

OMSimulator

Highlights of the Upcoming Release

```
lochel@LOCHEL-ZB15G5 ~/OMSimulator [master->origin/master |]
```

```
> OMSimulator --version
```

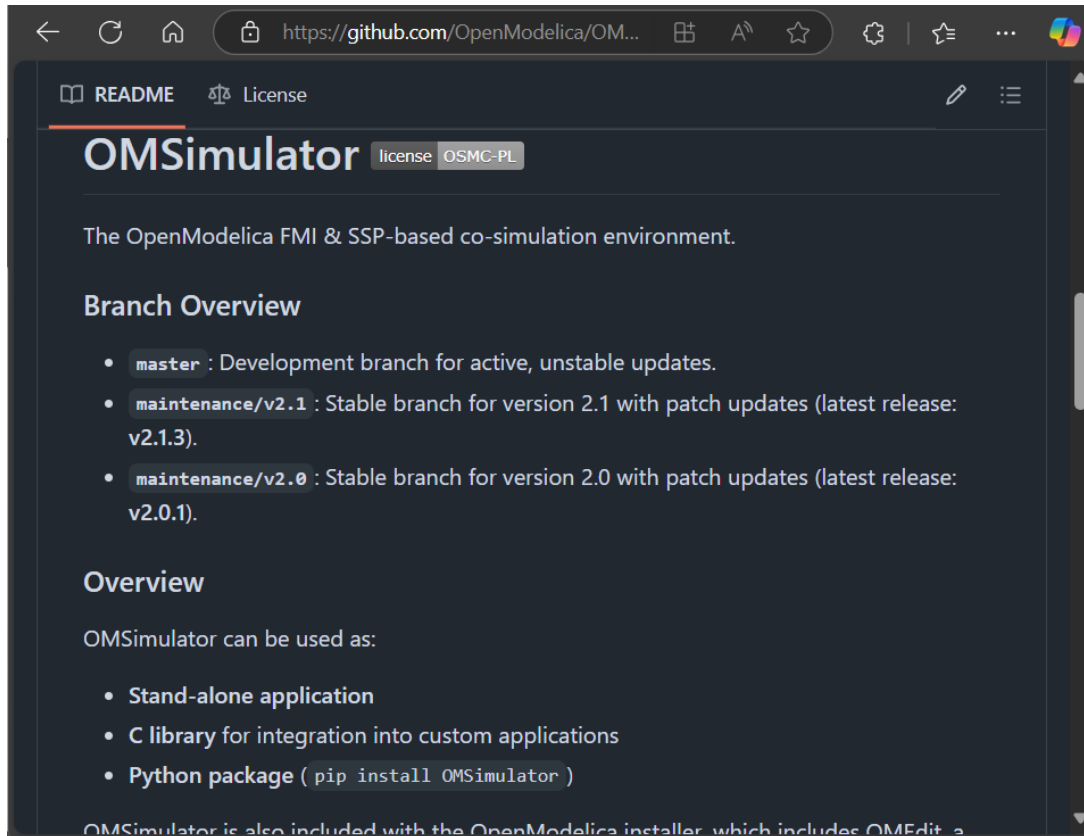
```
OMSimulator v3.0.0.post52-ge5c21a0-linux-debug
```

```
lochel@LOCHEL-ZB15G5 ~/OMSimulator [master->origin/master |]
```

```
> git config user.name
```

```
Lennart Ochel
```

