



CADSWES

University of Colorado

Center for Advanced Decision Support for Water and Environmental Systems

Database DMI Enhancements

RiverWare User Group Meeting
August 13-14, 2008

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I'm Sorry...

- What did the fish say he when swam into the wall?
 - Cod, that hurt!
 - That knocked the carp out of me!



Database DMI

- Provide direct connectivity between RiverWare and “industry standard” databases (DSS, HDB, SQL, Excel, etc)
- Database-neutral front end
- Multiple database-specific back ends
- All configuration is through the user interface and saved in the model file
- No more external control files or executables

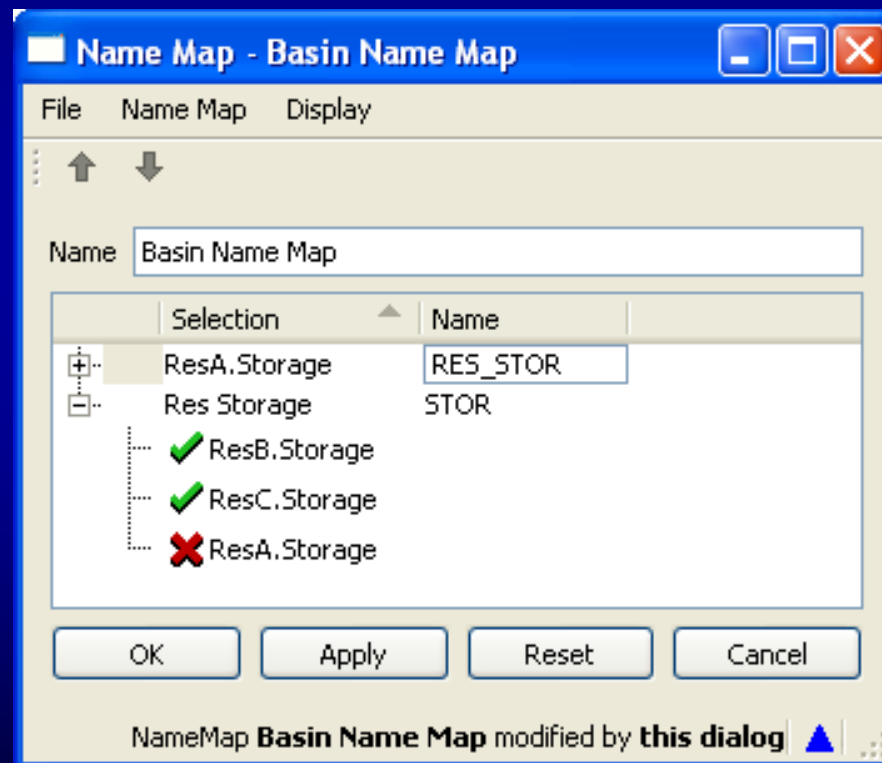
Database DMI

- Three main components:
 - Name Maps
 - Datasets
 - Database DMI

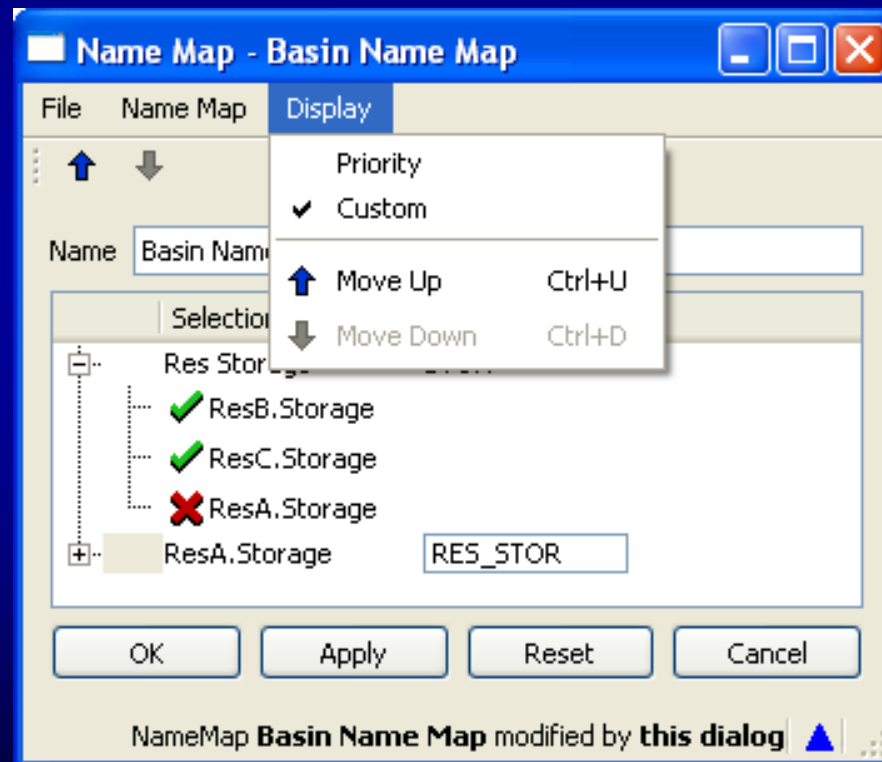
Name Maps

- RiverWare entities (simulation objects, accounts, supplies, slots, etc.) quite possibly have different names in the model than in the database
- Name Maps map the model names to the database names

