

URGWOM Executive Committee Meeting

October 1, 2015



U.S. ARMY



US Army Corps of Engineers
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Outline

- Merged Model Update
- Summary



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Merging

Colorado Portion

Middle Valley Portion
(Original URGWOM)

Lower Rio Grande
Portion



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Merging Lower Rio Grande and Colorado portions with URGWOM

- Purposes and Advantages of Merging
 - ▶ To have an all encompassing model that looks at the entire system
 - Article VII Restrictions affects all post compact reservoirs including Platoro in CO
 - Lower RG operations better defined
 - ▶ Easier to maintain one model and:
 - not require processes for exporting and importing data from one model to the next
 - Eliminates iterating between model(s)



Merging Lower Rio Grande and Colorado Portions with URGWOM

- Time Range of Model
 - ▶ Real-time to Long-term Planning
- Time Interval of Model
 - ▶ Daily to Monthly



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Merging Lower Rio Grande and Colorado portions with URGWOM

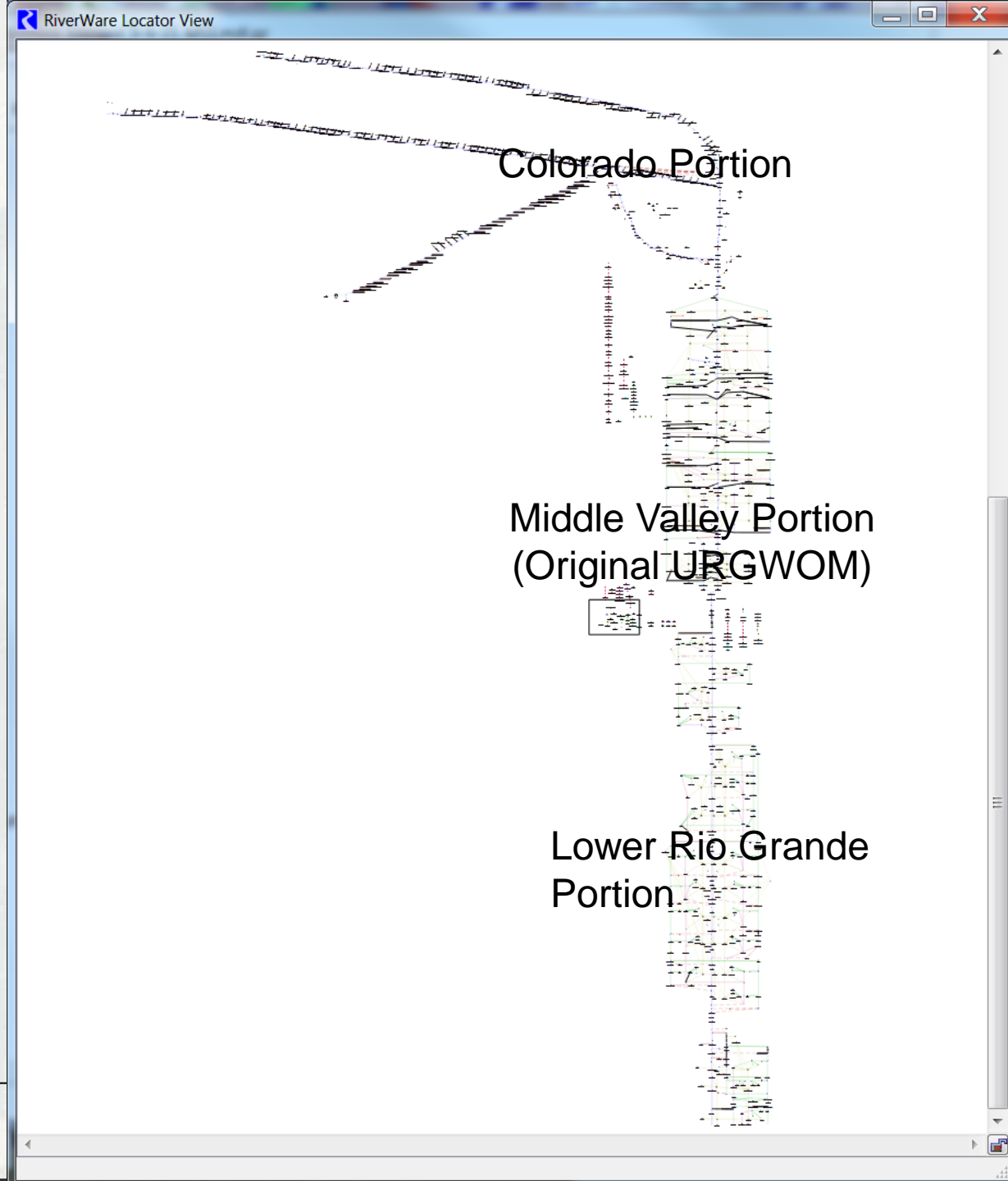
- Concerns of Merging
 - ▶ Size of all encompassing model
 - ▶ Run-time of all encompassing model
 - ▶ Extra overhead to run Accounting Application



