RiverWare Scripts

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Motivation

- Complexity
- Repetition
- Opacity
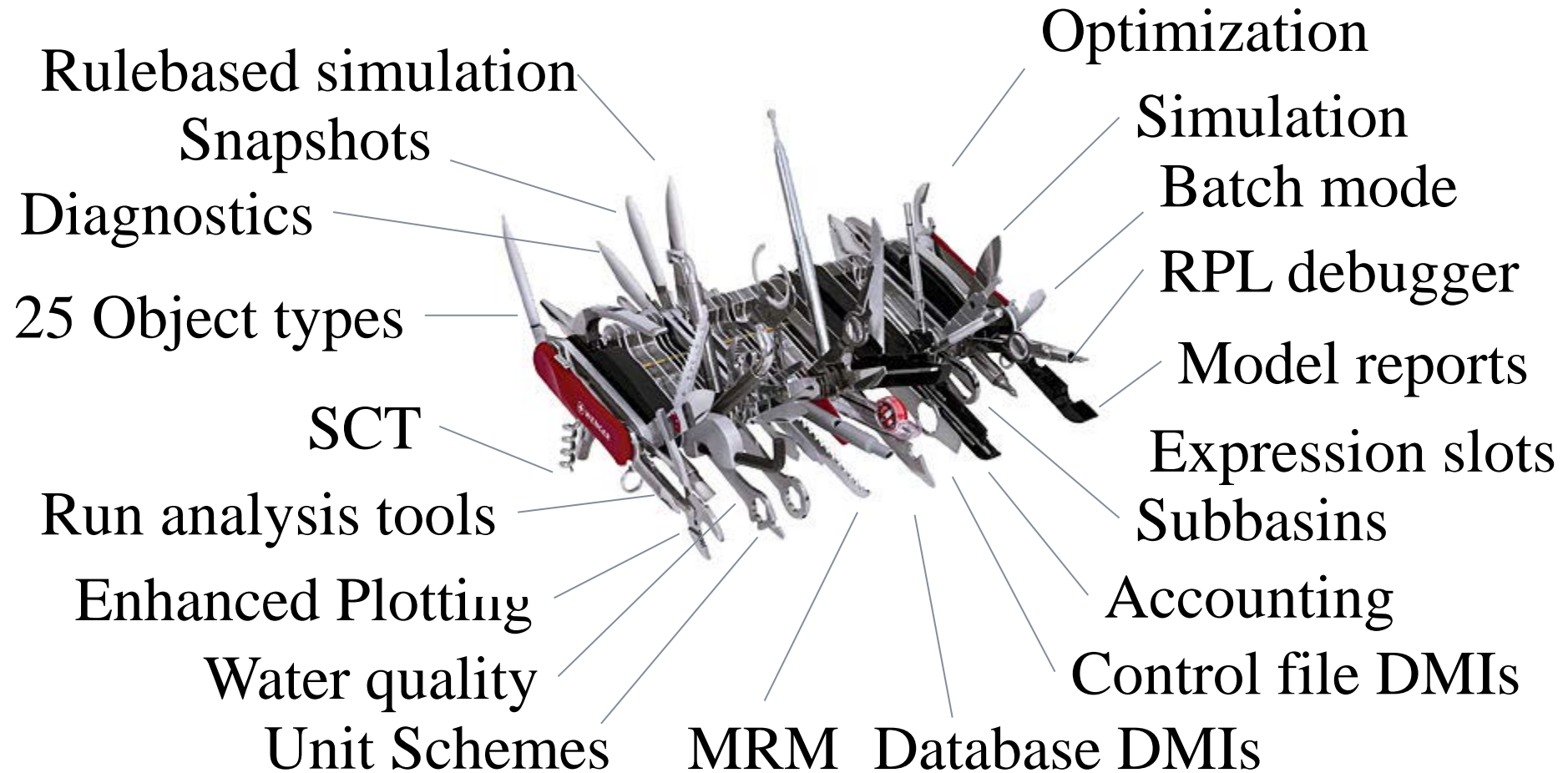- Repeatability