- Prioritized list of entities and their database names
- Priority is based on the “exactness” of the selection



New Feature: Custom display order (display only, doesn't affect behavior)



Datasets

- Database specific (e.g., DSS specific)
- Encapsulate all RiverWare knowledge about the database
- Typically two types of knowledge:
 - Configuration information
 - Database interaction

General Dataset Configuration

DSS Dataset - Res Storage

File

Type: DSS

Name: Res Storage

General DSS

Name Map: Basin Name Map

Missing Values Are: NaN

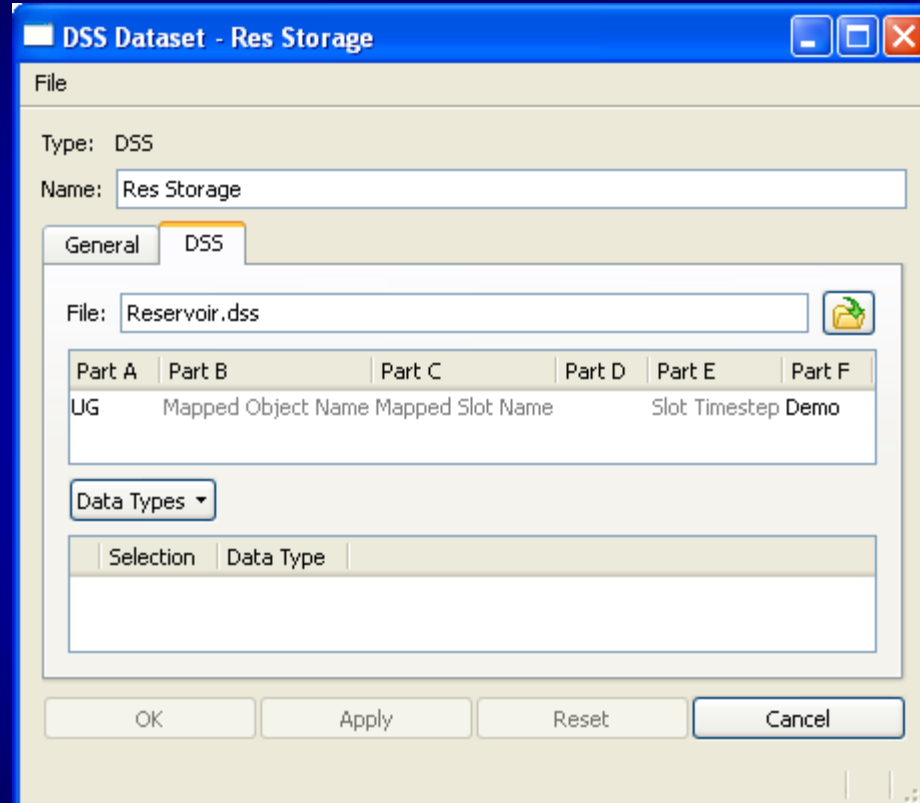
Prefer Database Units

Units

Type	Scale	Units
Volume	1	acre-feet

OK Apply Reset Cancel

DSS-Specific Configuration



HDB-Specific Configuration

HDB Dataset - Reach Flows

Type: HDB
