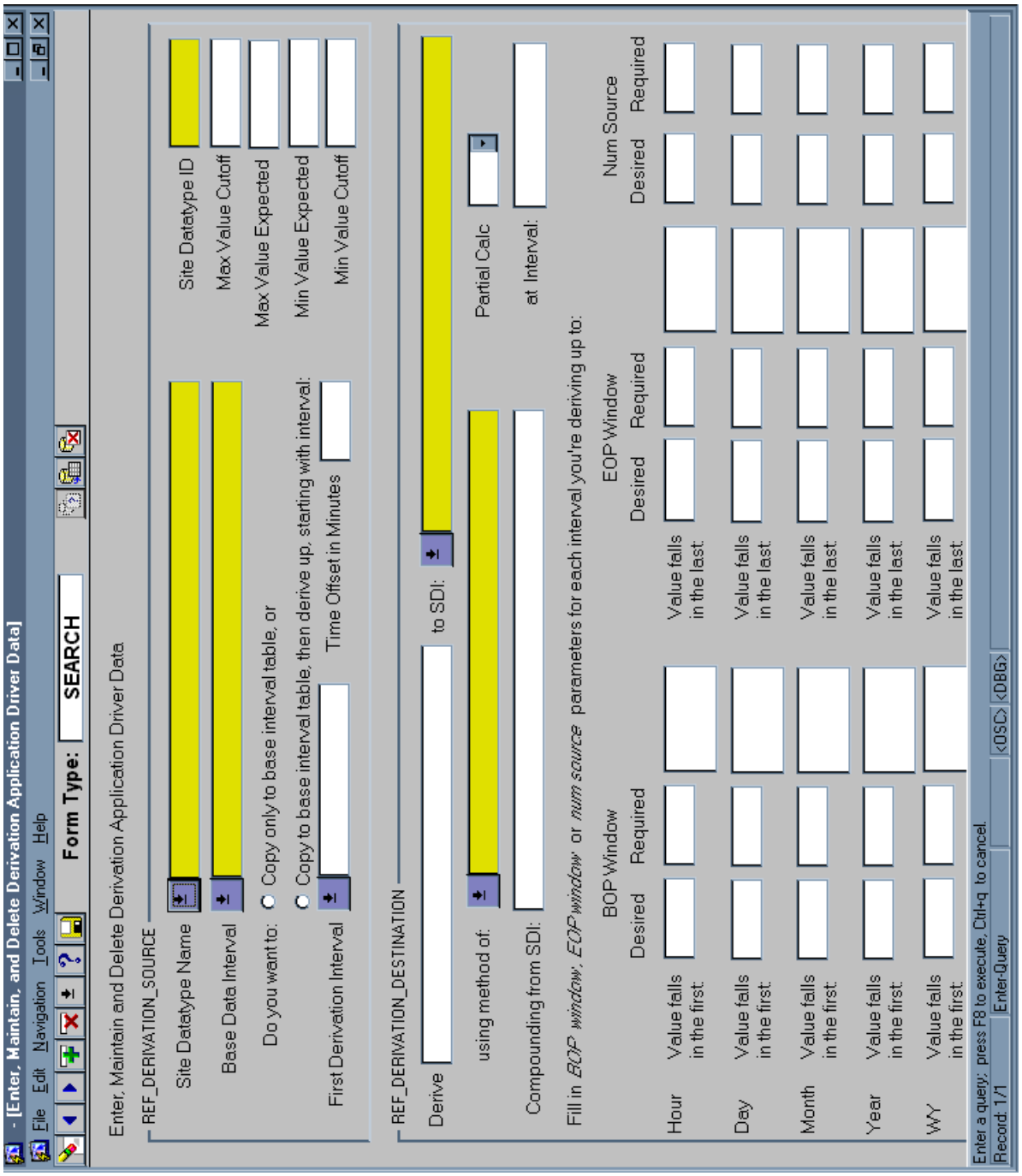
require 16, which is why each interval is specified seperately.

Archiving of Derivation Application Specifications

The specifications for the Derivation Application are archived automatically within the database; this means that, in the case of an update or delete to a specification, the old specification will be written off to an archive table. A comment can be associated with the archived value in order to indicate the reason for the changed specification. To support this, when an update or delete is made via the Meta Data Application, a dialog box appears that allows the user to enter a comment for the archived value. If the user chooses to dismiss it, no comment will be stored in the database. Source and destination specifications are archived separately, so comments are entered separately for changes to these blocks.

