Precision Silviculture Partnership

Data Standards Workplan

Presenter: David Herries

Meeting Date: 7 October 2022

FOREST GROWERS RESEARCH

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BACKGROUND

- **What is the problem to solve?**
  - **Data fragmentation and translation**
    - **A planting spade that records species name as "Species" and a drone that calls it "Crop" and a harvesting machine that calls it "SPP" … is DBH in cm or mm … is location in LatLong or NZTM … is MTH the height of the 100 largest diameter trees per ha or the Avg HT of all trees…**
  - **Ensure consistency in data so information can be shared through the life cycle of the forest supply chain and allowing innovation.**
  - **Realising data is the key element of making better decisions and implementing improvements in forest management; be it for chainsaw operator, machine operator, nursery packaging device, planter, or seedling lifter.**

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Standard for Forestry Data

StanForD

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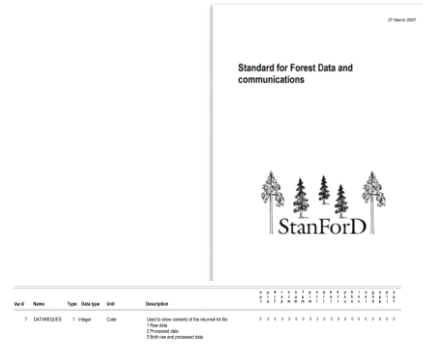
StanForD is a standard for communication between computers in forest machines. Skogforsk is responsible for the development and maintenance of the standard.

StanForD is an abbreviation for Standard for Forest machine Data and Communication.

Today StanForD is used in several countries and constitutes a de-facto standard even though it has not been afforded any official status. The application of the standard extends to all types of data communications with forest machines.

Original StanForD

The old StanForD mainly comprises a data standard and a file-structure standard, but a Kermit-based communications protocol or standard for connecting a PC or data recorder to the machine computer on the harvester is also included. The usefulness of this part of the standard will diminish in pace with the growth in wireless data communications. Observe that no updates has been implemented since 2011-11-09.


Standard for Forest Data and communications

StanForD

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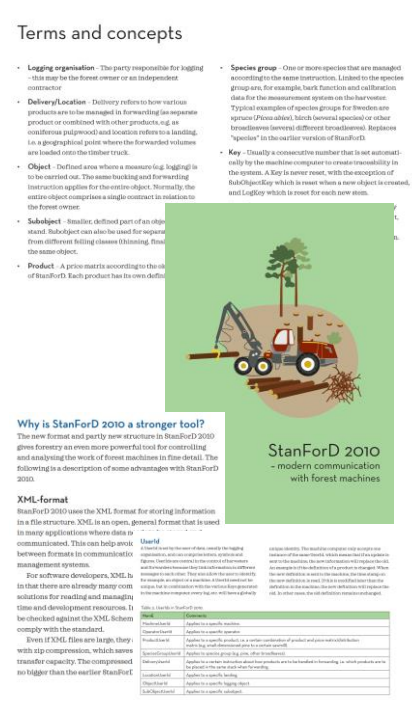
StanForD2010

A project to develop a new standard version based on xml was started in 2006. The new StanForD2010 was decided during the spring of 2011. StanForD2010 is further described under StanForD2010.

Management of StanForD

Skogforsk is responsible for the development and maintenance of the standard and receives financial support for this work from the manufacturers and Swedish forest enterprises. Most of the work is done by the StanForD secretary.

Representatives of the manufacturers and forest enterprises are welcome to attend the StanForD meetings, which are held twice a year—usually in Uppsala (Sweden) in April and October. Prior to these meetings, the individual countries usually hold their own meetings to discuss possible developments that could be put to the StanForD meeting. If new variables are needed, anyone may propose them by getting in touch with the secretary. New elements or attributes are considered at the meetings and, after approval, are added to the xml-schemas.



