

# Visual Soar Update

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Soar Workshop  
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# Visual Soar: An IDE for Soar

Rule Editor  
with Syntax  
Highlighting

Operator  
Hierarchy  
Pane

The screenshot shows the Visual Soar IDE interface. The main window is titled "excopy" and contains three panes:

- Operator Hierarchy Pane (Left):** A tree view showing the hierarchy of operators. The "apple" operator is selected, and its sub-operators are visible, including "orange".
- Rule Editor (Center):** A text editor showing the code for the "apple" operator. The code is syntax-highlighted and includes:

```
sp {apple*propose*orange
(state <s> ^name apple)
-->
(<s> ^operator <op> + =)
(<op> ^name orange)
}
sp {apply*orange
(state <s> ^operator <op>)
(<op> ^name orange)
-->
(<s> ^orange youglad)
}
```
- Datamap for static analysis (Right):** A pane titled "Datamap apple" showing the static analysis results for the "apple" operator. The datamap includes:

```
apple
├── choices: [ multiple constraint-failure none ]
├── epmem
├── impasse: [ tie conflict constraint-failure no-change ]
├── name: [ apple ]
├── operator: [ orange ]
├── orange: [ youglad ]
├── quiescence: [ t ]
├── reward-link
├── smem
├── superstate
├── top-state
└── type: [ state ]
```

At the bottom of the IDE, there is a "Feedback" pane with the message: "There were no errors detected in this project." and a "Save Finished" button.

Soar  
Debugger  
Integration

Datamap  
for static  
analysis

# Overview

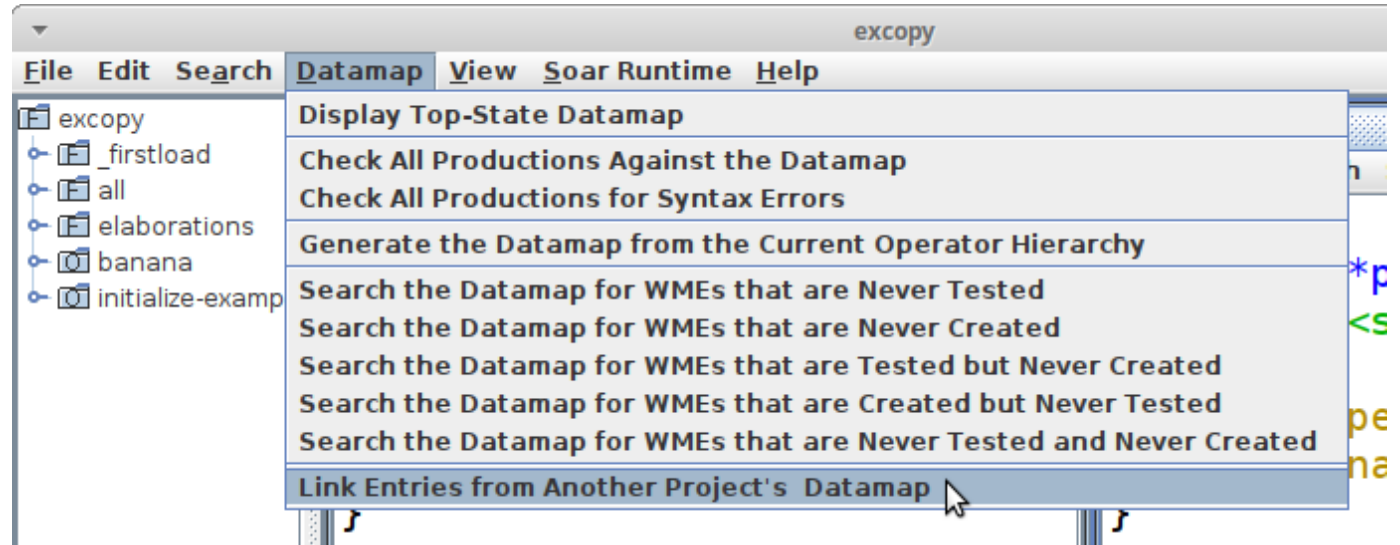
- Major Improvements in 2024
  - Datamap importing
  - Save current project and files
  - Open Recent
  - More version control friendly
  - Bug fixes

# Datamap Import

- Goal: Two (or more) projects share some datamap structures
- Implementation:
  - Sub-project imports portions of datamap from a Main project
  - Imported section must be “rooted” in the top-state
  - Manual updates

