

Data models:
**Water Distribution Network
(EPANET)**

Chris Sweetapple

C.Sweetapple@exeter.ac.uk

Introduction

‘Water Network Management’ data model developed to store data associated with an EPANET model of a water distribution system

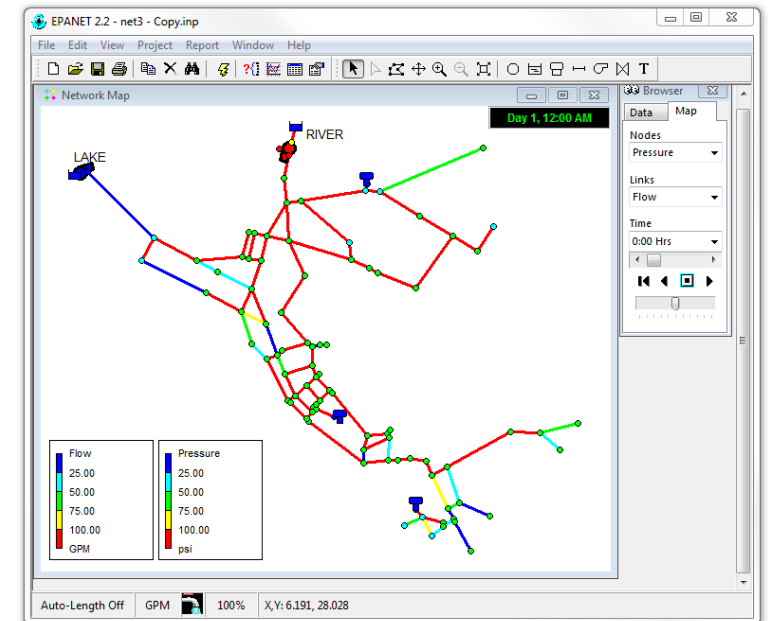
<https://github.com/smart-data-models/dataModel.WaterNetworkManagement>

What is EPANET?

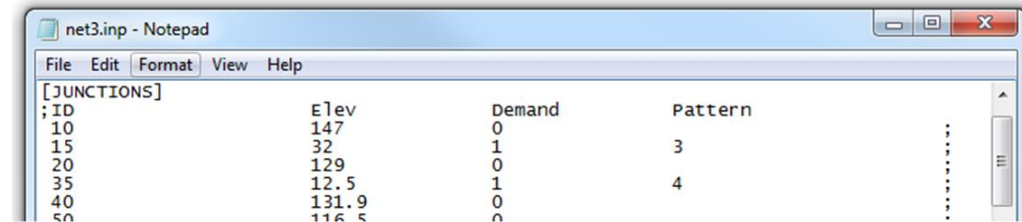
- A program for modelling water distribution systems*
- Provides extended period simulation of hydraulic and water quality behaviour*
- Includes a GUI and an open source ‘Toolkit’*

Why an EPANET-based data model?

- To facilitate real time modelling and operational management*
- Aid integration with other sources of data*



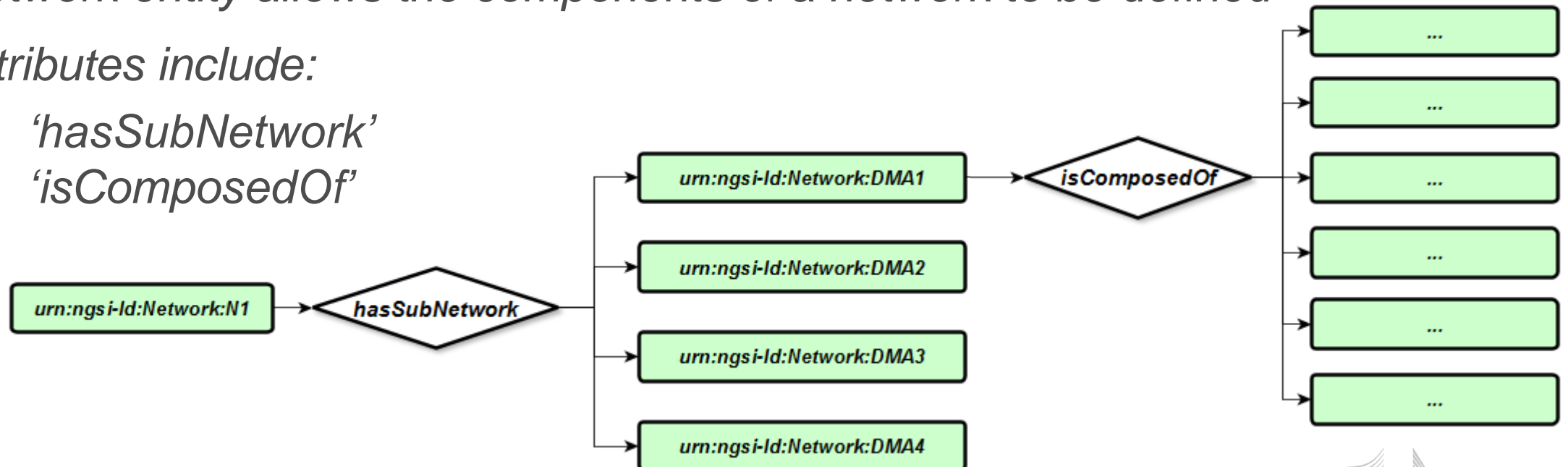
Network entity



```
net3.inp - Notepad
File Edit Format View Help
[JUNCTIONS]
;ID      Elev      Demand   Pattern
10      147      0        1
15      32       1        3
20      129     0        1
35      12.5    1        4
40      131.9   0        1
50      116.5   0        1
...
```