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Merging

- Successful merge of all three portions!



Current Status of Merge

- Based on One Year Run Time Models (includes output):

Model	# of Objects	File Size	Time to Run
Colorado	≈ 450	≈ 2 mb	60-90 sec
URGWOM - Accounting	≈ 650	≈ 15 mb	45-60 sec
URGWOM - AOP	≈ 650	≈ 17 mb	90-120 sec
LRG Existing Separate model(s)	≈ 550	≈ 8 mb	30-45 sec
URGWOM & LRG - Accounting Completed	≈1200	≈ 18 mb	60-90 sec
URGWOM & LRG - AOP	≈1200	≈ 21 mb	150-180 sec
URGWOM, LRG & CO - Accounting Completed	≈1650	≈ 18 mb	60-90 sec
URGWOM, LRG & CO - AOP	≈1650	≈ 23 mb	210-240 sec

Status of Merging Models for use in 2016

- Account Application
- AOP Application
- Real-Time Application
- Historical Simulation for Calibration
- Planning Application



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Account Application

- Tested with Account Model through September 7, 2015
 - ▶ Disable Colorado and LRG portions
 - ▶ >2 Mb larger file (15.0 vs 17.2)
 - ▶ 17 seconds longer to run (34 vs 51 seconds)
 - ▶ Duplicates results
 - ▶ Would like to add some data that is input with DMI (Platoro Elevation and Outflow, Colorado streamgages) – For AOP runs