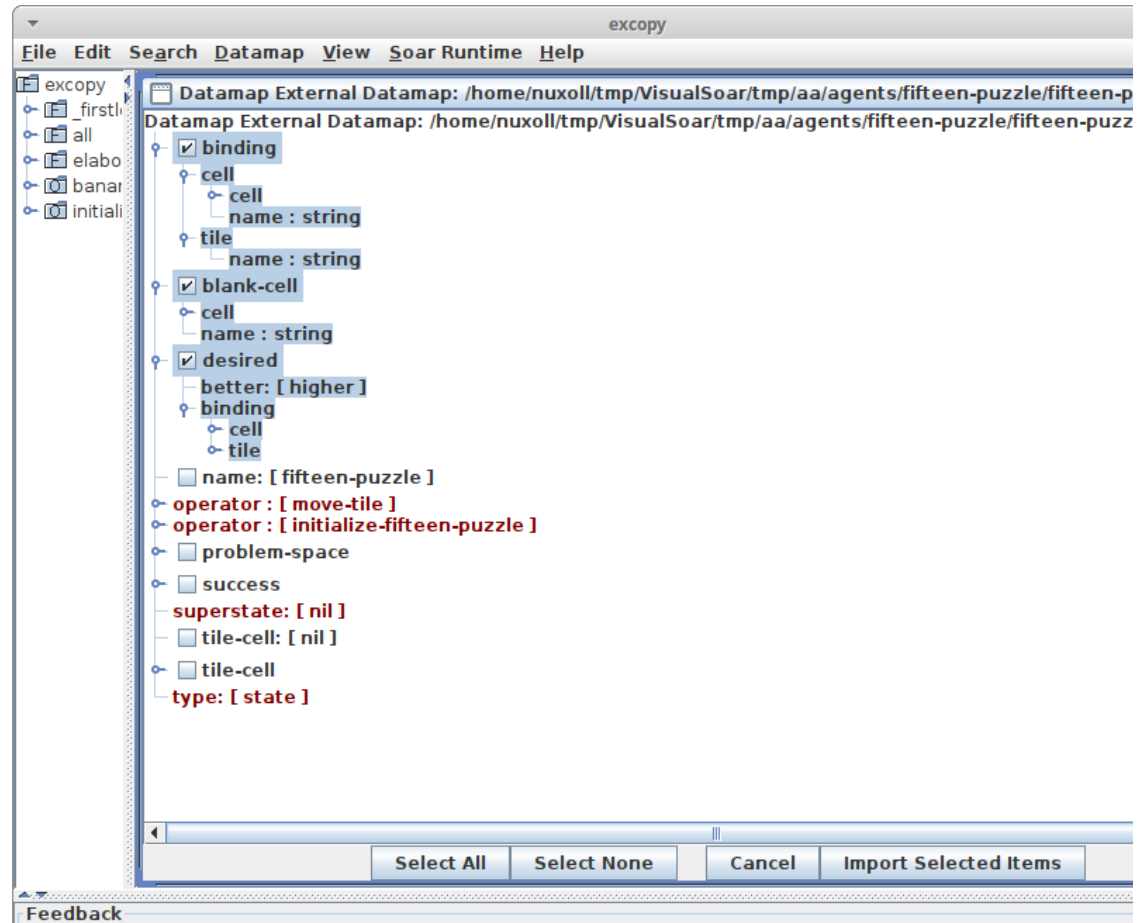
# Datamap Import Demo (1)

Select .vsa  
file of other  
project.

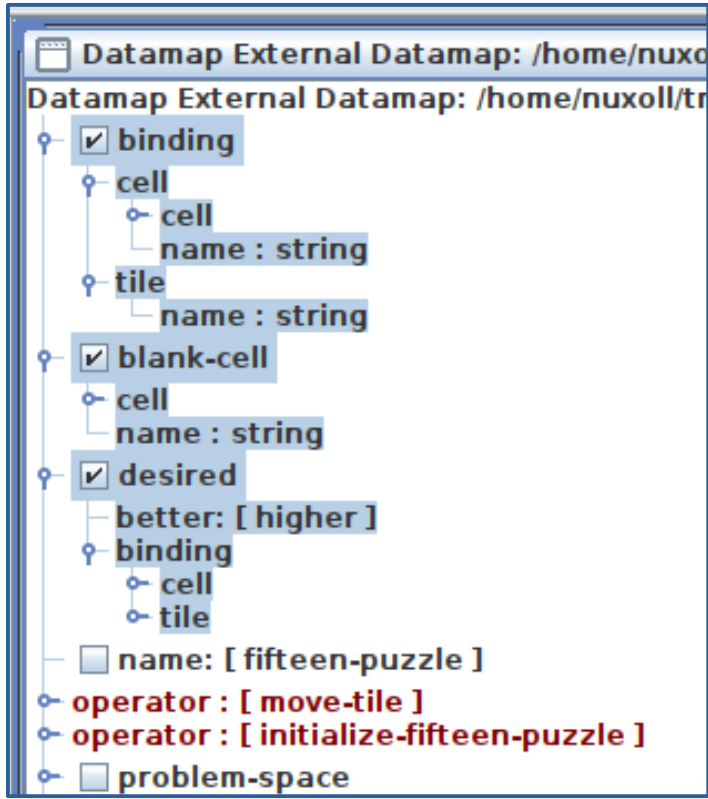


# Datamap Import Demo (2)

- Check boxes on top-level “root” WMEs of tree
- Disallowed:
  - Non-top-level
  - Operators
  - Conflicting WMEs