Overview of OMSimulator



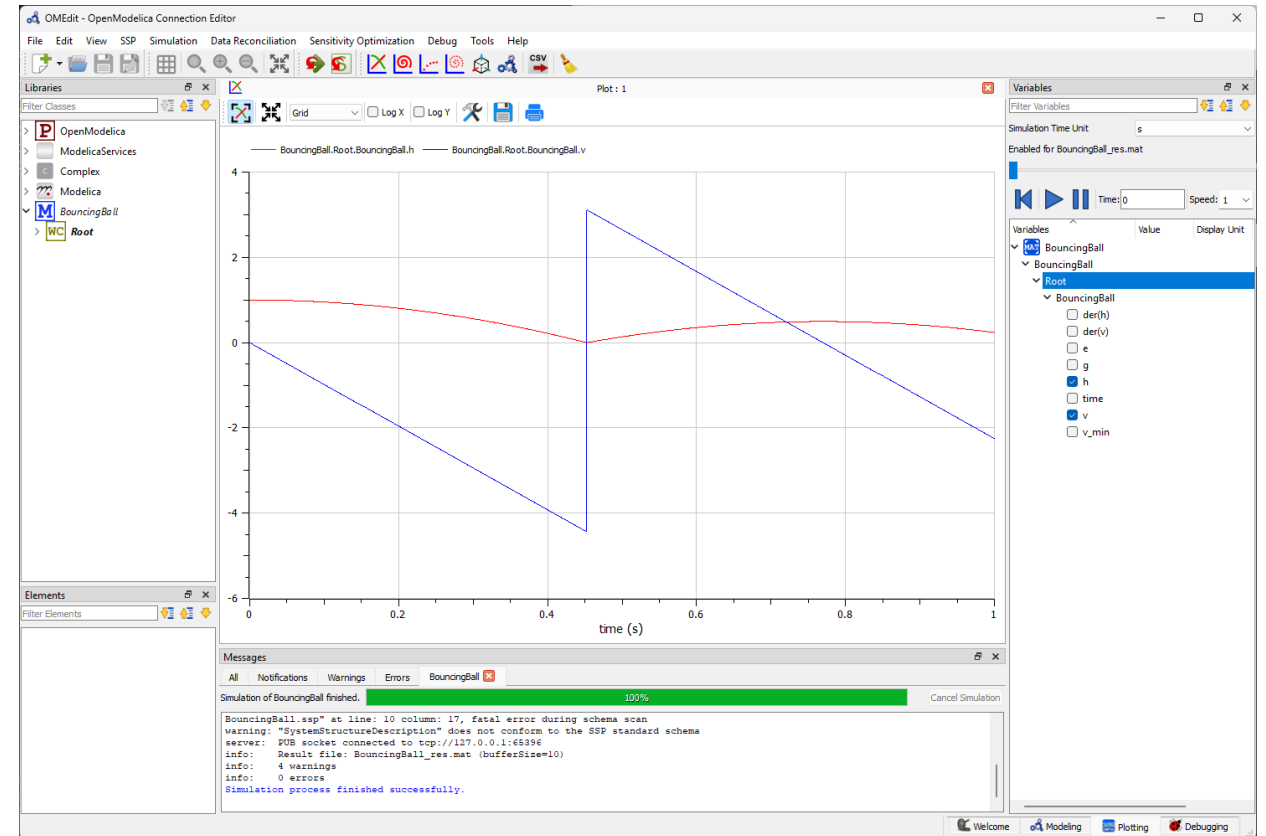
The screenshot shows the GitHub repository page for OMSimulator. The page title is "OMSimulator" with a license of "OSMC-PL". The description reads: "The OpenModelica FMI & SSP-based co-simulation environment." Under the "Branch Overview" section, there are three branches listed:

- `master`: Development branch for active, unstable updates.
- `maintenance/v2.1`: Stable branch for version 2.1 with patch updates (latest release: v2.1.3).
- `maintenance/v2.0`: Stable branch for version 2.0 with patch updates (latest release: v2.0.1).

The "Overview" section states: "OMSimulator can be used as:"

- Stand-alone application
- C library for integration into custom applications
- Python package (`pip install OMSimulator`)

At the bottom, it says: "OMSimulator is also included with the OpenModelica installer, which includes OMEdit a



The screenshot shows the OMSimulator software interface. The main window displays a plot of two variables over time (s). The x-axis ranges from 0 to 1, and the