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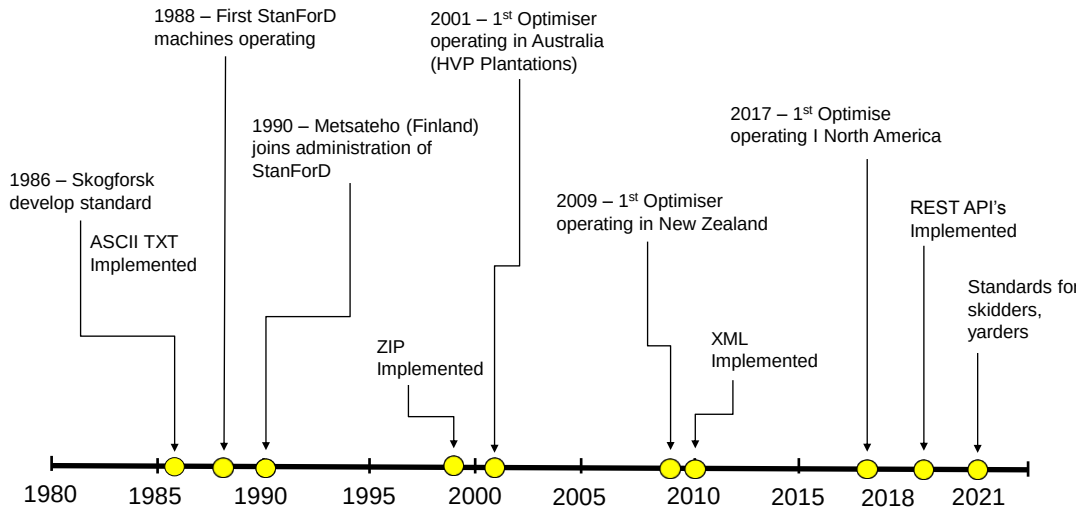
History of StanForD



INTERPINE
Bringing innovation to the forest industry

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Skogforsk and StanForD

skogforsk

Forestry Research Institute of Sweden

StanForD - Skogforsk - Forestry Research Institute of Sweden

John Arlinger

Researcher

Johan Möller

Researcher

Partners

- Tigercat
- Dasa
- LogMax
- Parker Hannifin Corp.
- Komatsu Forest AB
- Ponsse Oy
- Rottne AB
- John Deere Forestry
- Technion Oy
- LogSet Oy
- ForestPHD
- Biometria (previously SDC)
- CGI
- Skog-Data
- Coillté

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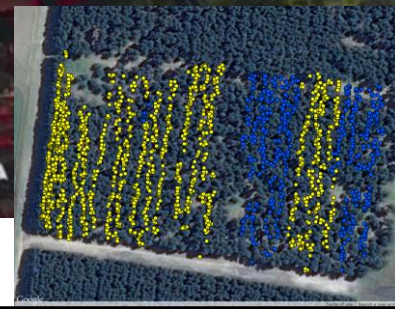
INTERPINE INNOVATION



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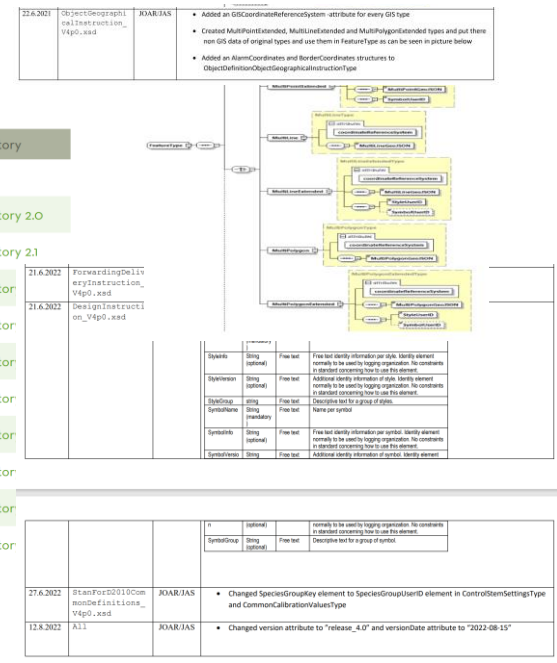
StanForD Committee formally convene twice per year

