

Minutes StanForD2010

2014-11-20

Place:	Phone meeting, 10:00-16:00 CET
Participants:	Tapio Räsänen, Metsäteho Timo Melkas, Metsäteho Lars Henriksson, SDC Andreas Barth, CGI Mikael Eliasson, LogMax David Zackrisson, LogMax Jonas Gustafsson, John Deere Antti Korkiakoski, John Deere Torleif Carlsson, Storaenso Karin Ågren, Skogforsk Niclas Eriksson, Komatsu Forest (phone) Fredrik Tjernberg, Komatsu Forest (phone) Jonas Thorsson, Dasa (phone) Jean Plamondon FP Innovations (phone) Pasi Palonen, Parker (phone) Teemu Paldanius, Ponsse (phone) Urban Folkesson, Ponsse (phone) John Arlinger, Secretary Johan J. Möller, Chairman

§ 1 Opening of meeting

Johan J Möller opened the meeting.

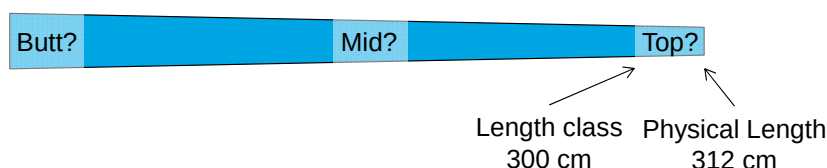
§ 2 Agenda

The agenda was accepted by the meeting.

§ 3 Information about decisions after last meeting (minutes 2014-04-09)

CLARIFICATION OF LOGVOLUMECATEGORY

It is not uncommon in Sweden that you find apt-files where the price volume is “solid volume under bark” (var161_t1 = code 2) for saw logs and where the price length is set to “Length class” (var163_t1 = code 1). It was not known by Skogforsk how this kind of price volume is calculated in case of having a length margin or cutting window.



All manufacturers stated during the previous meeting that they all handle this situation by excluding the top part of log (above length class) from the registered “m3(price)-volume.” Skogforsks conclusion was therefore that nothing needs to be done regarding this issue.

It was decided at the previous meeting that the volume categories “m3sub” or “m3sob” must be based on the physical length of the log. This is to be specified in the annotation of LogVolumeCategory.

New annotation for logColumeCategory: *Enumeration list: m3 (price) = Volume according to VolumeLengthType, VolumeDiamType and VolumeDiamAdjust (Old log code 400), m3sob = Volume m3sob. (Old log code 401, v256), m3sub = Volume m3sub. (Old log code 402).* Categories m3sub or m3sob must be based on the physical length of the log. Top end of log is excluded in case category m3(price) is based on VolumeLengthType = "Length as defined in LengthClasses" and VolumeDiameterCategory = "All diameters".

STEM WITH VERY SHORT LOG

Before the previous meeting (2014-04-09) Skogforsk discussed with one manufacturer how to handle two “fell cuts” where perhaps only a very thin disc was cut (7 cm)? Is this to be considered as a felled stem or a processed stem? Are there any circumstances where some kind of log has been cut from a stem but the stem is still considered to be a felled stem rather than a processed stem?

Skogforsk sent out a questionnaire after last meeting to all manufacturers regarding this issue. The following table is a summary of the answers received before 2014-06-23:

	Definition SingleTreeProcessing	Definition SingleTreeFelling
Dasa	Two requirements must be fulfilled:	SingleTreeFelld stems are never registered today.

	Definition SingleTreeProcessing	Definition SingleTreeFelling
	1. System must have measured a classified log (must be possible to cut a classified log, the stem must have been fed through the head up to min length from fell cut). 2. At least one log longer than 10 cm must have been cut.	
Komatsu	Must have a log at least 11 cm long (default). The setting might be in the interval 0-30 cm (iii). It is possible to override the product information contained in the pricelist by some machine settings. Zero's (default) means that product information is interpreted strictly as in pricelist. A log must be cut above minimum length where diameter is larger than minimum diameter (eg 50 mm). The minimum diameter and length can be manually set to override bucking instruction.	No particular requirement on stem. (Operator has to choose tree species and fell cut must be done).
LogMax	Must have a log that is ≥ 10 cm long. The measured diameter must be larger than the minimum diameter for any product at its shortest length (stem must have been fed through the head up to min length from fell cut).	Must have done a fell cut. No other filtering done.
Parker	A single tree processed stem is started at the cut of the first classified (allowed) product. There is no length or diameter limit for this, eg. Min length 30 cm with min diameter 10 mm is possible, and after cutting such a piece a SingleTreeProcessed stem is started.	No classified pieces are cut from the stem. Operator can cut as long pieces as he wants, but if e.g. the diameter is too small, the stem is not registered as processed since there are no products made from the stem.
Ponsse	Must have at least one classified log. Classification of logs depends on the system setting. In Sweden shorter logs than min length of the assortment length class are unclassified. In Finland the limit is usually 150cm and logs longer than that are registered to the closest class (and below 150cm to unclassified).	MTH 'mode' must be "on". A stem will be registered as SingleTreeFelled If it is picked up in the harvester head and there is no classified logs registered. In the other words, if only one stem is felled and the conditions of single tree processed stem are not fulfilled the stem is registered as a single tree felled stem.
John-Deere	The log's length must be reach the minimum length of the length class AND the diameter must be more than then minimum top diameter •If the combined length of all logs reach the minimum length class => registered as SingleTreeProcessed Otherwise: •Normal mode (no MTH): Nothing is registered	SingleTreeFelled is described as energy wood •Multitreehandled enabled, take one tree to harvester head, make a cut, open harvester head •The definition of the SingleTree-Processed stem must not be fulfilled

Skogforsk conclusion is that this issue is handle in a similar way by all manufacturers and that we therefore will not recommend any major modifications to the manufacturers. The only strong recommendation is that it would be an advantage if all manufacturers supports registration of Single- and MultiTreeFelled stems.

§ 4 Bark functions

Anders Nylund, Komatsu proposed a new Lithuanian bark function before last meeting.

The Lithuanian functions were developed in 2007/08 (Petrauskas E., Rupšys P., Memgaudas R., Bosas G. Bark thickness variability models for prevailing tee species of Lithuania). In the study bark thickness was measured every second

meter on 2384 stems. Logistic type models for approximating bark thickness relationship with diameter of measurement place and distance of measurement place from stump were developed for use in harvesters.

The suggested equations used for calculating bark thickness of several different species are described below.

Z_{sx2} = double bark thickness, mm

D_{sz} = diameter on bark, cm

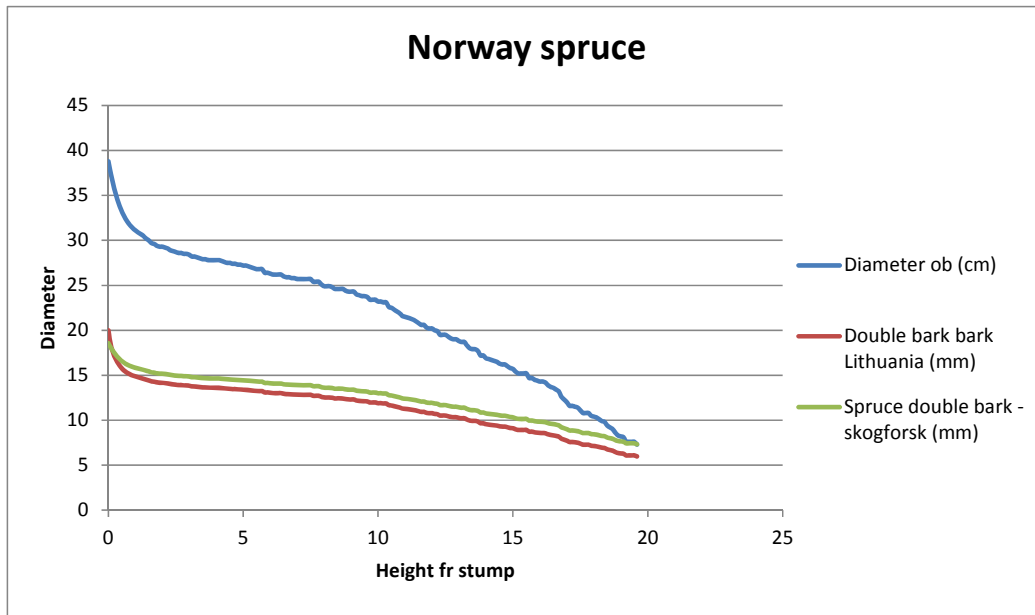
H = measurement place (distance from the stump cross section), m