Enabled/ Disabled Objects

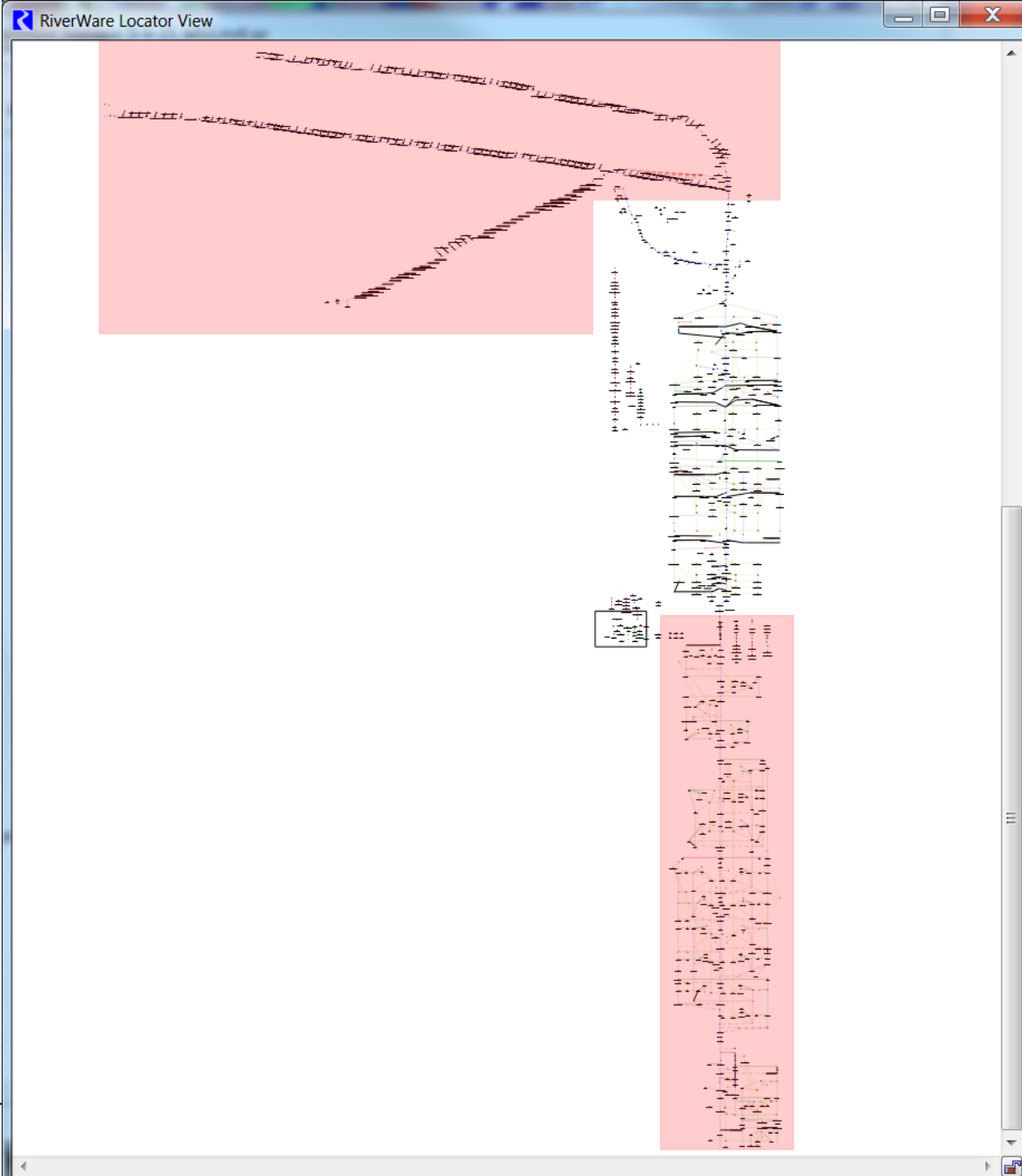
Model Run Analysis -- Simulation

File View Object Color

Sort: Custom Scroll: January 1, 2015 Details...