Next Page

Previous Page



Next Page

Previous Page

Maintaining Release Annotation Data

The Annotation Facility is intended for use in creating and editing release annotations that document the reason for releases made, and that are ultimately used in creating the automated "Greenbook" reports provided as part of Water Accounting for HDB functionality. Specifically, the Annotation Facility can be used for the following:

Next Page

- Creating new release annotations, including creating the information specific to letters, leases, and borrows.

Previous Page

- Associating additional release annotations with an already existing letter, borrow or lease (e.g., in the case of a letter release being stopped temporarily, and then re-started, to accommodate other demands on the river).
- Editing existing annotations (e.g., inputting the date a release of letter water is actually completed).
- Deleting existing annotations (if necessary).
- Querying existing annotations based on, for instance, the contractor, release type, or reservoir that the release is associated with.

The Annotation Facility is not intended to be a general-purpose annotation reporting tool or Greenbook Report creation tool.

From here forward in this section, the information specific to letter, borrow and lease annotations will be referred to collectively as "auxiliary annotations".

The Release Annotation Form

Structure of the Form

The Annotation Facility is provided as a separate form under the Navigation / Water Accounting menu in the Meta Data Application. The form is shown below. As with all forms in the Meta Data Application, this form comes up in Search mode.

The form is divided into two sections, Main Annotation and Auxiliary Annotation. The Main Annotation block holds information applicable to all annotations. The Auxiliary Annotation block holds the additional information associated with letters, borrows and leases. For any given Main Annotation, only one of the Auxiliary Annotation blocks (Letter, Borrow, or Lease) can be active. If the Main Annotation is of a different type (e.g., irrigation) then none of the Auxiliary annotation blocks will be active.

Next Page

Previous Page

Overview of Form Functionality

This section and the following ones assume that the reader is familiar with Section 7, "Using Application Functionality," on page 9, that explains the toolbar and basic functionality of all forms in the Meta Data Application.

- The Auxiliary block that is active (if any) always depends on the Main Annotation being displayed. That is, if the Main Annotation has an Annotation Type of "letter", then only the Letter block is active; Borrow and Lease will be greyed out and inactive. The state of the Auxiliary blocks changes as each new Main Annotation is created or displayed.

Next Page

- The state (active or inactive) and contents of the Auxiliary Annotation field of the Main block also depends on the Annotation Type. If the type is letter, borrow, or lease, the field is active and the contents of its list of values are all Auxiliary annotations of the appropriate type. If the annotation is of another type, this field is inactive.

Previous Page

- The list of values for Supply Name can be narrowed down, in either search or edit mode, by specifying contractor and/or reservoir and/or release type before bringing up the Supply Name list of values. Only supplies that have contractor, reservoir and release type matching what's been entered will be displayed in the list of values. This functionality is intended to expedite finding the desired supply name in the list of supplies.

- It is not possible to enter query criterion into any of the Auxiliary blocks. See "Example: Retrieve Annotations for a Specific Letter, Borrow, or Lease" on page 35 for instructions on how to query based on an Auxiliary annotation.

- All dates must be of the format DD-MON-YYYY. This is supported by the date-picker associated with each date in the form. Note that the data picker is not available in Search mode, only in edit mode. However, dates can be typed in manually while in Search mode.

Querying Annotations

When the Annotation form first appears, it is ready for query criteria to be entered, and a query executed. This is represented visually in two ways: the cursor appears as a question mark ("?") and the top center of the form shows a Form Type of "Search".

Queries are made by specifying search criterion in the fields on the form. All annotations that match the criterion are returned and displayed in the interface, one annotation at a time. If no annotations match the criteria, then none are returned for display. If no search criteria are entered (that is, there is nothing

restricting the search), then all existing annotations are returned. The records are returned in order of the Release Start Date, from most recent to least recent. The form will be in Edit mode once the query is executed.

To peruse the resulting set of annotations, ensure that the cursor is positioned in the Main Block, then use the Previous Record and Next Record buttons on the toolbar.

Following are a few examples of how to query annotations. This set of examples is far from exhaustive; the user should be aware that search criterion can be combined in almost any way desired.

