



Arlinger John

5 February 2025

Minutes StanForD

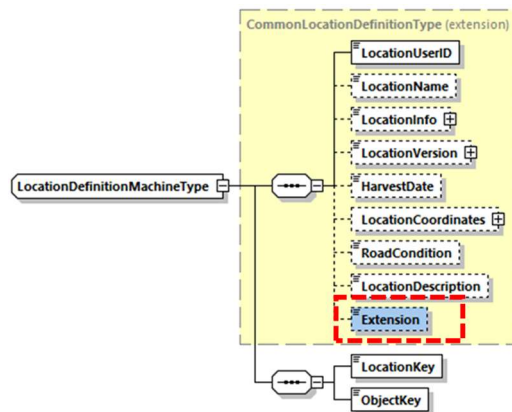
2025-02-05

Place:	Teams, 2025-02-05, 10:00-13:30 CET
Participants:	John Arlinger, Secretary Johan J. Möller, Chairman Anders Rowell, Skogforsk Antti Korkiakoski, JohnDeere Asko Leivonmäki, Exertus Bobby Szwajkowski, Tigercat Fredrik Tjernberg, Komatsu Henrik Persson, Logmax Jakko Mäkinen, Technion Jeremy Gibson, PHD Forest Jonas Thorsson, Dasa Josh Hildebrand, Tigercat Juha Korhonen, Technion Lars-Erik Andersson, Dasa Lars Henriksson, Biometria Nicklas Nygårds, Logset Philip Ridderheim, SCA Tapio Räsänen, Metsäteho Timo Melkas, Metsäteho

Decision summary

Decided to do the following schema updates:

- Extension element added to LocationDefinition.



- Value “ControllerDefault” can be registered in OtherMachineDownTimeStandardCode. New description:
Enumeration list with reason for other machine down times. According to code list in mcl file.
Observe that the value “ControllerDefault” can be used in cases where operators have not registered any reason at all. “ControllerDefault” not to be available in GUI and only generated by control system. “ControllerDefault” to be used in system where down time reasons are disabled or there is a “time-out”.
- New PileDefinition added to bpr. PileKey added to Stems in bpr.

Name	Data type	Unit	Description
PileDefinition	Boolean		A list of piles of felled stems created by a feller-buncher. Can be used for estimating number and position of piles. Only the first stem could have a reference to a pile in cases when only the first stem is registered manually simultaneously with placing the first stem in the pile.
PileKey	Unsigned Long	No	Machine specific identity per pile. Must be totally unique for a certain MachineKey. Reset only when MachineKey is changed. It does not have to be a sequential number always incremented with one for each pile.
PileNumber	Positive-Integer	Sequential no	Pile number. A running / sequential number only to be reset when starting on a new harvesting object.
CreationDate	DateTime	yyyy-mm-dd Thh:mm:ss [+ -] Jhh:mm	Time and date for creating a new pile. Time stamp must have the following times registered: local time ±offset from UTC.
PileCoordinates	Coordinates-Type		Pile coordinates, describes the location of the stem pile.
Extension	Extension-Type		Extension element can include whatever data the users want. The only requirement is that it is well-formed XML i.e. it is tagged

Suggestion with the minutes:

- Also include the following text in the description of element OtherMachineDownTimeStandardCode:
The value "ControllerDefault" should therefore not be used in the mcl-file.
- The description of LoadChange is kept as it is:
Structure for storing positions where logs have been loaded or unloaded.
This means that the following sentence is not to be added (discussed 2023-11-23):
~~*Deprecated structure, is replaced by LogTransport with version 4.1*~~

Postponed issues:

- New BorderPolygons.
- New RelativeLimitationMatrix.
- Position of tree top.

Action list:

- Implement version 4.1, do not focus on 4.0!
- Recommended that unclassified products are reported per SpeciesGroup.
- Recommended that the diameter vector and DBH are adjusted if a short log (butt-off) is completely excluded from the hpr.
- Recommended that by default all butt-offs from single tree processed stems should be registered independently of length.

§1 Opening of meeting and agenda

Chairman Johan J Möller opened the meeting.

The proposed agenda was accepted.

§2 Presentation of participants

Presentation of meeting participants including a short report on the weather!

§3 Information about decisions and discussions at previous meetings

DECISIONS NEW VERSION 4.1

The following decisions will affect the version 4.1 schemas:

- Changed description of element FillStyle in StyleDefinitionType.