Complexity

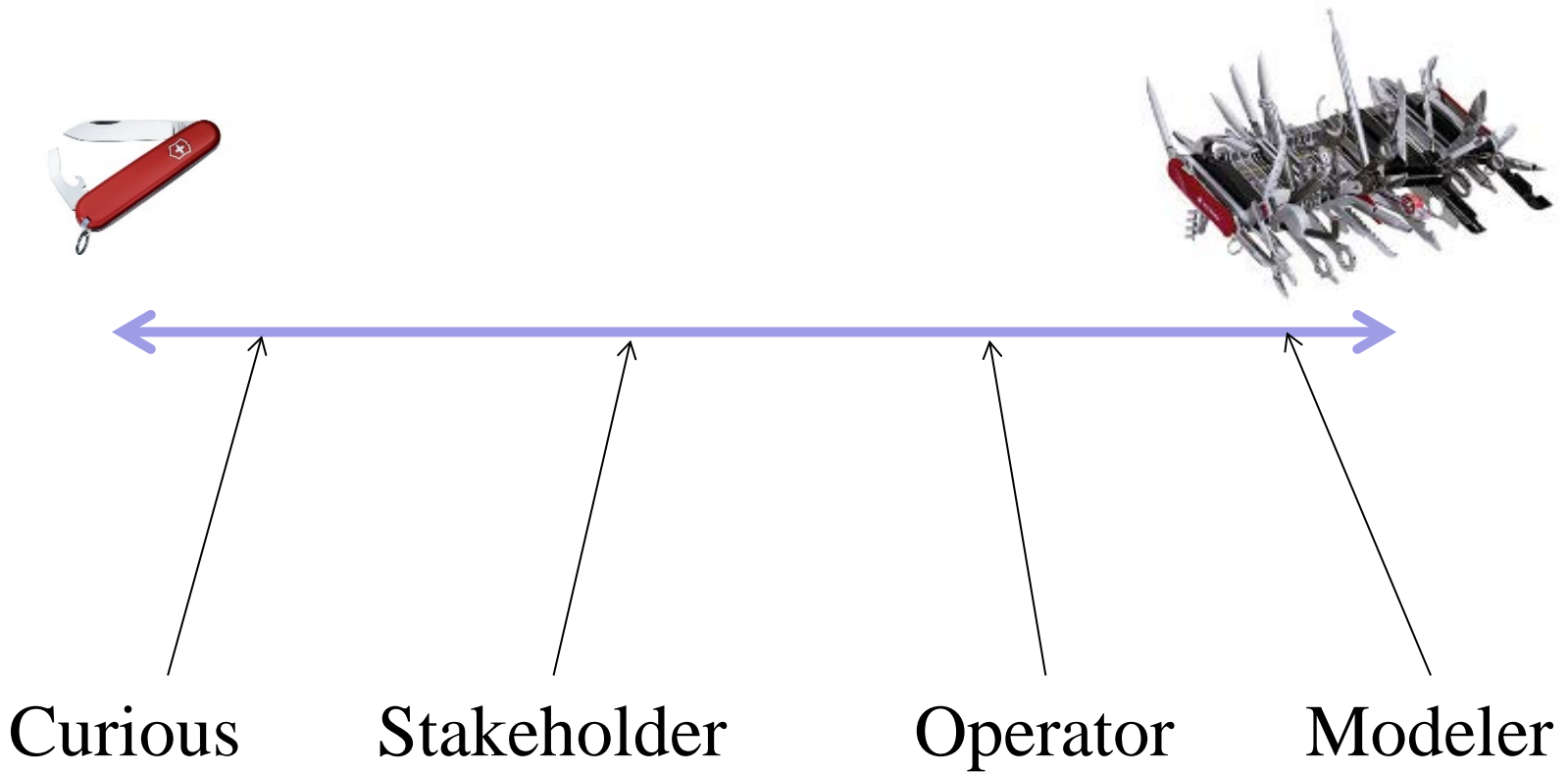PRSYM circa 1993

Reservoir   Simulation

Complexity

RiverWare 6.6

Optimization

Simulation

Batch mode

RPL debugger

Model reports

Expression slots

Subbasins

Accounting

Control file DMIs

Database DMIs

MRM

Unit Schemes

Water quality

Enhanced Plotting

Run analysis tools

SCT

25 Object types

Diagnostics

Snapshots

Rulebased simulation

Complexity Is Not For Everyone

Curious   Stakeholder   Operator   Modeler

Repetition

- Users repeat themselves
- Memory limitations
- Tedium
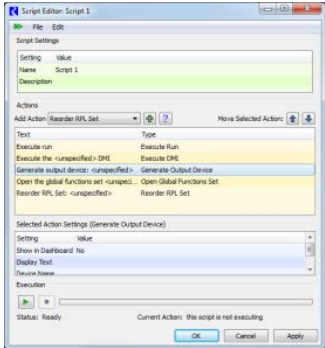- Checklists anyone?
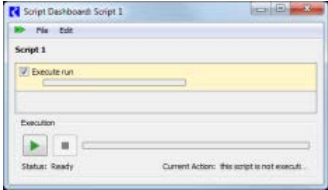
Opacity and Repeatability

- Opacity and model state
  - Have I imported values?
  - Has my coworker run this DMI?

