



John Arlinger

19 April 2012

Minutes StanForD2010

2012-04-18--19

Place:	Skogforsk, Uppsala 10:00-13:00 CET
Participants:	Mikael Eliasson, LogMax Teemu Paldanius, Ponsse Pasi Palonen, Parker Tapio Räsänen, Metsäteho Timo Melkas, Metsäteho Joonas Karnametsä, John Deere Erik Kindlund, John Deere Nazmul Bhuiyan, Skogforsk Jonas Thorsson, Dasa Lars Henriksson, SDC (day 1) Per Knutsson, Logica (day 1) Joakim Nygren, Haglöf (day 1) Jean Plamondon FP Innovations (phone) Niclas Eriksson, Komatsu Forest (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 Decision process autumn 2011

It was decided that a new draft version 2.1 is to be created based on the decision at this meeting. The official StanForD meeting in November decides on a new final version 2.1.

§ 4 StanForD2010 test

Four different harvesters with StanForD2010 implemented has been tested during the spring 2012. Generally the tests have been successful, showing that StanForD2010 seems to behave as expected. However some open questions have been found in connection with these tests.

GENERAL PRESENTATION OF TESTS (NO DETAILED RESULTS)

Johan J Möller briefly presented some results from the tests.

CLARIFICATION OF FREE-BUCK AND PULP WOOD HANDLING

In all tests apportionment bucking and top log free-buck were used for the pulp wood products. The same price was used for all diameter and length classes.

Typically theses pulp wood product definitions had the following matrixes:

Prod. group
Massa

Length trimming allowa
0 - 10 cm

Calc price on
Cut length (physica)

Top diam
meas 10 cm fr topp

Price matrixes

Length\Dia	50	90
300	340	340
350	340	340
400	340	340
450	340	340
500	340	340

Distribution matrix

Leng	50	90	Total	%
300	0	M	-3	-1,5
350	0	0	0	0,0
400	40	20	60	30,5
450	40	60	100	50,8
500	20	20	40	20,3
Total	100	97	197	100,0
%	50,8	49,2	100,0	

Limitation matrix

Leng	50	90	Total	%
300	0	M	-3	0,0
350	0	0	0	0,0
400	0	0	0	0,0
450	0	0	0	0,0
500	0	0	0	0,0

Other

F = Totally forbidden, manual bucking not allowed
V = Only bucking to value allowed, no distribution bucking
M = Forbidden, manual bucking and "real" bucking in Aptupp

Max allowed deviation for distribution bucking, per 50

Skogforsk will recommend that pulp wood products are to be defined according to the example above.

It has again become clear that the interpretation of FreeBuck varies between different manufacturers. Improved definition of TopLogFreeBuck is therefore needed.

Element TopLogFreeBuck

<doc:VarNumber>V119_t1</doc:VarNumber>
<doc:Unit>true/false</doc:Unit>
<doc:Description>Reach minimum top diameter using any length (maximize volume) Minimum top diameter for TopLogFreeBuck is the smallest allowed diameter without limitation Forbidden or Manual as registered in element BuckingCriteria. Any length accepted (manual cut) except forbidden lengths according to element BuckingCriteria.
</doc:Description>

Element ManualFreeBuck

<doc:VarNumber>V119_t1</doc:VarNumber>
<doc:Unit>true/false</doc:Unit>
<doc:Description>Any length accepted (manual cut) except forbidden lengths according to element BuckingCriteria
</doc:Description>

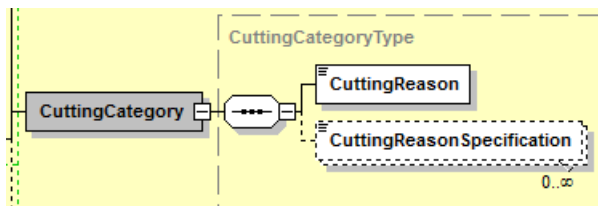
The following issues are known to be handled in different ways:

- Should TopLogFreeBuck override value optimization or not?
It should probably always override value optimization.
Decided that this means that highest priority is given to minimum diameter search within min and max lengths of the product, independently of value and required distribution.
- Should TopLogFreeBuck mean that any length up to MaxLength or only up to last LengthClass are allowed?
Decided that it should allow all lengths up to MaxLength.
- Should forbidden length (not allowed to cut) be allowed to cut when using TopLogFree buck? Decided that is shall not be allowed.
- Should functionality for balancing the length be included (avoiding one long and one short log at the top)?
Decided that this is not a standard issue.

It was decided to update element TopLogFreeBuck according to the following text:

```
<doc:VarNumber>V119_t1</doc:VarNumber>
<doc:Description>Reach minimum top diameter using any length (maximize volume).
Minimum top diameter for TopLogFreeBuck is the smallest allowed diameter without limitation
Forbidden or Manual as registered in element BuckingCriteria. Any length accepted up to
MAXLength except forbidden lengths according to element BuckingCriteria. Highest priority is
given to minimum diameter search within min and max lengths of the product, independently of
value and distribution matrixes. </doc:Description>
```

DEFINITION OF CUTTINGCATEGORY



The following enumerations are included in element CuttingReason: Automatic, Decay, Damage, Crook, Sweep, Grade break, Pulpwood grade, Top break, Spinning, Other manual. Observe that all reasons except Automatic, Other manual and Spinning are to be given manually by operator.

The following enumerations are included in element CuttingReasonSpecification: Outside cutting window, Quality change, Unclassified log.

An issue that has been discussed with some manufacturers during the StanForD2010 harvester test during the spring 2012 has been how an “Automatic” cut is to be defined?

It was decided that CuttingCategory must be considered to be Automatic if the cut position is decided by bucking optimization software without direct interference by operator. It means that the annotation will be updated according to the following text:

```
<doc:Description>Forced manual cross-cut (break) at small end. Operator selected cross cuts indicated except in case of Automatic or Spinning. CuttingCategory must be considered to be Automatic if the cut position is decided by bucking optimization software without direct interference by operator. Enumeration list: Automatic, Decay, Damage, Crook, Sweep, Grade break, Pulpwood grade, Top break, Spinning, Other manual</doc:Description>
```

Examples

If quality-button (or other button) is connected to specific length it is not an "automatic cut" since this means that optimization is not given any alternative solutions.

Manual adjustments of optimal length according to machine (kortning) means "manual cut".

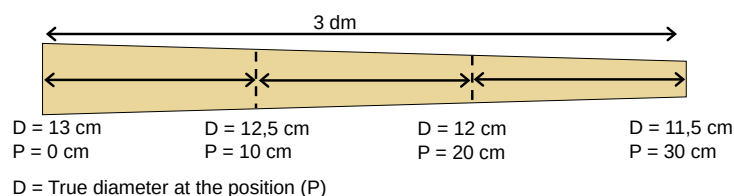
It was also decided that Skogforsk will analyze exactly how element CuttingReasonSpecification is to be used. Presently described with the following annotation:

```
<doc:VersionCreated>1.0</doc:VersionCreated>
<doc:Unit>list</doc:Unit>
<doc:Description>Allowed values: "Outside cutting window", "Quality change", "Unclassified log"</doc:Description>
```

DIAMETER VECTOR

What diameters are registered in the diameter vector (StemDiameters)? The volume based on StemDiameters was compared with the log volumes to see if there seem to be any systematic differences.

The following figure illustrates how Skogforsk has used diameter values in StemDiameters in order to calculate the solid volume on bark.



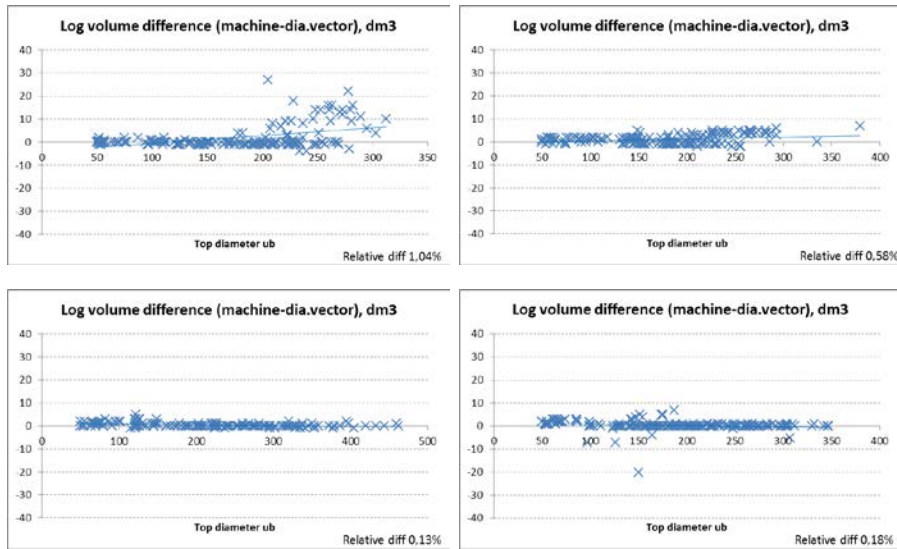
	diameterPosition	diameterMeasu...	File Text
1	0	Average	130
2	10	Average	125
3	20	Average	120
4	30	Average	115

The following volume calculation methods have commonly been used by Skogforsk for each dm module:

- Alternatives - cut cone**

$$= \sum ((\pi * \text{Height} / 3) * (\text{Radius1}^2 + \text{Radius1} * \text{Radius2} + \text{Radius2}^2))$$

The following diagrams illustrate calculations done by Skogforsk based on data from StanForD2010 test:

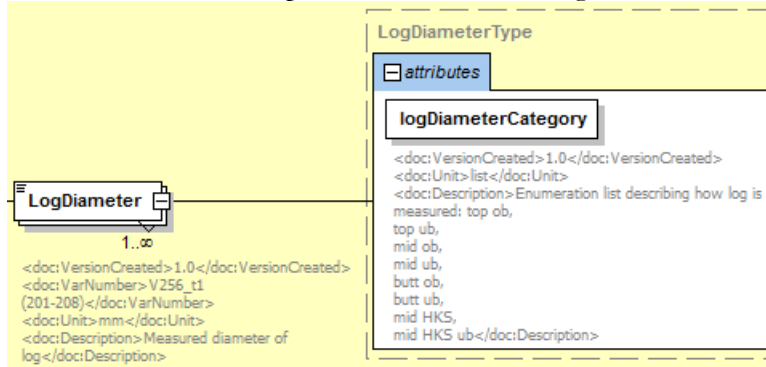


The diagrams above indicates that except in one case the values in the diameter vector can be used in order to calculate the same log volume as is registered by the machine. The diameters are also the same as those used in the optimization.