*EPANET input file
defining network*

- *Network entity allows the components of a network to be defined*
- *Attributes include:*
 - *'hasSubNetwork'*
 - *'isComposedOf'*



Component entities

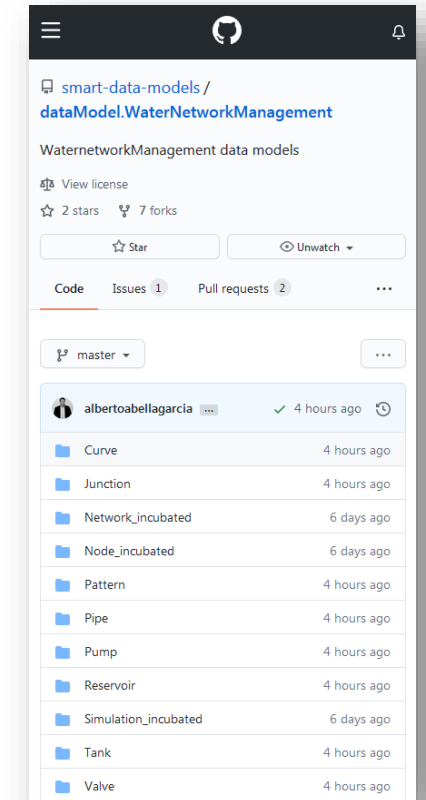
- *Entities defined for all components of an EPANET model*
- *Entities include:*
 - *Junctions*
 - *Tanks*
 - *Reservoirs*

