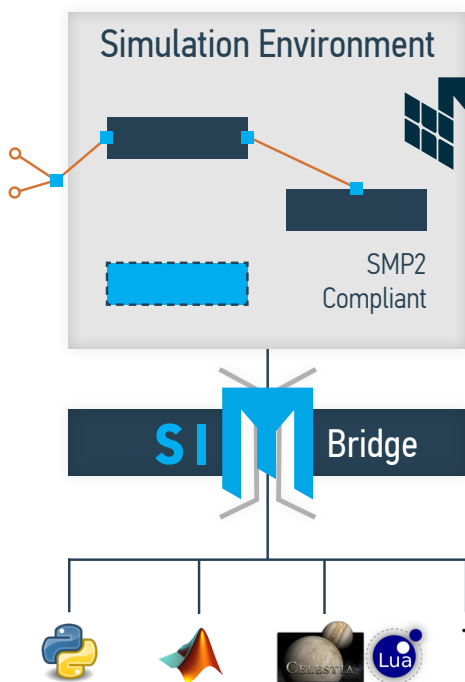


SimBridge

Connect SMP2 simulators to external tools

Simulators lack automated interfacing for external applications, leading to increased development cost, maintenance and reusability difficulties. SimBridge reinforces **rapid prototyping** and **models' reuse**



by enabling the interaction of SMP2 simulators with COTS tools at runtime.

With SimBridge the two parties can exchange data/commands and cooperate as in a **co-simulation** scenario, although both running to their native environment (remote communication).

Operations & Services

Integrate your simulation models in 5 steps:

- Configure your SimBridge toolbox via a brief XML
- Publish the variables and methods you want to be accessible from SMP2 environment via a simple XML file
- Open the simulation with SimBridge loaded as a typical SMP2 model
- Connect from MATLAB/Python to the SMP2 simulation with a single function call provided by SimBridge
- You are ready to exchange any published data, execute any available method or even schedule your own external events to the SMP2 simulation

EXTEND SIMULATOR'S CAPABILITIES

WITH NUMERICAL COMPUTING ENVIRONMENTS,

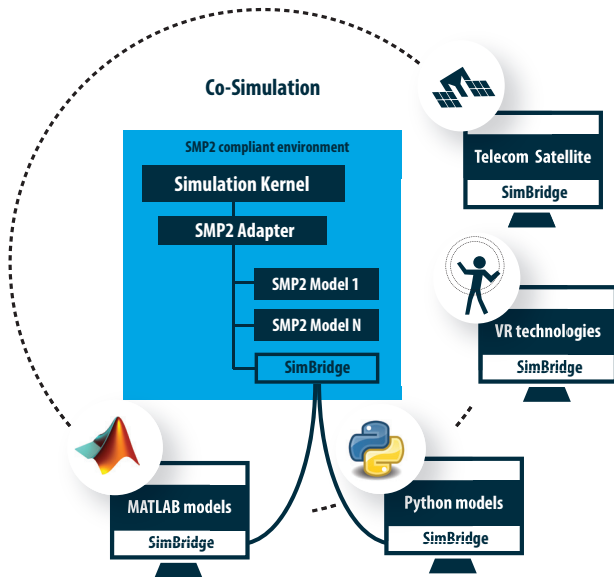
3D GRAPHICS & VR TOOLS, SCRIPTING HIGH LEVEL

PROGRAMMING LANGUAGES AND OTHER

SIMULATION ENVIRONMENTS.

SimBridge facilitates communication between any SMP2 compliant simulator (SIMSAT, Eurosim, SimTG, Basiles etc.) and external models. Today, it is integrated in SIMSAT and provides seamless interfacing to MATLAB and Python.

Specifications*



SimBridge is a configurable, scalable and easy-to-use software.

A language specific library is provided to the supported external applications to accommodate the whole communication from messages parsing to requests' execution.

The dedicated SimBridge toolbox offers to external applications a user-friendly registration mechanism based on strictly structured XML files.



Check out a Demo here:
emtech.global/space/simbridge/

Features

Data Retrieval / Modification



- User-friendly publication of available data and functions via XML configuration
- Access SMP2 published fields/services from Python/MATLAB
- Access SIMSAT Kernel data (speed factor, simulation clocks etc.)
- External data (Python/MATLAB) accessible from Simulator
- Time-stamped data exchange between the two parties

Methods / Events Execution



- External functions' execution under Simulator's demand and results return to the caller
- Execute SMP2 published methods and schedule SMP2 events from Python/MATLAB
- External events scheduling from both sides
- Synchronous/Asynchronous Requests' execution

Communication



- Multiple Simultaneous TCP connections supported
- XML messages internally handled in the SimBridge



Check out a brief SimBridge presentation here:
<https://youtu.be/qhdA3TU9dyA>



MATLAB R2016a or later



Python 3.5 or later

*Contents are subject to change without prior notice

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