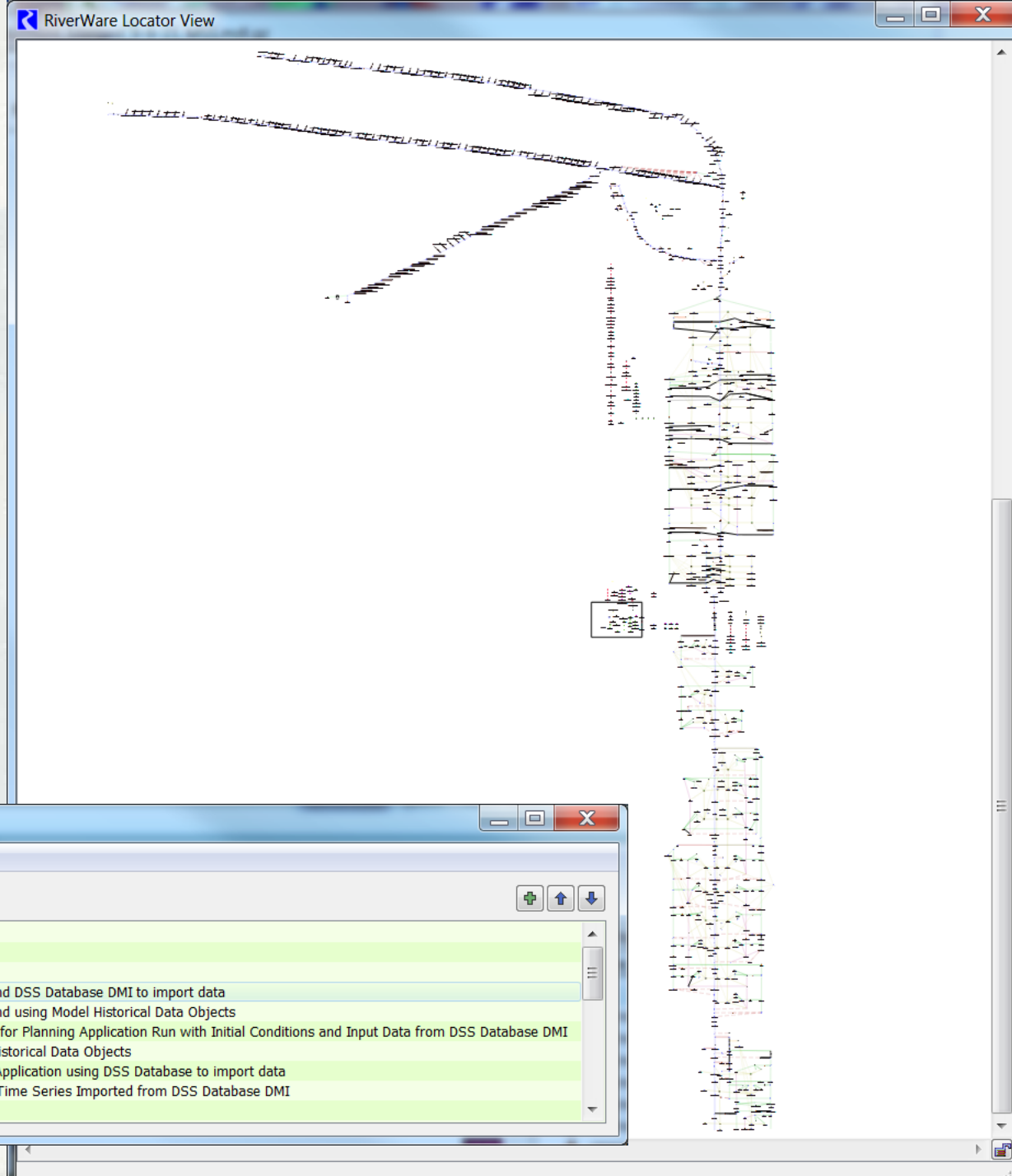
	12-30-2014	12-31-2014	01-01-2015	01-02-2015	01-03-2015	01-04-2015	01-05-2015	01-06-2015	01-07-2015
SanAcaciaToSanMarcialWestSideCanalSeepage									
SanAcaciaToSanMarcialWestSideCanalSeepage:Area1									
SanAcaciaToSanMarcialWestSideCanalSeepage:Area2									
SanAcaciaToSanMarcialWestSideCanalSeepage:Area3									
SanAcaciaToSanMarcialWestSideCanalSeepage:Area4									
SanAcaciaToSanMarcialWestSideCanalSeepage:Area5									
DrainUnit2ReturnFlow									
SillReturnFlow									
IsletaToBernardoArea3WasteWayReturnFlow									
Caballo									
BlvCaballo									
Eastside S16 Canal									
Eastside S16 Canal:S16WaterUsers									
Eastside S16 Canal:S16SoilMoistureDemand									
Eastside S17 Canal									
Eastside S17 Canal:S17WaterUsers									
Eastside S17 Canal:S17SoilMoistureDemand									
Westside S20 Canal									
Westside S20 Canal:S20WaterUsers									
Westside S20 Canal:S20SoilMoistureDemand									
Westside S14 Canal									
Westside S14 Canal:S14WaterUsers									
Westside S14 Canal:S14SoilMoistureDemand									
Westside S19 Canal									
Westside S19 Canal:S19WaterUsers									
Westside S19 Canal:S19SoilMoistureDemand									