$$Z_{sx2} = a + bD_{sz}$$

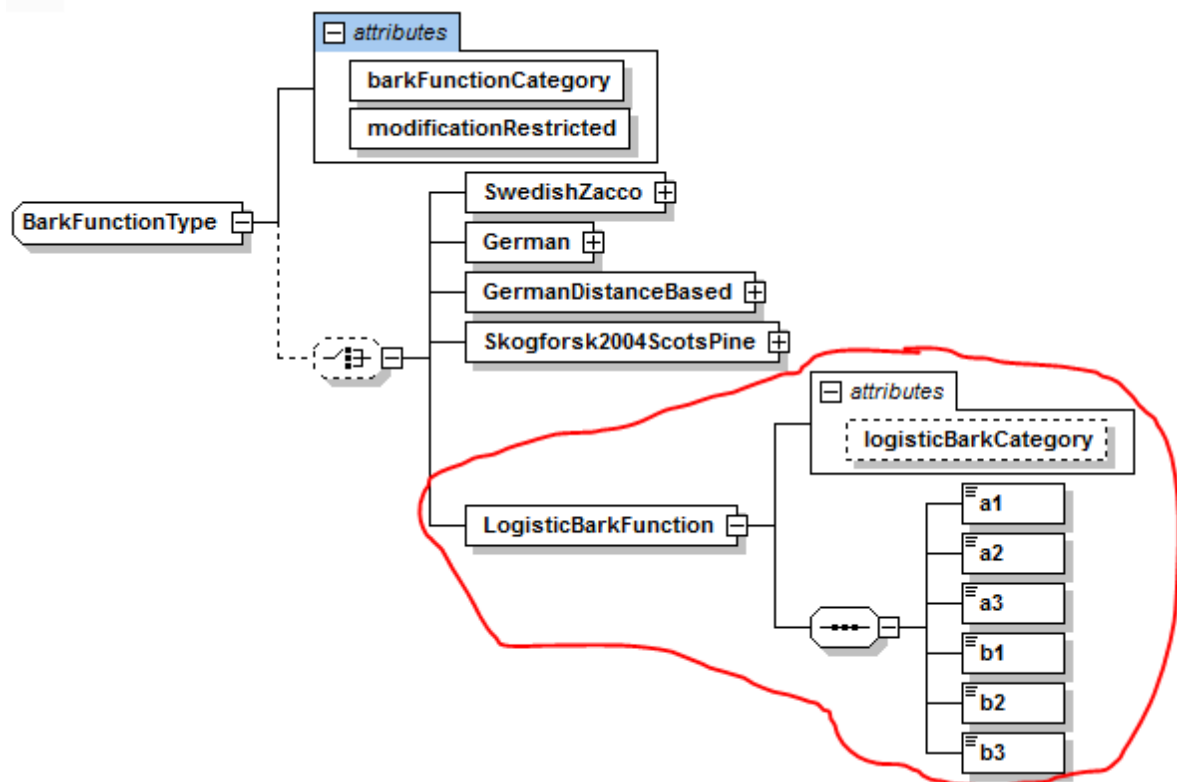
$$a = \frac{a_3}{1 + \left(\frac{a_3}{a_1} - 1\right)e^{(-a_2H)}}$$

$$b = \frac{b_3}{1 + \left(\frac{b_3}{b_1} - 1\right)e^{(-b_2H)}}$$





Adding a new structure to the spi-file, as illustrated below, in order to make it possible to register the required parameters would, from a standard perspective, be quite simple. Observe that the naming of the new elements probably should be discussed. It has been noted that having country specific naming of the different bark functions is probably not a good idea.



At the meeting in April (2014-04-09) all manufacturers expressed that they would prefer to find a more general solution that is independent of what type of equation is used. This means that we would not be forced to update the standard each time there are new requirements on a specific market. No manufacturer expressed that they would have any significant problems in using a table for registering double bark thickness.

PRESENT FUNCTIONS

There are presently five different bark-functions included in the standard. The different functions are based on different independent variables (parameters) as described in table below:

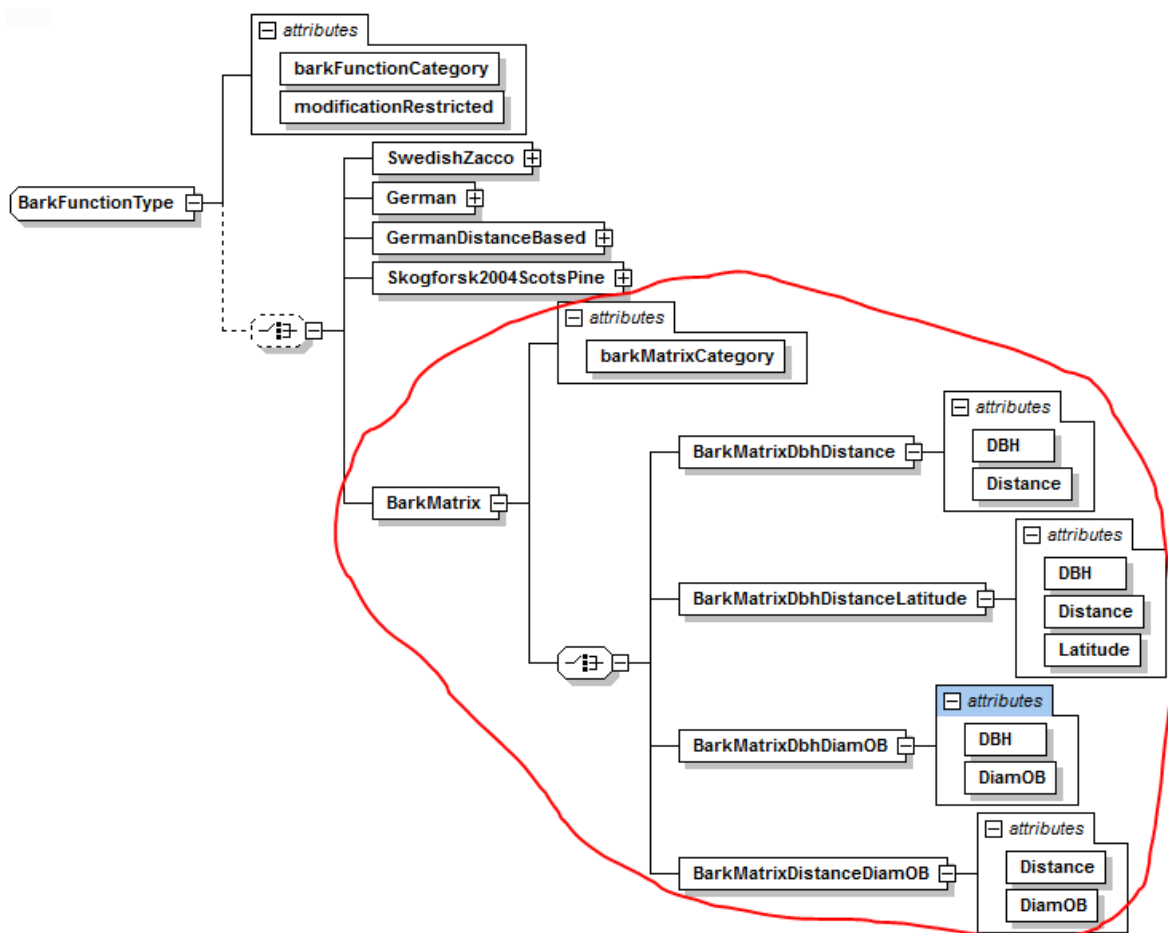
Category	Parameters
Zacco	$Db=f(\text{diam ob})$
German	$Db=f(\text{diam ob})$
GermanDistanceBased	$Db=f(\text{dbh}, h)$
Skogforsk pine	$Db=f(\text{dbh}, h, \text{lat})$
Skogforsk spruce	$Db=f(\text{dbh}, \text{diam ob})$
<u>New Lithuanian*</u>	<u>$Db=f(\text{diam ob}, h)$</u>

*Presently not included in StanForD

The only function today dependent on more than two parameters is the Swedish function for Scots pine which is dependent on dbh, h, lat. All other functions are only dependent on one or two parameters, diam_ob, dbh or h.

NEW POSSIBLE SOLUTION BASED ON A MATRIX

A possible new structure for registering bark matrixes could be added according to the figure below:



A bark thickness matrix will most certainly be of significant size. There might be as many as 6 000 000 values included in case one diameter class per mm (0-1000 mm) and one length class per cm (0-6000 cm) is deemed necessary. The number of values would of cause decrease if we used the diameter unit cm and length unit dm. However, this probably would mean that some kind of interpolation method must be defined and implemented in order to avoid threshold effects.

