

Minutes StanForD2010

2017-04-26

Place:	Skogforsk, Uppsala, 2017-04-25—26
Participants:	Lars Henriksson, SDC Tapio Räsänen, Metsäteho Timo Melkas, Metsäteho Juha-Antti Sorsa, Metsäteho Antti Korkiakoski, JohnDeere Fredrik Tjernberg, Komatsu Teemu Paldanius, Ponsse Jonas Gustafsson, Sveaskog Markku Laaksonen, Technion (Day 1) John Arlinger, Secretary Johan J. Möller, Chairman Skype participation: Pasi Palonen, Parker Jonas Thorsson, Dasa Tuomo Vourenpää, Savcor Sami Hoppula, Masser Jean Plamondon, FP Innovation Mikael Eliasson, LogMax (day 1) Uli Dietz, Kwf, (day 1)

Decision summary:

- No urgent need for new major version 4.
- New draft schema for envelope transmission acknowledgement to be created.
- New structure for forwarding crane cycles to be created.

- Decision to update the definition of attribute diameterPosition (added 2011-10-09) in the hqc message:
Control position for diameter measuring from butt end of log. Used for log diameter vector (element ControlLogDiameter). ~~The value must be the same for all logMeasurementcategory (Machine, Auditor, Operator).~~ Element is used to connect diameter values measured by Machine, Auditor and Operator
- Decision to compile some examples describing how diameterPosition is to be used in different situations.

Action list:

- Make certain TopLogFreeBuck works according to specification
- The possibility of changing the products during harvesting using an oin will be a requirement on the Swedish market.
Updating oin should only affect product references (ProductUserID). It is NOT to be used for changing identities or sub-objects!
- It is strongly recommended that the control system does not automatically activate a modified pin if it is not active at the present harvesting object
- All randomly selected stems (both rejected and not rejected) must be saved in an hqc-file including a possible reason for rejection. This file should be possible to send directly to the forest company (in Sweden to SDC).
- Implementation of ProductClass will be important on the Swedish market since it will be used by SDC in the new VIOL3 platform.
- Coordinates in production files should always be activated by default in all forest machines (especially important after software updates when coordinate registration is commonly lost).

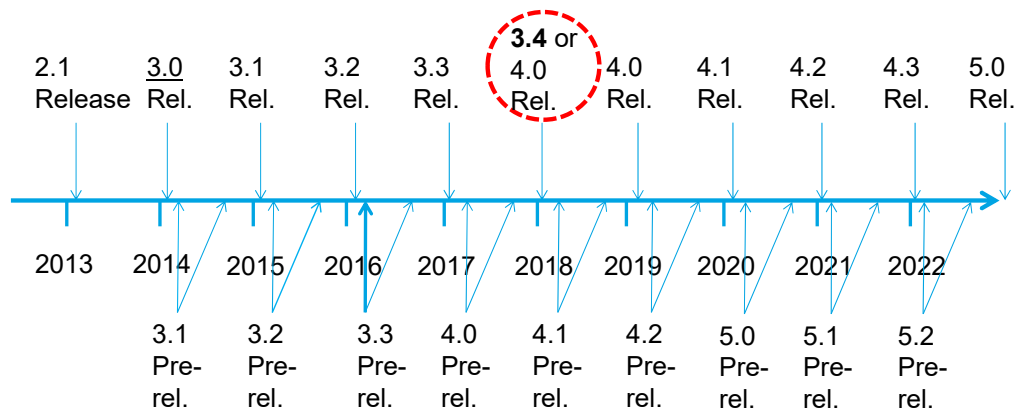
§ 1 Opening of meeting

Chairman Johan J Möller opened the meeting.

§ 2 Agenda

The agenda was accepted by the meeting with two additional issues (§8).

Secretary John Arlinger went through the road map for implementing new standard versions.



There was a brief discussion regarding whether there will be a need for implementing version 3.4 during the coming year or if it could be postponed another year. No one expressed a requirement for a new major version 4.0. It was decided to discuss this issue again at the next meeting.

§3 New StanForD member

Johan Möller informed the meeting about the fact that Technion Oy has decided to join the StanForD group. Markku Laaksonen presented the company Technion and their harvester control system xLogger.

§3 Information about decisions at previous meetings

The decisions made at the previous meetings (2016-11-23, 2017-02-04) was presented as well as the action list compiled after those meetings.

- New elements for registering reversing was added: ReasonReversing, ReversingStartPosition and ReversingEnd-Position.
- Updated definitions of ManualFreeBuck and TopLogFreeBuck.
- New mom elements added: MonitoringTimeDescription, StartTime, Extension
- New optional Tracking structure added to both mom, hpr and fpr under Machine.
- Optional attribute diameterRaw added where increasing diameters are allowed to be used.
- New rule that ButtEndProfileExtrapolation and BarkFunction should always be used in volume calculations if they exist in the hqc (added to “StanForD2010_rules_tableV1p6.docx”).

Postponed to 4.0:

- Possible change of data type for LogLength (float or mm), mm is riskier than float

- modificationRestricted for StemCodes and EstonianVolumeParameters in SPI

§ 4. Proposals

NEW ENVELOPTRANSMISSIONACKNOWLEDGEMENT MESSAGE

The proposal was based on suggestions and comments from Henrik Bengtsson, SDC, 2017-02-02.

It is possible for SDC using SenderXC (3rd party communication application developed by SDC) to send out StanForD messages (e.g. pin, spi, oin) to a forest machine. In order make it possible for a forest company to address and packet several massages together the StanForD envelope is used for communication between forest company and SDC as illustrated in figure 1.

The screenshot displays a web-based form for a StanForD2010EnvelopeHeader. It is organized into several sections:

- TransmissionInfo (2)**: A table with two rows of transmission data.

TransmissionID	TransmissionT...	TransmissionSender	TransmissionReceiver
1	2016-10-12T08:48:10.181+02:00	Forest Ltd	sdcgpx9320
2	2016-10-12T08:48:10.181+02:00	Forest Ltd	sdcgpx8921
- Business Sender**: A form with fields for:
 - FirstName: Anders
 - LastName: Andersson
 - Address: (expanded dropdown menu)
 - Email: Anders.Andersson@forest.com
 - BusinessName: Forest Ltd
 - BusinessID: 13451398
- StanForD2010Message**: A section containing:
 - messageCategory: pin
 - MessageDocument: (expanded dropdown menu showing EmbeddedDocument encodingMethod=None and DocumentName: Forest_GT_594280.pin)

Figure 1. Example of envelope including one pin sent from a forest company to SDC. Element TransmissionReceiver tells SDC the identity of the forest machine that is to receive the pin-file. TransmissionReceiver is repeatable which means that the envelope can be used to address a large number of different machines.

SDC has a need for acknowledging the transmission of an envelope to a transmission receiver (forest machine). A new message EnvelopTransmissionAcknowledgement has therefore been suggested (2017-04-25). The objective is to make it possible to send this information to a forest company that uses SDC for forwarding the content of an envelope to a forest

machine. The red arrow in figure 2 illustrates the use of this new suggested message.

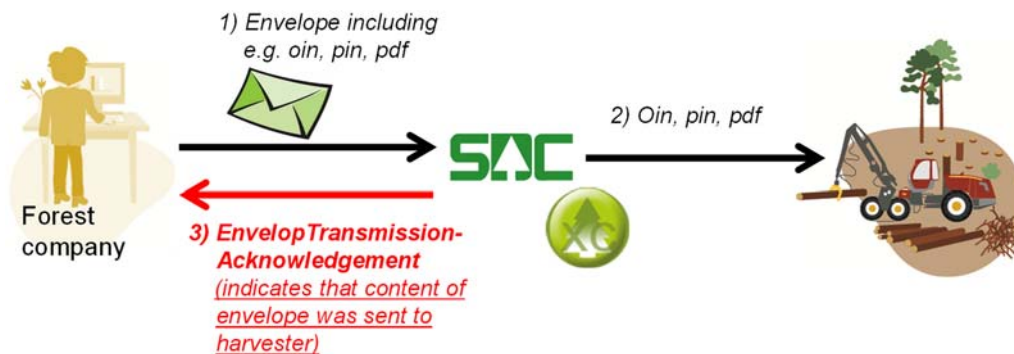


Figure 2. Communication between forest company, SDC and machine when sending a StanForD message to the machine.

The acknowledgement is thus to be created by the application sending the content of an envelope to machine, it is not created by the receiving forest machine. Thus the message is primarily used for third party applications responsible for sending data to forest machine. The message indicates that an envelope was sent, and it is not used for indicating if the content was actually taken into use or not.

Figure 3 below illustrates the structure of this new message and table 1 the descriptions of all elements.

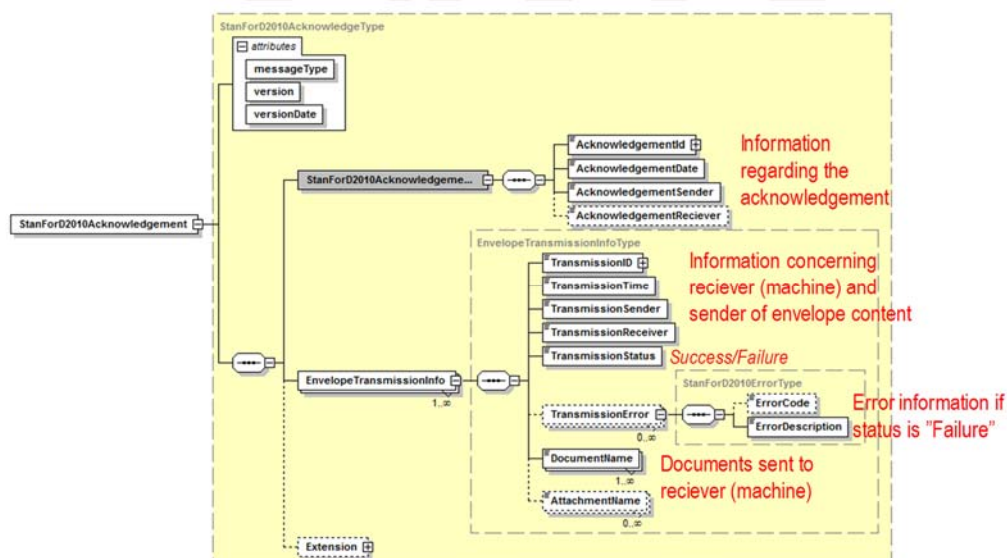


Figure 3. Structure of EnvelopTransmissionAcknowledgement

Table 1. Elements in EnvelopTransmissionAcknowledgement

Name	Datatype	Unit	Description
<u>StanForD2010-AcknowledgementHeader</u>			
AcknowledgementId	String	free text	Acknowledgement identity, set by the organisation sending the acknowledgement.
AcknowledgementDate		yyyy-mm-ddThh:mm:ss[+ -]hh:mm	Date and time when acknowledgement is created. Time stamp must have the following times registered: local time ±offset from UTC
AcknowledgementSender	String	free text	AcknowledgementSender is transmission application that recieved StanForD envelope.
AcknowledgementReciever	String	free text	Acknowledgement Reciever is application recieving acknowledgmt.
<u>EnvelopeTransmissionInfo</u>			
TransmissionID	String	free text	Unique identifier that can be used in registering and following envelope transmissions.
TransmissionTime		yyyy-mm-ddThh:mm:ss[+ -]hh:mm	Transmission time registered in sender
TransmissionSender	String	free text	TransmissionSender could be business sender but the value of this element could be also: transmission application or machine that is sending the message, the representative c
TransmissionReceiver	String	free text	TransmissionReceiver could be business receiver but the value of this element could be also: transmsion application or machine that is receiving the message, the representative company of the business sender..
TransmissionStatus	String	list	Attribute tells us the status of the acknowledgement. Enumeration list of status of StanForD 2010 acknowledge: Allowed values are: "Success", "Failure".
DocumentName	String	free text	The names of original StanForD2010 messages included in envelope.
AttachmentName	String	free text	The names of attachment files included in envelope.
<u>TransmissionError</u>			If the status is set to "Failure" then it is possible to store the corresponding errors here
ErrorCode	String	Code	Code for the error
ErrorDescription	String	free text	Description of error

StanForD2010AcknowledgementHeader

AcknowledgementId agency=MachineOwner

AcknowledgementDate 2016-10-12T08:59:11.353+02:00

AcknowledgementSender SDC

AcknowledgementReceiver Forest Ltd

EnvelopeTransmissionInfo (2)

TransmissionID

Transmission...

Transmission...

TransmissionR...

TransmissionStatus

TransmissionError

DocumentName

AttachmentName

1

TransmissionID agency=Other

2016-10-12T08:59:11.353+02:00

Forest Ltd

sdcp8920

Success

Forest_GT_594280.pin

2

TransmissionID agency=Other

2016-10-12T08:59:11.353+02:00

Forest Ltd

sdcp8921

Success

Forest_GT_594280.pin

xxxx434.pdf

3

TransmissionID agency=Other

2016-10-12T08:59:11.353+02:00

Forest Ltd

sdcp8929

Failure

TransmissionError

ErrorCode 784824

ErrorDescription No broadband connection with

Forest_GT_594280.pin

xxxx434.pdf

Figure 4. Illustration of acknowledgement sent after successful transmission of a pin-file to two separate machines. Message sent from SDC to forest company.

No major objections were raised at the meeting. It was pointed out by several manufacturers that it is important to be very clear about the fact that this schema is not to be generated by the machine manufacturers.