RioBlanco at 01-01-2015
Method 'solveNRInflow' Dispatched



Scripts

- Use Scripts for setting up and running other Applications



Scripts

- Example Script for setting up and running AOP Application



Script Dashboard: Prepare for Annual Operating Plan (AOP) Run

File Edit

Prepare for Annual Operating Plan (AOP) Run

This script starts with an accounting model and prepares it for an annual operating plan run.

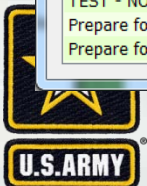
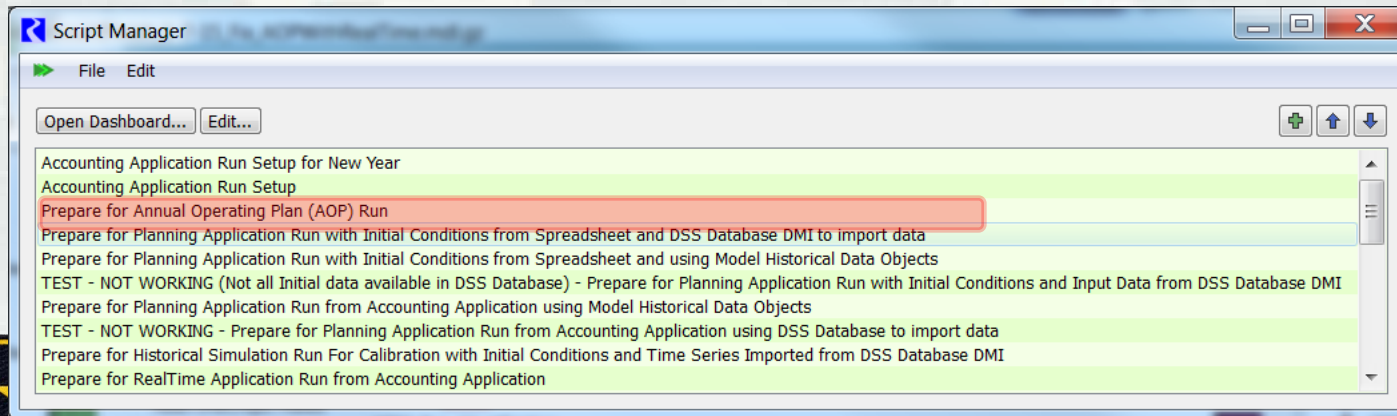
- ☒ Set the run range to: 24:00 JAN 01, Current Year -- 24:00 DEC 31, Current Year
- ☒ Set ModelRunTypeTriggers.RulebasedSimulationStartDay's value to 24:00 January 8, 2015
Use: Override default va...
Current: 24:00 January 8, 2015
- ☒ Load the ruleset K:/model/Official/URGWOM_6.7_09-22-15_Merge.rls.gz
Use: Override default file setting
- ☒ Set the controller to Inline Rulebased Simulation and Accounting
- ☒ Set Run Type to AOP
- ☒ Set the method in Heron's Reservoir Account Slot Inflow category to Zero Slot Inflows
- ☒ Set the method in Heron's hydrologicInflowCalculationCategory category to Hydrologic Inflow and Loss
- ☒ Set AbvHeron.Gage Inflow's flags to Output in the range: Start Timestep -- Finish Timestep
- ☒ Set the Initialization Rules execution flag to Yes
- ☒ Set accounting period to: Start Timestep - 1 -- Finish Timestep + 5 Timesteps
- ☒ Open SCT: K:/model/WaterOps/sct/ForecastTables.sct
Use: Override default file setting
- ☒ Input NRCS Forecast Data into the appropriate forecast month table slot, e.g., input March forecast data into the ForecastsMarch table slot on the InputForecastData data object
- ☒ Enable Dispatching for all objects (Model Run Analysis)
The current action has paused script execution.
- ☒ Execute run
- ☒ Generate output device: Gage
- ☒ Generate output device: CaballoOps
- ☒ Generate output device: ElephantButteOps
- ☒ Generate output device: JemezOps
- ☒ Generate output device: CochitiOps
- ☒ Generate output device: AbiquiuOps
- ☒ Generate output device: ElVadoOps
- ☒ Generate output device: HeronOps
- ☒ Execute the AOPRunOutputForTemplateSpreadsheet_Excel DMI