Next Page

Previous Page

Example: Retrieve Annotations for a Specific Reservoir and / or Release Type

If the user wishes to see all annotations for releases made out of Abiquiu Reservoir, then, while the form is in Search mode, the user should select "Abiquiu" from the list of reservoirs, then press the "Execute Query" button. If the user wishes to restrict the annotations to those for a particular release type, then the desired release type should be selected from the list of values, either instead of or in addition to the reservoir name.

Example: Retrieve Annotations for a Specific Letter, Borrow, or Lease

If the user wishes to find all Main annotations associated with a particular letter, or to view the annotation information for the letter itself, then the user should 1) select an annotation type of "letter", then 2) select the appropriate letter from the list of values for the Auxiliary Annotation field. When the query is executed, all Main annotations associated with that letter, and the letter details themselves, will be returned to the form. Note that the Auxiliary Annotation field is active only when in search mode, and only when the Annotation Type is letter, borrow or lease.

Example: Retrieve All Annotations

To query all annotations existing in the database, simply press the "Execute Query" button, without entering any search criteria.

Creating New Annotations

This section describes how to create a completely new annotation (that is, both the Main and Auxiliary annotations), and how to associate a new Main annotation with an already-existing Auxiliary annotation.

To create an annotation, first ensure that the form is in Edit mode. This is represented visually in two ways: the cursor appears as a vertical bar ("|") and the top center of the form shows a Form Type of "Edit". If the form is not in Edit mode, take it out of Search mode by either executing a query with the current query criteria,

or canceling the current query by pressing the Cancel Search button.

Main Annotations

Provide the information necessary to complete the Main annotation:

- Release Start Date: Enter the start date for the release, using the calendar if desired.
- Annotation Type: Select the appropriate Annotation Type from the list of values.
- Auxiliary Annotation ID: This field is not active in Edit mode. The proper value will be filled in automatically if an associated letter, borrow, or lease annotation is created.
- Supply Name: Select the name of the supply from the list of values. This list is ordered by the Supply Name. Other information that can help identify the correct supply is shown to the right of the name, including the contractor, reservoir and release type. If you wish to narrow down the list of supplies, enter desired value into Contractor, Reservoir or Releasetype before pressing the Supply LOV button.
- Contractor, Reservoir, Releasetype: Use only if desired, to narrow supply list..
- Description: Enter a short description (30 characters or less) of the reason for this release. This information will be displayed in the Greenbook Report.
- Related Annotation: If desired, select the appropriate Main annotation with which to associate the current annotation. The list of related annotation values is ordered by the Release Start Date, an includes the Annotation ID, Release Type, Description and Supply Name for ease of selection. For instance, when annotating a payback, it might be appropriate to select a related annotation that points to the initial borrow information.
- Comment: If desired, entered in any additional notes that should be associated with this release (up to 2000 characters).

Press the Save Changes button to write the Main annotation to the database.

If this is a letter, borrow, or lease, continue on and enter the appropriate information as described below. Otherwise, this annotation is complete; you are ready to enter another Main annotation (with the Insert a New Record button), query the database, or exit the form.

Next Page

Previous Page

Auxiliary Annotations

Once the Main annotation has been entered and saved, an Auxiliary annotation can be created. It is not possible to create an Auxiliary annotation without first creating the Main annotation.

Go to the active Auxiliary Block and provide the information necessary to complete the letter, borrow, or lease.

Next Page

Previous Page

Letters

- Letter Issued Date: Enter the date the letter was issued, using the calendar if desired.
- Amount Required AF: Enter the amount that the letter requires be released, in acre-feet.
- Volume Above Otowi: Enter the amount of the depletion that occurred above Otowi, in acre-feet.
- Volume Above Otowi: This will be filled in automatically based on the values in the previous two fields.
- Given To Owner: Select the owner receiving this water.
- Depletion Start Date: Enter the depletion start date.
- Depletion End Date: Enter the depletion end date.
- Released to Site Name: Select the site to which this water is being released.
- Required Complete Date: Enter the date by which the release must be complete.
- Complete Date: If known, enter the date the letter release is complete. Otherwise, fill this in at another time.
- Conveyance Losses AF: If known, enter the conveyance losses in acre-feet. Otherwise, fill this in at another time.
- Control Number: If known, enter in the control number for this letter document.

