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## 1.0 Overview

### 1.1 Prior RiverWare Scenario Capabilities

The prior scenario capability (in RiverWare 6.2 and prior versions) allows a *stakeholder* (user) to edit the values of a subset of a RiverWare model's slots prescribed by a *scenario engineer*. These *scenario slots* have values initially assigned from corresponding non-modifiable *baseline* slots. Stakeholder operations on scenario series slots included:

- Reverting the scenario slot to the original baseline values.
- Multiplying the scenario slot values by a specified factor ("scaling").
- Editing the scenario series slot values in the Open Slot Dialog. This also provides certain high-level operations on an arbitrary selection of timesteps within the series, include scaling, "offsetting" (adding an absolute value), and interpolating selected timestep ranges.

Although the user can freely edit scenario input slot values, warnings are indicated when those values do not conform to minimum and maximum limits for those slots. Those limits are constants set by the scenario engineer and associated with each baseline slot in the baseline model.

The stakeholder's workflow generally consisted of these steps:

1. Load a baseline model.
2. In the Scenario Manager, create a new scenario. This contains new *scenario input slot* copies of a predetermined set of *baseline input slots*.
3. Modify the values of the scenario input slots.
4. Run the model.
5. In the Snapshot Manager, "take" a new snapshot to capture the values of the output slots of interest which were generated from the scenario run. The first time this is done, the Snapshot Manager's "Slot List Template" needs to be set up to identify which slots from the model will be *copied off* to each new snapshot object.
6. Compare the output slots (series) of various scenarios and the baseline using RiverWare Plots or other analysis tools.

This poses several challenges for stakeholders who, in general, are not experienced RiverWare users. For example:

- The supported operations on scenario slots are more complicated than they need to be. In general, editing the values of individual timesteps within an input series is not required. The characterization of simple transformations stakeholders would want to use -- for example, "increase a particular outflow, with respect to its baseline values, by 20%" -- is not directly supported.
- The Snapshot Manager must be operated manually by the stakeholder to capture the results of a scenario run. And it's up to the stakeholder to give the generated snapshot object a name which semantically associates it with the scenario.
- The outputs generated from a scenario run cannot be saved with the scenario. They can be preserved only by exporting a snapshot object as a distinct RiverWare object file.