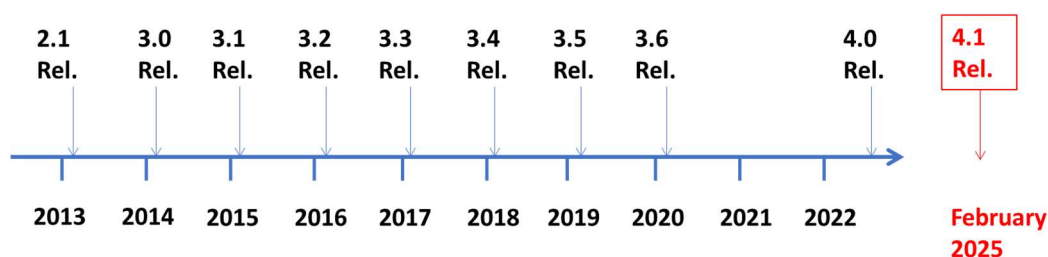
- Added a new optional element TopRenderingOrder to TopRenderingType
- Made TopRendering element repeatable in StyleDefinitionType
- Changed description of elements ButtEndProfileExtrapolation, ReferenceHeight, ExtrapolationCoefficient, diameterClass, ButtEndProfileExtrapolationFunctionCategory.
- Added a new optional DisruptedMeasuring element with disruptedMeasuringDescription attribute to LogType.
- Changed the data type of DegreeType from nonNegativeInteger to nonNegativeDecimal.
- Made FelledStemCoordinates element repeatable in SingleTreeFelledStemType and in MultiTreeFelledStemType
- Added new complex types PropertyType and PropertyDefinitionType
- Added a new optional and repeatable element FeatureProperty to FeatureType
- Added a new optional and repeatable element FeaturePropertyDefinition to FeatureCollectionType
- Added two new enumerations ("PPP RTK Fix" and "PPP RTK Float") to QualityIndicatorGNSSType
- Added a new structure OtherMachineSettings with sub-structure MINRegistrationLogLength to MachineHarvestedProductionType.
- Added a new optional attribute GISCoordinateReferenceSystem to BackgroundMapType
- Made EmbeddedGeoRefMap element optional in BackgroundMapType.
- Added a new optional and repeatable element LogTransport and corresponding structure (LogTransportType) to MachineForwardedProductionType
- Added '+' character to description that tells us characters that are not allowed in the content of UserID elements
- Added a new alternative ControlValuesMultiTreeProcessing structure to choice in MachineHarvestingQualityControlType
- Added a new optional and repeatable VolumeCorrectionMultiTreeProcessing structure to MultiTreeProcessedStemType
- Updated the description of accuracyCoordinate attribute according the following text: "Horizontal accuracy value of position, in unit meter.

Observe that the exact calculation method for this attribute is not defined at present.”

- Added a text “ XML escaping is to be used for invalid characters in the GeoJSON string.” to descriptions of elements MultiPointGeoJSON, MultiLineGeoJSON and MultiPolygonGeoJSON
- Updated the description of barkFunctionCategory attribute in BarkFunctionType according to the following text: Allowed values: ~~"None"~~, "Consolidated", "MatrixDiameter", "MatrixDistanceDBH", "NonLinearLatitude" and "Logistic".
- Updated the description of machineCategory attribute in MachineType according to the following text: Enumeration list describing type of machine: Harvester, Forwarder, ~~FellerBuncher~~, Harwarder, Bundler, Scarifier, ~~Skidder~~, ~~Yarder~~, Other
- Updated the description of elements a1, a2, a3, b1, b2 and b3 in LogisticDistanceDiameterType as moving the parentheses in the first equation (a) makes it more clear that the expressions for a and b are identical: $a = a3 / (1 + ((a3/a1) - 1) * \exp(-a2 * H))$ $b = b3 / (1 + ((b3/b1) - 1) * \exp(-b2 * H))$ $DblBark = a + b * D$
- Added a new optional FeatureUserID element to FeatureType. Added also unique constraint for that element.
- Made Feature element optional in FeatureCollectionType
- added a new optional element FeaturePropertyValueDefault to FeaturePropertyDefinitionType

§4 Frequency of future StanForD updates

The figure below illustrates the timeline for publishing all versions since 2.1.