Name: Reach Flows

General | **HDB**

HDB Database: lctest

Mapping ID: 3 - USGS Unit Values (Realtime) Select

Use water year tables in HDB for yearly timestep data

HDB Table Type

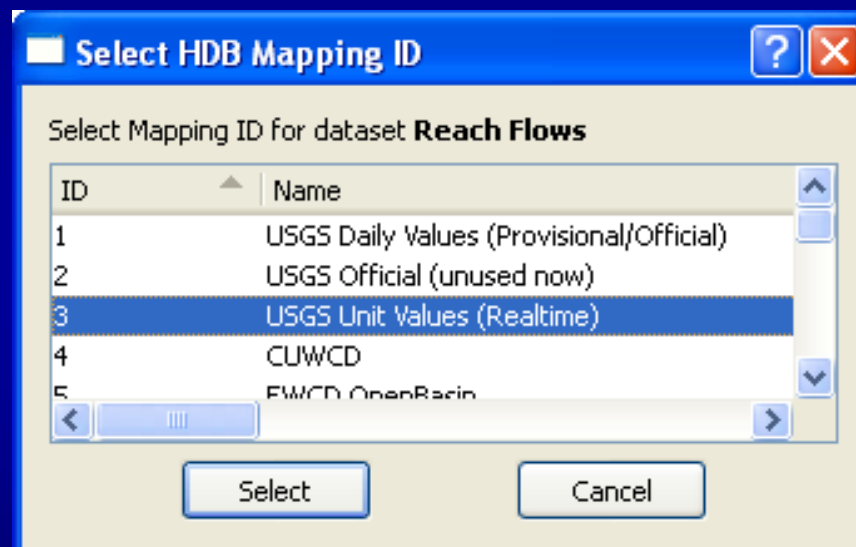
Model
 Real

Model Run ID

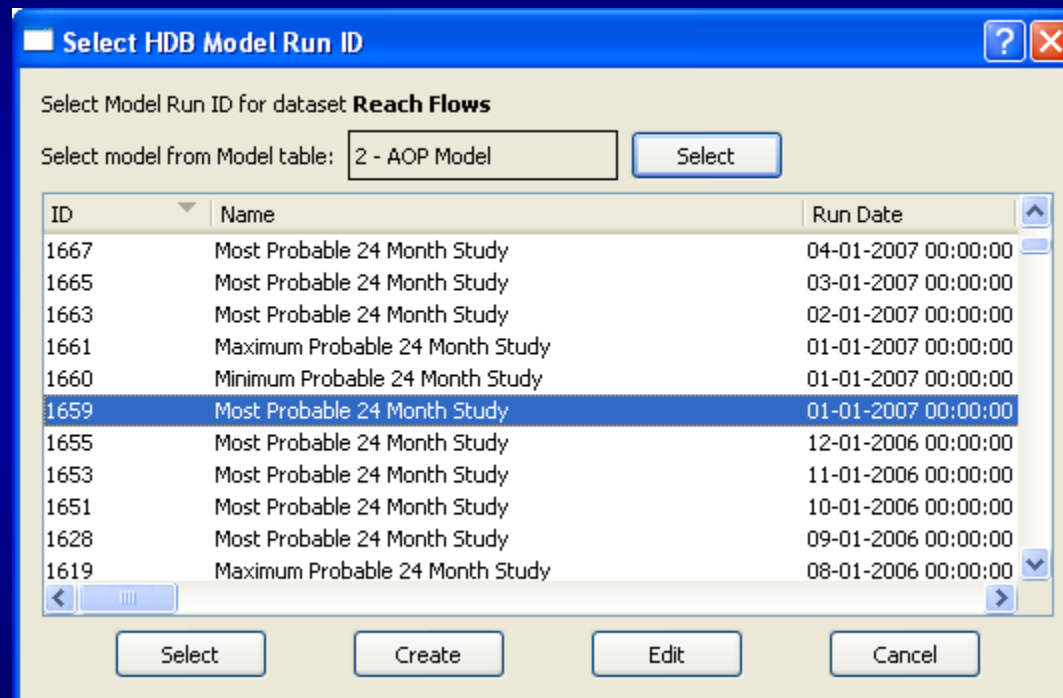
Select ID when DMI is invoked
 Select ID:
1667 - Most Probable 24 Month Study Select

OK Apply Reset Cancel

HDB Configuration – Select Mapping ID



HDB Configuration – Select Model Run ID



HDB Configuration – Edit Model Run ID

Edit HDB Model Run ID 1659

* Model Run Name: Most Probable 24 Month Study

* Run Date: 08/12/2008 02:40:09 PM

Start Date: 24:00 March 28, 2008

End Date: 18:00 March 29, 2008

Hydrologic Indicator: 50

Model Type: F

Timestep Descriptor:

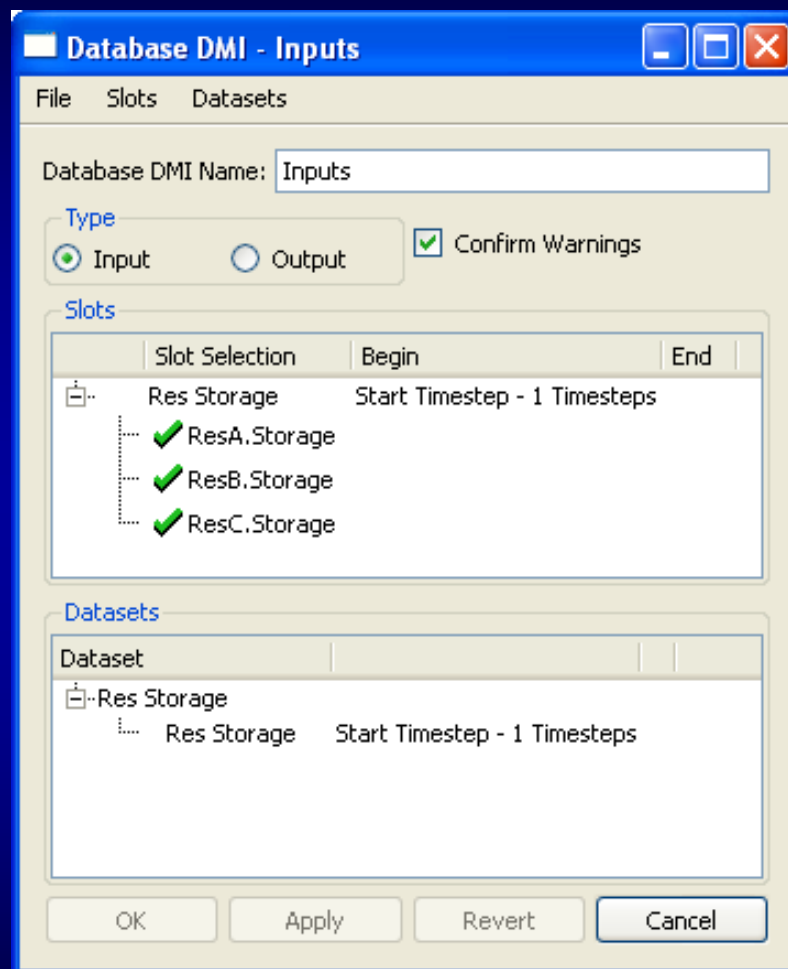
Comment:

* Required field

Save Cancel

Database DMI

- Specify slots and time intervals to import or export data
- Associate slot and time interval pairs with Datasets
- Import or export data



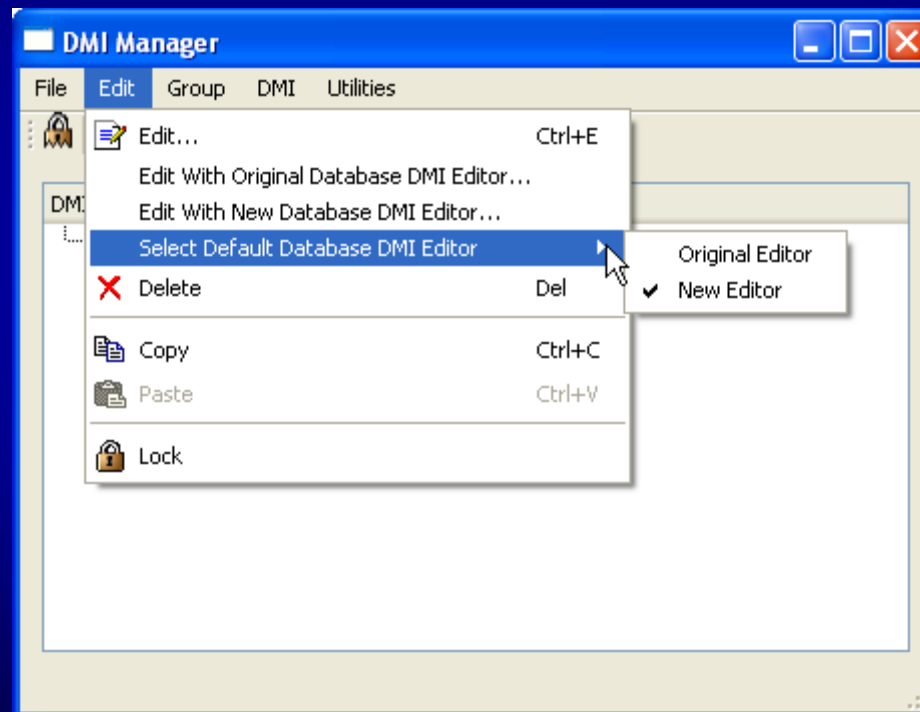
Strengths And Weaknesses

- Strength: Extremely flexible (as is necessary to provide connectivity to databases as disparate as DSS and HDB)
- Weakness: No one dialog provides a complete view

Database DMI Editor

- Combines elements of Name Maps, Datasets and Database DMI
- Configure working Database DMI from a single dialog
- Currently supports DSS

- Select default editor (“Original” or “New”)
- Open with either editor



Inputs

File Datasets Slots

Database DMI Name:

Type

Input Output Confirm Warnings

General Configuration

Name Map:


Missing Values Are:

Prefer Database Units

Units

Type	Scale	Units

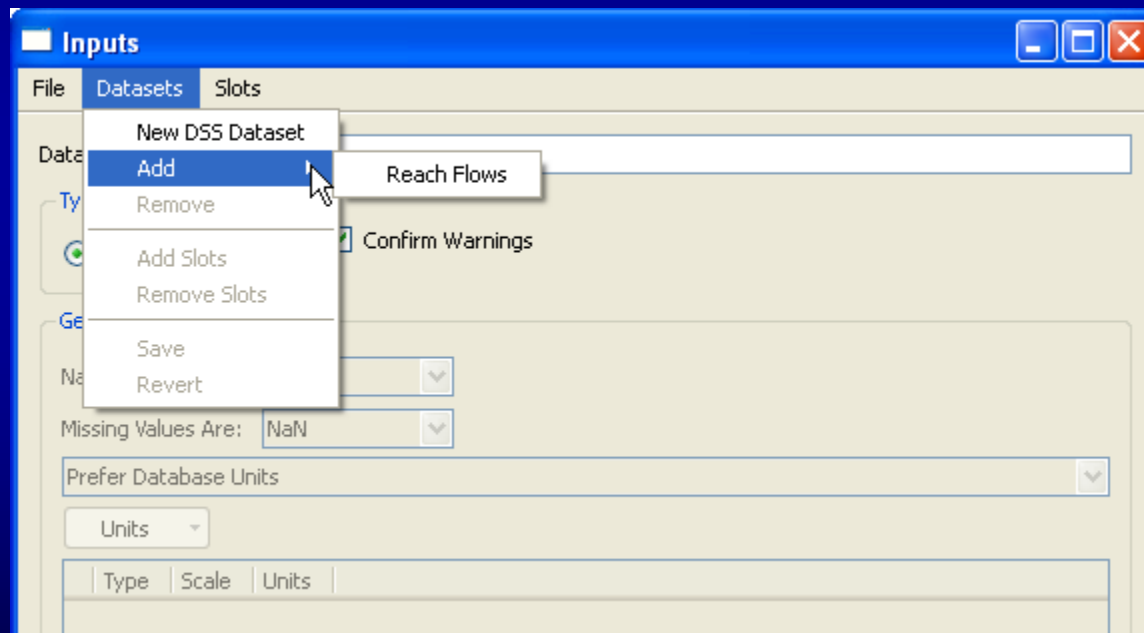
DSS Configuration

File: 

Priority	Name	Type	A Part	B Part	C Part	D Part	E Part	F Part	Begin	End	Units

OK Apply Reset Cancel

- Add existing Dataset
- Create New DSS Dataset



Inputs

File Datasets Slots

Database DMI Name: Inputs

Type

Input Output Confirm Warnings

General Configuration

Name Map: [Dropdown]

Missing Values Are: NaN [Dropdown]

Prefer Database Units

Units [Dropdown]

DSS Configuration

File: [Text Box]

Priority	Name	Type	A Part	B Part	C Part	D Part	E Part	F Part	Begin
	Dataset 0 DSS		Object Name	Slot Name			Slot Timestep		

OK Apply Reset Cancel

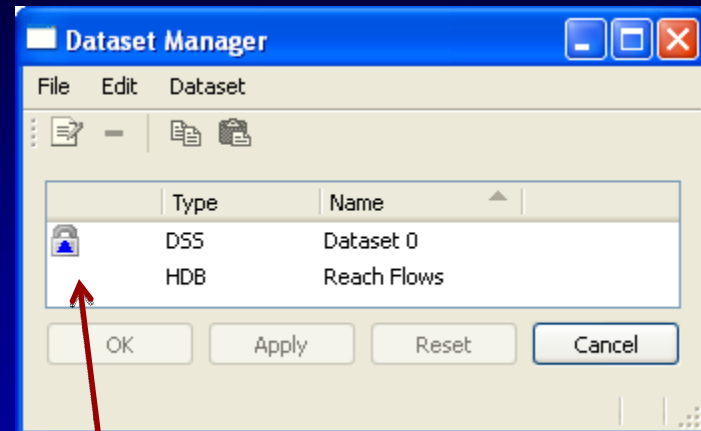
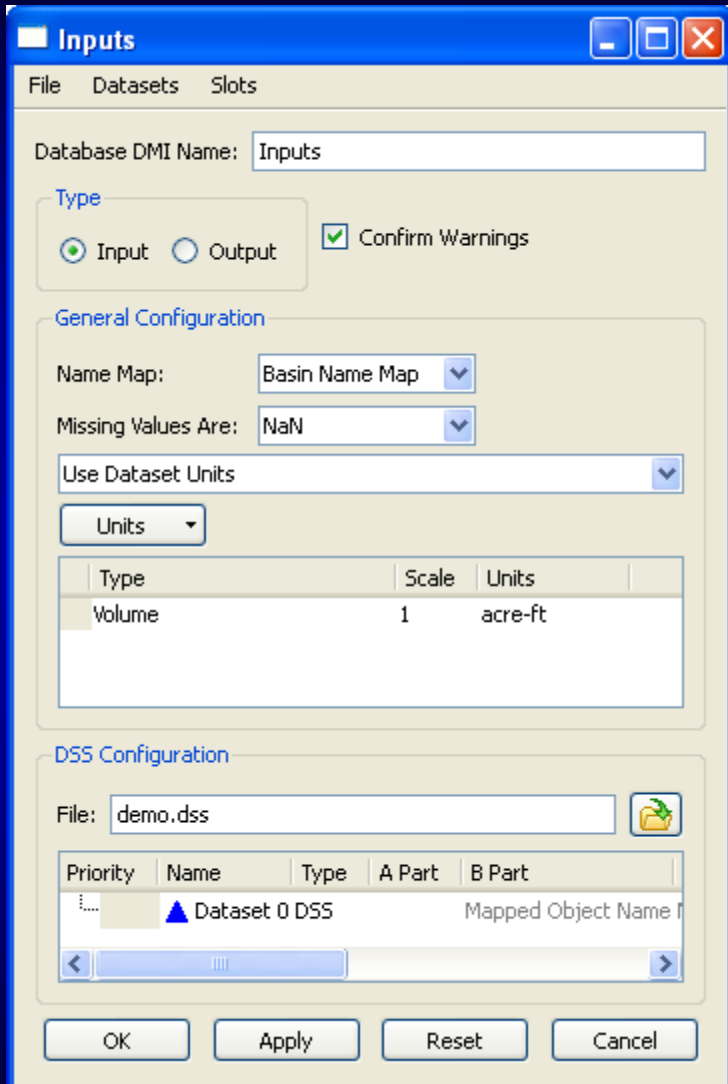
Dataset Manager