y-axis ranges from -6 to 4. The red line represents `BouncingBall.Root.BouncingBall.h` and the blue line represents `BouncingBall.Root.BouncingBall.v`. The blue line shows a sharp vertical jump at approximately 0.45 seconds, indicating a collision event.

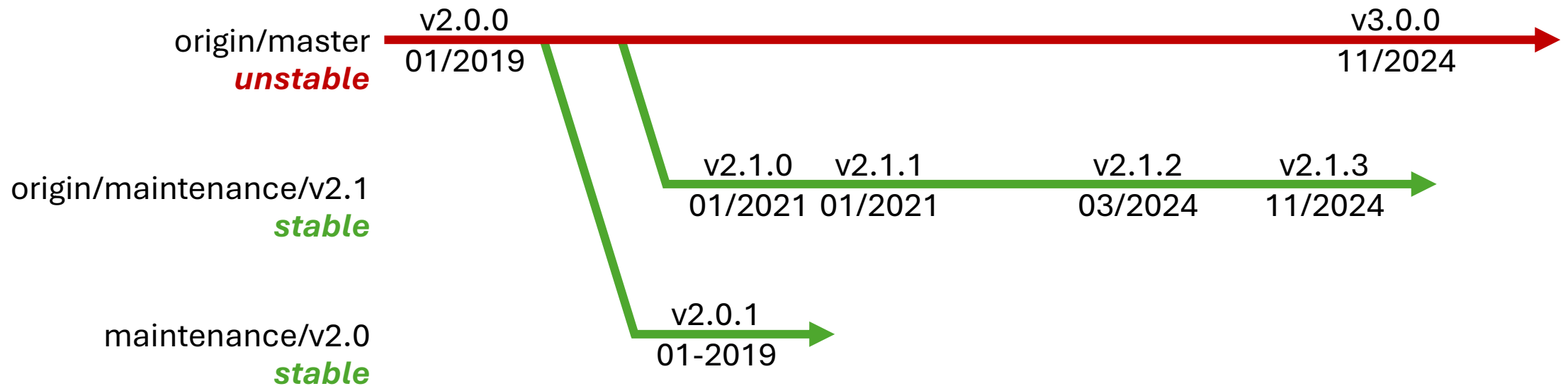
The interface includes a menu bar (File, Edit, View, SSP, Simulation, Data Reconciliation, Sensitivity Optimization, Debug, Tools, Help), a toolbar, and a sidebar with a library tree showing the model structure. The "Variables" panel on the right shows the simulation time unit as seconds and the simulation time as 0. The "Messages" panel at the bottom displays the following output:

```
Simulation of BouncingBall finished. 100%
BouncingBall.ssp at line: 10 column: 17, fatal error during schema scan
warning: "SystemStructureDescription" does not conform to the SSP standard schema
server: PUB socket connected to tcp://127.0.0.1:65396
info: Result file: BouncingBall_res.mat (bufferSize=10)
info: 4 warnings
info: 0 errors
Simulation process finished successfully.
```