It was decided to publish the new version 4.1. after this meeting (2025-02-05). The schemas will be published before the middle of March. Any comments must be sent to the secretary before the 20th of February.

It was decided at the previous meeting to clearly state at the web site that any one today developing support for version 4 should focus on 4.1 and thus avoid 4.0. Basically the 4.0 should be viewed as deprecated as illustrated below.

Significant updates with version 4

Version 4.0 has so far (2024-05-22) not been released on the market. This means that version 4.1, that will be published during the autumn of 2024, will "replace" version 4.0. As a consequence 4.0 should be viewed as deprecated.

The update to major version 4 primarily affects operational monitoring (mom) and geographical instructions and reporting (oig and ogr). Example files and introductory documentation can be downloaded below. Both these zip-files include some default settings that can be used by any one (*.din and *.mcl).

[Ogi 4.0 Documentation and Examples 240524](#)

[OperationMonitoring version 4 Documentation and Examples](#)

Draft for reporting forest regeneration data

A draft version of schemas as well as a specification for reporting soil preparation and planting can be downloaded below:

[Extending StaForD2010 Mechanized forest regeneration 2024-01-16](#)

It was discussed whether there is a need to update the whole standard in the future even if we only do updates to one single schema. It was pointed out that having different versioning of different schemas would make communication more difficult as e.g. an operator need to set the version for each individual message rather than as today instruct them to use one single version for all files generated by the machine.

§5 Reporting of issues related to pre-release version 4.1

Nothing to report on present beta schemas.

§6 Proposals new version 4.1

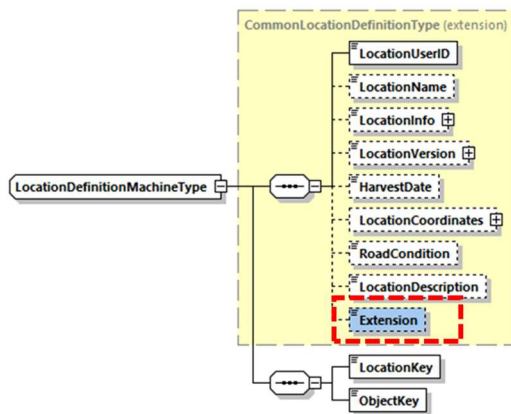
EXTENSION TO LOCATIONDEFINITION

Based on discussion between Johan J Möller and John Arlinger, 2025-01-21.

The possibility to report also a multi-polygon per location was discussed by Johan and John. The reason for this is that more detailed instructions could describe where the piles at roadside are located rather than only a single point (coordinate). It would be possible to re-use the element BorderPolygon also for Locations.

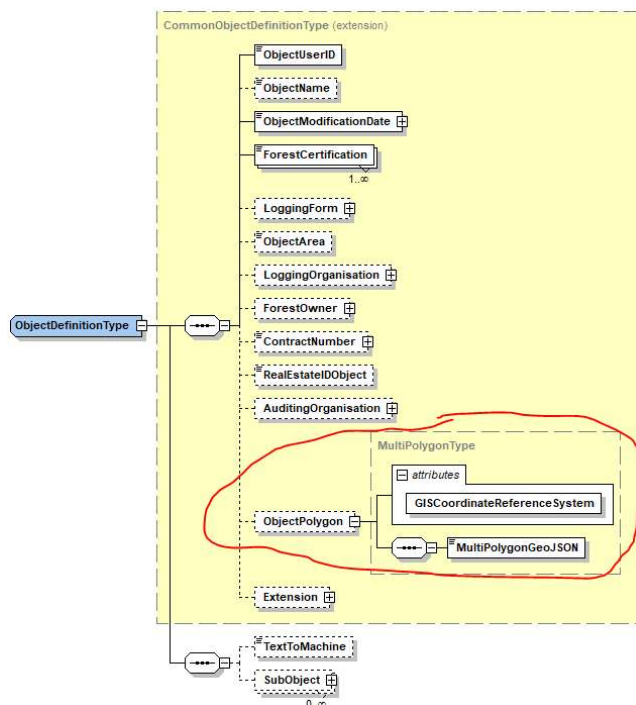
However, during this discussion it was noted that no Extension element exists for the LocationDefinition.

It was decided to add a new Extension element to CommonLocationDefinitionType with version 4.1.