A new table for bark deductions could be included in version 3.1 but the older bark functions cannot be excluded until version 4.0.

Interpolation method

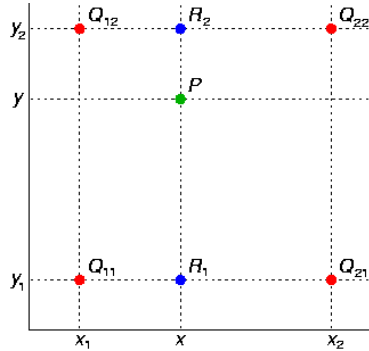
Below is a very simple bark thickness matrix:

Distance / DBH	52 dm	53 dm
19 cm	19,5 mm	18,9 mm
20 cm	19,9 mm	19,2 mm

The question is how to calculate bark thickness if DBH is 194 mm and position from stump is 526 cm?

A possible solution could be to specify that a bilinear interpolation should always be used. This interpolation is based on two steps as described below:

1. Perform linear interpolation first in one direction, calculating R1
2. Perform a second linear interpolation in the same direction, calculating R2
3. Finally calculate P (in the other direction)



Although each step is linear in the sampled values and in the position, the interpolation as a whole is not linear but rather quadratic in the sample location.

Code example bilinear interpolation

1. $b_1 := (Q_{21} - Q_{11}) / (X_2 - X_1);$
 $a_1 := Q_{21} - b_1 * X_2;$
 $R_1 := a_1 + b_1 * X;$
2. $b_2 := (Q_{22} - Q_{12}) / (X_2 - X_1);$
 $a_2 := Q_{22} - b_2 * X_2;$
 $R_2 := a_2 + b_2 * X;$
3. $b_3 := (R_2 - R_1) / (Y_2 - Y_1);$
 $a_3 := R_2 - b_3 * Y_2;$
 $P := a_3 + b_3 * Y;$
4. $Db/B = P * \epsilon * Lat$ (including possible latitude adjustment)

Examples

Matrix based on Zacco could be very small in size:

Diam pb	10 mm	10000 mm
Spruce	19,5 mm	18,9 mm

Matrix based on Skogforsk pine would have to be significantly larger:

Height/ DBH	0 dm	1 dm	3 dm	5 dm	10 dm	15 dm	20 dm	30 dm	40 dm	50 dm	60 dm	100 dm
0 cm												
5 cm												
10 cm												
15 cm												

20 cm								19,5	18,9			
25 cm								19,9	19,2			
30 cm												
50 cm												

Meeting conclusions

There was a long discussion regarding this issue at the meeting.

No participant at the meeting presented any strong arguments against the proposal of implementing a new BarkMatrix. However, it was decided that each manufacturer (including CGI and SDC) must analyse the proposal with emphasis on the interpolation method until the phone meeting in February. Is it possible to implement the bilinear interpolation from technical perspective?

It was decided that the final decision regarding new bark function must be decided at the meeting in November 2015.

It was also decided that Skogforsk will:

- Discuss the proposal with Haglöf
- Compare logistic function with Swedish bark data
Possibly exclude some old types of function (Zacco & Skogforsk Spruce)
- Create bark matrixes that the manufacturers can test

Comments added by secretary after meeting

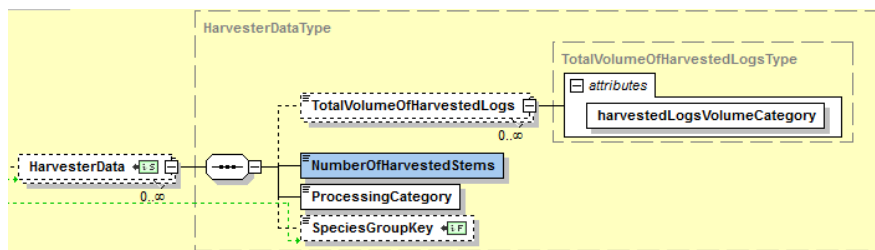
John Arlinger discussed the issue of using matrix-interpolation vs. functions with Joakim Nygren, Haglöf, after the meeting. Presently only the older German bark function has been implemented by Joakim. However, Haglöf has probably implemented more than 100 different volume calculations. Joakim stated that he always tries to avoid implementing volume tables (matrixes) due to the fact that they are more complex to implement. Volume functions are usually dependent on more than two parameters which means the matrixes themselves will often be three or four dimensional (compare with “Skogforsk Scots pine 2004”). Haglöf’s callipers also have a limited amount of processing and memory capacity.

§ 5 Extending harvester data in mom

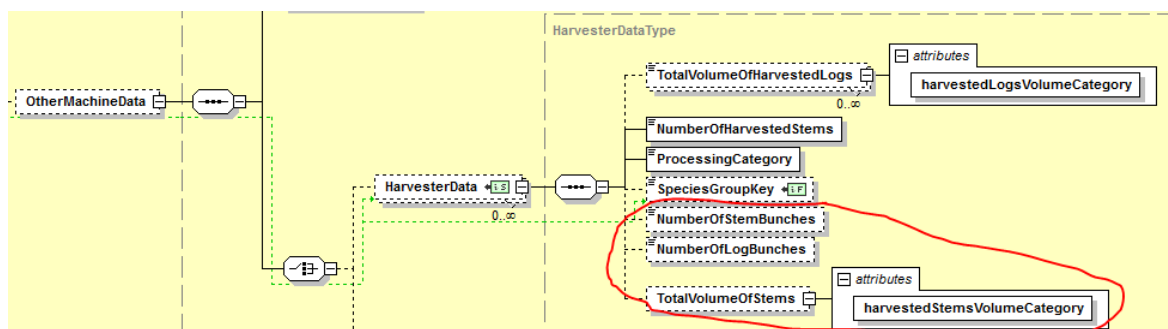
EXTENDING HARVESTER DATA IN MOM

Suggestions from Per Knutsson, CGI (2014-08-29)

Present structure for storing harvester data in mom-file:



It is today not possible to register the number of stem and log bunches in case of MultiTreeProcessing or Felling. The same is true for the total volume in case of MultiTreeFelling or SingleTreeFelling. It was thus suggested that we add new optional elements NumberOfStemBunches, NumberOfLogBunches, TotalVolumeOfStems under HarvesterData as illustrated below:



Prior to the meeting Niclas Eriksson (Komatsu) had commented that Komatsu had implemented TotalVolumeOfHarvestedLogs so that it is used for all volumes, also including Multi- and SingleTreeFelled stems. He also pointed out that no data is included regarding number of logs presently, therefore he did not see any point in including log bunches.

Based on Niclas comments it was decided that we clarify how to use TotalVolumeOfHarvestedLogs with the following new annotation:

Total solid volume (including unclassified volumes). Also to be used in case of Multi- and SingleTreeFelled stems even though no logs have been cut.

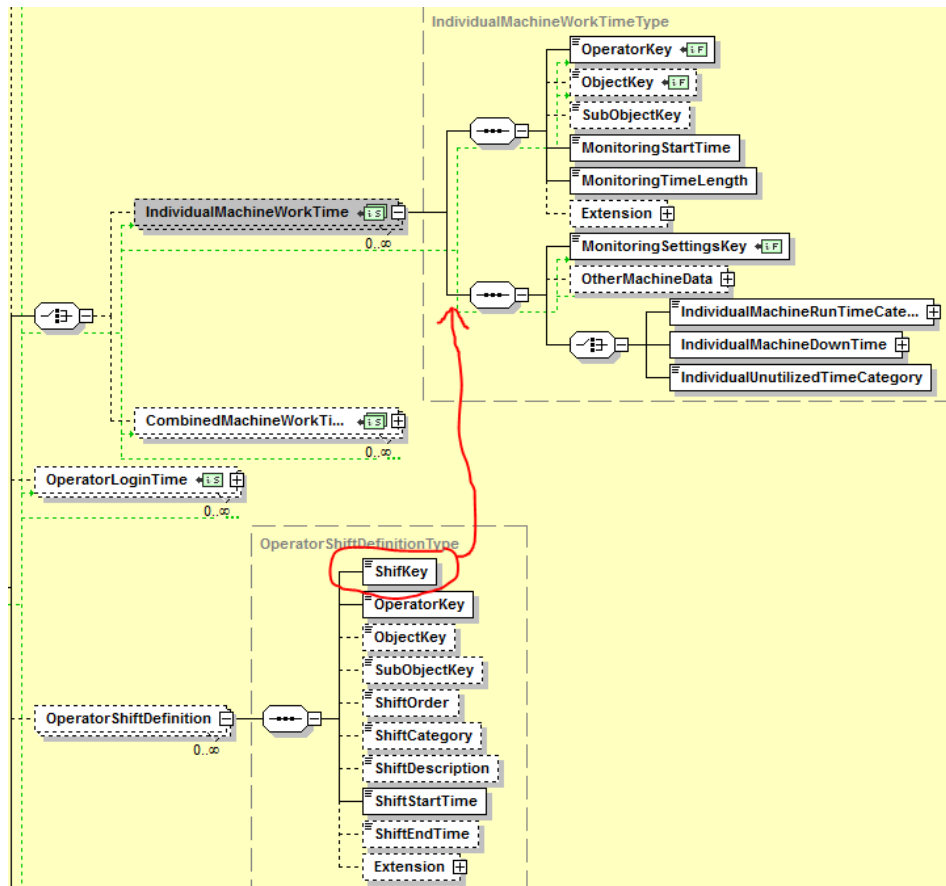
It was also decided not to include any new elements NumberOfStemBunches, NumberOfLogBunches, TotalVolumeOfStems under HarvesterData.