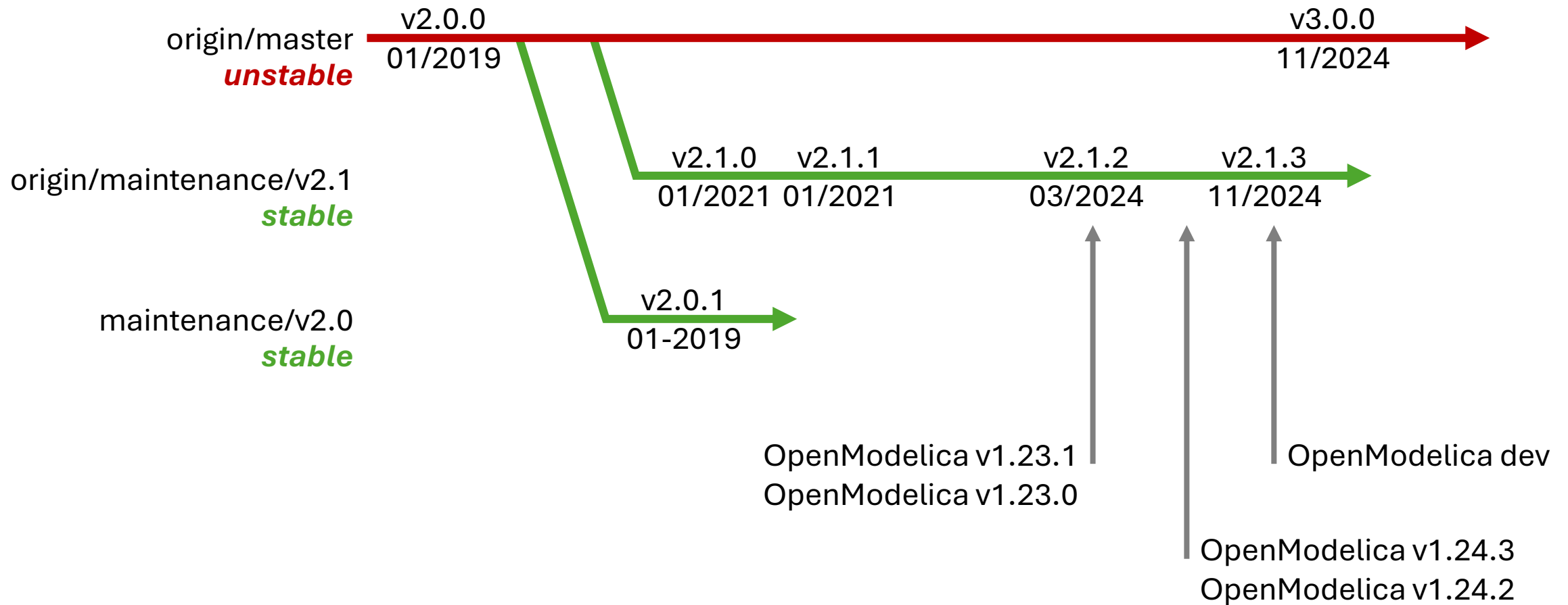
Overview of OMSimulator – at vti



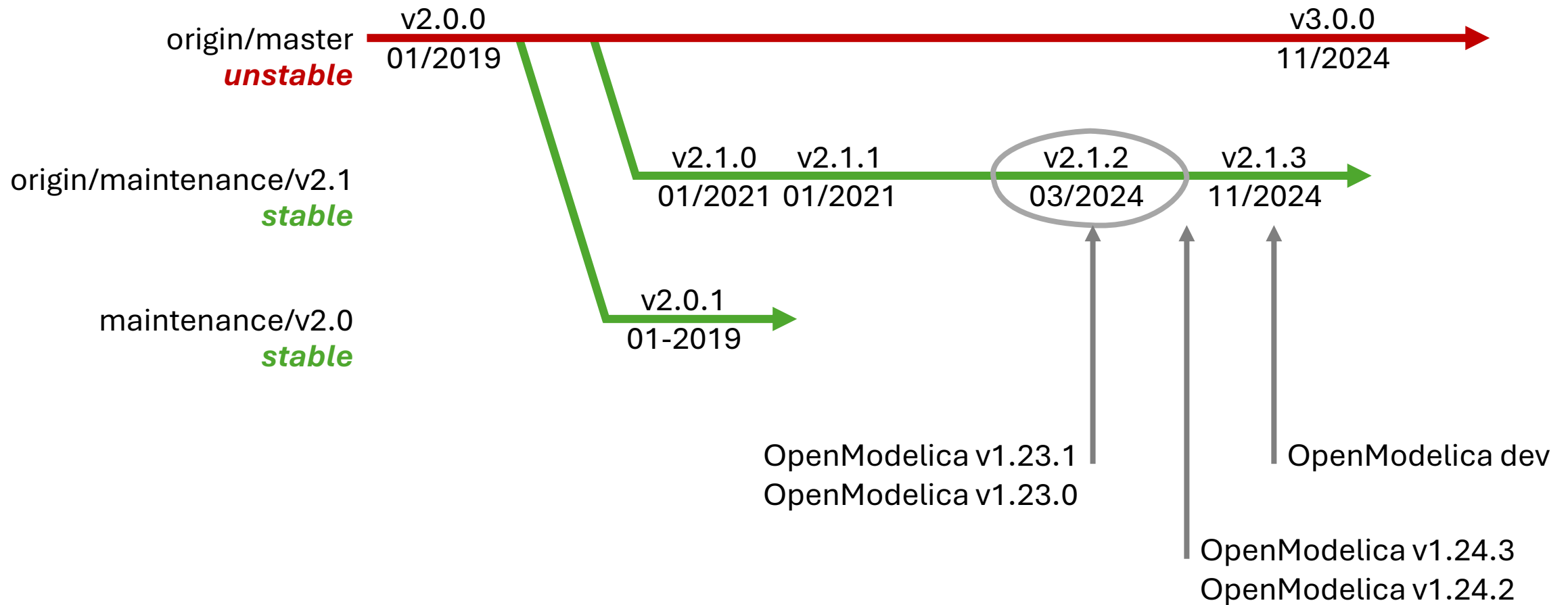
OMSimulator Development




OMSimulator Development



OMSimulator v2.1.2



OMSimulator v2.1.2 – Focus CS

- Main focus on co-simulation
- OMEdit Integration 
- Python API Fixes
- SSV/SSM Support

[→ OMSimulator/UsersGuide](#)

4.23. exportSnapshot

Lists the SSD representation of a given model, system, or component.

Memory is allocated for *contents*. The caller is responsible to free it using the C-API. The Lua and Python bindings take care of the memory and the caller doesn't need to call free.