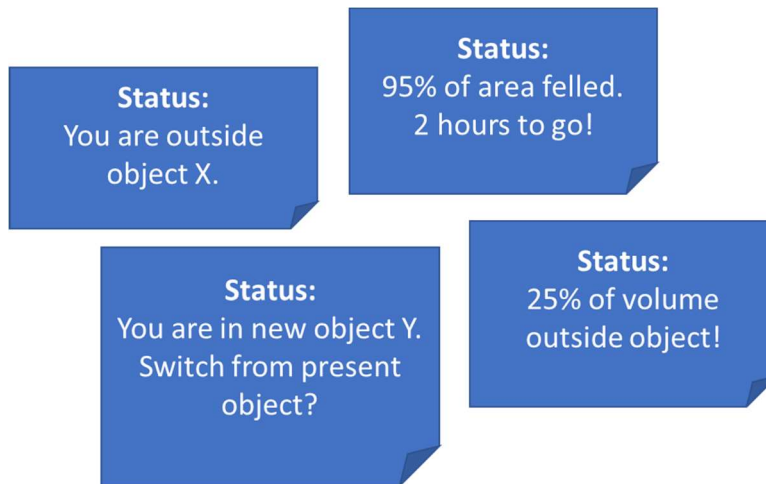


BORDERPOLYGON IN SUBOBJECT AND LOCATION

The element **BorderPolygon** was added to the **ObjectDefinition** 2021-09-15 according to illustration below:



The objective was to make it possible to implement different types of geo-fencing functions as illustrated below:

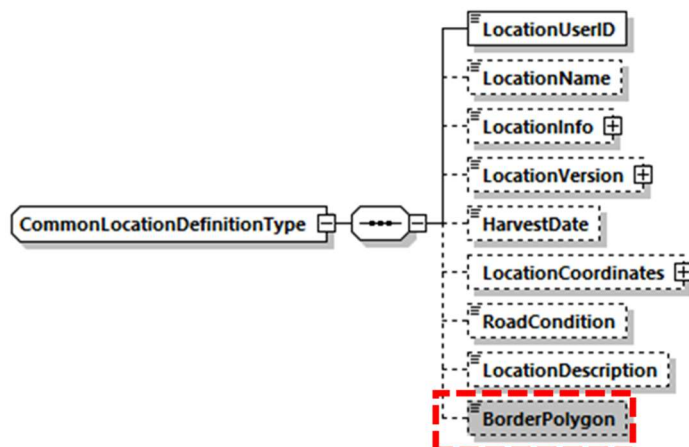


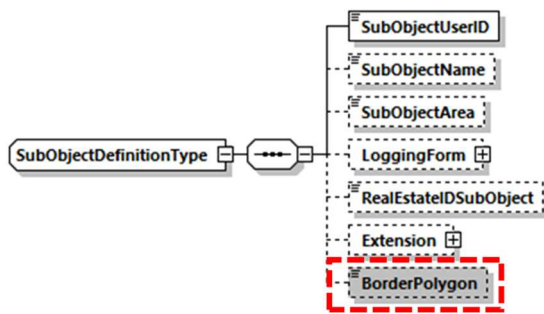
It was noted by Janne Pursiainen, Ponsse (2025-01-27) the the BorderPolygon has only been included only in ObjectDefinition and not in the SubObjectDefinition.

Janne pointed out that it is not uncommon that there is a clear cutting area and another thinning area defined as separate sub-objects but one object, where maybe one of them is located bit further away or on a different side of the road. The idea of the multi-polygon is that it can include several “shapes” or areas in this case, so there is no problem to present these separate areas on map?

Jannes question is hence “how do we know which shape represents the clear cutting area and which represents the thinning area”?

A simple way to handle this is by adding the BorderPolygon also to the SubObject. It was thus suggested to add BorderPolygon to the SubObject as well as the Location (mention in previous proposal) as illustrated below:





Name	Data type	Description
SubObjectDefinition. BorderPolygon	MultiPolygonType	Structure for including a multi-polygon that describes the boundaries of the harvesting sub-object . The multi-polygon normally includes the area where the trees to be felled are located. Can be used to inform operator about whether the machine is inside or outside the sub-object and other types of status information.
LocationDefinition. BorderPolygon	MultiPolygonType	Structure for including a multi-polygon that describes the boundaries of the forwarding location . The multi-polygon normally includes the area where the logs are unloaded by the forwarder, normally at road side . Can be used to inform operator about whether the machine is close to a location and other types of status information.