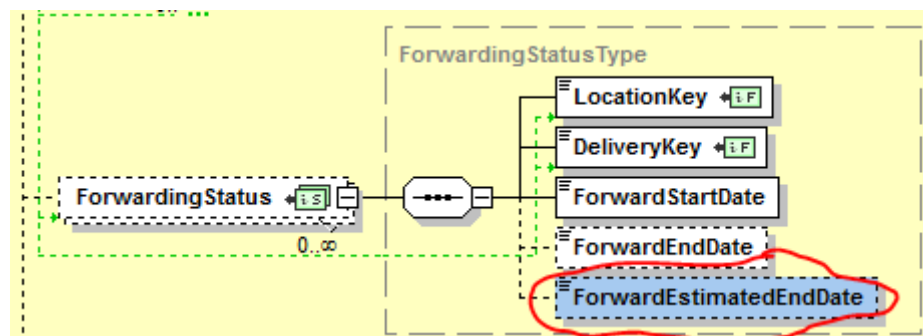
It was thus decided to let the secretary continue the work on this schema to be distributed with the minutes and decided at the next meeting.

ESTIMATED ENDDATE WHEN FORWARDING

Erik Kindlund, JohnDeere, 2017-03-23

Based on discussions with Swedish forwarder operators Erik Kindlund came to the conclusion that it would be an advantage to have the possibility to register an estimated end-time in the fpr-file. This time should indicate when the forwarding operations are probably completed based on a manual operator estimation. This time stamp should be adjustable during the work at a harvesting object. This information is useful when planning transportation from roadside to mill.

A possible solution is to add a new optional element to ForwarderStatus:



The meeting discussed whether a different solution to this issue might be to use the UserDefinedData functionality.

The meeting decided to postpone the issue. John Deere will discuss this issue further. It is the responsibility of John Deere to raise the issue again if they deem it necessary.

NEW FORWARDER PRODUCTION DATA

A proposal for a new forwarder production message was presented by the secretary.

Several participants were hesitant about adding the possibility to register the delivery or product during loading since the operator is normally to be very focused on maneuvering the crane during loading, this is especially true in thinnings where damages to remaining trees are to be avoided.

It was pointed out that this type of more detailed information about both loading and unloading is probably also relevant for the mom-file. It was suggested by Fredrik Tjernberg that we study the possibility to create a new structure that can be included in both fpr- and mom-files instead of a separate new message. It was decided to let the secretary and Fredrik Tjernberg study this possibility and thereafter create a new proposal to be included with the minutes. The aim is to add this new structure with version 3.4.

The updated proposal written by the secretary and Fredrik Tjernberg is included with appendix 1.

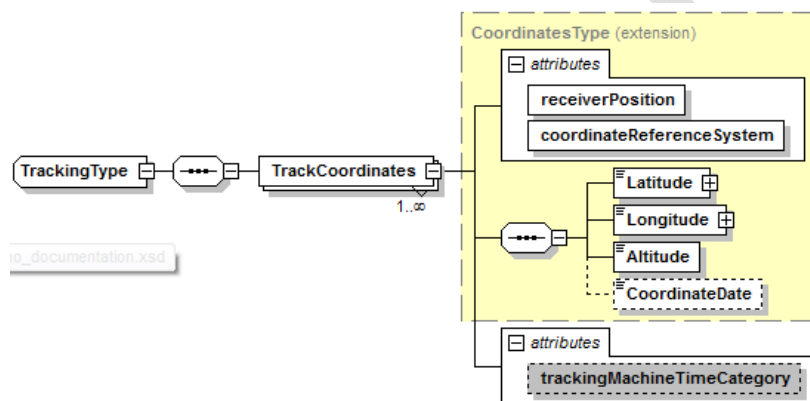
TRACKING COORDINATES AND WORK TIMES

Proposal from Niclas Eriksson, Komatsu (2017-04-21).

When discussing the implementation of the new Tracking element (added 2016-11-23) Niclas suggested that we open up the possibility to register different types of work times for each individual coordinate.

A possible solution could be to add a new attribute trackingMachineTimeCategory with the following attributes:

- Processing
- TerrainTravel
- OtherWork
- RoadTravel
- DownTime



Since the new TrackCoordinates include a time stamp it was not deemed necessary to add this new attribute for manufacturers using the IndividualWorkTimes. This means that it is only an issue for Komatsu using the CombinedWorkTimes. It was thus decided to postpone the issue in order to give Komatsu the possibility to suggest an update of CombinedWorkTimes at the next meeting.

§ 5. Implementation issues

MODIFICATION OF OIN DURING PRODUCTION AT HARVESTING OBJECT

A significant number of harvesters are now using the new instructions in Sweden. Updating of product definitions (pin) during harvesting at an object works according to the requirements for most control systems. However, it is clearly so that it will soon be of interest to also make it possible to modify an oin-file and take the updated oin into use during harvesting. Basically all Swedish companies view this as an important issue (meeting with Swedish user-group, 2017-03-14).

The basic objective is to make it possible to quickly activate or de-activate a specific product immediately. It is not un-common that a forest company realize

that they have filled the volume quota for a specific saw mill and therefore needs to switch a number of harvesters to a different product (saw-mill).

The following section is based on text included in *StanForD2010 introduction.docx*. It is included in these minutes in order to give the reader a better understanding of how a modified oin is to be handled in the harvester.

Examples illustrating how to use modified oin

When using the new instructions for *Flexible bucking* an important functionality is that it should be possible to send updated object (oin) and product (pin) instructions to the harvesters at any time before or during production at a specific harvesting object in order to for example activate a certain product or change the distribution matrix of an already existing product as illustrated below.

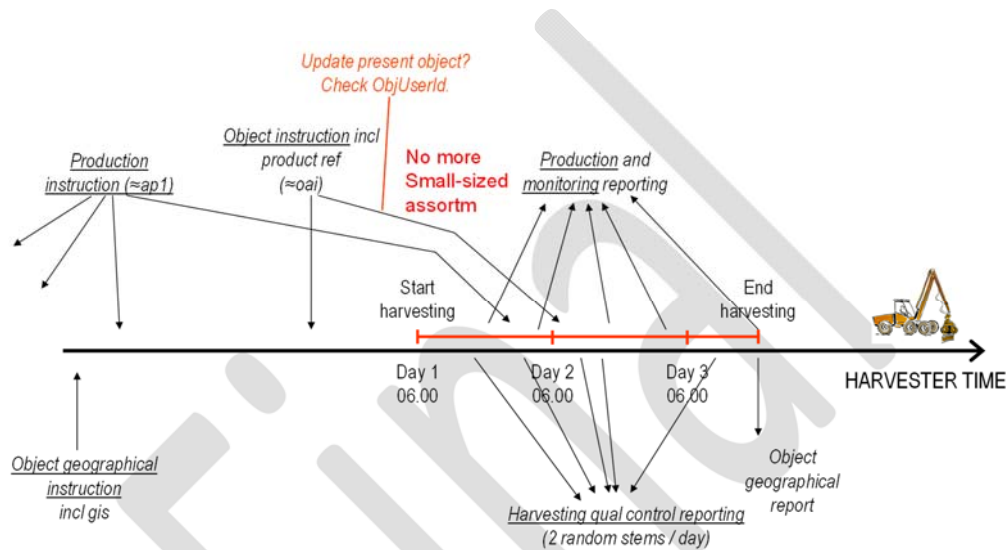


Figure 1.

The following diagrams (2-3) illustrates an example of how *UserIds* and *Keys* are handled when updating and using object instructions. Observe that both *UserId* and *ModificationDate* are to be considered when updating the list of objects. An existing object is not to be replaced by a new object sent to the harvester if they have identical *UserId* and *ModificationDate*. The operator always must have the possibility to deny the replacement of an existing object as well as an update of the active object presently in use.

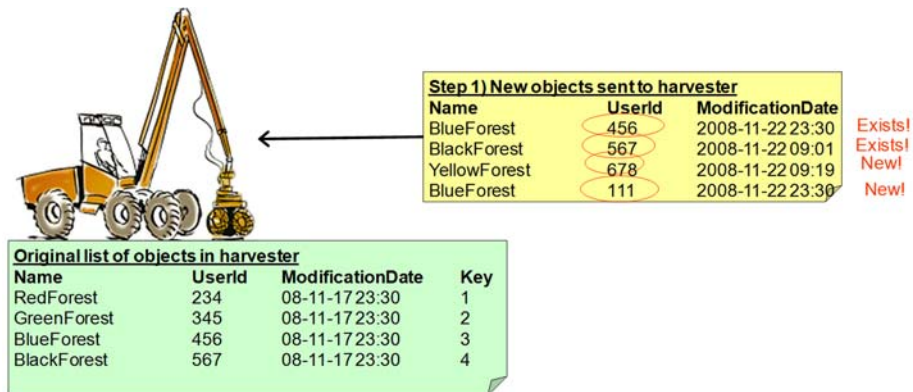


Figure 2. Five new objects (oin) are sent to a harvester. The UserId of the first (456) and the second product (567) already exists among the object while the third and fourth object are new.

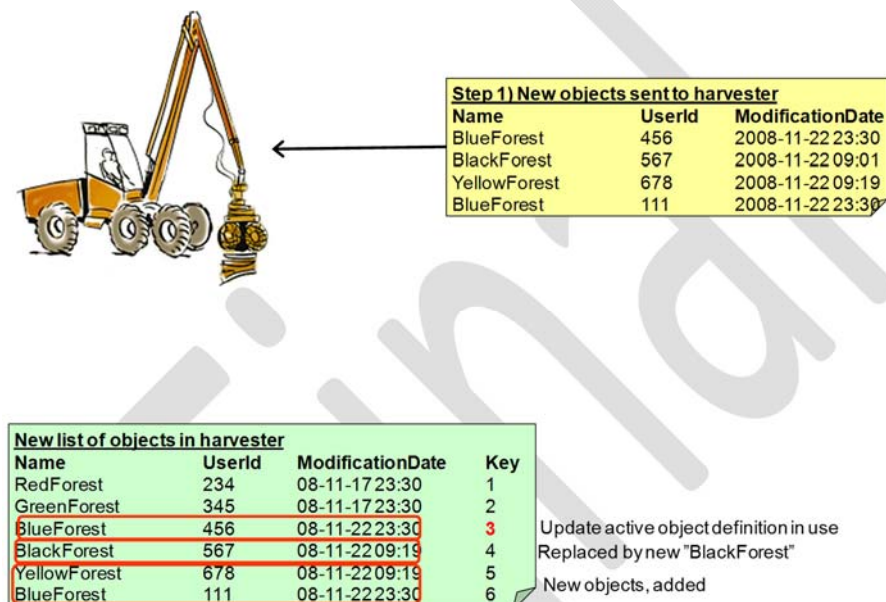


Figure 3. The list of objects is updated. Observe that a second object named BlueForest now exist since the ObjectUserIds are different .

Below follows a slightly more concrete example of how to administrate product and object instructions sent to the harvester.

Step 1.

Product instruction (pin) including four products is sent to harvester

ProductName	PineSaw	PinePulp	SpruceSaw	SprucePulp
ProdUserId	0110	1010	0120	1020
ModificationDate	10-01-18	10-01-18	10-01-18	10-01-18
LengthClasses	34, 40, 46, 49	38, 40, 45	37, 43, 46, 49	37, 41, 44
DiamClasses	18,22,24,30	5,10,15,18	18,22,24,30	5,10,15,18

PriceMatrix	45 €/m3 ...	20 €/m3 ...	42 €/m3 ...	25 €/m3 ...
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Step 2.

New object instruction (oin) sent to harvester

ObjectUserId	ModificationDate	Product references
PinkForest_1380	10-01-19	PineSaw (0110), PinePulp (1010), SprucePulp (1020)

Step 3.

New harvesting object started with the following products according to oin message

ObjectKey	ObjectUserId	Products used
38	PinkForest_1380	PineSaw (0110), PinePulp (1010), SprucePulp (1020)

Step 4.

New product instruction for “PineSaw” (new diameter classes and increased price) sent to harvester during harvesting at “PinkForest_1380”

ProductName	PineSaw
ProdUserId	0110
ModificationDate	10-02-01
LengthClasses	34, 40, 46, 49, 55
DiamClasses	18,22,24, <u>26</u> , <u>30</u> , <u>32</u>
PriceMatrix	<u>51</u> €/m3 ...

Operator is asked: Replace old PineSaw with new?

Answer: Yes!

New object instruction (oin) including product “SpruceSaw” sent to harvester during harvesting at “PinkForest_1380”

ObjectUserId	ModificationDate	Product references
PinkForest_1380	10-02-01	PineSaw (0110), PinePulp (1010), <u>SpruceSaw (0120)</u> , SprucePulp (1020)

Operator is asked: Update present object?

Answer: Update present object!

Step 5.

Harvesting at object “PinkForest_1380” is continued with updated product “PineSaw” and new product “SpruceSaw”

ObjectKey	ObjectUserId	Products used
38	PinkForest_1380	PineSaw (0110), PinePulp (1010), <u>SpruceSaw (0120)</u> , SprucePulp (1020)

The meeting discussed whether or not to add some new implementation rules. However, this was not deemed necessary.

It was pointed out during the discussions that:

- The possibility of changing the products during harvesting using an oin will be a requirement on the Swedish market.
- Updating oin should only affect product references (ProductUserID). It is NOT to be used for changing identities or sub-objects!
- Once a sub-object has been used it cannot be removed from an object. This solves the problem with a 1st oin including 2 sub-objects and a 2nd updated oin not including any sub-object. In this case the two first sub-objects will exist also after updating of the object.