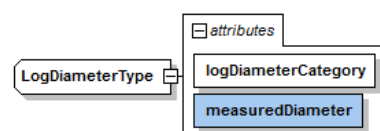
ESTIMATED DIAMETERS AND LENGTHS

Attribute logVolumeCategory has the following enumeration list: m3 (price), m3sob, m3sub, m3sobEstimated and m3subEstimated. In case of MTH the units m3sobEstimated and m3subEstimated are supposed to be used.

However there are no parallel attribute for LogDiameters today.



It was therefore suggested that a new optional boolean attribute measuredDiameter is added under LogDiameter:



It was decided to postpone this issue.

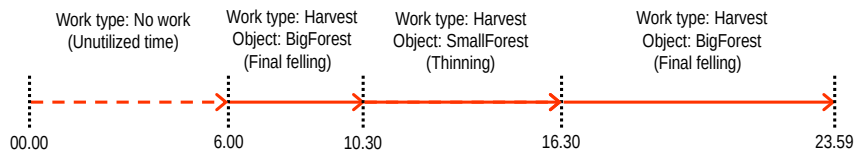
OBJECT ORIENTED MOM

The basic idea has so far been to always include all unutilized times “covered” by a mom-file. This is perfectly OK in time oriented files but problematic in object oriented mom-files since an unutilized time does not necessarily belong to any specific object.

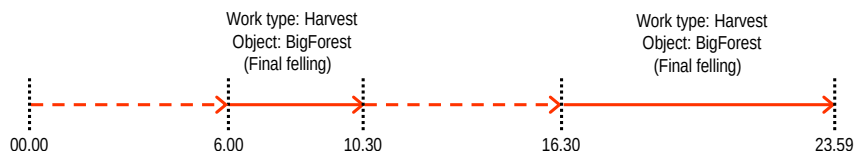
The main reason for always including all unutilized times was to avoid having to guess whether a non-registered time is unutilized or a work time belonging to a different object in case of object oriented reporting.

Example

Below is a time oriented harvester example covering 24 hours:



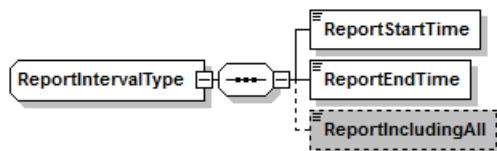
The same data in an object oriented example (object Final felling) will look like this:



It is not possible to determine in the second example (object oriented) whether this is for certain an object oriented or a time oriented message. It is neither possible to know for certain whether the total unutilized time is 6 or 12 hours.

If this idea of always registering all unutilized times in time oriented mom files is implemented it was suggested that this is added to the description of element Individual/CombinedUnutilizedTimes.

However, some manufacturers have stated that it is problematic to include all unutilized times since these are not registered at all in the machine system. A solution for this issue could thus be to include a new Boolean element “ReportIncludingAll” to the mom file (observe that it will be optional in a new version 2.1), no times between start and end is excluded:



This means that times not being registered, in case of a time oriented report, are all to be considered to be unutilized.

It was decided to implement a new optional Boolean element “ReportIncludingAll” with the definition “All run (work) times, down times and

meal breaks that occurred between ReportStartTime and ReportEndTime are included, with no exceptions. This means that any times not registered are to be considered to be unutilized”.

THIRD PARTY REPORTING SOFTWARE

Most Swedish forest companies reporting production data from forest machines use a software developed by SDC (SDC Sender). Today this software will delete the files from the original location/folder after sending the files. All files sent from SDC Sender are saved in a specific folder (e.g. C:\ProgramData\SDC\Sender 2010\Skickat).

This is an important issue if there are other tools using the same files. Should we have some kind of recommendation for how this is to be done in the future? Should we recommend that files are never to be removed or always removed after sending?

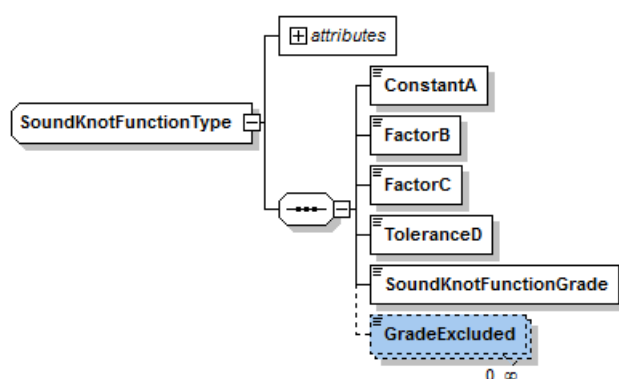
It was decided to recommend that that third party reporting softwares are to remove files after sending by default. It is also recommended that a setting exist for not removing files if the files should be kept in the machine. Observe that this means that the large StanForD2010 files will accumulate in the computer quite quickly.

SOUNDKNOTFUNCTION

A difference in how a “normal qualities” (as defined manually by operator) are replaced by the automatically calculated sound knot quality between different manufacturers was discovered.

By default it is suggested that the calculated sound knot quality should always replace all existing “normal” qualities.

A possible improvement of the standard would be to add a new repeatable element GradeExcluded where all grades that are not to be affected by the automatic SoundKnotFunction are to be included:



It was decided to add optional element GradeExcluded with the description “Grade grades that are not to be affected by the automatic SoundKnotFunction. Means that if a stem has only an excluded grade the SoundKnotFunction will affect the bucking optimization.”.

DOUBLE STEM OR TOP

Double stems or double tops are registered in different ways by different manufacturers. In some cases it will be registered as one single stem and in some cases as two separate stems.

It was decided that Skogforsk will continue to analyse this issue.

NEGATIVE CUTTING WINDOW AND MIN LENGTH

The question of how to handle negative cutting window in cases where the window is below minimum length of a product has been raised during the test.

The following text is copied from the document “StanForD 2010 introduction”:

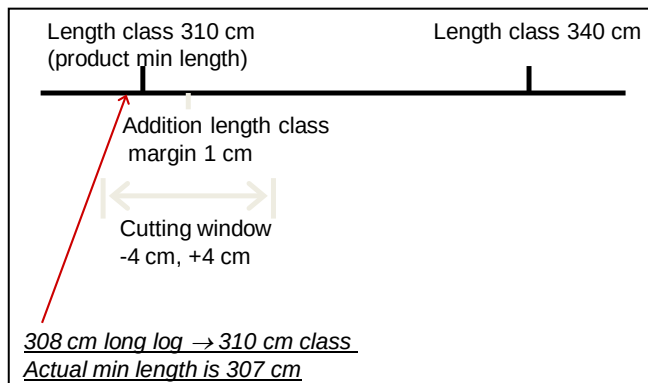


Figure 15. Length class 310 cm is the minimum length for the present product. This means that the “true” minimum length is actually 307 cm when using this kind of negative cutting window.

.....

The following rules must be used:

1. Negative cutting window always decreases the class length, both when LengthClassAdjustment is equal to “length class smaller or equal to log length” and when equal to “closest length class, normal rounding”.
2. Rounding always have a higher priority than cutting window (figure 15)
3. Upper limit of cutting window must not be above lower length class limit (132_t1) nor above lower length class limit for the "cutting window" (135_t3) of the next length class.

The conclusion is that the “true” minimum length is shorter than the smallest length class when using negative cutting windows.

HQC AND CALIPER

The meeting discussed the experiences of using hqc to communicate with Haglöf's XXX_caliper.

Transmission speeds are low when using Kermit and serial ports. When new caliper hardware probably using usb this will not be a problem anymore. The present problem with transmission speeds is primerrally evident when several stems are sent simultaneously to the caliper. A ”lighter” hqc defined by Haglöf

exists which reduces the time with maybe 3 times. This hqc-version means that some element names that are repeated many times have been shortened to just one character.

Examples of light hqc structures where element names have been changed:

```
<DiameterClasses diameterClassCategory="Top">
  <D>
    <D>200</D>
  </D>
  <D>
    <D>220</D>
  </D>

<LengthDefinition modificationRestricted="false">
  <LengthClassAdjustment>LengthClassAdjustment1</LengthClassAdjustment>
  <L>
    <L>340</L>
    <M>0</M>
  </L>
  <L>
    <L>370</L>
    <M>0</M>
  </L>

<StemDiameters diameterCategory="Over bark">
  <DiameterMeasuredStartHeight>130</DiameterMeasuredStartHeight>
  <DiameterMeasuredEndHeight>2130</DiameterMeasuredEndHeight>
  <D d="0" c="A">399</D>
  <D d="10" c="A">383</D>
  <D d="20" c="A">370</D>
  <D d="30" c="A">359</D>
  <D d="40" c="A">350</D>
  <D d="50" c="A">342</D>
  <D d="60" c="A">336</D>
  <D d="70" c="A">330</D>
  <D d="70" c="F">331</D>
  <D d="80" c="A">326</D>
  <D d="80" c="F">328</D>
```

Observe that the harvester must convert this kind of “Light” hqc to an ordinary hqc when the file is sent from caliper to harvester.

If the transmission speeds are deemed to be too much of a problem it is OK from a StanForD perspective to stay with ktr/stm for some time until there are new calipers with better communication..

§ 5 Development of SilviA 7 for StanForD 2010

Per Knutsson presented the work on developing a new SilviA

- New platform based on .NET 4.0.
- StanForD 2010 support.
- New looks, Office-like with ribbon and tabs instead of MDI.
- No longer uses CrypKey for licensehandling (no more problematic service installations).

- Better possibilities to define own machine types and verifications for these when creating apt-files.
- Greatly improved extendibility.

A Beta version will be available by 4th of May and a first realease will be available by 30th of June.

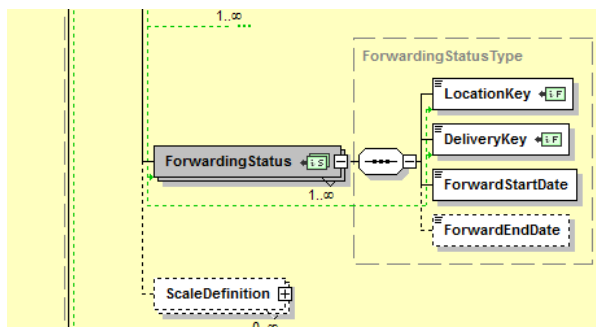
§ 6 New ForwardingStatus element

Suggestion from Tomas Höijer, Sydved, and Lars Henriksson SDC 2011-12-29.