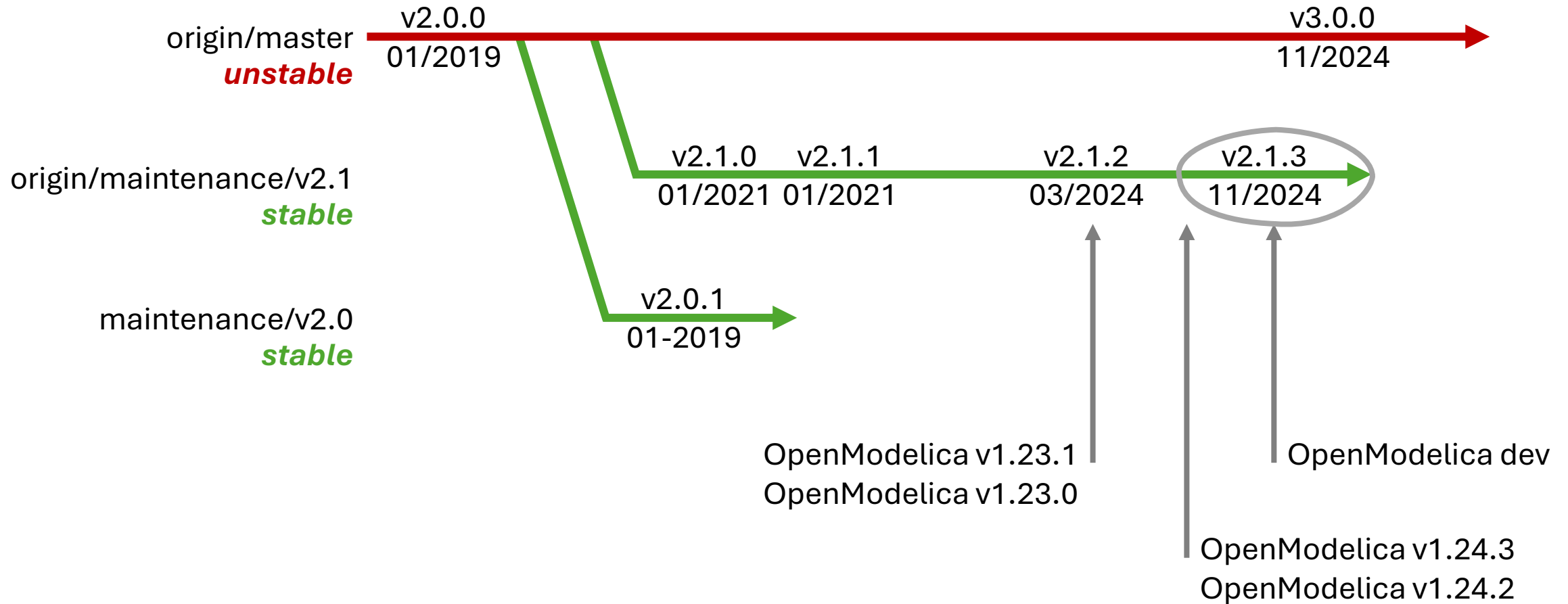
```
oms_status_enu_t oms_exportSnapshot(const char* cref, char** contents);
```

4.50. importSnapshot

Loads a snapshot to restore a previous model state. The model must be in virgin model state, which means it must not be instantiated.

```
oms_status_enu_t oms_importSnapshot(const char* cref, const char* snapshot,
```

OMSimulator v2.1.3



OMSimulator v2.1.3 – Focus: ME

Modelica_4.0.0 test using OpenModelica

Total	Frontend	Backend	SimCode	Templates	Compilation	Simulation	Verification
514	511	511	511	511	511	491	452

Test started: 2025-01-29 20:30:44

Total time taken: 3:57:12

System info: AMD Ryzen 9 5950X 16-Core Processor, 63 GB RAM, Ubuntu 22.04.3 LTS

OpenModelica Version: OMCompiler v1.25.0-dev.346+g2571d79937

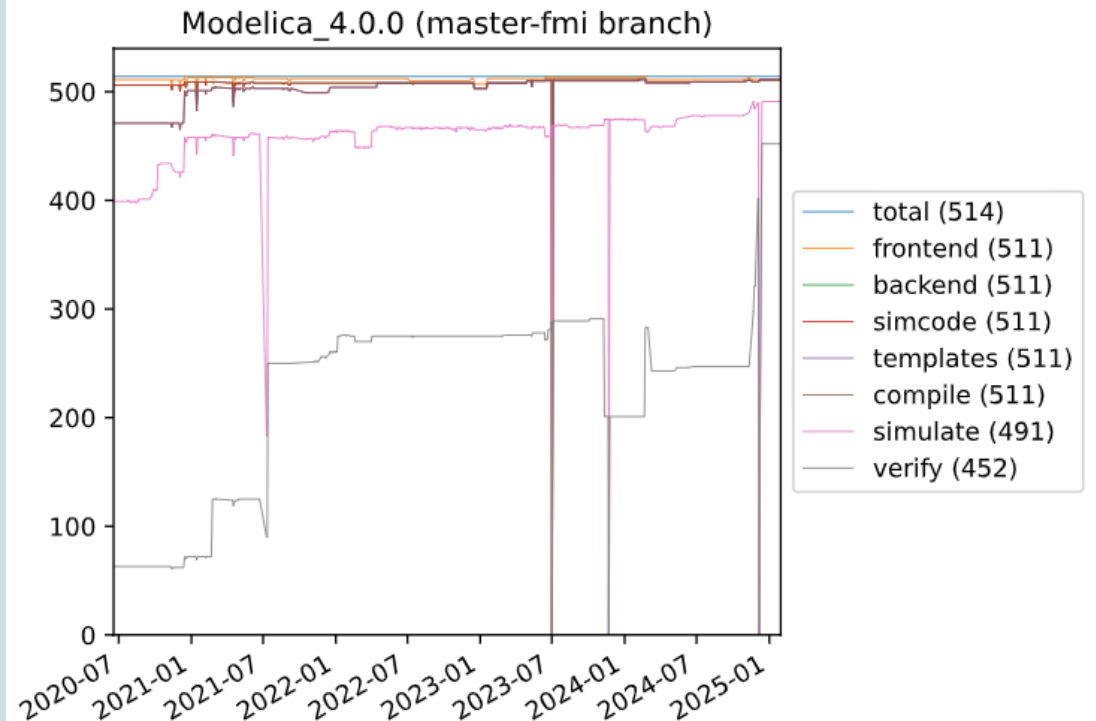
FMI tool: b"warning: Failed to load settings: [json.exception.parse_error.101] parse error at line 4, column 1: syntax error while parsing value - unexpected '>'; expected end of input\nOMSimulator v3.0.0.post56-gededbf3-linux-debug\ninfo: 1 warnings\ninfo: 0 errors"

