StateDMI Training

Modeling Wells

Version: 3.10.00, 2010-05-10

Duration: Approximately 30 minutes

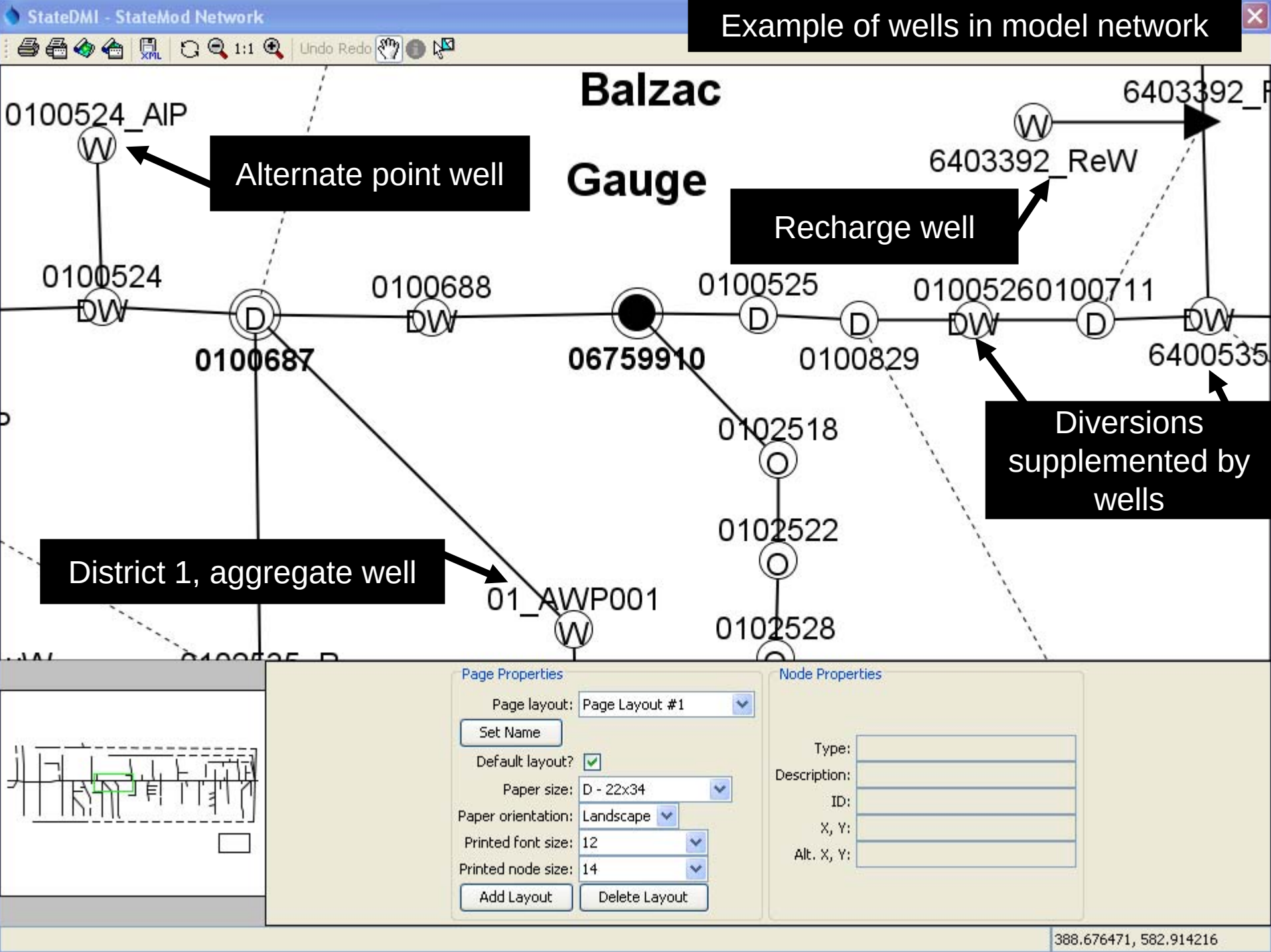
Level: Advanced

This Presentation

- Provides an overview of StateDMI data processing to create well model files
- Builds on introductory StateDMI training presentations, and advanced training on collections and the model network
- Is designed for self-paced training

StateCU and StateMod Modeled Locations

- StateCU's "structure" file (*.str) includes locations that have consumptive use, but there is no distinction in this file of whether a location is a well, diversion, etc.
- StateMod has separate station files for diversions, instream flows, reservoirs, wells, plans, and stream gages. These files are also included as "nodes" in the river network file. All stations are represented in the model network. StateMod well stations can optionally be related to a diversion station.