Sydved is replacing their old forwarding reporting based on a web interface with the standardized forwarding files (prl and fpr). Forwarding production data is primarely used for planning transportation. SydVed is today reporting harvester production data on a very limited scale.

The only thing that Sydved has a problem with is the fact that they would like to be able to include information about whether a certain assortment (transport object) is accessible for transportation to industry or not. In other words they want they operator to be able to tell whether or not it is suitable for the truck to start transporting a certain assortment or not.

It is therefore suggested that a new element “AccessibleForTransport” is added to the ForwardingStatus structure. Boolean and optional element, default value should be true.



Comments from secretary:

Perhaps study the possibility of using “UserDefiendData” for this kind of information. Some transport companies in Sweden have e.g. asked for the possibility to register whether a “landing is full”, meaning truck transportation needed as soon as possible. Other suggestions has been to register road condition, for example “snow need to be removed” or “road surface is too muddy”.

The meeting decided to not include this new element and instead recommend the use of “User Defined Data”.

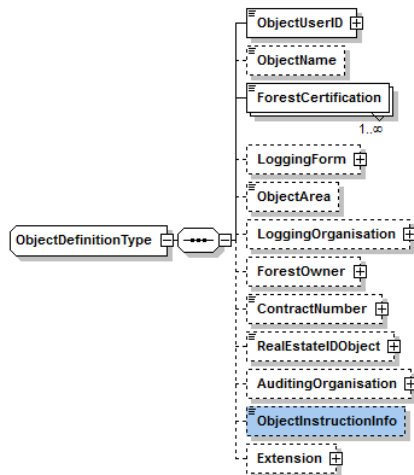
§ 7 New Object identities

Issue based on discussions between Skogforsk and SDC.

The background is that there is a need for keeping track of different object instructions, whether a certain version of instructions are in use or not. This is

similar to the present var2_t1 (apt identity) which is widely used by many different forest companies in Sweden today.

It was suggested that we add a new optional id element ObjectInstructionInfo to ObjectDefinition.



The meeting decided to postpone this proposal. Skogforsk will analyse the issue further.

§ 8 User defined data

John presented the proposal concerning user defined data that is included in appendix 1.

It was decided to include user defined data structures in the draft version 2.1. This means that a new schema UserDefinedInstruction is created and that the schemas for hpr, fpr, thp and mom are modified.

§ 9 Improved definitions for random sampling of control stems based on time

John presented the results of the work on improving the function for random selection of control stems based on time.

It was decided to accept the requirements as described in appendix 2.

It was also decided to update the annotations of RandomFrequency and RandomFrequencyCategory:

```

RandomFrequency
<doc:VersionCreated>1.0</doc:VersionCreated>
<doc:VarNumber>V361_t3</doc:VarNumber>
<doc:Description>Sampling interval for random selection of control and calibration see also
RandomFrequencyCategory. The frequency should mean the average number of stems, time or volume between
random sampled control stems. The unit should be no of stems, hours or m3sob.</doc:Description>
  
```

```

RandomFrequencyCategory
<doc:VersionCreated>1.0</doc:VersionCreated>
  
```

```
<doc:VarNumber>V361_t4</doc:VarNumber>
<doc:Unit>list</doc:Unit>
<doc:Description>Enumeration list, allowed values are: "Number of stems", "Time", "Volume" and "Not in use". All of these alternatives should be implemented.</doc:Description>
```

§ 10 Annotation updates

We will not adjust the annotations between new standard versions.

VOLUME UNIT

Suggestion by Joonas Kaarnametsa, 2012-01-10.

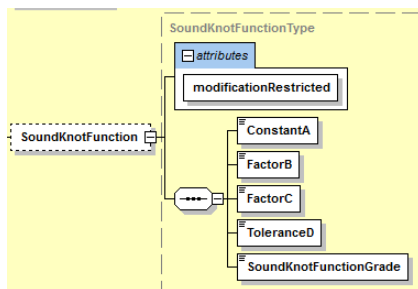
It is suggested that it is to be specified in the annotation of for example element LogVolume that "m3" is to be used. The same for all other volume elements.

It was decided that the new annotation shall be:

```
<doc:VersionCreated>1.0</doc:VersionCreated>
<doc:VarNumber>V256_t1 (400,401,402)</doc:VarNumber>
<doc:Unit>m3, positive decimal</doc:Unit>
<doc:Description>Volume of log</doc:Description>
```

Today that information could be understood only indirectly by looking at attribute "volumeUnit" in the header or at attribute "logVolumeCategory".

SOUND KNOT FUNCTION



Suggestion by Joonas Kaarnametsa, 2012-01-10.

It is suggested that the annotation of SoundKnotFunction in spi is updated. Should be clearly specified that y is the soundknot factor and x is the DBH in mm in the function $y = (a + bx + cx^2) * d$. In order to get the diameter of the sound knot cylinder you have to multiply DBH with y (diameter of the sound knot cylinder = DBH*y)

Suggestion Per Knutsson, 2012-01-31.

A SoundKnotFunctionCategory is mentioned in annotation of several of the parameters. This element is not included in the standard and should thus be excluded. The original idea with SoundKnotFunctionCategory was to use it in the same way as the old var149_t1.

It was decided that the annotations are updated according to the following text:

Element SoundKnotFunction

<doc:VersionCreated>1.0</doc:VersionCreated>

<doc:Description> Sound knot function used when calculating the diameter (ob) of the sound knot limit/cylinder.

Soundknot function must be used if this structure is included. Observe that all diameters are over bark. The function is $y = (a+b*x+c*X^2)*d$ where the diameter of the sound knot cylinder = $DBH*y$. </doc:Description>

Element FactorB

<doc:VersionCreated>1.0</doc:VersionCreated>

<doc:VarNumber>V148_t1</doc:VarNumber>

<doc:Description>Factor for determining the diameter limit for sound knots/tree species (abbreviation "b" in $y =$

$(a+b*x+c*X^2)*d$ a description of SoundKnotFunctionCategory where diameter of the sound knot cylinder = $DBH*y$

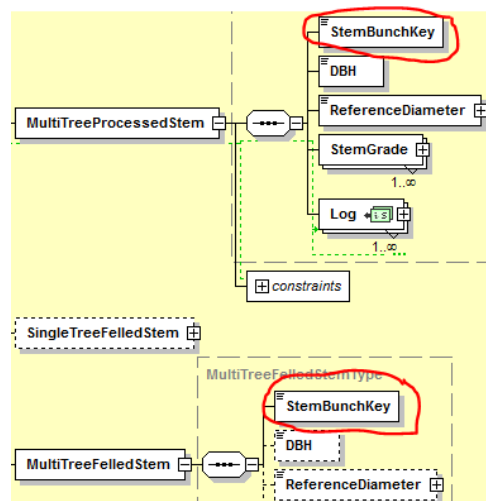
</doc:Description>

STEMBUNCHKEY

Suggestion by Joonas Kaarnametsa, 2012-01-24

StemBunchKey has the following description: *A running / sequential number set in machine for unambiguously separate stem bunches. Only to be reset when starting on a new harvesting object.*

However, what happens if we have both multi tree processed (MTP) and multi tree felled (MTF) stems? Do we use the same running StemBunchKey for both processing categories or do we have dedicated counters for both processing categories?



It was decided that we have one single counter for the StemBunchKey for both MTP and MTF stem bunches in order to avoid confusion if someone expects all StemBunchKeys to be unique for a certain MachineKey.

Decided to update the annotation:

<doc:Description> A running / sequential number set in machine for unambiguously separate stem bunches. Only to be reset when starting on a new harvesting object. One single counter for StemBunchKey in both MTP and MTF stem bunches should be implemented in order to avoid confusion. </doc:Description>

STEMKEY

Suggestion by Niclas and John 2012-01-31. Also based on some comments from Joonas at the telephone meeting 2012-01-30.

It was decided that it is specified that the StemKey is not always sequential:

```
<doc:VersionCreated>1.0</doc:VersionCreated>
<doc:Unit>sequential-no</doc:Unit>
<doc:Description>Machine specific identity per stem. Must be totally unique for a certain MachineKey. Running no,
reset only when MachineKey is changed. It does not have to be a sequential number always incremented with
one for each stem.</doc:Description>
```

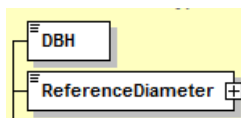
Also decided that the same updated is to be done for StemBunchKey:

```
<doc:Description> A running / sequential number set in machine for unambiguously separate stem bunches. Only to
be reset when starting on a new harvesting object. One single counter for StemBunchKey in both MTP and MTF
stem bunches should be implemented in order to avoid confusion. It does not have to be a sequential
number always incremented with one for each stem. </doc:Description>
```

DBH AND REFERENCEDIAMETER

Suggestion based on discussions with Joonas Kaarnametsa och Johan J Möller 2012-02-01.

The fact that ReferenceDiameter shall always be the measured diameter while the DBH is the diameter used in optimization and volume calculation should be clarified. This means that DBH is normally based on the SPP-function.



It was decided that the annotations are updated according to the following text:

Element DBH

```
<doc:VersionCreated>1.0</doc:VersionCreated>
<doc:VarNumber>V266_t1(740)</doc:VarNumber>
<doc:Unit>mm</doc:Unit>
<doc:Description>DBH (on bark) measured at height according to DBHHeight (in SpeciesGroupDefinition). Same
diameter used in optimization and volume calculation. DBH is based on butt-end extrapolation function (old
SPP) if such function is used at DBH position.</doc:Description>
```

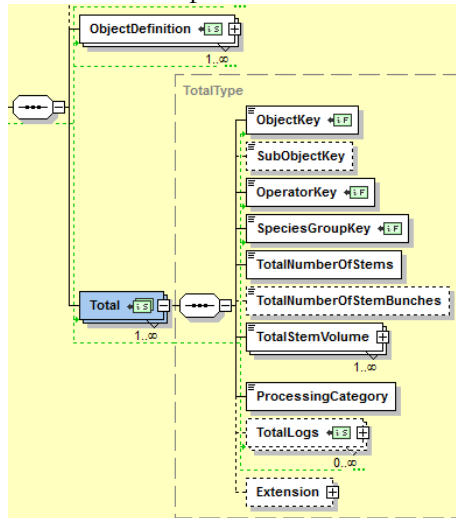
Element ReferenceDiameter

```
<doc:VersionCreated>1.0</doc:VersionCreated>
<doc:VersionModified>2.0</doc:VersionModified>
<doc:Unit>mm</doc:Unit>
<doc:Description>Diameter at position used for predicting DBH in multi tree harvesting. Normally the first measured
diameter. Not to be an extrapolated diameter (e.g. extrapolated using butt-end extrapolation function, old SPP).
Can be used when calculating estimated volumes based on volume of single tree processed stems.
</doc:Description>
```

§ 11 Mandatory elements in thp, hpr and fpr

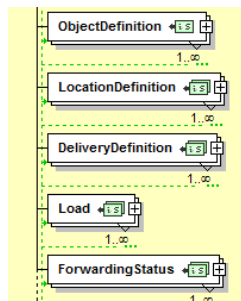
THP (Niclas Ericsson 2012-01-30)

- Total is mandatory, tricky if reporting from "empty" object. Decided that total is made optional.