# Datamap Import Demo (3)



excopy

File Edit Search Datamap View SoarRuntime Help

excopy

- firstl
- all
- elabo
- banar
- initiali

Datamap External Datamap: /home/nuxoll/tmp/VisualSoar/tmp/aa/agents/fifteen-puzzle/fifteen-p

Datamap External Datamap: /home/nuxoll/tmp/VisualSoar/tmp/aa/agents/fifteen-puzzle/fifteen-puzz

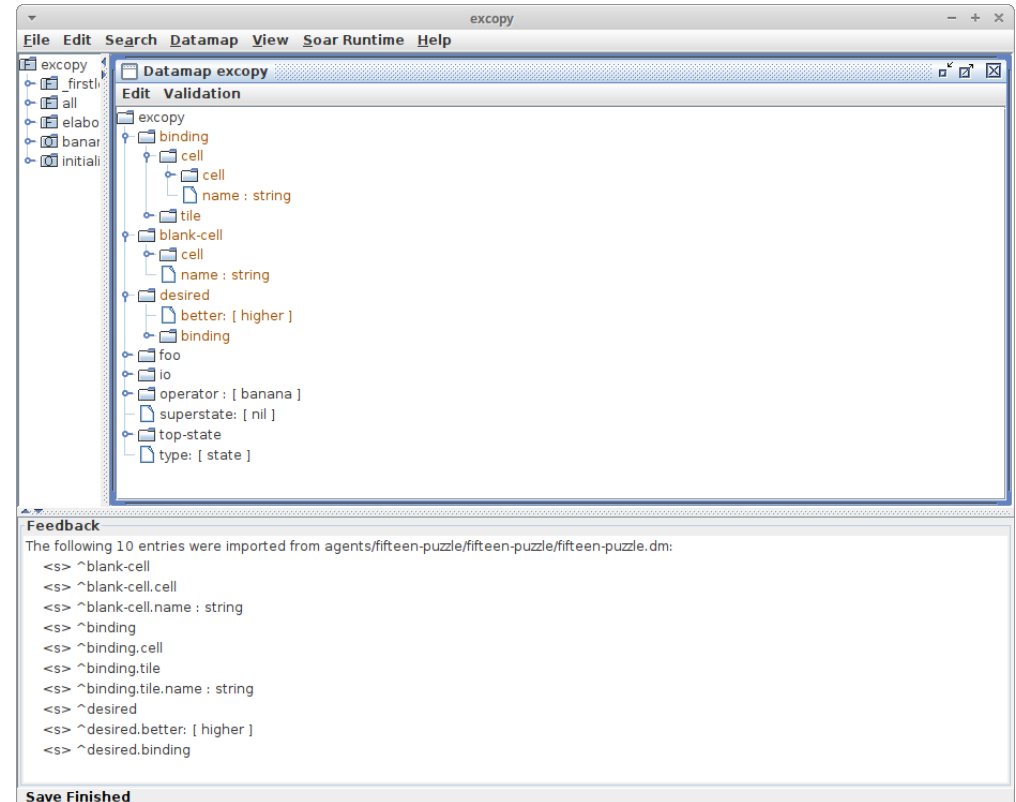
- binding
  - cell
    - cell
      - name : string
    - tile
      - name : string
  - blank-cell
    - cell
      - name : string
  - desired
    - better: [ higher ]
    - binding
      - cell
      - tile
  - name: [ fifteen-puzzle ]
  - operator : [ move-tile ]
  - operator : [ initialize-fifteen-puzzle ]
  - problem-space
  - success
  - superstate: [ nil ]
  - tile-cell: [ nil ]
  - tile-cell
  - type: [ state ]

Select All Select None Cancel Import Selected Items

Feedback

# Datamap Import Demo (4)

- Imported entries are in orange text
  - Test
  - Auto-complete
  - Delete
  - ~~Edit~~



The screenshot shows the 'excopy' application window. The main area displays a tree view of the 'Datamap excopy' structure. The imported entries are highlighted in orange text. The tree structure is as follows:

- excopy
  - binding
    - cell
      - cell
        - name : string
      - tile
    - blank-cell
      - cell
        - name : string
    - desired
      - better: [ higher ]
      - binding
    - foo
    - io
    - operator : [ banana ]
    - superstate: [ nil ]
    - top-state
    - type: [ state ]

The Feedback window at the bottom shows the following 10 entries imported from agents/fifteen-puzzle/fifteen-puzzle/fifteen-puzzle.dm:

```
<s> ^blank-cell
<s> ^blank-cell.cell
<s> ^blank-cell.name : string
<s> ^binding
<s> ^binding.cell
<s> ^binding.tile
<s> ^binding.tile.name : string
<s> ^desired
<s> ^desired.better: [ higher ]
<s> ^desired.binding
```