Once completed, press the Save Changes button to store this letter in the database.

Borrows

- Borrow Date: Enter the date associated with this borrow.
- Borrowed From Owner: Select the owner from whom water is

being borrowed.

- Borrow Amount: Enter the amount of the borrow.
- Borrow Type: Select the type of the borrow.

Once completed, press the Save Changes button to store this letter in the database.

Leases

Next Page

- Purchased From Owner: Select the owner from whom the water is being purchased.
- Contract Number: Enter the contract number for this lease.

Previous Page

- Lease Amount: Enter the amount of the lease.
- Lease Type: Select the type of the lease.

Once completed, press the Save Changes button to store this letter in the database.

Editing Existing Annotations

To edit an existing Main or Auxiliary annotation, it is necessary to first bring up the desired annotation by executing a query as described in "Querying Annotations" on page 34. If any identifying information on the annotation is known, enter it into the appropriate fields before executing the query; this will limit the set of annotations returned.

Once the desired annotation is displayed, edit the Main and/or Auxiliary annotation fields necessary, then press the Save Changes button to write the new information to the database.

Deleting Annotations

It is possible to delete existing Main and Auxiliary annotations. Unless the annotation is entirely inaccurate, this is not recommended, as each annotation provides important documentation on operational decisions.

An Auxiliary annotation cannot be deleted on its own; the Main annotation, and its Auxiliary annotation (if any) must be deleted together. The application enforces this behavior.

To delete an annotation, first bring up the desired Main and/or Auxiliary annotation by querying the database. Place the cursor in the Main annotation block, then press the Delete Selected Record(s) button. Confirm or cancel the operation when prompted.

Maintaining Hydromet Driver Data

The maintenance of Hydromet Driver data has, in the past, always been a relatively complex and tedious process. Six different tables store the information for Hydromet sites and pcodes and their mappings to HDB, and understanding the relationships between these tables is not easy. The Meta Data Application uses two forms to represent these six tables. The structure of these forms shows more clearly the relationships between the tables, and the built in lists-of-values make finding and inserting the proper information much simpler.