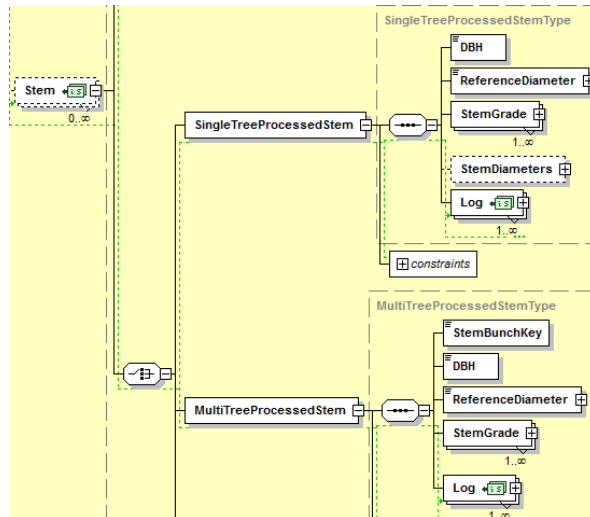
FPR (Niclas Ericsson 2012-01-30)

- Load & ForwardingStatus are mandatory, same as above. Decided that these elements are made optional.
- LocationDefinition/DeliveryDefinition are mandatory. Problematic if these are defined in machine and an fpr is generated before this has been done. Decided that these elements are made optional.



HPR (Joonas Kaarnametsa 2012-01-20, Niclas Ericsson 2012-01-30)

- Suggestion by Joonas Kaarnametsa. Having DBH element as mandatory in MultiTreeProcessedStemType is maybe not that good. Compare with felled stem types where it's optional. For multi-tree-processed stems DBH is today an estimated data and as such could be optional. Decided that DBH element as optional in MultiTreeProcessedStemType.



- Suggestion by Niclas Ericsson.
Must really LengthDefintion, ProductMatrixes, LimitationDefinition, etc.
be mandatory. A bit problematic when basing hpr on an old apt-file.
Comment from secretary:
*We have to be careful with modifying ProductDefinition in the hpr. If we make all
parts optional it will be of very limited use to the receiver of data.*
The proposal was withdrawn by Niclas.

§ 12 Updating ProductCondition

Updating ProductCondition

Based on discussions with Joonas Kaarnametsa and Anders Nylund (2012-02-13).

Element ProductCondition has the following enumerations:

- Buck always
- Buck butt-log only
- Do not buck butt log

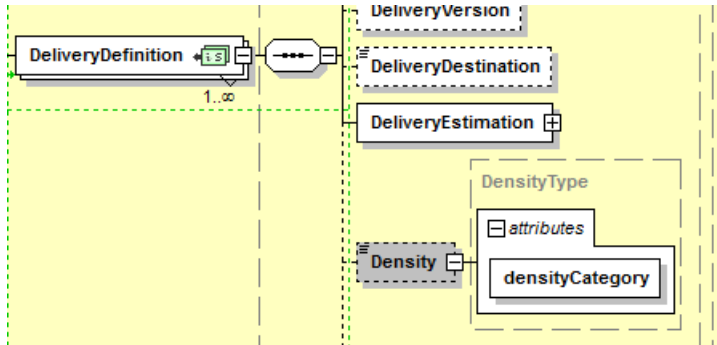
Enumeration “Buck never” in element ProductCondition (code 1 in old var136_t1) has not been included in the pin. This is due to the fact that it is not necessary when sending an instruction to the machine, since we then exclude this product from the oin. However, this enumeration may be useful when sending a hpr-file from the machine since the functionality of turning off a certain product still exists in many systems.

It was thus suggested that enumeration “Buck never” is added to element ProductCondition

The meeting decided not to add this enumeration, instead Skogforsk should analyze the fact that we don’t have traceability within the ObjectDefinition concerning what ProductDefinitions were actually in use at a certain time.

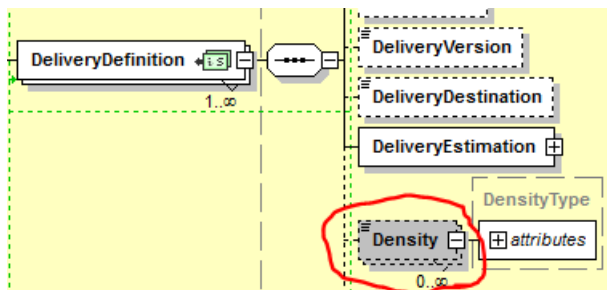
§ 13 Updating Density

The element Density in fpr message can only occur once per delivery definition. The allowed values for densityCategory are Under bark, On bark and Not specified.



Teemu Paldanius has pointed out that this might be a problem if using a scale and then wanting to register both m3sub and m3sob in element LoadVolume. It may be of interest in this case to be able to register both density on bark and under bark.

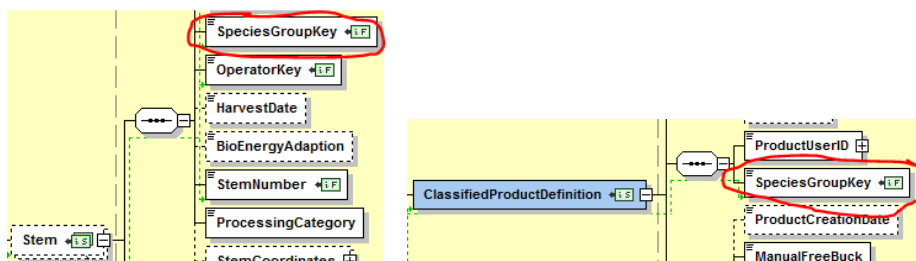
It was decided to make “Density” repeatable according to the figure below:



§ 14 SpeciesGroupKey useful in ProductDefinition

Based on discussions with Jonas Thorsson (2012-02-20).

SpeciesGroupKey is used both per stem and per ProductDefinition in hpr message.



The use of SpeciesGroupKey will be complex if SpeciesGroupDefinition is updated. Do we have to update ProductDefinition and ProductKey if we also

update SpeciesGroupDefinition? Maybe easier to exclude SpeciesGroupKey in ProductDefinition and only use SpeciesGroupUserId in ProductDefinition.

Example

The bark function of a SpeciesGroupDefinition is changed in the harvester. This means that the SpeciesGroupKey is updated from 1 to 2. We thus have to create a completely new set of ProductsDefinitions according to the following table even though nothing has really changed in the ProductDefinitions:

ProductName	ProductUserID	ProductKey	SpeciesGroupKey
SawLog	SL123	1	1
Pulp	Plp43278	2	1
Fuel	F17866	3	1
SawLog	SL123	4	2
Pulp	Plp43278	5	2
Fuel	F17866	6	2

It was decided by the meeting not to update the present structure mainly because it would make the rules concerning the use of Keys less stringent and that the present structure has been found to perform well enough by some other manufacturers. **It was decided by the meeting to analyse the use of ModificationDate. It was therefore suggested and decided with the minutes that we update the annotation of ModificationDate:**

```
<doc:VersionCreated>1.0</doc:VersionCreated>
<doc:VarNumber>V16_t4</doc:VarNumber>
<doc:Unit>yyyy-mm-ddThh:mm:ss[+|-]hh:mm</doc:Unit>
<doc:Description>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 SpecieGroupDefinition was modified and new SpeciesGroupKey was.updated.</doc:Description>
```

§ 15 Schema errors

Below is a list of schema problems in version 2.0.

KEYREF ERROR IN FPR

The following issue was discovered by Niclas Eriksson (2012-03-20).

A fpr-file did not validate even though both Niclas and John considered it to be correct. It seemed like the problem was that there were two ProductKeys in one DeliveryDefinitions. This is ok according to the schema but still did not validate.

According to Juha-Antti it seems that keyref-constraints with multiple “values” do not work as they should be. The constraint is now

```
<xsd:keyref name="ProductKeyRefSingleTreeProcessedStemLog" refer="ProductKeyProductDefinition">
  <xsd:selector xpath="sfd:DeliveryDefinition"/>
  <xsd:field xpath="sfd:ProductKey"/>
</xsd:keyref>
```

However when those path expressions were modified a little bit, then it seems to be OK. Here is the changed constraint.

```

<xsd:keyref name="ProductKeyRefSingleTreeProcessedStemLog" refer="ProductKeyProductDefinition">
  <xsd:selector xpath="sfd:DeliveryDefinition/sfd:ProductKey"/>
  <xsd:field xpath="."/>
</xsd:keyref>

```

It was decided that the KeyRefs are to be modified.

NEW DATA TYPE LENGTHCALIBRATIONADJUSTMENTBUTTLOG

Mikael Eliasson, 2012-03-05.

LengthCalibrationAdjustmentButtLog has type nonNegativeInteger. It must be possible to register a negative value as in LengthCalibrationAdjustment (Decimal).

It was decided that the data type to LengthCalibrationAdjustmentButtLog is changed to decimal.

MISSING DATA TYPE DEFINITIONS

Discovered by Ponsse (2012-03-28).

```

ObjectGeographicalReport_V2p0.xsd -> GISLayerObjectGeographicalReportType -> GISFileModificationDate
ObjectGeographicalReport_V2p0.xsd -> GISLayerObjectGeographicalReportType -> GISFileModified
ObjectGeographicalReport_V2p0.xsd -> ObjectDefinitionObjectGeographicalReportType -> TextFromMachine

```

```

HarvestingQualityControl_V2p0.xsd -> CommonCalibrationValuesType -> OperatorKey
HarvestingQualityControl_V2p0.xsd -> ControlMeasurementDefinitionType -> CaliperID

```

It was decided that this is corrected by Juha-Antti Sorsa.