FMI version: 2.0

OpenModelicaLibraryTesting Changes

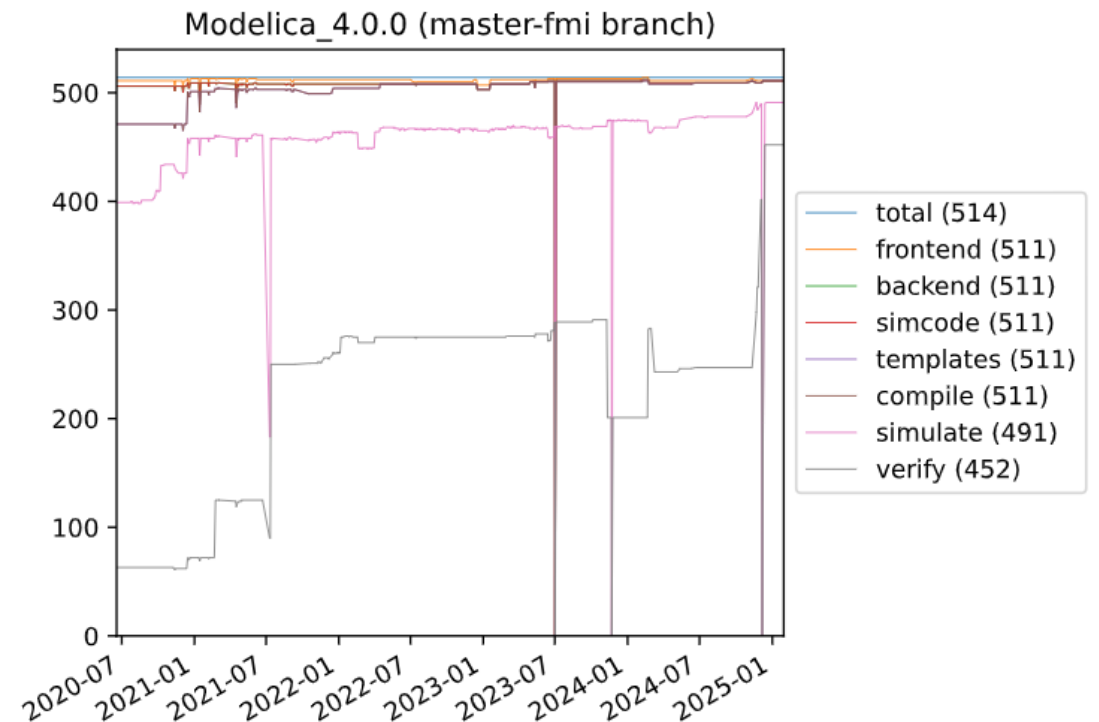
Commit	Date	Author	Summary
5ac40ea	2025-01-20 12:46:25 +0100	Francesco Casella	Run LargeTestSuite_NB with and without --resizableArrays (#192)

Tested Library: Modelica_4.0.0 4.0.0 warning: Failed to load settings: [json.exception.parse_error.101] parse error at line 4, column 1: syntax error while parsing value - unexpected '>'; expected end of input OMSimulator v3.0.0.post56-gededbf3-linux-debug info: 1 warnings info: 0 errors