StateDMI - StateMod Network
Example of wells in model network
Balzac
Gauge
0100524_AIP
Alternate point well
6403392_R
6403392_ReW
Recharge well
0100524
DW
0100688
DW
0100525
D
D
0100526
0100711
DW
D
DW
0100687
06759910
0100829
6400535
Diversions supplemented by wells
0102518
O
0102522
O
District 1, aggregate well
01_AWP001
W
0102528
Page Properties
Page layout:
Page Layout #1
Set Name
Default layout?
Paper size:
D - 22x34
Paper orientation:
Landscape
Printed font size:
12
Printed node size:
14
Add Layout
Delete Layout
Node Properties
Type:
Description:
ID:
X, Y:
Alt. X, Y:
388.676471, 582.914216

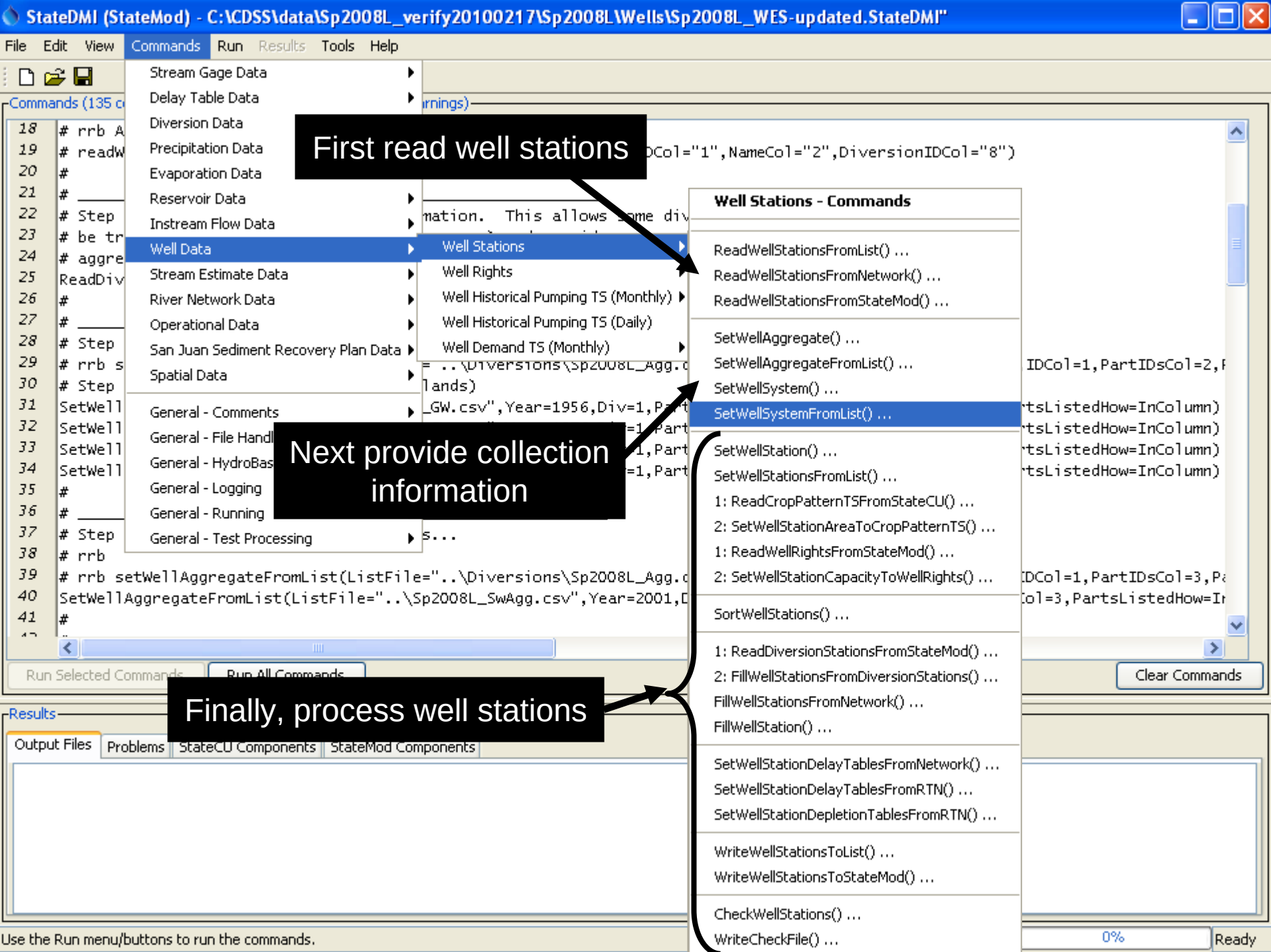
Wells in StateMod

- Work files usually reside in a “Wells” folder under the data set
- The well station file (*.wes) includes meta-data (capacity, etc.)
- Wells can be explicitly modeled (i.e., using a State of Colorado Water District Identifier) or aggregated (see the StateDMI training presentation on collections) – both are “Well” (“W”) nodes in the model network
- Wells are designed similar to diversions and provide supplemental supply by indicating a related diversion station – called a “D&W” node in the model network

StateMod Well Collections

- If a list of wells (collection part type “well”, e.g., for a well field):
  - The list of well identifiers is provided
- If a well station is associated with a diversion station (collection part type “ditch”), wells are determined by:
  - Determining the list of parcels for the diversion(s)
  - Determining the list of wells for the parcels
- If a well station is associated with groundwater-only parcels (collection part type “parcel”):
  - The list of wells is determined from the parcel list

Individual wells can be identified by WDID and/or permit numbers.


StateDMI (StateMod) - C:\CDSS\data\Sp2008L_verify20100217\Sp2008L\Wells\Sp2008L_WES-updated.StateDMI"
File Edit View Commands Run Results Tools Help
Stream Gage Data
Delay Table Data
Diversion Data
Precipitation Data
Evaporation Data
Reservoir Data
Instream Flow Data
Well Data
Stream Estimate Data
River Network Data
Operational Data
San Juan Sediment Recovery Plan Data
Spatial Data
General - Comments
General - File Handl
General - HydroBas
General - Logging
General - Running
General - Test Processing
Well Stations
Well Rights
Well Historical Pumping TS (Monthly)
Well Historical Pumping TS (Daily)
Well Demand TS (Monthly)
Well Stations - Commands
ReadWellStationsFromList() ...
ReadWellStationsFromNetwork() ...