Save Finished



# Datamap Import Demo (5)

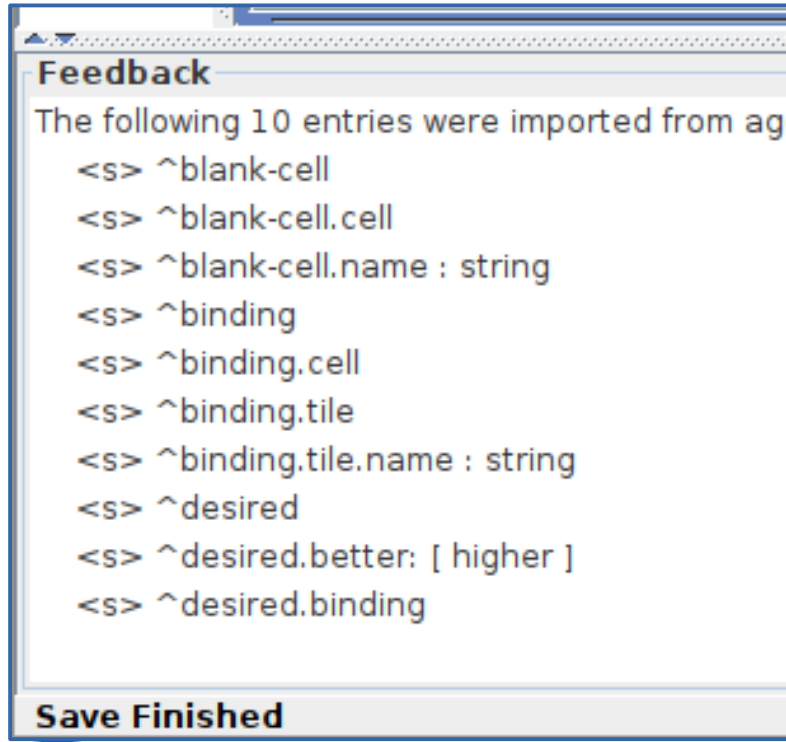
The image shows a software interface for managing a Datamap. It is divided into three main sections:

- Left Sidebar:** Shows a tree view of the 'Datamap excopy' structure. The root is 'excopy', which contains folders: 'binding', 'blank-cell', 'desired', 'foo', and 'io'. The 'binding' folder contains 'cell' (which contains another 'cell' folder and a 'name : string' file), 'tile', and 'blank-cell' (which contains a 'cell' folder and a 'name : string' file). The 'desired' folder contains a 'better: [ higher ]' file and a 'binding' folder.
- Central Workspace:** Shows a detailed view of the 'binding' folder. It lists sub-folders: 'cell', 'tile', 'blank-cell', 'desired', 'foo', and 'io'. It also lists files: 'name : string', 'better: [ higher ]', and 'binding'.
- Bottom Feedback Window:** Displays a list of 10 imported entries with their paths:

```
The following 10 entries were imported from agents/fifteen-puzzle/fifteen-puzzle/fifteen-puzzle.dm:  
<s> ^blank-cell  
<s> ^blank-cell.cell  
<s> ^blank-cell.name : string  
<s> ^binding  
<s> ^binding.cell  
<s> ^binding.tile  
<s> ^binding.tile.name : string  
<s> ^desired  
<s> ^desired.better: [ higher ]  
<s> ^desired.binding
```

At the bottom of the interface, there is a 'Save Finished' button.