StanFord2010 naming and design rules

Date	Ver	Schemas	Schema documentation	Rules	Change history
2011-06-22	1.0	Released schemas 1.0		Rules 1.0	
2011-12-04	2.0	Released schemas 2.0	SchemaDoc 2.0	Rules 1.4	Change history 2.0
2013-02-05	2.1	Released schemas 2.1	SchemaDoc 2.1		Change history 2.1
2014-02-06	3.0	Released schemas 3.0	SchemaDoc 3.0		Change histor
2015-02-06	3.1	Released schemas 3.1	SchemaDoc 3.1	Rules 1.5	Change histor
2016-02-04	3.2	Released schemas 3.2	SchemaDoc 3.2		Change histor
2017-02-06	3.3	Released schemas 3.3	SchemaDoc 3.3	Rules 1.6	Change histor
2018-02-06	3.4	Released schemas 3.4	SchemaDoc 3.4		Change histor
2019-02-07	3.5	Released schemas 3.5	SchemaDoc 3.5		Change histor
2020-02-07	3.6*	Released schemas 3.6	SchemaDoc 3.6		Change histor
2022-08-15	4.0	Released schemas 4.0	SchemaDoc 4.0		Change histor

*Observe that 3.6 was updated with new schemas for skidders and yarders 2021-02-07



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Why Consider StanForD?

- **Why is StanForD: a data standard for forestry**
  - **(not just for harvesting/thinning/forwarding/loadout, but is there an opportunity to expand it to include NZ's needs for nurseries, seedling delivery, planting, surveillance, pruning etc).**
- **As we mechanize, automate or remotely assess things we should also not reinvent the wheel, as harvesting has been mechanizing, automating for many decades they have formulated a data standard.**
- **This data standard is reinforced by every manufacturer of harvesting equipment in the world. Also, every mechanized thinning machine in NZ today is already using it.**

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PLANNED WORK

- Ensure data structures that support data management requirements to interact across the workstreams
- Ad-here to existing data standards and uniformity in naming conventions and units.
- Ensure general open formats, making it simpler to implement in new innovations and products across the supply chain.
- Provide opportunity for new data standards creation and documentation.

PLANNED WORK

- It will be premature to develop a data model or conduct a large of work in this space without first arriving at the R&D step.
- But having this workstream alongside those creating and developing will be key.

KEY MILESTONES AND TIMING

Milestone	Start	End	High Level Description
1. Workplan + Contract	1 Nov 22	30 Dec 22	Workplan completed and service agreement signed
2. Brainstorm and International Review	1 Dec 22	30 March 23	Initial meetings with FRG stakeholders, app platforms, science institutes, contractors, international data standards committees for forestry. Includes collating exisiting standards and feedback to a short form report. Review contribution to international standards as an option to fill gaps.
3. TST Attendance and Data Standards Review	Ongoing		Attendance at TST, focused on data standards in emerging research streams and the resulting technology and product innovations. Providing a short form report, to ensure alignment to international standards, or creation of commons standards across the work streams. This will aim to provide guidance on a project-by-project basis alongside Precision Silviculture workstreams in the 7yr R&D
4. Data Standards Workshop	1 May	31 May	Host workshop on data standards with key stakeholders (could be an annual workshop for the program every year)
5. Data Standards Development and Documentation	ad-hoc as required		Where emerging research, technologies and innovations require a formal development of a data standard to completement across workstream integration a project will be stood up.
11. Project Report	3 months prior to work program end		Final reporting, publishing of standards.

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KEY MILESTONES AND TIMING

Milestone	Costs
1. Workplan	$1,498 one-off
2. Brainstorm and International Review	$3,745 one-off
3. TST Attendance and Data Standards Review	$1,873 per
4. Data Standards Workshop	$6,741 per
5. Data Standards Development and Documentation	$187.25/hr ad-hoc
7. Project Report	$3,745 one-off

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INVOLVEMENT FROM INDUSTRY PARTNERS

Title / Function	Name
FRG Project Leader	TBA
FRG Technical Supervisor	TBA
Data Standards Reviewer	Interpine
Forest Company Representative (and Across Workstream's)	TST Representatives
Nursery Company Presentative (and Across Workstream's)	TST Representatives
Science Research Representative (and Across Workstream's)	Scion Research
Contractor/s (and Across Workstream's)	TBA or those within the TST Representatives
International Forestry Data Standards Committee	Skogforsk - StanForD

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Precision Silviculture Partnership

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Ministry for Primary Industries
Manatū Ahu Matua

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