POSSIBLE MISTAKES

Discovered by Ponsse (2012-03-28).

```

OperationalMonitoring.xsd -> TotalForwardedVolumeType
OperationalMonitoring.xsd -> TotalVolumeOfHarvestedLogsType

```

Both includes SimpleType and there are enumerations for logVolumeCategory. Equivalent simpleType can be found also from CommonDefinitions -> LogVolumeCategoryType.

It was decided that this is corrected by Juha-Antti Sorsa.

MISSING DOCUMENTATION

Discovered by Ponsse (2012-03-28).

- High level documentation is missing from all SimpleTypes (what each selection means). Not necessary to specify all enumerations, but some kind of explanation would be nice to have.

- General description between tags <doc:Description></doc:Description> to all documentation elements. Just like 'unit' or 'versioncreated'. In most cases seems to be okay. Missing at least following elements:

```

CommonDefinitions.xsd -> ButtEndProfileExtrapolationType -> ButtEndProfileExtrapolationTable
CommonDefinitions.xsd -> ButtEndProfileExtrapolationType -> ButtEndProfileExtrapolationFunction

```

CommonDefinitions.xsd -> ButtEndProfileExtrapolationType -> buttEndProfileExtrapolationMethod
CommonDefinitions.xsd -> ContactInformationType -> Address
CommonDefinitions.xsd -> DiameterClassesType -> DiameterClass
CommonDefinitions.xsd -> DiameterDefinitionType -> DiameterClasses
CommonDefinitions.xsd -> ExtensionType -> Any

ForwardedProduction_V2p0 -> ForwardedProductionType -> ForwardedProductionHeader
ForwardedProduction_V2p0 -> ForwardedProductionType -> Machine

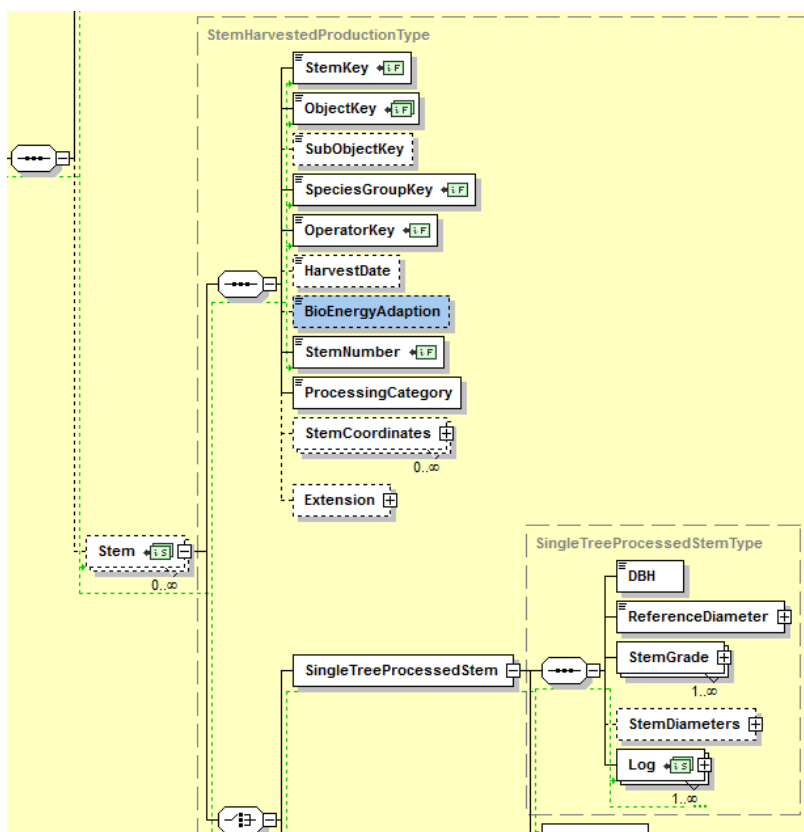
ForwardingDeliveryInstruction_V2p0 -> DeliveryDefinitionForwardingDeliveryInstructionType -> SpeciesGroupDefinition

ForwardingQualityControl_V2p0 -> ForwardingQualityControlType -> ForwardingQualityControlHeader
ForwardingQualityControl_V2p0 -> ForwardingQualityControlType -> Machine

It was decided that this is corrected by Juha-Antti Sorsa.

§ 16 New stem data needs

Presently we have the possibility for the operator to register whether or not harvesting was adapted for extracting forest energy assortments in the form of residues and stumps. This information is registered in the element BioEnergyAdaption per stem. Allowed enumeration values are “None”, “Logging residues”, “Stumps” and “Logging residues and stumps”.



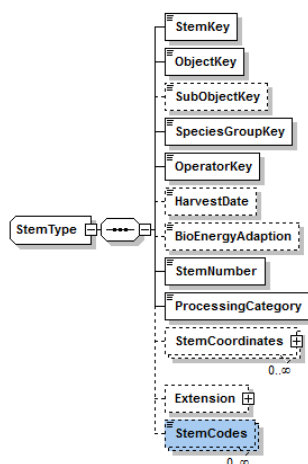
During the last year several forest company representatives in Sweden have requested additional possibilities for registering information about individual stems such as for example high stumps and stump treatment (fungicides).

High stumps

Due to forest certification (FSC) it is now very common that harvester operators are required to register the number of high stumps on each object or sub object. This is today done manually by paper or an old fashion “log counter”.



It is therefore suggested that we look at the possibility of using hpr-message for registering some kind of code per stem that for example could be used for indicating that a certain stem was cut in order to leave a high stump (3-4 meter above the ground).

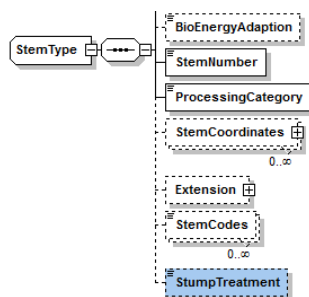


The idea is that these numeric codes (nonNegativeInteger) could be used for any kind of user defined information connected to a stem. For example that stems cut in order to leave a high stump is given code “1”.

It was decided to postpone this issue. Skogforsk will analyse the needs of such a element and how the forest company/ operator in that case shall work to register the data. An alternative can be to use GIS applications or User defined data instead.

Stump treatment

A different issue is the possibility to register if some kind of stump treatment with fungicides was used after felling or not. This is information that is more straight forward to standardize since it is “true or false” and can be registered automatically.



It was decided to postpone this issue until there is a strong need from the users..

§ 17 Information material regarding StanForD2010

Johan presented the latest versions of brochures that hopefully will be completed after the summer. Skogforsk like to have comments of the draft material latest 15th of May.

§ 18 Updating old standard

Meeting discussed about updating the old standard and the length of the change period between the old and new the standard. It was decided to keep the old standard open until at least the next meeting in November 2012.

§ 19 Updates old StanForD

NEW SCALE CONTROL VARIABLES

Suggestion from Teemu Paldanius, Ponsse, 2012-04-02.

The issue of including random scale controls in fqc-files (StanForD2010) was discussed and decided at the meeting 2011-11-09. However, it was not discussed whether to include this kind of control data also in the prl-file. It was decided to add the following new prl-variables for registering random control of scales using normal logs with priority 3 in prl-files:

Var	Type	Data type	Unit	Description
62	1	Integer	No	Number of random weight scaling per no of random weight scaling assortment/species/operator. 1...var116_t1/1...var111_t1/1...var211_t2
	2	Integer	No	Position of random weight scaling per /assortment/species/operator. 1...var62_t1/1...var116_t1/1...var111_t1/1...var211_t2 Codes: 0= to the left side of the load space, 1= to the right side of the load space
	3	string	Yyyymmdd hhmmss	Date and time of random weight scaling per /assortment/species/operator. 1...var62_t1/1...var116_t1/1...var111_t1/1...var211_t2
	4	Integer	Kg	Static lifts of random weight scaling per no of random weight scaling / assortment /species/operator. 1...var62_t1/1...var116_t1/1...var111_t1/1...var211_t2
	5	Integer	Kg	Dynamic lifts of random weight scaling per no of random weight scaling / assortment /species/operator. 1...var62_t1/1...var116_t1/1...var111_t1/1...var211_t2

PRI VOLUME FOR MTH FELLED

Question from Joonas Kaarnametsa, 2012-02-27

In PRI file, the volume for MTH felled stems is supposed to be listed in var266t3 code 730.

However, the unit of this value cannot be found in the appendix, and assuming that it's m3, there's no decimal part specified.

It was decided that the unit for code 730 in var266_t3 should be in dl since both Ponsse and Komatsu had already implemented this volume unit..

§ 20 Other issues

No other issues

§ 21 Next meetings

2012-09-27 Phone meeting at 09:00 CET.

2012-10-03 Possible seminar for StanForD2010 test at Skogforsk.

2012-11-14 Regular StanForD meeting in Uppsala .

§ 22 End of meeting

Johan thanked everyone for their participation.

User defined data within StanForD2010

Background

The proposals in this document are based on suggestions from Peter Assarsson, Komatsu.

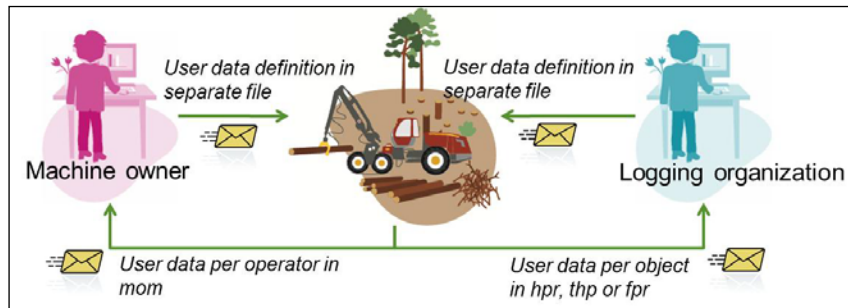
A new message called invoice specification used for registering extra work and material was discussed during 2011. The main objective of this message was to make it possible to register events inside or outside forest machines that are to be included when machine owner is invoicing logging organization. Today this is often solved either by having the operator writing on a piece of paper or in an excel-sheet. A large number of other examples where excel-sheets are used for registering relevant information in forest machines could probably be found out in the “real world”.