ReadWellStationsFromStateMod() ...
SetWellAggregate() ...
SetWellAggregateFromList() ...
SetWellSystem() ...
SetWellSystemFromList() ...
SetWellStation() ...
SetWellStationsFromList() ...
1: ReadCropPatternTSFromStateCU() ...
2: SetWellStationAreaToCropPatternTS() ...
1: ReadWellRightsFromStateMod() ...
2: SetWellStationCapacityToWellRights() ...
SortWellStations() ...
1: ReadDiversionStationsFromStateMod() ...
2: FillWellStationsFromDiversionStations() ...
FillWellStationsFromNetwork() ...
FillWellStation() ...
SetWellStationDelayTablesFromNetwork() ...
SetWellStationDelayTablesFromRTN() ...
SetWellStationDepletionTablesFromRTN() ...
WriteWellStationsToList() ...
WriteWellStationsToStateMod() ...
CheckWellStations() ...
WriteCheckFile() ...
First read well stations
Next provide collection information
Finally, process well stations
Run Selected Commands
Run All Commands
Clear Commands
Results
Output Files
Problems
StateCU Components
StateMod Components
Use the Run menu/buttons to run the commands.
0%
Ready

StateCU Well Data Files

- StateCU locations in the structure (*.str) file have surface and/or groundwater supply
- The Irrigation Practice Yearly Time Series file (*.ipy) indicates annually how many acres are irrigated with groundwater, and by what irrigation method (furrow or sprinkler)
- Acres irrigated by groundwater only can be curtailed by well right/permit date
- Total irrigated acreage by location controls, and StateDMI ensures that acreage by water source adds to the total

StateMod Well Data Files

- Well stations originate from the model network and/or list files
- Well rights use the list of stations as input and involve several processing steps:
  - Read rights/permits for stations, for each year of irrigated lands that are available
  - Merge multiple years of right/permit/parcel data into a non-duplicative set of well rights
  - Optionally aggregate well rights into classes
- Well time series often are supplied by the StateCU model

Refer to existing data sets for examples.

More Information

Help…View Documentation to view the StateDMI documentation.

Basin model documentation describes in detail the sources of data, estimates, and processes that were used to create the data sets, and summarizes results.

Numerous task memoranda, reports, software documentation, and other documents provide technical information and are available on the CDSS web site:

http://cdss.state.co.us (see Products links)