File Edit Dataset

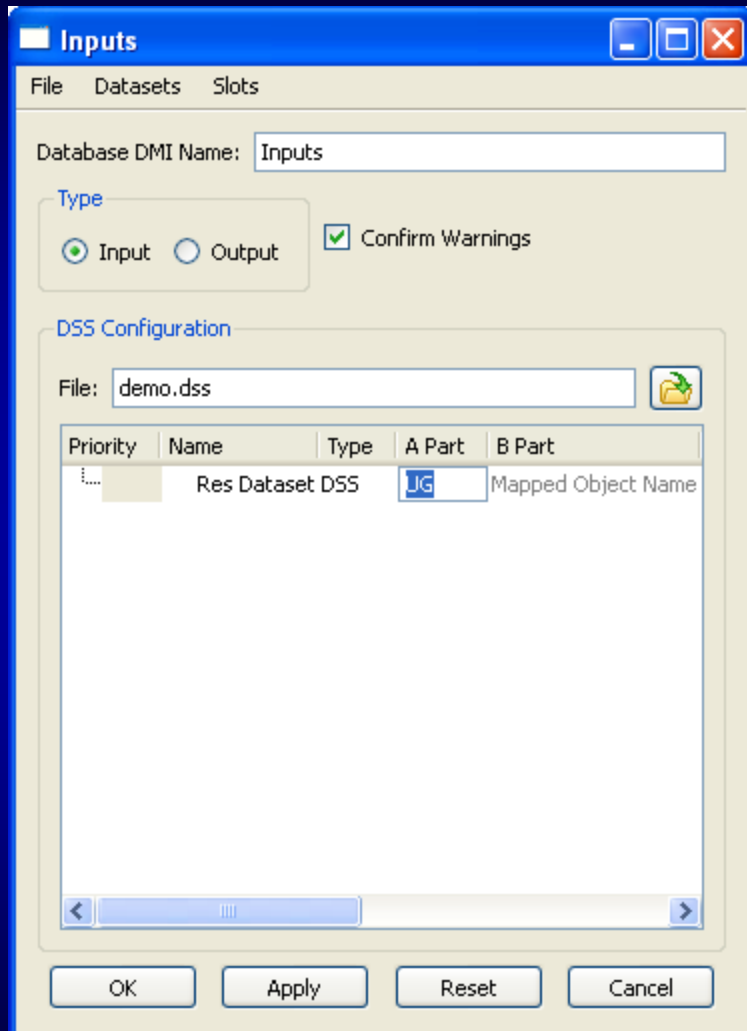
Type	Name
DSS	Dataset 0
HDB	Reach Flows

OK Apply Reset Cancel

New DSS Dataset

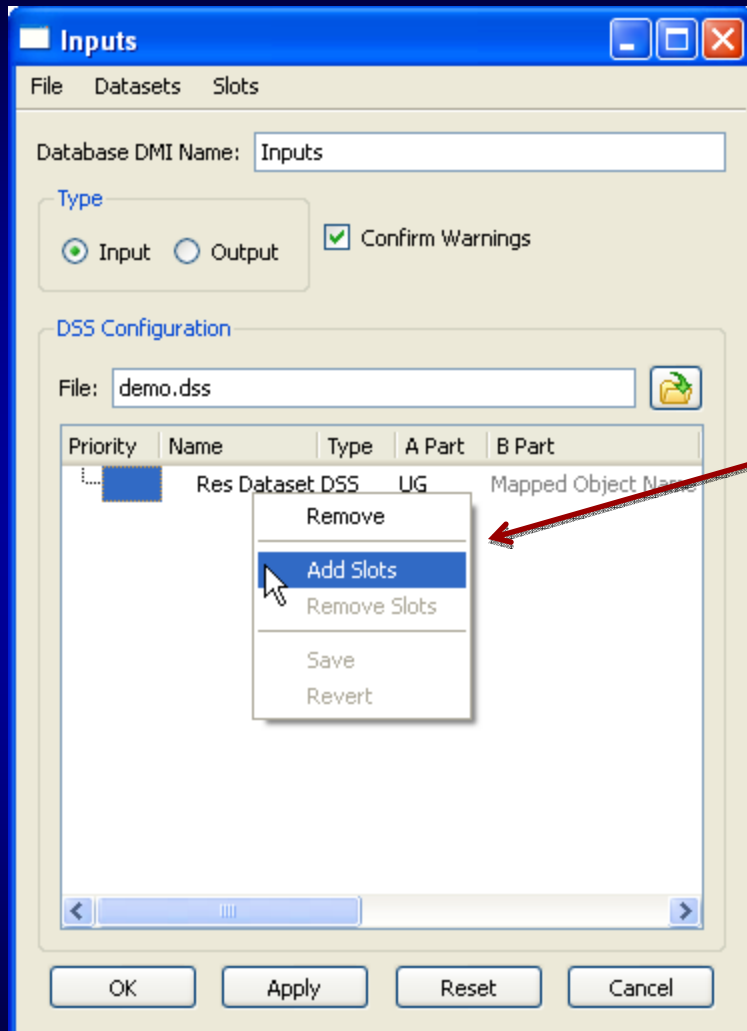