- Repeatability
  - How do I replicate a previous run?
  - Why are the outputs different this time?

Solution: Scripts

- Script = user-defined sequence of actions
- Action = common RiverWare operation
  - Open a slot
  - Run a DMI
  - Set controller
- Extensible
  - RiverWare 6.5: 24 action types
  - RiverWare 6.6: 5 new action types
- Two interfaces

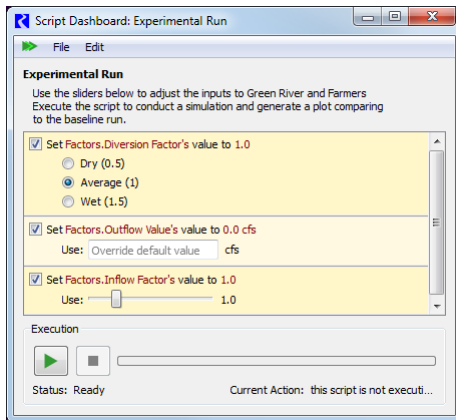# Script Dashboard

Script Editor
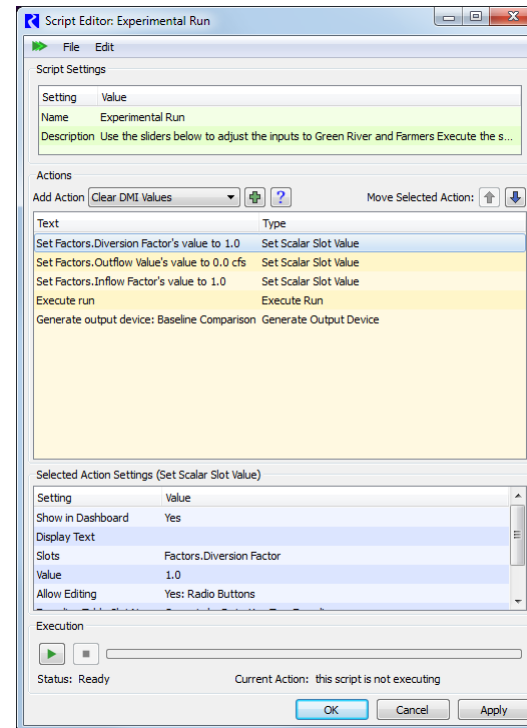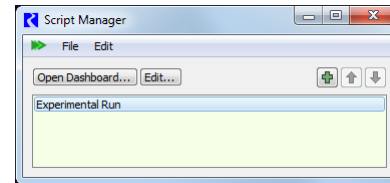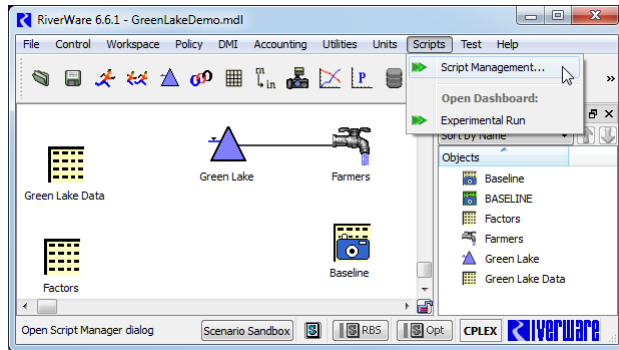

Curious   Stakeholder   Operator   Modeler

Applications

- Update model run range
  - Move up a day
  - Switch to new water year
- Switch model between applications
  - Accounting vs Operations vs Planning
- Model verification
  - Run many scenarios automatically
- Stakeholder exploration

Feature Tour

Motivation Revisited

- Complexity: Configurable dashboard
- Repetition: Create once, execute often
- Opacity: Execution defines state
- Repeatability: Script captures operations

Future Development

- Outputs in Dashboard?
- Scripts that run other scripts?
- Improved usability
- Single action execution
- Web dashboard?
- …