Network nodes

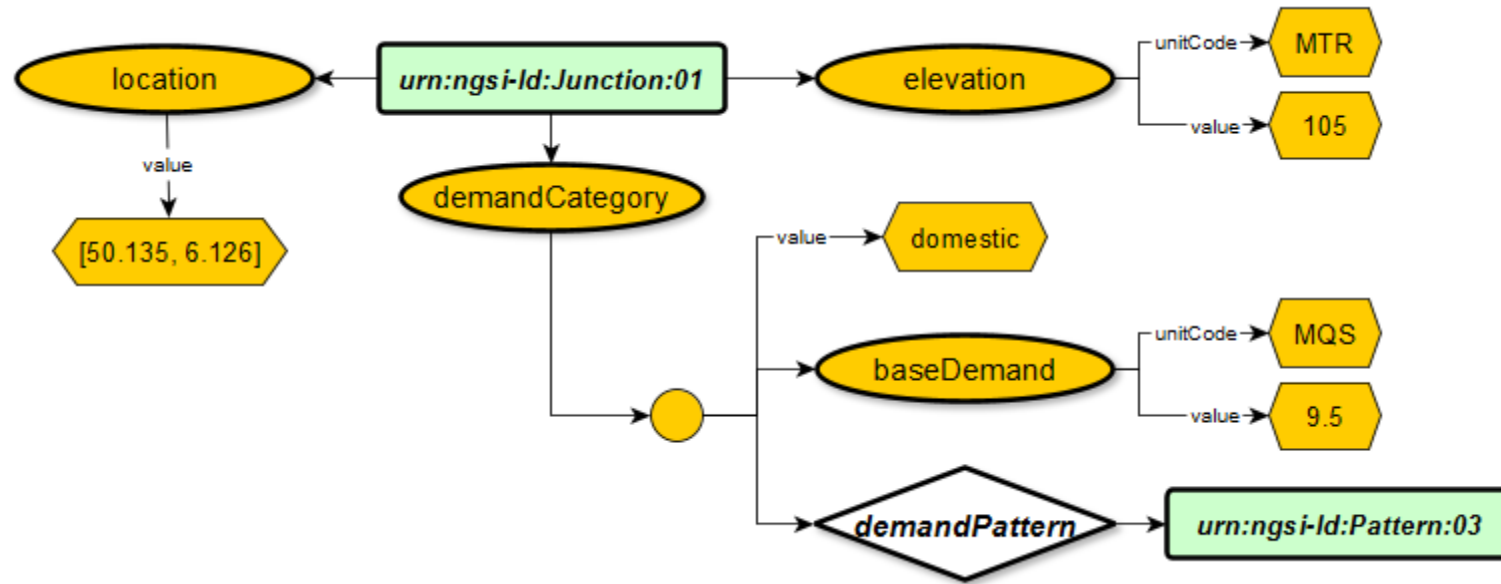
 - *Pipes*
 - *Valves*
 - *Pumps*

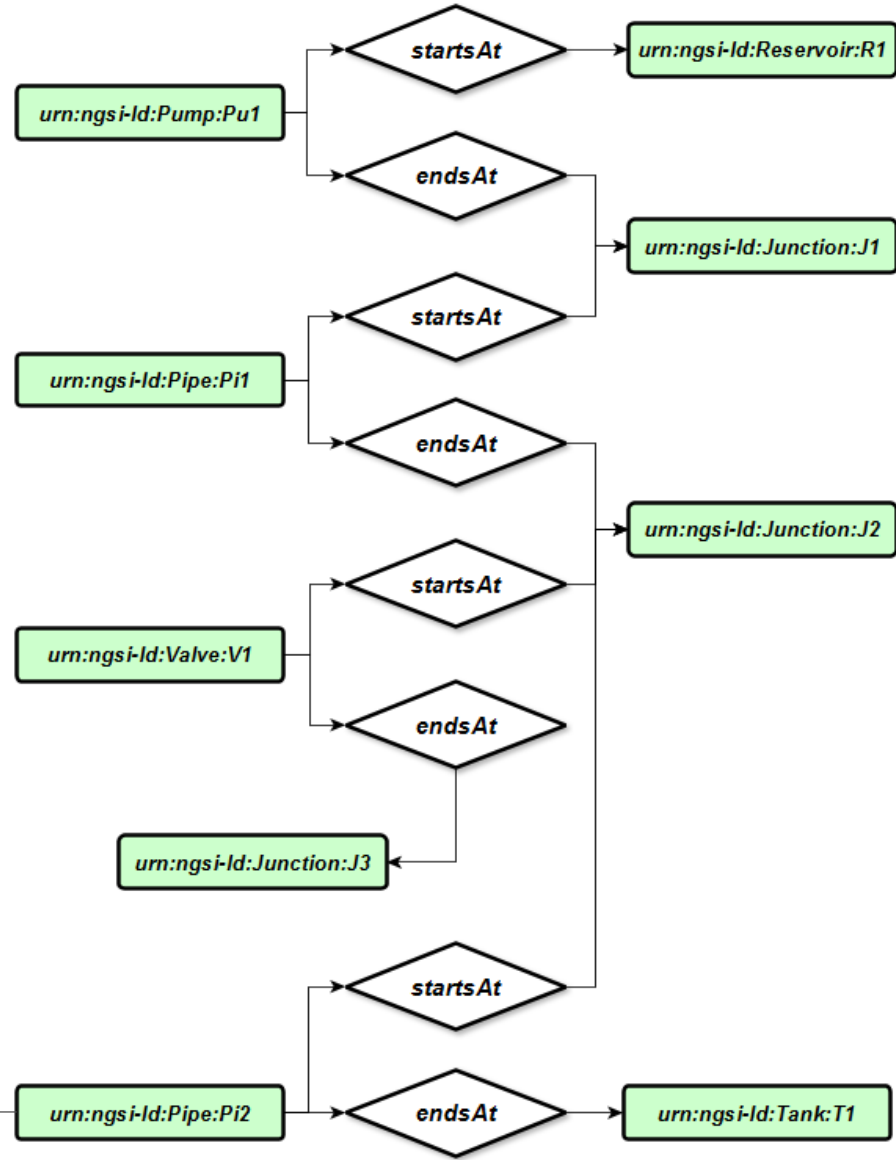
