

[General](#) [Details](#) [Positioning in V-Model](#) [Relevance and Benefit for MBSE](#) [Risks and Impediments](#)

Additional Resources

Editor	Stefan Rude
Additional experts	Smart Systems Engineering Group ¹
Short Description/ Transmitted Information	<ul style="list-style-type: none"> • Assembly of simulation components and their parameters into simulation ready (sub-)systems • SSP 1.0 was released in March 2019, specification is accessible via ssp-standard.org²
Application Scope	<ul style="list-style-type: none"> • Specify simulation ready (sub-)systems consisting of connected simulation models (e.g. FMUs), parameters and resources • Provide a container for systems and meta-data during the whole simulation life-cycle
Maturity	<ul style="list-style-type: none"> • Industrialization (potentially standardization)
Goals	<ul style="list-style-type: none"> • Standardized description format for simulation systems • Enhancement of FMU interoperability • Parameter exchange, standardizes communication architecture between components
Penetration	<ul style="list-style-type: none"> • Individual expert teams
Visibility	<ul style="list-style-type: none"> • Approx. 10%
Promoting Bodies	<ul style="list-style-type: none"> • Modelica Association, prostep ivip project group SmartSE
Type	<ul style="list-style-type: none"> • Standard of the Modelica Association
IT Standard Classification	<ul style="list-style-type: none"> • Interoperability Standard • Integration Standard

¹ <https://intranet.prostep.org/display/PROJ/Smart+Systems+Engineering>

² <http://ssp-standard.org/>

Data Format	<ul style="list-style-type: none"> • Text Format (ASCII/XML) • Compressed (Container-Data)
Relations to other standards	<ul style="list-style-type: none"> • FMI, XML, XML Schema, ZIP
Overlap with other standards	<ul style="list-style-type: none"> • Packaging: Potentially DDP • Contents: To be checked with StepXML • Architecture/Requirements View: SysML • DEXPI (https://dexpi.org/), MOSSEC (http://www.mossec.org/)
Available accompanying documentation (Software vendors)	<ul style="list-style-type: none"> • Web information resources, e.g. https://modelica.org/projects#ssp • Standard available for download at: ssp-standard.org³
Available accompanying documentation (Industry Users)	<ul style="list-style-type: none"> • Smart Systems Engineering (SmartSE), see www.prostep.org⁴
Available accompanying documentation (Management)	<ul style="list-style-type: none"> • ...

General [Details](#) Positioning in V-Model Relevance and Benefit for MBSE Risks and Impediments

Additional Resources

³ <http://ssp-standard.org/>

⁴ <http://www.prostep.org/>

1 Included sub data formats and their respective meanings

- **SSP** stands for System Structure and Parametrization and provides a set of file formats to provide for the exchange of simulation systems, including their structure, components and parameterization
- **SSP files** are ZIP archives and provide packaging for system descriptions and referenced resources
- **SSD files** are XML files providing the structure of the simulation system, including hierarchical system structure, components (FMUs, external Systems, ...), their interconnection and parameters being applied
- **SSV files** are XML files providing for the exchange of parameter values
- **SSM files** are XML files providing for the exchange of parameter mappings (names, value transformations)
- **SSB files** are XML files providing for the exchange of signal dictionaries for reusable signal definitions