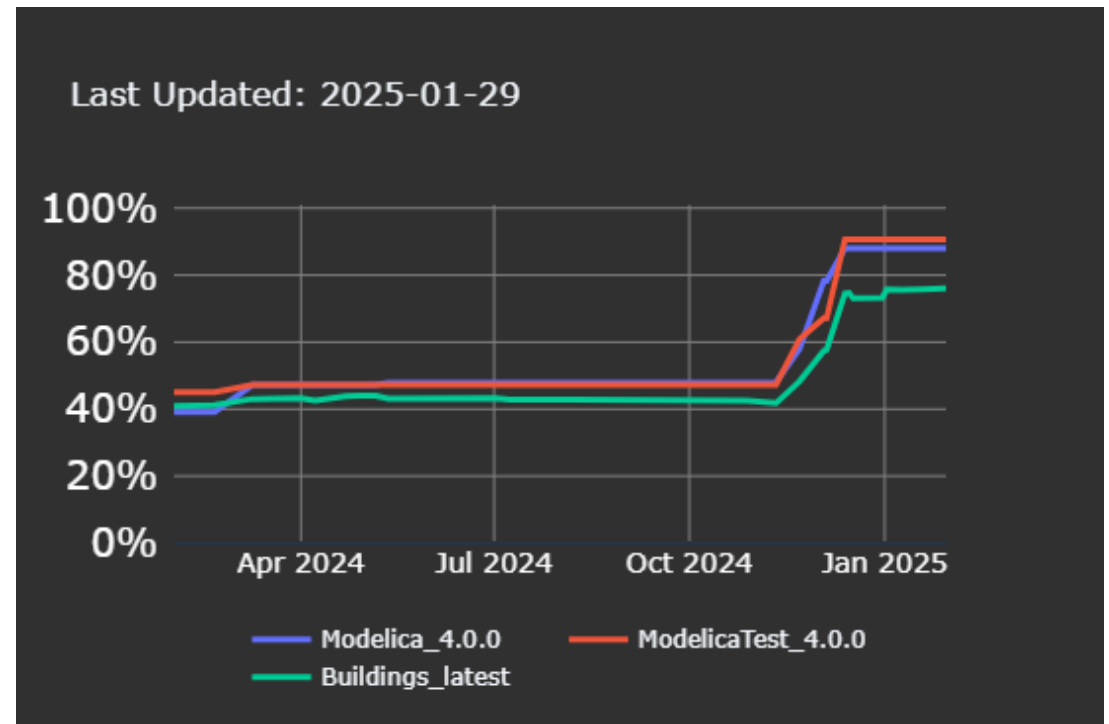
OMSimulator v2.1.3 – Focus: ME

- Memory Issue Fixes
- Model Exchange Solver Enhancements
- Proper Event Handling
- Library Coverage



OMSimulator v2.1.3 – Focus: ME

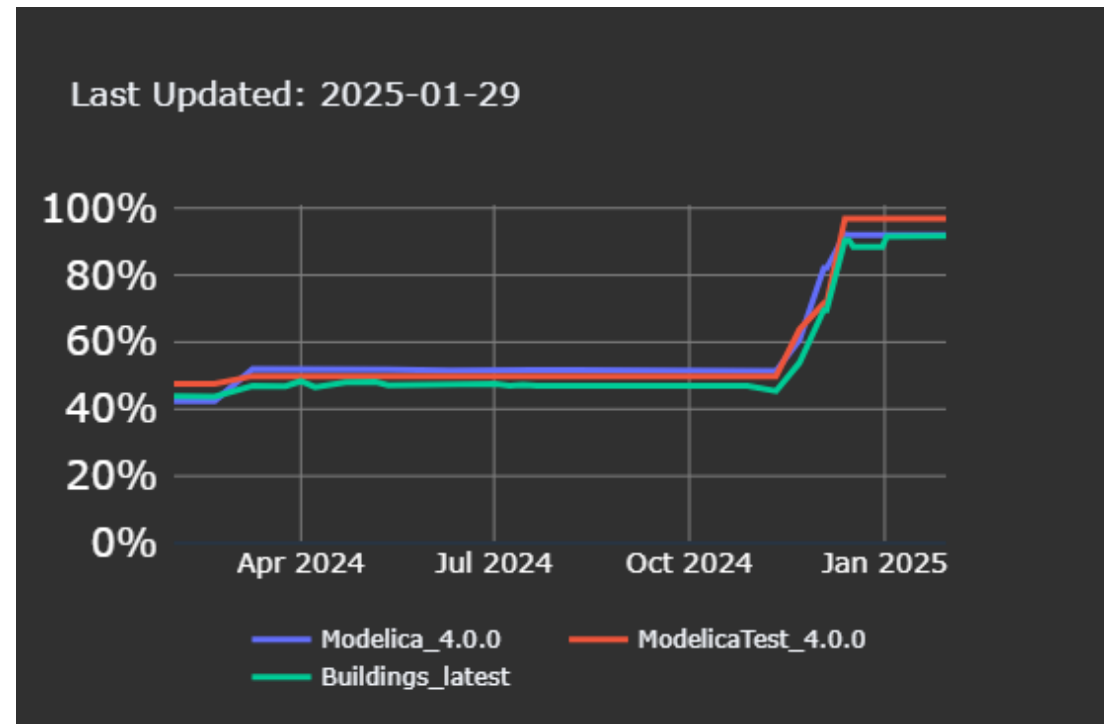
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ratio of verified results to total tests (**verify/total**)