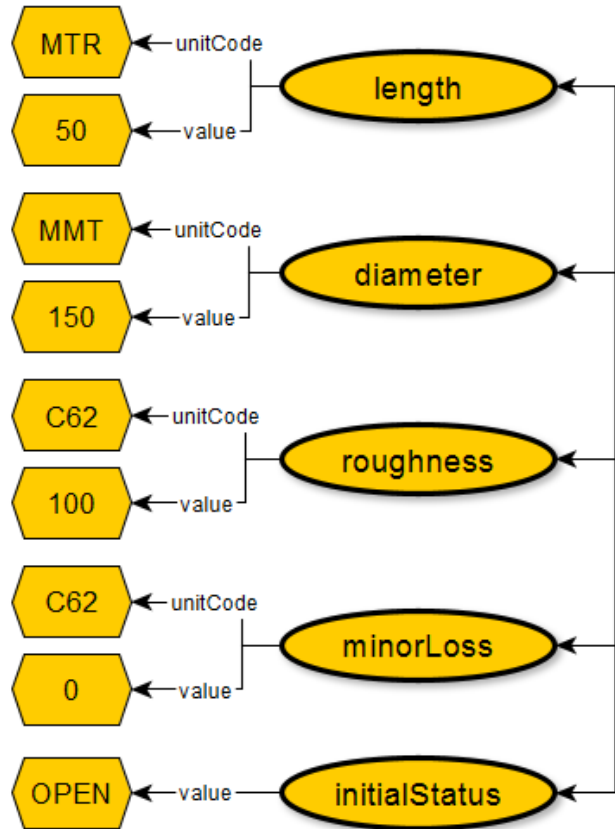
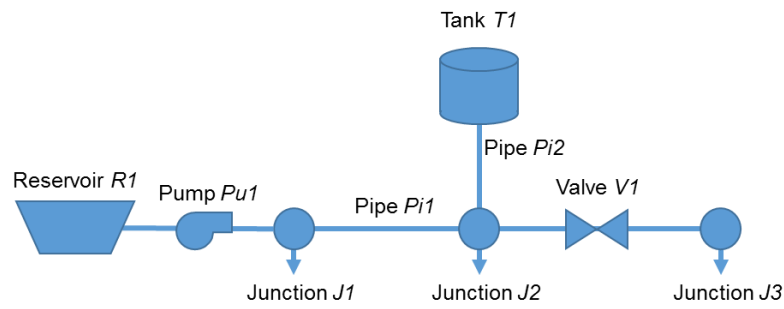
Network links