A problem with standardizing this type of information is that the needs probably vary significantly between different organizations and markets. An example might be trying to compile a list of different work categories. Below follows a possible list of such extra work categories:

Harvesting	MachinePlanting	MachineTransfer
SpecialHarvesting	YoungStandTreatment	RoadMaintenance
ManualHarvesting	StandInventory	ControlMeasurement
Forwarding	UndergrowthCleaning	WorkSitePlanning
ExtendedForwarding	StumpTreatment	ControlOfWorkQuality
SpecialForwarding	ProcessingOfLoggingResidues	OtherMachineWork
SitePreparation	CoveringOfEnergyWood	OtherManualWork

It would be an advantage if we could find a flexible solution for both sending instructions and reporting user defined data from forest machines.

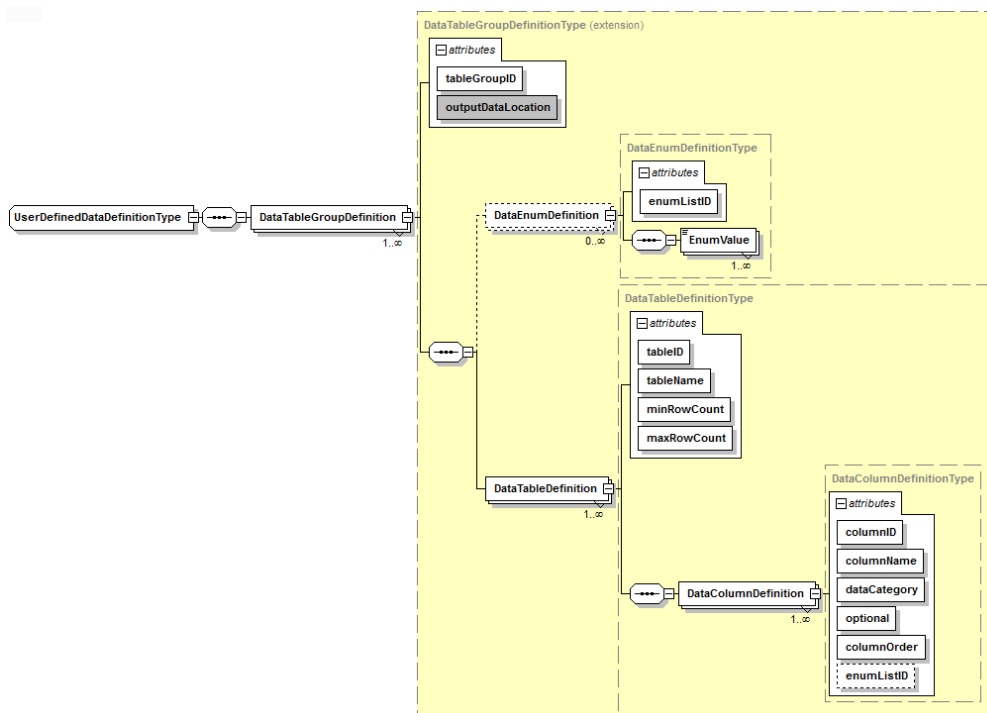
The figure below illustrates a possible solution for how instructions could be sent to a machine from either forest machine owner or logging organization and then returned together within a StanForD message.



The basic idea is to make it possible to define tables that the operator can use in the machine to manually register data relevant for logging organization or machine owner.

Input / Instruction

Below is a suggested schema describing what the structure of an instruction should look like:



DataTableGroupDefinition.

This structure is comparable with a database or an “excel work book” to be reported in a single way.

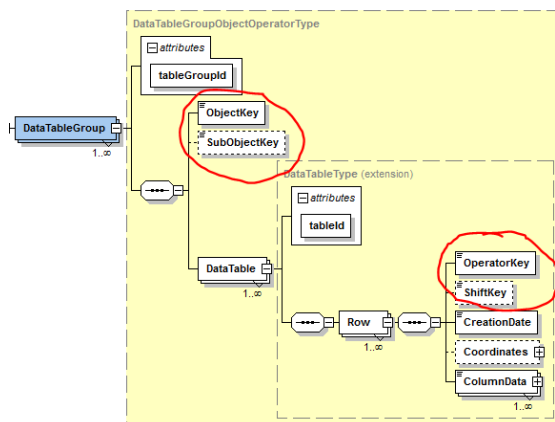
DataTableGroupDefinition is repeatable. If for example the machine owner needs information from the "Down time" and information specific for the harvesting object. This requires that there are possibilities to add many

DataTableGroupDefinitions. The idea is that for every DataTableGroupDefinition there will be a new "tab" in the dialog.

outputDataLocation

Attribute **outputDataLocation** points to where the user defined data should be registered and then reported. The following enumerations are suggested:

- *Production*, information is stored per operator and object in hpr, thp and fpr files (OperatorKey in illustration below is used).
- *Monitoring*, information is stored per operator and object in mom files.
- *MonitoringShift*, information is stored per shift, operator and object in mom files (all keys illustrated in figure below). This means that the optional element ShiftKey must be included.



DataTableDefinition.

This structure is comparable with a database table or an “excel work sheet”.

Attributes for DataTableDefinition:

- tableId (mandatory)=string
- tableName (mandatory)=string
- maxRowCount=”1” or “maxint”
- minRowCount=”0” or “1”

DataColumnDefinition

This structure is comparable with fields in a database table or columns in an “excel-sheet”.

Attributes for DataColumnDefinition:

- columnId (mandatory)=string
- columnName (mandatory)=string
- dataCategory (mandatory) =”enum”, “string”, “integer” or “decimal”
- optional (mandatory) =”false” or “true”
- columnOrder (mandatory)
- enumListId (optional) = for example "UnitList", refers to a DataEnumDefinition (see also next section)

DataEnumDefinition

This structure includes enumeration lists to be used in the machine. Attribute `enumListId` identifies the enumeration list to be used

XML example

Example of xml-file with instruction for how to report user defined data (observe that `columnOrder` is excluded):

```
<UserDefinedDataInstruction diameterUnit="mm" messageType="udi" volumeUnit="m3" areaUnit="ha" lengthUnit="cm" version="1.0" weightUnit="kg"
xsi:schemaLocation="urn:skogforsk:stanford2010 UserDefinedDataInstruction_V2p1_120131.xsd" xmlns="urn:skogforsk:stanford2010"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <UserDefinedDataInstructionHeader>
    <SenderApplication>String</SenderApplication>
    <CreationDate>2011-09-23T10:27:48+02:00</CreationDate>
    <ModificationDate>2011-09-23T10:27:48+02:00</ModificationDate>
    <ApplicationVersionCreated>String</ApplicationVersionCreated>
    <ApplicationVersionModified>String</ApplicationVersionModified>
    <CountryCode>String</CountryCode>
  </UserDefinedDataInstructionHeader>
  <UserDefinedDataDefinition>
    <DataTableGroupDefinition outputDataLocation="Monitoring" tableGroupID=" Basics for invoicing">
      <DataEnumDefinition enumListID="BasicsList">
        <EnumValue>Ordered by forest company</EnumValue>
        <EnumValue>Ordered by forest owner</EnumValue>
      </DataEnumDefinition>
      <DataEnumDefinition enumListID="ExtraList">
        <EnumValue>Harvesting (normal harvesting)</EnumValue>
        <EnumValue>SpecialHarvesting</EnumValue>
        <EnumValue>ManualHarvesting</EnumValue>
        <EnumValue>Forwarding (normal forwarding)</EnumValue>
        <EnumValue>ExtendedForwarding</EnumValue>
        <EnumValue>SpecialForwarding</EnumValue>
        <EnumValue>SitePreparation, divided according to method</EnumValue>
        <EnumValue>MachinePlanting</EnumValue>
        <EnumValue>YoungStandTreatment pre-commercial thinning </EnumValue>
        <EnumValue>StandInventory (manual measurements)</EnumValue>
        <EnumValue>UndergrowthCleaning</EnumValue>
        <EnumValue>StumpTreatment</EnumValue>
        <EnumValue>ProcessingOfLoggingResidues</EnumValue>
        <EnumValue>CoveringOfEnergyWood</EnumValue>
        <EnumValue>Machine Transfer</EnumValue>
        <EnumValue>RoadMaintenance</EnumValue>
        <EnumValue>ControlMeasurement</EnumValue>
        <EnumValue>WorkSitePlanning</EnumValue>
        <EnumValue>ControlOfWorkQuality</EnumValue>
        <EnumValue>OtherMachineWork</EnumValue>
        <EnumValue>OtherManualWork</EnumValue>
      </DataEnumDefinition>
      <DataEnumDefinition enumListID="UnitList">
        <EnumValue>kr</EnumValue>
        <EnumValue>Kg</EnumValue>
        <EnumValue>Litre</EnumValue>
        <EnumValue>m3</EnumValue>
        <EnumValue>ha</EnumValue>
      </DataEnumDefinition>
      <DataEnumDefinition enumListID="ExtraWorkMaterialList">
        <EnumValue>Beer</EnumValue>
        <EnumValue>Wiskey</EnumValue>
        <EnumValue>Paper</EnumValue>
        <EnumValue>Fungicide</EnumValue>
        <EnumValue>Paint</EnumValue>
      </DataEnumDefinition>
      <DataTableDefinition tableName="Customer" tableID="Customer" maxRowCount="1" minRowCount="1">
        <DataColumnDefinition columnName="Customer id" columnID="Customer id" dataCategory="integer" optional="false"/>
        <DataColumnDefinition columnName="Name" columnID="Name" dataCategory="string" optional="true"/>
      </DataTableDefinition>
    </DataTableGroupDefinition>
  </UserDefinedDataDefinition>
</UserDefinedDataInstruction>
```

```

<DataTableDefinition tableName="Extra work" tableID="Extra work" maxRowCount="99999" minRowCount="0">
  <DataColumnDefinition columnName="Type of work" columnID="TypeWork" dataCategory="enum" optional="false" enumListID="ExtraList"/>
  <DataColumnDefinition columnName="Basic" columnID="BasicInvoic" dataCategory="enum" optional="false" enumListID="BasicsList"/>
  <DataColumnDefinition columnName="Quantity" columnID="Quantity" dataCategory="integer" optional="false"/>
  <DataColumnDefinition columnName="Unit" columnID="Unit" dataCategory="enum" optional="false" enumListID="UnitList"/>
  <DataColumnDefinition columnName="Comment" columnID="Comment" dataCategory="string" optional="true"/>
</DataTableDefinition>
<DataTableDefinition tableName="Invoiced material" tableID="Invoiced material" maxRowCount="99999" minRowCount="0">
  <DataColumnDefinition columnName="Type" columnID="Type" dataCategory="enum" optional="false" enumListID="ExtraWorkMaterialList"/>
  <DataColumnDefinition columnName="Quantity" columnID="Quantity" dataCategory="integer" optional="false"/>
  <DataColumnDefinition columnName="Unit" columnID="Unit" dataCategory="enum" optional="false" enumListID="UnitList"/>
  <DataColumnDefinition columnName="Comment" columnID="Comment" dataCategory="string" optional="true"/>
</DataTableDefinition>
</DataTableGroupDefinition>
<DataTableGroupDefinition outputDataLocation="Production" tableGroupID="Follow-up harvesting">
  <DataEnumDefinition enumListID="Species">
    <EnumValue>Pine</EnumValue>
    <EnumValue>Spruce</EnumValue>
    <EnumValue>Other broadleaves</EnumValue>
    <EnumValue>Birch</EnumValue>
  </DataEnumDefinition>
  <DataTableDefinition tableName="High stumps" tableID="High stumps" maxRowCount="99999" minRowCount="0">
    <DataColumnDefinition columnName="Species" columnID="Species" dataCategory="enum" optional="false" enumListID="Species"/>
    <DataColumnDefinition columnName="NoOfStems" columnID="NoOfStems" dataCategory="integer" optional="false"/>
    <DataColumnDefinition columnName="Coordinate" columnID="Coordinate" dataCategory="string" optional="true"/>
  </DataTableDefinition>
  <DataTableDefinition tableName="Eternal trees" tableID="Eternal trees" maxRowCount="99999" minRowCount="0">
    <DataColumnDefinition columnName="Species" columnID="Species" dataCategory="enum" optional="false" enumListID="Species"/>
    <DataColumnDefinition columnName="NoOfStems" columnID="NoOfStems" dataCategory="integer" optional="false"/>
    <DataColumnDefinition columnName="Coordinate" columnID="Coordinate" dataCategory="string" optional="true"/>
  </DataTableDefinition>
</DataTableGroupDefinition>
</UserDefinedDataDefinition>
</UserDefinedDataInstruction>

