### 2.2.2 DMI Groups

A DMI group is an ordered collection of one or more DMIs. When a DMI group is invoked, its DMIs are invoked in order, until all have completed or one has failed. There are two kinds of groups:

- G DMI Group: This is a collection of DMIs to be executed in order.
- M Year Mapping Group: This special type of group maps run years to years in the database. This is described HERE (Section 2.2.3)

Additionally, an icon indicates whether the group contains all Input DMIs **I**, all Output DMIs **O** or a mix of Input and Output DMIs **P** 

Create a new DMI group with the <u>**G**</u>roup  $\rightarrow$  New Group or New Year Mapping Group main menu item.

DMIs can appear one or more times in the DMI Manager dialog; once as a top-level DMI and zero or more times as a member of a group. Actions which pertain to a DMI globally (for example, editing it) are only valid when a top-level DMI is selected; actions which pertain to a DMI within a group (for example, moving it up or down) are only valid when a member DMI is selected:

When the distinction is important, a DMI is referred to as either a top-level DMI or a member DMI.

Editing DMI groups includes:

- Editing a DMI group's name
- Adding a top-level DMI to a group
- Removing a member DMI from a group
- Moving a member DMI within a group (e.g. ordering the DMIs within the group)
- Querying a DMI's group membership

To edit a DMI group's name double click in the name cell, to edit the name in place.



To add a top-level DMI to a group, select the  $\underline{D}MI \rightarrow \underline{A}dd$  to **Group...** main menu item. You are then presented with a dialog listing the available groups; select the desired group and click **OK**:

If no groups are available (e.g. there are no groups or the DMI is a member of all groups) you will be notified.

To remove a member DMI from a group, select the  $\underline{D}MI \Rightarrow$ **Remove from Group** main menu item.



**<u>D</u>MI**  $\rightarrow$  **Move** <u>Up</u> main menu item or the <u>**D**MI</u>  $\rightarrow$  **Move** <u>**D**own</u> main menu item.

To query a DMI's group membership, select the **<u>D</u>MI \rightarrow Group Membership** main menu item; the DMI's group membership is displayed:

# 2.2.3 Year Mapping Groups



C DMI Selection

GI Group 1

MI Mapping Group 1

OK

Add the DMI Database DMI 2 to the group:

A Year Mapping Group M allows you to

import data from the specified years in your database to years in your run. For example, you might want to run your 5 year run (e.g. run dates from 1/1/2000 to 12/31/2005) with data from 1992, 1936, 1952, 1962, 1932. This tool allows you to create the map between the data in the database and the years of your run. It has a specific algorithm, documented HERE (Invoking the Year Mapping Group), for dealing with leap days.

Before we describe it in detail, following are limitation on this utility:

- Mapping groups are available for DAILY timestep models with a range that starts on Jan 1st and ends on Dec 31st. This is sometimes called a daily timestep annual model. Attempts to access mapping groups (create, edit, invoke) with an improper run period result in an error dialog.
- Mapping groups may only contain Database DMIs (DSS, HDB, or Excel)

You create the Year Mapping Group, add Input DMIs to the group, define the mapping, and then invoke the group. These steps are described in the following section:

х

Cancel

Create a Year Mapping Group: Year Mapping Groups are added from the DMI Manager's Group -New Year Mapping Group menu item.

Adding DMI's to the Year Mapping Group: As described above, to add a DMI to a group, select the **<u>D</u>MI → <u>Add to Group...</u> main menu item. You are then** presented with a dialog listing the available groups; select the desired group and click **OK**. Remember, only Database DMIs may be added to Year Mapping Groups; other types of DMIs will not be shown when you add to the Year Mapping Group.

#### **Defining the Map:**

Edit the group by double clicking the item. This brings up a simple dialog where you may edit the mapping group's name, the Year in Database, and Comment for each run year.

- Run Year: The year in the RiverWare run. This is not editable and is taken from the Run Control.
- Year in Database: The year of data you wish to import for the given Run Year.
- **Comment:** A text field to annotate the entry.

You can copy/paste the information from/to external applications using the right-click context menus shown. Only one column of data may be pasted at a time.

Run Year	Year i Datab	n Jase	Comment	
2014	1933		Year Type II	
2015	4	Сору		
2016	15	Paste Clear Selected Years in Database		
2017	1			
2018	1			
2019	1	Clear Selected Comments		
2020	1948		Year Type I	



🕻 DMI Year Mapping Group					
Name: Dry Sequence					
Run Year	Year in Database	Comment	•		
2014	1933	Year Type II			
2015	1935	Year Type I			
2016	1939	Year Type I	=		
2017	1943	Year Type II	-		
2018	1944	Year Type I			
2019	1945	Year Type I			
2020	1948	Year Type I			
2021	1956	Year Type I			
2022	1958	Year Type II			
2023	1961	Year Type II			
2024	1962	Year Type I			
2025	1970	Year Type I			
2026	1975	Year Type I			
2027	1976	Year Type II			
2028	1977	Year Type II			
2029	1978	Year Type I	Ŧ		
This ordered sequence represents the dry years of history (in order). Dry is type I and II out of seven.					
Show: 🔽 Group Comment OK Cancel					

Clear the Years in Database or the selected Comments using the same menu.

**Note:** If the workspace run period changes, editing a Year Mapping Group adjusts the run period to match the workspace run period. For years which overlap, the Year in Database and Comment are preserved. You are notified that the mapping group's run period has been adjusted. If you cancel out of the confirmation dialog the adjustment is not canceled (only the changes made after the dialog opened are canceled).



Invoking the Year Mapping Group: Invoke the Year Mapping group like any other group:

- <u>D</u>MI → <u>Invoke</u> main menu item,
- the Invoke toolbar button,
- the DMI Invoke context menu item and
- the Control-I keyboard accelerator:

**Year Mapping Algorithm:** So what does this Year Mapping Group actually do? Following is the algorithm and description of errors.

```
For each DMI in the Year Mapping Group,
For each Run Year, X
    Obtain the Year in the Database from the table, N
    Query the database for N to get the series of data
    Set the slot's values for year X with returned data from year N, dealing
    with leap days as shown in the following table.
End For
```

End For

Following is a table that describes how the mapping deals with Leap Years:Year in DatabaseRun YearResult

Year in Database	Run Year	Result
Non Leap Year	Non Leap Year	Bring in data exactly from database
Leap Year	Leap Year	Bring in data exactly from database
Leap Year	Non Leap Year	Remove the February 29th value
Non Leap Year	Leap Year	Repeat the February 28th value on February 29th

Following are some possible error conditions:

- If the workspace run period has changed and you have not opened the Year Mapping Group, invoking a Year Mapping Group results in an error. Open the Year Mapping Group and specify a map for the new run range.
- Executing an Output DMI in a Year Mapping Group leads to indeterminate behavior.
- Unspecified Year in the Database lead to indeterminate behavior.

### 2.2.4 Locking the DMI Manager Dialog

To lock the DMI manager dialog, select the <u>Edit</u>  $\rightarrow$  **Lock** main menu item. Before locking the dialog you must close the DMI parameter dialog and the DMI editor dialogs (and will be warned if the dialogs are open).

When the dialog is locked the user cannot edit the DMI or DMI group configuration.

To unlock the DMI Manager dialog the user selects the **Edit**  $\rightarrow$  **Unlock** main menu item.

# 2.3 DMI Parameter Dialog

The DMI Parameter dialog, shown below, enables the user to:

- Create and delete parameters
- Edit a parameter's name
- Edit a parameter's type and attributes
- Order parameters