# Datamap Import Demo (6)

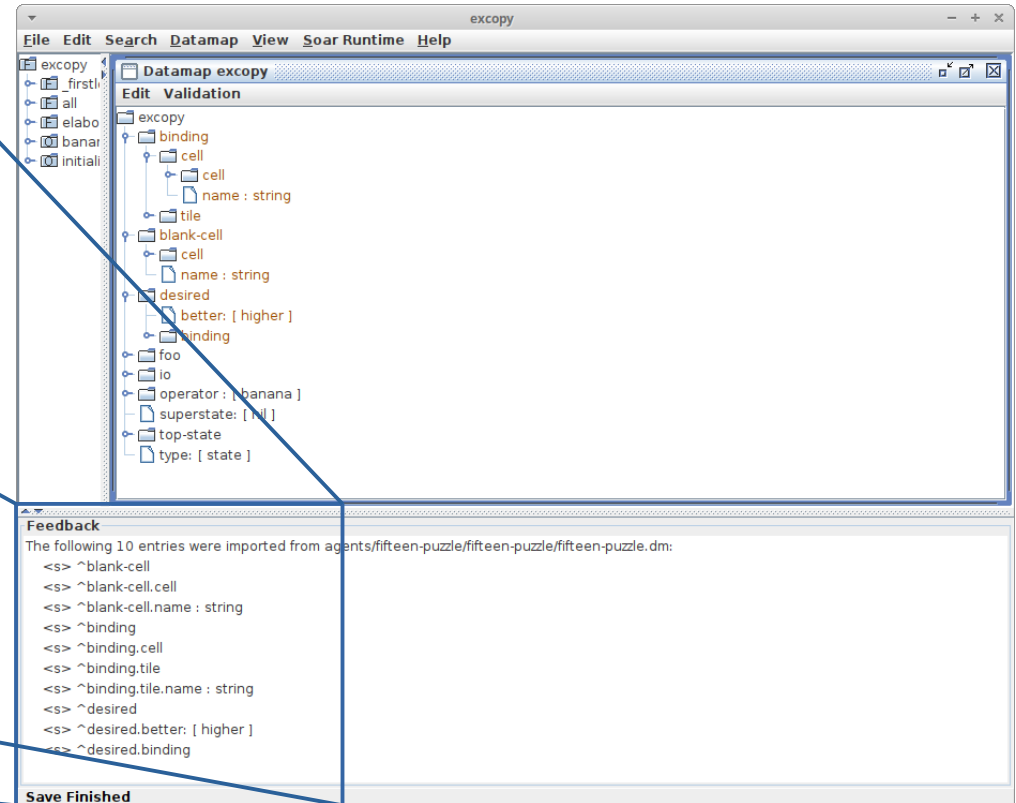


**Feedback**

The following 10 entries were imported from ag

- <s> ^blank-cell
- <s> ^blank-cell.cell
- <s> ^blank-cell.name : string
- <s> ^binding
- <s> ^binding.cell
- <s> ^binding.tile
- <s> ^binding.tile.name : string
- <s> ^desired
- <s> ^desired.better: [ higher ]
- <s> ^desired.binding

**Save Finished**



excopy

File Edit Search Datamap View Soar Runtime Help

**Datamap excopy**

Edit Validation

- excopy
  - binding
    - cell
      - cell
        - name : string
      - tile
    - blank-cell
      - cell
        - name : string
    - desired
      - better: [ higher ]
      - binding
    - foo
    - io
    - operator : [ banana ]
    - superstate: [ ]
    - top-state
    - type: [ state ]

**Feedback**

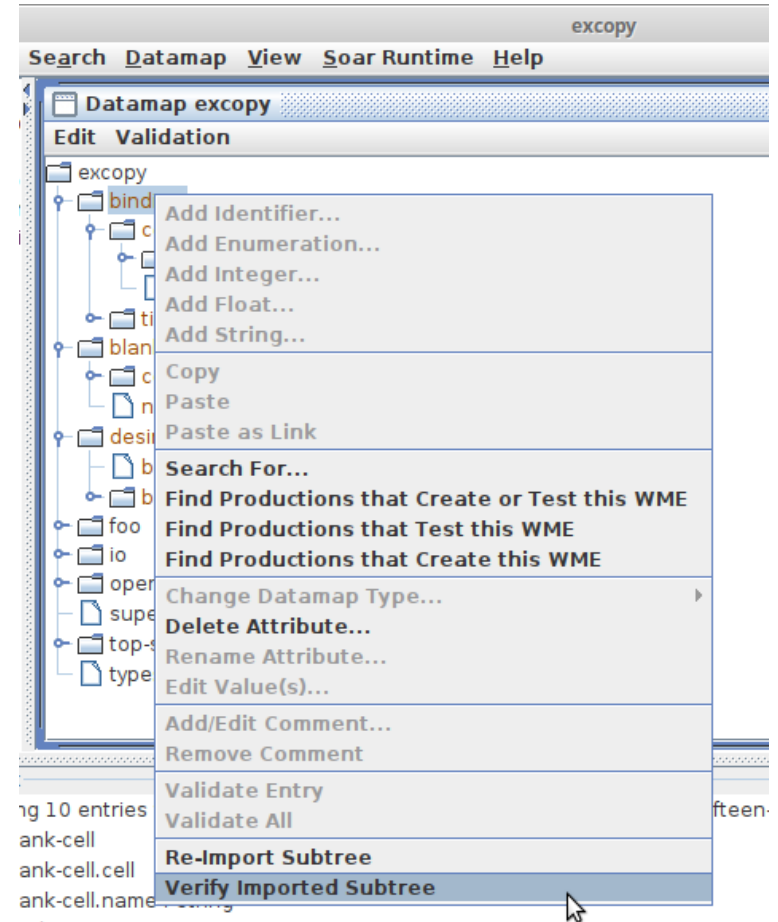
The following 10 entries were imported from agents/fifteen-puzzle/fifteen-puzzle/fifteen-puzzle.dm:

- <s> ^blank-cell
- <s> ^blank-cell.cell
- <s> ^blank-cell.name : string
- <s> ^binding
- <s> ^binding.cell
- <s> ^binding.tile
- <s> ^binding.tile.name : string
- <s> ^desired
- <s> ^desired.better: [ higher ]
- <s> ^desired.binding