2 Additional information

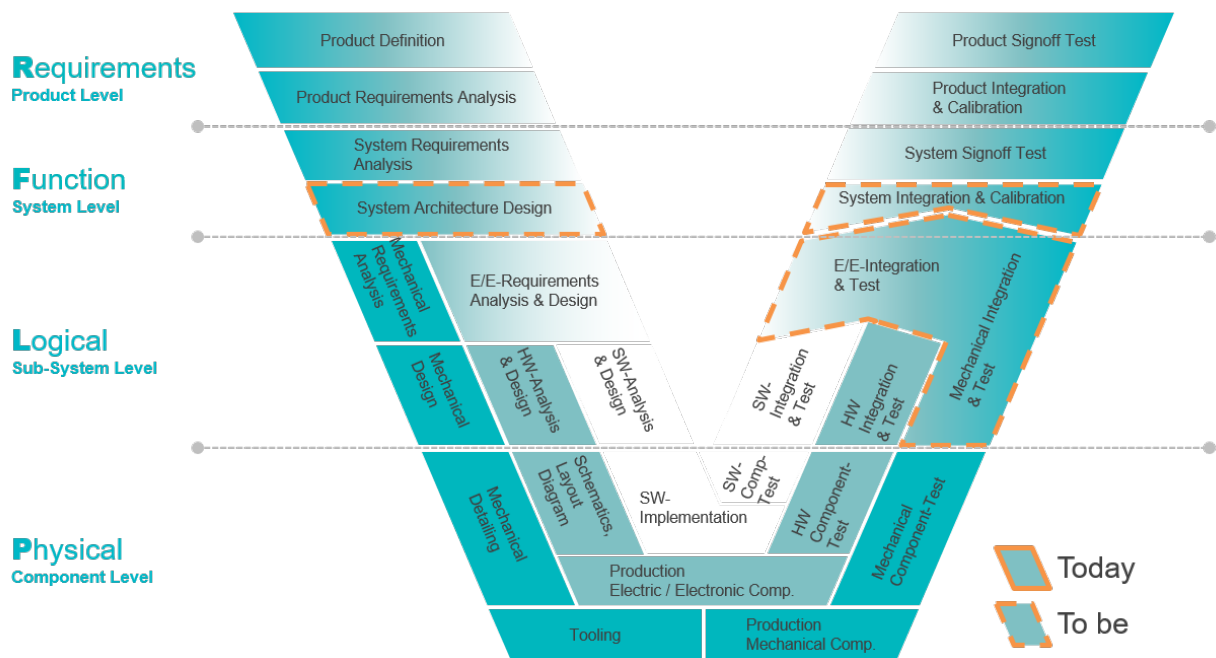
- The SSP standard is being developed by the Modelica Association Project SSP
- SSP 1.0 has been publically released at 2019-03-05
- 4-5 (prototypical) implementations available

General Details [Positioning in V-Model](#) Relevance and Benefit for MBSE Risks and Impediments

Additional Resources

mmm

Positioning of SSP in V-Model



General Details Positioning in V-Model [Relevance and Benefit for MBSE](#) Risks and Impediments

Additional Resources

- The relevance of SSP for SE/MBSE is closely related to the relevance of the exchange of integrated simulation models and co-simulations, which both have a very high relevance
- The benefits of using SSP for the exchange of integrated simulation models (FMU and non FMU) are
 - re-use of integration effort of sub-systems between simulation platforms and partners
 - exchangeable specification of component interfaces and standardized communication channels (e.g. via signal dictionaries)
 - improved traceability of simulation artefacts by packaging of matching systems, components and parameters in one transportable package
 - safeguarding coherent simulation structure and setup on all partners sites

- availability of an extensible container format for packaging of other related meta-data (e.g. SMMD) and resources
- ability to integrate new component types (e.g. DCP (<https://dcp-standard.org/>), vECUs, ...) in a uniform fashion in the future




General Details Positioning in V-Model Relevance and Benefit for MBSE Risks and Impediments

Additional Resources

- The benefit with respect to automated import/export processes is coupled with the implementation of import/export processors that cannot be enforced but only be fostered by prostep ivip association
- Adoption in companies depends on increased efforts to popularize SSP, similarly to efforts needed for FMI 1.0
- Current major impediment to wider implementation is the efforts of better community outreach, which currently rests on individual SSP members or SmartSE members for the most part

General Details Positioning in V-Model Relevance and Benefit for MBSE Risks and Impediments

Additional Resources

Datei	Geändert
 Positioning on the V-model.png ⁵	Nov. 11, 2020 by Peter Tabbert ⁶
 Positioning of SSP in V-Model.png ⁷	vor 7 Minuten by Peter Tabbert ⁸
 Fact Sheet_ System Structure and Parameterization (SSP).pdf ⁹	vor weniger als einer Minute by Peter Tabbert ¹⁰

⁵ <https://intranet.prostep.org/download/attachments/20283963/Positioning%20on%20the%20V-model.png?api=v2>

⁶ <https://intranet.prostep.org/display/~petertabbert>

⁷ <https://intranet.prostep.org/download/attachments/20283963/Positioning%20of%20SSP%20in%20V-Model.png?api=v2>

⁸ <https://intranet.prostep.org/display/~petertabbert>

⁹ <https://intranet.prostep.org/download/attachments/20283963/>

Fact%20Sheet_%20System%20Structure%20and%20Parameterization%20%28SSP%29.pdf?api=v2

¹⁰ <https://intranet.prostep.org/display/~petertabbert>