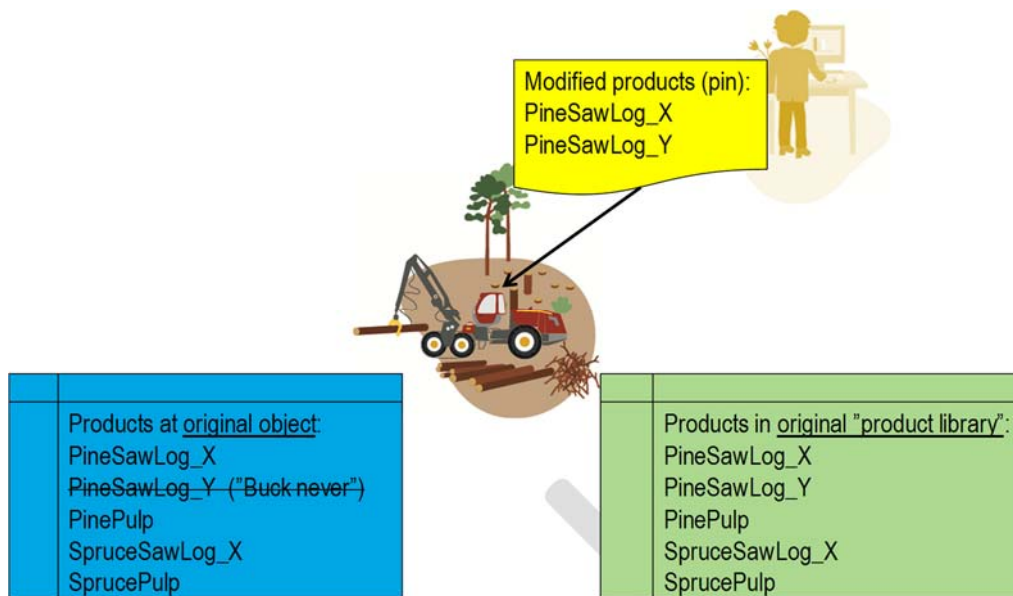
MODIFIED PIN NOT ACTIVE/NOT IN USE PRESENTLY

Issue raised by Jonas Gustafsson, Sveaskog, 2017-03-22

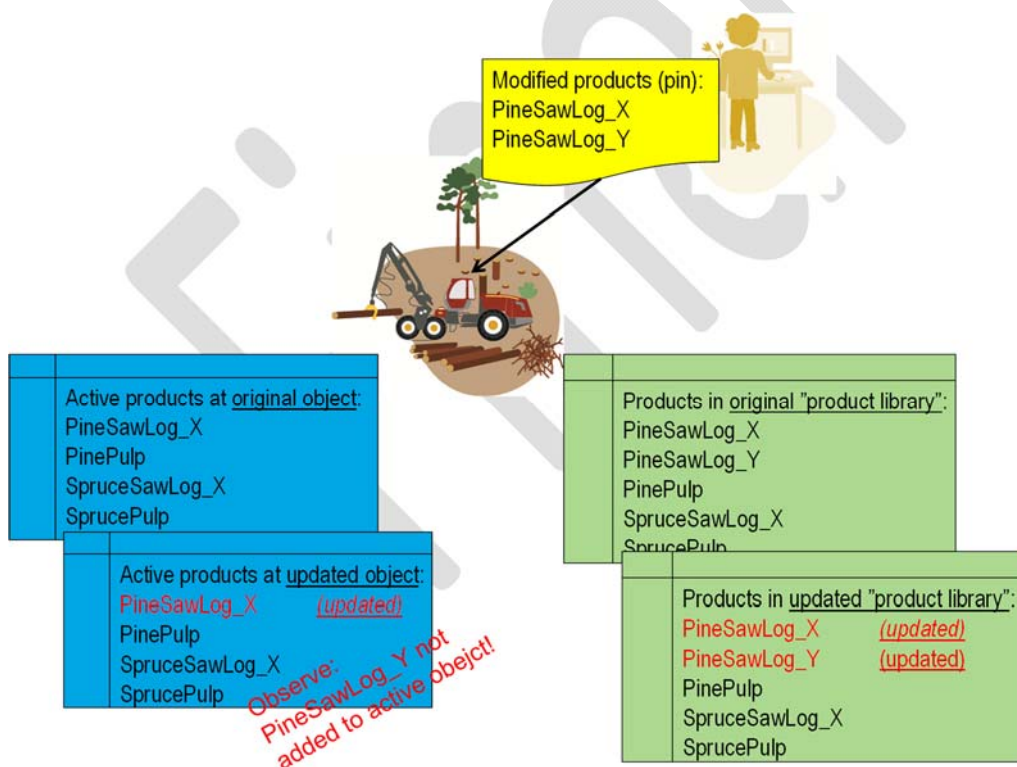
It has been noted by Jonas that a modified pin received by a harvester is in some cases automatically added to the active object even if this product was not in use and should only affect the product library.

The figures below illustrates how two updated products are to be handled when only one product (PineSawLog_X) is in active use at the moment.

The first figure illustrate that two updated files (one presently active) are sent to harvester:



The second figure illustrate that both product are updated in the library while PineSawLog_Y is not taken into use:



It is strongly required that the control system does not automatically activate a modified pin if it is not activated at the present harvesting object.

HANDLING REJECTED STEMS AND “UNMEASURED” STEMS IN HQC

The secretary again pointed out some urgent requirements on hqc-files on the Swedish market that is not working in all control systems presently:

- All randomly selected stems that are rejected by the operator must be saved in an hqc-file including a reason for rejection. This file is not to be sent to the caliper but directly to the forest company (in Sweden to SDC).
- Complete randomization setting log (minimum 5 last settings) is required in element ControlStemSetting.

THE TIME SCHEDULE FOR IMPLEMENTATION Harvesters

The following table for forwarders was compiled after the meeting (specify latest minor version that has been or is planned to be implemented).

Manufacturer	Major version 2	Major version 3
Opti (Ponsse)	2.1 - Q1 2015	3.1 – Q3 2017
Timbermatic (JohnDeere)	2.1 - 2014 (1.19)	3.0 - 2015, (3.1 2016)
LogMate	2.0 – Spring 2013	3.0 - Q4 2014
MaxiXplorer (Komatsu)	2.1 - Spring 2013	3.0 - Q1 2015 (3.1 Q1 2016)
Dasa*	2.0 - Autumn 2014	3.1 Q2 2016
Motomit (Parker)		Q3-4 2015 (version 3.1)
xLogger (Technion)		3.0 Q4 2016
DP11 (Haglöf)	2.0 and 2.1 - Spring 2013	3.2 - Spring 2015
Silvia7	2.1 - Spring 2013	3.2 – October 2016
SDC	2.1 - December 2013 (hpr) March 2015 (incl hqc)	3.2- October 2016 (incl hqc)
WoodForce/ Fifth Element		Q3-Q4 2015. Older formats converted to 3.0. Version 3.1 used from 2016

* A conversion module is available for Dasa4/5 (oin,pin,spi,hpr)

Manufacturer	Present software version released on the market
Opti (Ponsse)	Opti4G version 4.731
Timbermatic (JohnDeere)	1.25
LogMate	1.08.0009
MaxiXplorer (Komatsu)	Unkown
Dasa	1.3, 1.4 (May 2016)
Motomit (Parker)	
xLogger (Technion)	5.35
DP II (Haglöf)	Skalman V7.12
Silvia7	2017.1
SenderXC	1.07

Presently the following control systems can update a product, by sending a new pin, during harvesting at a site:

- Dasa
- LogMate
- Timbermatic
- MaxiXplorer
- xLogger

It is not possible to use the updated pin until you start on a new site in:

- Opti (implementation ongoing)
- Motomit(no implementation is planned)

ModificationRestricted has been implemented:

- Komatsu, implemented
- JohnDeere, not implemented
- Dasa , implemented summer 2017
- Ponsse, not implemented
- Motomit, not implemented
- LogMate, implemented 2016 (read and written but does not affect GUI)
- xLogger, implemented

ProductClass has been implemented:

- Silvia, implemented
- Komatsu, not implemented
- JohnDeere, unkown
- Dasa, not implemented
- Ponsse, implemented
- Motomit, unkown
- LogMate, not implemented

- xLogger not implemented

Forwarders

The following table for forwarders was compiled after the meeting (specify latest minor version that has been or is planned to be implemented).

Manufacturer	Major version 2	Major version 3
Opti (Ponsse)	2.1 - All messages implemented if scale is used.	3.0 and 3.1 – Q3 2017
Timbermatic (JohnDeere)	2.1 - 2014	3.0 - 2015, 3.1 - 2016
MaxiXplorer (Komatsu)	2.1 - Fpr implemented (other files Q4, 2015)	3.0 - Fpr Q2 2015 (instructions files Q1, 2016)
Dasa		3.1 (mom and fpr)
Motomit (Parker)		No plans
Silvia7	2.1 - Fpr implemented.	3.2 - Fpr implemented, instructions not implemented.
SDC	2.1 - March 2015 (fpr)	3.2 – (fpr)
WoodForce/ Fifth Element		Q3-Q4 2015. Older formats converted to 3.0. Version 3.1 used from 2016

Manufacturer	Present software version released on the market
Opti (Ponsse)	Opti4G version 4..731
Timbermatic (JohnDeere)	1.25
LogMate	No version released
MaxiXplorer (Komatsu)	Unkown
Dasa	F30 1.0
Motomit (Parker)	Unkown
xLogger (Technion)	No version released
Silvia7	2017.2
SenderXC	1.07

Operational monitoring

The following table was compiled after the meeting. Please fill in whether mom is implemented for both harvesters and forwarder.

Manufacturer	Major version 2	Major version 3.0
Opti (Ponsse)	Forwarder and harvester ready for test, will be released Q3 2017	Forwarder and harvester ready for test, will be released Q3 2017
Timbermatic (JohnDeere)	2.1 - Forwarder (2014) 2.1 - Harvester (2014)	3.0 - Forwarder (2015) 3.0 - Harvester (2015)
MaxiXplorer (Komatsu)	2.1 - Forwarder (2014?) 2.1 - Harvester (2014?)	3.0 - Forwarder ? 3.0 - Harvester ?
Dasa	Harvester (2014) version 2.0	3.1 - Forwarder (2017) 3.1 - Harvester (2016)
xLogger (Technion)		3.0 - Harvester (2016) Q4
Motomit (Parker)		?
Logmate	2.1 - Harvester (2013)	3.0 - Harvester (2014)
Silvia7	2.1 - Forwarder (2013) 2.1 - Harvester (2013)	3.2 - Forwarder (2014) 3.2 - Harvester (2014)

SWEDISH AND FINNISH NOMENCLATURE

Metsäteho has coordinated the work on compiling a Finnish and English recommendation regarding the StanForD 2010 nomenclature including names and texts to be applied in GUI's of the machine applications. The file types cover so far are: pin, oin, spi, fdi and foi.

Two Skype meetings with the Finnish machine manufacturers have been held in January and February. The work is not totally finished yet, but the proposal was presented in the Finnish StanForD group meeting 2017-03-28.

However the names and texts of forwarder messages have not been gone through by the machine manufacturers yet.

The objective is that the nomenclature could be accepted in next StanForD meetings and the machine manufacturers would start using it in the specification of the GUI's of the applications' next versions

The full proposal has been included in a separate excel-sheet (StanForD 2010 Nomenclature_2017-04-22.xlsx).

Proposal for the Finnish file names to be used in GUI's of the machine applications:

- OIN Lohkon ohjeet or Lohkon työohjeet
- PIN Puutavaralajiohjeet
- SPI Puulajiohjeet or Puulajitiedot
- FDI Toimitusten ohjeet
- FOI Metsäkuljetuksen lohkon ohjeet
- UDI ?
- HPR Hakkuun tuotantotiedot

- THP Hakkuun tuotantokooste or Hakkuun koostetiedot
- FPR Metsäkuljetuksen tuotantotiedot
- MOM Työaika- ja tuottavuustiedot
- HQC Hakkuukoneen kalibrointitiedot
- FQC Kuormainvaa'an kalibrointitiedot

StanForD 2010 element name / pin	FI	EN
Product ProductUserID ProductName ProductInfo ProductVersion ProductBuyer ProductClass ProductDestination ProductDescription	Puutavaralaji Puutavaralajin tunniste Puutavaralajin nimi Puutavaralajikoodi Puutavaralajiversio Ostaja (Urakanantaja?) Laatu Toimituspiste Puutavaralajin kuvaus	Product Product ID Product name Product code Product version Buyer Quality Delivery destination Product description
CuttingWindow LowerLengthLimit UpperLengthLimit	Katkaisuikkuna Katkaisuikkunan alaraja Katkaisuikkunan yläraja	Cutting window Cutting window min Cutting window max
ManualFreeBuck	Vapaakatkonta	Free cut
TopLogFreeBuck	Minimiläpimitan haku	Minimum diameter search
ProductCondition	Rungonosaehto	Bucking condition
DistributionAllowed DistributionCategory MAXDeviation	Pituusjakauma käytössä Jakauman vertailuysikkö Jakauman sallittu vaihtelu	Distribution bucking allowed Distribution matrix type Maximum deviation
LimitationCategory	Määrärajan tyyppi	Limitation matrix type
BuckingCriteria	Apteerausehto	Bucking criteria
StanForD 2010 elementin name / oin	FI	EN
ObjectDefinition ObjectUserID ObjectName	Lohko Lohkon tunniste Lohkon nimi	? Harvesting object ID (or Object ID) Harvesting object name (or Object name)
SubObject SubObjectUserID SubObjectName	Kuvio Kuvion tunniste Kuvion nimi	Sub object Sub object ID Sub object name
LoggingForm	Hakkuutapa	Harvesting method

The meeting discussed the need for including an English translation and came to the conclusion that the present element and attribute names are probably sufficient. Skogforsk and SDC will update the list with the Swedish nomenclature once the Finnish list is complete. The list should also be sent to KWF for a possible translation into German.

It will be possible also for other organizations to extend the list with additional languages. It was suggested at the meeting that the list should be extended with some descriptions of the main concepts.

It was decided to discuss this issue again at the next meeting.