The proposal for a new element NumberOfStemBunches could be discussed again if deemed necessary by Per Knutsson and Torleif Carlsson.

MONITORING DATA PER SHIFT

Suggestions from Per Knutsson, CGI (2014-08-29)

In order to simplify analyses per shift it was decided that we add optional element ShiftKey to both Individual- and Combined-MachineWorkTime.



SHORT DOWN TIMES AND E0-TIMES IN MOM FILE

Proposal based on suggestions from Niclas Eriksson, Komatsu, 2014-05-16 as well as suggestions from Per Knutsson, CGI and Niclas Eriksson, Komatsu, 2014-10-09.

StoraEnso (2014-10-09) discovered that it is, in some cases, difficult to calculate E0 work times.

In the old standard codes 20-24 in var316_t3 allowed us to register E0 times for Processing, TerrainTravel, Other work, Road travel and Loading of trucks.

Calculating E0 times in StanForD2010 is possible but complex in case of using **IndividualMachineWorkTimes** and **IndividualShortDownTimes** while it is more or less impossible when **CombinedMachineWorkTimes** and **FrequencyShortDownTimes**. The proposals below will make it possible to register E0 work times as well as improving the possibilities to use **FrequencyShortDownTimes**.

It was suggested that three new enumerations are added to the **MachineRunTimeCategory** as described below (new enumerations are underlined):

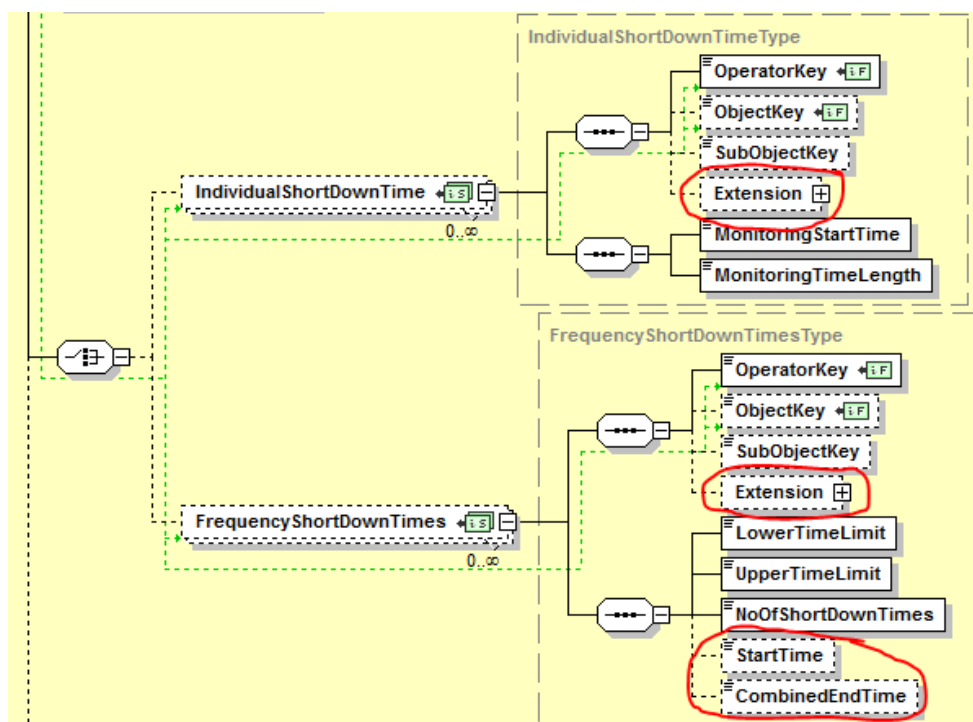
```

<xsd:simpleType name="MachineRunTimeCategoryListType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Processing"/>
    <xsd:enumeration value="Terrain travel"/>
    <xsd:enumeration value="Other work"/>
    <xsd:enumeration value="Processing E0"/>
    <xsd:enumeration value="Terrain travel E0"/>
    <xsd:enumeration value="Other work E0"/>
  </xsd:restriction>
</xsd:simpleType>

```

The meeting decided to not implement the new enumerations since it is possible to calculate this information in cases where IndividualMachineWorkTimes and IndividualShortDownTimes are used. This means that it is primarily an issue for Komatsu to handle based on how they are using CombinedMachineWorkTimes and FrequencyShortDownTimes.

In order to improve registration of short down times it was decided that an Extension-element is added to both IndividualShortDownTimes and FrequencyShortDownTimes as illustrated in figure below. It was also decided that StartTime and CombinedEndTime are added to FrequencyShortDownTimes.



IMPLEMENTATION OF SHIFTDEFINITION

Torleif Carlsson, StoraEnso and Per Knutsson has discovered some problems with the shift definition (2014-09-05).

There are significant variations in the implementation of OperatorShiftDefinition between different manufacturers. Below are some different “errors” found in mom-files sent to Stora Enso:

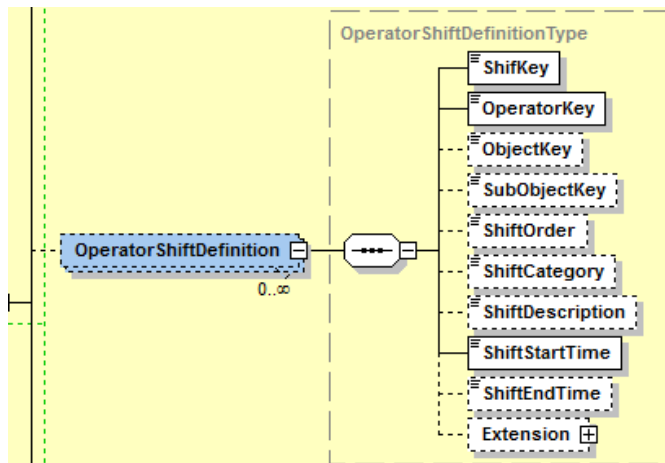
- Not implemented at all
- ShiftStartTime implemented but not ShiftEndTime

```
<OperatorShiftDefinition>
  <ShiftKey>59</ShiftKey>
  <OperatorKey>3</OperatorKey>
  <ShiftCategory>Not defined</ShiftCategory>
  <ShiftStartTime>2014-04-29T08:57:51.828+01:00</ShiftStartTime>
</OperatorShiftDefinition>
<OperatorShiftDefinition>
  <ShiftKey>60</ShiftKey>
  <OperatorKey>6</OperatorKey>
  <ShiftCategory>Not defined</ShiftCategory>
  <ShiftStartTime>2014-04-29T12:56:36.859+01:00</ShiftStartTime>
</OperatorShiftDefinition>
<OperatorShiftDefinition>
  <ShiftKey>61</ShiftKey>
  <OperatorKey>3</OperatorKey>
  <ShiftCategory>Not defined</ShiftCategory>
  <ShiftStartTime>2014-04-29T14:13:53.656+01:00</ShiftStartTime>
</OperatorShiftDefinition>
<OperatorShiftDefinition>
  <ShiftKey>62</ShiftKey>
  <OperatorKey>6</OperatorKey>
  <ShiftCategory>Not defined</ShiftCategory>
  <ShiftStartTime>2014-04-30T03:45:48.593+01:00</ShiftStartTime>
```