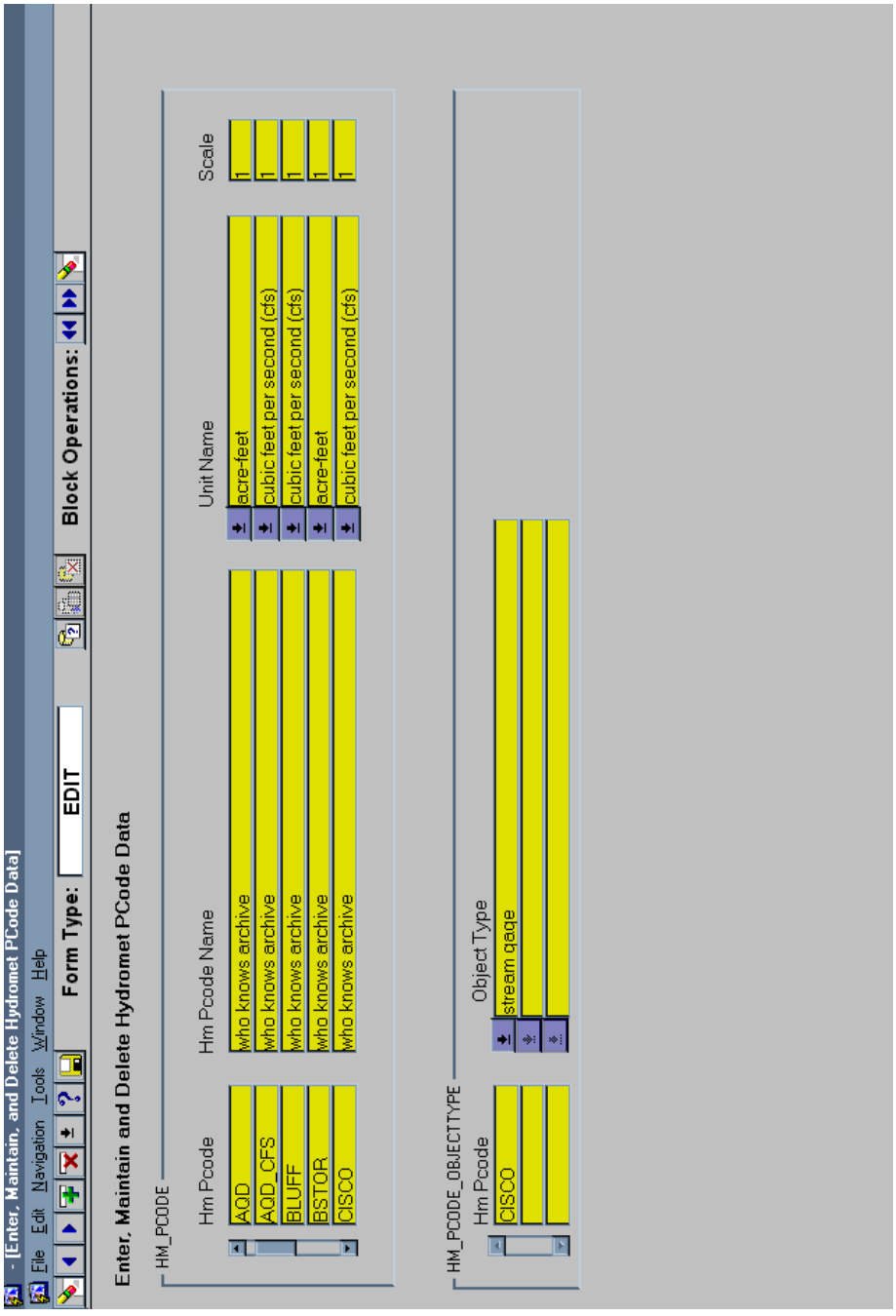
Next Page

Previous Page

The Hydromet Forms

The Ref_Hm_Pcode form, for maintaining pcodes and their

mapping onto HDB Objecttypes, is shown below.



Next Page

Previous Page

The first block represents *Ref_hm_pcode,* the main lookup table for Hydromet parameter codes (pcodes).

The second block represents *Ref_hm_pcode_objecttype*, which maps each hm_pcode in ref_hm_pcode to the various objecttypes for which it might hold data. Because each Hydromet site code can refer to more than one HDB site_id (each one of a different objecttype), an objecttype_id is part of the mapping information. For instance, the pcode ACAF can be associated with both acoustic velocity meters and reservoirs.

The record(s) displayed in the Ref_Hm_Pcode_Objecttype block always reflect the cursor record in the Ref_Hm_Pcode block. That is, the child record displayed is always for the active parent record.