STEMTYPECODES AND MARKING PULP WOOD PRODUCTS

Based on discussion between John Arlinger and Teemu Paldanius, 2016-11-18

It was discovered during the wood value test that at least one manufacturer was using the StemTypeCode per product in order to determine if the product was a “pulpwood” assortment. It was assumed that the Finnish PMP-codes are used. By using these codes, it is possible to set in the control system that certain functions should only be available when the PMP-codes for pulpwood are registered in element ProductDefinition.StemTypeCode.

In the old StanForD var124_t2 had the following description:

Code for stem type/ stem type/ tree species: 1...var122_t1/ 1...var111_t1.

The stem types are described with Finnish PMP-codes:

<i>Pine</i>	<i>Timber stem type 11.</i>
	<i>Pulpwood stem type 12</i>
<i>Spruce</i>	<i>Timber stem type 21.</i>
	<i>Pulp wood stem type 22.</i>
<i>Birch</i>	<i>Timber stem type 31.</i>
	<i>Pulp wood stem type 32.</i>
<i>Aspen</i>	<i>Timber stem type 41.</i>
	<i>Pulp wood stem type 42.</i>
<i>Other species</i>	<i>Other species timber stem type 61.</i>
	<i>Other species pulp wood stem type 62</i>

The standard today does not have any strict definition regarding what codes are to be used. StemTypeCode (ProductDefintion) has the following description:

Code for stem type. This is a reference to StemTypeCode element in StemTypeDefinition in SpeciesGropulInstruction message. Free text (usually finish PMP-codes).

There could be a few different solutions:

1. Strictly define that PMP-codes are to be used. What about other species?
2. Add new boolean element “Pulpwood” per product.
3. Use TopLogFreeBuck or ManualFreeBuck in order to determine if it is a “pulpwood” product.

It was decided to postpone the issue since it is not considered to be a major issue today since this is the same situation as we have had for a very long time.

Teemu expressed that he was a little bit hesitant about adding new “pulp wood” element to structure, because all our functionalities are now connected to StemTypeCode. New pulp wood element would mean modification of a large

number of functions. In worst case implementation would be needed for both the old method and the new one.

DIAMETER MEASUREMENT POSITIONS IN HQC-FILES

Proposal by Antti Uurtamo, Masser, 2016-11-23. The presentation is included in appendix 2.

It was proposed that values in attribute Log.LogMeasurement.ControlLogDiameter.diameterPosition should always be registered by the harvester in hqc for control logs.

It was also noted that attribute diameterPositionCaliper cannot be changed to mandatory in standard, so an implementation rule is needed.

The definition of diameterPosition was probably written based on the Swedish control method where the diameters are always measured on the same positions. The definition that “the value must be identical for all diameters (both Machine, Operator, Auditor)” is problematic when using the Finnish method where the last diameter position is allowed to vary as in the example below.

The meeting decided to update the definition of attribute diameterPosition (added 2011-10-09) in the hqc message:

Control position for diameter measuring from butt end of log. Used for log diameter vector (element ControlLogDiameter). ~~The value must be the same for all logMeasurementcategory (Machine, Auditor, Operator).~~ Element is used to connect diameter values measured by Machine, Auditor and Operator

It was also decided to compile some examples illustrating how diameterPositions are used under different situations.

Examples of using diameterPosition

The following examples of how to use diameterPosition was compiled by the secretary and Joakim Nygren, Haglöf.

Finnish control measuring

The Finnish measuring method means that the number and positions of diameter measurements normally differ between machine (M1), operator (M2) and auditor (M3) for the last positions as illustrated below.

LogMeasurement																																							
logMeasureme...	LogDiameter	LogLength	Measurement...	ControlLogDiameter																																			
1 Machine	LogDiameter (1) 492	2015-11-20T09:35:00	375+01:00	ControlLogDiameter (5)																																			
<table border="1"> <thead> <tr> <th>diameterPosition</th><th>controlLogDiameterCategory</th><th>diameterMeasurementCategory</th><th>Nbr</th><th>Text</th></tr> </thead> <tbody> <tr><td>1 130</td><td>ob</td><td>Average</td><td>312</td><td></td></tr> <tr><td>2 150</td><td>ob</td><td>Average</td><td>312</td><td></td></tr> <tr><td>3 250</td><td>ob</td><td>Average</td><td>312</td><td></td></tr> <tr><td>4 350</td><td>ob</td><td>Average</td><td>302</td><td></td></tr> <tr><td>5 440</td><td>ob</td><td>Average</td><td>281</td><td></td></tr> </tbody> </table>					diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text	1 130	ob	Average	312		2 150	ob	Average	312		3 250	ob	Average	312		4 350	ob	Average	302		5 440	ob	Average	281						
diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text																																			
1 130	ob	Average	312																																				
2 150	ob	Average	312																																				
3 250	ob	Average	312																																				
4 350	ob	Average	302																																				
5 440	ob	Average	281																																				
2 Operator	LogDiameter (2) 504	2015-11-20T09:37:10	421875+01:00	ControlLogDiameter (8)																																			
<table border="1"> <thead> <tr> <th>diameterPosition</th><th>controlLogDiameterCategory</th><th>diameterMeasurementCategory</th><th>Nbr</th><th>Text</th></tr> </thead> <tbody> <tr><td>1 130</td><td>ob</td><td>Average</td><td>313</td><td></td></tr> <tr><td>2 150</td><td>ob</td><td>Average</td><td>312</td><td></td></tr> <tr><td>3 250</td><td>ob</td><td>Average</td><td>308</td><td></td></tr> <tr><td>4 350</td><td>ob</td><td>Average</td><td>301</td><td></td></tr> <tr><td>5 450</td><td>ob</td><td>Average</td><td>296</td><td></td></tr> <tr><td>6 502</td><td>ob</td><td>Average</td><td>294</td><td></td></tr> </tbody> </table>					diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text	1 130	ob	Average	313		2 150	ob	Average	312		3 250	ob	Average	308		4 350	ob	Average	301		5 450	ob	Average	296		6 502	ob	Average	294	
diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text																																			
1 130	ob	Average	313																																				
2 150	ob	Average	312																																				
3 250	ob	Average	308																																				
4 350	ob	Average	301																																				
5 450	ob	Average	296																																				
6 502	ob	Average	294																																				
1 Machine	LogDiameter (1) 492	2015-11-20T09:35:00	375+01:00	ControlLogDiameter (5)																																			
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diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text																																			
1 50	ob	Average	268																																				
2 150	ob	Average	263																																				
3 250	ob	Average	263																																				
4 350	ob	Average	254																																				
5 446	ob	Average	248																																				
2 Operator	LogDiameter (2) 499	2015-11-20T09:37:10	421875+01:00	ControlLogDiameter (5)																																			
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diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text																																			
1 50	ob	Average	268																																				
2 150	ob	Average	264																																				
3 250	ob	Average	257																																				
4 350	ob	Average	252																																				
5 448	ob	Average	240																																				

Swedish control measuring

The normal control measuring method in Sweden means that the number of and positions of diameter measurements do not differ between machine (M1), operator (M2) and auditor (M3) as illustrated below.

LogMeasurement																								
logMeasurementCat...	LogDiameter	LogLength	Measurement...	ControlLogDiameter																				
1 Machine	LogDiameter (1) 373	2016-03-01T09:51:04+01:00		ControlLogDiameter (2)																				
<table border="1"> <thead> <tr> <th>diameterPosition</th><th>controlLogDiameterCategory</th><th>diameterMeasurementCategory</th><th>Nbr</th><th>Text</th></tr> </thead> <tbody> <tr><td>1 120</td><td>ob</td><td>Average</td><td>202</td><td></td></tr> <tr><td>2 200</td><td>ob</td><td>Average</td><td>197</td><td></td></tr> <tr><td>3 300</td><td>ob</td><td>Average</td><td>187</td><td></td></tr> </tbody> </table>					diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text	1 120	ob	Average	202		2 200	ob	Average	197		3 300	ob	Average	187	
diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text																				
1 120	ob	Average	202																					
2 200	ob	Average	197																					
3 300	ob	Average	187																					
2 Operator	LogDiameter (1) 373	2016-03-01T09:51:04+01:00		ControlLogDiameter (2)																				
<table border="1"> <thead> <tr> <th>diameterPosition</th><th>controlLogDiameterCategory</th><th>diameterMeasurementCategory</th><th>Nbr</th><th>Text</th></tr> </thead> <tbody> <tr><td>1 120</td><td>ob</td><td>Average</td><td>210</td><td></td></tr> <tr><td>2 200</td><td>ob</td><td>Average</td><td>198</td><td></td></tr> <tr><td>3 300</td><td>ob</td><td>Average</td><td>188</td><td></td></tr> </tbody> </table>					diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text	1 120	ob	Average	210		2 200	ob	Average	198		3 300	ob	Average	188	
diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text																				
1 120	ob	Average	210																					
2 200	ob	Average	198																					
3 300	ob	Average	188																					
3 Auditor	LogDiameter (2) 373	2016-03-01T14:19:49+01:00		ControlLogDiameter (2)																				
<table border="1"> <thead> <tr> <th>diameterPosition</th><th>controlLogDiameterCategory</th><th>diameterMeasurementCategory</th><th>Nbr</th><th>Text</th></tr> </thead> <tbody> <tr><td>1 120</td><td>ob</td><td>Average</td><td>209</td><td></td></tr> <tr><td>2 200</td><td>ob</td><td>Average</td><td>199</td><td></td></tr> <tr><td>3 300</td><td>ob</td><td>Average</td><td>187</td><td></td></tr> </tbody> </table>					diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text	1 120	ob	Average	209		2 200	ob	Average	199		3 300	ob	Average	187	
diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text																				
1 120	ob	Average	209																					
2 200	ob	Average	199																					
3 300	ob	Average	187																					
1 Machine	LogDiameter (1) 368	2016-03-01T09:51:04+01:00		ControlLogDiameter (2)																				
<table border="1"> <thead> <tr> <th>diameterPosition</th><th>controlLogDiameterCategory</th><th>diameterMeasurementCategory</th><th>Nbr</th><th>Text</th></tr> </thead> <tbody> <tr><td>1 100</td><td>ob</td><td>Average</td><td>170</td><td></td></tr> <tr><td>2 200</td><td>ob</td><td>Average</td><td>168</td><td></td></tr> <tr><td>3 300</td><td>ob</td><td>Average</td><td>162</td><td></td></tr> </tbody> </table>					diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text	1 100	ob	Average	170		2 200	ob	Average	168		3 300	ob	Average	162	
diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text																				
1 100	ob	Average	170																					
2 200	ob	Average	168																					
3 300	ob	Average	162																					
2 Operator	LogDiameter (1) 365	2016-03-01T09:51:04+01:00		ControlLogDiameter (2)																				
<table border="1"> <thead> <tr> <th>diameterPosition</th><th>controlLogDiameterCategory</th><th>diameterMeasurementCategory</th><th>Nbr</th><th>Text</th></tr> </thead> <tbody> <tr><td>1 100</td><td>ob</td><td>Average</td><td>171</td><td></td></tr> <tr><td>2 200</td><td>ob</td><td>Average</td><td>167</td><td></td></tr> <tr><td>3 300</td><td>ob</td><td>Average</td><td>156</td><td></td></tr> </tbody> </table>					diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text	1 100	ob	Average	171		2 200	ob	Average	167		3 300	ob	Average	156	
diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text																				
1 100	ob	Average	171																					
2 200	ob	Average	167																					
3 300	ob	Average	156																					
3 Auditor	LogDiameter (2) 365	2016-03-01T14:19:49+01:00		ControlLogDiameter (2)																				
<table border="1"> <thead> <tr> <th>diameterPosition</th><th>controlLogDiameterCategory</th><th>diameterMeasurementCategory</th><th>Nbr</th><th>Text</th></tr> </thead> <tbody> <tr><td>1 100</td><td>ob</td><td>Average</td><td>173</td><td></td></tr> <tr><td>2 200</td><td>ob</td><td>Average</td><td>167</td><td></td></tr> <tr><td>3 300</td><td>ob</td><td>Average</td><td>157</td><td></td></tr> </tbody> </table>					diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text	1 100	ob	Average	173		2 200	ob	Average	167		3 300	ob	Average	157	
diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Nbr	Text																				
1 100	ob	Average	173																					
2 200	ob	Average	167																					
3 300	ob	Average	157																					

Flexible diameter measuring

Some caliper systems also let's the operator decide the diameter positions as he or she moves along the stem. This type of measuring is often called "flexible diameter measuring" (in Swedish "fri-klavning"). An example of this type of diameter measuring is included below. It is noticeable that the diameter

measurements in this case are not done with a fixed length interval as in the other examples.

LogMeasurement (2)

logMeasureme...

LogDiameter

LogLength

MeasurementD...

ControlLogDiameter

1 Machine

LogDiameter (1)

433

2017-05-19T12:39:24.068+02:00

ControlLogDiameter (7)

diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Av. Text
1 125	ob	Average	237
2 147	ob	Average	237
3 204	ob	Average	235
4 252	ob	Average	235
5 305	ob	Average	231
6 361	ob	Average	229
7 416	ob	Average	220

2 Operator

LogDiameter (2)

435

2017-05-19T13:29:27.9602349+02:00

ControlLogDiameter (7)

diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Av. Text
1 125	ob	Average	238
2 147	ob	Average	239
3 204	ob	Average	238
4 252	ob	Average	234
5 305	ob	Average	233
6 361	ob	Average	225
7 416	ob	Average	220

LogMeasurement (2)

logMeasureme...

LogDiameter

LogLength

MeasurementD...