- ShiftStartTime with date “0000-01-01”

```
<OperatorShiftDefinition>
  <ShiftKey>912</ShiftKey>
  <OperatorKey>3</OperatorKey>
  <ShiftCategory>Not defined</ShiftCategory>
  <ShiftStartTime>0001-01-01T00:00:00+01:00</ShiftStartTime>
</OperatorShiftDefinition>
```

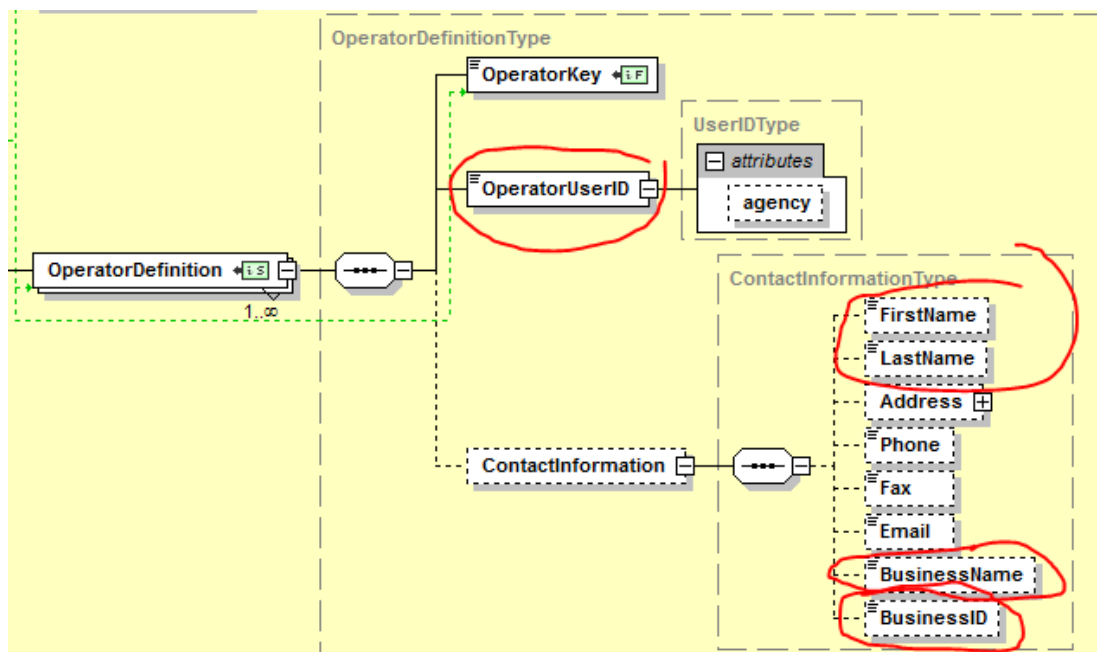
It is strongly recommended that all manufacturers implement the OperatorShiftDefinition including at least ShiftStartTime and ShiftEndTime according to the following figure:



PROBLEMS WITH OPERATORDEFINITION

Torleif Carlsson, StoraEnso has discovered some problems with the operator definition (2014-09-05).

The implementation of OperatorDefinition and the element OperatorUserID varies a lot between different manufacturers. It is therefore highly recommended that everyone open up the possibility in all control systems to manually register at least FirstName, LastName, BusinessID, BusinessName.



Since OperatorUserID is or will be used internally by most manufacturers this element may be created by the control system (not manually set by operator). It is

suggested that BusinessID is to be used for identifying a specific operator using e.g. employee number or personal id number.

New annotation for OperatorUserID suggested with minutes:

Identity of operator defined by user of data, set in-by machine in order to avoid duplicate operators. Employee number or other personal id to be registered in BusinessID.

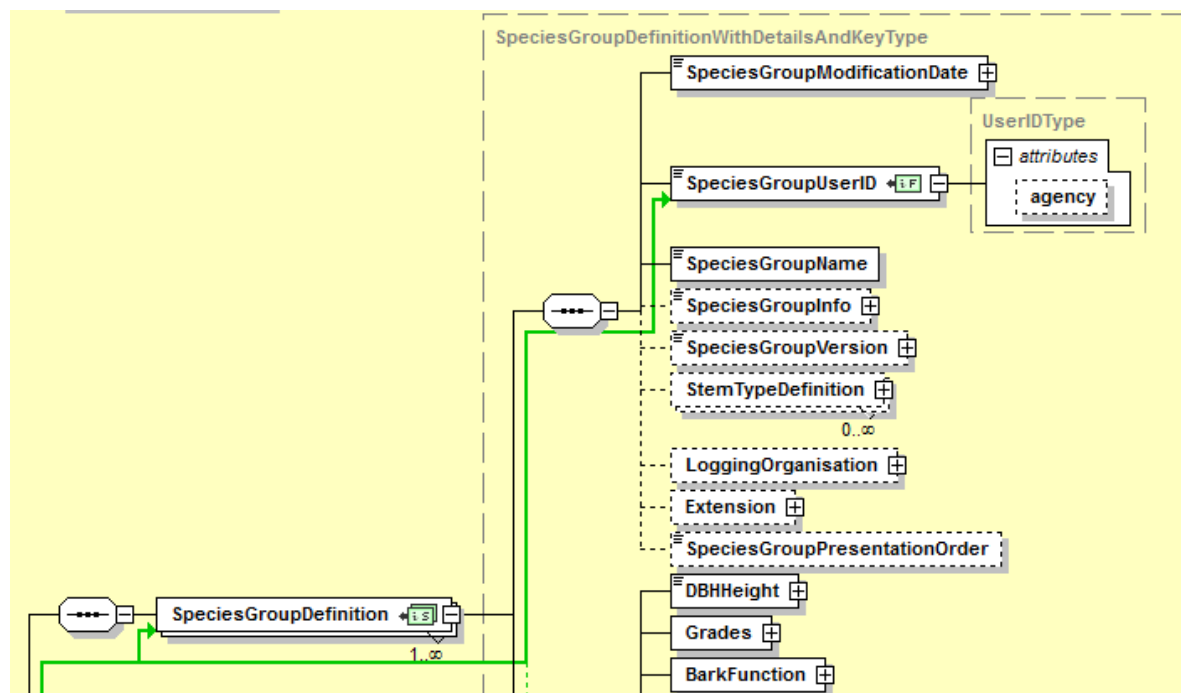
New annotation for OperatorDefinition.ContactInformation suggested with minutes:

Operator name and other possible contact information. GUI name for element BusinessName should be Employer and element BusinessID should be "Employee id".

§ 6 SpeciesGroupUserID in hqc

Jonas Thorsson, Dasa 2014-06-03

SpeciesGroupUserID in ControlValues.SpeciesGroupDefinition has a constraint which means that this UserID must be unique.



This is most certainly a mistake that should be corrected in order to get the same behaviour as in the hpr-schema. It was thus decided that this constraint is to be deleted.

§ 7 XML namespaces in Extension's child elements

Antti Yli-Fossi, John Deere 2014-07-07

JohnDeere has developed a feature that will use the <Extension> element of product and object. Since the custom elements are really not part of urn:skogforsk:stanford2010 schema it is not a perfect solution to place the elements in that namespace although it makes to document seem tidy. One solution could be to use a new namespace to place them in, or have them be in no namespace at all. Do you have any thoughts or does the standard recommend anything regarding this?

A possible new namespace could be 'xmlns="http://www.deere.fi/xml/forestry"'. The URL does not have to resolve, all it has to do is be unlikely for other organizations to choose. In my opinion other manufacturers etc. should follow suit, or we might have element name clashes sooner or later.