Execution

Status: Ended Successfully Current Action: this script is not executing

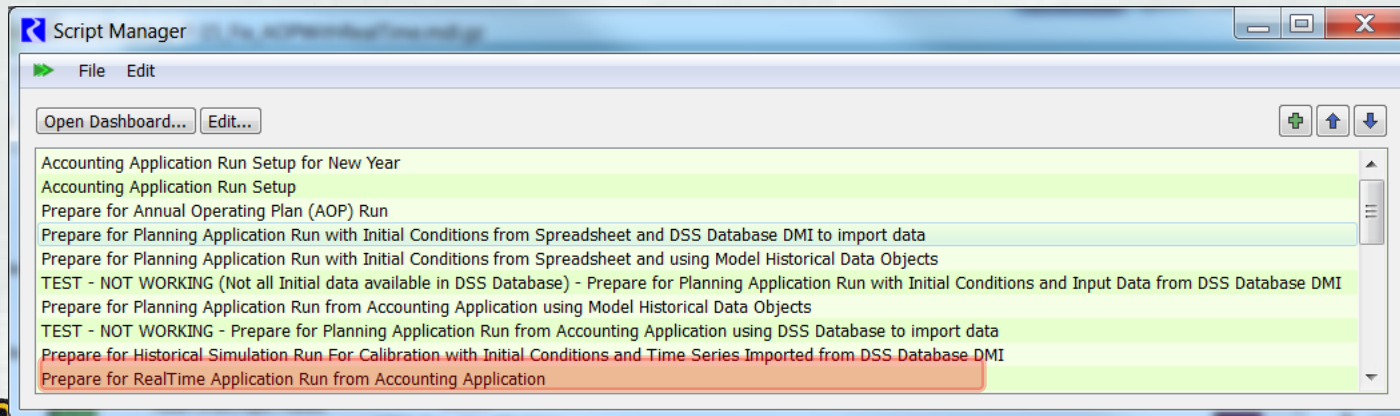
AOP Application

- AOP script (January Forecast)
- Model runs (need more testing, checking results, especially for Colorado and LRG)