ControlLogDiameter

1 Machine

LogDiameter (1)

452

2017-05-19T12:39:24.068+02:00

ControlLogDiameter (7)

diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Av. Text
1 57	ob	Average	218
2 95	ob	Average	215
3 137	ob	Average	214
4 230	ob	Average	209
5 289	ob	Average	204
6 347	ob	Average	201
7 404	ob	Average	195

2 Operator

LogDiameter (3)

453

2017-05-19T13:29:27.9602349+02:00

ControlLogDiameter (7)

diameterPosition	controlLogDiameterCategory	diameterMeasurementCategory	Av. Text
1 57	ob	Average	220
2 95	ob	Average	221
3 137	ob	Average	215
4 230	ob	Average	211
5 289	ob	Average	205
6 347	ob	Average	204
7 404	ob	Average	200

Recommendations

It is suggested that diameter pairs are not used for calibration or evaluation of diameter precision if the position deviates more than 10 cm. It may also be wise to have an outlier limit on the difference in log length.

PIN AND MODIFICATIONDATE

The issue was withdrawn by Tuomo Vuorenpä since the issue have been solved in the WoodForce system.

IMPLEMENTATION OF PRODUCTPRESENTATIONORDER

A question was raised at the previous meeting regarding the implementation of ProductPresentationOrder in the different control systems. The secretary presented the results of a question sent out to all manufacturers. All manufacturers stated that they have implemented ProductPresentationOrder.

Comment after meeting

When analysing hpr-files from the Wood value test in October 2016 it was noted that ProductPresentationOrder was included in files generated by DasaForester, MaxiXplorer and Ponsse while this element was not found in files from Timbermatic. However, this does not mean that the element is not in use since this element is primarily use for presentation purposes in operator GUI of control systems.

NEED FOR SUPPORT OF ALL MINOR VERSIONS

This issue was raised by Per Knutsson, CGI, 2016-11-23.

Maintaining all existing minor StanForD version will mean a significant amount of work with an increasing risk for bugs.

Per Knutsson therefore raised the question whether it would be enough for an administrative tool like Silvia7 to only support the latest available minor version? This would mean that a user of Silvia7 today only needs to decide whether to generate a set of instructions (pin, spi, oin) for major version 2 or 3 (in the future probably an additional number of new major versions).

The question to all manufacturers is thus if it is possible to utilize a version 3.2 pin even though the control system application is only based on 3.0 or 3.1 schemas? This would mean that Silvia7 does not need to have front-end support for all minor version. The plan for Silvia7 would be to always support the latest minor versions (today 2.1 and 3.3) and still have the possibility to convert downwards to earlier versions in an emergency situation.

Observe that Silvia7 of course will be able to read all minor versions (e.g. production, quality control and operational monitoring) but usually only generate the latest minor version of instructions.

The proposal was discussed at the meeting. The meeting noted that the proposal would not work today due to the fact that Ponsse, JohnDeere, Komatsu and xLogger all validate all files before reading. This e.g. means that a system that has only implemented version 3.0 and 3.1 cannot use version 3.2 even though all relevant information for 3.0 and 3.1 is included also in 3.2. Dasa and LogMate does not validate files presently which means that they probably can handle the situation described above. Silvia does not validate files automatically.

It was decided to continue this discussion at the next meeting.

Comments from secretary added after meeting

A different solution was implemented by CGI in Silvia7 after the meeting.

If validation is deemed to be necessary also in the future we will probably end up in a situation where most forest companies stay with a "low" minor version for a long time in order to avoid having to simultaneously support a large number of different minor versions. It is probably so that the oldest control system version in the machine fleet will decide what version the forest companies will use. Retiring old versions will be very difficult if we use a strict validation. However, this problem will diminish if we have systems for keeping the machines updated.

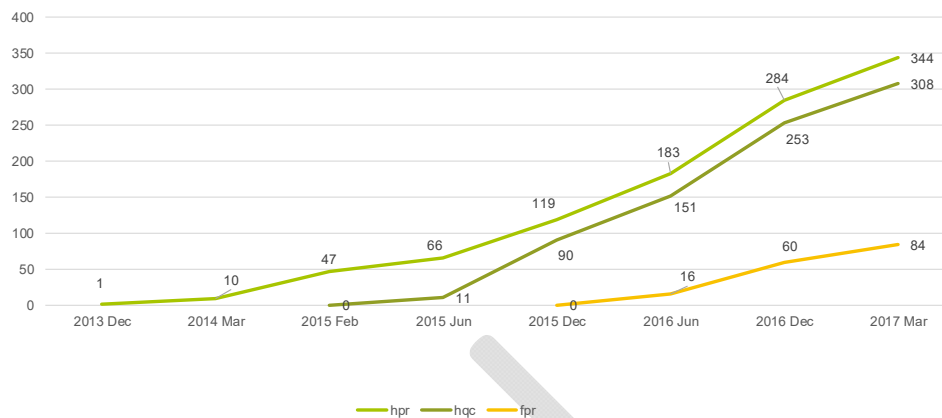
One way of handling this issue could be that the manufacturers start out reading the files and only validate the file if an error occurs during reading.

§ 7. StanForD2010 projects

REPORTING PRODUCTION DATA AND DISTRIBUTING HARVESTER INSTRUCTIONS IN SWEDEN INCLUDING NEW IDENTIFICATION ISSUES (SDC)

Lars Henriksson presented the implementation status at SDC.

The number of machines reporting according to StanForD2010 is increasing as illustrated below.



Lars described the use of the StanForD-envelope in order to distribute addressed and un-addressed harvester instructions (pin, spi, oin), see also next paragraph.

The “old” Sender version will be discontinued. All machines with the old generation of Sender software need to upgrade to Sender XC. About 750 machines are affected, most of them have the technical conditions to upgrade, meaning that they fulfil the requirement of having Windows XP sp 3 or later as well as having a mobile broadband installed. The goal is to make all machines do this by late 2017.

A new platform, VIOL3, is under development at SDC. The planned date for implementation is 1 Aug 2019. A more divided structure of documents for control of production, transport, measurement (at industry) and accounting compared to one document for all this today (“virkesorder”).

New format for integration from/to other company systems, papiNet will be used instead of SDCs old proprietary VIOL-format.

What we know so far regarding forest machine data is that VIOL3 will mean that:

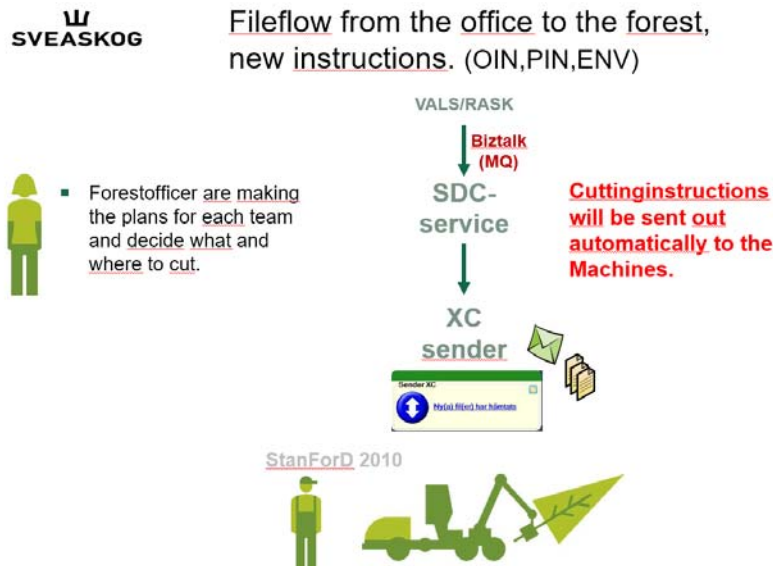
- More StanForD-data will be stored by SDC
- Changed Swedish nomenclature for some identity elements (not decided yet, probably a year away)
- Minimum StanForD2010 version 3.0 (3.1) for hpr, fpr and hqc (pri, prl and ktr will be converted to StaForD2010 format by SDC)

The need for identities will be largely un-changed with the exceptions of ProductClass and LocationInfo which are not used by SDC today.

Lars pointed out that SDC will take ProductClass in use with VIOL3. It is therefore of interest to SDC to know whether this element is supported by the manufacturers in version 3.1, 3.2 and 3.3 (included in section *Time schedule for implementation*).

PIN-IMPLEMENTATION AT SVEASKOG

Jonas Gustafsson, Sveaskog, presented the work to include the new StanForD instructions (oin, pin, spi) in their new administrative systems.



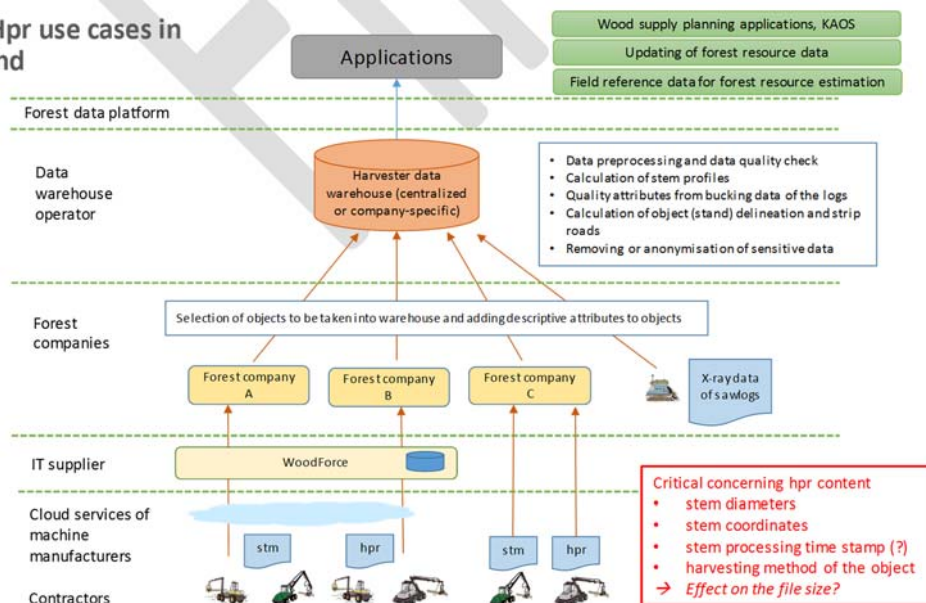
YIELD PROGNOSIS BASED ON HPR-FILES (SKOGFORSK)

Johan Möller briefly presented Skogforsk's work on developing a new method for pre-harvest assessment based on harvester data (hpr).

HPR USE CASES IN FINLAND (METSÄTEHO)

Tapio Räsänen presented some ongoing projects in Finland where hpr data is an important ingredient.

6 b. Hpr use cases in Finland



TESTS WITH USERDEFINEDDATA AND STEMCODES

The secretary informed the meeting about the tests of UserDefinedData and StemCodes carried out jointly between Sveaskog, Mellanskog and Skogforsk.

Examples of StemCodes and UserDefinedData registered in an hpr-file generated by a Komatsu harvester are presented below:

Stem (21)	StemKey	ObjectKey	SubObj...	SpeciesG...	Operator...	HarvestDate	StemNumber	ProcessingCate...	StemCoord...	StemCode
1	207197	30	30	205	4	2017-04-19T07:39:37.427+02:00	18406	SingleTreeProcessing	StemCoord...	
2	207198	30	30	205	4	2017-04-19T07:40:40.44+02:00	18407	SingleTreeProcessing	StemCoord...	Natur-stubbe
3	207200	30	30	205	4	2017-04-19T07:43:15.9+02:00	18408	SingleTreeProcessing	StemCoord...	
4	207202	30	30	201	4	2017-04-19T07:44:07.327+02:00	18409	SingleTreeProcessing	StemCoord...	
5	207251	30	30	201	4	2017-04-19T08:10:58.133+02:00	18461	SingleTreeProcessing	StemCoord...	
6	207252	30	30	201	4	2017-04-19T08:11:29.66+02:00	18462	SingleTreeProcessing	StemCoord...	
7	207253	30	30	201	4	2017-04-19T08:12:09.997+02:00	18463	SingleTreeProcessing	StemCoord...	
8	207254	30	30	201	4	2017-04-19T08:13:33.273+02:00	18464	SingleTreeProcessing	StemCoord...	Evighetsträd
9	67316119	30	30	201	4	2017-04-19T08:14:40.263+02:00	18465	MultiTreeProcessing	StemCoord...	
10	207530	30	30	205	4	2017-04-19T11:46:09.083+02:00	18767	SingleTreeProcessing	StemCoord...	
11	207531	30	30	201	4	2017-04-19T11:46:37.003+02:00	18768	SingleTreeProcessing	StemCoord...	
12	207532	30	30	205	4	2017-04-19T11:47:21.613+02:00	18769	SingleTreeProcessing	StemCoord...	Natur-stubbe
13	207533	30	30	201	4	2017-04-19T11:48:04.43+02:00	18770	SingleTreeProcessing	StemCoord...	
14	207845	30	30	201	5	2017-04-19T15:32:15.103+02:00	19123	SingleTreeProcessing	StemCoord...	
15	67316710	30	30	201	5	2017-04-19T15:32:27.89+02:00	19124	MultiTreeProcessing	StemCoord...	Kulturstubbe
16	134425574	30	30	201	5	2017-04-19T15:32:27.89+02:00	19125	MultiTreeProcessing	StemCoord...	Kulturstubbe
17	207847	30	30	201	5	2017-04-19T15:33:20.117+02:00	19126	SingleTreeProcessing	StemCoord...	

tableID	UppHprGallr					
tableName	Uppföljn HprGalling					
Row (2)						
	= rowID	= row...	() Operato...	() Modifi...	() Coordinates	() ColumnData
1	1	1	5	2017-04-19T17:21:52.523+02:00	Coordinates = receiverPo... Base machine position = coordinate... WGS84 Latitude latitudeCategory=North Longitude longitudeCategory=East Altitude 0	ColumnData (8) = columnID = columnName = columnOrder Abc Text 1 CorrectHprGallr Stämmer HprGallr? 1 Ja 2 Stndort Avd 2 2 3 AndelTall Tall 3 4 AndelGran Gran 4 5 AndelLov Löv 5 6 AndelOvr Övr 6 7 AvvGyta G-yta enl HprGallr? 7 Bra 8 Orsak Orsak till avvikelse? 8
2	2	2	5	2017-04-19T17:22:20.55+02:00	Coordinates = receiverPo... Base machine position = coordinate... WGS84 Latitude latitudeCategory=North Longitude longitudeCategory=East Altitude 0	ColumnData (8) = columnID = columnName = columnOrder Abc Text 1 CorrectHprGallr Stämmer HprGallr? 1 Nej 2 Stndort Avd 2 1 3 AndelTall Tall 3 4 AndelGran Gran 4 5 AndelLov Löv 5 6 AndelOvr Övr 6 7 AvvGyta G-yta enl HprGallr? 7 För låg 8 Orsak Orsak till avvikelse? 8 Blockig

There are no more remarkable errors related to data transfer functions or updating of data in WoodForce.