 - *Curves*
 - *Patterns*



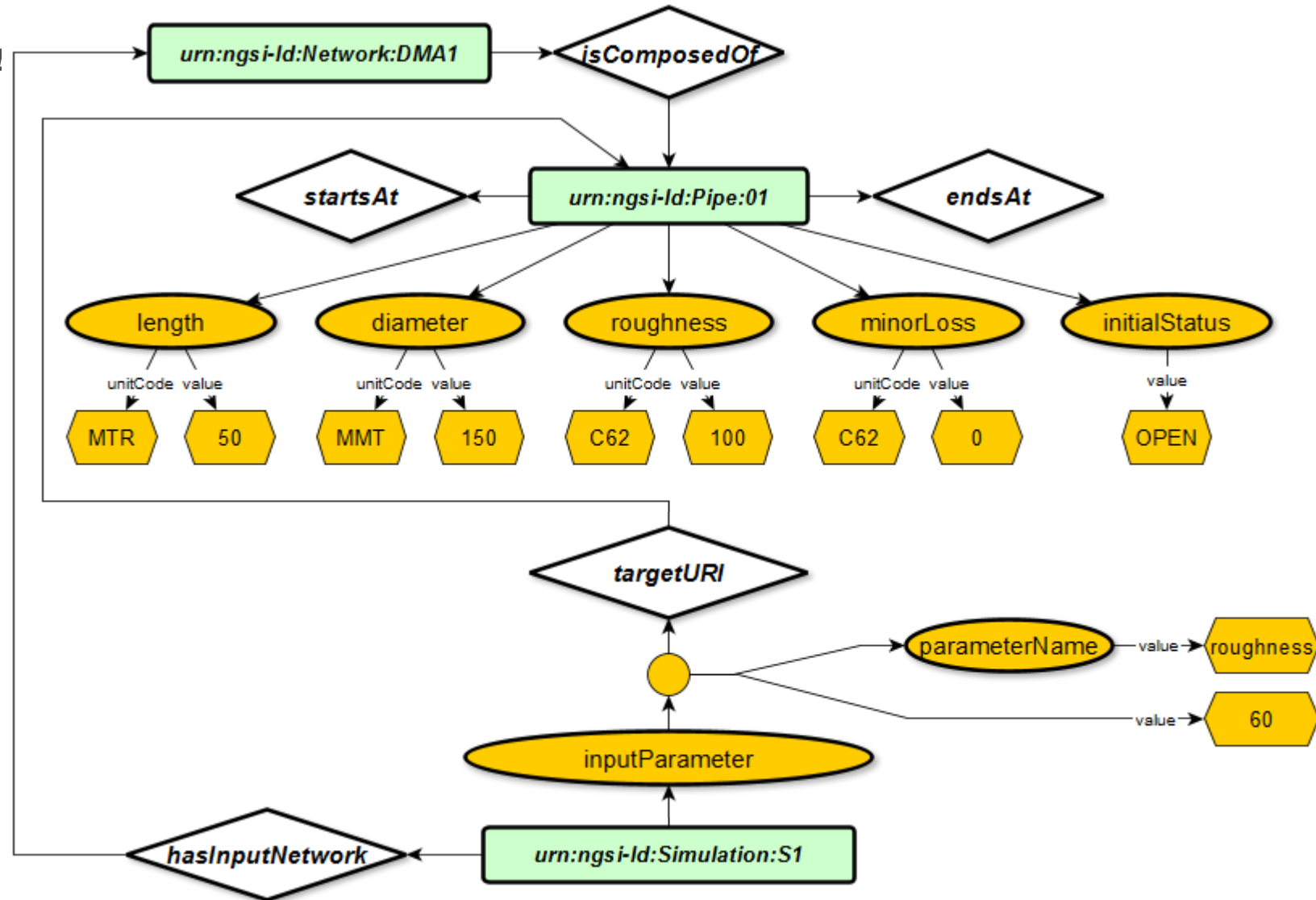
Example: Junction



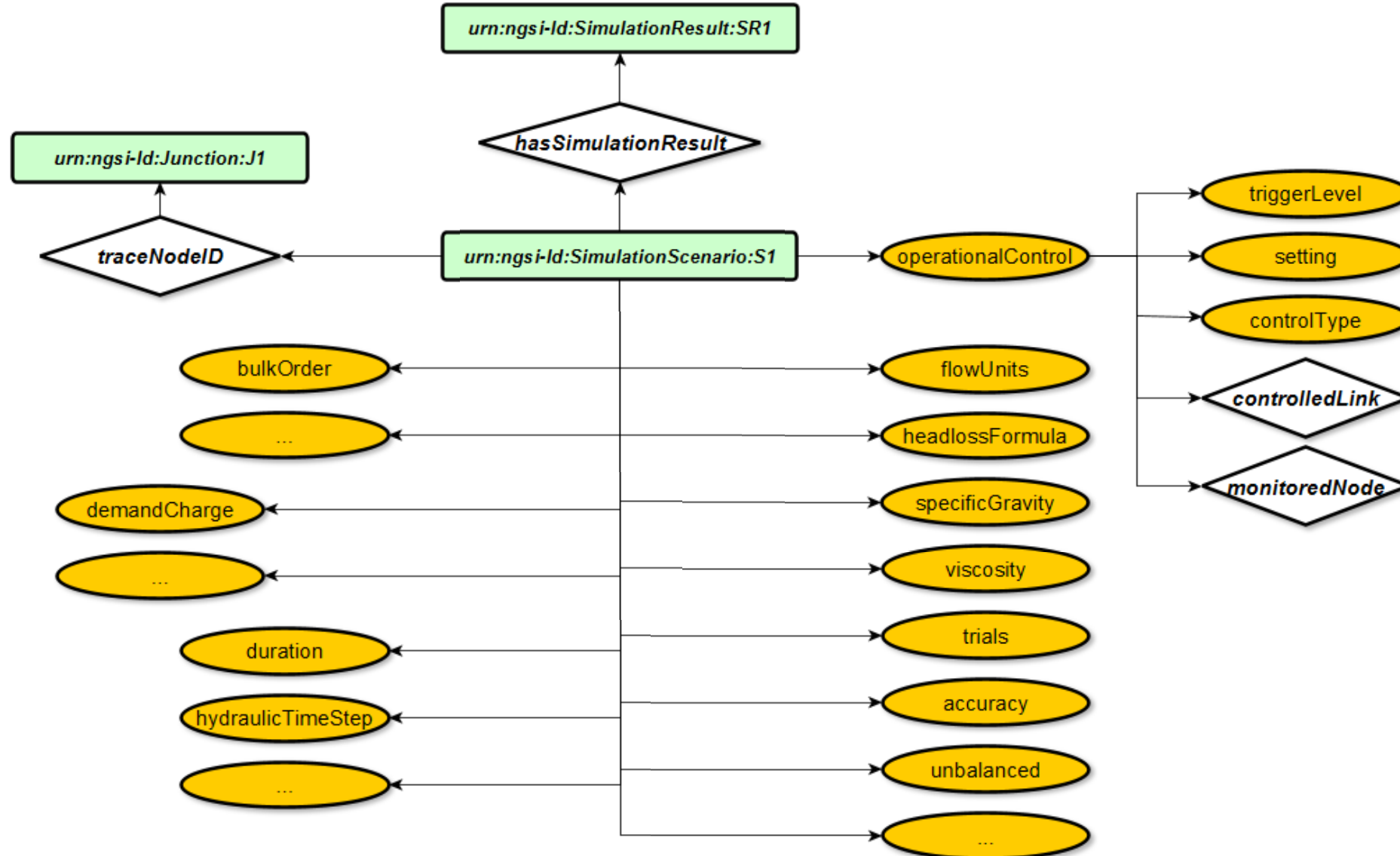


SimulationScenario

- Allows an EI

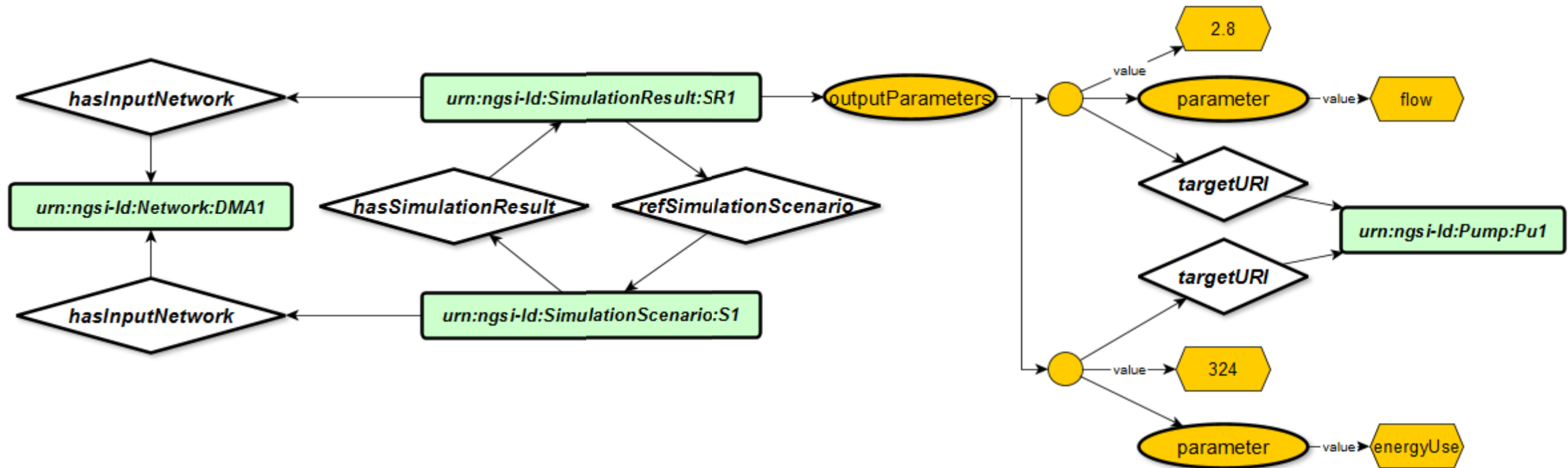


SimulationScenario



SimulationResult

- *Enables storage of results from hydraulic and quality simulations*



Thank you for your attention

Chris Sweetapple

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