**Save Finished**

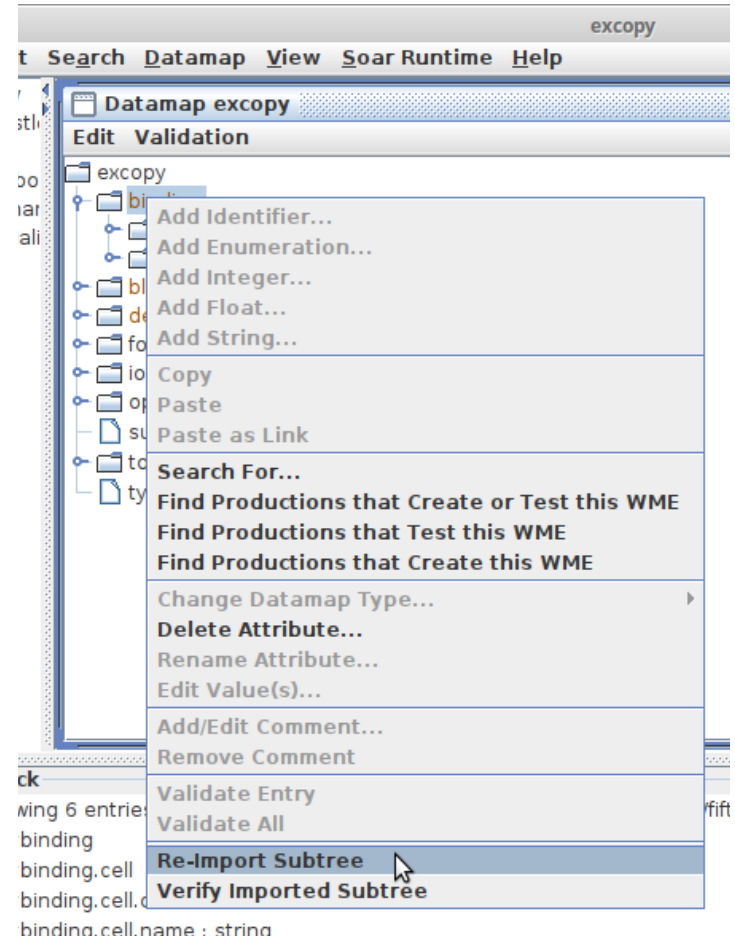
# Datamap Import Demo (7)