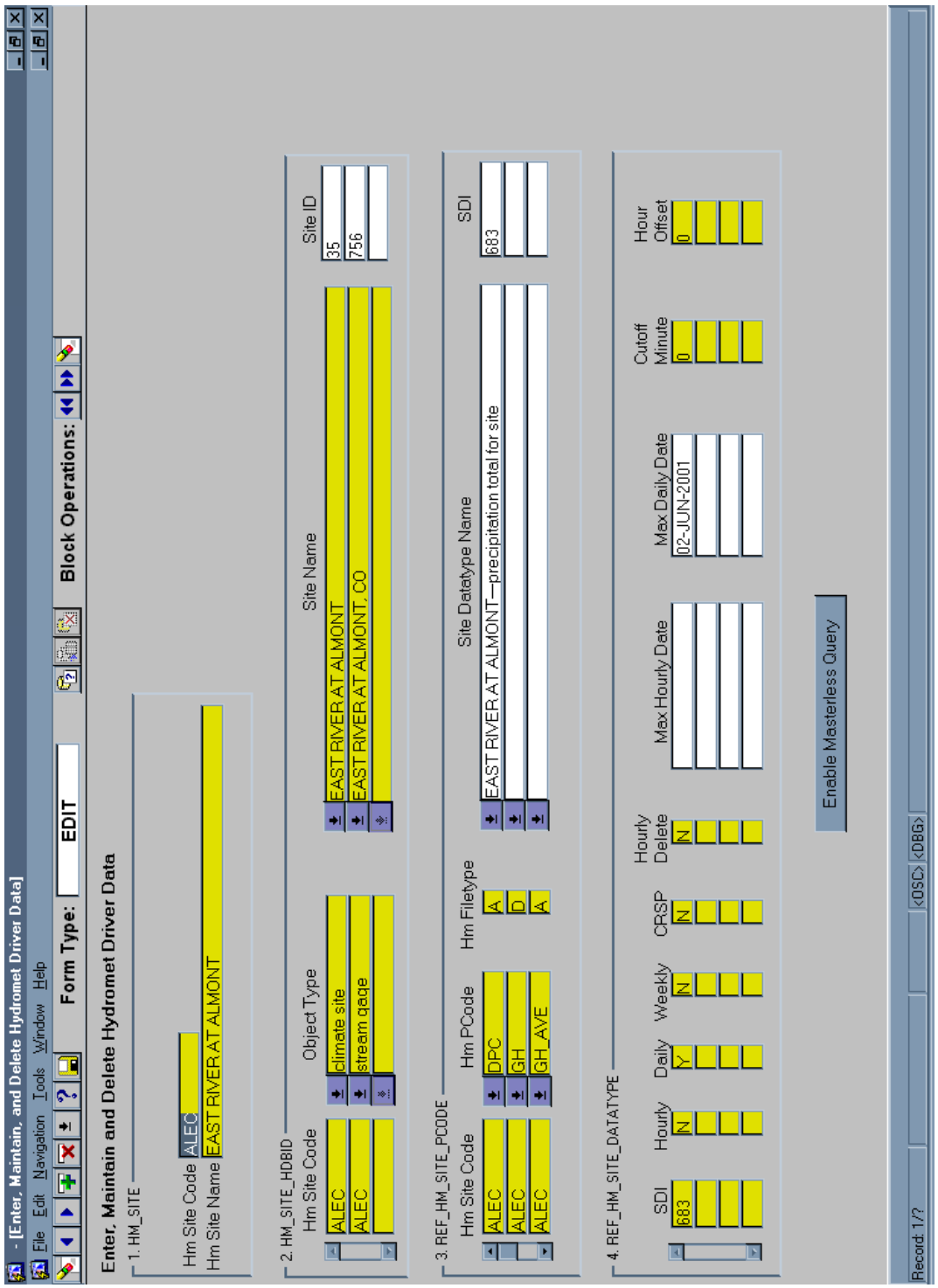
Next Page

In the example shown, the Pcode CISCO holds data only for HDB stream gages.

Previous Page

It is important to make sure that all needed Pcode information is in HDB before adding site code/pcode combinations (using the Hydromet form) and mapping them onto site_datatype_ids.

The Hydromet form is shown below:



Each section of the form is called a *block*; each block represents one of the remaining four driver tables. From left to right, top to

Next Page

Previous Page

bottom, the tables represented are: ref_hm_site, ref_hm_site_hdbid, ref_hm_site_pcode, ref_hm_site_datatype.

The relationships between the tables are as follows:

Ref_hm_site is the main lookup table for Hydromet site codes.

Ref_hm_site_hdbid maps each hm_site_code in ref_hm_site to an HDB site_id. Because each Hydromet site code can refer to more than one HDB site_id (each one of a different objecttype), an objecttype_id is part of the mapping information.

Ref_hm_site_pcode maps a site/pcode combination to a site_datatype_id in HDB. Because the appropriate site_datatype_id can vary depending on whether the site/pcode combination appears in Dayfiles or in Archives, the hm_filetype is part of this mapping.

Next Page

Previous Page

Ref_hm_site_datatype is the true driver table for the application. For each site_datatype_id that is associated with a site/pcode combination, this table 1) indicates which applications should load the data; 2) stores the maximum date for which data is currently stored in HDB for the site_datatype_id; and 3) stores time-mapping information in the form of a cutoff minute and an hour offset.

Note: Note also that on the far right side of the toolbar are three block operations: Previous Block, Next Block, and Clear Block. The behavior of these buttons should be self-explanatory. Clear Block and Clear Form have the same graphic representation, but Clear Form (far left button on toolbar) will clear all blocks in the form, and Clear Block will clear only the current one.

Form Behavior

The Hydromet form in particular is complex because of the dependencies between the different blocks; these dependencies are based on foreign key relationships in the underlying database tables. The relationships are called “Master-Detail” relationships. A master block represents the table that serves as the lookup; it has the primary key to which other tables point. A detail block depends on a master block; that is, the information in that block makes no sense unless its master block is filled with corresponding data. For instance, a list of site_names in the ref_hm_site_hdbid block would be meaningless unless the ref_hm_site block was filled; the information in ref_hm_site tells you which site_code those site_names “belong to”.