Juha-Antti found the solution with manufacturer specific namespace fine. At dawn of StanForD 2010 an Extension-element was designed as flexible as possible. The detailed documentation of the extension element can be found from the page 35 of "StanForD 2010 – Naming and design rules" –document. It was decided that we add a new rule into "StanForD 2010 – Rules" –document whereby the use of organization specific namespace for everything that is included in extension structures is strongly recommended:

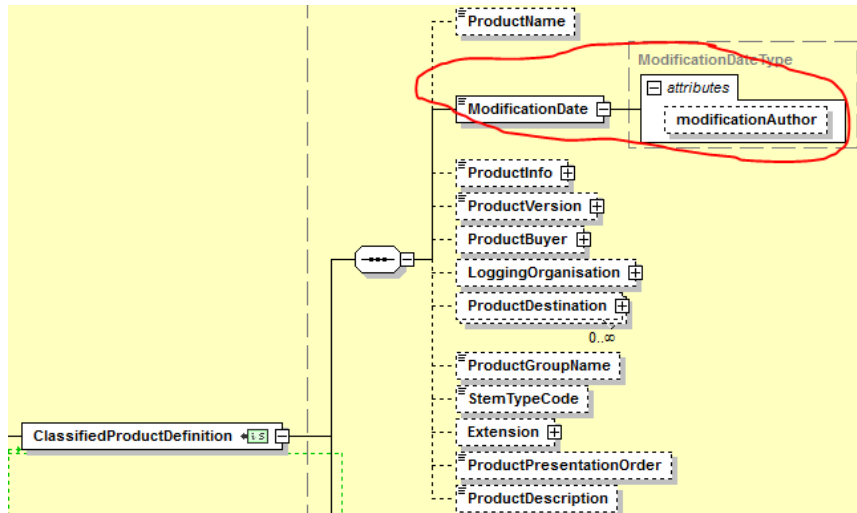
Rule#	Rule	Description/Reason	Related messages	Date
R2.5?	<i>Organizations SHOULD use organization specific namespace for everything that is included in extension structures.</i>	In StanForD 2010 an Extension-element was designed as flexible as possible. The detailed documentation of the extension element can be found from the chapter 10 of "StanForD 2010 – Naming and design rules" –document. However there is slightly possibility that element and attribute names inside extension element may clashes between StanForD 2010 messages of different organizations. Therefore we should use organization specific namespaces to distinguish names between them. Namespace should be chosen so that we can be sure that other organizations don't use that name. Good candidate for namespace is derived from the domain name of organization.	All	20.11. 2014

§ 8 ModificationDate in ProductDefinition

Each product must have an element ModificationDate with the following definition:

Date and time when product definition was last modified. ProductKey updated if modified in machine. Not to be updated if ProductKey is updated only because SpeciesGroupDefinition was

modified and new SpeciesGroupKey was updated. Time stamp must have the following times registered: local time $\pm$ offset from UTC.



ADMINISTRATING PIN- AND SPI-FILES

Open and read product instruction (pin) or species group instruction (spi). Do the following checks for all products in a new pin-file:

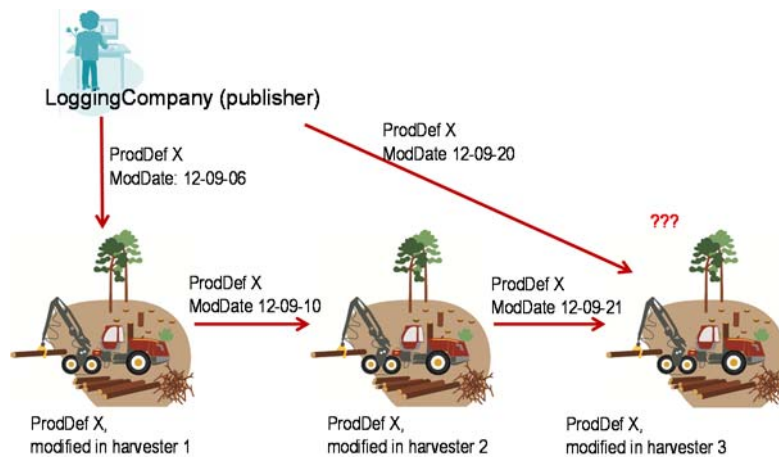
- 1) Check if new UserId is unique.
 - a) Add to product database if unique and set new unique Key
 - b) Available = true
- 2) Check if UserId and ModificationDate already exist.
 - a) Do not add to product database
- 3) Check if UserId with different ModificationDate exist.

Ask user whether new product should replace old product.
If answer is OK then add new Product, set new Key

 - a) Available = true for new Product
 - b) Available = false for old Product

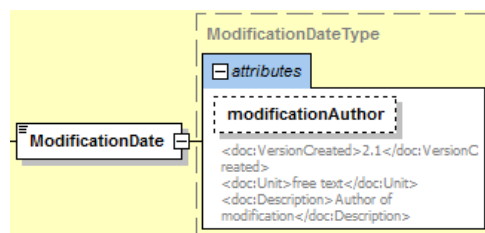
ModificationDate must always be updated if any modifications to ProductDefinition are carried out. No automatic update of *ProductDefinition* at ongoing site should be implemented; operator must have possibility to deny an updated product.

The structures mean that a ProductDefinition could be sent to a harvester and then modified in that harvester or another harvester several times. This case could be described in the following figure:



The only thing stated clearly is that if both ProductUserID and ModificationDate are the same there is no need at all for updating the “product database” in the harvester. The operator must always have the final decision when one product in the “database” is to be replaced even if the product in the machine is younger than the new one sent to the machine.

By using an optional free text attribute (ModificationAuthor), where it is stated who did the last modification, it is possible to inform the operator not only about when the product was last modified but also the author of these changes.



The operator could for example get the following question when importing a new product definition:

"Do you want to replace present product "Pine small sized timber" with product "Pine small sized timber"?"

The present version was modified by "Holmen skog" at 2012-09-20 12:15:02.

The imported version was modified by "MaxiXplorer 941.1" at 2012-09-21 09:27:39.

NEW SUGGESTIONS REGARDING USE OF MODIFICATIONDATE

When studying the present use of ModificationDate (spring of 2014) it has been noted that some products are very often updated immediately when taken into use in harvesters. This may be caused by several different reasons such as the operator adjusting the ColorMatrix, adjusting quality setting in order to manage different control buttons or changing the cutting window. These adjustments may in many cases not affect the bucking results at all.

The fact that ModificationDate is updated in the machine very often when it is received might be problematic if the logging organization always sends out all products to the harvester even if these products have already been sent out previously. This would be a very common situation if an env-file is generated for each individual harvesting object.

An idea raised by Jörgen was to implement a separate element ModificationDateMachine that is only to be used by the forest machine. ModificationDate would then only be used by the administrative system (meaning all systems except forest machines). This would make it simpler for machine system to determine if a product received from the logging organization really is a new product or not.

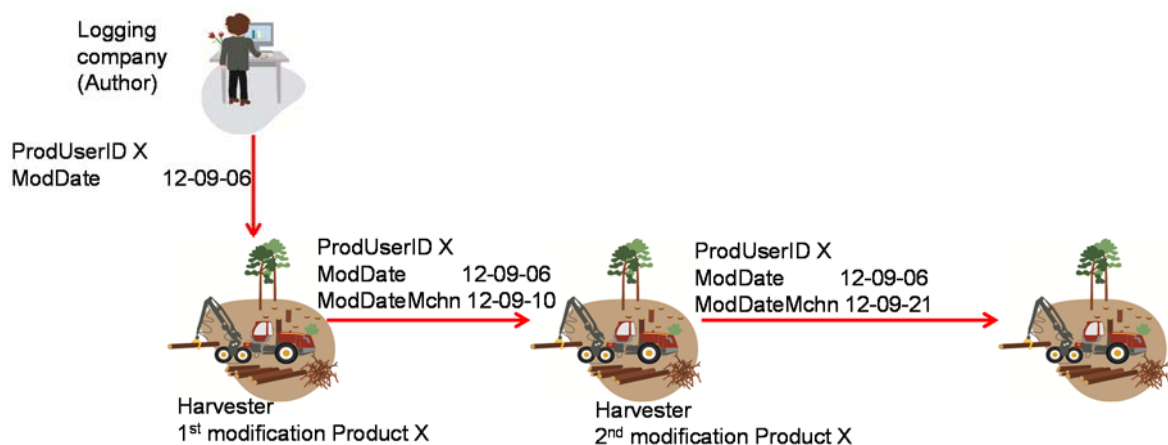
A consequence of this proposal would be that the definition of element ModificationDate has to be changed in order to point out that it is never to be updated in the machine if ModificationDateMachine is used. It means that ModificationDate is updated in administrative systems while only ModificationDateMachine is updated in the forest machine if anything is modified in the ProductDefinition.

These new elements, definitions and rules should apply also to Objects, SpeciesGroups, Locations, Destinations etc.

Attribute modificationAuthor was added with version 2.1 in order to include free-text information indicating whether a certain product (pin-file) came from an administrative system or if it had been modified in a machine (described above).