```

User interface example

The instruction described above could render the following GUI.

First table:

InvoiceSpecification			
InvoicedParty		ExtraWorkEvent	InvoicedMaterial
OperatorKey / Date	CustomerId	Name	

Second table:

InvoiceSpecification					
InvoicedParty		ExtraWorkEvent	InvoicedMaterial		
OperatorKey / Date	ExtraWorkCategory	BasicsForInvoicingTheWork	Quantity	Unit	Comment

Third table:

InvoiceSpecification					
InvoicedParty		ExtraWorkEvent	InvoicedMaterial		
OperatorKey / Date	Type	Quantity	Unit	Comment	

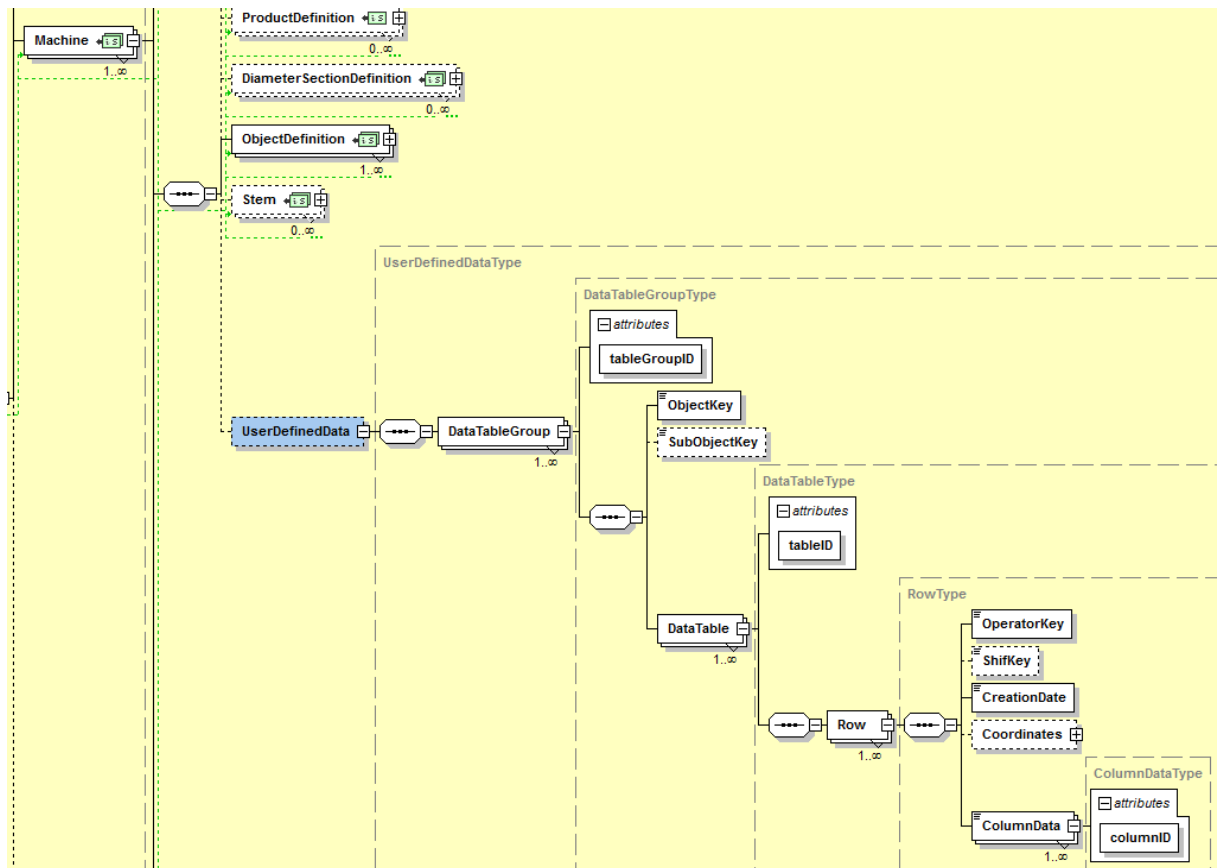
Enumeration list for column “Type” in third table:

y ExtraWorkEvent		InvoicedMaterial	
/ Date	Type	Quantity	U
10:36:44.23	ExtendedForwarding		
	ExtendedForwarding		
	SpecialForwarding		
	SitePreparation, divided ac		
	MachinePlanting		
	YoungStandTreatment pr		
	StandInventory (manual me		
	UndergrowthCleaning		
	StumpTreatment		
	ProcessingOfLoggingResid		
	CoveringOfEnergyWood		
	MachineTransfer		
	RoadMaintenance		
	ControlMeasurement		

Output / Report

The data is validated according to the definition before the file is created. This means that all mandatory fields have to be filled in.

Below is a suggested schema structure for reporting user defined data from the machine, always included under Machine in mom, fpr, hpr or thp:



XML example

This is an example of the output file (all production data and some machine, object and operator information is excluded):

```

<UserDefinedDataMessage xsi:schemaLocation="urn:skogforsk:stanford2010:1 TotalHarvestedProduction_V2p0.xsd"
xmlns="urn:skogforsk:stanford2010" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

  <HarvestedProduction diameterUnit="mm" messageType="hpr" volumeUnit="m3" areaUnit="ha" lengthUnit="cm" version="2.1"
weightUnit="kg" xsi:schemaLocation="urn:skogforsk:stanford2010 HarvestedProduction_V2p1.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:sfd="urn:skogforsk:stanford2010">
    <HarvestedProductionHeader>
        <CreationDate>2011-09-23T10:27:48+02:00</CreationDate>
        <ModificationDate>2011-10-04T15:01:50.080+02:00</ModificationDate>
    </HarvestedProductionHeader>
    <MachineDefinition machineCategory="Harvester">
        <MachineKey>12389</MachineKey>
        <MachineUserID>Machine 121</MachineUserID>
        <OperatorDefinition>
            <OperatorKey>2</OperatorKey>
            <OperatorUserID>String</OperatorUserID>
            <ContactInformation>
                <FirstName>Daniel</FirstName>
                <LastName>Smith</LastName>
            </ContactInformation>
        </OperatorDefinition>
    <ObjectDef>
        <ObjectUserID agency="LoggingOrganization">String</ObjectUserID>
        <ObjectName>String</ObjectName>
        <ContractNumber ContractCategory="String">String</ContractNumber>
        <RealEstateIDObject agency="LoggingOrganization">String</RealEstateIDObject>
        <ObjectKey>2</ObjectKey>
        <StartDate>2011-09-23T10:27:48+02:00</StartDate>
    </ObjectDef>
    <DataTableGroup tableGroupID="InvoiceSpecifiacion">
        <ObjectKey>54535</ObjectKey>
        <DataTable tableID="InvoicedParty">
            <Row>
                <OperatorKey>3</OperatorKey>
                <CreationDate>2001-12-17T09:30:47Z</CreationDate>
                <ColumnData columnID="CustomerId">35643</ColumnData>
                <ColumnData columnID="Name">BigForest Lmted</ColumnData>
            </Row>
        </DataTable>
        <DataTable tableID="ExtraWorkEvent">
            <Row>
                <OperatorKey>3</OperatorKey>
                <CreationDate>2001-12-17T09:30:47Z</CreationDate>
                <ColumnData columnID="ExtraWorkCategory">YoungStandTreatment</ColumnData>
                <ColumnData columnID="BasicsForInvoicingTheWork">Ordered by forest owner</ColumnData>
                <ColumnData columnID="Quantity">26</ColumnData>
                <ColumnData columnID="Unit">hours</ColumnData>
                <ColumnData columnID="Comment">This is a test of invoice extrawork in UserDefinedData</ColumnData>
            </Row>
            <Row>
                <OperatorKey>3</OperatorKey>
                <CreationDate>2001-12-17T09:30:47Z</CreationDate>
                <ColumnData columnID="ExtraWorkCategory">StandInventory</ColumnData>
                <ColumnData columnID="BasicsForInvoicingTheWork">Ordered by logging company</ColumnData>
                <ColumnData columnID="Quantity">4</ColumnData>
                <ColumnData columnID="Unit">hours</ColumnData>
            </Row>
            <Row>
                <OperatorKey>3</OperatorKey>
                <CreationDate>2001-12-17T09:30:47Z</CreationDate>
                <ColumnData columnID="ExtraWorkCategory">StandInventory</ColumnData>
                <ColumnData columnID="BasicsForInvoicingTheWork">Ordered by logging company</ColumnData>
                <ColumnData columnID="Quantity">4.5</ColumnData>
                <ColumnData columnID="Unit">ha</ColumnData>
            </Row>
        </DataTable>
        <DataTable tableID="InvoicedMaterial">
            <Row>
                <OperatorKey>3</OperatorKey>
                <CreationDate>2001-12-17T09:30:47Z</CreationDate>
            </Row>
        </DataTable>
    </HarvestedProduction>
</UserDefinedDataMessage>

```

```

        <ColumnData columnName="Type">ManualHarvesting</ColumnData>
        <ColumnData columnName="Quantity">60</ColumnData>
        <ColumnData columnName="Unit">m3</ColumnData>
    </Row>
    <Row>
        <OperatorKey>3</OperatorKey>
        <CreationDate>2001-12-17T09:30:47Z</CreationDate>
        <ColumnData columnName="Type">SitePreparation, divided according to method</ColumnData>
        <ColumnData columnName="Quantity">0.5</ColumnData>
        <ColumnData columnName="Unit">ha</ColumnData>
    </Row>
</DataTable>
</DataTableGroup>
</MachineDefinition>
</UserDefinedDataMessage>

```

User interface example

The instruction described above could be illustrated through the following GUI example.