Edit DSS Dataset
general
configuration

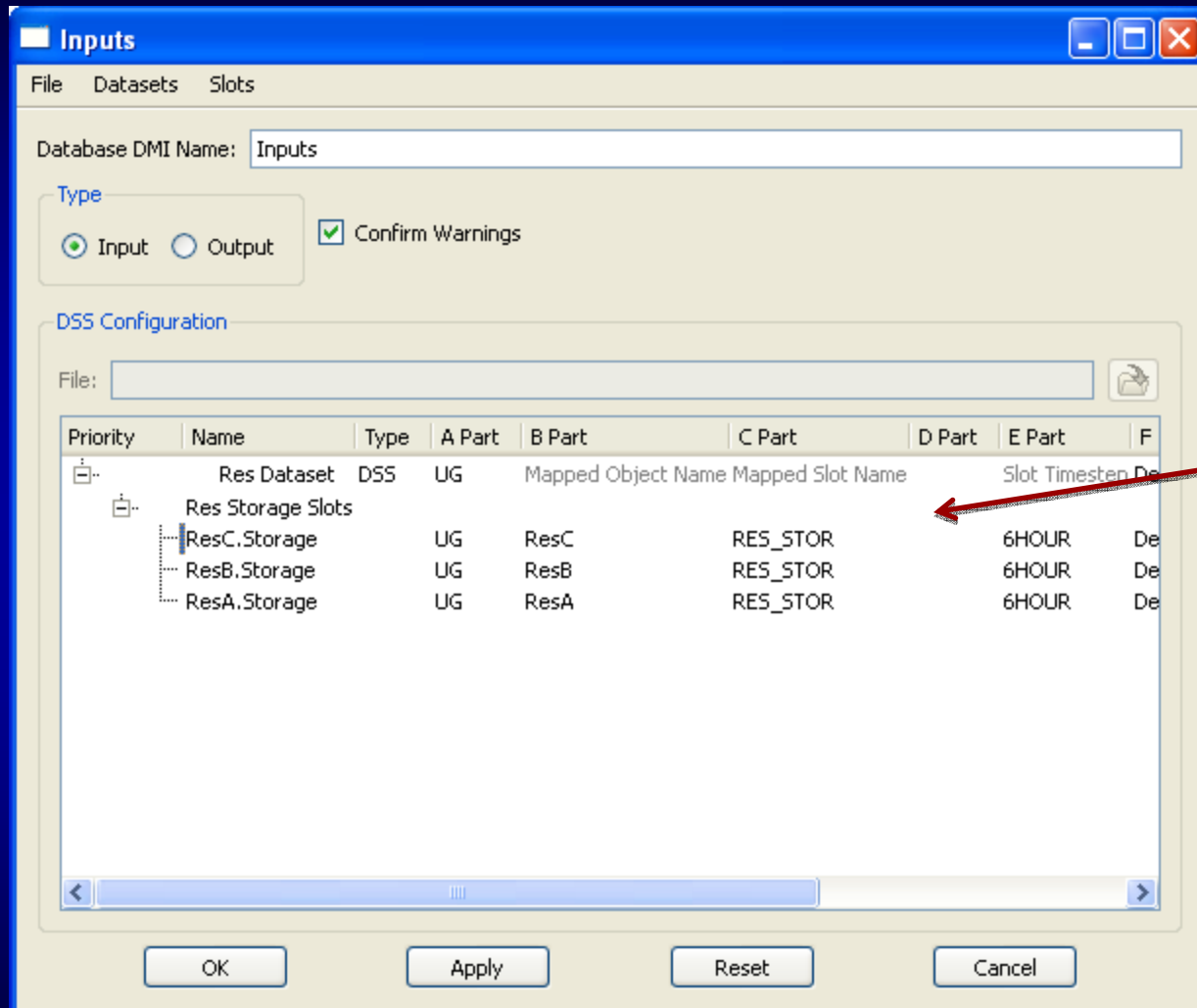


Edit DSS-specific configuration:

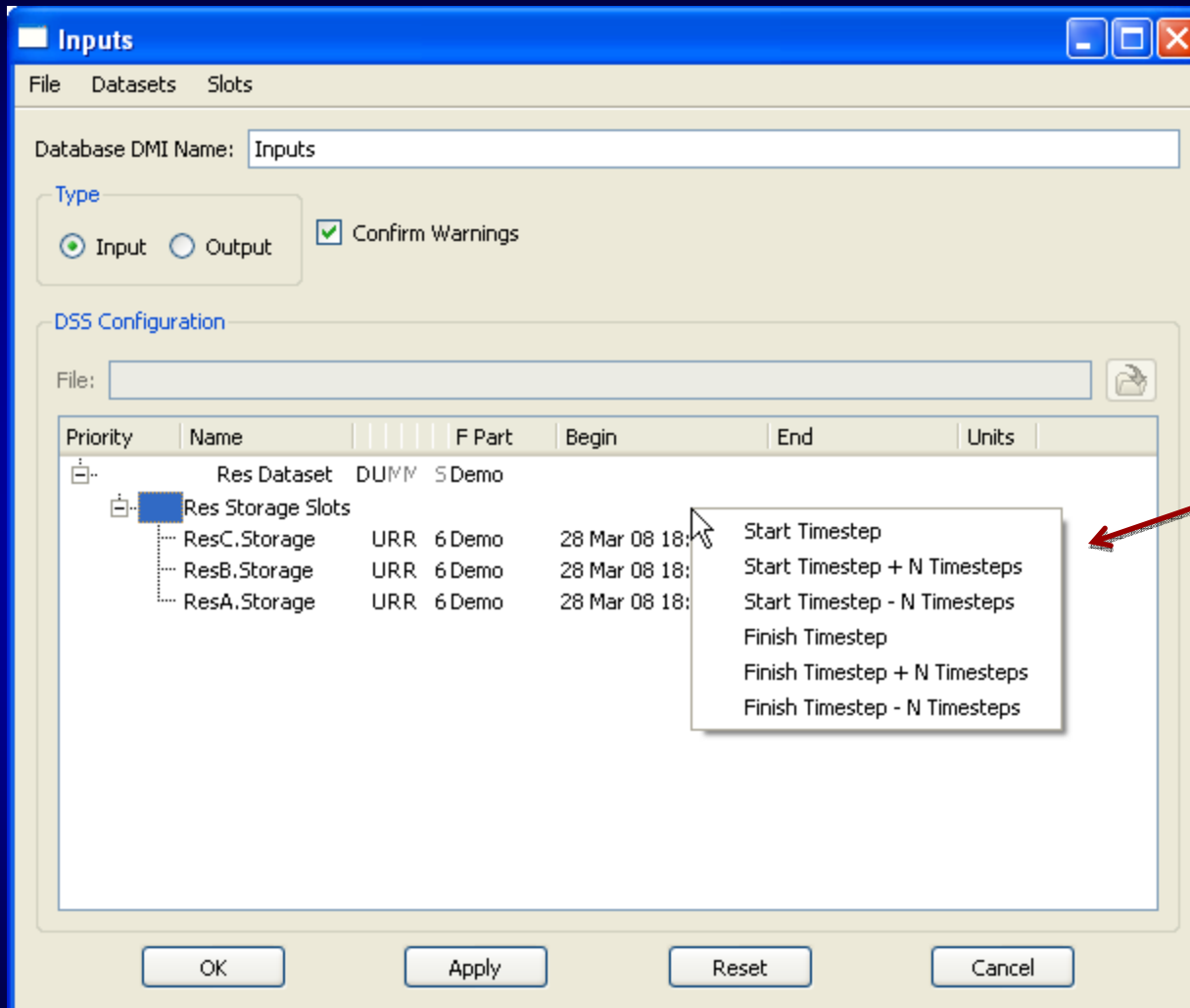
- Dataset name
- DSS file
- Part information



Select slots and
associate
them with a Dataset



Slots with Name Maps and Part information applied



Select time interval for Slots