Several participants had comments and some objections to the proposal:

- How should overlapping polygons be handled (Jeremy Gibson)?
- The BorderPolygon is included in both ogi- and oin-schemas. Which one takes precedent if both formats are communicated with the machine (Fredrik Tjernberg)?
- Can no-go areas be handled (Tapio Räsänen)?
- Maybe better to use a reference from the oin to a specific feature in the ogi using FeatureUserID (Henrik Persson)?

It was decided to postpone this proposal in order to discuss it further at upcoming meetings.

The secretary will analyze the possibility to use the FeatureUserID as a reference from the ObjectDefinition, SubObjectDefinition and LocationDefinition for different purposes.

DEFAULT VALUE FOR UNKOWN DOWN TIMES

Jonas Thorsson, Dasa, 2025-01-22

The following update was done to element
OtherMachineDownTimeStandardCode with version 3.5 (2018-11-20):

Allowed values: "Waiting for repair", Trailer transportation", "Unproductive terrain work", "Other", "Default"

“Default” used only in cases where operators have not registered any reason at all. “Default” not to be available in GUI and only generated by control system. “Default” to be used in system where down time reasons are disabled or there is a “time-out”.

The reason for adding this was that there are some different situations when it is unclear how to use the down time reasons. E.g. when no reason is defined by the operator due to “time out” or unexpected shut down of control system. There may also be situations where it is an advantage to only collect data automatically with no need for manual operator input.

It was therefore decided that the definition of attribute OtherMachineDownTimeStandardCode is updated according to the following text:

Enumeration list with reason for other machine down times. According to code list in mcl file. Observe that the value “ControllerDefault” can be used in cases where operators have not registered any reason at all. “ControllerDefault” not to be available in GUI and only generated by control system. “ControllerDefault” to be used in system where down time reasons are disabled or there is a “time-out”.

It is decided with the minutes to also include the following text to the description:

The value “ControllerDefault” should therefore not be used in the mcl-file.

STEM-PILES IN FELLER BUNCHER PRODUCTION REPORTING (BPR)

Suggested by Ian Wilson, PHD Forest (2024-10-07). Decision postponed at meeting 2024-11-13.

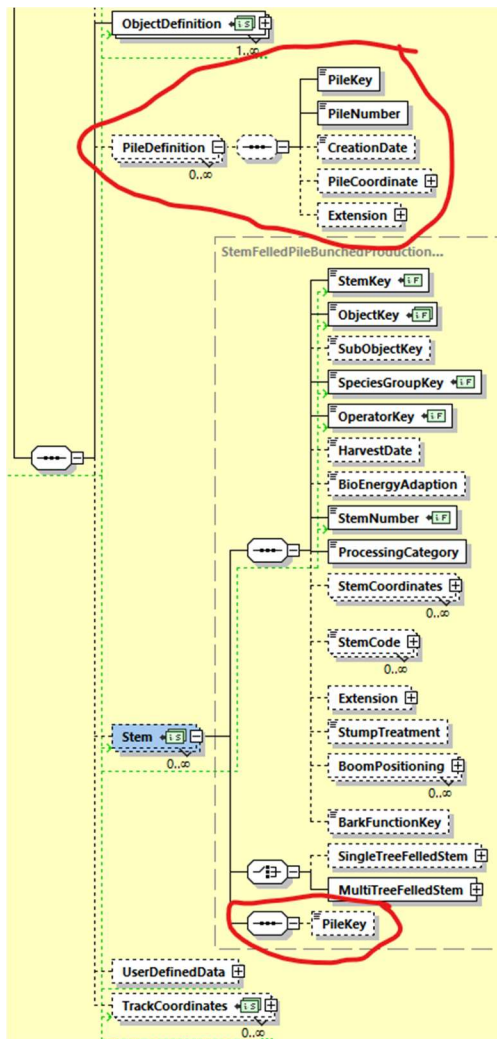
Having the possibility to count and position the stem piles created by a feller-buncher has been discussed previously (2023). This discussion was focused on using this data for planning and optimizing yarding. The proposal was to add a new element “LastStemToPile” that would make it possible to estimate the position and volume of a stem pile. This proposal was postponed as it is often difficult for the operator to know when a pile is completed, meaning that it is not known if any additional stems are to be added to the pile. Another comment in this discussion was that positioning data from the attachment would probably solve this issue in a better way.