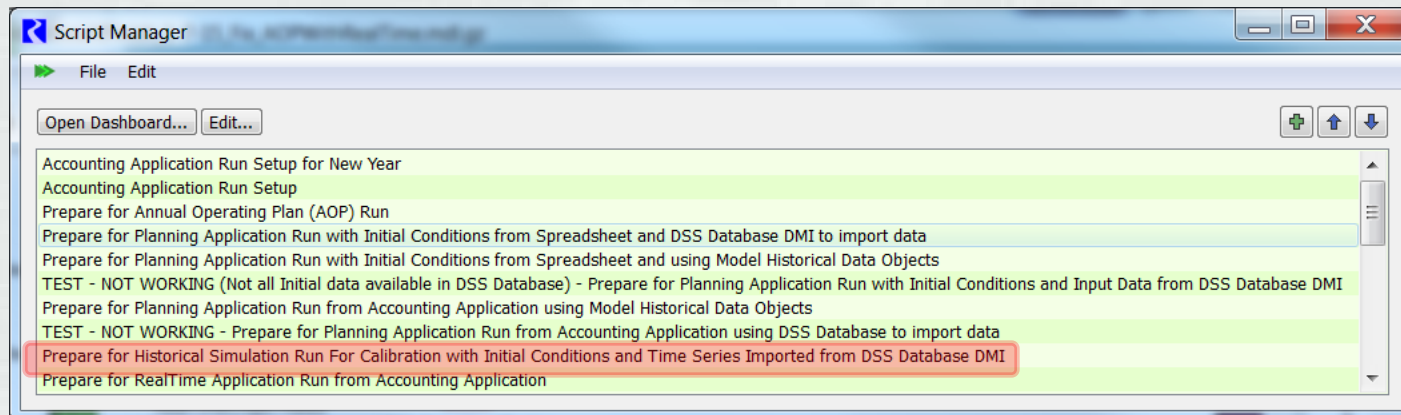
Real-Time Application

- Real-Time Script
 - ▶ No actual data from NWS yet,
 - ▶ but runs with manually input data, and with rules projecting data



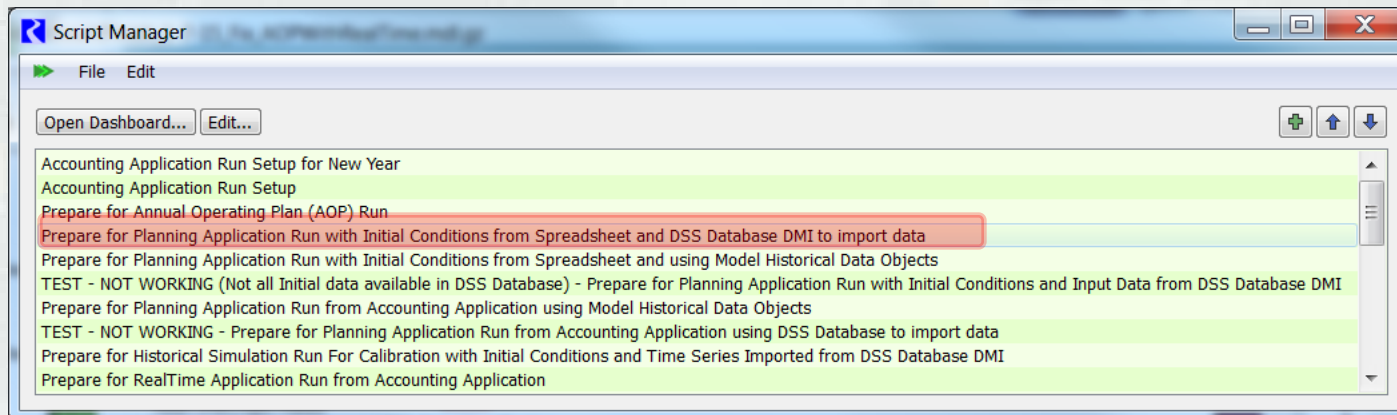
Historical Simulation for Calibration

- Historical Simulation for Calibration Script
 - ▶ Model runs for Middle Valley portion only
 - Colorado and LRG objects disabled