In some forest machine systems, there are still some faults or shortages which prevent the launch of the service in full scale.

Operations of forwarder weight scale controls and reporting are still somewhat unfinished.

Not all machine manufacturers are ready yet with StanForD2010 to production.

Metsähallitus and Stora Enso implementations of WoodForce are linked to the launches of the new forest systems of the companies and are scheduled for 2017.

Pilot use in Metsä Group continues during the spring and company will make decisions about the widening of the production pilots after that.

Aim is to use StanForD 2010 as much as possible in the production phase

- old standard can be used in exceptional cases
- e.g. ktr can be used instead of hqc if there are not StanForD 2010 calipers available

RECOMMENDATION FOR COMMON FOREST MACHINE DATA USE PRINCIPLES IN FINLAND

Tapio Räsänen informed the meeting about the outcome of a Finnish working group focusing on forest machine data and possible consequences to StanForD. A older recommendation has existed since 2013. This recommendation is now updated with focus on issues like ownership, right to use and restrictions.

The working group has been set to define the common principles for ownership, use rights and management of forest machine data

- Members of the working group are
Forest companies: Metsä Group, Metsähallitus, Stora Enso, UPM and Finnish Forest Industries
Trade Association of Finnish Forestry and Earthmoving Contractors (Koneyrittäjät)
Machine manufacturers: John Deere, Komatsu Forest and Ponsse
Metsäteho (coordinating the work)

In the vision and strategic development programme of “future forest resource data systems” by Ministry of Agriculture and Forestry the data produced by and gathered from all type of forest operations – especially data from forest machines – is seen to play an important role

- focus is on updating of the open forest resource data and introducing new methods to it
- general acceptance for utilization of the operational data is required and therefore “rules of the game” need to be defined

Aim is also to update the existing recommendation for forest machine data use principles.

The work is focused on:

- Defining the concepts of forest machine data ownerships and use rights
 - Full ownership of data, shared ownership is possible in some cases, but we try to avoid that
 - Free right to use the data, but no right to deliver it to third parties
 - Restricted right to use the data for specified purposes, may require removal of part of the data, anonymization or processing of the data into a new format
- Data ownerships and use rights are specified by
 - type of data: StanForD 2010 file type groups, unstandardized / machine-specific files, potential new data types
 - common understanding has been achieved so far in most of the data types, but not what comes to productivity and time based data (mom), fuel consumption data (requirements of ISO 50001, energy efficiency) and tracking and status data of the forest machines
 - machine type: harvesters, Forwarders, machines for silvicultural operations
 - parties involved: business parties: service buyers (forest companies and others) and service providers (logging companies, contractors), machine manufacturers, third parties: IT providers, Finnish Forest Centre, research organizations, forestry schools etc.
- The effects of new General Data Protection Regulation by the European Commission on the management of personal data included in forest machine data
 - outcome of the work will be the general instructions how the personal data should be handled in data registers, especially after the business ground for having the information does not exist any more
 - personal data of operators and forest owners / sellers

§ 8. Other issues

DIAMETERSECTION IN THP

Issue raised by Tapio Räsänen and Teemu Paldanius 2017-04-24

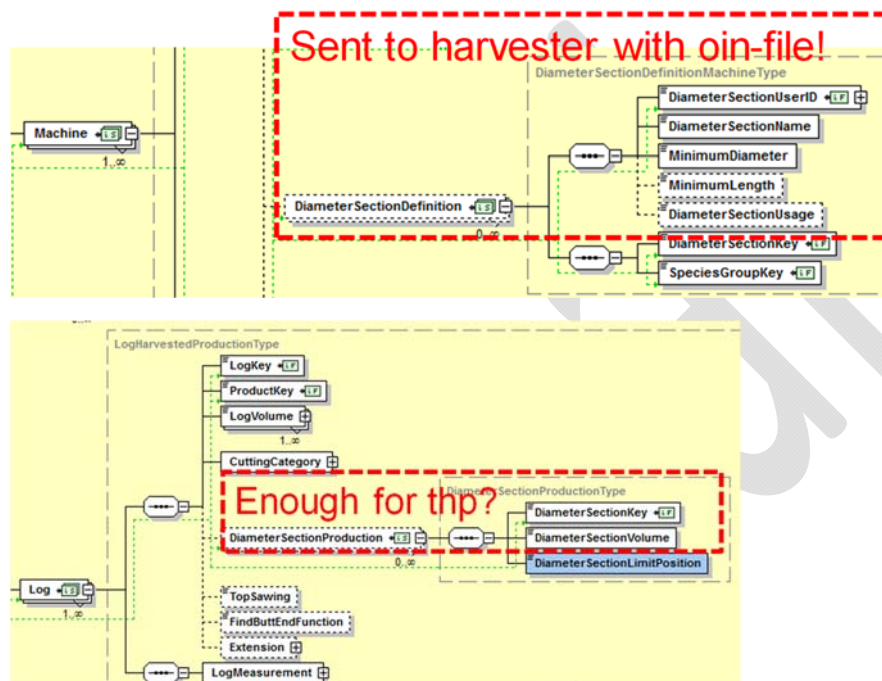
Ponsse has discussed with Metsä Group concerning DiameterSection volumes. A question that was discussed is if a summary of diameter section volumes should be included in thp message.

Teemu thought that a summary of diameter section volumes should be included in thp since this information is comparable with product specific volumes. However, until there is no real users for thp it is not an urgent issue.

It seems, according to Tapio, that the structure that we have now in hpr needs a slightly different structure for thp or at least changes to the descriptions. E.g. DiameterSectionLimitPosition is mandatory and given per log and that is not possible in thp.

No formal proposal was presented at the meeting.

Two figures are included below that illustrates how the instruction can be sent using oin and production data sent from machine using hpr.



It was decided to postpone this issue because there was no formal proposal. Teemu will try to write a proposal of the structure to the next meeting.

COORDINATES IN HPR

Johan Möller and Jonas Gustafsson informed the meeting about the fact that coordinates are often missing from hpr files. An important reason is that it seems like gps-splitters and coordinate setting are often de-activated in connection with software updates. This is problematic since coordinates are becoming increasingly important in a large number of different forest company systems.

SDC will probably include a control of coordinates in hpr-files in the SenderXC-software. This means that the operator will be informed about missing coordinates immediately when a file is about to be sent from the machine.

§ 9. Next meeting

Next ordinary StanForD meeting will start at 10:00 CET, 2017-11-22 in Uppsala.

§ 10. End of meeting

Johan thanked everyone for their participation.

Final

Forwarding crane cycle data in fpr and mom

NEW FORWARDING PRODUCTION STRUCTURE

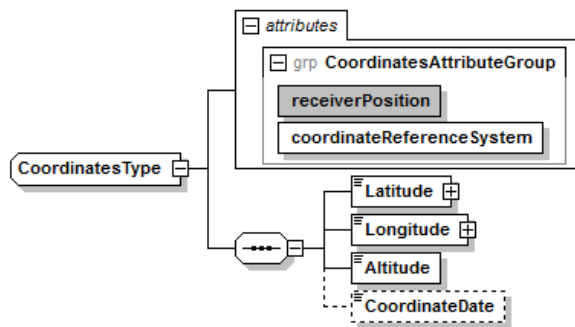
Contents

Background	2
Remodelling fpr-production	3
Definition of crane cycle	7
Proposals	7
New elements	8

Background

It was decided at the meeting 2015-11-18 to update the definition of receiverPosition based on a discussion between John Arlinger and Thomas Purfurst (Bavarian State Forest) regarding coordinates in fpr-files.

All Coordinates in StanForD messages have the attribute receiverPosition. GPS coordinates are e.g. included in CreationCoordinates, LoadingCoordinates, LocationCoordinates, StemCoordinates.



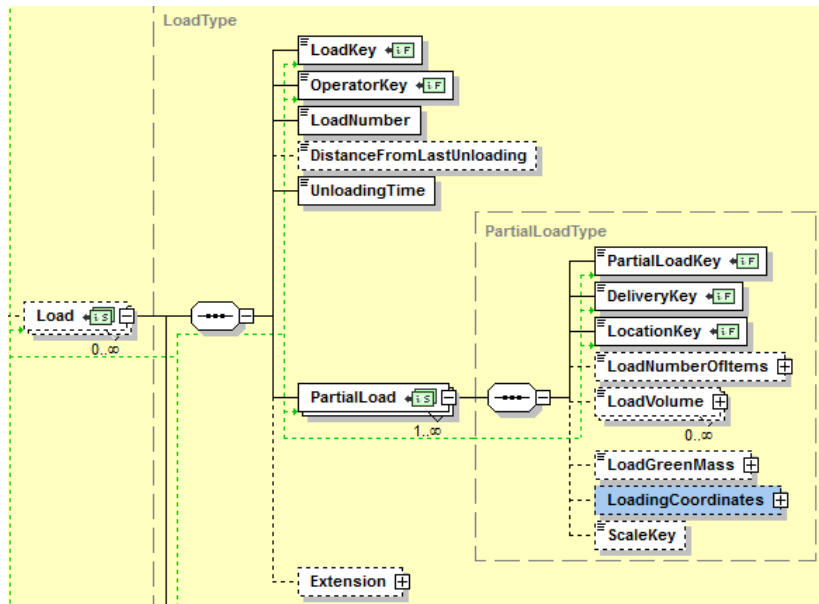
It was decided that the annotation for receiverPosition is updated according to the following text (new text underlined in red):

Position of coordinate registration in file: "Base machine position", "Crane tip position when felling the tree". Observe that only "Base machine position" is relevant for all types of coordinates. Other enumerations valid only in some specific situations.

The discussion between John Arlinger and Thomas Purfurst evolved to include whether it would be a good idea to include additional coordinates to the fpr-file. The following coordinates exist in fpr-files today:

- CreationCoordinates, LoadingCoordinates, LocationCoordinates,

Would it be relevant to add UnloadingCoordinates to PartialLoad?



Using coordinates for forwarders in PartialLoad might mean:

- New enumerations “Grapple position when opening grapple to release logs” and “Grapple position when closing grapple to pick up logs”

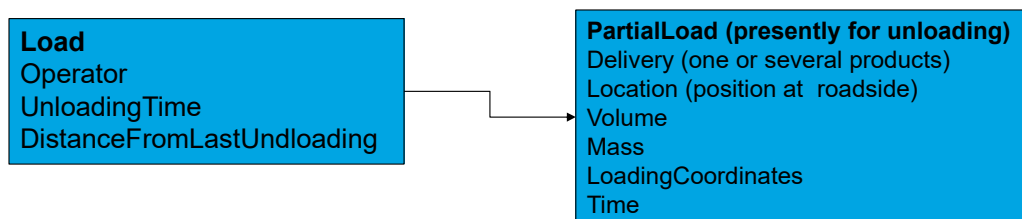
Boom angle for Unloading and PartialLoad?

- Attributes for boomAngleCategory: Felling, Last log cut, Release logs, Pick up logs.

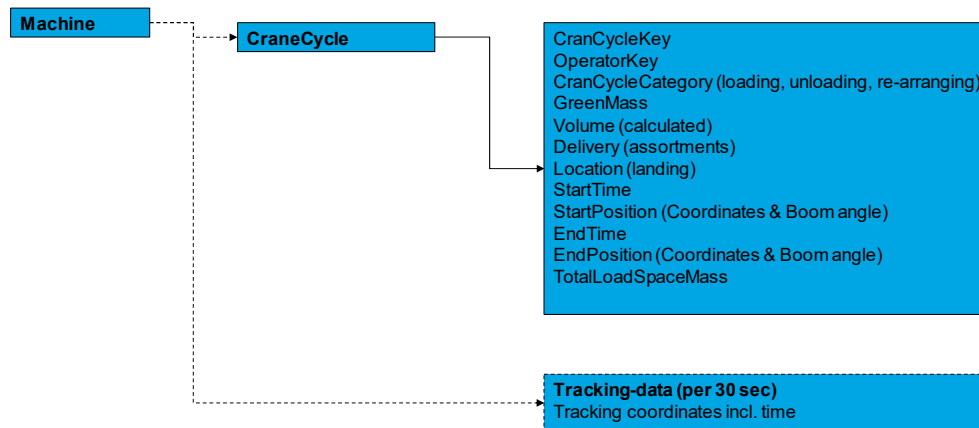
However, adding these new enumerations into the present structure will make the fpr-file even more complex than today.

Remodelling fpr-production

The present structure (illustrated below) is quite complex due to the fact that it can handle several different methods (crane scales, load space scales and manual estimations) with varying resolution.