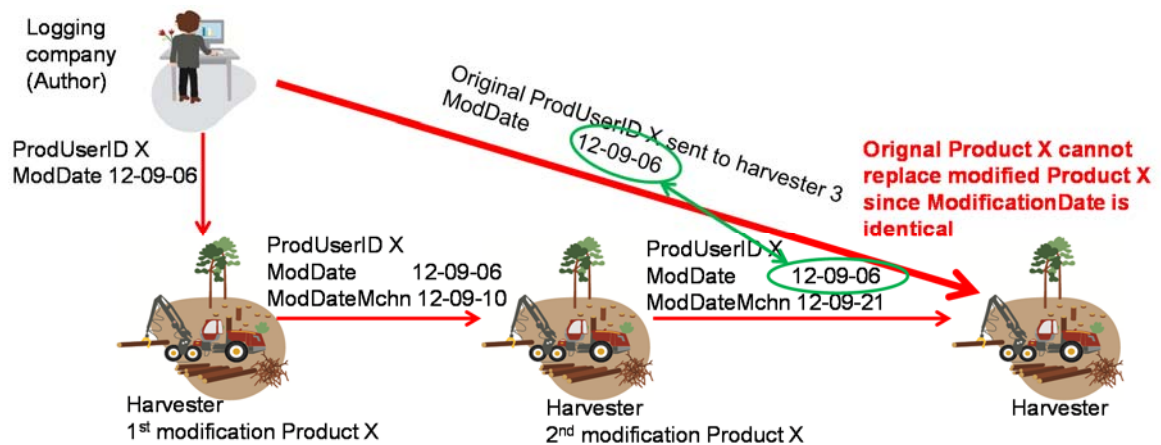
The proposal of adding a ModificationDateMachine might have some problematic consequences as illustrated below. However, whether these changes are of importance is something that can be discussed.

Let us assume that a pin-file with product X is sent out to a harvester. The same product is then modified twice as illustrated below:



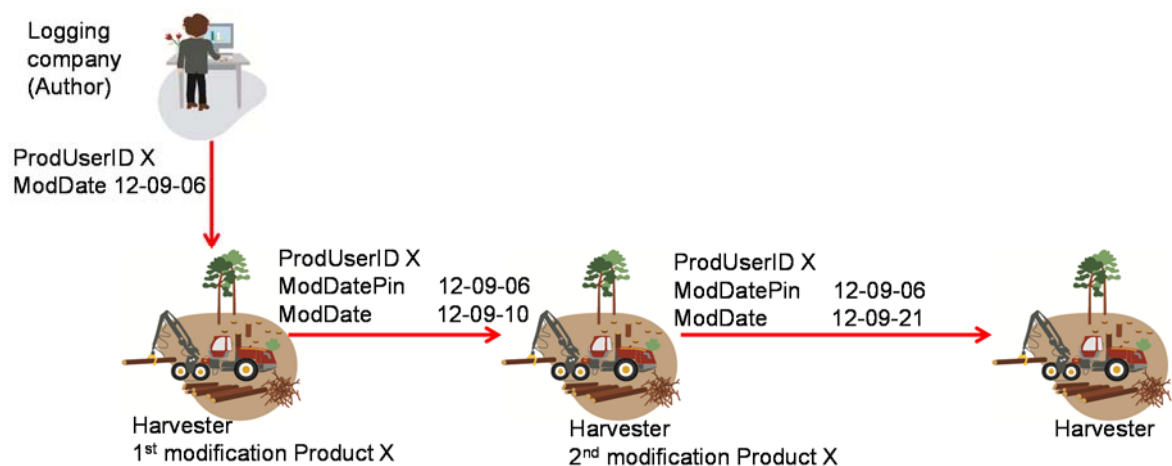
It is then discovered by the logging company that the harvester is using a product X that has been significantly modified from their point of view. The logging

company therefore sends the original pin-file with product X directly to the harvester as illustrated below:



If we still have the rule that we never overwrite one product with another product if UserID and ModificationDate are identical it will not be possible for harvester to use the original product X sent directly from the logging company. The operator would in this case, have to manually delete the existing product X in order to activate the original product X sent from the logging company.

Several of the meeting participants at the April meeting were quite hesitant about this proposal due to the fact that it has not been found to be a significant problem as of present. If we are to change one of the very basic rules of the standard it must solve a real existing problem.



Skogforsk has compared hpr and pin files generated by almost all manufacturers (harvesters and simulators). There does not seem to be any automatic modifications done to products when a pin-file is imported to the product databases (libraries). The only times we found that the ModificationDate was changed was when the operator had done a manual modification of the product.

Possible solutions that were discussed at the meeting:

- Specify that ModificationDate is not to be updated in cases where ColorMatrix, CuttingWindow and Quality settings are changed in the harvester since these changes does not affect the properties of the product.
- Add new element
 - ModificationDateMachine added in harvester, where present ModificationDate is never updated in the harvester
 - or
 - ModificationDateOriginal added in harvester, where present ModificationDate is updated as today and ModificationDatePIN is a copy of the ModificationDate sent in pin to the harvester.

No manufacturers had tested the concept with new ModificationDates by adding an extension-element where the original ModificationDate from the administrative application is stored. This date could be used in the machine when comparing new pin with the existing pin in order to indicate to operator whether or not the new pin is really a new.

Conclusions

Both Ponsse and Dasa have found it problematic to use ModificationDate as it is defined today since it might be so that this date is always updated in the harvester.

It was pointed out by Komatsu that they do not use the ModificationDate at all in MaxiXplorer. The operator is always asked if he wants to update the product library whenever a new pin is opened. From Fredrik Tjernbergs point of view we should perhaps decrease the focus on ModificationDate.

Mikael Eliasson commented that changing the rules regarding ModificationDate by implementing ModificationDateMachine will result in problematic situations in cases where the pin-files are created and modified in one harvester and thereafter distribute to other harvesters. The solution with ModificationDateMachine only works when the pin-files are modified by a separate administrative system.

It was decided by the meeting to continue to discuss the issue of updating ProductDefinitions in harvesters at the coming meetings. Based on Mikael's arguments it was deemed not possible to implement a new ModificationDateMachine. However, the meeting did agree to recommend that some manufacturers test implementing a solution where ModificationDate is not to be updated in cases where ColorMatrix, CuttingWindow and Quality settings are changed in the harvester.

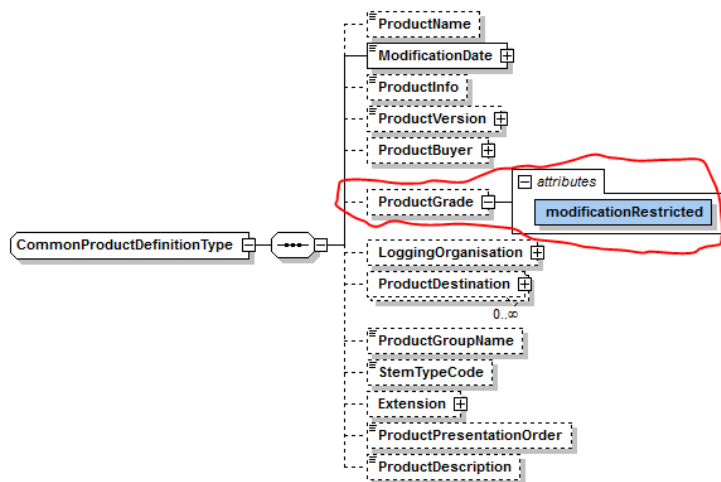
§ 9 New element ProductGrade

Tapio Räsänen, Metsäteho, 2014-11-17.

It was proposed that a new single and optional identity element ProductGrade is added to ClassifiedProductDefinition.

This is due to the fact that there is a Finnish need for having the following identities and descriptive information per product in the WoodForce system especially but also in other forest companies:

- ProductUserID (unambiguous Product identity together with modificationDate)
- Name (ProductName)
- Product version (ProductVersion)
- Code (ProductInfo)
- Buyer (ProductBuyer)
- Destination (ProductDestination)
- Additional product information (ProductDescription)
- **Grade (not existing, new ProductGrade)**



Product grade is used very often in Finland to describe the quality grades of an assortment, examples as A, B and C grades of a pine saw log. Normally the grade also distinguishes the assortments that might have a same basic assortment code, for example 112 for pine saw log. In assortment coding system of the forest companies the grade is often, but not always, combined with the basic assortment code, like “112A” and “112B” (ProductInfo). In WoodForce the preliminary idea was to apply ProductVersion for specifying the grade. However, now there is a need to use it preferably for identification of different versions of Product having changes of distribution and/or price matrices. Versioning of the Product is required especially when we will have the advanced cross-cutting planning service. Therefore ProductVersion is needed for identification of Product versions and a new element ProductGrade is required for the assortment grade. Product grade must be read independently from assortment code (ProductInfo). It also must be

shown on the user interface of the harvester together with ProductInfo and ProductName.