A different and, from an operator perspective, simpler solution discussed 2024-11-13 could be to make it possible to manually register when the first stem of a new pile is placed on the ground.

A solution could be to add a new PileDefinition structure to the bpr schema. It would make it possible to extend the standard with more data per pile if necessary in the future.

Henrik Persson pointed out that it is logical to have a reference PileKey as an optional element for each stem rather than a list of StemKeys in the PileDefinition. Several other participants agreed.

It was thus decided to add the following new elements to the bpr-schema:



Name	Data type	Unit	Description
PileDefinition	Boolean		A list of piles of felled stems created by a feller-buncher. Can be used for estimating number and position of piles. Only the first stem could have a reference to a pile in cases when only the first stem is registered manually simultaneously with placing the first stem in the pile.
PileKey	Unsigned Long	No	Machine specific identity per pile. Must be totally unique for a certain MachineKey. Reset only when MachineKey is changed. It does not have to be a sequential number always incremented with one for each pile.
PileNumber	Positive-Integer	Sequential no	Pile number. A running / sequential number only to be reset when starting on a new harvesting object.
CreationDate	DateTime	yyyy-mm-dd Thh:mm:ss [+ -]hh:mm	Time and date for creating a new pile. Time stamp must have the following times registered: local time ±offset from UTC.
PileCoordinates	Coordinates-Type		Pile coordinates, describes the location of the stem pile.
Extension	Extension-Type		Extension element can include whatever data the users want. The only requirement is that it is well-formed XML i.e. it is tagged

Example data

Example data where only the first stem in a pile is registered as belonging to a pile. This data could be used to calculate the number and position of piles as well as estimate the number of stems per pile if the operator never changes piles back and forth between succeeding stems:

StemKey	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
PileKey	1					2				3				4			

However, the structure could also be used for setting a PileKey for each individual stem. Observe that StemKey 9 has been placed in pile 1 rather than pile 2:

StemKey	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
PileKey	1	1	1	1	1	2	2	2	1	3	3	3	3	4	4	4	4

RELATIVELIMITATIONMATRIX (TO BE POSTPONED)

Postponed as Ponsse has not carried out the final practical tests yet.

§7 Decision to publish “Release 4.1” version

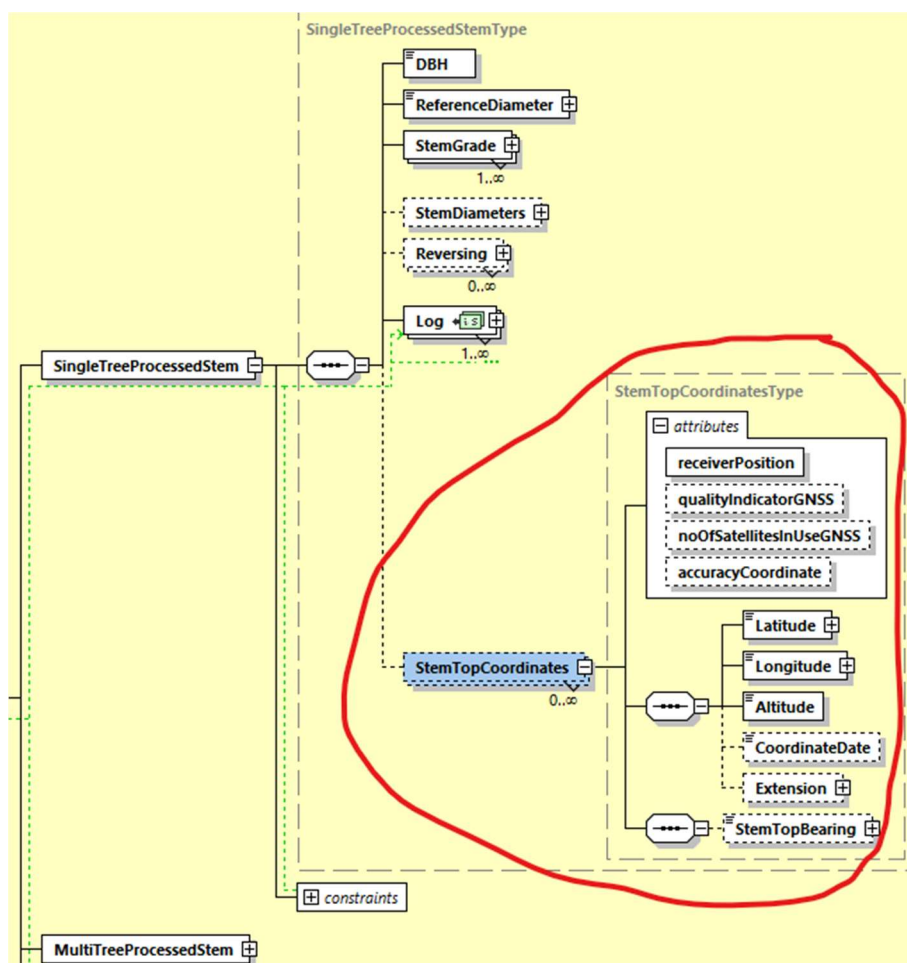
It was decided to publish the new release version by early March 2025 if no major objections have been raised by the 20th of February.