Check for changes between imported datamap and originals

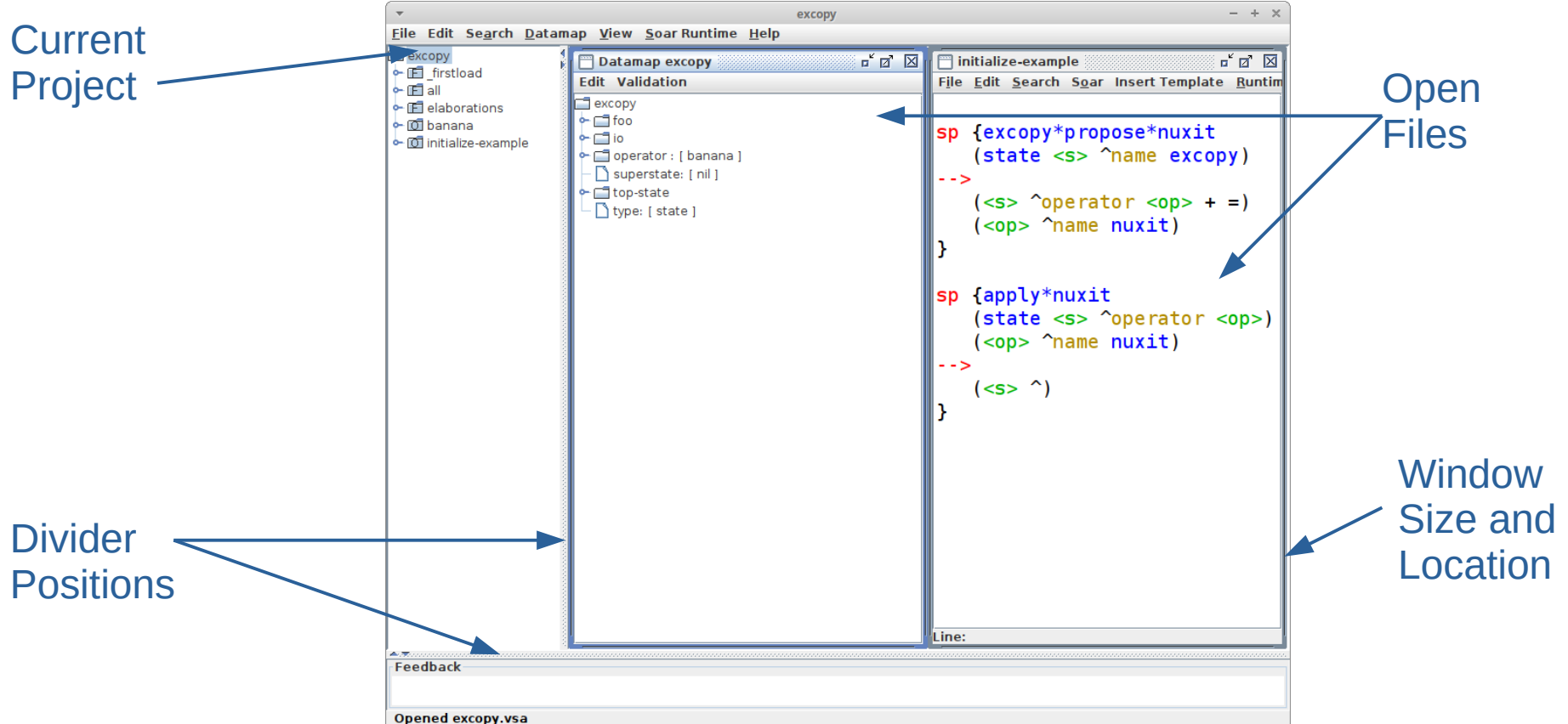


# Datamap Import Demo (8)

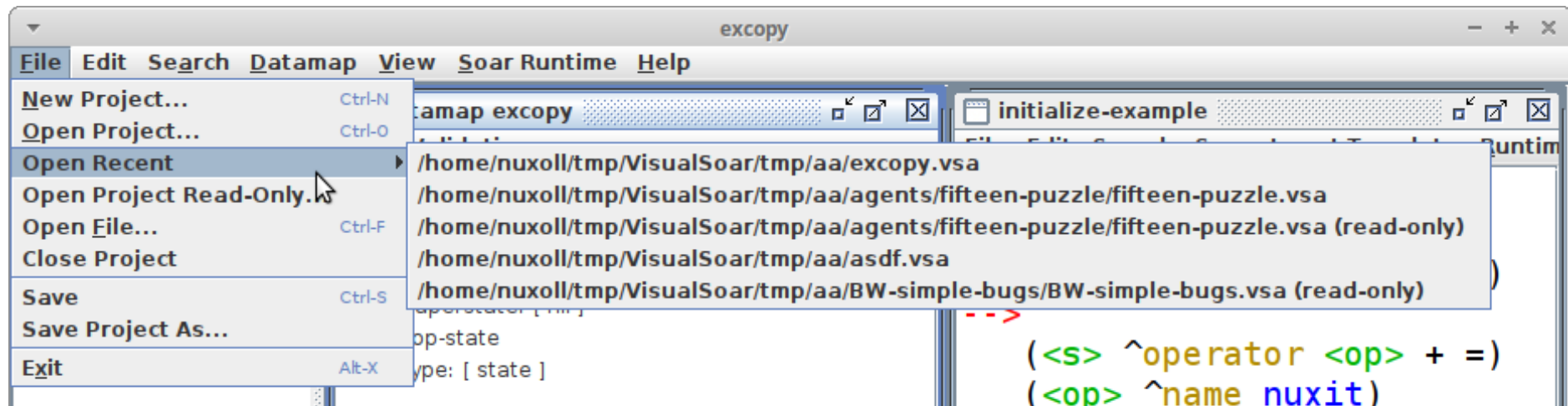
Re-import from main project



# Save Layout and Files



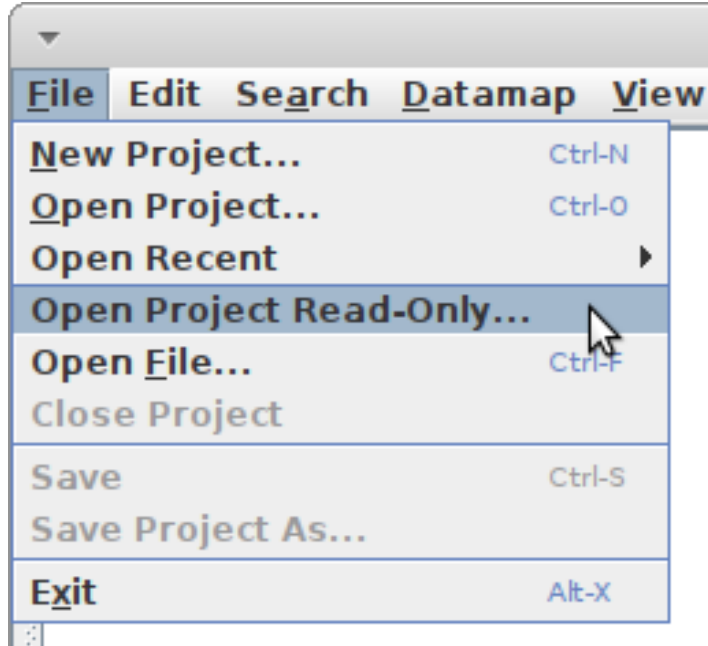
# Open Recent



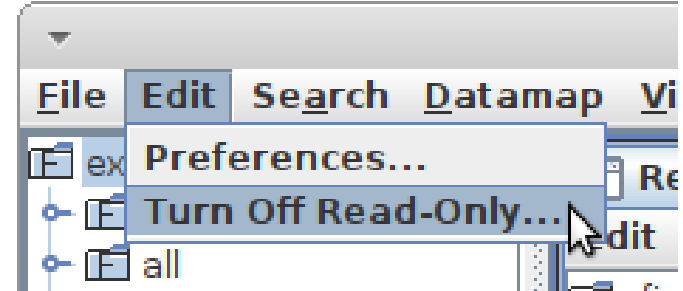
# More Version Control Friendly

- Avoid touching or re-saving files unnecessarily
- Temporary files are removed on save
  - Ex: myfile.soar~
  - Ex: myproject.vsa~
- Open Read-Only (see next slide)