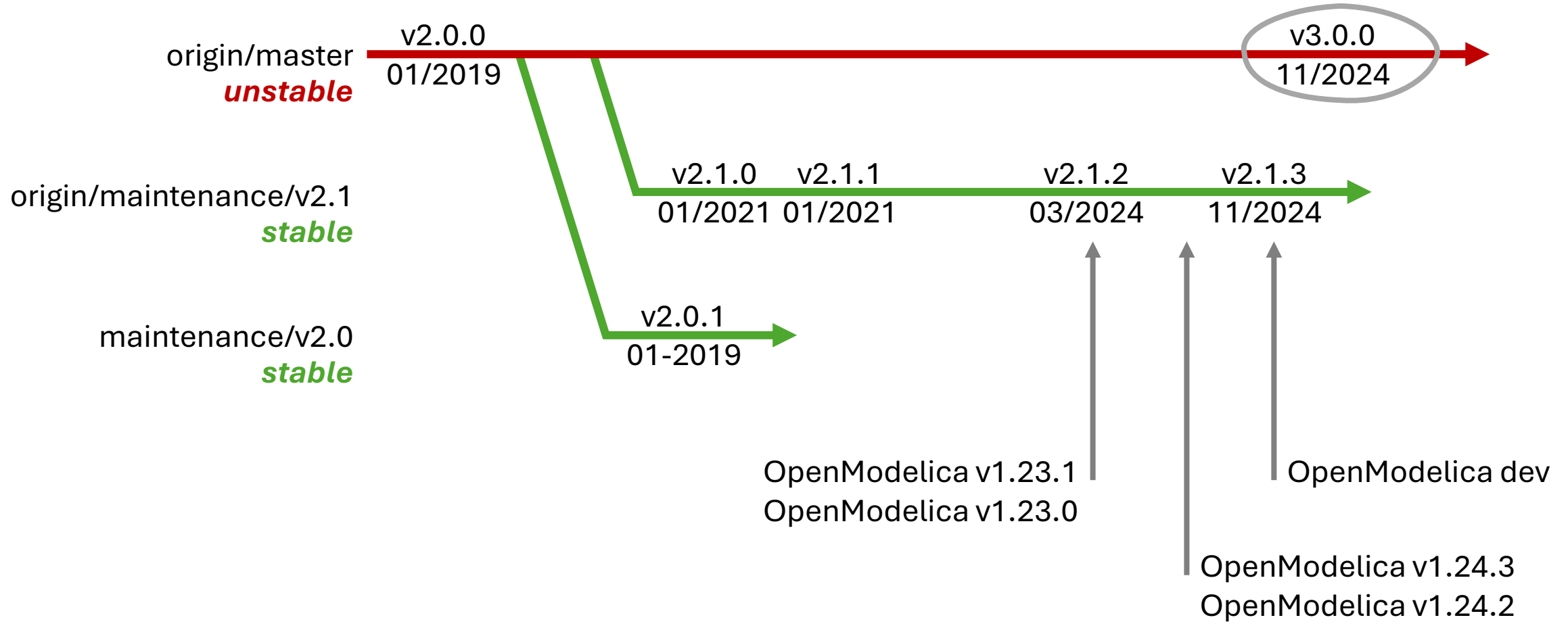
OMSimulator v2.1.3 – Focus: ME

- Memory Issue Fixes
- Model Exchange Solver Enhancements
- Proper Event Handling
- Library Coverage



ratio of verified results to those that can be simulated (**verify/simulate**)

Exciting Features in OMSimulator v3.0



Outlook: OMSimulator v3.0

- **Enhanced SSP Compatibility:** Improved support for other tools by removing vendor-specific annotations, ensuring greater interoperability.
- **FMI3 and SSP2 Support:** Enabling advanced features like **terminals** and **buses** to better handle the complexity of modern system designs.
- **Traceability in SSP:** Integration of the **MetaData element** from the SSP Traceability layered standard, supporting **arbitrary metadata** and **digital signatures** directly within SSP file formats.
- **Streamlined Codebase:** Removal of **TLM** in favor of **FMI3 features**, keeping the codebase clean and maintainable despite expanding functionality.
- **Redesigned API:** A new API will be developed to support these features. It will likely undergo iterations before reaching stability.
- **OMSimulator GUI:** Exploring new tools for **resource management** and **FMU/SSP inspection**, aiming to improve the user experience.

Thanks!

```
lochel@LOCHEL-ZB15G5 ~/OMSimulator [master->origin/master |]  
> git log --format='%aN' | sort -u | column  
Adeel Asghar          Lena Buffoni          Vitalij  
Adrian Pop            Lennart Ochel        arun3688  
Anatoly Trosinenko   Mahder Gebremedhin   frape315  
Andreas               Martin Sjölund        hkiel  
Andreas Heuermann    Per Östlund           hudson  
Bernhard Thiele       Rebeka Farkas         robbr48  
Giacomo Longo         Robert Braun          robha67  
HYu                   Robert Hällqvist     superlou
```