A solution, in order to make it possible to register data with a higher resolution, could be to separately register crane cycle based on scaling each grapple load. A new structure is suggested where each crane cycle during forwarding is registered (illustrated below). It would then be possible to register e.g. coordinates and times for both loading and unloading crane cycles.

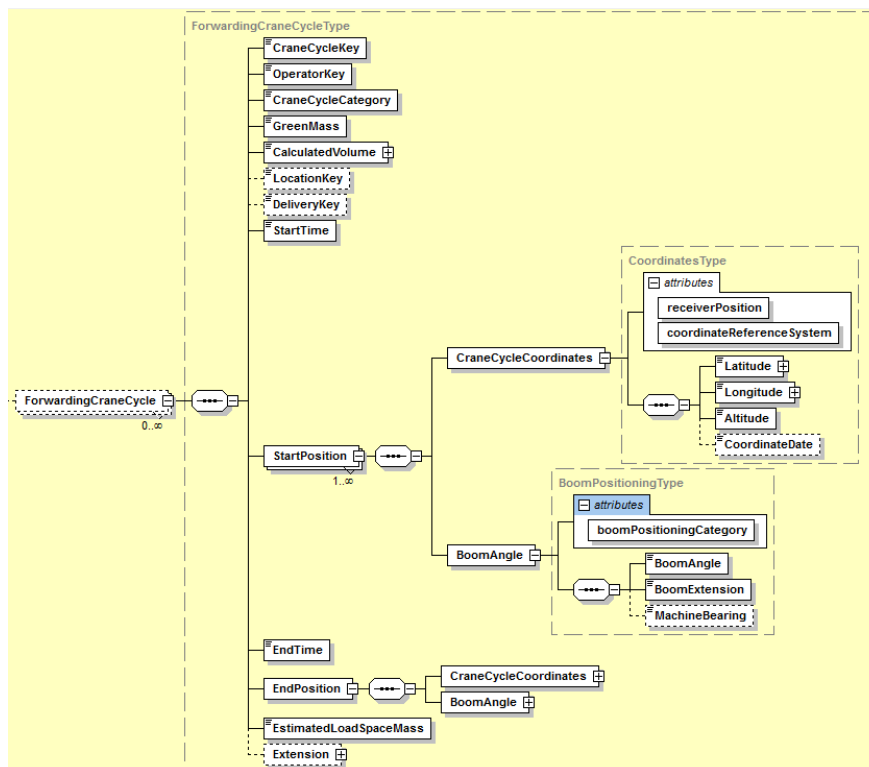
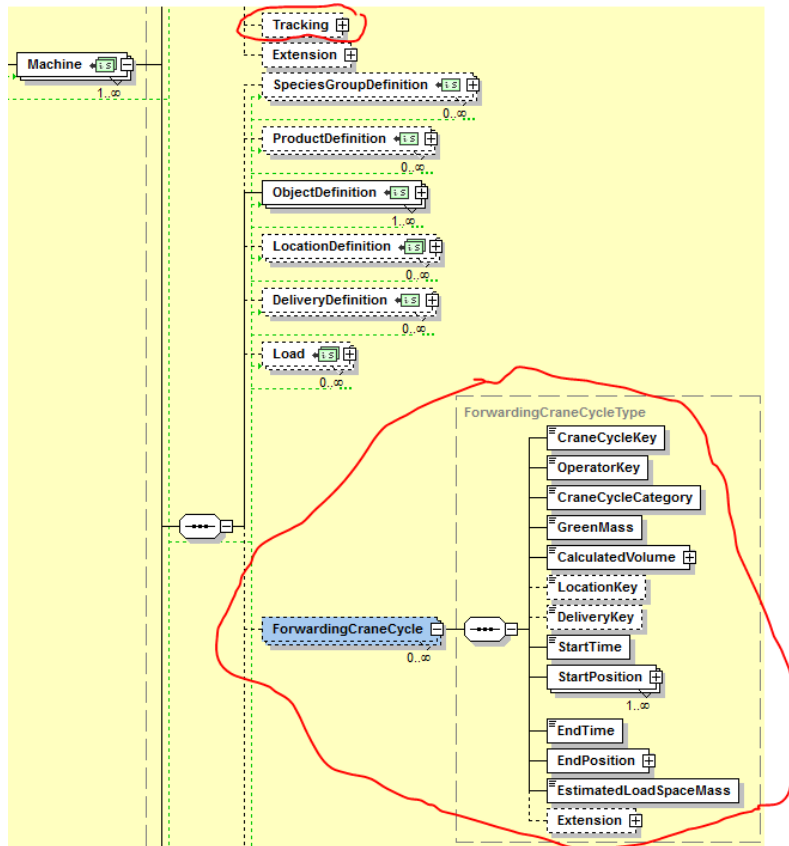


The new structure means that the mass, volume, coordinates, boom angle and time are possible to register for each crane cycle when loading, unloading and re-arranging logs (see figure below). Time, position and boom angle are to be registered both when starting and ending a crane cycle. Included in the structure is also the optional possibility to register location and delivery at unloading. Observe that these are optional and primarily suitable for unloading.

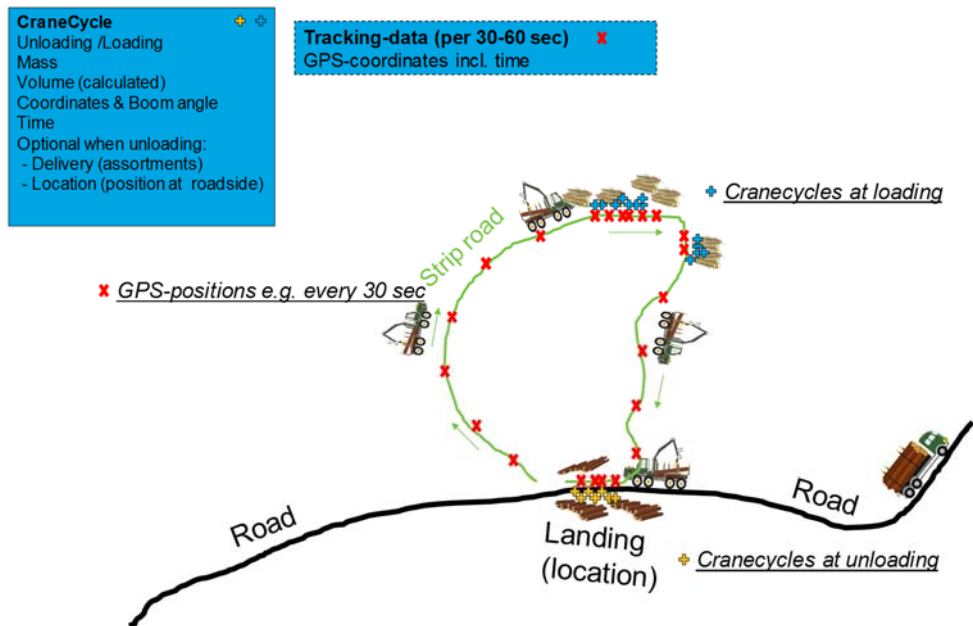


Since version 3.3 it is also possible to register tracking data in the form of coordinate points. The coordinates must be possible to register with a fixed time interval. The interest for including tracking data not only in forwarder production messages but also in operational monitoring and harvester production messages meant that this structure was included for all types of messages at the meeting 2016-11-23.

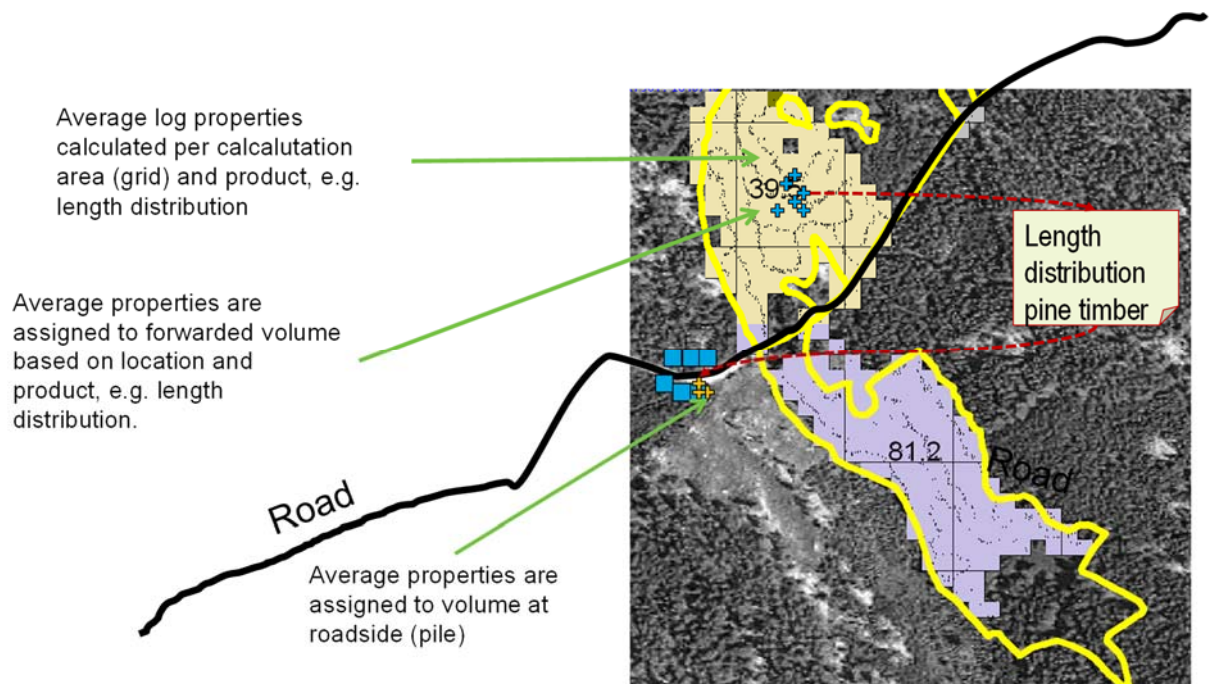
Below are two figures illustrating the suggested new structures added to the fpr schema:



Below is an example illustrating when data is registered during a “crane cycle”.



Example illustrating how the new detailed information can be used in order to calculate log properties for forwarded volumes:



Definition of crane cycle

A forwarding crane cycle can have one of the following categories:

- Loading
- Un-loading
- Re-arrange loadspace
- Re-arrange on ground

An important issue is how to define a crane cycle. When does it start and end. One possible solution is to base this on opening and closing of grapple or basing it on a change in grapple mass. It is today preliminary suggested that a combination of these machine indications are used. However, for logistical purposes this is not deemed to be a critical issue.

Proposals

It is suggested for the next meeting that we:

- Add a new "ForwardingCraneCycle" as an optional element to fpr- and mom-schemas. This means that no new schema is suggested. To be decided at the next meeting (2017-11-22).
- Add new boomPositioningCategory enumerations: ClosingGrapple and OpeningGrapple
- Add new recieverPosition enumerations: Grapple

New elements

Table 2. New elements and attributes added to the fsp-schema in GrappleScaleLoad.

Name	Description	Unit	Type
CraneCycleKey	Machine specific identity per loaded grapple load. Must be totally unique for a certain MachineKey. Reset only when MachineKey is changed	Seq.no	Pos.integer
OperatorKey	Machine unique operator identity, set by machine	Seq.no	Pos.integer
CraneCycleCategory	Enumeration values defining the type of crane cycle. Allowed values are: "Loading", "Unloading", "Re-arrange loadspace", "Re-arrange on ground"	List	String
GreenMass	Green/raw mass (kg)	Kg	Pos. decimal
CalculatedVolume	Estimated volume of grapple load	m3	Pos. decimal
loadVolumeCategory	Enumeration values defining the actual content of the element. Allowed values are: "Volume, m3sob", "Volume, m3sub", "Loose volume, m3", "Solid volume including bark, branches and needles, m3", "Solid volume of bundles (length*cross sectional area), m3"	List	String
LocationKey	Machine specific identity per location definition. Set when new location definition is modified or created. Running number recommended, reset only when MachineKey is changed.	Seq.no	Pos.integer
DeliveryKey	Machine specific identity per delivery definition. Set when new delivery definition is modified or created. Running number recommended, reset only when MachineKey is changed.	Seq.no	Pos.integer
StartTime	Date and Time when crane cycle started. Time stamp must have the following times registered: local time $\pm$ offset from UTC.		DateTime
StartPosition	Structure for storing position at the start of a crane cycle		
CraneCycleCoordinates*	Coordinates when loading a grapple load		
BoomAngle*	Boom angle when loading a grapple load		
EndTime	Date and Time when crane cycle ended. Time stamp must have the following times registered: local time $\pm$ offset from UTC.		DateTime
EndPosition	Structure for storing position at the end of a crane cycle		
CraneCycleCoordinates*	Coordinates when loading a grapple load		
BoomAngle*	Boom angle when loading a grapple load		
EstimatedLoadSpaceMass	Automatically estimated load space mass after crane cycle. Primarily used in order to check if loadspace is empty (close to 0).	kg	Non-negative decimal

*Existing schema structures including a number of child elements.

MASSER
PRECISION

Diameter Position in different log measurement categories

StanForD2010

Antti Uurtamo 26.4.2017

Introduction

New regional demands in volume measurement accuracy are increased

- Harvester measurement $\pm 4 \%$
- Sawmill measurement $\pm 2 \%$
- Systematic errors are not allowed

In practice when harvester/sawmill measurements are compared and quality class limits must be fulfilled harvester accuracy must be $\pm 1 \%$ to achieve sawmill requirements (0 – +2%)

To fulfill new demands, common rules for measurement methods need to be defined.