§8 Items for discussion

POSITION OF TOP

Johan Möller raised the idea of extending the standard in order to make it possible to register the position of the top of the tree as this is important when estimating the location and volume of residues use for bio fuel purposes.

One way could be to add a new StemTopCoordinate element to SingleTreeProcessedStem and MultiTreeProcessedStem:



Suggested new element:

Name	Data type	Description
StemTopCoordinates	CoordinateType	Stem top coordinates, describes the location of the tree top that has not been processed into a log. Commonly used for bio-energy. Positioning triggered when releasing the top from the attachment (opening of knives).

A comment at the meeting was that we might have to consider restructuring coordinates in the future as the demand for more and more positioning data is increasing.

It was decided to discuss this further at upcoming meetings where results from a research project will be presented. The project, run by Skogforsk, is studying the possibility of utilizing the angle of the logs in relation to the strip roads in order to determine if the operator has accumulated the tops and branches in piles suitable for extracting these volumes for use as bio fuels.

QUESTIONNAIRE: MULTI-LEADER STEMS

A questionnaire has been distributed regarding whether it is possible to register a “multi-leader” stem as one single stem in the hpr or not?

Three answers so far:

Not possible	2
Possible	2
Possible but difficult	1

It was decided to discuss this further at upcoming meetings

§9 StanForD2010 projects / implementations

HARVESTER TEST 2025

An invitation was distributed in December 2024.

All invited organizations have stated they would like to participate.

A test-plan to be distributed in March 2025

The test site will be 50-70 km north of Uppsala.

Other comments:

- No requirement that harvesters are equipped with GNSS receivers with real time correction.
- Having a complete implementation of version 4 is not a “must” in order to participate.
 - In case version 4 is not implemented the following could be done:
 - A simple “follow-up test” during the spring if you by that time have some support of version 4 that hasn't been tested.
 - New version 4 stuff, such as for example "LogCoordinates" and “LogTransport”, could be added as extensions to version 3.
 - Implementation plan for version 4 per control system.

§10 Other issues

RETIREMENT

The meeting thanked Lars-Erik Andersson, Dasa, for his contributions to the work on StanForD throughout his work at Rottne, Sveaskog and Dasa! We do hope that the upcoming retirement will be pleasant!

CORRECTION FOR MOVEMENT OF CONTINENTAL PLATES

The meeting discussed how to use different coordinate reference systems as well as corrections services. Correction services some times include correction for the movement of continental plates when converting from WGS84 to a local reference system such as SweRef99 or ETRS_Finland89. This was a continuation of the discussion raised by Metsäteho at last meeting.

The issue of how to handle local coordinate reference systems and correction method will be further discussed at upcoming meetings.

DESCRIPTION OF LOGTRANSPORT

It was pointed out by Ponsse that element structure LoadChange can be useful if hpr-data is not available and the new LogTransport is thus not possible to generate. It was therefore decided with the minutes that the description of LoadChange is kept as it is:

Structure for storing positions where logs have been loaded or unloaded.

This means that the following sentence is not to be added (discussed 2023-11-23):

~~Deprecated structure, is replaced by LogTransport with version 4.1~~

§9 Next meetings

StanForD meeting, Vantaa, Finland (2025-05-06--07, 12:00-14:00 EET)

The final “release” schemas will be published in March 2025.

By default, all financially contributing members will receive an Outlook invitation to all meetings in advance.

§10 End of meeting

The chairman Johan J Möller thanked everyone for attending the meeting.