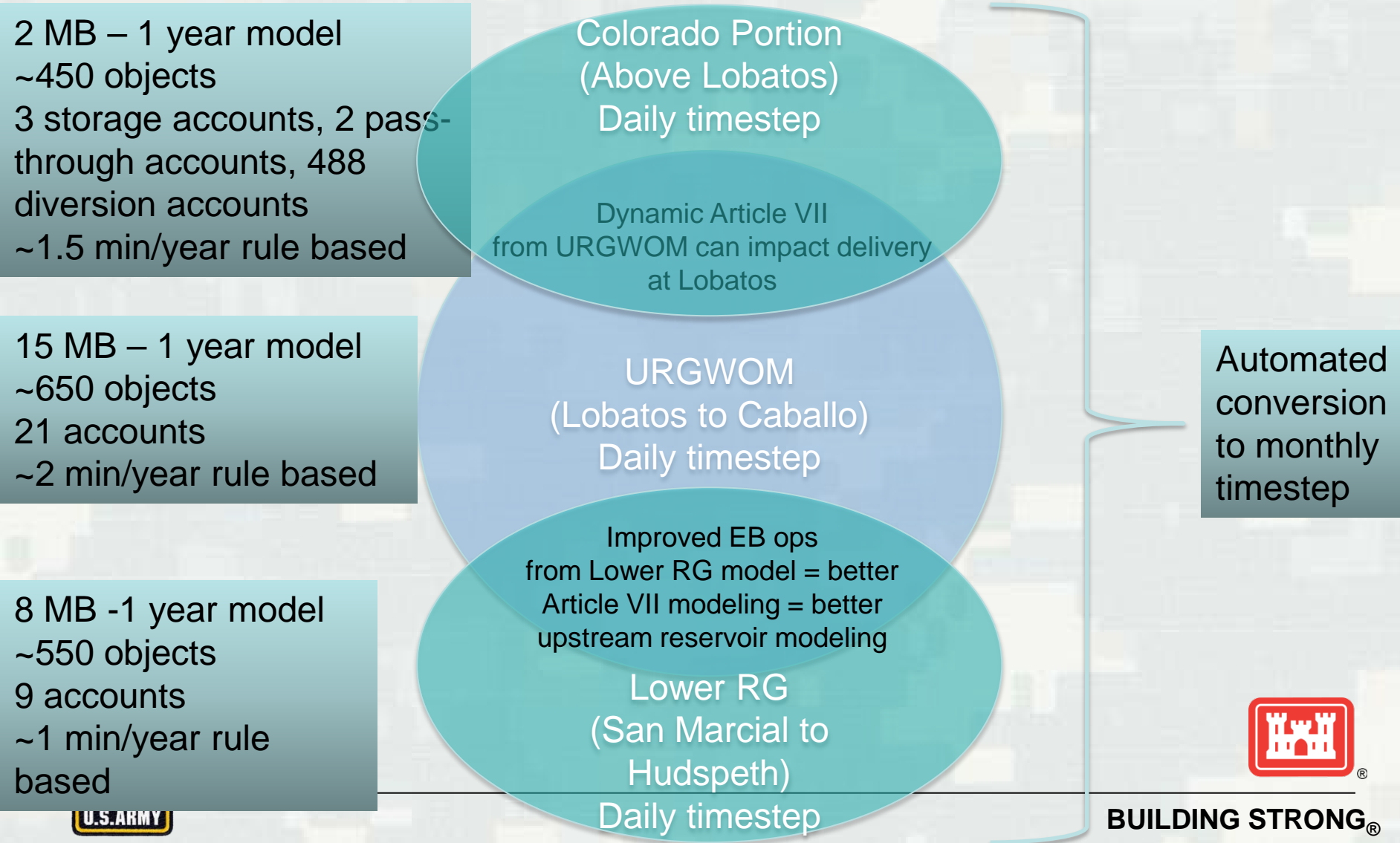
Planning Application

- Prepare for Planning Application with Initial Conditions from Spreadsheet and DSS Database DMI to import data Script
 - ▶ Tested 1975-2009 (corresponding historical years)
 - ▶ Tested 2016-2020 (assorted historical years)
 - ▶ Model(s) run



The URGWOM Grail?

Headwaters to Hudspeth Daily or Monthly



Summary

- Corps' opinion
 - ▶ Merging Lower Rio Grande and Colorado portions with URGWOM was successful
 - ▶ Slightly larger file size and extra runtime should not be an issue or hindrance
 - ▶ Testing and getting ready for use in 2016



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Questions



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