Also, a detail block can be the master for another block. Ref_hm_site_pcode is a detail block to ref_hm_site, but is the master block for ref_hm_site_datatype.

These relationships between blocks are manifested in the behavior of both the Ref_Hm_Pcode and Hydromet forms. The following rules apply to the forms:

- When a master block is queried and populated with data, all of its dependent detail blocks will also be queried for corresponding data. This data will be displayed immediately. If there is no matching data (no detail records) the mapping key (e.g., the site_datatype_id in the case of ref_hm_site_pcode and ref_hm_site_datatype) will still be displayed in the detail block, but the remaining fields will be empty.
- The data displayed in a detail block always matches the current record of the master block. That is, 40 records may have been retrieved in a master-block query, but only one is currently selected (has the cursor in it). The detail block matches the current record in the master block. If you move to the next record in the master block, the detail block is updated to reflect the new master data.
- A detail block cannot be queried. This is because there is no guarantee that the master block will hold corresponding data. The exceptions to this are the ref_hm_site_pcode and ref_hm_site_datatype blocks, which can be queried independently of data in ref_hm_site. (**See "Direct Querying of Site/Pcode Combinations" on page 45.**) Therefore, ref_hm_site_hdbid and ref_hm_pcode_objecttype are the two blocks which can never be queried in these two forms application.
- When a master block is cleared, its corresponding detail blocks are also cleared.
- A detail record cannot be added unless a corresponding master record exists.

Next Page

Previous Page

Searching for Data

By default, in the Hydromet form, only ref_hm_site is always ready to be queried. Querying this block fills in its dependent detail blocks: ref_hm_site_hdbid and ref_hm_site_pcode. When ref_hm_site_pcode gets populated, it triggers the population of ref_hm_site_datatype. So, querying down to the driver-table level is very simple.

As with all other forms in the application, you can query all records in a block by using the "%" wildcard character, or you can request only specific rows by entering the desired value.

Note: Ref_hm_site_datatype will not get populated with *all* rows that exist for the queried site. Rather, it will only contain data for the site_datatype_id that is active (selected) in the ref_hm_site_pcode block. If no rows appear in ref_hm_site_datatype when you query a given site, it may be that the active row in ref_hm_site_pcode has no site_datatype_id associated with it; hence, there are no matching records in ref_hm_site_datatype. Moving the mouse to a record in

ref_hm_site_pcode that does have a site_datatype_id will populate ref_hm_site_datatype.

Direct Querying of Site/Pcode Combinations

In some cases, it may be desirable or more expedient to query ref_hm_site_pcode or ref_hm_site_datatype without querying their master tables. Reasons for this might be:

- You want to see if a particular site_datatype_id is "turned on" for one of the dataloading applications, and you know the site_datatype_id without looking it up. In this case, you'd want to query ref_hm_site_datatype.
- You want to know which site_datatype_id a particular site/pcode combination is mapped to. In this case, you'd want to query ref_hm_site_pcode.

Next Page

Previous Page

To handle either of these situations, the easiest thing to do is a masterless query. The default behavior of the form is to not allow a query of a detail block unless the master block is populated. Doing a masterless query means that you can query the detail block regardless of the state of the master block.

At the center bottom of the form is a button labeled "Enable Masterless Query". This button is enabled only when the form is in Edit mode. When you click on the buttton, the cursor will be placed in the ref_hm_site_pcode block. (If you want to query ref_hm_site_datatype, you can move the cursor to that block, or use the Next Block button on the toolbar.) The form is now in Query mode, and you can enter in the search criteria that you're interested in.

Once the query is executed, masterless query is again disabled for safety reasons.

Modifying Data

To modify existing Hydromet driver data, query and move through records until the data which needs to be changed is in view. Edit the values as required, then do a Save. As with other forms in the Meta Data Application, if you attempt to move out of a changed or new record before saving it, you will be prompted to save to the database before moving on.

Adding Data

For a complete description of how to create new Hydromet mapping and driver data, refer to the document "Hydromet Data Loading Applications." This section gives a brief description based on the design of the Hydromet form.