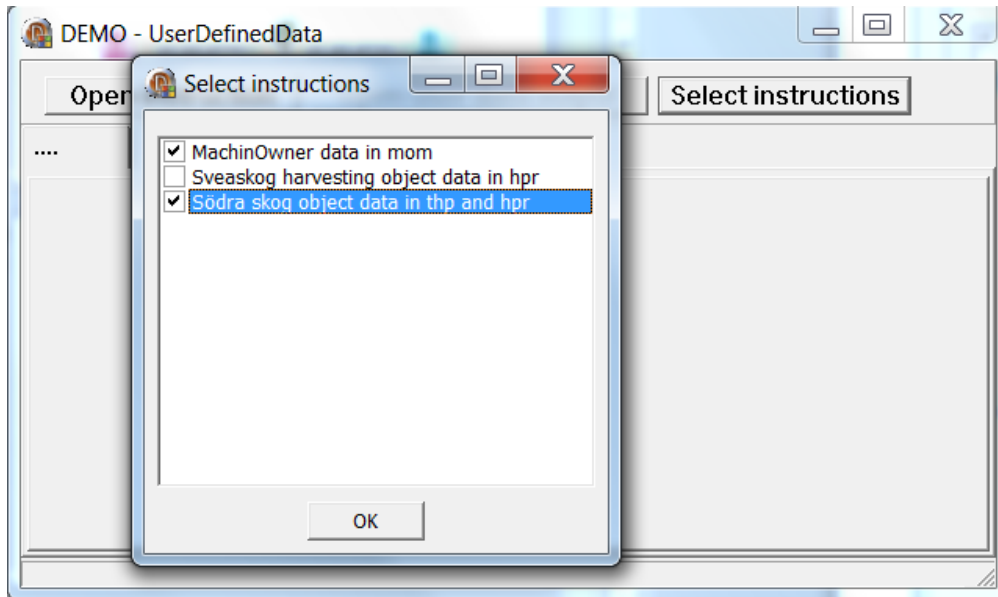
InvoiceSpecification			
InvoicedParty	ExtraWorkEvent	InvoicedMaterial	
OperatorKey / Date	CustomerId	Name	
31/2001-12-17T09:30:47Z	35643	BigForest Lmted	

InvoiceSpecification					
InvoicedParty	ExtraWorkEvent	InvoicedMaterial			
OperatorKey / Date	ExtraWorkCategory	BasicsForInvoicingTheWork	Quantity	Unit	Comment
31/2001-12-17T09:30:47Z	YoungStandTreatment	Ordered by forest owner	26	hours	This is a test of invoice extrawork
31/2001-12-17T09:30:47Z	StandInventory	Ordered by logging company	4	hours	
31/2001-12-17T09:30:47Z	StandInventory	Ordered by logging company	4.5	ha	

InvoiceSpecification				
InvoicedParty	ExtraWorkEvent	InvoicedMaterial		
OperatorKey / Date	Type	Quantity	Unit	Comment
31/2001-12-17T09:30:47Z	ManualHarvesting	60	m3	Many XXL spruces
31/2001-12-17T09:30:47Z	SitePreparation, divided according to method	0.5	ha	

Managing different instructions in machines

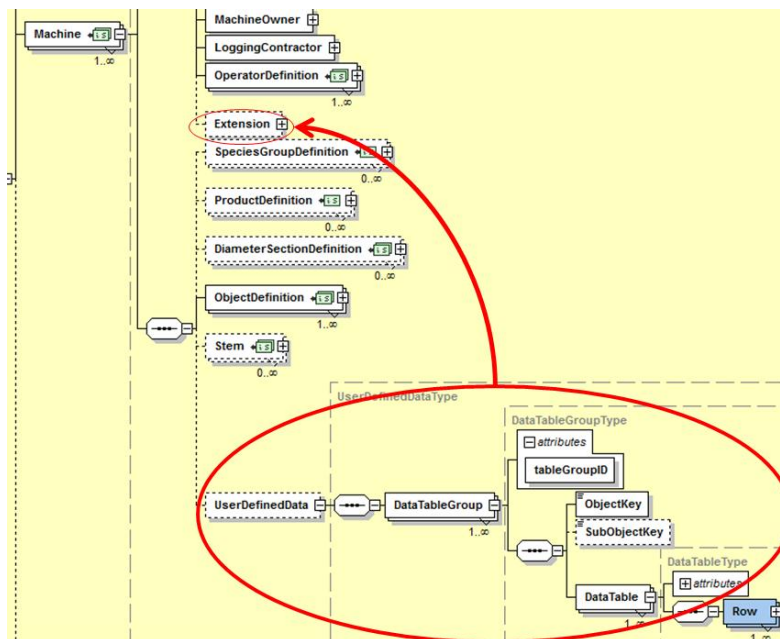
A machine may very well receive instructions from several different organizations. A simple solution for handling different instructions could be that the operator manually selects what instructions to use when starting at a harvesting object:



Operator manually deletes old instructions not be used anymore.

Other issues

The “Extension” element under element “Machine” could be used if some manufacturer wants to test adding the output into mom, thp, hpr or fpr before we have had time to update the standard to version 2.1.





John Arlinger

30 January 2012

Rules random selection

StanForD today includes three methods of random sampling of control stems. These sampling methods are:

- Number of stems (control stem per total number of stems)
- Time (control stem per machine hour)
- Volume (control stem per m3sob)

Today all harvesters can sample based on number of stems. The other methods have been implemented only by some manufacturers. These different sampling methods have so far not been clearly defined which means that the implementations vary between the different manufacturers.

The objective of this document is to define how the random sampling is to be done.

It is today required in both Sweden and Finland that one control stem is randomly selected per shift or per work day. The Finnish statute also includes a requirement that there should never be more than three workdays between the sampling of control stems.

The need for a stricter definition of sampling based on time was raised by Metsäteho at the StanForD meeting 2010-11-05 and it has been subsequently discussed at different StanForD meetings after that date.

The basic objectives of implementing random selection of control stems are that:

- Control stems as a whole must be representative of all relevant harvested stems.
This means that also an abnormal stem can be a control stem, a control stem does not have to be an “average” stem.
- Operator should not be able to predict control stems

However a totally independent random selection is difficult, if not impossible, to achieve as long as:

- We allow manual rejection of control stem by operator
- We require on an average one stem per shift or day

The probability of selecting a certain stem must vary over time if we allow rejections and have a requirement on the average number of stems per day.

The issue of improving the definition of random selection of control stems based on time was discussed extensively during 2011. However no decision could be reached when two different proposed algorithms were discussed at the StanForD meeting 2011-11-09.

The meeting decided to not define any standardized algorithm for random selection. Instead it was suggested with the minutes that the requirements described below should be followed when updating the random selection of stems based on time as well as number of stems and volume. This means that each manufacturer can implement randomization functions in any way they want as long as the following requirements are fulfilled.

General requirements for all types of randomization

- Operator MUST never be able to predict if the next stem is to be a control stem or not.
- It MUST be possible for all relevant stems to be randomly selected as control stems.
- Control stems MUST be representative for all relevant harvested stems. This means that also an abnormal stem can be a control stem, a control stem does not have to be an “average” stem.
- The setting in the machine MUST be so that the operator sets the average time (volume or no of stems) difference between randomly selected control stems.
It should e.g. be possible to set that it should be on an average 8 work hours between sample trees when harvesting.
- Number of randomly selected stems MUST remain constant per time unit (or volume or number of stems) even if we have e.g. 25% of the trees belong to a species not to be sampled (in Sweden for example aspen).
- Number of randomly selected stems MUST remain constant per time unit (or volume or number of stems) even if we have e.g. 33% small trees (for example DBH<18 cm, normal case in Sweden).
- Number of randomly selected stems MUST remain constant even if stems are manually rejected by operator.
- One single frequency setting for all species and operators MUST be implemented.
- It MUST be possible to activate or de-activate an individual species (SpeciesGroup).
- It MUST NOT be possible to de-activate an individual operator.
- It MUST be simple to set correct frequency in the machine.

- Randomization function MUST be considered to be turned off if settings RandomStartTime and RandomEndTime are in use, means that no stems are to be randomly selected in between these two times. This means that the total number of randomly selected stems is to be decreased if these settings are in use.

Example

The average number of random control stems per 24 hours will be 1.5 if the machine is working 24 hours per day and the following settings are in use:

Frequency	1 stem per 8 hours
RandomEndTime	18:00
RandomStartTime	06:00

- It is an advantage if the random sampling is balanced (not too long time in between sampling), eg in order to decreased risk for auditor traveling to an “empty site” with no randomly selected stems

Requirements for randomization based on time

- The time MUST be defined as the total logged in time for all operators when function for randomization is turned on. This means that we can control the outcome by dividing the number of control stems with the total time that operators have been logged into the computer. This could for example be done by analysing all hqc-files for a month and the times registered in the mom files covering the same period of time if the system has not been turned off during this month. Observe that times between RandomStartTime and RandomEndTime are to be totally excluded.
- Time sampling MUST, in other words, be based on “bucking software time” which means that it is activated when operator logs in bucking application and deactivated when operator logs out of bucking application and the randomization system is turned on.

Example

Number of randomly selected stems MUST decrease with 50% if the operators work shorter days, e.g. 4 h instead of “normal” 8 h.

- Number of randomly selected stems MUST not be affected by the number of down times.