# Open Read-Only (1)



Menu Option



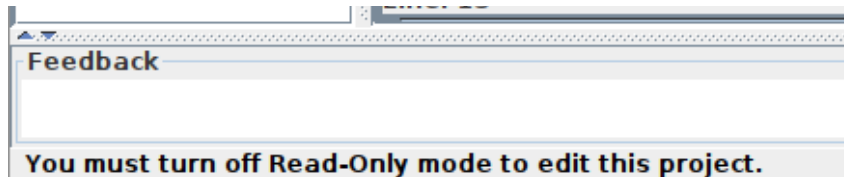
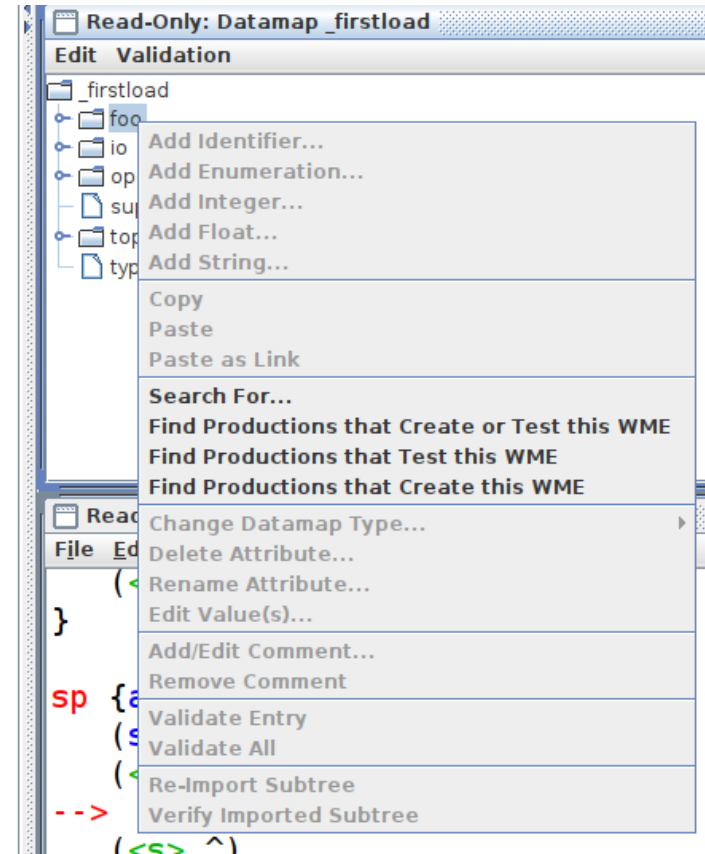
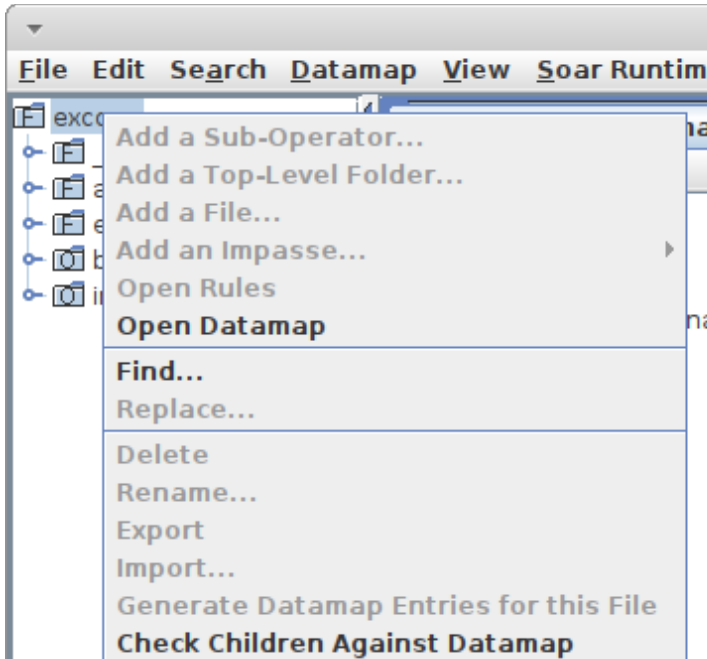
Toggle On/Off



# Open Read-Only (2)

May not add,  
edit, delete:

- Files
- Rules
- Datamap



# Bug Fixes

- Message dialogs appear on the wrong monitor
- The reward-link in a new datamap has the wrong structure
- Replacing highlighted text mis-positions cursor
- Hang caused by Replace All
- Syntax highlighting problems
- Space in enumeration value corrupts project
- Datamap entries listed in seemingly arbitrary order

# Bug Reports and Feature Requests

- <https://github.com/SoarGroup/VisualSoar/issues>
- Thank you! to my involuntary QA department:
  - Peter, John, Bob, Nate, Steven

# Nuggets

and

# Coal

- Bug fixes and new features
- Ready to track new issues
- Some desirable features are out of scope