Note that when you bring up this form, you are asked whether or not you have already added any needed supporting information using other forms. Such information might include sites, datatype, site-datatypes, objecttypes, pcodes, and pcode-objecttype mappings. If you know you have not added all information that you need to proceed, you can "Cancel" out of the form. Otherwise, "Continue". (You can of couse exit the form at any time if you discover that you don't have all the supporting data that you need.)

Once the form is open:

Next Page

1. First of all, query the site code in ref_hm_site. If it does not exist, add data for it. Save.
2. Next, map the site onto an HDB site_id. If the lists-of-values in ref_hm_site_hdbid do not show you the objecttype or site_name needed for this mapping, you must first create the new objecttype and site using the appropriate forms(hdb_objecttype or hdb_site). Then come back to this task. (You can save Step 1 without filling in ref_hm_site_hdbid.) Save.
3. Now you have the site information, and it is assumed that the pcode you need already exists in the ref_hm_pcode table. Create a site/pcode mapping in ref_hm_site_pcode. Select the desired pcode by using the Pcode list-of-values. Select the filetype for the file in which the site/pcode appears: A for Archives and D for Dayfiles. You may need to add a record for each filetype, if the data is available in both dayfiles and archives, and you wish to load both into HDB. For each filetype, enter the site_datatype to which the site/pcode maps. If you know the site_datatype_id, you may enter it. Otherwise, select from the list of site_datatype_names. Even if the site_datatype_id for both Dayfiles and Archives is the same, you will need to make an entry for each filetype. Save.
4. Finally, fill out the application driver information. If the site_datatype_id is not already present, enter it. For each of the five applications represented (hourly, daily, weekly, CRSP, hourly delete) enter Y or N to indicate if the site_datatype's data should be loaded into HDB when this application runs. When you enter a Y for an application that processes dayfile data, the max_hourly_date will be automatically set to the default. When you enter Y for an application that process archived data, the max_daily_date will be automatically set to the default. If no data yet exists in HDB for the site_datatype and filetype in question, then leave these dates as they are. If there is data in HDB (it must be from a source other than Hydromet), then you must query the table that holds the data and determine the maximum date for which data exists. Enter this data into the appropriate "max date" field. If the max date

Previous Page

is not set properly, the data loading applications could malfunction.

Finally, you must enter the cutoff_minute and hour_offset for each site_datatype. The cutoff minute indicates the last minute timestamp in Dayfiles for which a value will be processed by the data loading application. That is, if the cutoff minute is 14 and a value is marked for 17 minutes after the hour, this value will not be loaded into HDB. This is to "screen" unwanted or extra values from the loading app, if, for instance, the first quarter-hour value is to be used as the reading for the hour.

Next Page

The hour_offset determines which hour a value is "applied to". If a value comes in stamped for 9:52, maybe it is to be used as the value for the 10:00 hour, not 9:00. In this case, the hour_offset should be set to 1, indicating that the loading application will add 1 hour to the value's timestamp before loading it in the database. A 0 offset (the norm) indicates that the hour indicated in Dayfiles is the hour which should be stored with the value. Negative offsets are allowed, and would indicate that hours should be subtracted from the Dayfile timestamp before inserting the data in HDB.

Previous Page

Deleting Data

Deleting data is done the same as in any other form. Just note that you can't delete a master record when dependent detail records exist. If it is necessary to delete driver data, it is probably best to start from the "bottom up", removing ref_hm_site_datatype information, then ref_hm_site_pcode, ref_hm_pcode_objecttype, and ref_hm_site_hdbid. Remember that many detail records may depend on a single record in ref_hm_pcode or ref_hm_site, and verify that you really do want to remove all of them before doing so. Recall that a delete operation will impact the database as well as the form, and that you will be asked to confirm the delete before it actually takes place.

Section 9 FAQ

This section contains frequently asked questions about the Meta Data Application.

What do I do if I want to cancel out of creating a record mid-record, and the form won't let me out? It tells me that a certain field must be entered.

Next Page

Forms is trying to validate the data you've entered, and you've left a required field blank. The easiest way around this is to press the "Delete Selected Record(s)" button to remove the record as-entered up to this point. Then proceed with whatever operation you were trying to execute.

Previous Page