StanForD2010 Standard – HQC file

Undefined rules and different understandings cause problems in harvester calibration

- Accuracy
- Volume calculation
- Use of analysis tools

Measurement data is defined to be saved to measurement system categories

- Machine
- Operator
- Auditor

StanForD2010 Standard – HQC file

Each system must write measurement data to its own category

- Positions where diameters were measured
- Diameters
- Lengths
- Volume

diameterPosition-element is used to connect diameter values measured by **Machine**, **Auditor** and **Operator**.

StanForD2010 Standard – HQC file

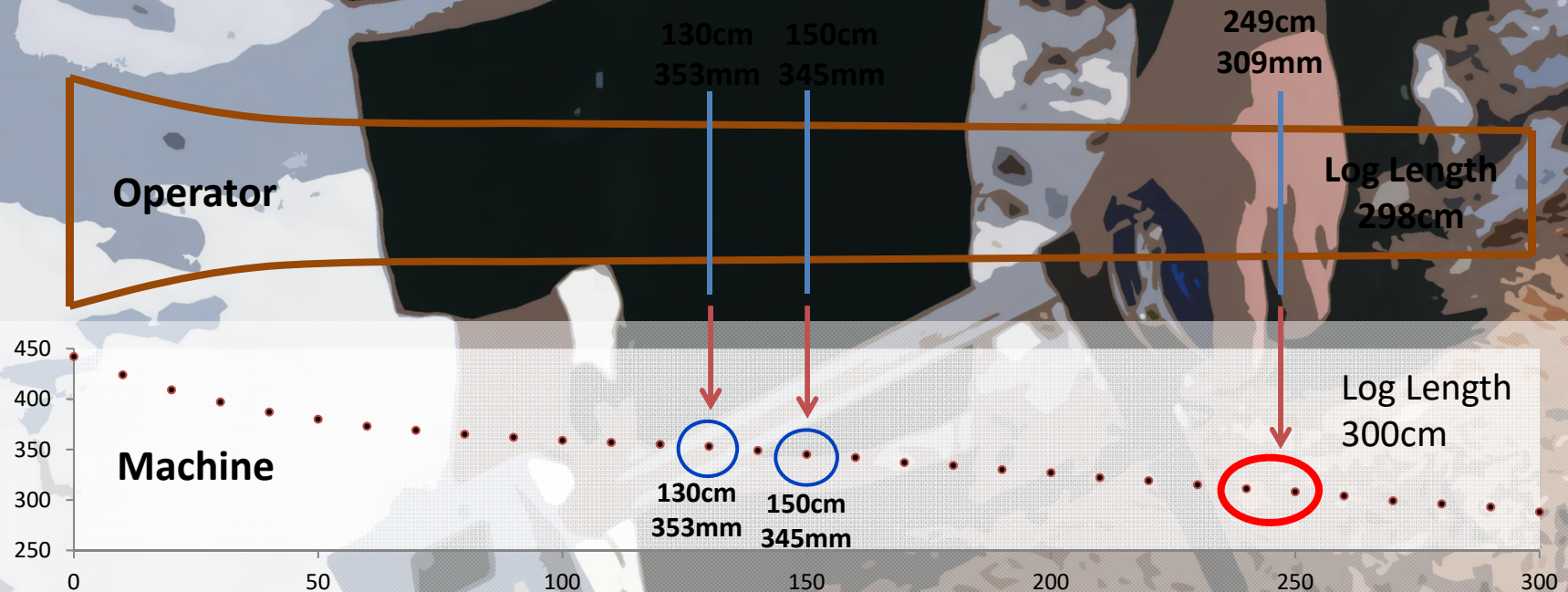
diameterPosition-element includes only one position and diameter value.

Position value **must be the same** for all categories

How to handle a different measurement positions?

diameterPosition chosen by the caliper

MASSER
PRECISION



```
<logMeasurementCategory="Operator">
  <LogLength>298</LogLength>
  <ControlLogDiameter diameterPosition="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="249">309</ControlLogDiameter>
  <LogVolume=">0,2848</LogVolume>
```

Machine diameter from
position 249 missing!

```
<logMeasurementCategory="Machine">
  <LogLength>300</LogLength>
  <ControlLogDiameter diameterPosition="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="249">??</ControlLogDiameter>
  <LogVolume=">0,286</LogVolume>
```

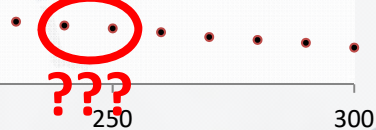
diameterPosition chosen by the caliper

MASSER
PRECISION

249cm
309mm

Log Length
298cm

Log Length
300cm



diameterPosition = 249

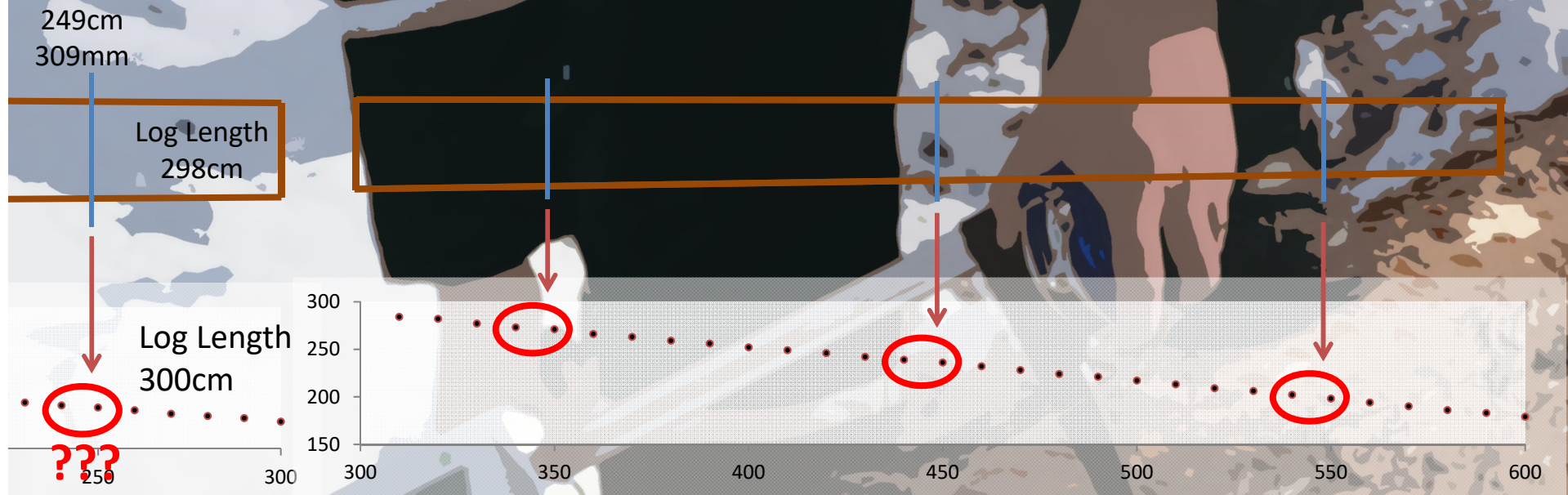
- How to select machine diameter?
- Auditor measurement data cannot be saved, if log length differs
- Volume calculation traceability for Machine and Auditor is lost because machine measurement data from position 250 cannot be found

```
<logMeasurementCategory="Operator">
  <LogLength>298</LogLength>
  <ControlLogDiameter diameterPosition="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="249">309</ControlLogDiameter>
  <LogVolume=">0,2848</LogVolume>
```

```
<logMeasurementCategory="Machine">
  <LogLength>300</LogLength>
  <ControlLogDiameter diameterPosition="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="249">??</ControlLogDiameter>
  <LogVolume=">0,286</LogVolume>
```

diameterPosition chosen by the caliper

MASSER
PRECISION



- Stem profile includes diameters in 10cm intervals
- If selected **diameterPosition** cannot be found from stem profile, same problem continues in the next positions

MASSER

PRECISION

249cm
309mm

Log Length
298cm

Log Length
300cm

240cm
311mm

250
308mm

200

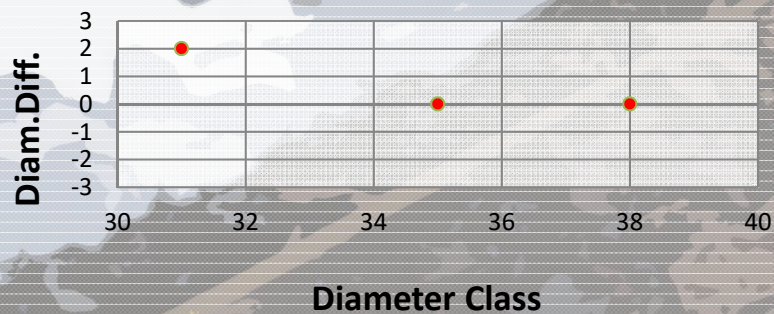
250

300

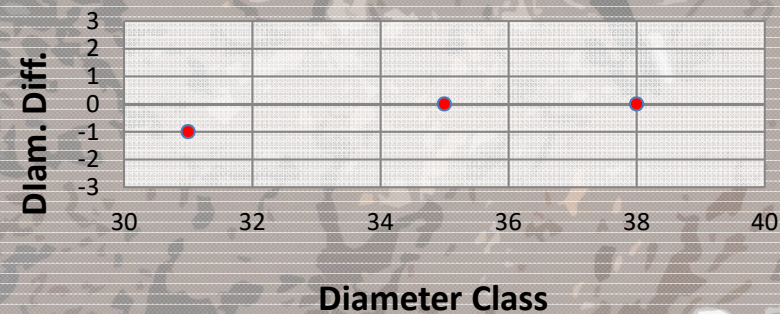
When nearest value is chosen

- Diameters from different positions are compared
- Harvester adjustment proposal gets distorted

Harvester Adjustment Proposal



Harvester Adjustment Proposal



StanForD2010 Standard – HQC file

- Standard provides two elements for diameter positions
 - **diameterPosition** = **Given** by the harvester. The Value **must be the same** for all categories (**Machine**, **Auditor**, **Operator**). Element is used to connect diameter values measured by **Machine**, **Auditor** and **Operator**.
 - **diameterPositionCaliper** = **Real position** where diameter was actually measured.

MASSER
PRECISION**Data given by Machine**

```
<logMeasurementCategory="Machine">  
  <LogLength>300</LogLength>  
  <ControlLogDiameter diameterPosition="130">353</ControlLogDiameter>  
  <ControlLogDiameter diameterPosition="150">345</ControlLogDiameter>  
  <ControlLogDiameter diameterPosition="250">308</ControlLogDiameter>  
  <LogVolume=>0,286</LogVolume>
```



MASSER

PRECISION

Data given by Machine

```
<logMeasurementCategory="Machine">
  <LogLength>300</LogLength>
  <ControlLogDiameter diameterPosition="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="250">308</ControlLogDiameter>
  <LogVolume>0,286</LogVolume>
```

Real data from measured positions

Different log length

Data from Operator

Positions used for connecting measured diameters

```
<logMeasurementCategory="Operator">
  <LogLength>298</LogLength>
  <ControlLogDiameter diameterPosition="130" diameterPositionCaliper="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150" diameterPositionCaliper="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="250" diameterPositionCaliper="249">309</ControlLogDiameter>
  <LogVolume>0,2848</LogVolume>
```

130cm
353mm

150cm
345mm

249cm
309mm

Log Length
298cm

MASSER

PRECISION

Data given by Machine

```
<logMeasurementCategory="Machine">
  <LogLength>300</LogLength>
  <ControlLogDiameter diameterPosition="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="250">308</ControlLogDiameter>
  <LogVolume=>0,286</LogVolume>
```

Real data from measured positions

Data from Operator

```
<logMeasurementCategory="Operator">
  <LogLength>298</LogLength>
  <ControlLogDiameter diameterPosition="130" diameterPositionCaliper="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150" diameterPositionCaliper="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="250" diameterPositionCaliper="249">309</ControlLogDiameter>
  <LogVolume=>0,2848</LogVolume>
```

Data from Auditor

```
<logMeasurementCategory="Auditor">
  <LogLength>296</LogLength>
  <ControlLogDiameter diameterPosition="130" diameterPositionCaliper="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150" diameterPositionCaliper="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="250" diameterPositionCaliper="248">309</ControlLogDiameter>
  <LogVolume=>0,2833</LogVolume>
```

When **diameterPosition** and **diameterPositionCaliper** elements are used

- Volume calculation method and values can be traced back
- Real Operator and Auditor data can be saved for different log lengths
- Harvester will have information if caliper diameters are measured from different position
 - Possibility to find correct diameter values for diameter comparison from harvester database

```

<logMeasurementCategory="Machine">
  <LogLength>300</LogLength>
  <ControlLogDiameter diameterPosition="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="250">308</ControlLogDiameter>
  <LogVolume=">0,286</LogVolume>
</logMeasurementCategory="Machine">

<logMeasurementCategory="Operator">
  <LogLength>298</LogLength>
  <ControlLogDiameter diameterPosition="130" diameterPositionCaliper="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150" diameterPositionCaliper="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="250" diameterPositionCaliper="249">309</ControlLogDiameter>
  <LogVolume=">0,2848</LogVolume>
</logMeasurementCategory="Operator">

<logMeasurementCategory="Auditor">
  <LogLength>296</LogLength>
  <ControlLogDiameter diameterPosition="130" diameterPositionCaliper="130">353</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="150" diameterPositionCaliper="150">345</ControlLogDiameter>
  <ControlLogDiameter diameterPosition="250" diameterPositionCaliper="248">309</ControlLogDiameter>
  <LogVolume=">0,2833</LogVolume>
</logMeasurementCategory="Auditor">

```

Conclusion

- Common rules must be defined
 - Harvester gives measured data in Machine elements
 - Caliper saves measured data to Caliper elements
 - When operator selected diameters are measured, caliper creates new elements to each category