Example (Pine saw log, grade A)

Element	Value	Shown to operator 1)
ProductUserID	FG-PS-c368dbec-1093-4957-916c-6de780cbef1a	no
ModificationDate	2014-11-18T17:12:25+03:00	no
ProductInfo	R001001N	yes
ProductName	MÄT_MERIK	yes
ProductGrade	A	yes
ProductVersion	101	no
ProductBuyer	Metsä Wood	no
ProductDestination / BusinessID	9876	no
ProductDestination / Business name	Merikarvia saw mill	no
ProductDescription	Additional cutting instructions	yes (hidden ?)

1) On main screen, otherwise hidden behind one button

It was discussed whether “grade” was a good term since it can be mixed up with e.g. “PermittedGrades”.

The meeting decided to add a new optional element ProductClass with the data type “string” and the following annotation (suggested with minutes) that is identical with ProductVersion: *Additional identity information of product. Identity element normally to be used by logging organization. No constraints in standard concerning how to use this element.*

§ 10 Items for discussions

Agency

Per Knutsson, 2014-08-13.

Attribute “agency” is used for “UserIDs”. It today has the following enumeration values:

- Buyer
- ForestOwner
- LoggingContractor
- LoggingOrganisation
- MachineOwner
- Other
- Seller

The question from Per was whether anyone is using “agency” today and how it is used? An open question could be whether it is needed in version 4.0?

Since no one at the meeting saw any need for this attribute it was decided that we could delete this element with version 4.0.

Unique LowerLenghtLimit & LowerDiameterLimit

Question from Per Knutsson, CGI, 2014-08-13.

Per has come across hpr-files that have several diameter and length classes with exactly the same value. Is it possible to include a requirement on unique values per product in the schema validation? Is it needed to do anything more about this issue?

Maybe a new rule specifying that “All cells in a matrix must be included once and only once.”?

```
<ProductMatrixes modificationRestricted="false">
  <ProductMatrixItem diameterClassLowerLimit="30" lengthClassLowerLimit="270">
    <Price>0</Price>
    <Distribution>0</Distribution>
    <Limitation>0</Limitation>
    <BuckingCriteria>No limit</BuckingCriteria>
    <LogColorMarking>
      <Color1>false</Color1>
      <Color2>false</Color2>
      <Color3>false</Color3>
    </LogColorMarking>
  </ProductMatrixItem>
  <ProductMatrixItem diameterClassLowerLimit="30" lengthClassLowerLimit="270">
    <Price>0</Price>
    <Distribution>0</Distribution>
    <Limitation>0</Limitation>
    <BuckingCriteria>No limit</BuckingCriteria>
    <LogColorMarking>
      <Color1>false</Color1>
      <Color2>false</Color2>
      <Color3>false</Color3>
    </LogColorMarking>
  </ProductMatrixItem>
  <ProductMatrixItem diameterClassLowerLimit="30" lengthClassLowerLimit="270">
    <Price>0</Price>
    <Distribution>0</Distribution>
    <Limitation>0</Limitation>
    <BuckingCriteria>No limit</BuckingCriteria>
    <LogColorMarking>
      <Color1>false</Color1>
      <Color2>false</Color2>
      <Color3>false</Color3>
    </LogColorMarking>
  </ProductMatrixItem>
</ProductMatrixes>
```

It was decided to implement the following new constraint in the ClassifiedProductDefinition as defined by Juha-Antti Sorsa:

```
<xsd:unique name="UniqueDiameterAndLenghtClasses">
  <xsd:selector xpath="sfd:ProductMatrixes/sfd:ProductMatrixItem"/>
  <xsd:field xpath="@diameterClassLowerLimit"/>
  <xsd:field xpath="@lengthClassLowerLimit"/>
</xsd:unique>
```

Observe that the constraint is possible to implement because those the attributes are located behind same selector path.

Using RealEstateID in Sweden

This is not a standard proposal.

A meeting with Skogforsk, Holmen, SCA, Vida, Hedin and Norrskog was arranged by SDC (14-08-25). The meeting decided to suggest using RealEstateID in Sweden instead of a new element (e.g. ObjectInfo). Today this type of free object id information is registered in var2_t1. Observe that this old id is today used for a very wide range of different reasons such as:

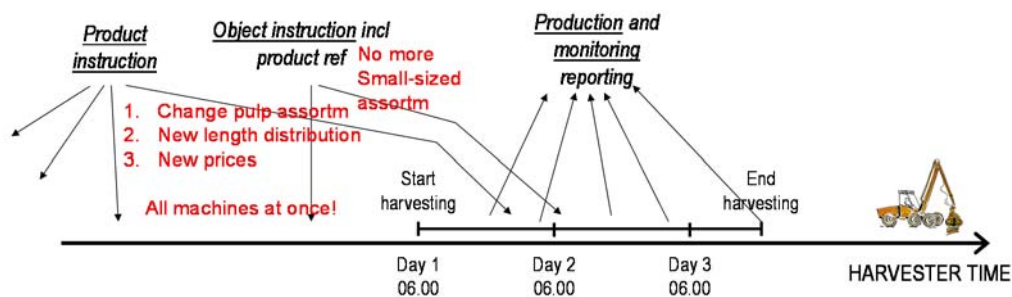
Object number, price list, supply area, machine type, version, year, quarter, type of forest, geographical area, thinning/final felling, costal/inland.

The Swedish term for this element will be *ObjektgruppID*.

§ 11 Implementation of StanForD2010

SWEDISH USE CASE FOR DISTRIBUTING HARVESTING INSTRUCTIONS

SDC and Skogforsk mapping how harvesting instructions are distributed today and tomorrow (StanForD2010)





WOODFORCE IN FINLAND

Implementation tests with machine manufacturers will be started as soon as possible. The tests will include sending pin, oin and spi files (version 3.0) from forest company systems via WoodForce to the harvesters. Conversions from ap1 files to pin must be done first in order to carry out the tests. Conversion tools are under development in Fifth Element and Metsäteho

SDC IMPLEMENTATIONS IN SWEDEN

Lars Henriksson informed the meeting about the fact that SDC Sender Xc has now been successfully implemented on a large number of forest machines. The plan for version 3.0, hqc and fpr is to be ready in March 2015.

CGI IMPLEMENTATIONS

Silvia7 has been updated for version 3.0 since May this year. The VSOP system is ready for using StanForD2010. No concrete plans for implementing oin-generation into VSOP.

SILVIA7 AND SDC TESTS

Some LogMate/EcoLog and Komatsu harvesters are running with StanForD2010 instructions and reporting hpr and mom.

Successful test on a JohnDeere harvester was carried out the week before the meeting together with Vida, JohnDeere and SDC. Pierre Qvist at Vida will start testing also Komatsu and Rottne very soon.

Simple administrative tools for creating oin is the next important step.

A conclusion from the tests is that simple GUI for operator when updating a product (color matrix & quality/button settings) is certainly needed. Perhaps a question when replacing product: "Do you want to keep color, quality and cutting window settings?"

IMPLEMENTATION OF 3.0

Manufacturer	Version 2.0	Version 2.1	Version 3.0
Opti (Ponsse)		Q1 (Jan) 2015	Q3-4 2015 (fpr only with scale)
Timbermatic (JohnDeere)		Autumn 2013 (1.19)	August 2014 hpr, mom, hpr
LogMate	Spring 2013		Q4 2014
MaxiXplorer (Komatsu)		Spring 2013	Q1 2015
Dasa*	Autumn 2014		Q3-4 2015
Motmit (Parker)			Q3-4 2015 (version 3.1)
Haglöf	Spring 2013	Spring 2013	Spring 2013
Silvia7		Spring 2013	May 2014
SDC		December 2013 (hpr)	March 2015 (including hqc & fpr)
WoodForce/ Fifth Element			Tests Q1-Q4 2015. Older formats converted to 3.0 Starting 2016

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

The only manufacturer that has implemented forwarder instructions so far is Ponsse.

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

- Dasa
- LogMate

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

- Timbermatic (implemented 2015)
- MaxiXplorer (implemented Q3-4, 2015)
- Opti (no implementation is planned)

It is presently not known whether it is possible to update a product in Motomit during harvesting at a site.

§ 12 Skogforsk project “Estimating thinning results based on hpr”

Johan J Möller presented the ongoing project for estimating thinning results (remaining stand) based on hpr-data.

§ 13 Other issues

No other issues.

§ 14 Next meeting

Regular StanForD2010 meeting StanForD meeting 2015-04-15--16, Helsinki. The meeting will begin at lunchtime with some presentation of the Finnish WoodForce project.

A phone meeting (confirming ver 3.1) will also be held 2015-02-06.

§ 15 End of meeting

Johan thanked everyone for their participation.